



TECHNICAL REPORT

Activity 3.1.: To conduct a series of dialogue with stakeholders at sub-district and village levels on potential benefits of biosphere reserve development and
Activity 3.2.: To identify sustainable income generating activities in close consultation with local communities at selected sites

Cooperation

**INTERNATIONAL TROPICAL TIMBER ORGANIZATION (ITTO),
ENVIRONMENTAL AND FORESTRY INSTRUMENTS STANDARDIZATION
AGENCY (BSI LHK)
COOPERATION ACTIVITIES ITTO PD 712/13 REV.3 (F)**

And

Consortium

**Riau Region Community Forestry Communication Forum (FKKM),
Riau Community Economic and Social Empowerment Institute (LPESM) and
Sustainable Environmental Development Studies Association (SENDS)**

**Riau Region Community Forestry Communication Forum (FKKM),
2024**

Project Number : 1. Activity 3.1.: To conduct a series of dialogue with stakeholders at sub-district and village levels on potential benefits of biosphere reserve development
2. Activity 3.2 To identify sustainable income generating activities in close consultation with local communities at selected sites

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SUMMARY

Giam Siak Kecil Bukit Batu (GSK-BB) Biosphere Reserve is located in Riau Province, Sumatra. Its area is approximately 705,271 hectares with the following details: Core area: 179,000 hectares, Buffer zone: 222,000 hectares, and Transition area: 304,000 hectares. This area was appointed as a Biosphere Reserve by MAB-UNESCO in 2009. Administratively, it is located in Bengkalis Regency (66%), Siak Regency (30%) and Dumai City (4%). This area consists of mainly peat swamp forest ecosystem and a number of small lakes.

As a protected area, the Giam Siak Kecil Bukit Batu area is under pressure, including forest encroachment pressure. Several issues identified include the weak GSK-BB planning framework. This is due to inadequate understanding by the authorities concerning the planning framework. In addition, the unclear function of the forest in each zone, limited reliable updated data on reserves and the unavailability of an Integrated Strategic Management Plan.

The pressure on this area deserves attention, including from the local community. One effort that can be made in reducing this pressure is to prepare the economy of the community around the area sustainably. The form of preparing the economy of the local community is the identification of local economic potential that has the potential to be developed sustainably. The economic potential that will be developed according to the needs of the community, can be developed by the local community and has market potential.

Identification of economic activities is carried out through limited meetings or Focus Group Discussions (FGD) which present stakeholder representatives in the village. Thus, the economic activities that are decided have gone through a process of discussion. Through this process, the potential for developing the intended product is also analyzed. Among others, the potential for land availability, the community's ability to develop products and the availability of market access.

The methods used in this process are 1. Brainstorming guided by the facilitator by giving the meeting participants the opportunity to convey their suggestions and opinions regarding the GSKBB Biosphere Reserve, especially the identification of sustainable superior products. 2. Completing the Questionnaire which is used as a form of anticipation for participants who do not express their opinions verbally. Their opinions can be accommodated through answers to questions that have been prepared. Furthermore, the information achieved from the questionnaire is summarized and analyzed. 3. In-Depth Interview. This method is to complete information that has not been obtained. Through this method, a dialogue will be carried out individually with the party who is the source of information. The party who is the source of information can be anyone including village officials or the community and is carried out during the FGD or not during the FGD.

Other methods used after the FGD process, in order to complete the information that has been collected are as follows: 1. Observation or direct visits to the field. Field observations are carried out by directly visiting certain locations or places that can complete the data and information that has been obtained. Through field visits, other information that was not previously obtained can also be gotten. In this process, it is equipped with documentation of field findings such as photo documentation or video recordings. Field observations are also included when surveying the determination of the location of the demonstration plot. 2. Secondary Data Study. Other information regarding the village where the program is located, especially information about superior products, is

by conducting a secondary data study. Secondary data can be collected from sources that are relevant to the objectives of the program, such as the results of studies by other parties, village monograph data or other relevant data. The first series of activities carried out is the preparation of plans and the preparation of activity concepts including determining the mechanism of the Consortium Institution Cooperation. This preparation is carried out through a coordination meeting with the consortium institution implementing the program. The next process is coordination with related parties, especially government stakeholders, namely provincial, district, and sub-district and village governments. Coordination is carried out in order to socialize the implementation of the program, collect input and expected support. The coordination process was carried out by visiting related government agencies. The stakeholders of the Riau Provincial Government visited were the Environment and Forestry Service and the Riau Provincial Bappedalitbang (Local Plan and Development Agency Research and Development). Meanwhile, the stakeholders of the district government visited were Bappeda (Local Plan and Development Agency), the Village Community Empowerment Service, BULOG (Logistic Affairs Agency) and the Regency KADIN (Chamber of Commerce and Industry).

Through coordination with stakeholders, it was found that stakeholders support the activities being carried out in the GSKBB Biosphere Reserve Area. Likewise, the Sub-district and Village/Kampung Governments that are the location of the activities. However, several village governments were initially not so sure about the program that would be implemented. Because based on experience so far, many parties have come and implemented the program, but there has been no follow-up. Therefore, the village/kampung government expects that this program can be followed up and provide benefits to the community.

The Bengkalis Regency Government, in this case the Bengkalis Regency Bappeda, specifically expressed its commitment to maintaining the GSKBB Biosphere Reserve area. The Bengkalis Regency Bappeda was also inspired when visiting the Cibodas Biosphere Reserve located in the Mount Gede Pangrango area. The Bengkalis Regency Bappeda is impressed with the management of the biosphere reserve in the region. However, the hope is that the institutions that carry out the existing coordination function can be operational again. Because the GSK BB Biosphere Reserve team formed by the Governor of Riau has not been active for a long time. In addition, it is also expects that there will be coordination with other program implementing NGOs that currently have programs and activities in the region such as IMPLI and the Gambut Foundation.

A visit to the Riau Province Bappedalitbang obtained information that institutionally the GSKBB Biosphere Reserve management team had been formed. However, it was acknowledged that it was not active and there was a plan to make adjustments. Until now, the plan to adjust the team has not been realized. The room that was previously used for the secretariat in order to support the operational work of the GSK-BB Biosphere Reserve management agency has also been used for other sectors.

Other activities carried out were visits or communication with local mass media editors. The purpose of this activity was to socialize the existence of the Giam Siak Kecil Bukit Batu Biosphere Reserve area to the wider community, including the problems and challenges faced. This socialization and communication then became news in several online mass media. Online mass media that published news about the Giam Siak Kecil Bukit Batu Biosphere Reserve area were riaupos.co, cakaplah.com, riauterkini.com, teras.id.

Links from media reports regarding the GSKBB Biosphere Reserve are as follows:

1. <https://riaupos.jawapos.com/riau/2254508150/perambahan-jadi-tantangan-kawasan-cagar-biosfer-gskbb>
2. Riauterkini.Com - Monitoring Riau Detik Perdetik
3. <https://www.cakaplah.com/artikel/serantau/15099/2024/04/02/kawasan-cagar-biosfer-gskbb-patut-jadi-perhatian/#sthash.YyE6NGcb.dpbs>
4. FKKM Riau Asks for GSKBB Biosphere Reserve Area to be Considered || Riauterkini.com - - www.teras.id.

The following process is a visit to the village or hamlet (subvillage) that is the target of the activity. The visit to the village is also in order to coordinate the implementation of the program as well as technical discussions. Visits and discussions are carried out with the heads of villages or village apparatus. From this process, all villages or hamlets welcomed the activity and were willing to support it. However, several villages expected an official document in the form of a letter from the Ministry of Environment and Forestry regarding the program in question. One of the main activities that will be carried out is the implementation of Focus Group Discussion (FGD) involving relevant stakeholders in the villages/hamlets. The Focus Group Discussion (FGD) process is facilitated by each institution that is part of the consortium. Each institution implemented the FGD process in 5 (five) villages or hamlets. The FGD process involves village officials, community leaders, religious leaders, women's leaders, farmer groups and community representatives as needed. These activities are all carried out in the hall of the Village or Hamlet Head's office. After going through the FGD process in each village or hamlet, several economic activities were identified.

After going through FGD, there were several economic activities of superior and featured product development identified with the following details:

1. Cattle development in Tasik Serai Village, Tualang Muandau Sub-district
2. Cattle development in Tasik Serai Timur Village, Tualang Muandau Sub-district
3. Cattle development and honey bee cultivation in Beringin Village, Tualang Muandau District
4. Cattle development and kelulut honey bee development in Koto Pait Beringin Village, Tualang Muandau Sub-district
5. Goat development in Bukit Batu Village, Bukit Batu Sub-district
6. Organic rice development and pandan (*Pandanus sp.*) seed planting for woven crafts in Selat Guntung Village, Sabak Auh Sub-district
7. Organic rice development in Tuah Indrapura Village, Bunga Raya Sub-district
8. Poisonous cassava cultivation and mersik cassava production in Muara Bungkal Village, Sungai Mandau Sub-district
9. Development of cattle feed area in Merempan Hulu Village, Siak Sub-district
10. Horticultural farming and organic waste processing in Buntan Besar Village, Siak Sub-district
11. Rice cultivation and cattle farming in Bandar Jaya Village, Siak Kecil Sub-district
12. Cattle development in Sungai Linau Village, Siak Kecil Sub-district
13. Rice cultivation in Temiang Village, Bandar Laksamana Sub-district
14. Rice cultivation in Lubuk Gaung Village, Siak Kecil Sub-district
15. Rice cultivation in Sukajadi Village, Bukit Batu Sub-district

1. INTRODUCTION

Giam Siak Kecil Bukit Batu Biosphere Reserve (GSK-BB) is situated in Riau Province, Sumatra. Its area is around 705,271 hectares with details of Core Area: 179,000 ha, Buffer Zone: 222,000 ha, Transition Area: 304,000. This area was assigned as a Biosphere Reserve by MAB-UNESCO in 2009. Governmentally, it is located in Bengkalis Regency (66%), Siak Regency (30%) and Dumai City.

As a protected area, the Giam Siak Kecil-Bukit Batu Area experiences pressure including forest encroachment pressure. Several identified problems include the weak GSK-BB planning framework. This is due to inadequate understanding from the authorities regarding the planning framework. In addition, the unclear function of the forest in each GSK-BB zone, limited reliable recent data on reserves and the unavailability of an Integrated Strategic Management Plan.

Another obstacle faced is the weak institutional capacity in the operational management of nature reserves. The institutions formed in the form of the existing Management Coordination Agency have not functioned well. The number of trained professionals is insufficient, the rules of conduct for management operations have not been determined and the funding mechanism to support operational management is weak.

On the other hand, support from stakeholders including local governments for operational management is also still inadequate. Stakeholders' understanding of the values of nature reserves is also still lacking. In addition, incentives for local communities to support the development of nature reserves are still limited, including campaigns regarding the development of biosphere reserves.

Therefore, efforts to save the GSK-BB Biosphere Reserve Area can be started by building communication with related parties/stakeholders. The related parties referred to are not only parties based on their main duties and functions, but also parties who have regional authority. One of the parties referred to is the local government, including sub-districts and villages. Local communities are also one of the main stakeholders who should be invited together.

One form of the role of the parties/stakeholders is in the form of economic activity identification actions through the implementation of a series of dialogue activities or Focus Group Discussions/FGDs with related parties/stakeholders in the sub-districts and villages around the GSKBB Biosphere Reserve Area. Through this dialogue, sustainable economic activities are identified that are worthy of being developed in the specified location. This activity is a collaboration with the Environmental and Forestry Instrument Standardization Agency of the Ministry of Environment and Forestry with the support of the International Tropical Timber Organization (ITTO).

The initial basis for implementing this activity is the Letter of the Environmental and Forestry Instrument Standardization Agency of the Ministry of Environment and Forestry Number: UN.309/SET.13/PEHKT/KLN.0/9/2023 concerning Cooperation in the Implementation of a Series of Dialogues with Stakeholders at the Sub-district and Village Levels Regarding the Potential Benefits of Biosphere Reserve Development. and followed up with a Work Contract between the International Tropical Timber Organization (ITTO) Cooperation Activity PD 712/13 REV.3 (F) with the Riau Region Community Forestry Communication Forum (FKKM) Number: 002/SUB-CONT/ITTO/PD 712/X/2023. The expected impacts of this activity are as follows:

1. Stakeholders understand the strategic existence of the Giam Siak Kecil-Bukit Biosphere Reserve in environmental rescue efforts
2. Stakeholders support efforts to save the GSK-BB Biosphere Reserve Area
3. There is potential for the benefits of developing a biosphere reserve that can be a source of sustainable economy while maintaining the sustainability of the area.
4. There are activities that generate sustainable income

The scope of the activities is as follows:

1. Preparation of activity plans
2. Simple studies in order to identify market needs, superior/featured products with secondary data analysis, interviews, and literature studies.
3. Conducting audiences with related agencies at the Regency and Provincial levels
4. Conducting audiences/visits with key figures in the community
5. Conducting audiences/visits with the editors-in-chief of the mass media
6. Coordinating and implementing a series of dialogues in at least 15 (fifteen) locations representing the core zone, transition zone and buffer zone.
7. Conducting FGDs with stakeholders, including companies, traders and distributors.
8. Conducting FGD to identify market needs and product commodities.
9. Initiate market opening for large companies, UMKM traders or other markets and producers (production potential).
10. Identify communities that are able to produce according to market demand.
11. Select income-generating activities for development based on the results of dialogue activities with the community.
12. Identify suitable locations for the development of demonstration plots.
13. Develop demonstration plot designs.
14. Identify resources needed for the construction of demonstration plots.
15. Identify villagers for the construction of demonstration plots.
16. Conduct monitoring and evaluation
17. Prepare technical reports

2. METHODOLOGY OF ACTIVITIES

The methodology used in implementing the activity is as follows:

1. Brainstorming

This process will be guided by the facilitator by giving the meeting participants the opportunity to convey their suggestions and opinions regarding the Giam Siak Kecil Bukit Batu Biosphere Reserve (GSKBB) especially in the context of identifying sustainable superior/featured products. Through this method, all meeting participants can provide opinions including questions which are then recorded by the minutes.

2. Filling out the Questionnaire

This method is used as a form of anticipation for participants who do not express their opinions verbally. Their opinions can be accommodated through answers to questions that have been prepared. Furthermore, the information obtained from the questionnaire is summarized and analyzed.

3. In-Depth Interview

This method is used to complete information that has not been obtained from other methods. Through this method, a dialogue will be conducted individually with parties who can be sources of information. The parties who will be sources of information can be anyone including village officials and other communities. The use of this method is carried out during the FGD or not during the FGD.

After going through the FGD process, there are other methods conducted in order to complete the information that has been obtained. These methods are:

1. Observation or field visits

Field observations are carried out by directly visiting certain locations that can complete the information that has been obtained. Through field visits, other information that was not previously got can also be obtained. This process is complemented by documentation of field findings such as photos or video recordings. Field observations are also included when surveying the determination of the location of the demonstration plot.

2. Secondary Data Study

Other information regarding the village where the program is located, especially information about superior products, is by conducting a secondary data study. Secondary data can be collected from sources that are relevant to the objectives of the program, such as the results of studies by other parties, village monograph data, or other relevant data.

3. Visits

The visit method is carried out during coordination with related parties or stakeholders such as government agencies and other parties. During the visit a focused discussion is held regarding forest management, especially the Giam Siak Kecil and Bukit Batu Biosphere Reserve (GSKBB). In addition to this method, it is a way to socialize the implementation of the program and collect input from related parties or visited stakeholders. The related parties or stakeholders contacted are not only government agencies, but also the private sector or business world related to the GSKBB Biosphere

Reserve area. In addition, communication with the mass media is also carried out as a form of communication effort with the wider community.

3. DATA PRESENTATION

3.1. Preparation of Work Plan

The preparation of the activity plan is discussed together with the program implementing institutions that are members of the consortium, namely the Riau Region FKKM, SENDS and LPESM. The preparation of the activity plan is made in the form of an implementation time plan matrix. The activity plan that has been prepared was then consulted with the Environment and Forestry Instrument Standardization Agency of the Ministry of Environment and Forestry through the ITTO PD 712/13 Rev.3 (F) Project Coordinator to get input and suggestions.

3.2. Preparation of the Program Implementation Team

The preparation of the implementation team is carried out by appointing a Program Manager, Financial Administration Staff and Field Officers. Through this process, an agreement on the Standard Operating Procedure (SOP) for program implementation is also made. The arrangement of the SOP is carried out through the preparation of a draft and discussion with consortium members. The initial draft is prepared by the Riau Region FKKM to be further discussed with consortium members. In this process, it was agreed that the team that would carry out this activity was as follows:

1. Program Manager: Hasan Supriyanto, SP
2. Financial Administration Staff: Yuanita Wulandari
3. Field officers: 1. Ahmad Bilal, ST (FKKM Riau Region)
2. T. Said Eka Nusirhan, S.Pi (SENDS)
3. Eko Fambudi, ST (LPESM)

3.3. Preparation of instruments

In addition to the preparation of the implementation team, in November 2023, the preparation of instruments, devices or tools that will be used when carrying out a series of dialogues with the community was carried out. The instruments that were prepared were then discussed together with the consortium members. Once agreed, this instrument became a guide in implementing the activity.

3.4. Visit to related agencies at the Regency and Provincial levels

This activity is carried out through official communication to conduct visits and discussions with stakeholders/related agencies. In this process, if possible, a brief presentation will be made about the efforts to save the Giam Siak Kecil Bukit Batu (GSKBB) Biosphere Reserve which received support from ITTO through the Environmental and Forestry Instruments Standardization Agency (BSI) of the Ministry of Environment and Forestry (KLHK). Through this process, it is expected that there will be input and suggestions from the parties visited as well as an exploration of the possibility of collaborating with programs and activities in their respective agencies. This step also provides input for local stakeholders to prepare the necessary steps including the preparation of policy results that are in line with and mutually support the jointly designed

programs.

The visits carried out were as follows:

1. Visit to the Bappeda of Siak Regency

The visit was carried out on Monday, November 13, 2023. The visit to the Siak Regency Bappeda was received directly by the Acting Head of the Siak Regency Bappeda Mr. Budhi Yuwono. The Head of Siak Regency Bappeda welcomed the activities to be conducted by the Riau Region FKKM and its consortium institutions. This activity is in line with the Siak Regency Government program, namely the Green Siak program. The expectation is that this potential identification activity can be further developed with real activities that can help the community's economy. Bappeda Siak District also expects for coordination with parties that also have programs in the GSK-BB Area. FKKM Riau Region and partner institutions will also prepare regular reports to the Siak Regency government through Bappeda Siak and other related parties as needed.



Figure 1. Visit and Discussion at Bappeda of Siak District

2. Visit to Bappeda Bengkalis Regency

The visit was held on Tuesday, November 14, 2023. The visit to Bappeda Bengkalis Regency met with the Secretary of Bappeda Bengkalis Regency, Mr. Syahrudin accompanied by the Head of Economics, Mr. Wan Zulkarnanda MSc. On that occasion, it was conveyed that the Bengkalis Regency Government, especially Bappeda Bengkalis Regency, welcomed the activities to be carried out by the Riau Region FKKM consortium. Because currently, the Bengkalis Regency Government is also planning several activities in the GSKBB Biosphere Reserve Area. Because after attending several meetings with the Instrument Standardization Agency (BSI) of the Ministry of Environment and Forestry (KLHK). Bengkalis Regency Government is committed to maintaining the GSKBB Biosphere Reserve area. Bappeda of Bengkalis Regency was also inspired when visiting the Cibodas Biosphere Reserve located in the Mount Gede Pangrango area and its surroundings. Bappeda of Bengkalis Regency was impressed with the management of the biosphere reserve in that area. However, the expectation is that the institutions carrying the existing coordination function can be operational again. Because the GSK BB Biosphere Reserve team formed by the Governor of Riau has not been active for a long time. In addition, it is also expected that there will be coordination with other program

implementing NGOs that currently have programs and activities in the area such as IMPLI and the Gambut Foundation



Figure 2. Visit and Discussion at Bappeda of Bengkalis District.

3. Visit to the Village Community Empowerment Service (PMD) of Bengkalis Regency

The visit was carried out on Tuesday, November 14, 2023. The visit to the Village Community Empowerment Service (PMD) of Bengkalis Regency was received by the Head of the Community Development and Empowerment Division (P2M) Mr. Tarmizi and the Head of the Village Government Division Mr. Rinaldi. The Head of the P2M Division welcomed and supported the program and activity plans to be implemented by the Riau Region FKKM consortium. Because for the PMD Service, the support of activities from other parties for village development is a form of participation. Currently, the Bengkalis Regency Government has a village development program with the allocation of funds for each village. The Bengkalis Regency Government through the PMD Service continues to make efforts to quicken all villages to accelerate the implementation of various programs and activities sourced from special financial assistance funds for programs with a period of IDR. 1 billion per village.

The PMD Office of Bengkalis Regency also expects that the programs and activities that will be carried out with BSI LHK and the Riau Region FKKM consortium will coordinate with village assistants who have been placed in all villages. On that occasion, it was also connected with village assistants in the village.



Figure 3. Visit at the Village Community Empowerment Service of Bengkalis District

4. Visit to Riau Province Bappedalitbang

The visit was held on Wednesday, November 15, 2023. The visit to Riau Province Bappedalitbang was received by the Head of the Economic and Natural Resources Division, Mr. Abdul Madian and staff representing the Head of Riau Province Bappedalitbang. On that occasion, it was conveyed that the Riau Provincial Government had formed a special team to accommodate the management of the GSKBB Biosphere Reserve. The team is in the form of the GSKBB Biosphere Reserve Management Coordination Agency which was formed through the Decree of the Governor of Riau No. Kpts 7/I/2017. This agency is directly chaired by the Governor of Riau with Deputy Chairmen consisting of the Deputy Governor of Riau, the Head of Siak Regency and the Head of Bengkalis Regency. However, Riau Bappedalitbang admitted that it was inactive and planned to make adjustments. Until now, the plan to adjust the team has not been realized. The room that was previously used to support the operational work of the GSK-BB Biosphere Reserve management agency has also been used for other divisions.

On that occasion it was also conveyed that currently it is not only the Riau Region FKKM consortium that is implementing programs and activities around the GSK-BB Biosphere Reserve. Therefore, in this meeting it was agreed that it would be coordinated by the Riau Province Bappedalitbang. With this coordination, it is expected that the implementation of programs and activities in this region can support each other and will be monitored by related parties.



Figure 4. Visit to Bappedalitbang of Riau Province.

5. Visit to the Riau Province Environmental and Forestry Service

The visit was conducted on Thursday, November 23, 2023. The visit to the Riau Province Environmental and Forestry Service was received by the Head of the Forest Planning and Utilization Division, Mr. Danang Kabul Sukresno representing the Head of the Riau Province Environmental and Forestry Service. On that occasion, it was conveyed that the Riau Province Environmental and Forestry Service welcomed the activities carried out by the Riau Region FKKM consortium. It is expected that the report on the implementation of the activity will also be presented to the Riau Province Environmental and Forestry Service. In addition, the Riau Province Environmental and Forestry Service also expects that this activity can continue to become a real activity that can assist the local Economy.



Figure 5. Visit to the Riau Province Environment and Forestry Service

6. Visits to other Related Stakeholders

Visits and coordination are also carried out with other related parties according to program needs. The related agencies visited include the Bengkalis Regency Chamber of Commerce and Industry (KADIN) and the Bengkalis Regency Logistics Affairs Agency (BULOG). Visits to these two institutions are in order to connect the possibility of cooperation in developing economic activities, especially cooperation in access to marketing products that will be developed. Because several villages where activities are located in Bengkalis Regency will develop economic activities in rice planting, cattle and goat farming.

3.5. Visits to Key Figures in the Community

This activity is specifically implemented with key figures in the community/village. These key figures include village officials and community leaders. Visits are carried out informally and applying the snowball method. Visits are carried out during the period of November 2023. The process of communication and coordination with key figures in the community is carried out by each consortium member institution. Previously, at the consortium level, there had been an agreement on the division of villages or hamlets that would be the location of the activity.

On the whole, the outcomes of the visit proved that all villages or hamlets welcomed the implementation of programs and activities to be carried out by the Riau FKKM Region and other consortium institutions. The village or hamlet government is willing to help according to its needs and capacity. In addition, it is expected that all villages or hamlets will continue this activity not only exploring village potential, but also support for the development of village potential. Because previously there had been the same thing implemented by certain parties but there was no follow-up. Representatives of key figures in the community who were met included village/hamlet officials, community leaders, farmer groups, women's groups and the wider community. Several villages or hamlets expect a form of letter from the Ministry of Environment and Forestry explaining the program to be developed. The communication process with key community figures can be done formally such as in a meeting or informally through limited discussions.

3.6. Villages Assisted by FKKM Riau Region

3.6.1. Tasik Serai Village

1. General Description of Tasik Serai Village

Tasik Serai Village is one of the villages in the Talang Muandau Sub-district, Bengkalis Regency with definitive status. Tasik Serai Village consists of 5 hamlets/subvillage, 9 RW (government level below village/Neighborhood), and 32 RT (lowest government level/under RW) led by 1 village head along with 4 village staff and 5 heads of affairs. In addition, to balance village governance, there is a Village Community Institution, namely the BPD with 9 members. To facilitate village administration, a village head has an office, the following can be seen in the Tasik Serai Village Head's office (Figure 6).



Figure 6. Office of Head of Tasik Serai Village

The figure above showed that the village office in Tasik Serai Village already has adequate conditions and can function properly. Geographically, Tasik Serai Village is a land area with flat land topography. This flat topography will be good for agricultural or plantation activities.

Demographic Aspects of Tasik Serai Village

The village population is those who live in an area for 6 months or less than 6 months for those who wish to settle in the area. The population is a human resource that is greatly needed in implementing and succeeding development. Based on data from the Tasik Serai Village Office, the recorded population is 7,173 people consisting of 3,762 men and 3,411 women who are divided into various ages with 1,738 Heads of Families.

Age influences a person in carrying out their daily lives or carrying out their business activities because most of the work of the village population relies on physical strength and stamina. Because at a young or productive age, they are physically strong, so they are able to work hard. In addition, age can also affect a person in accepting new innovations, as well as decision-making in implementing and developing a business. Commonly, someone who is younger has stronger and more main physical abilities in managing their business. In addition, it is also easy to adopt new innovations compared to older people.

Based on monographic data from Tasik Serai Village, the majority of the people of Tasik Serai Village are in the productive age of 65%. Thus, it can be said that the majority of the people of Tasik Serai Village in this study are still of productive age, so that it will provide an indication that the community still has the physical strength to work, and they are also easy to adopt new innovations and having social responsibility for the livelihoods of all family members in case they are farmers, fishermen, traders, entrepreneurs and employees of productive age. This also means that at a productive age, people can carry out activities and programs made by the government so that they are in accordance with the provisions and are right target.

Tribes of Tasik Serai Village Community

The native tribe of this village is Malay tribe, and the immigrant tribes consist of Batak, Javanese, Minang, etc. The indigenous and immigrant tribes have settled in the

village since ancient times and have been passed down from generation to generation. Overall, the people of Tasik Serai Village live in harmony and peace with the immigrant community. The majority of people of Tasik Serai Village are Malay (25%), Javanese (55%), Batak (30%) and Minang (very few). The immigrant tribe is the largest tribe in the village. While the largest immigrant tribe is the Javanese tribe. The distribution of tribes in each subvillage is different/ the distribution of tribes based on hamlets can be seen in the following Table 1.

Table 1. Distribution of tribe based on hamlet/subvillage at Tasik Serai Village

No	Tribe	Subvillage I	Subvillage II	Subvillage III	Subvillage IV	Subvillage V
1	Malay	30	10	-	20	-
2	Batak	20	40	50	20	95
3	Javanese	50	50	50	60	5

Overall, the Tasik Serai Village community lives in harmony and peace with the immigrant community. Since ancient times, social interaction between the village communities around the company has been well established. In daily life, the immigrant community, the local indigenous community and other communities in the village live peacefully, there are rarely any conflicts and disputes. If there is a difference of opinion, the solution is conducted through discussion mediated by community leaders, who have social positions as government officials or others.

Condition of Facilities and Infrastructure in Tasik Serai Village

Infrastructure is a facility that can support various life activities, especially socio-economic activities. Because infrastructure is so important in supporting the development of a region, various efforts are needed from the government and local communities to improve the infrastructure in an area.

1. Village Roads

In general, the road facilities owned by the village are 4.5 km of asphalt and non-asphalt roads, connecting roads between villages. The condition of the non-asphalt/ dirt roads in the village, its length is 45 km, while the connecting road between villages only 33 km long of not asphalted road.

2. Electricity Facilities

The electricity facilities in Tasik Serai Village have enjoyed PLN (State Electricity Company), but before PLN entered the village, the community used non-PLTD (Diesel generated electricity) lighting of 5 PLTDs or used 100 electrical generators and 1300 kerosene lamps.

3. Sports Facilities

While sports facilities to increase the sense of brotherhood in the village. There are 5 soccer fields, 10 volleyball courts, 5 badminton courts, 2 table tennis courts, 5 *takraw* courts and 2 billiard houses.

4. Health Level

In this village there are health facilities in the form of 1 Community Service unit, 1 pharmacy unit, 1 polyclinic unit and 2 ambulances. However, the condition of one ambulance unit is not in good condition.

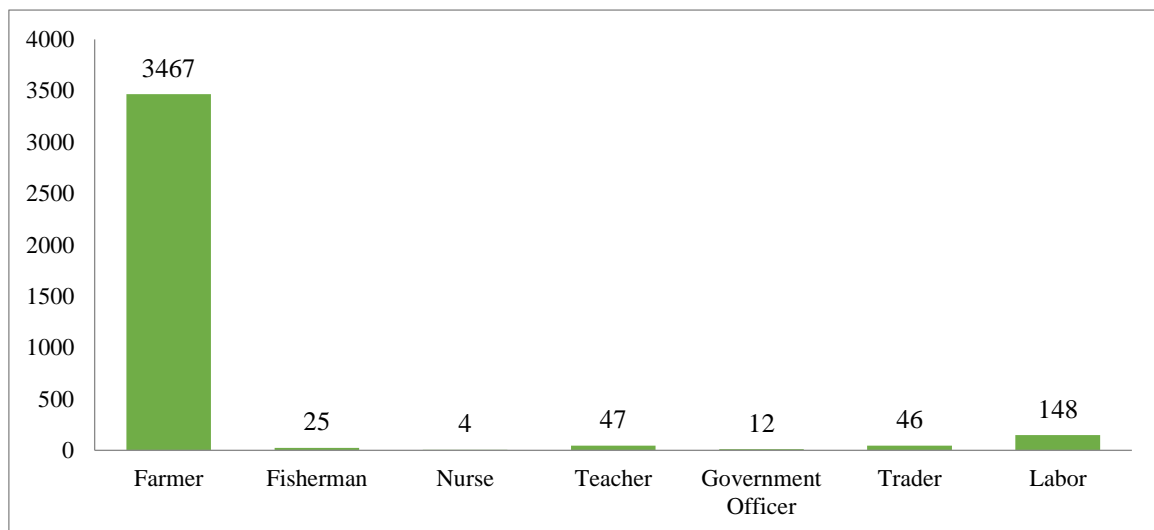
5. Marketing Facilities

The market is a place for the community to buy daily necessities. The market in Tasik Serai Village is a weekly market, during this market, the community will try to buy all the necessities needed in one week. Traders selling in this weekly market are traders who turn, traders also bring all the needs of the community such as the needs of Nine Basic Necessities (*Sembako*), clothing, food and others. Those traders come from the Duri area.

Employment / Livelihoods

Based on monographic data from Tasik Serai Village, the community has many variations of livelihoods, ranging from farmers, fishermen, traders, nurses, teachers and ASN (Government civil officers). To find out the field of employment it can be seen in the following Graph 1.

Graph 1. Population of Tasik Serai Village based on employment

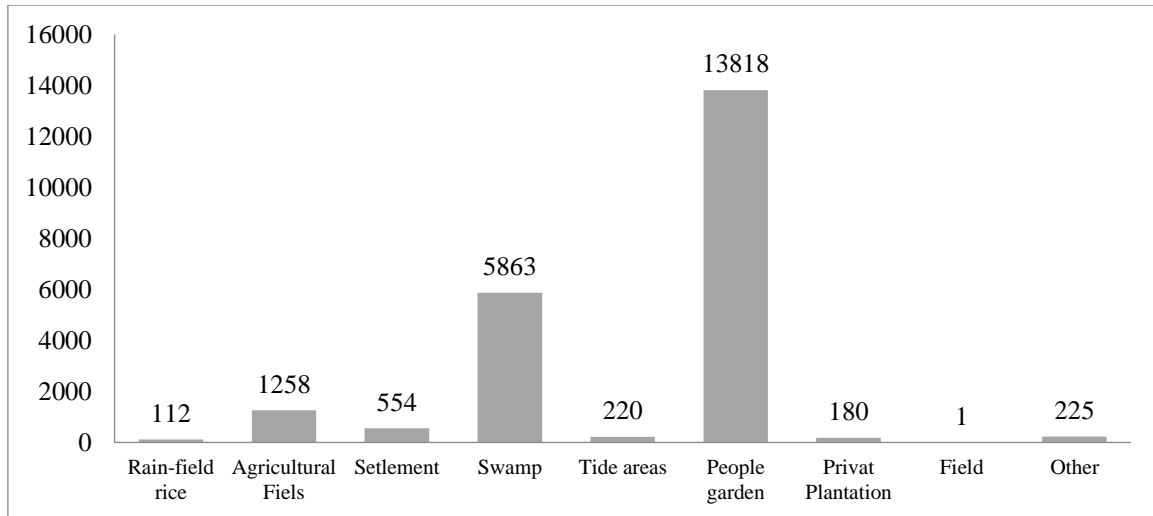


On average, 3,467 people work in the agricultural sector, and the dominant agricultural sector commodity is palm oil plantation crops. The high absorption of the number of workers working in the agricultural sector will indirectly affect the management of land use in the village.

Land Use Management

Land use management is the direction of land use with spatial planning policies and programs to obtain the best possible total benefits sustainably from the carrying capacity of each part of available land. Judging from the land use in Tasik Serai Village, it is predominantly used for oil palm plantations. Land use in Tasik Serai Village can be seen in the following Graph 2.

Graph 2. Land use in Tasik Serai Village



2. FGD Process of Tasik Serai Village

The Focused Group Discussion (FGD) in Tasik Serai Village, Talang Muandau Sub-district was held on Monday, December 4, 2023, at the Tasik Serai Village office hall. The meeting was attended by representatives of village officials including the hamlet/subvillage head, the head of the Village Representative Body (BPD), representatives of community leaders, youth leaders, women's leaders and representatives of farmer groups. The FGD process began with a presentation about the Giam Siak Kecil Bukit Batu Biosphere Reserve (GSKBB). In general, the community who attended, understood the presence of this area including its benefits and functions.

Initially, the FGD process did not run smoothly because the participants who attended were not sure that the proposed economic activities would be followed up. Because so far many parties have come and communicated with the community in the village but only made promises and there was no realization. The community is not so sure about the intention of the Riau Region FKKM consortium in collaboration with BSI LHK and ITTO. On this basis, the community expects a guarantee that the proposed economic activities that will be submitted will be followed up in real terms.



Figure 7. Implementation of FGD at Tasik Serai Village

After listening to the community's complaints, the community finally agreed to continue proposing superior products to be developed in Tasik Serai Timur Village. Initially, the product proposed to be developed was oil palm, because it is profitable and easy to sell. However, after explanation in addition to oil palm development, it was agreed that the proposed productive business was cattle fattening for the community on land and fishery for the waters, namely Bagan Boneo Hamlet.

The decision to develop cattle farming was based on the still high market demand for cattle, especially when approaching the Eid al-Adha. So far, all cattle that have been raised by the community have been successfully absorbed by the market. The ability of community to develop cattle farming also makes it possible. Likewise, the availability of sufficient grass feed around the village area. Cattle farming for the community has been common practice for a long time. In addition, there has been support provided by the government for cattle fattening, including through cattle farming development.

The Tasik Serai Village community trusts that cattle farming development is still economically promising because so far there are still many parties or buyers who want to buy cattle. When demand is still high, cattle production is still limited or even unavailable. This means that the demand for cattle is still not comparable to the availability of cattle. Cattle buyers do not only come from the surrounding areas of the village but also from Pekanbaru City, especially during the Eid al-Adha.

In addition to cattle, the development of fish cages around Bagan Boneo Hamlet is also economically promising. Because the surrounding waters are still sufficient for making fish cages. In addition, local people are accustomed to cultivating fish with cages. There are still many markets or parties that can buy fish produced in cages, including fish that have been processed into smoked fish or fish jam.

3. Potential for Marketing Superior Products

Tasik Serai Village is one of the villages in Talang Muandau District, Bengkalis Regency. This village has an area of 54,870 ha with a population of 6,746 people with the majority of Muslims where the majority of ethnic groups are Malay. This area is a suitable area for plantations, where the people of this village prefer the land they own to be used as oil palm and rubber plantations. In contrast to one of the hamlets, namely Bagan Benio Hamlet, which is known to have conditions that are waters, where the community does more fishing activities and looks for forest products that are still preserved in the biosphere reserve area. From the data summarized in the field, the average income of the Tasik Serai Village community is around IDR 2,500,000. Most of them work as farmers and farm/garden laborers. In addition to farmers and farm laborers, there are also those who work and do side jobs as traders. In addition, there are also several craft potentials, namely woven palm fronds, but this is only done by some people and there are not many of them. Crafts are still used for the benefit of the community and have not been commercialized. In addition, in this village there is also the potential for natural tourism in Bagan Benio Hamlet. Bagan Boneo Hamlet is located in the GSKBB Biosphere Reserve area. Another potential superior product is cattle farming, this is widely done by the community in Tasik Serai Village.



Figure 8. Permanent cow shed made by farmer groups

The Tasik Serai Village Community has farmer groups who raise cattle together, but many also organize this individually or per Head of Family (KK). The potential for developing cattle farming is quite attractive to the community, because apart from having oil palm and rubber plantations, cattle will simply be released in plantation areas. There are also those that are managed by one of the farmer groups, they release and let them roam around the company's (PT) land with around 90 cows, of which there are three cows that have been given or installed a GPS (Global Positioning System) on the cows to make it easy to track them. So far, from the work activities carried out by the community there has been no conflict.

The marketing channels for cattle in Tasik Serai Village are as follows:

- Cow buyers are local people or residents who live in Tasik Serai Village
- The limited number of cows are still used for the benefit of local residents, such as for parties or other large activities
- The buyers stated that they were ready to accommodate all the cattle developed in Tasik Serai Village because the demand for cattle was still high
- The cattle agents will usually come to the village, because the distance from the agents to the village is only about 2-3 kilometers.
- There are quite a lot of cattle agents in the village, cattle agents will usually sell them to other districts or provinces if demand is high, for example approaching Eid al-Adha.
- There are 5 (five) farmer groups capable of producing or developing cattle.
- Agents who are willing to accommodate cattle production, build verbal agreements with communities developing cattle livestock. A written agreement has never been made so far because there is no guarantee of supply from cattle breeders.

Local governments, including the Bengkalis District Government, strongly support this development pattern so the community can be helped in increasing skills and income.



Figure 9. Discussion in the context of market exploration, namely with cattle agents who usually receive cattle sales from the community, and also from Tasik Serai, East Tasik Serai and surrounding areas

4. Development of demonstration plot

The location or place that will be used as a demonstration plot is planned to be on the land or land of one of the heads of farmer groups who already have a permanent enclosure managed by the Head of the Village Representative Body (BPD) of Tasik Serai Village, namely Mr. Untung. So far, this farmer group has made efforts to develop cattle livestock in Tasik Serai Village. The demonstration plot that will be developed is the construction of a cow pen.

This cow shed is only used for the mating and calving process, because the cows are usually released freely on the plantation and monitored at all times either directly or via GPS. In the future, it is expected that cattle farming will be more intensive with good sheds. The current demonstration plot design is as follows (Figure 10):

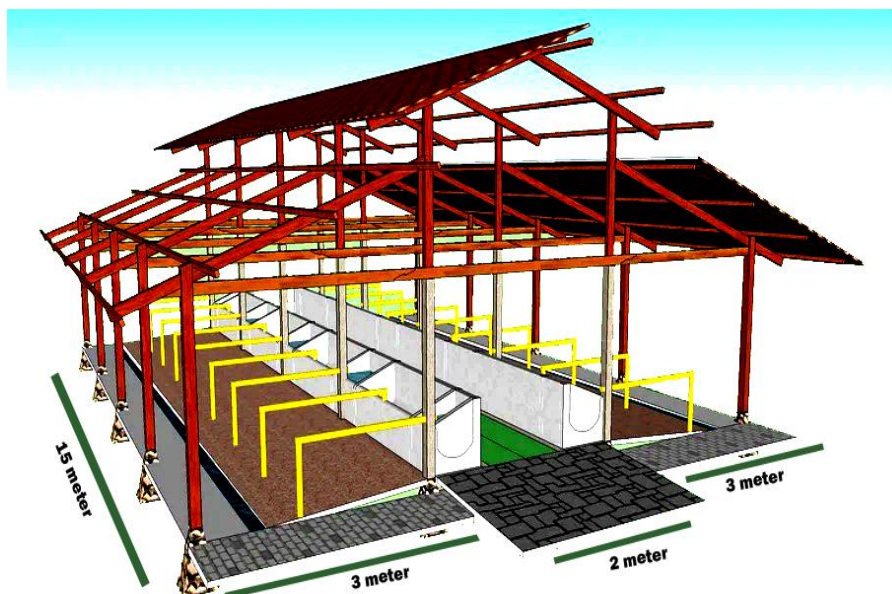


Figure 10. Design of Demonstration Plot of Cow Shed

3.6.2. Banyan Village

1. General description of Beringin Village

Beringin Village is included in Talang Muandau District, Bengkalis Regency with an area of 8,236 ha. The distance from the village office to the sub-district capital is only 1 km, to the district capital is 250 km and to the provincial capital is 100 km. Starting to be known as Beringin Mandau village in 1718 during the Dutch colonial period, Beringin Village was previously located at Pangkalan Kaboi and Pangkalan Batu Bosa in the upstream of the Beringin River,

In terms of government, currently the leadership of Beringin Village is led by a village head acting official. Because based on government policy, the definitive village head election will be carried out simultaneously. The people of Beringin Village are very harmonious in their daily lives and in the past the people earned a living or worked by shifting fields, looking for fish (fishermen), looking for resin, looking for rattan, crushing rubber/labuai sap, taking honey, taking forest fruit, rubber gardening, rice fields, hunting and so on.

In 1970, PT. Murini Timber to build an Industrial Plantation Forest (HTI) close to the Beringin Village location by opening the main road. This road is currently used by the community of Beringin Village as the main road that divides the two villages, namely Koto Pait Beringin Village and Beringin Village. Since PT. Murini Timber was established, the forest in Beringin Village was logged and converted into land for other uses. In 1991/1992, PT. Arara Abadi to build an Industrial Plantation Forest. Since then, the livelihoods of the people of Beringin Village were no longer depending on non-timber forest products because natural forests have begun to be exploited and river water has been polluted. This happens because there is no use of forests in accordance with customs and there is less involvement of local communities.



Figure 11. Office of Beringin Village

Economic Conditions

The livelihoods of Beringin Village community are quite diverse, consisting of 560 farmers, 3 fishermen, 25 livestock breeders, 7 forest product seekers, 12 craftsmen, 32 teachers, 1 government officer, 1 police (TNI/POLRI), and 23 traders. And 72 workers or employees. Beringin Village is a village with the status of the capital of Talang Muandau Subdistrict.

The income of the Beringin Village community consists of various business sectors, namely food agriculture consisting of 26 Ha of rice, 5 Ha of corn, 5 Ha of beans, 2 Ha of tubers and 2 Ha of vegetables. The two plantations consist of rubber covering an area of 66.7 Ha, palm oil covering an area of 980 Ha and secondary crops 8.6 Ha, while coconut, coffee and cloves were not found. The other farms consist of chickens, ducks, goats, cows and buffalo. Meanwhile, in the fields of fisheries, forestry and industry, this was not found.

The agricultural products harvested by the people of Beringin Village are mostly for their own consumption and if any are sold, they are only marketed at the village market and daily stalls in the village. Then in the plantation sector, the produce are sold by the community to *tokes* or agents in the village, then the agents or *tokes* sold to Pekanbaru and Bangkinang, Kampar Regency. Palm oil products are also not sold in Bengkalis Regency but are sold in Kandis which is part of Siak Regency.

2. Implementation of FGD in Beringin Village

Implementation of FGD in Beringin Village, Talang Mundau Subdistrict is running smoothly. The FGD process began with remarks from the Acting Head of Beringin Village. Community representatives who attended welcomed the activities conducted by the Riau Region FKMM consortium. The village government also welcomes the activities that will be carried out by the Riau Region FKMM consortium. After going through the process of explaining the program that will be implemented, community representatives who attended the FGD agreed to propose potential products that are worth developing, namely:

- Apis mellifera Honey Bee

The development of the *Apis mellifera* honey bee is considered potential because the Beringin Village area is surrounded by acacia plants which are the main plants in the Industrial Plantation Forest (HTI) concession area owned by PT Arara Abadi, a Sinar Mas Group company. Apart from that, the community also has knowledge and skills in developing honey bees. Support for the development of honey bees was provided by the Belantara Foundation in the form of the development of the Kelulut honey bee. The market potential for developing honey bees is also still large. Area or land for developing honey bees is also still available, although only in certain areas. The development of honey bees was proposed by the people of RW 01.

- Chili

Developing chili cultivation is also one of the economic activities proposed by the people of Beringin Village. Although not all areas in the village can develop chili cultivation. The proposal for chili cultivation was proposed by community representatives from RW 02. Considerations for developing chili cultivation in the RW 02 area are:

1. The availability of land in several areas is still sufficient, both land around residential areas and land around community gardens. Although not all communities have potential land for developing chili cultivation.
2. The community also possess skills and experience in cultivating chili plants
3. The market demand for chilies is still large, because chilies are one of the basic commodities for most people. So far, the chilies produced by the community have always been sold out in markets around the village, including the market in Duri

City.

- Development/fattening of cattle

Cattle fattening is an economic activity option that can be developed because people have the ability and experience in fattening cattle. This proposal was submitted by the community from RW 03 which is technically ready for cattle fattening. One of them is the availability of feed and land for shedding.



Figure 12. Implementation of FGD at Beringin Village

3. Potential for Superior Products and Marketing

Beringin Village is a village located in the capital of Talang Muandau District with an area of 18,711 ha with a population of 2,730 people. The population of Beringin Village, which is predominantly Muslim, is mostly inhabited by the Malay ethnic group, a tribe that has lived in Beringin Village for generations. From the summarized data, the average monthly income of the people of Beringin Village is around IDR. 2,000,000



Figure 13. Kinds of handicrafts in form of woven *nipah* leaves

The economic activities of the Beringin village community are mostly farming and agricultural labor, as well as secondary jobs as traders. Apart from that, some people carry out handicraft activities such as weaving palm leaves in the form of mats, baskets, serving hoods and there are also handicrafts made from palm leaf sticks in the form of plates, bowls and so on. The results of these handicrafts are usually sold to neighbors who need them,

because production is still small. Previously, according to information from the Acting Village Head, one of the residents who made this handicraft would be sent to Pekanbaru because he would be taking part in training.

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Figure 14. Blue Water Tourism in Beringin Village



Figure 15. Blue Water Tourism in Beringin Village

Regarding market access, especially for cattle, this is in accordance with market needs which is very good and strategic in buying and selling cattle at competitive prices. The following are several things related to information about cattle marketing in Beringin Village, namely as follows:

- Agent or cattle trader located on *Jawa* Street of Beringin Village.
- If you need beef for a party or personal needs, the buying and selling process is usually carried out between fellow residents themselves without going through an agent. However, it is also possible that the agent will provide cattle for purchase.
- The process of purchasing cattle in the Beringin Village and Koto Pait Beringin

areas is not difficult because they are available.

- Cattle agents or traders are ready to accommodate cattle production to be marketed to nearby districts/cities.
- Usually demand increases just before Eid al-Adha
- In situations where there is a large number or demand for cattle, the agent usually makes an agreement with the seller, usually in the form of whether the cattle will be paid in stages or paid immediately in full, considering the agent's limited capital. However, the agreement was not made in writing. The Beringin Village government is very supportive if there is assistance or support on how to improve the standard of living of the village community because there are still many people who are agricultural laborers.

The products obtained in this village, such as chilies, vegetables and others, are usually marketed at the weekly market in Beringin Village. This market only exists once a week, namely every Friday. This means there are no marketing problems because of the high demand for chilies. The harvested chili production can be absorbed in the local market. Even specifically for chili and vegetable commodities, they are still relatively lacking due to high demand and must get supplies from other regions.



Figure 16. Weekly Market Situation which is always held on Fridays

4. Demonstration plot development

The location of the demonstration plot cannot yet be determined. Because communication with the village head still requires an exact location. Determining the demonstration plot will later be assisted by the village government which will choose a location where the cattle pen is strategic, especially access to the location. People who will participate in the development of demonstration plots can come from people who currently cultivate bees, chilies and cattle farming. The development of the *Apis melifets* honey bee can take advantage of community groups who have been trained and carry out the development of Kelulut honey cultivation which is supported and assisted by the Belantara Foundation.

3.6.3. Koto Pait Beringin Village

1. General description of Koto Pait Beringin Village

This village is a fragment/expansion of Beringin Village which is located in Talang Muandau Subdistrict, Bengkalis Regency. Koto Pait Beringin Village has an area of around 17,086 ha with a population of 2,731 people with the majority being Malays ethnic and

Moslems. Koto Pait Beringin Village as a border town has good natural resources that can be developed, be it fisheries, agriculture and livestock products. From the summarized data, the average income of the people of Koto Pait Beringin village is around IDR. 2,000,000.

The distance from the village office and sub-district capital is 2 km, to the district capital is 250 km and to the provincial capital is 100 km. The name of the village of Koto Pait Beringin comes from a Siak royal named Gimbam. Gimbam once ran away Putri Kaca Mayang (Princess of Raja Gasib) to Koto Pait. Gimbam made a ditch as a hiding place with the princess of the enemy kingdom.



Figure 17. Office of Village Head of Koto Pait Beringin

Koto Pait Beringin Village consists of two hamlets, namely Pematang Gonting Hamlet and Seluk Bongkal Hamlet. This village consists of 4 RT and 2 RW. The institutions in the village are LKMD, BPD, LAMR, and Karang Taruna. Previously, this village still had a forest area, where this forest area had the potential for Non-Timber Forest Products (NTFPs) such as rattan, resin, honey and fish. However, the reality is that now this forest area no longer exists, the forest area has been turned into oil palm and rubber. Currently, only 2 hectares of forest remains in Koto Pait Beringin Village, which is far from residential areas and cannot be disturbed or used any longer.

Social Conditions (religion, ethnicity, education, culture)

The residents of Koto Pait Village adhere to two religions, namely Islam and Christianity. The Muslim population is 1,894 people and the Christian population is 113 people. The population according to ethnicity consists of 3 tribes, namely: Malay, Javanese and Batak. The majority of the population of this village is Malay.

The level of education of the people of Koto Pait Beringin Village consists of; there are 470 people who have not gone to school, 447 people illiterate, 563 elementary school, 325 people junior high school, 438 people high school and 12 people graduated from academy or college.

Village Livelihood Resources

The source of income for the community of Koto Pait Beringin Village consists of various business sectors, namely food agriculture consisting of 5 ha of rice, 5 ha of corn, 5 ha of beans, 2 ha of tubers and 2 ha of vegetables. Most of the agricultural produce is for

personal consumption and even if some is sold, it is only done at village markets and daily stalls in the village.

Furthermore, the plantation consists of rubber covering an area of 4,000 ha, which is sold by the community to tokes or agents in the village, then the agents or tokes sold them to Pekanbaru and Bangkinang, Kampar Regency, and oil palm covering an area of 10,000 ha, the harvest of which is also not sold in Bengkalis Regency. However, it is sold in Kandis which is part of Siak Regency.

Apart from that, the fisheries sector consists of 3 people and river fisheries consists of 48 people. Another sector is livestock, consisting of chickens, goats and cows. The forestry sector, which consists of rattan, resin and honey, is not found in the GSK-BB area, and wood seekers from forest areas are not found, as is the industrial sector. Meanwhile, prices are almost the same as other areas, so there are no problems with marketing channels because almost all Beringin villages and Koto Pait Beringin villages use land routes as marketing channels.

2. Implementation of the FGD in Koto Pait Beringin Village

The implementation of the FGD in Koto Pait Beringin Village went smoothly according to plan. At the beginning of the FGD implementation process, some people questioned the sustainability of the program. The community expects that it will not only be economic identification activities but will also continue with other concrete support. The FGD process was unsuccessful in finding a common ground on what economic activities would be proposed. Because each participant has various desires. This situation was mediated by the acting Village Head of Koto Pait Beringin who proposed to view and analyze the results of the questionnaire that had been filled in at the start of the FGD. For this reason, the next process was handed over to the Riau Region FKMM team to analyze it.

After going through the process of recapitulation and analysis of the given questionnaires, the superior product proposed by the majority was the development of honey bees. The development of honey bees can be developed because they can be cultivated around housing and around gardens. Apart from that, the development of honey bees has also been developed in Koto Pait Beringin Village with the support of the Belantara Foundation. Apart from that, the market share for marketing honey is also still promising. The support provided by the Belantara Foundation also still has some facilities and infrastructure remaining, including a kelulut honey breeding site. Apart from that, the Belantara Foundation has also provided training in kelulut honey cultivation. Even though the implementation did not continue.



Figure 18. Implementation of FGD at Koto Pait Beringin Village

3. Potential for Superior Products and Marketing

Some of the superior products from the Koto Pait Beringin Village area include growing chilies, vegetables and fruit. However, currently more people are turning their land into oil palm plantations. The Koto Pait Beringin Village area is an area where conflicts often occur with wild animals, especially elephants. Recently, according to information from one of the village officials, there was an attack by elephants which damaged crops and settlements. This happens repeatedly when residents try to carry out agricultural activities on land that is actually controlled by the company. People are often "terrorized" by rampaging elephants.

Apart from that, there are some people who carry out handicraft activities such as weaving from palm leaves in the form of mats, baskets, serving hoods, and there are also handicrafts from palm leaf sticks in the form of plates, bowls and so on. The results of these handicrafts are usually sold and marketed to neighbors who need them, because production is still small. Not only that, this village also has several tourism potentials that have not been touched by the government and private sector. These tourist attractions are called Old Forest Tourism and Warm Water and Cold Water Tourism.

In terms of the potential for cattle products, this has more potential that can be done, considering that the community's activities are agricultural laborers, but they also have quite a few livestock, namely cows. Regarding market access for buying and selling cattle, it is quite easy, because the agent is in the next village, namely Beringin village. Agents are ready to buy in small or large quantities, but in situations of large quantities, the agent usually makes an agreement with the seller, usually in the form of whether the cattle are paid in stages or paid immediately in full, considering the agent's limited capital.

The superior products proposed and agreed upon in the FGD process which were summarized through a questionnaire, mostly proposed Kelulut honey cultivation. The market opportunity for Kelulut honey is still open. Marketing of Kelulut honey can be done through traders who specifically act as collectors. It is acknowledged that the marketing of Kelulut honey is not yet widespread because not many people have follow-up businesses from Kelulut honey. But the kelulut honey produced can be absorbed in large quantities.

4. Demonstration plot development

Regarding the location that will be used as a demonstration plot, the village government will later assist in selecting the location for Kelulut honey development? The creation of demonstration plots can be determined in locations where there is already development or cultivation of kelulut honey supported by the Belantara Foundation.

3.6.4. East Tasik Serai Village

1. General Conditions of East Tasik Serai Village

Tasik Serai Timur Village is one of the villages included in the core zone of the GSK-BB biosphere reserve. This village has a population of 2,730 people with a village area of around 18,711 ha. The majority population is Muslim and the ethnic group is Javanese. Tasik Serai Timur Village has an area of 890 km² or 800,000 ha consisting of 3 hamlets, 4 RWs and 18 RTs and is led by 1 village head along with 4 village staff and 5 heads of affairs. Apart from that, to balance the village government, there are 2 Village Community Institutions, namely 1). Village Representative Body (BPD) with 9 members and 2). LKMD with 9 members.



Figure 19. Visit to Office of Tasik Serai Timur Village Head

Aspect of Demography

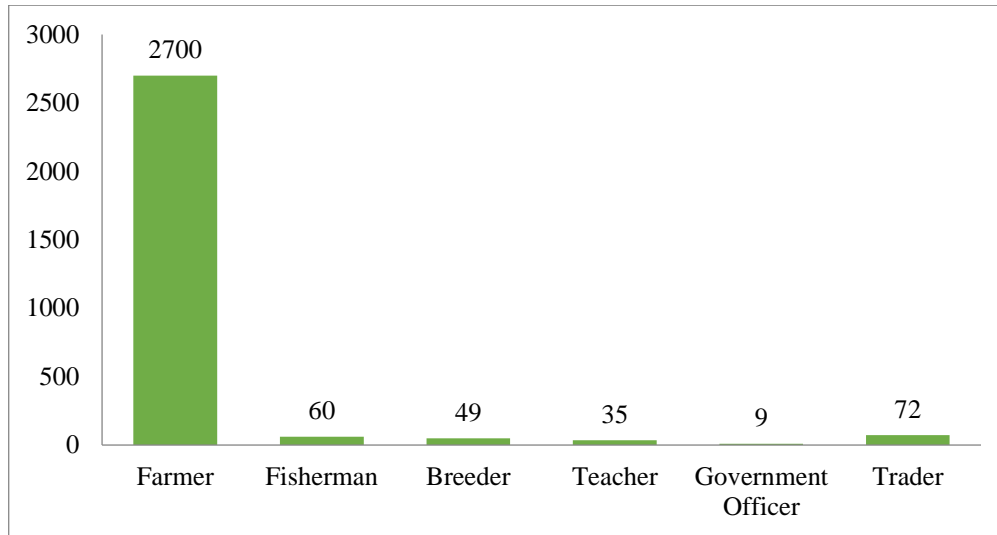
Based on data from the Tasik Serai Timur Village Head's office, the recorded population is 3,447 people, consisting of 1,836 men and 1,611 women. The composition of the population is divided into various age groups with 876 heads of families. With a poor population of 295 heads of families.

Based on the characteristics of the community based on age, it is known that the majority of the people in Tasik Serai Timur Village are of productive age, amounting to 1,734 people. Thus, it can be said that the majority of the people of Tasik Serai Timur Village are still of productive age, so this will give an indication that the people still have the physical strength to work, are easy to adopt new innovations and have social responsibility for the livelihood of all their family members, if they are farmers, fishermen, traders, entrepreneurs and employees of productive age. This also means that in the productive age, people can carry out activities and programs that the government can make so that they comply with regulations and are right on target.

Employment

Employment is closely related to population growth. Based on village data, it is stated that the agricultural sector is the largest business sector in absorbing labor. Below is a graph of business employment for the residents of East Tasik Serai Village.

Graph 2. Employment opportunities for residents of East Tasik Serai Village



The graph above explains that almost on average the people of Tasik Serai Timur Village earn their livelihood as farmers, either as plantation farmers or food farmers. The large number of people who work as farmers is because they are supported by natural resources for plantation crops and food commodities. Apart from that, one of the natural resources owned by East Tasik Serai Village is Tasik Serai which can be used for fishing.

Condition of Infrastructure in East Tasik Serai Village

Infrastructure facilities in the form of roads in the village are currently spread both within the village and on roads leading to the village. There are still dirt roads at 20 points and asphalt roads at 5 points. This condition will indirectly impact the number of land transportation facilities. The number of land transportation facilities owned by the community is 60 bicycles, 950 motorbikes and 50 cars. Meanwhile, water transportation owned by the community includes 50 canoes and 1 motorboat.

The marketing facilities in Tasik Serai Timur Village are in the form of a public market and kiosks. The number of markets in the village is 1 unit and there are 32 kiosks/stalls. The market in East Tasik Serai Village is a weekly market. While the traders who sell at the market are mostly itinerant traders from outside the village, usually these traders come from areas around Duri City or Perawang.

2. Implementation of FGD in East Tasik Serai Village

Tasik Serai Timur Village is one of the villages whose area borders directly on the Giam Siak Kecil Bukit Batu Biosphere Reserve. The implementation of the FGD in this village went smoothly. Apart from bordering the biosphere reserve, the village

administrative area also borders and is surrounded by Acacia plants which are part of the Industrial Plantation Forest (HTI) concession of PT. Arara Abadi. After explanation and presentation from the Riau Region FKKM regarding the GSKBB biosphere reserve. Next, the aims and objectives of implementing the activities carried out by the Riau Region FKKM are presented.



Figure 20. Implementation of FGD at Tasik Serai Timur Village

During the discussion process and identification of potential economic activities that could be developed, the majority of people present wanted the development of oil palm. However, after being conveyed about palm oil, the community representatives present understood and understood. After going through a discussion process, it was agreed to propose economic activities in the form of developing or fattening cattle. However, provided that there is provision of land on loan from the HTI Company PT. Arara Abadi for planting cattle feed grass. Because currently there is no public land available that can be developed for planting grass for cows.

The choice to develop beef cattle was due to the still high demand for beef. The need for cattle is not only during Eid al-Adha, but also on normal days. This is proven by the fact that there are still many parties looking for cattle to meet the meat needs of the Duri City area and its surroundings. Even during the sacrificial holiday, the need for cows increases. Cattle fattening has been hampered by the availability of feed. This limited feed availability is also related to the availability of land for growing animal feed that will be developed. Because this village area is surrounded by the HTI area of PT. Arara Abadi.

When discussing the possibility of developing cage fish in biosphere reserves, the community said that it was currently difficult to do. Because in recent years the water discharge conditions in the biosphere reserve lake have been erratic between the rainy and dry seasons. Even during the rainy season, very dry conditions often occur which are vulnerable to fires. Experience so far shows that the cages made cannot produce throughout the year.

3. Potential for Superior Products and Marketing

The residents of Tasik Serai Timur Village mostly work as oil palm and rubber farmers. Apart from that, there are also those who work as traders and fishermen who catch fish in rivers or lakes, but the number of fishermen is very small. From the summarized data, the average income of the people of Tasik Serai Timur village is around IDR.

2,500,000. As a side job, the average person in Tasik Serai Timur Village owns livestock such as cows. These cows will be released every day on their own plantations, according to information from one of the hamlet heads that this village has a cattle farmer group where they keep cows in their respective places.



Figure 21. Discussion with the Sub-village Head in Tasik Serai Timur Village, discussion about cattle farming planning and grass/feed production land.

Regarding market access in buying and selling cattle, it is easy to do, cattle agents will usually come to the village, because the agents are in Tasik Serai Timur Village, but there are also those from neighboring villages and other sub-districts such as the Duri region who also usually look for cattle to market. . Apart from that, regarding the production of cattle feed, namely *gelaga* grass, there is quite an interesting potential in this situation, so the potential that can be developed is cattle and land that will be used as cattle feed, this feed will later be produced and resold to people who own cattle, especially to group members. So far, the work activities carried out by the people of Tasik Serai Timur Village have not had any conflicts with animals. However, there is a conflict with the land managed by the company in the village area regarding control of the land between the company and the community.

Apart from that, this village area also has tourism potential which has the potential to be developed further. The tourism potential is Lake Tasik tourism which is located at km.58. Lake Tasik is quite interesting as a tourist destination, apart from being a tourist destination, this lake is also a route to Bagan Benio Hamlet, which incidentally is a local and indigenous community that is still traditional and lives above the waters of the GSK-BB river.



Figure 22. Lake Tasik tourism KM 58 in Tasik Serai Timur Village

4. Demonstration plot development

Regarding the location that will be used as a demonstration plot, the Hamlet Head will later assist in finding the location of land that will be used as a place to make feed or a place to fatten cattle. The community does not dare if there is no land for developing food. If there is certainty of land for food development, the community will be willing to create a demonstration plot.

3.6.5. Bukit Batu Village

5.1. General description

Bukit Batu Village, Bukit Batu District, is a coastal area, because it is located close to the Bengkalis Strait. This village is a very old village, because it has existed since the time of the Siak Sri Indrapura Kingdom. According to legend, this village comes from the name "rocky hill", which is said to have a magical existence, and can only be found by people who are "lost" (lost direction and don't know their position) in the forest. It is said that according to the story, this hill was once discovered by people who were lost in the forest and then disappeared again from human sight. However, no one in the community found it, if they deliberately looked for it. In the past, this village already had a post office and a special school owned by Chinese people.

For this reason, the sub-district in this area was named Bukit Batu Sub-district with its capital being the Pakning River. The relationship between Bukit Batu and the Siak Sri Indrapura Kingdom is very strong, because in this village there is the Bukit Batu Palace which functions as the center of the navy and is commanded by a Datuk Admiral, and he is known as Datuk Admiral Raja Di Laut who resides in Bukit Batu. In this area there are quite a lot of historical sites - which are now maintained and fenced by the government - such as the tombs of kings, mosques, cannons, palaces, temples, etc.

Bukit Batu Village has an area of approximately 16,200 km². The population of this village reaches 1,183 people, with details of 600 men and 583 women. The total number of heads of families (KK) in this village is 358 families. Apart from that, Bukit Batu Village has regional boundaries, including to the east it borders Buruk Bakul Village, to the west it borders Sukajadi Village, to the south it borders Mandau District, and to the north it borders the Bengkalis Strait.

According to stories from a number of traditional leaders, elders and people who live in this village, previously Bukit Batu Village was only inhabited by a minority of Malay people who lived in coastal areas and along the Bukit Batu river, which is now

located in the area of Bukit Batu Laut subvillage. In general, the people of Bukit Batu Village at that time worked as fishermen to meet their daily needs. However, there are also a small number of them who work as farmers, such as cutting rubber, gardening and so on.

Over time and the development of the times, Bukit Batu Village, where most of the community's activities were previously centered around the coast and along the estuary and flow of the Bukit Batu river, gradually experienced an expansion of its residential area due to the increase in population, such as people from Java who came and settled in this village, so finally a united village community was formed which was led by the head of village.

2. Implementation of FGD in Bukit Batu Village

The dialogue or FGD in Bukit Batu Village, Bukit Batu District was held on February 7 2024 in the hall of the Bukit Batu Village Head's office. The FGD process was attended by village government representatives including RW and RT heads, representatives of the Village Representative Body (BPD), community leaders, religious leaders, traditional leaders, youth leaders, women's leaders and community representatives including farmer groups. The FGD began with conveying the aims and objectives of implementing the activities, then continued with a presentation about the GSKBB Biosphere Reserve area and its relationship with Bukit Batu village.

Afterward, information was extracted on economic activities in Bukit Batu Village. In this process, information was obtained that there were several types of potential local products such as rice, corn, bananas and black honey. In the livestock sector, there are also goats and cows, and in the fisheries sector, the people of Bukit Batu Village prefer to develop caught fish which can later be sold to the community in the village. These products have available land and materials and have sufficient potential to be used by the community...

In agricultural economic activities, food crops that produce local products have several obstacles. These obstacles include poor irrigation facilities for rice plants, the number of fish catches that are decreasing, and the community's knowledge and skills in cultivation are still minimal and limited. Other obstacles are the availability of poor quality and difficult to obtain parent cattle and goats, the relatively expensive price of fertilizer and of course the most basic thing is limited capital support.

After going through a discussion process and hearing input and suggestions, the priority economic activity to be developed was goat farming. Because so far many people have developed goat farming. Apart from that, the market or buying party is also available. Moreover, at certain times such as the wedding reception season and during the Eid al-Adha holiday or the festival of sacrifice. Traders who search are usually local people or local residents or residents from surrounding villages. So far, goat livestock that have been developed by the community can be absorbed by the market



Figure 23. FGD Implementation at Bukit Batu Village

3. Potential for Superior Products and Marketing

Like other villages, the majority of the people of Bukit Batu Village are farmers, apart from that there are also those who work as fishermen, employees, traders and laborers. According to data sources on the level of village development, Bukit Batu Village is a village with a fairly high unemployment rate, on average in the productive or working age. Many people work as laborers, including agricultural laborers, and do not have enough land to manage.

Besides having an interesting history that is always discussed, Bukit Batu Village also has various tourism potentials. Among the tourism potentials include the Bukit Batu Laut mangrove forest tourist attraction, as well as the natural charm of Bukit Batu Laut with the atmosphere of the Bukit Batu river which always spoils the eyes. Apart from that, there are also traditional Bukit Batu MSME products, such as *Lejo* woven cloth and sago crackers, as well as typical Bukit Batu foods, such as *laksa*, rhino cake, *kemojo* sponge cake, *asidah* and so on.

Apart from potential, various other historical heritage sites in Bukit Batu are also always interesting to visit. Among others are: Rumah Orang Kaya Raja Negara, Rumah Datuk Laksamana, historical relics and their tombs. Separately from that, Bukit Batu Tourism Village also provides accommodation or homestay facilities in Bukit Batu Laut Hamlet, mosques and public toilets, places to eat, souvenirs, photo and digital creative places managed by the Bukit Batu Village Volunteer team.

The development of goat farming proposed by the community as an economic activity that is worthy of development has become a desirability in itself. Available goat livestock can be promoted and marketed by exploiting the tourism potential that has been developed. People from outside Bukit Batu Village who visit this village can become a market opportunity to accommodate existing and future goat livestock. This means that it can provide mutual support between the tourism potential and development of goat farming and the economic potential of other communities.

4. Demonstration plot development

The location that will be used as a demonstration plot for goat drums has been determined by using the land of one of the residents. The current condition of the land has

not been cleared and there are still bushes. The following is a picture (Figure 24) of the prospective location for developing a goat drum demonstration plot:



Figure 24. Location for the development of the Goat Demonstration Plot

3.7. Assisted Village SENDS Association

3.7.1. Selat Guntung Village

1. Problem Identification

The FGD process in Selat Guntung Village, Sabak Auh Subdistrict began with identifying problems related to economic development. Problems that arise include:

1. Limited business capital in financing feed in the laying duck farming business.
2. Limited woven raw materials in the form of *pandan* which is not available in Selat Guntung village, currently it is still imported from Sungai Apit sub-district
3. Limited raw materials for rattan crafts which are not available in Selat Guntung village
4. Limited production of *tempeh* (traditional fermented Indonesian soy food). This is due to the lack of soybean crushing equipment and the price of soybeans is increasing, while the selling price of *tempeh* has not increased.
5. The technology for preserving *nipah* fruit juice has not been mastered and there are marketing difficulties considering that this product cannot last long.

In general, Selat Guntung Village is a thriving community amidst economic challenges and limited resources, facing a number of problems that need to be solved in order to improve the welfare of its communities. The first problem faced is limited capital in financing feed for the business of raising egg-laying ducks. This is a significant obstacle in developing the scale of livestock businesses and requires creative solutions to increase access to capital.

Apart from that, the need for raw materials for woven *pandan* is an obstacle in itself, because presently it has to be imported from Sungai Apit sub-district. Efforts to seek local resources and develop alternatives need to be strengthened to overcome these limitations. Another problem is the limited raw materials for rattan crafts in Selat Guntung village. Innovation in identifying local resources that can be used to replace rattan needs to be conducted to support the development of the craft industry in this village.

In the agricultural sector, limited *tempeh* production due to rising soybean prices is a serious problem. The sustainability of *tempeh* production needs to be guaranteed through adequate solutions, such as the procurement of soybean crushing equipment or other

strategies to overcome rising raw material prices.

2. FGD Implementation at Selat Guntung Village Potential and Innovation

1. Utilizing palm oil stick waste to make broomsticks, on a large scale, can help and even support the community's economy.
2. Utilization of forest/logged wood, used to make products that have sales value such as ashtrays, flower vases, knife handles and others.
3. Potential for aquaculture such as cultivating African catfish and tilapia.
4. Utilization of coconut shells to make charcoal.
5. There is *kelulut* cultivation for the production of *kelulut* honey which is still small while demand is still large.

Furthermore, the potential and innovation in Selat Guntung Village can become the basis for local economic development. Utilizing palm oil stick waste as raw material for broomsticks, using forest wood for marketable products, and the potential for aquaculture such as cultivating African catfish and tilapia can be creative solutions to increase people's income.

Not only that, the use of coconut shells to make charcoal and the cultivation of *kelulut* as a source of honey are also potential that can be developed further. By utilizing local resources, the people of Selat Guntung Village can create sustainable and competitive innovations, as well as support local economic growth while maintaining environmental sustainability. The use of technology in preserving *nipah* fruit juice and efforts to overcome marketing problems need to be considered. Involving the community in mastering technology and effective marketing strategies can help overcome these challenges and strengthen the local economic sector.



Figure 25. FGD Implementation at Selat Guntung Village

3. Marketing Potential of Superior Products

Based on questionnaire analysis, the majority of respondents have lived in the Guntung Strait area for more than 10 years. The most common perception regarding the development potential of Giam Siak Kecil - Bukit Batu (GSK-BB) is related to increasing income. Most of the people are involved in agricultural activities, which makes agriculture the main economic activity in the region. Even though tourism activities have potential, the

percentage of presence and involvement in tourism activities in this region is relatively low, at 5.26% and 15.79% respectively.

However, there is diversity in local craft production, with the percentage of local production reaching 94.74%. The most common craft product is woven mats, which are produced by 57.89% of respondents. Agricultural products are the main market demand in the Selat Guntung, with 42.11%. Apart from that, there is a fairly high presence of fishing businesses, reaching 84.21% of respondents. The most suggestions for demonstration plot locations are near residential areas. The percentage of ability/experience required by the market and the percentage of willingness to be involved in developing demonstration plots are relatively high, namely 78.95% and 63.16% respectively. The majority of respondents (84.21%) expressed their willingness to participate in the development of GSK-BB,

In order to confirm the results of the questionnaire analysis, the SENDS Association carried out a post-FGD visit to confirm the questionnaire analysis data with the Selat Guntung Village Government. This activity was immediately accepted by the Penghulu Kampung (Village Head) for further discussion. Questionnaire analysis data stated that Selat Guntung Village has market needs in the agricultural sector. This has also been confirmed by the village government that the majority of people carry out agricultural activities.

In several places close to river embankments, there are disturbances due to the entry of brackish water leakage into agricultural areas, so that more or less there is an unfavorable influence on rice farming activities and in turn also affects the yield and number of harvests. For land area that is not affected by brackish water leakage, the community's rice farming conditions are running well and the harvest is also normal.



Figure 26. Pandanus weaving crafts at Selat Guntung Village

At present, the rice harvest is not sold to outside, but only for local community needs. This is also influenced by the species of rice planted by the community, mostly local rice which has a higher price than rice in general. For example, the sweet skin species of rice has a rice price of IDR. 18,000/kg. This price is unlikely sold to the general public. This price is still at the farmer, and will definitely increase again if you move to the rice shop, so the price will certainly be even more expensive. However, this is what makes rice farming unique in Selat Guntung Village, with its own characteristics.

4. Development of Demonstration plot

From the results of discussions with the village government and taking into account the results of the questionnaire analysis, the proposal for establishing a demonstration plot from Selat Guntung Village is as follows:

1. Establishment of an organic sweet skin rice agriculture demonstration plot

Agriculture with an organic system is a cultivation system that prioritizes the use of natural components to support cultivation, for example in terms of fertilization and maintenance, herbicides and insecticides with natural materials are substitutes for synthetic ingredients applied to plants.

Organic farming is developing with increasing knowledge, awareness and demand for quality products that are clean and healthy, especially free from chemical residues that are attached and over time will settle in the body so that they can cause various kinds of disturbances to humans.



Figure 27. Organic rice

Organic farming methods are currently extremely developed, apart from having low production costs, organic farming also has economic value which can be said to increase profits by up to 300% compared to products from current conventional farming systems which use chemicals. Apart from its high economic value, organic farming plays a very important role in the surrounding environment, especially in the sustainability of the cultivation business involved.

Kuitt Manis rice is a local upland rice variety which is believed by the farming community in Selat Guntung Village to be a rice plant that can still adapt well, even though the planting method currently used by the community is one time planting per year, it still has better economic potential than other rice varieties. The desire to try organic farming arose from the large demand for healthy rice in the community, so it is expected that in the future Selat Guntung Village can become a center for Organic Sweet Skin Rice in Siak Regency.

To carry out organic farming, basic knowledge is needed about what is meant by organic. Presently, from the results of discussions with the people of Selat Guntung Village, they still do not feel confident about immediately changing their habits of using chemical elements in an extreme way, so it was agreed to reduce the percentage of use of

chemical fertilizers and increase use of natural fertilizers such as compost and other organic fertilizers to balance soil chemical conditions.

The basic thing that was agreed upon was a major reduction in the use of chemical insecticides and fungicides by processing organic materials as substitutes for chemicals such as the use of tobacco extracts, onion and garlic extracts, *pace* fruit extracts, citronella extracts and other ingredients containing potassium, cyanide and ZPt ingredients to stimulate growth, especially during the early planting period.

To carry out this organic rice business, it was mutually agreed that it would be carried out using intensive rice field farming techniques or better known as the SRI (System of Rice Intensification) rice field farming method, where this system was deemed very suitable to be developed considering the natural conditions in Selat Guntung Village, for this reason it must pay attention to the following things:

- The seeds used are young seedlings aged less than 12 days after sowing (HSS) when the seedlings still have 2 leaves. At this age, the rice seeds are still attached to the body of the seedling. These rice seeds function as a food reserve for the rice plants that will be planted while the plants adapt to the new environment. Apart from that, at this age there are not many roots so it will reduce damage to the root structure. This is different from the conventional method where the seeds are seeds that are more than 20 days old after sowing.
- Seedlings are planted one seedling in one hole with a minimum distance of 25 x 25 cm. This is intended to provide space between seedling which will prevent disease transmission and allow sunlight to penetrate to the bottom of the trunk.
- Transplanting must be as soon as possible (less than 30 minutes) and must be careful so that the roots do not break.
- Plant rice seedlings shallowly to make it easier for young roots to get nutrition.
- Water management (providing a maximum of 2 cm of water and the soil is not irrigated continuously until it is submerged and full, but only damp) (intermittent/interrupted irrigation). This is adapted to the character of rice plants which actually want water that is only *macak-macak* (not dry and not waterlogged) and does not like stagnant water.
- Increased soil aeration with mechanical plowing to increase the activity of microorganisms and to facilitate nutrient absorption.
- Weeding from the start when the seedlings have reached around 14 seedlings to avoid competition for access to nutrients as the plants grow bigger.
- Maintain the biological balance of the soil by using organic fertilizer.

2. Planting *pandan* seeds in the land around the house of the *pandan* woven craftsman

The potential for developing crafts made from the thorny *pandan* plant (*Pandanus holicapus*) in Selat Guntung Village is currently one of the supporting factors for the community's economy, especially for women, products that can be made on a household scale can be quite helpful for the economy when the Covid pandemic has hit for several years. In the past, women took an important role in turning around the family's deteriorating financial condition.

Crafts made from thorn *pandan* can now be marketed abroad via sea, either in Bengkalis Regency or Dumai City. Some of the crafts that are often in demand are woven mats and bags, either plain, colored or those with motifs and colors.

The use of *pandan* thorns has been taught for generations in coastal areas, this

would be very good if maintained as an effort to reduce the use of plastic or other chemicals that can damage the environment. However, currently the existence of the thorny *pandan* plant as a natural material is very limited, because many forest areas have been converted into plantation areas which is actually wet and the habitat of the pandan thorn itself and those areas have become much reduced.

Until now, to fulfill orders, women bring in from other villages, thereby increasing production costs. Based on discussions with the community and especially the women's group in Selat Guntung Village, a solution was found to try to plant thorny pandan in the yard belonging to the 20 members of the women's group, so that in the future it is expected that this will be able to meet the demand for woven materials. The group recognizes that the closer the source and materials for weaving will make it easier and of course lower production costs so that it can increase the percentage of profits gained by the weaving craftsmen.



Figure 28. Woven Crafts

The following is an overview of the stages of material processing from thorny pandan as a woven material for community crafts. First, the *pandan* leaves are cleaned, then the pandan leaves are cut into 1-3 cm pieces, then boiled for approximately 30 minutes to remove the sap, after that they are dried in the sun in a cool place (aired) \pm 6 hours then softened with rectangular wood, then soaked again for \pm 4 hours, then dried in the sun again until it turns whitish. After drying, if you want to color it, then dye it, then soften it again and it is ready to be woven into *pandan* mat sheets, either with artificial colors or just with the original color. After it becomes a mat shape, then it can be shaped into other creativity and creations such as bags, wallets, key chains and etc., and to add an aesthetic and elegant impression, several other supporting materials are needed, such supporting materials as sponge, pinil, glue, accessories, beads, ribbons and others.

3. Utilizing open land to plant pandan seeds as additional raw materials, thereby reducing dependence on raw materials from other villages.

Open and unused land will be the location for a program to develop raw material sources for pandan crafts. Apart from that, of course, it is expected that the ecological function can be rebuilt, especially in shallow water areas or on river banks as a form of environmental conservation effort.

3.7.2. Tuah Indrapura Village

1. Problem

1. Lack of availability of raw materials for food/cakes in the form of mackerel fish, and new marketing methods through online sales.

2. Scarcity of subsidized fertilizer for agriculture and less stable market prices for crops.
3. Lack of knowledge about tending for livestock.
4. Prices of crops from plantations are unstable.
5. Activities of MSME (UMKM) are hampered by marketing and business capital.
6. The market price of livestock is controlled by middlemen.
7. The feed availability in the form of grass is difficult to obtain during the dry season, because much of the land is used for oil palm plantations.
8. During the rainy season, there are lots of mosquitoes and blood flies, which has the potential to cause disease.

Tuah Indrapura Village, a community in the midst of dynamic economic and environmental change, faces a series of problems that require attention and innovative solutions in order to reach balance and sustainable progress. First of all, problems related to the lack of availability of raw materials for food/cakes, especially mackerel, are a serious obstacle in the diversification of local food products. In addition, the need to adopt new marketing methods through online sales has become imperative to expand market reach and increase competitiveness. Scarcity of subsidized fertilizer and fluctuations in market prices for crops are two problems related to agriculture that need to be addressed holistically. Solutions that involve improving fertilizer distribution systems and developing stable marketing strategies can help increase farmer incomes and increase agricultural sustainability.

The third problem is related to the lack of knowledge about caring for livestock, making potential losses in the livestock sector. For this reason, training and education of local communities regarding good care practices is needed to help improve the welfare of livestock and overall livestock productivity.

No less important, variations in the price of harvested crops from plantations and marketing and business capital constraints in the MSME sector need to be given serious attention. Developing effective marketing models and involving the community in capital resources can increase the competitiveness of local businesses and increase community income. Other problems, such as middlemen's control over the market price of cattle, limited availability of grass feed due to land use for oil palm plantations, and the potential for disease caused by mosquitoes and blood flies during the rainy season, require innovation in resource management and public health prevention.

2. Potential and Innovation

Potential economic activities that can be developed in the Kampung Tuah Indrapura area are the use of house yards/garden for fruit and vegetable plants, because previously house yards were also used for oil palm plants. This effort is not only in order to support local food security but also strengthen the household economy.



Figurer 29. Implementation of FGD at Tuah Indrapura Village

3. Marketing Potential of Superior Products

From the results of the questionnaire analysis, it appears that the most perceptions related to the potential for developing Giam Siak Kecil - Bukit Batu (GSK-BB) in this area are related to environmental conservation. The majority of respondents are involved in agricultural activities, making agriculture the main economic activity in Tuah Indrapura. The percentage of tourism activities in this area is quite high, amounting to 21.43%, but none of the respondents were involved in these tourism activities. There is also diversity in local craft production, with the percentage of local production reaching 50.00%. The largest number of craft products is agricultural, which is produced by 21.43% of respondents. Agricultural products are also the main market need in Tuah Indrapura, with 57.14% of respondents stating this.

Apart from that, 71.43% of respondents had fishing businesses. The most suggestions for demonstration plot locations are near food crop farming land. The percentage of ability or experience required by the market and the percentage of willingness to be involved in developing demonstration plots vary quite widely, namely 50.00% and 78.57% respectively. The majority of respondents, namely 78.57%, expressed their willingness to participate in GSK-BB development efforts in the Kampung Tuah Indrapura area.

In order to confirm the results of the questionnaire analysis, a repeat visit was made to the Penghulu Office (Village Head Office) of Tuah Indrapura Village and met directly with the Village Penghulu to confirm the results of the questionnaire data analysis. From the data obtained, the main market need is the agricultural market. This is in line with current conditions, most of the people in this village are farming. Apart from rice, there are also agricultural products in the form of chilies, onions, vegetables. For the harvest itself, there are already collectors/*tokes* who come to buy it directly from the farmers. Likewise with rice, farmers are used to selling grain and very rarely sell it in the form of rice. Because they feel that if they sell grain, there is no longer a need for the drying process. After harvesting, you can immediately get money from *toke* which comes from South Sumatra. In fact, if farmers are patient in carrying out the drying and milling process until it becomes rice, the results they will get will be much more than the results from selling the grain.

There are many factors that influence this behavior, including urgent living needs and there are also farmers who owe the *toke* before harvest, so that when they harvest they have to immediately sell their grain to pay the debt. This condition requires intervention from the local government to help farmers increase their revenue by not selling grain, but by carrying out the drying and milling process so that what is sold is rice at a reasonable price.



Figure 30. Continuation of FGD, Market Potential of Tuah Indrapura Village

None of the rice harvest is left unsold, the market is very open to accommodate the harvest. However, recently the price of fertilizer has also become more expensive and subsidized fertilizer has become increasingly difficult to get, so this will more or less affect the number of harvests. It is also starting to be felt that the use of chemical fertilizers has had an unfavorable impact on soil conditions, thereby reducing crop productivity. Based on these conditions, Tuah Indrapura Village proposes to create an organic rice farming demonstration plot. The village government is also ready to find land that will be used as a location for an organic rice farming demonstration plot.



Figure 31. Potential of Rice Fields in Tuah Indrapura Village

4. Development of Demonstration Plot

In contrast to Selat Guntung Village, the rice fields in Tuah Indrapura Village are less likely to receive adequate water sources, so that in agricultural practice two planting seasons can be carried out in 1 year. The agricultural intensity in Tuah Indrapura Village is higher because it is a food center in Siak Regency. However, this is done by using fertilizers and supports which are all chemical based, fertilizers, herbicides, fungicides and also insecticides with synthetic mixtures to achieve production.

The communities of Tuah Indrapura Village are concerned about the habits that have been carried out by farmers using chemicals which tend to increase day by day in terms of quantity and price. The discussion began to discuss opportunities for organic farming which were felt to be able to answer these concerns. Experiments related to organic farming had already been carried out by several youth leaders but limited knowledge meant that the number of successes during harvest was still below the amount of land that used chemical fertilizers.

This limitation is what underlies the community's desire to carry out an organic pilot with superior rice varieties that have been used by the community. This is certainly a stepping stone in efforts to prevent soil damage due to the continuous use of chemical fertilizers. For this reason, the village has prepared 1 ha of rice field and a management group consisting of the community and will also be assisted by agricultural extension workers.

The community's hope from this organic farming demonstration plot is to increase the quality and value of the planted agricultural products. This is also related to the farming community's habit of selling wet grain to middlemen who come from outside the area. This is done because the community has not received a good selling price for the commodity. Current production results, the size of the harvest in Tuah Indrapura Village ranges from 5 to 8 tons per hectare with the selling price of grain from IDR. 4,000 - IDR. 5,000 which is compared to the production costs that farmers have to pay per hectare per season with prices increasing, especially for fertilizer and other supporting facilities.

3.7.3. Muara Bungkal Village

1. Problem

On January 8 2024, FGD activities were carried out at the Muara Bungkal Village Penghulu Meeting Hall, the invited participants were representatives from the village government, village advisory bodies, community leaders, religious leaders, traditional shops, youth leaders, women's leaders and MSME actors.

Participants were given an understanding of the Giam Siak Kecil - Bukit Batu biosphere reserve area and its connection with the existence of Muara Bungkal village. The discussion activities ran smoothly and participants were quite active in providing opinions. In capturing issues, problems as well as existing potential, participants are asked to fill out the questionnaire that has been provided.



Figure 32. Activity of FGD at Muara Bungkal Village

In Muara Bungkal Village, the largest perception regarding the potential for GSK-BB development is in the field of sustainable tourism. The majority of participants are involved in agricultural activities, making agriculture the largest economic activity in this area. Even though tourism activities have potential, the percentage of presence and involvement in tourism activities in this region is relatively low, at 21.43% and 0.00% respectively. However, there is diversity in craft production/local production, with the percentage of handicraft/local production reaching 50.00% and the largest craft production is woven. Agricultural products are also the main market need in Muara Bungkal, with 21.43% of participants stating this. Apart from that, there was a fairly high presence of fishing businesses, reaching 57.14% of participants.

2. Potential and Innovation

The most suggestions for demonstration plot locations are near agricultural land. The percentage of ability/experience required by the market and the percentage of willingness to be involved in developing demonstration plots are relatively low, namely 21.43% and 50.00% respectively. However, the majority of meeting participants, namely 64.29%, expressed their willingness to participate in efforts to develop the GSK-BB Biosphere Reserve.

After carrying out FGD activities, on 15 February 2024 the SENDS Association returned to the village to dig up information in order to explore several points that would be developed. The community in Muara Bungkal Village consists of local people and immigrants. Local communities are more active in plantations, while migrant communities are more involved in agricultural activities. Apart from that, there is also potential for Non-Timber Forest Products (NTFPs) such as resin and honey. The community's agricultural products consist of chilies, rice, cassava, shallots and watermelon. Currently farmers are under guidance from Earth Worm. Earth Worm helped provide seeds initially, then they were developed by this farmer group.

In future business development, farmer groups will create companies that are managed by their own members. Institutional management and financial management with assistance from Earth Worm. Currently, agricultural products from farmers are collected by collectors (*toke*) who come from other areas (Perawang) because they have

had previous cooperative relations. So it can be concluded that all agricultural products are absorbed by the market.



Figure 33. Meeting with the Village Head of Muara Bungkal Village

Based on the questionnaire analysis results table, the main market need is in the agricultural sector. Referring to this, the village government wants efforts to support the government's one village one product program which will become the hallmark of Muara Bungkal village in the future. The village government plans to restore a food that has not been in circulation for a long time and that is native to this village, namely *mersik* sweet potatoes. This peach sweet potato is a processed food made from the sweet potato plant, especially from the poison yam/elephant yam. The use of poison sweet potato as raw material for red sweet potato is to reduce raw material costs. If sold, the margin obtained is higher compared to using cassava in general. The uses of *mersik* sweet potatoes are:

- a. A good food ingredient for diabetics because it contains low sugar levels compared to rice (requires laboratory testing)
- b. Can be eaten directly as food
- c. A substitute for rice for cooking or a mixture of rice for cooking rice so that it can reduce the cost of purchasing rice

For this reason, Muara Bungkal village proposed creating a demonstration plot for poison yam cultivation and *mersik* yam production. The village government has confirmed that it has provided land for planting poison yam which is still within the village and easy to access.



Figure 34. Production and Packaging Process of Mersik Cassava

Elephant Cassava (*Manihot esculenta* Crantz) and Rubber Cassava (*Manihot glaziovii*) are species of tubers that have special features compared to other species to be cultivated, but this has encountered problems. Because of the toxin content in it, to be consumed, first these two species of cassava must be processed to remove the toxin content.

Muara Bungkal Village, is a village with a cultural background and traditions from the *petalangan* and *sakai*, people who previously inhabited the peat swamp forests and rivers in Siak Regency. The habit of eating tubers is derived from ancestral traditions that have been passed down from generation to generation until now. However, with the reduction in the number of community-managed areas due to the large number of company permits coming in and changing the area's cover and function, the Sakai and Petalangan people are experiencing a very visible change in their traditions as they begin to mingle with other communities.

The communities of Muara Bungkal Village have long had their own technique for processing sweet potatoes, this happens because the shelf life of sweet potatoes is of course very short, so the idea emerged of processing them into semi-finished food so that it can increase the shelf life and be more practical when you want to consume it. One of the most famous preparations at that time was *manggalo* yam, but nowadays it is difficult to find it in traditional markets and more difficult in modern markets.

Starting from this, after discussions with the community and the village government, they agreed to try again to cultivate elephant yam and rubber yam plants as raw materials for processing *Menggalo* yam. The Village Government has prepared 1 ha of land to replant these two species of sweet potatoes. Planting is carried out in groups and is directly monitored by the village government because in principle the processed commodity from this demonstration plot will later become a village icon in the One Village One Product program with the motto "you haven't been to Mandau if you haven't eaten *Manggalo* sweet potatoes"

For the processing of *menggalo* sweet potatoes, the village government already has experience with the Sakai community in the Muara Bungkal Village area. Not many people have expertise in processing sweet potatoes which have this toxic nature so their

own skills are really needed. This will also be of concern to us and of course we will try to facilitate training and capacity strengthening as well as assistance to carry out several good collaborations with the government, private sector and foreign markets. According to the village head, this *megalo* sweet potato was the staple food of coastal people before they were introduced to rice. This is an opportunity to restore local wisdom as an alternative to improve the community's economy.

3.7.4. Merempan Hulu Village

1. Problem

On January 15, 2024, FGD activities were carried out in the meeting hall of the Penghulu (Village's head) Office of Merempan Hulu Village. Participants invited were representatives from the village government, village advisory bodies, community leaders, religious leaders, traditional shops, youth leaders, women's leaders and MSME actors. Participants were given an understanding of the GSKBB Biosphere Reserve area and its connection with the existence of the Merempan Hulu village. The discussion activities ran smoothly and participants were quite active in providing opinions. In capturing issues, problems as well as existing potential, participants are asked to fill out the questionnaire that has been given.



Figure 35. FGD implementation at Merempan Hulu Village

In Merempan Hulu Village, the majority of respondents have lived in Merempan Hulu for more than 10 years. The biggest perception regarding the development potential of Giam Siak Kecil - Bukit Batu (GSK-BB) in this area is related to increasing income. Most of the community is involved in agricultural activities, making agriculture the main economic activity in Merempan Hulu. Even though tourism potential is quite high with a presence percentage of 5.26%, none of the respondents were involved in tourism activities. There is also diversity in local craft production, with the percentage of local production reaching 42.11%. The most common craft product is woven fabric, which is produced by 21.05% of respondents.

2. Potential and Innovation

Agricultural products are the main market need in Merempan Hulu, with 42.11% of respondents stating this. Apart from that, there is a fishery business of 84.21% of

respondents. The most suggestions for demonstration plot locations are near agricultural land. The percentage of ability/experience required by the market and the percentage of willingness to be involved in developing demonstration plots are 47.37% and 89.47% respectively. The majority of respondents (84.21%) expressed their willingness to participate in the development of GSK-BB in the Merempan Hulu area.

On February 22, 2024, a repeat visit to Merempan Hulu village was carried out to confirm the questionnaire analysis data. According to the analyzed data, the main market need is in the field of agricultural products. The agricultural products in this village are chili farming, vegetables and other species of horticulture. Presently, agricultural harvests are only limited to meeting the needs of the village community.

Apart from farming, many people also carry out livestock activities in groups. The species of animal farmed is cows. Cattle from this breed are sold at certain moments such as Eid al-Adha. Cattle farming in this village has not been able to meet the huge market demand because there are not many farmer groups and the number of animals being raised is still limited.

Based on this confirmation data, the Merempan Hulu Village Government is proposing to build a demonstration plot for innovation in livestock derivative products which includes the availability of forage and the processing of *kohe* (animal waste) to be used as fertilizer along with its packaging. To increase and support local craft production in the form of woven crafts, it is necessary to develop sustainable concepts using natural dyes and increase the capacity of craftsmen through training and promotion.

3. Establishment of Green Forage Cultivation Demonstration Plots.

Marempan Hulu Village has a fairly large cattle farm, starting with assistance from the Siak Regency Government in 2015, currently there are 2 livestock groups running cattle breeding businesses using Balinese cattle for beef. The livestock business group in Merempan Hulu Village already has communal pens, so that care and guarding of the cows is maximized.

This communal and quite intensive maintenance makes the need for feed for livestock something that must be paid close attention to, usually the breeders carry out pickets in collecting or searching for forage for their livestock in addition to being given concentrate feed made by themselves, it is not uncommon for situations where they have to buying forage due to availability in the environment which of course is not always available.

Based on the discussions organized, the idea emerged to create a forage garden to ensure an adequate supply of fresh feed for cattle. This was felt to be highly necessary to do considering that apart from fattening cattle, Marempan Hulu Village also carries out breeding using artificial insemination which of course will increase the percentage of fresh feed needed, the program which is currently being accompanied by the Siak Regency Livestock and Fisheries Service is considered successful because it supplies many calves to the surrounding villages.

The cattle feed demonstration plot plan will be carried out directly by a group of cattle breeders by utilizing unused land in the Merempan Hulu village area with several plant varieties such as elephant grass and *odot* grass. This demonstration plot will also be made using compost from a side business carried out by cattle breeders in Merempan Hulu Village.

4. Establishment of a demonstration plot for processing animal waste to be used as fertilizer and its packaging.

Cattle farms that are managed communally by groups make the business run more controlled, the pens owned by the group are assistance from CSR companies around Siak Regency. This condition is very beneficial for cattle farmers who can collect urine and animal waste which has been processed simply to make compost.

The compost produced by this livestock group is also often used by horticultural farmers and plantations so that this side activity can also increase economic income for the group. According to the Head of Merempan Hulu Village, the availability of this fertilizer often cannot meet demand, this is because the processing carried out by the group is still simple.

It is expected that this program will be able to help farmers in processing animal waste, this of course can also support central government programs in efforts to reduce carbon emissions originating from the livestock and agricultural sectors.



Figure 36. Discussion with the Village Head of Merempan Hulu Village and the Village Head of Buntan Besar Village

3.7.5. Buntan Besar Village

1. Problem

The FGD in Buntan Besar Village was carried out on January 17, 2024 at the meeting hall of the Penghulu Office of Buntan Besar Village. The FGD participants who were invited and took part in the activity were representatives from the village government, village advisory body, community leaders, religious leaders, traditional leaders, youth leaders, women's leaders, farmer groups and small and medium business actors.

The meeting began with participants being given an understanding of the Giam Siak Kecil - Bukit Batu Biosphere Reserve area and its relationship with the existence of Buntan Besar village. Next, there was a discussion and question and answer session. The discussion activities ran well and participants were quite active in providing opinions. In catching issues, problems as well as existing potential, participants are asked to fill out the questionnaire that has been provided.



Figure 37. Implementation of FGD at Buantan Besar Village

The majority of respondents have lived in Buantan Besar for more than 10 years. The most common perception regarding the potential for developing Giam Siak Kecil - Bukit Batu (GSK-BB) in this area is related to increasing income. Most are involved in agricultural activities, making agriculture the main economic activity in Buantan Besar. This region has high tourism potential, with a presence percentage of 61.11% and a percentage of involvement in tourism activities of 11.11%. There is diversity in local craft production, with the percentage of local production reaching 83.33%. The most popular craft product was woven palm leaf sticks, which were produced by 55.56% of respondents. Agricultural products are also the main market need in Buantan Besar, with 44.44% of respondents saying this. Apart from that, there is a high presence of fishing businesses, reaching 94.44% of respondents.

The most suggestions for demonstration plot locations are near agricultural land. The percentage of ability/experience required by the market and the percentage of willingness to be involved in developing demonstration plots are 50.00% and 94.44% respectively. The majority of respondents (72.22%) expressed their willingness to participate in the development of GSK-BB in the Buantan Besar area.

2. Potential and Innovation

On February 22, 2024, a repeat visit was conducted in order to confirm the data from the questionnaire analysis to the Buantan Besar Village government. This activity coincided and in one place with a meeting with the village head of Merempan Hulu village. These interviews were carried out alternately, so that the data obtained could be properly confirmed.

In Buantan Besar village, agricultural products are the main market need. Currently, the people in this village are farming rice, onions, chilies, corn, melons and other species of secondary crops. Agricultural products from the community are collected by toke or collecting traders who come directly to the agricultural location, so people no longer need to sell to the market or look for other toke. Because activities like this have been going on for a long time. In this village there is also a final disposal site (TPA) belonging to the Siak Regency Government. The rubbish in Siak City and its surroundings is disposed of at this landfill.

3. Establishment of a demonstration plot for processing organic waste sourced from landfill to be used as organic fertilizer.

The existence of a final disposal site (TPA) for waste problems in Siak District, Mempura Sub-district and Bungaraya Sub-district in Buntan Besar Village is an opportunity to be utilized. This opportunity is the use of organic sources to be processed into fertilizer. The waste processing system used at the Langkai TPA is a landfill where the waste is stacked and then buried in soil, where the waste will be mixed between organic and non-organic.

The demonstration plot that will be built will involve collaboration between the village government and also the landfill manager where there will be waste sorting to be used as fertilizer by utilizing the existing spaces around the landfill. From here there is quite a bit of organic waste that can be used as fertilizer to support agriculture in this area. For this reason, the Buntan Besar Village Government proposes to collaborate in the processing of organic waste in the production of organic fertilizer which will then be used for horticultural agricultural demonstration plot activities and will also be marketed for use in other agricultural businesses.

3.8. LPESM Assisted Villages

3.8.1. Bandar Jaya Village

1. General description of Bandar Jaya Village

Bandar Jaya Village, Siak Kecil Sub-District, Bengkalis Regency is a transmigration village which was opened in 1986. Like most transmigration villages, the population density level in Bandar Jaya Village is still relatively low. With a total population of 1,446 people and an area of 97,476.03 km². The population density level of this village is 97,476.03 km²: 1,446 people = 67.4108 people/km² or less than 1 person/100 ha

Geographically, Bandar Jaya Village, Siak Kecil District, is located at - 1°9'46.455" N - 1°1'55.322" N and 101°55'46.423" E 102°1'9.792" E. Administratively, it is within the administrative area of Siak Kecil Sub-district, Bengkalis Regency with the following boundaries:

- North of Sungai Linau Village, Siak Kecil Sub-District
- South of Muara Dua Village, Siak Kecil Sub-District, Bengkalis District and Pincit Village, Siak District
- West of Mandau Sub-District, Bengkalis District
- East of Muara Dua Village, Siak Kecil Sub-District, Bengkalis District

The area of Bandar Jaya Village reaches ± 506,156 Ha, the distance between Bandar Jaya Village and the government and economic center is still relatively far and this is compounded by inadequate road access due to damaged roads and so on. So that with all kinds of administrative management, the people of Bandar Jaya Village still have

difficulties because they juggle the time they spend working to earn a living with the time they spend going to the government center to take care of all kinds of administrative needs.

The majority of the population of Bandar Jaya Village adheres to Islam. In terms of topography, Bandar Jaya Village is generally located in a flat position dominated by a slope of between 0 - 3%. This condition causes problems that can occur in areas with slopes of 0 - 3%, namely flood disasters caused by quite high rainfall, so that the flow of water to the river is very slow and if the area arrangement is not controlled and the drainage system is inadequate, it can become an area prone to flooding. The type of soil that is often found in Bandar Jaya Village is peat soil.

A monograph on the village of Bandar Jaya since 1983 shows that population growth has decreased drastically, due to the floods that occurred in the area, only a few people live. Since 1997, several people have started to live and build houses in this village. The growth rate from year to year until now in terms of gender is 2.5% for men and 1.5% for women. The only indicator of the rate of population growth in this village is the increase in family heads and housing developments.

Bandar Jaya Village is located on peat land so it is very vulnerable to forest fires. Oil palm plantations, which are increasing day by day, if not managed properly, can trigger land fires. Potential for cultivation development, such as agricultural activities, topographic conditions of 0-3% are very favorable. Bandar Jaya Village is one of the former transmigration villages. It is a village with the outermost boundaries of Bengkalis Regency but does not border other districts. The geographical conditions of most villages are not very good. The main road to the village is still very poor. Economically the community is in the lower middle standard. The main income of the community is from the plantation sector, some labor and other jobs.

One of the cultivation activities carried out by the community in Bandar Jaya Village is the cultivation of forest honey. The obstacle faced by the village community is that the community's knowledge about cultivation and post-harvest processing is still limited. The production of corn products is still minimal due to seed and fertilizer prices relatively expensive. Apart from that, many rice plantation died or are damaged due to drowning during the flood season, as well as catfish cultivation which is still limited by relatively expensive feed. Furthermore, in the cultivation of goats and cattle, the people of Bandar Jaya village are constrained by the capital costs to develop them and in addition, getting good quality brood stock is very difficult to obtain.

2. Implementation of FGD at Bandar Jaya Village

The FGD in Bandar Jaya Village, Siak Kecil Sub-district was held on Tuesday 19 December 2023 at the Bandar Jaya Village Office Hall, Siak Kecil Sub-district. The meeting started at 09.00 WIB until 12.00 WIB, attended by the Chairman of the BPD, Village Secretary, representatives of the Malay Traditional Institution, representatives of community leaders, youth leaders, women's leaders and representatives of farmer groups. The FGD process began with opening remarks from the Village Secretary and then continued with a presentation about the existence of the Giam Siak Kecil Bukit Batu (GSKBB) Biosphere Reserve from the LPESM technical team.



Figure 38. Implementation of FGD at Bandar Jaya Village

When the presentation was given, it was followed by discussion. During the discussion process, it was discovered that many people did not know about the Giam Siak Kecil Bukit Batu Biosphere Reserve (GSKBB), and did not know that the Bandar Jaya Village area was included in the core and buffer zone of the biosphere reserve and the Giam Siak Kecil Wildlife Reserve. Because according to the admission of the people who took part in the FGD, so far the government has never conducted outreach to the public about the GSKBB Biosphere Reserve.

After the presentation, the process continued with listening to the community's complaints, including:

1. Most of the communities of Bandar Jaya Village do not know what the GSK-BB Biosphere Reserve is and where its boundaries are, so it is necessary to carry out outreach in the village so that they understand and participate in preserving the biosphere reserve.
2. Many questions were raised, including the prohibition on issuing land certificates in forest areas, which makes it difficult for people to use land as collateral to borrow money from banks.
3. There are also those who convey the boundary conflict with Sungai Nibung Village and Lubuk Gaung Village which has not yet been resolved, even though they have asked the sub-district government and district government to help resolve it, due to the unfinished boundaries the location cannot be built using the village budget.
4. After discussion and questions and answers, it was continued with a discussion of proposals for superior products to be developed in Bandar Jaya Village. The community said that there are several commodities that have been the priority of the community, namely:

- Cattle cultivation

In Bandar Jaya Village, the cattle farming pattern is still traditional, some livestock are released in the garden and some are kept in pens, lack of knowledge about caring for livestock so that the results are not optimal.

- Rice cultivation

Rice cultivation is carried out in Bandar Jaya, so far there are not many people who grow rice, but if there is development and support from other parties, many residents

will be interested in taking part.

- **Goat Farming**
Goats are one type of livestock that is also widely developed by the community, because grass feed is often found in villages, but it has not developed rapidly because it is still done traditionally.
- **Cultivation of horticultural crops**
Several species developed are chilies, long beans, cucumbers, spinach and corn. Horticultural crops are one of the economic activities carried out by the people of Bandar Jaya Village, the marketing of the results is still for the area around the village, because the needs and demands of the community continue to increase.

Proposals to develop rice commodities because the need for rice continues to increase along with population growth, while the number of farmers and rice land continues to decline. Several times the community tried to develop rice in Bandar Jaya Village, but the planting failed because the area planted with rice fields was flooded so that the rice plants could not be harvested. The community has the desire to return to planting rice in Air Masuk Hamlet, the condition of the rice fields is in an area that is often affected by flooding. If the government helps facilitate the creation of new paddy fields, it will be easy for people to develop better rice plants.

The local community believes that the rice that will be produced will be able to be purchased by the market, because the market or buyers are also local people who have been obtaining or purchasing rice from other places. Apart from that, it is also believed that rice prices will remain stable and even tend to increase from time to time. Because rice is a basic necessity that is always needed.

Cattle farming is also an economic activity that is widely carried out by the community. Currently, there are quite a lot of cattle breeders in Bandar Jaya Village, more than 200 cattle breeders in Bandar Jaya Village. The need for cattle for the area around Siak Kecil Sub-district and its surroundings continues to increase every year, especially during Eid al-Adha, so that the market for marketing is available. Likewise with the availability of grass as feed available in the village. It is acknowledged that there has been a problem with people keeping cows by releasing them wild so they eat plants and disturb people's land and gardens. For this reason, if it is developed specifically using sheds/pens coupled with good knowledge, the development of cattle livestock can help the community's economy.

3. Marketing Potential of Superior Products

Bandar Jaya Village is in Siak Kecil sub-district which is geographically adjacent to Bunga Raya sub-district, Siak Regency. The distance from Bandar Jaya Village to Siak City is 65 km, while the closest other city, namely Dumai City, is 166 km away, while Pekanbaru City is 160 km away. The location of the village has direct access to the districts and cities in Riau Province, making marketing of commodities in the village is easier and smoother.

Marketing of the rice harvest produced in Bandar Jaya Village is as follows:

- The harvest is to meet the demands of the people of Bandar Jaya Village themselves.
- The amount of rice harvest is still limited, unable to meet the needs of the Bandar Jaya Village Community.
- There are 2 farmer groups that can develop rice on community land.

- Bumdes Bandar Jaya Village and village stalls are willing to build verbal agreements with people who grow rice.
- Many rice buyers from stalls in villages around the Siak Kecil sub-district are willing, because the need is still high, because most of the rice consumed by the community is brought in from outside the Siak Kecil sub-district and is even imported from outside the Riau province.

After holding an audience with the Head of the Bengkalis Regional Sub-Division Bulog Office, Mr. Budhi Indrawan, Bulog is ready to buy rice from farmers, at a price according to the price set by the government. Bulog is in charge of 3 districts, in Bengkalis Regency including the Districts of Bengkalis, Bantan, Siak Kecil, Bukit Batu, Bandar Laksamana.



Figure 39. Visit to BULOG office Sub Divre of Bengkalis

4. Development of Demonstration Plot

Bandar Jaya Village has abundant and sufficient water sources, so that rice cultivation does not experience difficulties with the irrigation system. Demonstration plots are a method of extension in the field that is quite precise and effective for showing in real terms the methods and results of applying agricultural technology that has been proven to be beneficial for farmers. Through this demonstration plot, we can provide an example to other communities.

Demonstration plots are developed by creating a demonstration area, so that farmers can see and prove the object being demonstrated. Demonstration plots can be in the form of cultivation technology innovations. The location for the rice cultivation demonstration plot will be built at RT 02 RW 03 Air Datang subvillage, Bandar Jaya Village, built on residents' land not far from residential areas. The location and design for the rice demonstration plot that will be developed are as follows (Figures 40 and 41):



Figure. 40. Planned location of the Rice Demonstration Plot in Bandar Jaya Village

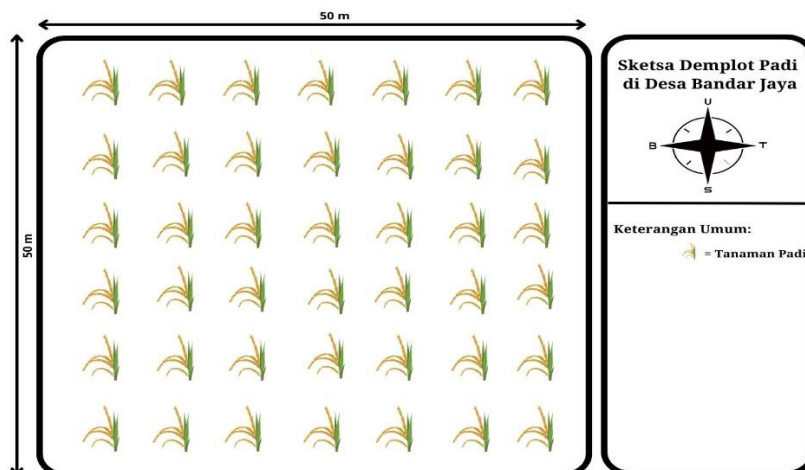


Figure. 41. Design of the Bandar Jaya Village Rice Demonstration Plot

3.8.2. Sungai Linau Village

1. General Description of Sungai Linau Village

Community activity centers and settlements in Sungai Linau Village are not yet spread throughout the village area, but only in a small part of the southern part of the village. Meanwhile, other land uses are dominated by community oil palm plantations, company plantations and forests, most of which are located on peatlands.

The distance between Sungai Linau Village and the sub-district government center is considered quite far, considering that the road access from Sungai Linau Village has not been cemented or asphalted. Travel time will increase during the rainy season. The distance between Sungai Linau Village and the district capital and provincial capital is also very far. This both directly and indirectly influences matters related to the government system and development of the village area. The village boundaries around Sungai Linau Village are as follows:

Geographically, Sungai Linau Village borders:

- To the north: Bukit Batu Village and Dompas Village, Bukit Batu Sub-District
- West: Bandar Jaya Siak Kecil Village
- To the east: Tanjung Damai Village, Siak Kecil
- South: Lubuk Gaung Village, Siak Kecil

Public facilities in Sungai Linau Village include roads and bridges, but most of them are still under construction. These facilities are very limited because since the establishment of Sungai Linau Village, the existing accessibility has not been adequate and development from the government has not reached the village. So that the construction of public facilities such as roads and bridges is carried out by the community independently/mutually. Other public facilities in Sungai Linau Village that can be utilized by the community include schools, places of worship, meeting places, health services and sports facilities. The existing facilities are currently being utilized well by the community, although overall the existing facilities are still very limited.

The majority of the people in Sungai Linau Village are transmigration from the Java Islands. Sungai Linau Village is a village that is not densely populated, so that newcomers feel more comfortable when they are in Sungai Linau Village and choose to buy land as a place to live or plantation land. On average, migrant communities have lived for almost decades and have become permanent residents in Sungai Linau Village. The majority of residents of Sungai Linau Village are Javanese. Because as a transmigration village, the customs and culture of the people of Sungai Linau Village all have Javanese nuances.

2. Implementation of FGD in Sungai Linau Village

The FGD activity in Sungai Linau Village was held on Wednesday 20 December 2023 at 09.30 WIB at the Sungai Linau Village office hall. The meeting was attended by the Chair of the Village Representative Body (BPD), representatives of the Village Forest Management Institute (LPHD), representatives of traditional leaders, representatives of community leaders, youth leaders and women leaders. The FGD began with opening remarks from Mrs. Hanifah, Head of Government Affairs representing the Village Head, then continued with a presentation about the existence of the GSKBB Biosphere Reserve by the facilitator



Figure 42. Implementation of FGD at Sungai Linau Village

The discussion about the superior commodities of Sungai Linau Village began with presentations from several participants about the potential that exists in the village which has been developed by the community. Most of the people in Sungai Linau Village are oil

palm farmers. After long discussions, it was agreed that the superior commodities proposed were coffee plants and cattle farm.

The consideration for choosing coffee plants is because there are already people who have developed them and have started harvesting. Coffee is very promising economically, the selling price of coffee beans is very good, and demand is increasing, there are even parties who are willing to make contracts to become regular buyers of dried coffee beans. Apart from that, there has been support from NGOs such as Pro Forest and the Mitra Insani Foundation in the form of seeds and coffee bean processing equipment. Apart from that, support for coffee development also comes from the Riau Provincial government through the Plantation Service which provides assistance with coffee seedlings covering an area of 40 hectares in 2022. Coffee planting can be done using an intercropping pattern with oil palm, so that the potential for land availability is very large.

Sungai Linau Village also has a Social Forestry program area for the Village Forest scheme which has received approval from the Minister of Environment and Forestry. This Village Forest is managed by the Village Forest Management Institute (LPHD), with an area of 5,800 ha. One of the crop commodities that will be planted in the village forest area is coffee, which will be intercropped with other forest plants. This means that the potential for land for developing coffee plants is still available apart from the oil palm intercropping pattern.

The decision to develop cattle farming was based on the fact that there were already hundreds of breeders who had developed it, with a cattle population of more than 400 heads. This is a potential that can be developed. Apart from that, the need for cattle in the area around Siak Regency and Bengkalis Regency continues to increase every year, especially during Eid al-Adha. So far, all the cattle that have been bred have been successfully absorbed by the market. The community's ability to farm cattle also continues to grow. Likewise, the availability of grass as feed is very abundant in the village, so the prospects for developing cattle are very promising in the future.

3. Marketing Potential of Superior Products

So far, cattle marketing has only relied on cattle collecting traders who are local people around the village. Beside that, it also relies on parties who look for cattle for certain purposes, for example for the Eid al-Adha holiday. In addition, for the marketing of cattle products that will be developed, the Bengkalis Regency Chamber of Commerce and Industry (KADIN) will help to connect with markets. Because so far the need for beef in Bengkalis Regency is still mostly supplied from outside the district and outside Riau Province.

4. Demonstration plot development

Based on observations made in Sungai Linau Village, it can be seen that the livestock that have been cultivated so far are cattle, mostly Balinese cattle. So far, the cattle rearing system in Sungai Linau Village is still traditional and still on a small scale. This condition needs to be carefully considered, especially in carrying out management in the provision of forage so that it can meet the minimum standards for feed requirements required by livestock.

Considering that the feed requirements of these cattle are forage and the rearing system used is still extensive where the cattle are left to graze on their own, so it is feared that the production of these cattle will be relatively low, so there is a need for innovation and increasing capacity to make the cattle more productive. Apart from that, breeders need

to be supported with knowledge about livestock cultivation, including forage cultivation, which of course can support the sustainability of their livestock business.

The construction of the demonstration plot is planned to be carried out directly in the area adjacent to residents' houses in RT 01 RW 01, later in this area cow shed and feeding beds will be built. The area used is 240 m² with a plot area of 20 x 2 m each.

For marketing of livestock products that will be developed, Bengkalis district KADIN will help to connect with markets. Because so far the demand for beef in Bengkalis district is still largely supplied from outside the district and outside Riau Province.



Figure 43. Planned location of Cow demonstration plot at Sungai Linau Village

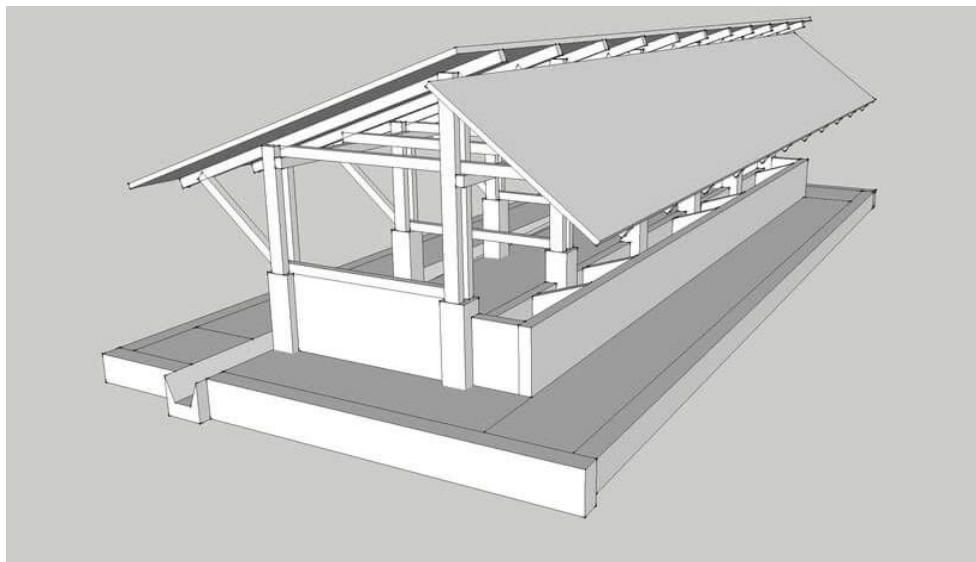


Figure 44. Cow Shed Sketch

3.8.3. Temiang Village

1. General Description of Temiang Village

Temiang Village is one of 24 villages located in Bandar Laksamana District, Bengkalis Regency. Before it was legalized as a village in 1978 Temiang village was part of Bukit Batu village. With its legalization as a village, the people who previously only

went out to garden became settled and built Temiang Village until now and have experienced very good progress. The distance between Tanjung Karang village and the district government center is 52 KM, while the district capital is 78 KM, and the provincial capital is 210 KM.

Temiang Village has an area of 17,200 Ha, or 17.2 km² with a population of 1,750 people, consisting of 901 male residents and 849 female residents. With boundaries:

- North of the Bengkalis Strait
- South of Talang Muandau Sub-district
- West of Api-Api Village
- East of Sukajadi Village

The topographic condition of Temiang Village is generally seen as a lowland area with rice fields and plantations with a tropical climate. This influences the economic patterns of the local population.

Temiang Village has an estimated 50 hectares of rice fields, which can produce rice every year. Because the agricultural sector is so important as a potential natural resource for villages, the development of a good rice field management system is highly necessary to ensure the welfare of farmers.

Communities only get knowledge in the field of agriculture and plantations from farmer to farmer's mouth and the distribution of subsidized fertilizer is not timely so it affects agricultural and plantation production, even though there are workers called PPL (Field Agriculture Extension Person) in our village who do not work as expected by the government who assigned them. This is what causes us to not escape poverty.

The economic growth of the Temiang Village Community in general has also increased, this can be seen from the increase in the number of residents who have businesses or jobs, even though the type of work in general cannot be confirmed as originating from the results of the business carried out, it can also be obtained from business capital loans from the government. Many residents of Temiang Village still have businesses or permanent livelihoods in the fields of agriculture and plantations. This can be an indication that the people of Temiang Village are free from knowledge in the fields of agriculture and coconut plantations because there are no experts to accompany them, how do people become good farmers with maximum results.

Temiang Village has enormous potential, both in terms of human and natural resources. Until now, potential resources have not been optimally utilized. This happens because existing obstacles have not been resolved

2. Implementation of FGD in Temiang Village

The FGD in Temiang Village was held on Friday 22 December 2023 at the Temiang Village Office Hall, Bandar Laksamana Sub-district. The meeting was attended by representatives of BPD, LPM, *Bumdes*, representatives of community leaders, youth leaders, women's leaders and representatives of traditional leaders. The FGD event began with remarks from the Temiang Village Secretary Mr. Sukadi, then continued with a presentation about the GSKBB Biosphere Reserve by the LPESM team.



Figure 45. Implementation of FGD at Temiang Village

After providing information about the GSKBB Biosphere Reserve, people immediately took turns asking questions, most of whom complained that the process of establishing the Bukit Batu Wildlife Reserve (SM) was not participatory and no socialization was carried out first. Since the establishment of the Bukit Batu Wildlife Reserve, around 75% of the land area in Temiang Village is in the conservation forest area. This condition means that the land cannot be used for productive activities such as agriculture and other activities, thus having an impact on the community's economy.

After the question and answer process and discussion regarding the existence of the GSKBB Biosphere Reserve, the discussion continued with the identification of superior products or economic activities that have the potential to be developed in Temiang Village. After listening to suggestions and input from all the figures present, community representatives finally agreed to propose rice plants as a superior product to be developed in Temiang Village.

The development of rice plants in Temiang Village is considered potential because currently the number of rice farmers in Bandar Laksamana District is still small, compare to other nearby districts such as Bukit Batu District. This condition causes the need for rice to be brought in or supplied from other regions, some even brought in from West Sumatra and North Sumatra Provinces. Dependence on meeting rice needs from other regions is still very high, as a result it can affect the selling rice price.

This condition causes the market opportunity for rice commodities to be very good and potential, because the average consumption of rice by the community is increasing every year, while the amount of production is not increasing much. The increase in rice demand is in line with the increasing population. Besides, the price of rice also tends to increase every year.

Currently, Temiang Village has a rice planting area of around 50 ha, the community wants to develop rice on a larger area of land. However, the problem is that clearing new land requires heavy equipment. In fact, there is also land that is still large and has potential for rice cultivation but it is located in a forest area. If the government can help facilitate the creation and opening of new rice fields, it will be easy for the community to develop better rice crops and of course help improve the economy.

3. Marketing Potential of Superior Products

Temiang Village has extensive and fertile land which is very suitable for agriculture. The fertile soil and favorable climate make Temiang Village an ideal place for the development of various species of plants. Until now, the potential has not really been optimally exploited. Temiang Village also has quite a large area of land for rice development, of course it has very good long-term potential because the community's need for rice continues to increase every year.

In Temiang Village there are 50 hectares of rice farming land managed by the community. The existence of people who have cultivated rice plants can become capital for further development. By developing optimal rice farming in Temiang Village, rice production can be increased and provide sufficient food supply for the local community and surrounding areas and help improve the economy.

To market the rice produced, this can be done by first improving the quality of the rice, by making good and attractive rice packaging so that it can be entered and sold in modern markets and through a good marketing strategy. Marketing rice is not difficult, because the demand for rice continues to increase every year, while rice production around Bengkalis Regency is not much. People can sell directly to basic food stalls in the village and surrounding villages.

Then the rice produced by the community can also be sold to Bulog. Bulog District Regional Sub Division Bengkalis will buy grain and rice from farmers by looking at the quality, so that the price follows the price set by the government

4. Demonstration plot development

The demonstration plot location in Temiang Village will be built at the Subvillage II location, on the residents' land which has been a rice planting area. The demonstration plot will later become a demonstration land for rice crops.



Figure 46. Location of planned rice planting demonstration plot

3.8.4. Lubuk Gaung Village

14.1. General Description of Lubuk Gaung Village

Lubuk Gaung village is one of the oldest villages in Siak Kecil sub-district. Initially, Lubuk Gaung was still part of Lubuk Muda village, only in 1954 it was separated

into the sub-district of Lubuk Gaung Village. Most of the population lives on the banks of the small Siak river.

The location of the village which is traversed by the small Siak river hampers access into and out of the village. Since 2012, development activities have begun to be seen, namely mitigation by having bridges connecting rivers with other villages. Furthermore, PLN (State Electricity Company) electric lighting has been felt for the last 4 years. The construction of a ring road that connects several villages, although not yet complete, has improved or increased the community's economy.

What the people of Lubuk Gaung generally use in daily communication is Malay, the Petalangan dialect and the national language, Indonesian. The population generally earns their living from oil palm plantations, rubber and others. Rice farming is also quite extensive in this area. Rattan crafts and palm oil leaf sticks are also carried out by several households. Some people also fishing as an additional business.

Boundary of Lubuk Gaung Village:

- North of Bukit Batu Sub-district
- South of Sabak Auh Sub-district, Siak Regency
- West side of Talang Muandau Sub-district, Bengkalis Regency
- East of Merbau sub-district, Meranti regency

Lubuk Gaung Village has a population of 2,132 people, 458 families, 1,102 men, 1,030 women, 370 poor people, with the population according to the field in Lubuk Gaung Village, Siak Kecil Sub-district, Bengkalis Regency.

Lubuk Gaung Village is a rice producing village, there are approximately 100 hectares of community land which has been managed with rice plants. However, due to all the limitations that exist in a year, rice can only be planted once in a year. So the rice commodity has not had a significant impact on the community's economy. Apart from rice, Lubuk Gaung Village is also a center for the production of rattan crafts, according to employment opportunities as rattan craftsmen there are 55 people (Lubuk Gaung Village office 2015). The production of rattan crafts produced by rattan craftsmen in Lubuk Village are marketed in the Bengkalis and Siak areas.

Gaung in the form of a basket that is usually placed on motorbikes. Rattan craftsmen in Lubuk Gaung Village belong to poor families, this can be seen from the welfare of the community, income level, education level and consumption patterns of the community in Lubuk Gaung Village.

2. Implementation of FGD at Lubuk Gaung Village

Lubuk Gaung Village is the largest village in the Siak Kecil Sub-district, Bengkalis Regency. Based on data obtained from the village profile, it was recorded that Lubuk Gaung Village has an area of 56,000 hectares. This village was once an old village which was later expanded into 8 new villages.

The implementation of the FGD in Lubuk Gaung Village began with identifying problems related to community economic development. From the discussion process, problems emerged, including that the land in Lubuk Gaung Village is very large, but most of the land in the village is in forest areas, making it difficult to develop for the agricultural and plantation sectors. However, the community understands the consequences of an area of land that is in a forest area.



Figure 47. Implementation of FGD at Lubuk Gaung Village

Then another obstacle experienced by business actors, namely woven palm sticks and making rattan baskets, is experiencing difficulties with raw materials due to limited capital. Now rattan raw materials are no longer available in the village so they have to buy from Siak. Some people depend on fishing in lakes. Nowadays, the number of fish caught decreased, only in certain seasons do they get a lot of fish and even then the fish have to be sold to middlemen and the price is cheap.

Some of the economic potential that exists in Lubuk Gaung village:

1. Oil palm plantations
2. Freshwater fisheries
3. Coconut
4. Basket making business
5. Rice cultivation
6. Business for making woven palm sticks
7. Freshwater smoked fish
8. Areca nut

During discussions about superior commodities that have the potential to be developed in Lubuk Gaung village, the majority of people proposed that rice be developed besides oil palm. This proposal was submitted with consideration because the majority of communities in Lubuk Gaung village depend on oil palm and rice for their economy, rice has been a commodity developed by the community for a long time, rice production has been decreasing over time because some people have switched to planting oil palm.

The community wants to increase the rice farming area in Lubuk Gaung Village, because over time the community's need for rice continues to increase while rice production continues to decline, this is what makes the rice community a very promising choice for the future. However, most of the land that will be planted with rice is in forest areas.

3. Marketing Potential of Superior Products

Lubuk Gaung Village has large potential land for rice development, so far there have been 130 families who depend on their economy from rice cultivation with a rice field area of more than 100 hectares. There is still land in the village that can be used as a rice planting area. However, it is necessary to quickly characterize the land and identify obstacles in developing land for rice cultivation.

4. Demonstration plot development

The location for the rice planting demonstration plot will be built at RT 01 RW 01

Dusun I Lubuk Gaung Village, on residents' land which has been a rice planting area. The demonstration plot will later become a demonstration land for rice crops, so that farmers can see and learn about rice cultivation better and can develop it on a wider area of land. Demonstration plots can be in the form of cultivation technology innovations.



Figure 48. Location of the planned demonstration plot at Lubuk Gaung Village

3.8.5. Sukajadi Village

1. General Description of Sukajadi Village

Sukajadi Village is a village in the core zone of the Bukit Batu Wildlife Reserve, with an area of 7,600 ha. Sukajadi Village is one of the villages in Bukit Batu District, Bengkalis Regency. This village is a very old one, because it has existed since the time of the Siak Sri Indrapura Kingdom. Sukajadi village is on the mainland Coast of Sumatra Island, which is located separately from the district capital which is separated by the Bengkalis Strait. The distance between this village and the district capital is 17.7 km, while the distance from the provincial capital is \pm 250 km. Sukajadi Village boundaries are as follows:

- North is the Bengkalis Strait
- South of Talang Muandau Sub-district
- West of Parit 1 Api-api Village
- East of Bukit Batu Village

Sukajadi Village has an area of 34,100 hectares or 34.1 km². Sukajadi Village in 2021 is divided into 3 hamlets with a total population of 1,279 people. According to stories from a number of traditional leaders, elders and people who live in this village, previously Sukajadi Village was only inhabited by a minority of Malay people who lived in coastal areas and along the Bukit Batu river, which is now located in the Bukit subvillage area Bukit Batu. In general, the communities of Sukajadi Village at that time worked as fishermen to meet their daily needs. However, there are also a small number of them who work as farmers, such as cutting rubber, gardening and so on.

Sukajadi Village, Bukit Batu Sub-district has an interesting history that is always discussed, and also has various potentials. Among the potentials in the village are rice farming, rubber and oil palm plantations, animal husbandry and also tourism potential. One of the potentials that has been developed by many residents in Sukajadi Village is goat farming. There are approximately 150 community families implementing goat

farming. The community has been raising goats by building pens close to people's houses and looking for food by browsing the grass around the village and in neighboring villages, namely Bukit Batu Village and Parit 1 Api-Api Village.

Sukajadi Village has a mangrove forest tourist attraction, as well as the natural charm of the Bukit Batu river with a natural atmosphere that always spoils the eyes. Apart from that, there are also MSME products, such as Lejo woven cloth and sago crackers, as well as typical foods, such as *laksa*, rhino cake, *kemojo* sponge cake, *asidah* and so on.

Apart from the tourism potential as mentioned above, various other historical heritage sites in Sukajadi Village are also always interesting to be visited. These include the Rumah Orang Kaya Raja Negara, Rumah Datuk Laksamana, historical relics and his tombs.

2. Implementation of Sukajadi Village FGD

The Sukajadi Village FGD process began with a presentation about the GSK BB Biosphere Reserve and then continued with identifying problems related to community economic development.

Based on this, there are several potentials that can be developed, namely:

1. Palm oil plantations
2. Coconut Plantation
3. Rubber Plantation
4. Sea fishermen and fresh water fishermen
5. Rice Farming
6. Making of smoked fish
7. Historical tour of Laksamana Raja Di Laut
8. Malay Weaving Crafts
9. *Kemojo* sponge cake making business



Figure 49. Implementation of FGD at Sukajadi Village

After the process of identifying potential economic activities that could be developed, the community agreed to desire the rice crop to be developed. The choice to develop rice commodities with the consideration of rice cultivation has been carried out for a long time and currently there are 85 hectares of land planted with rice. This rice market is very promising, because the need for rice increases every year along with the increase in population. Apart from that, the selling price also continues to increase.

One of the problems faced by the community in developing rice plants is that the land where rice is planted is often affected by flooding from sea tides. Because the location is in an area including the lowlands and seaside. It is necessary to build embankments to prevent sea water from entering the rice fields. Then, good irrigation water management is also needed, so that there can be rice planting twice a year.

Apart from irrigation, another problem that has been an obstacle so far is the lack of land processing equipment or tractors and rice threshers. There is also support from the regional government through the Bengkalis District Agriculture Service, the community gets assistance with seeds, irrigation and fertilizer. However, this assistance and support is considered to be insufficient because not all farmers have received it.

The community plans to develop a new rice planting location in Sukajadi village, the land area is around 200 hectares, one of the obstacles faced is because the area is in a forest area, it may require government assistance for permits to manage forest areas for rice planting. We also need heavy equipment for clearing new rice fields. If this plan goes ahead, it will certainly help the Sukajadi village community economically.

3. Marketing Potential of Superior Products

Marketing the rice produced from rice production in Sukajadi Village is not too difficult, because the need for rice continues to increase every year along with the increase in population. Meanwhile, rice production around Bengkalis Regency is not much. Beside that, people can sell directly to *Sembako* stalls in the village and surrounding villages. Even if later rice production increases when there are development efforts, marketing can be done by selling to neighboring village communities.

Then the rice produced can also be sold to Bulog Sub Division. Bulog will buy grain and rice from farmers based on quality, so that the price follows the price set by the government. It is just that Bengkalis lacks drying facilities and grinding machines, so Bulog will buy rice that is already in the form of rice. Farmers need to pay attention to processing and quality of post-harvest grain to produce high quality rice

15.4. Demonstration Plot Development

The demonstration plot location at Sukajadi Village will be built at the Dusun II location, on residents' land which has been a rice planting area. The demonstration plot will later become a demonstration land for rice crops.



Figure 50. Location of the planned demonstration plot at Sukajadi Village

4. ANALYSIS, DATA INTERPRETATION AND RESULTS

4.1. Location Overview

In general, village locations if grouped by zone are as follows:

A. Core Zone:

1. Tasik Serai Village, Tualang Muandau Sub-district
2. Tasik Serai Timur Village, Tualang Muandau Sub-district
3. Beringin Village, Tualang Muandau Sub-district
4. Koto Pait Beringin Village, Tualang Muandau Sub-district
5. Temiang Village, Bandar Laksamana Sub-district
6. Sukajadi Village, Bukit Batu Sub-district

B. Buffer Zone:

1. Muara Bungkal Village, Sungai Mandau Sub-district
2. Tuah Indrapura Village, Bunga Raya Sub-district
3. Merempan Hulu Village, Siak Sub-district
4. Buntan Besar Village, Siak Sub-district

C. Transition Zone

1. Selat Guntung Village, Sabak Auh Sub-district
2. Bandar Jaya Village, Siak Kecil Sub-district
3. Sungai Linau Village, Siak Kecil Sub-district
4. Lubuk Gaung Village, Siak Kecil Sub-district
5. Bukit Batu Village, Bukit Batu Sub-district

Village areas in the core zone have high dependence on the existence of the Giam Siak Kecil and Bukit Batu Biosphere Reserve areas. In several villages, some of the village facilities are located within the Sinar Mas Group Industrial Plantation Forest (HTI) concession area, such as the office of the East Tasik Serai Village Head whose building is in the HTI Sinar Mas Group area. The conditions were due to limited space and available land. Dependence on the area also sometimes triggers illegal encroachment or illegal logging activities.

The availability of space or land is one of the main problems in village areas in the core zone. As a result, pressure on the GSKBB biosphere reserve area is increasing. The need for space or land is not only for economic purposes but also for residential needs due to the increase in population. As a result, land conflicts between communities and companies are becoming increasingly intense.

This situation becomes more complex when there is a commodity with high economic value, namely palm oil. People's enthusiasm for planting palm oil is increasing. As a result, they do not pay much attention to land status. The area included in the core zone is one of the areas targeted for oil palm planting. Even though legally he is aware, his actions constitute a violation of the law. This practice is supported by limited supervision by related parties regarding land use in particular the land included within forest area.

Another situation that occurs as a result of reduced area cover is increasingly limited space for wildlife. As a result, conflicts between wild animals and the community, including forest area permit managers, cannot be avoided and are even increasing. Incidents of wild animals such as elephants and tigers entering residential areas or

company concession/permit areas are becoming more frequent. People are becoming increasingly impatient because these animals, especially elephants, are destroying people's gardens. As a result, currently elephants are considered a very annoying pest by the local community.

Efforts that can be made to overcome conflicts with wild animals include implementing effective anti-poaching measures, including carrying out community patrols and monitoring using technology. Apart from that, efforts can be made to actively involve local communities in conservation efforts through education and providing job opportunities. Strengthening wildlife protection laws and increasing funding for law enforcement are also worth pursuing.

With regard to the development of economic activities, the majority of people still rely on the development of oil palm plantations. Because oil palm development has been proven to improve community welfare. Palm oil has clear and high market opportunities with promising prices. People think that if they collect it on the side of the road, someone will buy/hold the palm oil. Meanwhile, other agricultural commodities still do not have promising market opportunities.

Although in general, the public knows that from a conservation perspective, oil palm plants are plants that are not environmentally friendly. As a result of oil palm development, there have been several changes in environmental conditions, including changes in water hydrology. The water discharge between the rainy season and the dry season, especially in the Giam Siak Kecil Bukit Batu Lake, becomes unstable. Several locations in the Bengkalis Strait and the mouth of the Siak River experienced a decline in river water quality which resulted in disruption of ecological functions such as the mangrove ecosystem and spawning ground areas, nursery grounds and feeding grounds for several endemic biota in the water.

A similar thing also happened in the villages that support the Giam Siak Kecil-Bukit Batu Biosphere Reserve landscape area, including Tuah Indrapura Village. In this village, the area is dependent on water as the main support for agricultural businesses (rice fields and secondary crops) and also plantations. This happens because there are several companies in the village area that directly border the Biosphere Reserve, such as companies holding HTI permits and oil palm plantations that retain water during the dry season and releases water during the rainy season, resulting in large losses in community businesses. The same thing happens in other villages that are included in the core zone.

Apart from overcoming water distribution problems, especially for agricultural development, local economic development also needs to be considered and developed. Through local economic development programs, such as skills training and business diversification, communities can be directed to reduce dependence on certain sectors. Business diversification can include developing tourism potential, utilizing local resources for craft products, or even involvement in community-based development programs.

These measures can not only help increase people's incomes, but also create broader economic sustainability and maintain balance that may arise due to unsustainable resource extraction practices. With a comprehensive approach, what is being done in Tuah Indrapura Village can be an example for the surrounding areas in achieving balanced sustainability between economic development, environmental preservation and community welfare.

The imbalance in the agricultural cycle results in crop failures forcing people to change professions to become woodcutters in the area to meet household needs even though this activity is very risky. However, according to one of the dialogue participants

who previously worked as a logger, this is no longer done due to government intervention to form Forest Farmer Groups which currently have a priority in protecting the area by carrying out several restoration and mitigation programs as well as several economic improvement programs through the eyes of alternative livelihoods such as the use of Non-Timber Forest products from *pandan* and rattan, capture fisheries and also several buffer area restoration efforts through planting Multi Purpose Tree Species (MPTS) plants such as sugar palm, areca nut, petai (*Parkia speciosa*) and other species

4.2. Development of Economic Activities and Superior Products

The dialogue process facilitated by the Riau Region FKKM consortium, one of which was identifying superior products or sustainable economic activities, did not run smoothly. The public's perception of being tempted and lulled by palm oil development causes the public's mindset to develop other products become less optimal. The current desire in society is how to expand oil palm plantations. Apart from that, it is based on community experience in product development and economic activities which tend not to be successful.

This situation can be felt during the dialogue/FGD process in Koto Pait Beringin Village. Until the end of the FGD, the community did not agree on what economic activities would be carried out. Because each of the economic activities presented has been developed but has not and has not produced the expected results. For example, the development of Kelulut honey cultivation was developed with assistance from the Belantara Foundation and the results were not as expected.

Another obstacle besides market availability is uncertainty or fluctuations in commodity prices. The tendency so far is that during harvest, commodity prices tend to decline. This perception is based on the community's experience in developing agricultural commodities, especially food crop agricultural commodities. The community has made several attempts to develop agricultural food crop commodities, but the results have not been very encouraging. The results obtained are not commensurate with the production costs incurred. As a result, society suffers losses.

One of the people's choices in helping the family economy is to utilize existing resources without going through the cultivation process. One of the economic activities that people choose is fishing in rivers, lakes and other waters. This activity is mostly carried out in areas including the core zone. Apart from the availability of water areas, the choice to catch fish is also because fishing does not require a lot of production costs. Socioculturally, local people are also used to fishing.

Several years ago economic activity in the form of fishing became one of the main economic activities in this area. The large and varied production of fish catches is the main attraction. The fish obtained have also been processed into smoked fish. However, over time, fishing economic activities began to decrease. The main causative factors are the number of fish which continues to decrease and the phenomenon of unpredictable fluctuations in water discharge. Another causal factor is the shift in people's choices to plant oil palm.

Economic activities in buffer or transition zones that do not directly border water, the option for developing agricultural food crop commodities is still an option. One of the food crop agricultural commodities that people choose is the development or planting of rice. Because paddy which will then be processed into rice is the main commodity that is needed by the community. The market or buyers for this commodity are clear, numerous and do not have to be marketed far. So far, the rice cultivated has always been absorbed by

the local market or local community.

Apart from that, the production costs of developing rice are also not that large because most of the rice developed is local rice varieties. Local seed rice is known to be more resistant to pest and disease attacks and does not require special attention. Although the time from planting to harvest is longer than superior seed rice. The community's abilities or skills in planting rice are also still adequate because it has become a skill that has been passed down from generation to generation.

The community's desire to develop rice cultivation is faced with the constraints of limited land availability. Because the availability of space or land is decreasing due to land conversion, along with the increase in the number of people who need land both for settlement and economic resources. The phenomenon of land conversion to oil palm plantations also causes the development of rice cultivation to be hampered. Communities in several villages proposed that rice cultivation be developed on land that is currently still a forest area, namely the Giam Siak Kecil Bukit Batu Biosphere Reserve.

The community's desire to utilize the forest area, namely the Giam Siak Kecil Bukit Batu Biosphere Reserve for rice cultivation, is due to limited land availability. In fact, the community is aware that the proposed land is part of a forest area under government supervision. However, due to limited land available, it was proposed by the community to use land in the forest area. It is expected that the community can be given access to manage forest areas for rice planting activities which are still considered economically profitable.

One of the villages in the area around the Bukit Batu National Park, namely Sukajadi Village, has chosen the economic activity of rice cultivation, hoping that its development will be carried out on land that is included in the forest area of the Bukit Batu National Park which is also included in the Giam Siak Kecil and Bukit Batu Biosphere Reserve areas. Although there are doubts from the public, due to the unstable and unbalanced water discharge between the rainy season and the dry season. During the rainy season it always floods and during the dry season it becomes very dry. This condition is not technically profitable for cultivating rice.

The other economic activity that the community around the GSKBB Biosphere Reserve has chosen to develop is the cultivation of food crops. Village communities or villages in the Siak Regency area that are assisted by the Sustainable Environmental Development Studies (SENDS) Association prefer the economic activity of cultivating food crops, including rice cultivation. Other commodities that the community has chosen to develop include poison yam cultivation and mersik yam production. The development of handicrafts in the form of woven pandanus is also one of the economic activities proposed to be developed.

The proposed development of poison sweet potatoes such as in Muara Bungkal Village has been developed previously with the support of the Belantara Foundation. The village government plans to revive it. Because the market potential for poison sweet potatoes and peach sweet potatoes is still high. The availability of land is also available and sufficient, even the village government has confirmed that it has provided land for planting poison yam which is still within the village and easy to access.

Another economic activity option that has the potential to be developed and is a choice proposed by the community is cattle and goat farming. The choice of cattle and goat livestock development is based on available and increasing market opportunities. So far, the cattle and goats owned by the community have been absorbed by the market at adequate prices. Especially at certain times, for example during Eid al-Adha and during the

wedding season.

Beside that, costs required to make cows big and fat are also relatively affordable. This means that when people develop cattle or goat livestock, the community can still carry out other economic activities. Efforts made by farmers to protect their livestock include installing Global Positioning System (GPS) equipment. By installing this tool, cow owners can observe and know the cow's movements.

Cattle that can be marketed are usually purchased by collecting traders or referred to by the public as agents. The agent is a local person who is already known to the breeder. Even though there is no special agreement in the buying and selling process, breeders believe in selling their livestock. Practices like this have worked well so far. Demand in large quantities is marketed in surrounding areas such as Duri, Kandis and even Pekanbaru. For local markets, meeting people's needs is usually only for daily needs and is available at the weekly market. Meanwhile, for certain events, for example wedding receptions, they are also taken from local breeders.

Although there is no written agreement in the cattle or goat livestock market agreement, breeders and agents do not have a problem with it. Because each party, both breeders and buyers, trust each other. Apart from that, the number of traders or collecting agents is still limited because cattle or goat production is also still limited. In several villages, cattle livestock development is managed in groups and already has drums.

Guidance from the government in the form of training has also been carried out. Based on this situation, people who choose to develop cattle and goat livestock are confident and optimistic that the opportunities for developing cattle and goat livestock are still large. There is great hope from the community regarding the efforts of parties including the government in improving the community's economy through the development of cattle and goat livestock. Apart from that, there is already community experience in cattle farming. The government has also carried out development efforts, including through cattle breeding training, although it is not yet comprehensive in all villages.

Most of the cattle that are developed, especially in villages that are part of the core area or zone, are still kept wild. The cattle that are kept are released in the Industrial Plantation Forest (HTI) concession area. Maintenance using cow shed is still limited. This is because of limited land to find feed. Some areas in the villages around the core zone are already burdened with permits, especially permits. As a result, cattle raised by the community were released on land or areas that were concession areas from HTI companies.

The obstacle faced in efforts to develop cattle is the availability of land for providing feed. The pattern or method of raising cattle by releasing them into the wild cannot be maintained any longer. Because the availability of feed that cows can eat from the HTI concession area is limited to not so much wild grass. Therefore, the community hopes that cattle livestock development can be more optimal if there is land or area that can be planted with grass. The people of Tasik Serai Timur Village, for example, hope that HTI company land will be allowed to plant grass for cattle.

4.3. Institution

Another supporting factor that deserves attention in managing the GSKBB Biosphere Reserve is institutional. Institutionally there is a GSKBB Biosphere Reserve Management Coordinating Board which was formed based on Governor's Decree Number: Kpts. 71/I/2017 concerning Membership Composition of the Management Coordinating

Body for the Giam Siak Kecil-Bukit Batu Biosphere Reserve. The chairman is the Governor of Riau with Deputy Chairman Deputy Governor of Riau, the Regent of Bengkalis and the Regent of Siak. The Head of the Riau Province Bappeda acts as Secretary, Head of the Riau BKSDA Center and Director of PT. Arara Abadi as Deputy Secretary. Other related stakeholders are designated as field heads and field members. This decision is an amendment to the Governor's Decree Number Kpts. 920/V/2010 concerning the Establishment of a Management Coordinating Body for the Giam Siak Kecil Bukit Batu Biosphere Reserve.

This Coordinating Body is actually a forum for parties or stakeholders related to the GSKBB Biosphere Reserve area to make joint efforts in managing the GSKBB biosphere reserve in accordance with their respective main tasks and functions. In fact, to support operations, this coordinating body already has adequate secretariat space and is located in the Riau Province Bappedalitbang office. The placement of the secretariat in the Riau Province Bappedalitbang office was taken into consideration because the Head of Riau Province Bappedalitbang is the Secretary of the coordinating body.

This Coordinating Body is considered by several parties to have not optimally carried out its duties and functions. The duties and functions of this coordinating body are:

- a. Formulate coordination and communication mechanisms to implement the management of the Giam Siak Kecil Bukit Batu Biosphere Reserve
- b. Coordinating and communicating between stakeholders in implementing the management concept for the Giam Siak Kecil Bukit Batu Biosphere Reserve
- c. Initiate mediation and advocacy for differences of interest in implementing the management concept for the Giam Siak Kecil Bukit Batu Biosphere Reserve
- d. Communicating with various similar forums/institutions including the World Biosphere Reserve – MAB UNESCO.
- e. Prepare periodic reports to the Governor of Riau with copies submitted to the Regent of Bengkalis and the Regent of Siak.

The existence of this coordinating body is considered by several parties to be not optimal in carrying out its functions. Indications can be observed from the absence of consolidation activities, including meetings. This situation has caused several parties to propose adjustments to the composition of the coordinating body's membership. Because the Governor of Riau as Chairman, Deputy Governor of Riau, Regent of Siak and Regent of Bengkalis as deputy chairman are considered to have too high a span of control over the other administrators. As a result, the coordinating body becomes non-operational and does not run well, considering the high level and busy schedule of each of them.

Apart from that, based on information obtained from various parties, there are past events that have caused caution and lack of courage in making decisions. As a result, several tasks and functions of the coordinating body that were supposed to be carried out did not run as expected. This condition causes other related stakeholders, especially those who are members of the coordinating body, to take the same attitude and choose to wait for directions from their leaders. Based on this, the picture of financing and management budget for this area is also not clearly depicted.

The proposal to change the Riau Governor's decision regarding the formation of the Giam Siak Kecil-Bukit Batu Biosphere Reserve Management Coordinating Body has resurfaced after certain parties have attempted to reinstate the management of the GSKBB biosphere reserve. Among other things, after the support of the International Tropical Timber Organization (ITTO) donor through the ITTO activity PD 712/13 Rev.3 (F): Enhancing the Implementation of Landscape Management of Giam Siak Kecil-Bukit Batu

Biosphere Reserve (GSK-BR) in Riau Province of Sumatra Island. In its implementation, ITTO collaborates with the Environmental and Forestry Instrument Standardization Agency, Ministry of Environment and Forestry.

However, there are several parties who consider that the composition of the existing membership of the coordinating body is sufficient or does not need to be changed. In connection with several obstacles faced, including the experience of past events, efforts can be made to approach and communicate again with the Governor of Riau as chairman. On the contrary, this situation has become a momentum for relevant stakeholders to actively provide complete information about the GSKBB Biosphere Reserve. Special steps and strategies are needed to convince the Governor of Riau, the Regent of Siak and the Regent of Bengkalis.

Proposals to change and maintain the membership composition of the coordinating body are not something that should be opposed to each other. Because each of them has the same goals and hopes, namely in order to strengthen the coordinating body which is really needed in the management of the Giam Siak Kecil Bukit Batu Biosphere Reserve. However, it must still be decided which of the two options to choose. So that efforts to manage this biosphere reserve area do not stop at just institutions.

The current field situation, the problems and challenges faced are increasingly dynamic and complex. Apart from the problems of conservation pressure, including encroachment or illegal logging, land conversion and conflict with wildlife, there are problems such as the community's attitude towards the implementation of area management efforts. One example is the community's high enthusiasm for oil palm development. Apart from that, the community's attitude and response to the programs and activities that have entered and will be implemented both in the area and around the village area, the community tends to be apathetic, pragmatic and sceptical.

The Riau Region FKKM Consortium together with SENDS and LPESM felt this situation and conditions, as when they first carried out socialization on the implementation of activities in the village. The local community felt that previously too many stakeholders or parties had come to the village offering programs and activities. However, its implementation is not as expected and is not sustainable. Some even think that the community is only being used for program or project purposes.

Community empowerment efforts also become difficult because of this attitude. One example is when the Riau Region FKKM consortium carried out an FGD in one of the villages. Community representatives questioned the follow-up after this process. When information was collected on sustainable economic activities that could be developed, the community did not want to propose and agree to them. Because it turns out that previously many parties had carried out the same programs and activities. But until now there has been no follow-up. Even if there is follow-up, it is not carried out seriously and seems to be just a project.

4.4. Ecotourism

The potential for natural tourism in the GSK-BB Biosphere Reserve is very large and is an existing natural tourist attraction. This area, especially in the core zone, has beautiful natural views, a diversity of flora and fauna, and a well-maintained ecosystem that can attract the interest of local and foreign tourists. Ecotourism development is mostly water-based, both within the area and around the area. This ecotourism potential, if exploited, can provide economic benefits for the community while supporting environmental conservation.

Until now, the tourism potential around the biosphere reserve area has not been managed and utilized optimally. Apart from that, the condition of infrastructure, especially roads that provide access to tourist locations, is still limited. The current condition is that many roads are damaged, including the main roads that connect villages. However, several ecotourism locations are currently being used by local communities as tourism facilities for local communities.

Based on these conditions, developing ecotourism potential is currently not a priority. Economically, it is still unable to provide promising economic benefits for local communities. Apart from the factor of inadequate access to tourist locations, not many people know about the existence of these ecotourism locations. However, in the long term, the potential for ecotourism in this area can be developed.

5. CONCLUSIONS

Based on the previous description, the following conclusions can be drawn from the implementation process of the activities:

1. The Giam Siak Kecil Bukit Batu Biosphere Reserve (GSK-BB) is located in Riau Province, Sumatra. Its area is approximately 705,271 hectares with details of the Core Area: 179,000 ha, Buffer Zone: 222,000 ha, Transition Area: 304,000. This area was designated as a Biosphere Reserve by MAB-UNESCO in 2009. Administratively, it is located in Bengkalis Regency (66%), Siak Regency (30%) and Dumai City (4%). This area consists of the main peat swamp forest ecosystem and a number of small lakes.
2. The purpose of developing a biosphere reserve is to improve the harmonious relationship between humans and their environment through the preservation of biodiversity, promotion of sustainable development and logistical support for research and education.
3. The GSKBB Biosphere Reserve area is still facing ecological pressures such as illegal logging, land conversion, tenurial conflicts and wildlife conflicts.
4. Not all communities are aware of the existence of the GSKBB Biosphere Reserve area including the status of the forest area, especially communities in the buffer and transition zones.
5. After going through a dialogue/FGD process in order to identify sustainable community economic activities, most of the community proposed the development of palm oil plantations. The main reason is because palm oil is very profitable with easy marketing.
6. Sustainable economic activities that are proposed and chosen by the community other than palm oil are local rice cultivation, organic rice, horticultural farming, cattle farming, goat farming, poisonous cassava cultivation, and organic waste processing and honey bee development.
7. Market access for the proposed commodities, especially food crop agricultural commodities as sustainable economic activities, is already available even though there is no specific agreement.
8. Several villages still depend on collectors or commonly called "toke". The community does not have sufficient bargaining power in dealing with toke because of financial dependence before the harvest season. Meanwhile, economic or financial institutions in the village such as Village-Owned Enterprises (Bumdes), Village Unit Cooperatives (KUD) or similar have not been able to run as expected.
9. The creation of demonstration plots (demplots) cannot be carried out in all villages/sub-districts, because there is no agreement at the community level. Several villages have determined their locations including determining the parties who will be involved. Several other villages are still waiting for certainty of support from related parties.
10. Institutionally, there is already an institution for the Coordination of Management of the Giam Siak Kecil Bukit Batu Biosphere Reserve which was formed by the Provincial Government through the Decree of the Governor of Riau Number Kpts. 7/I/2017. However, this institution is not yet operational and has not run optimally. So that the main function as an executor of coordination cannot be realized.
11. Various populations of wild animals live and are in the GSKBB Biosphere Reserve which face threats due to habitat loss, poaching, and human-wildlife conflict. For this reason, collaborative strategies and stakeholder involvement are needed.

12. Institutional Coordination of the GSKBB Biosphere Reserve Management Agency which was formed based on the Decree of the Governor Number: Kpts. 71/I/2017 concerning the Composition of Membership of the Giam Siak Kecil-Bukit Batu Biosphere Reserve Management Coordination Body has not been optimal as expected. This condition causes there to be no integration of management efforts conducted by the parties. Several parties have proposed revitalizing this institution. There are also parties who expect to maintain the current institution but more intensive efforts are needed to convince the Governor as Chair, the District Head of Siak and the District Head of Bengkalis as Deputy Chair.
13. The GSKBB Biosphere Reserve faces complex tenurial issues, one of which is marked by land ownership boundaries that are often unclear. As a result, it can give rise to conflict and uncertainty over community access rights to forest resources. Overlapping land ownership claims between the community, government, and private parties also still occur. This situation can eventually cause tension between the parties.

6. RECOMMENDATIONS

Based on the initial description to the conclusion, recommendations can be prepared that should be carried out including in enlarging sustainable economic activities, namely as follows:

1. Law enforcement efforts are required seriously and continuously, especially in overcoming the ecological pressures of forest encroachment, land function shift and tenurial conflicts. Community involvement in law enforcement efforts should also be conducted due to the limited human resources of the relevant institution authorities.
2. Massive education and socialization are needed to the community about the existence of the GSKBB Biosphere Reserve area including its ecological and economic benefits. Because there are still many people who do not know that the areas or regions that have been known so far are included in areas that should be protected.
3. The high desire and enthusiasm of the community to develop oil palm plantations need to be anticipated by developing other commodities that have the potential to be developed including their market potential.
4. Sustainable economic activities that are proposed and chosen by the community other than oil palm from the dialogue or FGD process need to be followed up by the parties by providing support according to their respective authorities. The support can be in the form of training and technical guidance, building demonstration plots to creating sustainable market access.
5. To reduce the community's dependence on collectors or commonly called "toke", support is required for economic or financial institutions in the village such as Village-Owned Enterprises (Bumdes), Village Unit Cooperatives (KUD) or similar. Because the dependence of the community or farmers on toke can limit the bargaining position of farmers/communities.
6. Developing demonstration plots (demplots) needs to be done with a special approach, it is not enough to just produce dialogue or FGD. Serious efforts are needed to convince the community that making demonstration plots is not only for the interests of projects that are momentary in nature.
7. In relation with the institutionalization of the Giam Siak Kecil Bukit Batu Biosphere Reserve Management Coordination Agency that has been formed, it is considered not optimal, so revitalization efforts are needed. For this reason, dialogue and discussion are needed between stakeholders regarding the ideal institutional format to be formed. Because in terms of regulations there are no regulations or provisions that specifically regulate this institution.
8. In overcoming tenurial conflicts, efforts can be made through agrarian reform, providing management access to the community, and community empowerment, especially in developing economic activities.
9. Community-based economic development in the GSKBB Biosphere Reserve must begin with increasing the capacity of local communities, building strategic partnerships with various stakeholders including the market and diversifying products and services produced by the community
10. Ecotourism potential in the short term cannot be developed, because supporting facilities are still inadequate, including road access. However, it is worth trying for the long term after supporting facilities are adequate