

Pantau Gambut is a non-governmental organization that networks in nine provinces which focuses on research and advocacy, and campaigns for the peatland protection and sustainability in Indonesia.

Chapter 2: Updates After Two Years on the Central Kalimantan Food Estate Project.

In Chapter 2, Pantau Gambut updated the spatial analysis using data up to October 2022 to monitor the distribution of villages that have experienced the loss of forest cover within the no-go zone area. In addition, the analysis in this series will show the results of field visits conducted by Pantau Gambut's partners and networks.

Update on the Loss of Tree Cover in Three Regencies

In the previous report, Chapter I: Food Estate Project in Central Kalimantan After Two Years, Pantau Gambut analysed the loss of forest cover in Pulang Pisau Regency, Kapuas Regency, and Gunung Mas Regency. This analysis used GLAD Alert data from Global Forest Watch (GFW) up to March 2022. In this Chapter II report, Pantau Gambut updated the study using data up to October 2022 to monitor the distribution of villages that experienced the loss of tree cover within the no-go zone. In addition, this second series of analyses will show the results of field visits conducted by Pantau Gambut's partners and networks.

The no-go zone is the result of the World Resources Institute's (WRI) analysis in mapping indicative areas that should be protected, so this area needs to be avoided for Food Estate development (FE)¹. The determination of this area is based on three criteria: peatland with medium to very deep depth (> 1 meter); vegetated peatland, both primary and secondary forests; and areas with protected status.

The updated analysis in the Chapter II report covers 10 villages (Table 1) with the widest indication of tree cover loss for further verification using satellite imagery. As a result, two villages in Pulang Pisau Regency, namely Pilang and Jabiren, were found to be within the no-go zone but were included in the FE's planned rice field expansion area.

Table 1. Ten villages with the widest indication of tree cover loss in Pulang Pisau, Kapuas, and Gunung Mas Regencies from January 2022 to October 2022 (Data Source: GLAD Alert University of Maryland and RADD Alert Wageningen University and Research)

Regency	Village	Width (ha)
Kapuas	Humbang Raya	459
Gunung Mas	Pilang Munduk	213
Gunung Mas	Tumbang Jalemu	192
Pulang Pisau	Pilang	137
Gunung Mas	Tanjung Untung	135
Pulang Pisau	Jabiren	96
Gunung Mas	Talangkah	86

¹ <https://www.ekuatorial.com/2022/01/ugal-ugalan-lumbang-pangan/>

Gunung Mas	Parempai	77
Gunung Mas	Tumbang Kajuei	77
Pulang Pisau	Kantan Atas	74

The verification of satellite imagery in both villages showed changes in land cover, forming a plantation/farm pattern within the no-go zone. In Pilang village, a new pattern emerged above the secondary swamp forest. Meanwhile, in Jabiren village, a new pattern also emerged in the peatland-protected forest with a depth of 2-3 meters. With this condition, clear violations have occurred because forest clearing should not have occurred in both areas (Figures 1-2).

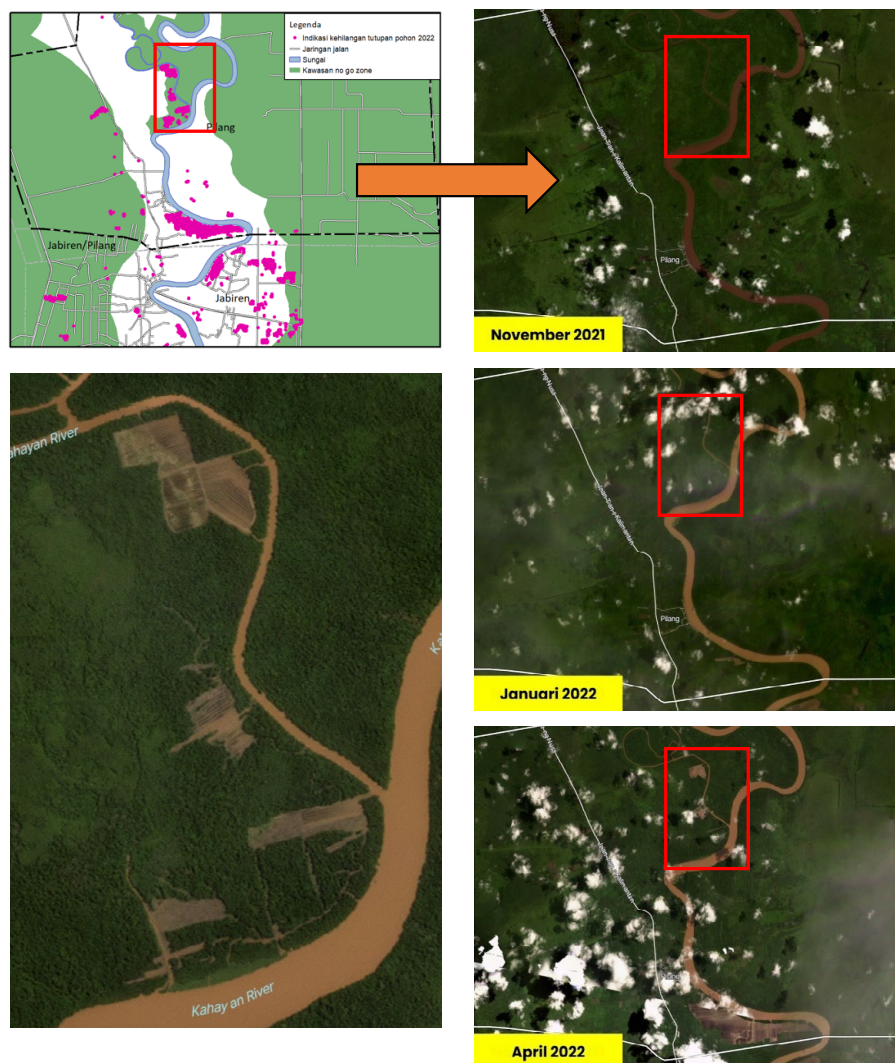


Figure 1. Verification result using Planet satellite imagery in Pilang Village, Pulang Pisau Regency (Source: Pantau Gambut analysis, 2022)

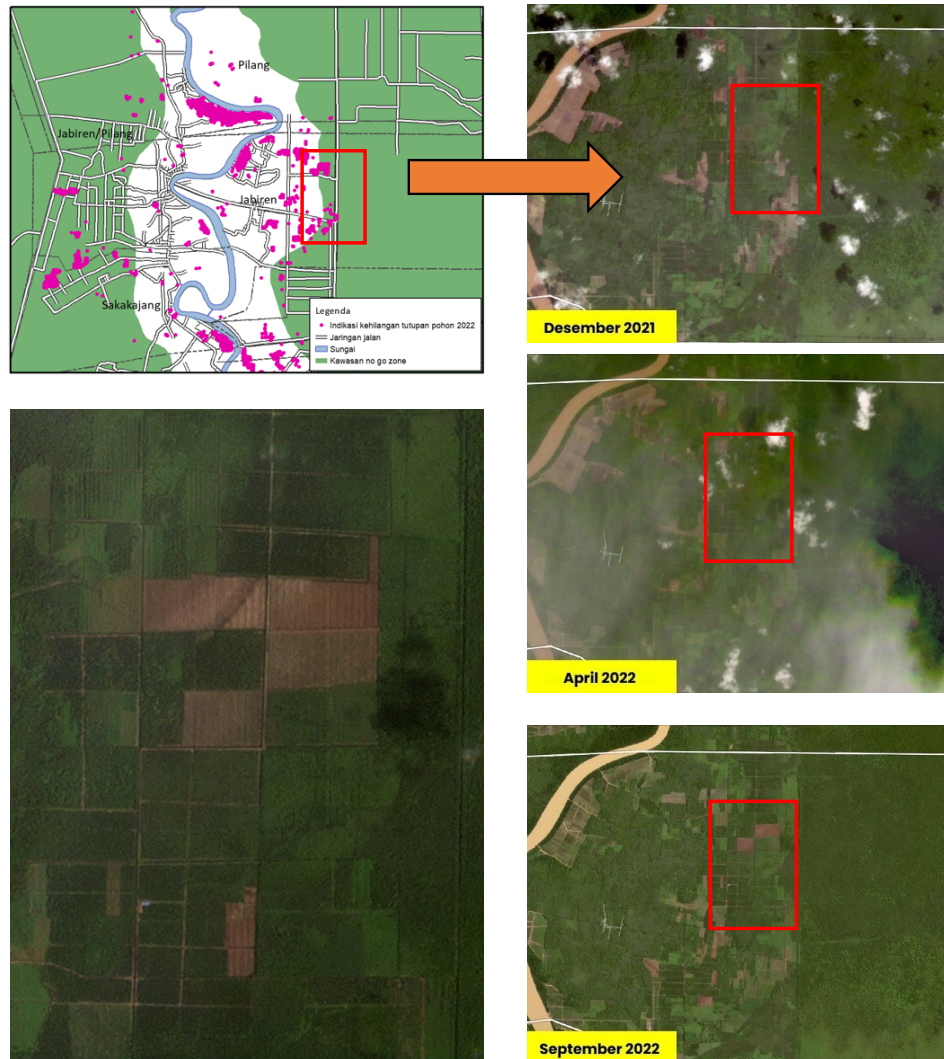


Figure 2. Verification result using Planet satellite imagery in Jabiren Village, Pulang Pisau Regency (Source: Pantau Gambut analysis, 2022)

Field Monitoring Results of Food Estate Implementation in Central Kalimantan

In addition to updating data on the loss of tree cover in the three regencies where the Food Estate is being implemented, this chapter II analysis also highlights other impacts of land clearing by presenting various field evidence related to the lack of preparation and budget mismanagement in the implementation of this ambitious project. WALHI Central Kalimantan, as the Pantau Gambut Network in Central Kalimantan, conducted field verification in March 2022 in several villages such as Mantangai Hulu, Tewai Baru, Lamunti, Talekung Punei, Henda, and Pilang. In addition to WALHI Central Kalimantan, BBC News Indonesia also conducted field verification in February 2023, referring to the initial findings written by Pantau Gambut.

Finding 1: Submersion of Excavator in Peatland

During the satellite imagery check in Mantangai Hulu Village, an area of approximately 237 hectares around the location of the extensification verification point had already been opened (Figure 3). The land conversion was marked by brownish-black colour. However, until 2021, the coverage was still forest, indicated by the green colour. Based on the findings of Food Estate Volume 1 monitoring, land clearing had been carried out since early 2022, where the extensification location was in a peat cultivation area.



Figure 3 (Left). Verification result using Planet satellite imagery in Jabiren Village, Pulang Pisau Regency (Source: Pantau Gambut analysis, 2022). **Figure 4 (Right).** Submerged excavator in peatland (Source: WALHI Kalimantan Tengah, 2022)

The team also found a heavy excavator sinking into the peat soil in the vicinity of the extensification area (Figure 4). According to the Ministry of Agriculture, excavators are intended to accelerate land preparation and processing. However, before the excavator could run 50 meters into the cultivation area, it got sucked into the soil due to the peat soil's characteristics that could not support its weight. This indicates that opening paddy fields in peat soil is complex and cannot be equated with alluvial soil, even during land preparation.

Finding 2: Failure of Harvest Yield

Information was also gathered from six villages used as trial areas for planting rice and cassava. These six villages are Tewai Baru village in Gunung Mas Regency,

Lamunti village, Talekung Punei village, and Mantangai Hulu village in Kapuas Regency, as well as Henda village and Pilang village in Pulang Pisau Regency. Out of all these villages, only Tewai Baru village is located outside the no-go zone.

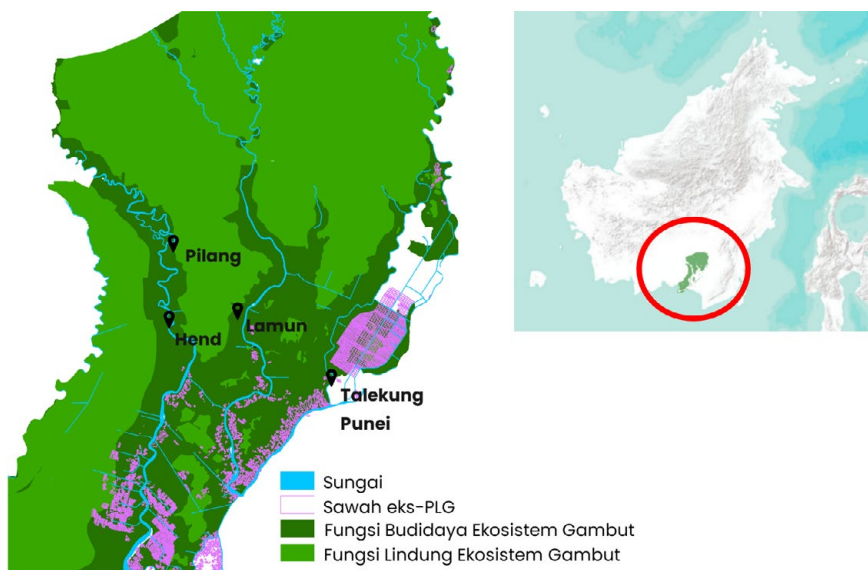


Figure 5. Location of villages within the no-go zone in Central Kalimantan where land clearing has already been carried out (Source: Analisa Pantau Gambut, 2022)

Field information gathering revealed that the trial cultivation of cassava had failed entirely, as there was nothing that could be harvested. In Tewai Baru Village, one-year-old cassava plants were abandoned with thin, short stems that did not even reach one meter.



Figure 6. Cassava tubers resulting from one-year cultivation trial (Source: WALHI Central Kalimantan, 2022)

If the stems were pulled out, there were only two or five small cassava tubers, the size of a finger, which is far different from the common cassava tubers that even resemble human arms. In addition to being small, the cassava tubers produced in this area are yellow in colour, like turmeric and taste bitter (Figures 6 and 7).

According to a study, cassava's bitter taste indicates a high cyanide content. Cassava with

high cyanide content can still be consumed but requires longer processing time. Food processing industries usually utilise this type of cassava to make flour.



Figure 7. Small cassava tubers that grow together with bushes
(Source: BBC News Indonesia, 2023)

There are several explanations regarding the cause of the yellow-coloured cassava tubers. It is because cassava tubers absorb water with pyrite content in peatland. With this condition, Pantau Gambut recommends to conduct laboratory tests to determine what substances are contained in cassava planted in the ex-PLG peatland area. Furthermore, the community must receive socialisation and education regarding the results of these laboratory tests.



Figure 8. Changes in land cover over a period of 3 years in Tewai Baru Village
(Source: Pantau Gambut Analysis, 2023)

In February 2023, BBC News Indonesia and Pantau Gambut's investigation on the cassava plantation site in Tewai Baru Village showed that an area of 600 hectares was left barren. The former mounds of land used for cassava cultivation are almost flat and covered with grass. In addition, seven pieces of heavy equipment, including excavators, were found abandoned and damaged (Figure 9).



Figure 9. An area of 600 hectare cassava plantation which left barren in Tewai Baru Village (Sumber: BBC News Indonesia, 2023)

In addition to the cassava crop failure, the rice planting trial also suffered the same fate. The government-recommended rice planting in the area did not yield any harvest. Local residents around the planting area reported that no harvest to be taken.

The joint investigation by BBC Indonesia and Pantau Gambut in the newly extended paddy fields of Mantangai Hulu Village also revealed surprising results. The former recently ploughed paddy fields have now been overgrown with bushes. The bushes had taken over the abandoned peatland area. In July-August 2021, an excavator was brought in to work on the 17-hectare area to build a boundary embankment for the paddy field. However, after the work was completed, there was no further activity. The aid of seeds, fertiliser, dolomite lime, and herbicides only arrived in March 2022, which were eventually left unused (see Figure 10).



Figure 10. Overgrown bushes in abandoned extensification newly paddy field in Mantangai Hulu Village (Sumber: BBC News Indonesia, 2023)

Dr. Dwi Andreas Santosa, a Professor at the Faculty of Agriculture, Bogor Agricultural University, stated in a meeting with the Civil Organisation Society held by Kaoem Telapak in October 2022 that the ideal rice harvest should produce a minimum of 4

tons/hectare. This statement contrasts with the Ministry of Agriculture's claim that the productivity of paddy field intensification activities in Central Kalimantan reached 3.5 tons of milled rice per hectare in 2021², equivalent to 49,070 tons of milled rice worth IDR 269.93 billion. The Ministry of Agriculture also believes a 4 tons/hectare rice harvest can only be achieved after a three-year planting process³.

Pantau Gambut has been highlighting the threat of crop failure since the emergence of the discourse on rice cultivation as the main commodity in the Food Estate program in Central Kalimantan. Comparing the yields of rice cultivation on peat and mineral soil (Table 2), it can be concluded that rice farming on peatlands has lower productivity than on mineral soil.

Table 2. Paddy yield comparison which planted in peatland and mineral soil

Paddy productivity in peatland (ton/ha)		Paddy productivity in mineral soil (ton/ha)			
Blang Ramee Village, Aceh Barat	Tanjung Jabung Timur Regency, Jambi	Katingan Regency, Kalimantan Tengah	Senduro Village, Lumajang	Banyubiru District, Semarang	Badung Regency, Bali
1,5	2,9	1,9	7,2	7,3	6,2

Note: Table 2 shows the yield of rice cultivation on peat and mineral soil. It should be noted that this comparison only considers the yield of rice cultivation on peat and non-peat soil. Other parameters, such as the type of rice, climate/weather, cultivation techniques, and other rice treatments, are not considered. A comprehensive study by Pantau Gambut regarding the issue of low rice productivity on peatlands can be found in the report published in March 2021.

Finding 3: Mismanagement of The Government Budget

Pantau Gambut found several types of aid that did not significantly benefit the community, despite the considerable allocated funds. First, the aid is in the form of aglime. In Pilang Village, the community could not immediately use the aglime aid provided by the government as the land was deemed unprepared for planting. The incomplete land clearance caused the delay in land preparation carried out by the military. The soldiers assigned to clear the land only felled trees without removing the roots and branches still stuck in the ground. Farmers had to clean up the remaining trees without adequate equipment. Until the verification process was carried out, the aglime aid provided could not be used and only piled up on the side of the road.

Second, expired rice seedlings. The case of expired rice seedlings occurred in

² <https://koran.tempo.co/read/nasional/475167/jawaban-kementerian-pertanian-soal-masalah-proyek-food-estate>

³ <https://koran.tempo.co/read/nasional/475085/danrem-102-panju-panjung-bicara-tentang-ekstensifikasi-food-estate-kalimantan-tengah>

Jabiren Village, Henda Village, Pilang Village, and Lamunti Village. This was because the seedlings arrived before the land was prepared. As a result, when the land was ready for planting, the rice seedlings had already expired. Third, the aid is in the form of irrigation pipes. In Henda Village and Pilang Village, the aid in the form of open-close water pipes could not be utilised by farmers because the pipe installation was not followed by maintenance and guidance on how to use the equipment, making it difficult for farmers to use it. However, the aid in pipes was very much needed for irrigation and to regulate water during the flood season so that the rice fields would not be inundated and die.

Although it is difficult to determine whether these findings of abandoned aid are deliberate negligence, the various findings cited from the interviews serve as evidence of significant budget mismanagement in the implementation of Food Estate in Central Kalimantan for the past two years. As an illustration, IDR 1.5 trillion of the state budget was allocated for implementation throughout 2020-2021. IDR 497.2 billion, which was used for irrigation improvements, including the procurement of water pipes⁴ (Figure 11).

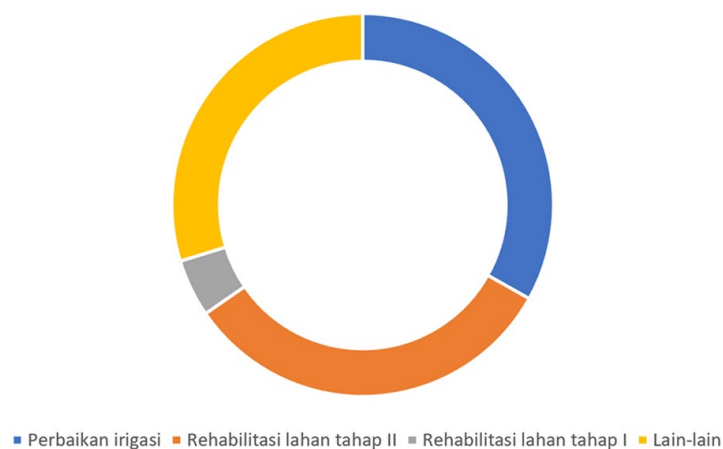


Figure 11. State Budget Allocation for Food Estate Preparation in Central Kalimantan for the 2020-2021 period (Source: Tempo.com, 2021)

Finding 4: Forest Destruction

The implementation plan for the first phase of the Food Estate in 2020-2021, covering an area of 31,000 hectares in Central Kalimantan, was divided into three districts, namely Pulang Pisau, Kapuas, and Gunung Mas, each with an area of 10,000 hectares. Field monitoring results indicate strong indications that land cultivation in these three districts was carried out by clearing forests. The largest forest

⁴ <https://indonesia.go.id/narasi/indonesia-dalam-angka/ekonomi/food-estate-lumbang-baru-di-kalimantan-tengah>

clearance occurred in Tewai Baru Village, Gunung Mas District, covering an area of 700 hectares. This monitoring result was confirmed by checking 5-meter resolution satellite imagery in Figures 12 and 13. This checking result showed changes in land cover conditions that occurred in Tewai Baru Village from November 2020 to December 2022 since the implementation of the Food Estate. The satellite imagery also proves that the land cover before the implementation of the Food Estate was the forest.

Figure 13 shows that until November 2020, most of the cover in Tewai Baru Village was still dense forest cover with production forest status. However, forest areas were cleared from December 2020-January 2021 to cultivate the food estate. However, part of the area was allocated to communities as People’s Plantation Forest through social forestry schemes. The rest was allocated as plantation forests. In addition to Tewai Baru Village, around 300 hectares of land in Pilang Village, 236 hectares in Lamunti Village, and 280 hectares in Talekung Punei Village have also been cleared for paddy field cultivation.

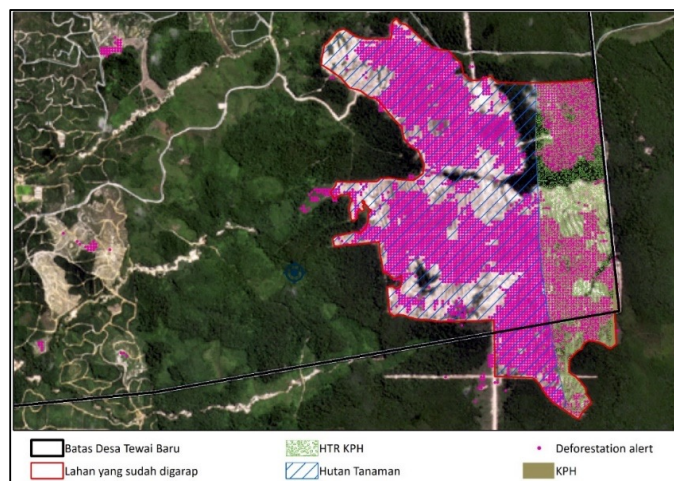


Figure 12. Forest clearance in Tewai Baru Village (Planet image in August 2022)



Figure 13. Land cover changes in Tewai Baru Village from November 2020 - December 2022

The location of land opening in Tewai Baru Village is not located in peatlands or no-go zone areas. However, Tewai Baru Village is part of the Kahayan River Basin (DAS Kahayan), connected to Henda Village and Pilang Village in the southern part (Figure 14).

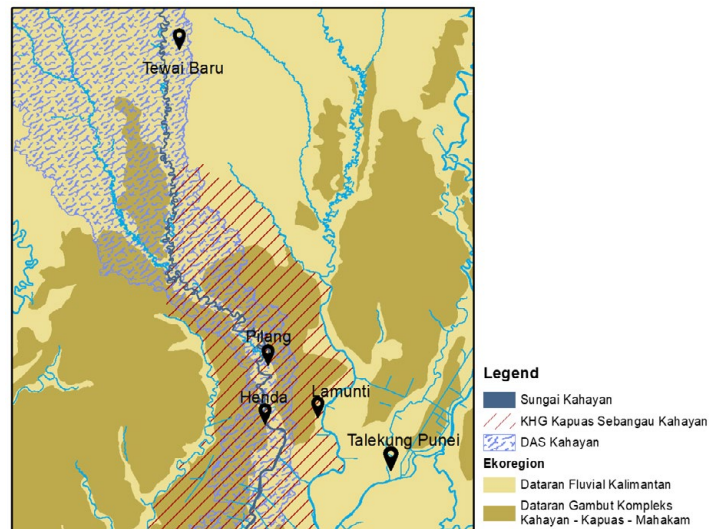


Figure 14. The Kahayan River Basin is connected to the Kapuas Sebangau Kahayan KHG through the Kahayan River

From a land cover perspective, Tewai Baru Village is part of the Kalimantan fluvial plain ecoregion landscape with alluvial soil texture. The characteristic of this soil type has a high potential for regulating water management due to its texture which easily absorbs and releases water. However, the soft soil layer is easily eroded and causes runoff carrying soil material, causing sedimentation in the water channel, narrowing and even closing the water channel, and causing floods.

The other three villages, namely Henda Village, Lamunti Village, and Pilang Village are part of the Kahayan-Kapuas-Mahakam complex peatland ecoregion landscape, consisting of vast peatlands with water supply functions. These three villages are located within the same Peatland Hydrological Unit (KHG), the Kapuas Sebangau Kahayan KHG. This KHG is directly connected to the Kahayan River Basin through the Kahayan River. Specifically, the Kahayan River is mentioned as a flood-prone area in the Central Kalimantan planning (RTRWP) document⁵.

Throughout 2022, the overflowing of the Kahayan River caused flooding in Pulang

⁵ Peraturan Daerah Provinsi Kalimantan Tengah Nomor 5 tahun 2015 tentang RTRWP Provinsi Kalimantan Tengah Tahun 2015-2035

Pisau Regency on September 14, 2022, inundating 1,263 houses in 8 villages. The incident was repeated on October 27, 2022, and flooded 629 houses in 6 villages⁶. It is possible that the forest clearing in Tewai Baru Village for the Food Estate project was one of the causes of the silting of the Kahayan River, which led to the flooding. Based on the Kalteng Satu Data, the risk of flooding in Pulang Pisau Regency is classified as high. For example, in Jabiren District, where there is a location for Food Estate expansion, there is a potential flood disaster area of 99,000 hectares (refer to Table 3)⁷.

Table 3. The flood risk level in Pulang Pisau, Kahayan, and Gunung Mas districts based on an analysis conducted from 2016 to 2020

Regency	Sub-district	Hazard Type	Hazard area (ha)	Class
Pulang Pisau	Kahayan Kuala	Flood	111.327	High
Pulang Pisau	Sebangau Kuala	Flood	465.065	High
Pulang Pisau	Pandih Batu	Flood	44.373	High
Pulang Pisau	Maliku	Flood	42.048	High
Pulang Pisau	Kahayan Hilir	Flood	59.617	High
Pulang Pisau	Jabiren Raya	Flood	99.299	High
Gunung Mas	Tewah	Flash Flood	519	High
Gunung Mas	Kahayan Hulu Utara	Flood	2.212	High
Kapuas	Mantangai	Flash Flood	639.320	High
Kapuas	Kapuas Hulu	Flood	975	High

Continued implementation of the Food Estate program by opening up forested areas may lead to widespread and prolonged flood disasters, especially in areas of the peatland ecosystem (KHG) and watersheds. Flood disasters are recurring problems annually, yet the number of affected areas continues to increase.

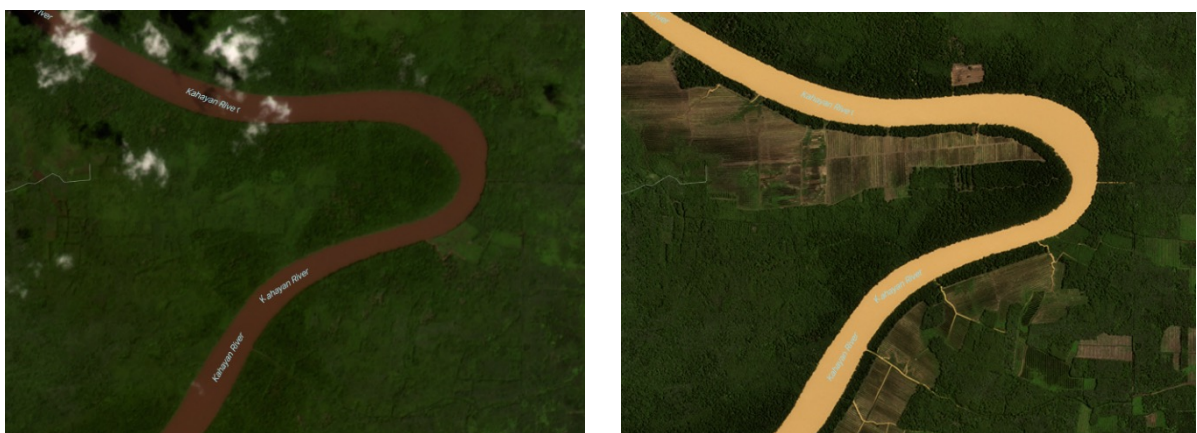


Figure 15. Forest conversion into rice fields in the Kahayan River watershed in Pilang Village.

6 Data Badan Nasional Penanggulangan Bencana

7 https://satudata.kalteng.go.id/tabel/index/936/back_2

Many believe that the opening up of forested areas is the leading cause of these disasters. Ironically, instead of implementing solutions, the government is pushing for more forest conversion, including for the Food Estate program, through the Ministry of Environment and Forestry Regulation Number 24/MenLHK/Setjen/Kum.1/10/2020 on the provision of forest areas for the development of Food Estate. Article 19, paragraph 2 stipulates that protected forests that are no longer fully functional for protection can be allocated for Food Estate development. Learning from the rapid preparation of the KLHS, this article could threaten the integrity of Indonesia's forest cover. These areas should be restored to their original function instead of being converted into food estate areas. Without clear and comprehensive studies, this article does not rule out the possibility of promoting the conversion of protected forests that still function as a support and buffering system for the surrounding environment.

The loss of forests in the upstream areas of a watershed will eliminate the ecosystem function of retaining rainwater that flows downstream. Meanwhile, the downstream part of Central Kalimantan is dominated by peatlands that store water. This peatland ecosystem should serve as a second barrier to keep and regulate water flow from the upstream area. However, the condition of peatlands, with many canals, has damaged their function as a water storage system. Thus, preserving watersheds and peatlands in the landscape of Central Kalimantan is crucial because they are interconnected in mitigating flood disasters. To fully understand the context, continued monitoring of food estate implementation in the period 2023 and beyond is needed to observe the potential land conversion of forests and peatlands that could damage the environmental quality of Central Kalimantan.

Notes

Field investigations carried out by WALHI Central Kalimantan and Pantau Gambut to see the FE project in a more comprehensive manner from various aspects can be accessed via the link bit.ly/MenakarPolitikPanganIndonesia.

