Terms of Reference

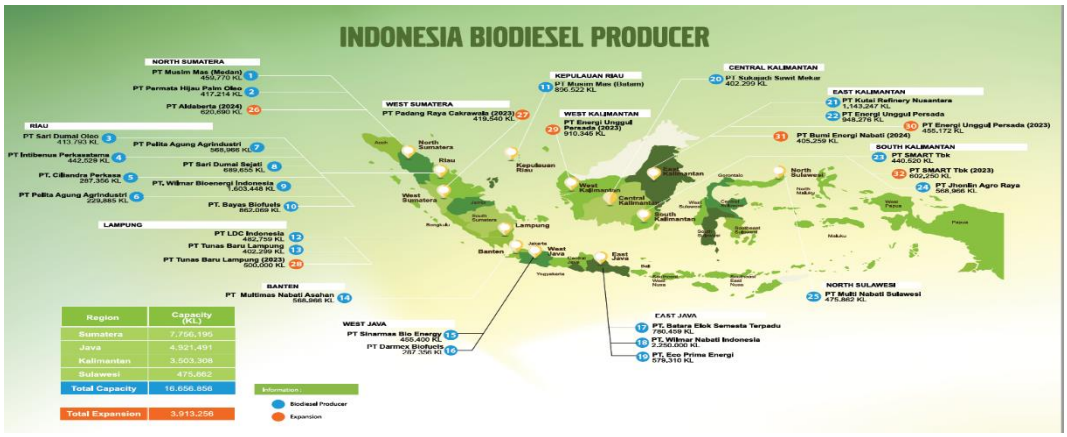
Study on Palm Oil Biofuels Footprint in Indonesia

1. Background

Indonesia has long been dependent on fossil-fuel energy, but over time it has been looking for alternative sources of energy because of shrinking oil reserves. It started biofuel development through Presidential Regulation No. 5/2006 due to increasing price of petroleum and increasing fuel import as domestic crude production plummeted. This biofuel utilization was part of energy diversification based on the 2006 National Energy Policy. It targeted 5% biofuel usage in the total primary energy by 2025. However, the target has been revised several times with the latest 30% biodiesel and 20% bioethanol for diesel oil and gasoline by 2025 based on MEMR Regulation no. 12/2015. This target was in line with government ambition for B100, with the milestone B20 in 2019, and B30 program in 2020. Currently the trial for B35/B40 still on going and it expected to have a good result for implementation by 2023.

As one of the biggest energy consumers in the world, the energy sector account for almost 35% of the total greenhouse gas (GHG) emissions. Indonesia already set 29% reduction of GHG emission and 41% with international assistance by 2030 in the Nationally Determined Contribution (NDC). New and renewable energy will be one of key element to achieve this target. Bioenergy as renewable energy sources will account nearly 51% of Indonesia's total energy consumption by 2030 to meet the NDC targets.

Those targets will increase demand on biofuels/biodiesel sources mainly palm oil. Based on Indonesia Biodiesel Producer Association currently there are 35 refineries with total capacity 20.5 M kL located in Sumatra, Jawa, Kalimantan and Sulawesi[i]. This expansion of biodiesel producers supported by Indonesia government through several policies to make this industry attractive.



The CPO supply for biodiesel could come from oil palm plantation and mill all over Indonesia from Sumatra to Papua with total plantation was 16.3 million ha in 2021 and estimate production 53.7 MT CPO by end of 2022. The consumption of crude palm oil (CPO) for biodiesel increases 400% in five years with only 2.2 MT in 2017, become 8.8 MT by end of 2022.

To supply 8.8 MT CPO for the biodiesel, at least around 2 million ha oil palm plantation needed. The number will be much higher if the supply come from smallholder with low productivity. The ambition to increase CPO content in the biodiesel to 35 even 100% will trigger the demand on land for plantation development. This demand if did not manage properly will lead to unintended consequences like deforestation, destruction of high conservation value (HCV), encroachment of natural reserve, displacement indigenous and local people, social conflict etc.

Yayasan Konservasi Alam Nusantara (YKAN) as a conservation organization have a deep concern over rapid expansion of palm oil across Indonesia especially in forested and high conservation value (HCV) areas due to this biofuel programmed. Since 2015, YKAN already worked with Government of East Kalimantan to protect almost half a million ha of HCV areas from oil palm development. This approach using combination of HCV and Development by Design (DbD) as a tool to determine the areas should be protected and areas that could be develop for oil palm.

2. Objective

The main purpose of this study is to track oil palm sources for biodiesel program in Indonesia with focus on its current supply chain. Specifically, the study aims to identify the key areas (district/province) of biofuels sourcing and prediction of further development of oil palm expansion to provide raw material.

3. Outputs

The main outputs for this proposed activity are:

- Report mapping current palm oil biodiesel footprint in Indonesia to province/district level

4. Scope of Work

a. The study will track and evaluate supply chain of all biodiesel producers in Indonesia
b. The study will map the flow of biodiesel from refineries to CPO Mill and/or its source location.
c. The study will be conducted with collaboration with internal YKAN team both for methods and resources.

5. Methodology

This study will conduct using a combination of desk-based research and fieldwork, including interviews with key stakeholders and site visits if required. The study will involve the mapping of the biofuel supply chain from refineries to CPO mills/source location.

6. Deliverables and Timeline

No	Activity and Sub-Activity	Deliverables	Deadline
1	Desk study and collection of all relevant data and information.	A comprehensive list of cross-reference and literature review including geospatial data and analysis	28 February 2023
1.1	Literature, reference, data and information collection		
1.2	Geospatial data collection and analysis		
2	Analysis of biodiesel supply chain	Supply flow analysis & maps	15 March 2023
2.1	Supply flow analysis		
2.2	Mapping of sourcing location		
3.	Drafting	Draft of report	15 March 2023
3.1	Report drafting process		
3.2	Table, chart and maps preparation		
4	Final report	Report and all supporting documents	30 March 2023
4.1	Final Editing		
4.2	Translation		

7. Budget

The budget for this short-term study is US $25.000. This includes the cost of desk research, field work, analysis, report writing and translation.

8. Requirements

a. The consultant or team undertaking the study should have relevant expertise in the field of biofuel sustainability and supply chain including a background in environment science, sociology, or economics
b. The consultant or team should have experience conducting research in Indonesia and be proficient in both English and Bahasa Indonesia.
c. Experience working with international organization in program/project.
d. Proven track of good writing skills and ability to produce report and maps.

8. Application Procedure

Interested consultant or team should send their curriculum vitae and or company profile, full proposal and financial proposal to yohanes.ryan@ykan.or.id and cc musnanda@ykan.or.id. The deadline for this proposal is 15 January 2023 by COB. Only shortlisted applicant will be contacted.

[i] PETA UNTUK WEB (aprobi.or.id)