

## THE IMPACT OF THE DECLINE IN RUBBER PRICES ON THE ECONOMY AND HEALTH OF THE SANGGAU DISTRICT COMMUNITY

### DAMPAK PENURUNAN HARGA KARET TERHADAP PEREKONOMIAN DAN KESEHATAN MASYARAKAT KABUPATEN SANGGAU

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#### ABSTRACT

The rubber price is declining in Indonesia for export. This research examines the impact of declining rubber prices on the socio-economic conditions of rubber farmers in Balai District, Sanggau Regency, West Kalimantan. The objectives of the research are to identify the factors affecting rubber prices, analyze the impact of low rubber prices on the socio-economic conditions of farmers, and explore farmers' strategies to increase their income. The research uses a descriptive approach with a survey method involving 42 respondents determined through simple random sampling. The research results show that the price of rubber has significantly decreased from around IDR 20,000 (2005-2010) to IDR 8,000-8,500 per kilogram currently. This price decrease directly impacts farmers' income, with the majority (69.55%) earning IDR 500,000-1,000,000 per month. From a social perspective, the majority (34%) of rubber farmers' children have completed high school, with a total of 115 children from 60 respondents. The health aspect shows that high blood pressure is the most commonly suffered disease (30%), with a treatment frequency of less than twice a month (52%). Most farmers (81.73%) own their homes with an average size of 6x10 meters (43.47%) made of concrete or half concrete (34.78%) with cement floors (52.17%). Another factor affecting the economic condition is the number of children, with the majority of farmers having 4-6 children (86.95%), as well as monthly consumption expenditures of IDR 1,000,000-2,000,000. This research reveals that rubber farmers face serious economic challenges due to the decline in rubber prices, which affects various aspects of their social lives.

**Keywords:** Agricultural Products, Consumer Preferences, Digital Marketing

#### ABSTRAK

Harga karet sedang menurun di Indonesia untuk ekspor. Penelitian ini mengkaji dampak penurunan harga karet terhadap kondisi sosial ekonomi petani karet di Kecamatan Balai, Kabupaten Sanggau, Kalimantan Barat. Tujuan penelitian ini adalah untuk mengidentifikasi faktor-faktor yang memengaruhi harga karet, menganalisis dampak rendahnya harga karet terhadap kondisi sosial ekonomi petani, dan mengeksplorasi strategi petani untuk meningkatkan pendapatan mereka. Penelitian ini menggunakan pendekatan deskriptif dengan metode survei yang melibatkan 42 responden yang ditentukan melalui simple random sampling. Hasil penelitian menunjukkan bahwa harga karet telah menurun secara signifikan dari sekitar IDR 20.000 (2005-2010) menjadi IDR 8.000-8.500 per kilogram saat ini. Penurunan harga ini berdampak langsung pada pendapatan petani, dengan mayoritas (69,55%) berpenghasilan IDR 500.000-1.000.000 per bulan. Dari segi sosial, mayoritas (34%) anak petani karet telah menyelesaikan sekolah menengah atas, dengan total 115 anak dari 60 responden. Aspek kesehatan menunjukkan bahwa tekanan darah tinggi merupakan penyakit yang paling sering diderita (30%), dengan frekuensi pengobatan kurang dari dua kali

*dalam sebulan (52%). Sebagian besar petani (81,73%) memiliki rumah dengan ukuran rata-rata 6x10 meter (43,47%) yang terbuat dari beton atau setengah beton (34,78%) dengan lantai semen (52,17%). Faktor lain yang memengaruhi kondisi ekonomi adalah jumlah anak, dengan mayoritas petani memiliki 4-6 anak (86,95%), serta pengeluaran konsumsi bulanan sebesar IDR 1.000.000-2.000.000. Penelitian ini mengungkapkan bahwa petani karet menghadapi tantangan ekonomi yang serius akibat penurunan harga karet, yang berdampak pada berbagai aspek kehidupan sosial mereka.*

**Kata kunci:** *Pemasaran digital; petani wanita; preferensi konsumen;*

## INTRODUCTION

The agriculture, forestry, and fisheries sector plays a strategic role in the Indonesian economy, as reflected in its contribution to Gross Domestic Product (GDP) of 13.7 percent in 2020, ranking second after the Manufacturing Industry sector (BPS, 2020). In the midst of the pandemic, the agriculture sector has proven its resilience in facing economic shocks and has become a mainstay in the recovery of the national economy. The plantation sub-sector, which contributed 3.63 percent to GDP in 2020, ranks first in the Agriculture, Livestock, Hunting, and Agricultural Services sector, making it a provider of industrial raw materials, a labor absorber, and a significant foreign exchange earner. Rubber is one of Indonesia's leading plantation commodities with an important role in the national economy. As a non-oil and gas foreign exchange earner, this commodity makes Indonesia the second largest rubber producer and exporter in the world after Thailand (Triyanti et al., 2023). Continuously growing export

opportunities and a large domestic market, especially in the tire, automotive, and asphalt industries, make rubber a strategic commodity (BPS, 2020).

Rubber plantations in Indonesia are classified into Large Plantations (PB), consisting of State Large Plantations (PBN) and Private Large Plantations (PBS), as well as People's Plantations (PR). Data shows that in 2020, the PR area reached 3,368.19 thousand hectares or around 90.4% of the total national rubber plantations, while PBN and PBS each only covered 132.88 thousand hectares (3.6%) and 225.11 thousand hectares (6%) respectively (BPS, 2020). This confirms the dominance of smallholder plantations in national rubber production, although the trend of dry rubber production from PR tends to decline from 3,111.25 thousand tons in 2018 to 2,784.01 thousand tons in 2020. South Sumatra Province is the largest rubber producer in Indonesia, with PR production reaching 821.32 thousand tons in 2020 or around 29.50 percent of

the total national PR dry rubber production. Meanwhile, West Kalimantan Province is also one of the largest rubber production centers in Indonesia, where many farmers rely on this commodity as their main source of livelihood, in addition to other plantation crops such as pepper and oil palm.

Agricultural development, including the rubber plantation sector, is expected to become a mainstay sector that generates and increases people's income, creates new job opportunities, and supports small businesses in order to save and revive the national economy (Arwati, 2018). Since the beginning of development, the role of the agricultural sector in Indonesia's development has been unquestionable, with the direction of development to increase agricultural productivity to meet the food needs of the community and domestic industry, increase exports, increase farmers' income, expand employment opportunities, and encourage business opportunities (Andrianto, 2014). According to (Lan, 2019) The agricultural sector, which is the mainstay of the majority of Indonesia's population, is required to produce sufficient food, absorb labor to reduce unemployment, generate foreign

exchange, and is expected to become a mainstay sector driving the national economy. Rahayu (2024) emphasized that the plantation subsector plays an important role in development programs, especially agricultural development, as a place for farmers to depend on for a living, a source of employment, and the preservation of natural resources. Rubber (*Hevea brasiliensis*) itself has become popular in Indonesia because of its easy cultivation and processing, and provides direct economic value for farmers (Harahap, 2018). Andoko (2008) noted that although rubber plants were introduced to Indonesia in 1864, within 150 years, the area of rubber plantations in Indonesia has reached 3,262,291 hectares, of which 84.5% are owned by the people, 8.4% are privately owned, and 7.1% are state-owned. (Lestari, 2019).

The importance of rubber commodities for the economy of farmers, especially in Balai District, Sanggau Regency, West Kalimantan, is highlighted by a phenomenon of falling rubber prices, which has a significant impact on the socio-economic conditions of rubber farmers.

## METHODS

This study uses a descriptive approach with a survey method to analyze the impact of low rubber prices on the economy of farmers in Balai Batang Tarang District, Sanggau Regency, West Kalimantan. The research location was chosen purposively, considering that Balai District is one of the rubber production centers in Sanggau Regency. The study was conducted for three months, from June to August 2023. Data collection was carried out through two sources: primary data and secondary data. Primary data were obtained through direct observation and structured interviews with rubber farmers using questionnaires. This direct interview approach is in line with research (Le Guen et al., 2022) which uses a similar method to obtain comprehensive information from rubber farmers. Secondary data comes from the Central Statistics Agency (BPS) of Sanggau Regency, BPS of West Kalimantan Province, the Agricultural Research and Development Agency, and various literature related to this research.

The population in this study was all rubber farmers in several villages in Balai Batang Tarang District, totaling 550 farmers. The sample was determined using the simple random

sampling method with the Slovin formula, so that 42 respondents were obtained. This sampling technique was chosen because each member of the population has an equal opportunity to be selected as a sample, so that it can represent the characteristics of the population as a whole. (PC Susanto et al., 2024)

Data analysis was carried out quantitatively and qualitatively. Quantitative data were processed using Microsoft Excel 2016 and IBM SPSS Statistics for Windows programs, then presented in tabulation and interpreted descriptively (Arikunto, 2013). To answer the first objective of the study regarding the factors that influence rubber prices, qualitative descriptive analysis was used based on the results of interviews and literature studies. To analyze the impact of low rubber prices on the farmer's economy, the calculation of rubber farming income was carried out before and after the price decline. Referring to research (Haniffa et al., 2019), the calculation of rubber farming income uses the formula  $Pd = Pn - BT$ , where  $Pd$  is income (IDR),  $Pn$  is total revenue (IDR), and  $BT$  is total cost (IDR). Furthermore, the income of rubber farming before and after the price reduction is calculated using the

formula  $Pds1 = Bns1 - BTs1$  and  $Pds2 = Bns2 - BTs2$ , where  $Pds1$  and  $Pds2$  are the income of rubber farmers before and after the price reduction (IDR/lg/yr),  $Bns1$  and  $Bns2$  are the income of rubber farmers before and after the price reduction (IDR/lg/yr), and  $BTs1$  and  $BTs2$  are the total costs of rubber farming before and after the price reduction (IDR/lg/yr) (Soekartawi, 2010).

Testing the significance of the difference in rubber farmers' income before and after the price decrease, the Two-Middle-Value Test was used with paired t-test statistics. (Haniffa et al., 2019), the formula used is  $t = (\chi_1 - \chi_2) / \sqrt{[(s_1^2 / n_1) + (s_2^2 / n_2) - 2r (s_1 / \sqrt{n_1}) (s_2 / \sqrt{n_2})]}$ , where  $\chi_1$  is the average income before the rubber price decrease,  $\chi_2$  is the average income after the rubber price decrease,  $s_1^2$  is the variance before the rubber price decrease,  $s_1$  is the standard deviation before the rubber price decrease,  $s_2$  is the standard deviation after the rubber price decrease, and  $r$  is the correlation between the two samples. The hypothesis tested is  $H_0$ : there is no difference in the average total income before and after the rubber price decrease; and  $H_1$ : there is a difference in the average total income before and

after the rubber price decline. The test criteria used are if  $t\text{-count} \leq t\text{-table}$ , then accept  $H_0$ ; and if  $t\text{-count} > t\text{-table}$ , then reject  $H_0$ . To answer the third objective of the study, identifying how farmers increase income due to low rubber prices, an analysis of the contribution of rubber farming income to the total income of farmer households was carried out. The calculation of the contribution uses the formula  $K = (PUK / PTRTP) \times 100\%$ , where  $K$  is the contribution (%),  $PUK$  is the rubber farming income (Rp/year), and  $PTRTP$  is the total income of farmer households (Rp/year). The results of this analysis will reveal how much the farmer household economy depends on rubber farming and identify income diversification strategies carried out by rubber farmers to maintain the household economy (Aisyah, 2023).



Figure 2. Rubber Latex

## RESULT AND DISCUSSION

### Children's Education

Education is the learning of knowledge, skills, and habits of a group of people that are passed down from one

generation to the next through teaching, training, or research. In this study, the education of children of rubber farmers in Duria Village, Balai District, the level of education varies greatly; some have graduated from elementary school, junior high school, and high school, and

some have not attended school. Of the 60 rubber farmer respondents, the total number of children of rubber farmers is 115 people with different levels of education, as can be seen in Table 1, as follows:

Table 1. Respondents' education level

No	Children's Education	Amount	Age	Percentage%
1	No school	20	1 – 30 Years	17.39%
2	SD	10	12 – 15 Years	8.70%
3	Junior High School	30	15 – 18 Years	26.08%
4	Senior High School	40	18 – 25 Years	34.79%
5	S-1	15	23 – 30 Years	13.04%
Total		115		100%

Source: Primary data processed (2024)

Based on the table above it explains that the majority of farmers' children are high school graduates, with a percentage of 34%, where the highest age of farmers' children who graduated from high school is 25 years, and the lowest age of farmers' children who graduated from high school is 18 years. The number of farmers' children who graduated from elementary school with the smallest percentage is 8.70%.

The youngest age is 1 year old and is still not old enough to go to school or elementary school and the highest age of children who do not go to school is 30 years old due to school factors that during childhood, there were still no school buildings or were too far from home, which resulted in a child being too lazy to get an education. The table

shows that children's education is equivalent to their parents' education, and there is no process of improving education. The absence of an increase in the process of children's education in this study was due to the lack of interest of rubber farmers' children to continue their education to a higher level due to several factors, the distance between school and home which is so far and the lack of funds from parents to be able to continue their education, this is in line with the opinion of a respondent named Mr. Hendra (40 years old) who said that: *"The lack of education for our children and some of them even did not go to school was because when they were little there were no school buildings to be used as a place to study, even though there were school buildings as a place to study but they were*

*far from our homes, that made our children lazy to go to school in the 90s to 2000''.*

According to Law No. 2 of 1989, a person's level of formal education is another estimate of the generally accepted social class position. In general, the higher a person's education, the greater the possibility that the person will have a high salary or (higher income) and have a position that is admired and respected (higher job status). Based on information obtained from the current research location, the average age of farmers' children who have gone to school when registering is 6 years old, and completing education up to high school is on average 18 years old.

**Family Health**

Health is a state of physical, mental, and social well-being that

enables every individual to live productively, socially, and economically (Syarifa et al., 2016). In terms of the health conditions of rubber farmers, all samples showed that they were in good health, as well as the health of their husbands/wives and children. However, in the past year, there have been several rubber farmers who have experienced illnesses that require treatment or examination at the hospital. Several types of diseases that are the most severe, most frequently suffered, and the most recently experienced by rubber farmers in Balai District are also of concern. Data on the health conditions of rubber farmers were obtained from 115 respondents spread across various villages and can be seen in the table below:

**Table 2. Types of diseases that respondents have suffered from**

No	Types of Diseases	Amount	Percentage
1	Appendix	3	15%
2	High blood pressure	6	30%
3	Boil	2	10%
4	Heart	1	5%
5	Pneumonia	1	5%
6	Sugar	2	10%
7	Kidney	2	10%
8	Stroke	2	10%
9	Bleeding	1	5%
Total		20	100%

*Source: Primary data processed (2024)*

The table above explains that the most severe type of disease suffered by rubber farmers is high blood pressure,

with a percentage of 30%, and the disease that is least suffered by rubber farmers is heart disease, wet lungs, and

bleeding. Based on a survey in the field, rubber farmers on average have high blood pressure due to the habit of drinking alcoholic beverages and staying up late; besides that, it is also due to smoking activities, age factors, and lack of health maintenance. This is in accordance with the statement of one of the respondents, Mr. Susanto, who said that:

*"I still suffer from high blood pressure because I don't exercise enough, and I often consume alcoholic drinks, which can have an effect on my high blood pressure."*

The condition of rubber farmers who experience declining health or illness can hinder them in carrying out their daily activities, including rubber

farming, because their physical condition does not support it. This is in accordance with Paune's theory (1983), which states that health is the normality of the functions of body organs in carrying out their functions without pain or functional failure in carrying out activities. Illnesses suffered by rubber farmers, both mild and severe, often require them to seek treatment, which has an impact on their productivity in farming. Many respondents recorded visits to the nearest hospital, clinic, or health center, either once or more, to check their health condition. Data on the frequency of visits to medical treatment by rubber farmers can be seen in the following table:

Table 3. Number of times respondents received medical treatment in one month

No	How many times of treatment/month	Amount	Percentage (%)
1	<2 times	60	52.17%
2	2 – 4 times	30	26.09%
3	> 4 times	25	21.74%
Total		115	100%

Source: Primary data processed (2024)

Based on table 3, it shows that the number of 115 respondents who have been treated at hospitals, clinics, or health centers and the nearest medical place who have diseases that are currently suffered or in the last 1 or 2 years, the most is less than twice with a percentage of 52%, and the respondents who are least treated more than 4 times a month with a percentage of 21% . The

number of respondents who only seek treatment once a month if they have a disease is because the type of disease suffered at that time was still not severe, and because they were used to the disease, so they let it be. And there are also rubber farmers who often seek treatment, one of which is a type of stroke that still exists until now; this disease can be treated more than 4 times.



**Residence**

A residence is a place of refuge for humans from the threat of wild animals and bad weather. In terms of

where rubber farmers live, there are various ones who already have their own house and live in a relative's house (Asminar, 2020) It is shown in Table 4 .

Table 4. Respondents' Place of Residence

No	Residence	Amount	Percentage (%)
1	My own house	94	81.73%
2	Official residence	0	0%
3	House for rent	15	13.04%
4	Staying at a relative's house	11	9.56%
Total		115	100%

Source: Primary Data processed (2024)

Table 4 explains that rubber farmers, on average, have their own houses with the highest percentage of

81.73%, and there are also rubber farmers who live with their relatives with a percentage of 9.56%.

Table 5. Respondents' House Area

No	House Area	Amount	Percentage (%)
1	6 x 6m	18	15.65%
2	4 x 9m	20	17.39%
3	8 x 8m	10	8.69%
4	6 x 10m	50	43.47%
5	6 x 7m	4	3.47%
6	6 x 11m	5	4.34%
7	4 x 5m	2	1.73%
8	6 x 8m	4	3.47%
9	5 x 6m	2	1.73%
10	6 x 12m	0	0%
Total		115	100%

Source: Primary Data processed, (2024)

There are rubber farmers who still do not have a place because they do not have the capital to build a house, as they have just started a household or family, which is in accordance with the statement of one of the respondents on behalf of Mr. Yosef, who said that:

*" I still don't have my own house to live in because I don't have much capital, because I just started a family, and I'm still busy paying off the debts from my marriage."*

With the average rubber farmer having their own houses, and also with different house sizes. Home ownership is one of the important indicators of welfare, where the size and condition of the house can describe the standard of living of each family. The distribution of ownership and size of rubber farmer houses can be seen in Table 5.

Table 5 explains that the average size of the rubber farmer's house is 6x10

M with a percentage of 43.47%, and the size of the rubber farmer's house with

the lowest percentage is 6 x 12 M with a percentage of 0% for each.

Table 6. Raw Materials for Occupied House Buildings

No	Type of House	Amount	Percentage (%)
1	Concrete	40	34.78%
2	Half Concrete	40	34.78%
3	Ceramics	20	17.39%
4	Board	15	13.04%
Total		115	100%

Source: Primary data processed (2024)

Based on Table 6, it can be explained that the majority of rubber farmer houses in the research area are made of concrete or half concrete on average, with the highest percentage reaching 34.78%. There are also farmer houses that are only half concrete, and most are made of wood, 25%.

The difference in building materials reflects the economic conditions and financial capabilities of each farmer in building their homes. Apart from the wall building materials, the floors of rubber farmer houses also

vary, depending on the level of welfare and access to construction materials. Further data on the variation of floor materials in rubber farmer houses can be seen in Table 7.

Based on Table 7, it is explained that the floors of rubber farmers' houses are, on average, made of concrete or cement floors with the highest percentage of 52.17%, and the floors of rubber farmers with the lowest percentage are made of soil with a percentage of 2.60%, and all the roofs of rubber farmers' houses are made of zinc.

Table 7. Floor Materials of Houses Occupied by Respondents

No	Floor Type	Amount	Presentation
1	Land	3	2.60%
2	Cement/concrete	60	52.17%
3	Board	10	8.69%
4	Ceramics	42	36.52%
Total		115	100%

Source: Primary data processed (2024)

### Number of Farmers' Children

The number of farmers' children is the number of children who have been born based on gender in a living condition or

showing signs of life, such as breathing, a heartbeat, an umbilical cord pulse, or muscle movements (Ali et al., 2015) . In this study, the number of farmer

children influences the income and expenses of rubber farmers; the more the number of rubber farmer children, the greater the costs incurred by rubber farmers, and vice versa. Table 8 explains that the average rubber farmers who

have children is 4 to 6 people, with the highest percentage of 86.95% and the number of farmer children is more than 5 people, with the lowest percentage of 1.73%.

Table 8. Number of Respondents' Children

No	Number of children	Amount	Percentage (%)
1	<3 people	100	86.95%
2	3-5 people	13	11.30%
3	> 5 people	2	1.73%
Total		115	100%

Source: Primary Data processed (2024)

With an average number of farmer children that are quite large, they automatically spend quite a lot of money, starting from the cost of clothing, food and even for school fees, so it is required for rubber farmers to have a large income in order to prosper their families, where this is in accordance with the statement of one of the respondents on behalf of Mr. Agus who said that: *" I have 5 children, and I sometimes have difficulty meeting their needs, especially with their school fees, so I told them to go away from home after graduating from high school, so they can help me financially."*

Based on the statement of one of the respondents, rubber farmers who have more than 5 children complain about the welfare of their families. Because income is not comparable to

expenses. The factor of many children is also an obstacle for families to improve their children's education. Socio-economic factors also determine the number of children desired or born in a family. Poverty can lead to birth control, but on the other hand, many children can also bring economic benefits.

**Consumption**

Consumption is the amount of food consumed by a person or a rubber farmer's household with the aim of obtaining a number of nutrients needed by the body, consisting of rice, tubers, fish, meat, eggs, vegetables, nuts, fruits, oil, beverage ingredients, and others. The types of food consumption of rubber farmer households served consist of staple foods such as rice. Side dishes from animal foods include meat,

fish, and eggs. As well as vegetable side dishes such as tempeh, tofu, and vegetables, as a complement. Based on the results of research observations, it is known that rubber farmer households spend an average of IDR 1,000,000 - 2,000,000 per month on household food consumption. (Prasetyo et al., 2021) The amount of food consumption of laborer fishermen's households in this case can be interpreted as routine expenses incurred by households to meet their food needs.

Expenditures for rubber farmer household food consumption consist of staple food expenses, namely rice, animal food, and vegetable side dishes. The average expenditure on animal food for meat is 10 kg per month, fish is 6 kg per month, and eggs are 60 eggs per month. As well as expenditure for vegetable side dishes, namely tofu, is 10 pieces per month. While for vegetables, they are usually obtained from nature and their own crops (farming and gardening).

Table 9. Amount of rubber farmer consumption

No	Consumption/month	Amount	Percentage (%)
1	< 1,000,000	40	34.78%
2	1,000,000 - 2,000,000	60	52.17%
3	>2,000,000	15	13.04%
Total		115	100%

Source: Primary Data processed (2024)

Based on the results of Table 9 above, with the unstable price of rubber, people limit their spending on their consumption level. The main income of some people in the Balai sub-district is from rubber farming and palm oil farming. Daily income is obtained from rubber. While weekly income is generated from palm oil sales. The average is greatly influenced by the declining price of rubber. The level of consumption of people in the Balai sub-district is also affected.

**Rubber Business Conditions**

Currently, the price of rubber has experienced a very significant decline in Balai District, Sanggau Regency, West Kalimantan. In 2005 - 2010, the price of rubber was around Rp. 20,000, but until now the price of rubber is only Rp. 8,000. This decline has a major impact on the economy of rubber farmers in Balai District. The condition of rubber in Balai District has an impact on the area of rubber land, the amount of rubber production, income, rubber prices, and the age of rubber.

**Land area**

Land area is the total amount of rubber plantation land cultivated by rubber farmers. The area of land greatly affects farmers' income; the wider the land, the greater the income (Susanto & EH, 2018)

The area of land owned by rubber farmers in 12 villages that were sampled in this study had varying land areas, as seen in Table 10.

Table 10. Area of Rubber Business Land

No	Land area	Amount	Percentage (%)
1	< 0.5 Ha	80	69.56%
2	>0.5 – 2 Ha	20	17.39%
3	>2 Ha	15	13.04%
Total		115	100%

Source: Primary Data processed (2024)

Area of Rubber Farmers' Land

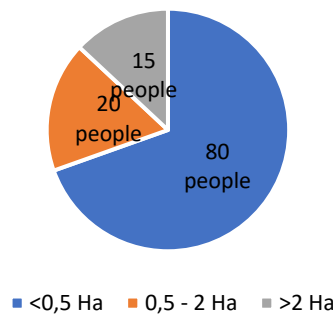


Figure 3. PIE Chart of Respondents' Land Area as Rubber Farmers

Based on table 10, it is explained that rubber farmers who have the highest land area is 0.5 ha with a percentage of 69.56%, and the area of rubber farmer land is less than 0.5 ha and more than 2 ha with each percentage of 13.04% with an average land area of 1.785 ha and the largest rubber farmer land is 5 ha while the rubber farmer land with a narrow area is 0.2 ha. The existence of land area and land conditions is very important in the business activities of rubber farmers, and the status of the land managed by

the rubber farmers is their own. In this case, there are rubber farmers who still have a land area of less than 0.5 because the inheritance of their parents is divided equally among their children, which is in accordance with the statement of one of the respondents on behalf of Mr. Markus (Empirang Ujung Village), who said that: " *I only have a land area of less than 0.5 hectares because the land I am currently managing is an inheritance from my parents, who have shared it with us, and for now, I have also planted oil palm. I planted oil palm because the price of oil palm tends to be stable.*

The extent of agricultural land control is something that is very important in the production process and farming and agricultural efforts. In agricultural efforts, the narrower the land, the less efficiently farming efforts are carried out.

**Rubber Production Amount**

The amount of rubber production is the amount of rubber produced by rubber farmers from the farming process, calculated in kilograms (kg) obtained in a period of one month. (Setyawan et al., 2016) . In this study, the amount of rubber produced by rubber tapped by farmers varies greatly due to different land area factors, which can also be seen in Table 11.

Table 11. Amount of Rubber Production/Month

No	Total Production/month	Amount	Presentation
1	<100 kg	76	66.08%
2	100 - 200 kg	20	17.39%
3	> 200	19	16.52%
Total		115	100%

Source: Primary Data processed (2024)

Based on Table 11, it shows that the largest amount of rubber farmer production is <100 kg per month, with a percentage of 66.08% or with 76 respondents, while the amount of production from 100 to 200 kg per month with a percentage of 17.39%. The lowest amount of production is more than 200 kg, with a percentage of 16.52 %. This situation is due to the price of rubber, which continues to decline, so that many rubber farmers are diverting the function of rubber land to more productive crops. The amount of production is very influential on the area of land; the wider the rubber land, the more rubber production, and vice versa. The amount of rubber production

sometimes does not match the area of land owned due to weather factors (rain), which makes farmers unable to carry out daily activities, where this is in accordance by Mr. Linggi statement that: *"I sell rubber 4-5 times a month, but sometimes only 3 times because it rains one week, which means I can't tap and produce rubber as usual."*

Rubber production and rubber plant productivity do not always increase; sometimes there is a decrease, and the constant amount of production is influenced by several factors such as the number of workers, land area, fertilizer use, number of productive trees, and rainfall.

**Rubber Farmers Income**

The total income, which is net income, is the income obtained by rubber farmers that has been reduced by production costs within a period of one month (IDR/month). In this study, the income of rubber farmers varies greatly (Table 12).

Based on Table 12, the income of rubber farmer respondents in Balai District in this study who have the highest percentage is with an income of IDR 500,000-1,000,000, with a percentage of 69.55%, while the lowest income of rubber farmers is with an income of less than IDR 500,000.

Table 12. Rubber Farmers' Income

No	Income /month (Rp)	Amount	Percentage( %)
1	<Rp 500,000	5	4.43%
2	500,000 – 1,000,000	80	69.55%
3	>1,000,000	30	26.06%
Total		115	100%

Source: Primary Data processed (2024)

This is with a value of 4.43% and more than IDR 1,000,000, with a percentage of 26.06% with an average income per month reaching IDR 1,000,000, where the highest income of rubber farmers is IDR 2,800,000. The income of rubber farmers is categorized as still small because it is not only due to price factors but also the lack of attention of rubber farmers in managing their rubber plants. This is in accordance with the statement of Mr. Agustinus stating that: *"Rubber production is currently decreasing not only because of the*

*price factor but also due to the lack of maintenance and care from rubber farmers. My rubber from childhood until now, I have never fertilized or given other nutrients. Usually, I only weed the grass and weeds around my rubber trees "*.

The lack of attention from rubber farmers results in low rubber production, starting from fertilization since they were small, which has never been done, and maintenance is still lacking, all due to a lack of knowledge about how to manage rubber plants, as can be seen in Table 13 as follows:

Table 13. Additional Education of Rubber Farmers Apart from Formal Education

No	Education/training	Amount	Percentage (%)
1	Socialization/training	45	39.13%
2	There isn't any	70	60.87%
Total		115	100%

Source: Primary Data processed (2024)

Based on Table 13, it can be seen that respondents who did not receive additional education other than formal education were 45 respondents with a percentage of 39.13% and those who received additional education, such as agricultural socialization, were 70 respondents with a percentage of 60.87%. Based on information in the field, respondents who did not receive additional education were due to not having free time to be able to attend agricultural socialization, and those who could attend the socialization were only farmers who had joined farmer groups in Balai District.

**Rubber Price**

Price is the amount of money paid for goods and services or the amount that consumers exchange in order to get benefits from having or using. In this study, the price of rubber in Balai District is almost the same for all rubber farmers, which is IDR 8,500 per kilogram. On average, collectors buy at around IDR 8,500 per kg. Based on information obtained at the research site, the decline in rubber prices is due

to the large number of rubber farmers who are dishonest with what they produce. For example, there are rubber farmers who mix soil with rubber when it is still above the rubber latex collection site. However, when the community does that, the quality of the rubber decreases.

**Age of Rubber Plants**

The age of a rubber plant is a unit of time that measures the period from when the plant starts growing until it can no longer produce or dies. This age factor greatly affects the productivity and quality of the latex produced (Busyra & Irpanto, 2022) . The older the rubber plant, the lower the latex production, so rejuvenating the plantation is an important step to maintain the sustainability of the rubber plantation business. Based on this study, the average age of rubber plants managed by farmers in Balai District varies, depending on planting patterns, care, and environmental factors. More detailed data on the age of rubber plants in the area can be seen in Table 14.

**Table 14. Average Age of Rubber Plants**

No	Plant Age	Amount	Percentage (%)
1	5 – 10 Years	45	39.13%
2	10 – 20 Years	30	26.08%
3	20 – 30 Years	40	34.78%
Total		115	100%

Source: Primary Data processed (2024)



Based on Table 14, it explains that the age of rubber plants managed by rubber farmers who are baling banyak is 5-10 years old with a percentage of 39.13%, farmers who manage rubber plants aged 10-20 years with a percentage of 26.08% and farmers who manage rubber plants aged 20-30 years with a percentage of 34.78%. Based on data obtained from the field, the highest age of the plant reaches 30 years, and the smallest age of the rubber plant reaches 5 years. These rubber plants are superior rubber plants. Generally, the productivity of superior rubber plants is faster than local rubber (natural rubber). The age of the plant also greatly affects the production of the rubber; the older the age of the rubber plant, the less sap will be released by the rubber plant.

### CONCLUSION

This study revealed that the decline in rubber prices from around IDR 20,000 (2005-2010) to only IDR 8,000-8,500 per kilogram has had a significant impact on the socio-economic conditions of rubber farmers in Balai District, Sanggau Regency. The economic impact is clearly visible from the low income of the majority of farmers, which is only around IDR 500,000-1,000,000 per month, an amount that is inadequate to support the needs of a household with

an average of 4-6 children. Rubber productivity and quality are influenced by several factors, including lack of plant maintenance and care, varying plant ages (5-30 years), the practice of mixing rubber with other materials that reduces quality, and limited land area, which is mostly only 0.5 hectares. This condition has affected various social aspects of farmers' lives, where although most of their children are able to complete their education up to high school level, access to higher education is still limited due to financial constraints. In terms of health, the prevalence of high blood pressure among rubber farmers is quite high (30%), which has the potential to reduce their work productivity. As an adaptive response, some farmers have begun to diversify their businesses by planting other commodities such as oil palm, which has a more stable price. However, the lack of additional education and training for some farmers (39.13 %) remains an obstacle in optimizing rubber production and quality. This finding indicates the need for comprehensive policy interventions to improve the welfare of rubber farmers, including price stabilization, capacity building in plantation management, and

support for business diversification to increase farmer household income.

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