

THE ECONOMIC VALUE OF TENGGALANG AS A TRANSPORT TOOL FOR BRONDOLAN PALM OIL BASED ON LOCAL WISDOM

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ABSTRACT

Oil palm is agricultural that has excellent potential as a producer of vegetable oil globally, and oil palm plantations contribute to providing jobs for thousands of people in Indonesia. The greater a company, the more efficiency of work is needed. This research represents an effort to find a more efficient brondolan transportation tool for workers in oil palm plantations. The study was conducted in May 2019 in two locations, the first location in Terusan Village, the second location in PT. Sinarmas, Manis Mata District, West Kalimantan. Data analysis uses descriptive analysis methods where the respondents of this study are employees of PT. Sinarmas as many as 30 people. The results showed that the utilization of tengkalang as a carrier brondolan for workers in PT. Sinarmas is more effective and also more cost-effective. One unit has a lifespan of more than six months with a cost per unit of IDR20,000. While the black bucket per unit has a benefit period of three months with a cost per unit of IDR15,000. Then the result of cost analysis is calculated in one year, using tengkalang more efficiently by buying tengkalang IDR40.000 / year, while the black bucket purchase cost IDR60.000 / year. In addition, using tengkalang means that the Company also participates in the welfare of surrounding communities to progress and grow together to improve the development of families and villages.

Keywords: brondolan palm; employees of oil palm plantation; rattan; tengkalang

INTRODUCTION

Palm oil is an agricultural commodity with great potential as an oil producer and contributes to the world's vegetable oil needs (Setyawan et al., 2020). Palm oil in Indonesia has developed so rapidly. It can be seen from the area of oil palm plantations in Indonesia where every year it increases, the location of oil palm in Indonesia in 2018 is 12,761,586 ha. In 2021, it is predicted that Indonesian oil palm plantations will increase, reaching more than 16 million ha, and Indonesia is the largest palm oil producer in the world (Central Bureau of Statistics, 2018).

Activities in oil palm plantations are of various types, ranging from nurseries, maintenance, harvesting, postharvest, and palm oil mills. The culmination of all field activities is oil palm harvesting. This activity needs to get enough attention starting with harvest preparation and Fresh Fruit Bunches' delivery to Palm Oil Mills. Optimal results in quality and quantity need support from good harvesting areas, skilled harvesters, and appropriate harvesting tools. Some work tools in oil palm plantations are operated manually, and some are used automatically. Workers in oil palm plantations use manual tools, while palm oil mills use automatic tools because most of the devices in Palm Oil Mills are processing machines.

With the development of the oil palm plantation industry, work effectiveness is needed. Empowerment of workers according to portion, suitability of work tools with work affects work effectiveness (Eo et al., 2014). Workers in oil palm plantations, especially common loose fruit pickers, use black plastic buckets as a flexible fruit carrier, but they have weaknesses, including; easily broken tools are difficult to find around the garden, and in the use of black plastic buckets, a lot of sand and leaf litter are carried to the proper collection of results which are eventually transported to the Palm Oil

Mills where this causes damage to the oil palm processing machines. Postharvest management's effort to minimize the risk of damage to oil palm processing machines in palm oil mills. (Morris et al., 2019). So that it can reduce economic losses in oil palm plantations (Zhang et al., 2020). For this reason, there is a need to replace the black bucket, which is a tool that is more efficient and more environmentally friendly, such as the use of tengkalang.

Tengkalang is the result of tribal craftsmanship that comes from rattan plants. Rattan is a non-timber forest product with great potential and has been widely used by the community, including as woven material, for rigging and other purposes (Jumiati et al., 2012). Rattan is considered more environmentally friendly because it comes from plants (Rachchh et al., 2014).

The use of tengkalang to transport loose fruit is a breakthrough that has never been thought of. The use of tengkalang is expected to be a solution for oil palm plantation companies to improve employee performance and empower local communities. Then what needs to be done is to analyze in terms of cost efficiency and the usefulness of the work tool for transporting loose fruit (tengkalang), so that it is hoped to get a new finding that the tengkalang can be proven based on data and the fact that the tengkalang can provide work efficiency in oil palm plantations.

Based on the GAP analysis, it is known that the use of tengkalang as a means of transporting palm loose fruit has more value as the use of local wisdom compared to other means of transporting loose fruit (bucket). Tengkalang also increases work efficiency, so that Tengkalang can be interpreted as one of the drivers of improving employee performance in oil palm plantations.

The purpose of this study was to obtain tangible results in the form of a comparison of black buckets with tengkalang on the efficiency of using work tools to transport palm loose fruit. Using tengkalang is expected to be more efficient in terms of costs and work results and increase non-financial benefits, namely: being more environmentally friendly, promoting local wisdom, and advancing the surrounding community so that they can move forward together. So that this non-financial benefit is a plus from the results of this study.

MATERIALS AND METHODS

This research was conducted in August 2019 at PT. Sinar Mas Central Kalimantan. The respondents of this study were employees of PT. Sinarmas, who is also a resident and craftsman of tengkalang as many as 30 people. The method used is descriptive analysis. The tools and materials used in the study were rattan, black buckets, sacks, machetes. The stages carried out in this study were collecting data through interviews and observations in the field, implementing the manufacture of a comparison tool for transporting loose fruit (tengkalang), comparing the work efficiency of a black bucket flexible fruit carrier with tengkalang.

RESULTS AND DISCUSSION

Tengkalang is a handicraft made from rattan plants. Rattan is one of the non-timber forest products that have great potential and has been widely used by the community, including as woven material, for rigging, and other purposes (Jumiati et al., 2012)

- 1) The average shopkeeper at PT Sinarmas is a woman who, compared to men, has a relatively more minor workforce. Women who work at PT Sinarmas as scavengers have unique abilities and strengths, namely by making the head as a pedestal for the tengkalang hook rope, so that using a tengkalang with a fulcrum on the head is considered more efficient when compared to using a bucket that is carried on the side. In addition to being efficient in using tengkalang, it is also efficient in cost and material resistance.
- 2) Then there is the advantage of tengkalang compared to black buckets, namely that tengkalang has a relatively more durable service life. Based on the observations for one year and the study results show that in 1 year, the use of tengkalang is replaced by 2x/year, while the black bucket is 4x/year (Figure 1). Tengkalang is more durable because it comes from rattan. Rattan has solid and elastic material, while the bucket is not stable because it is made of plastic. The plastic in the bucket material has a weakness in its thin material so that it breaks easily if used to transport loose fruit with high intensity. In addition to the effectiveness and durability of the transportation means, the tengkalang patties also have a significant impact on the communities around the oil palm plantations. This phenomenon is a real example for other palm oil companies to empower the surrounding community (Yuliani et al., 2020). This study shows that the tengkalang is more efficient as a work tool for transporting loose fruit than the black bucket. Also, the manufacturing process has a significant economic impact on the surrounding community (Bolhaar et al., 2020).

- 3) The results of the study obtained tangible results that tengkalang is more efficient as a work tool for transporting loose fruit than black buckets and also has an impact on the community around the Company that by using tengkalang empowers people who have the skills to have their own business so that people get income. Outside the main job as an oil palm plantation employee. Social impacts are needed to plan sustainable oil palm plantations so that there is no inequality in the community around oil palm plantations (Córdoba et al., 2019).

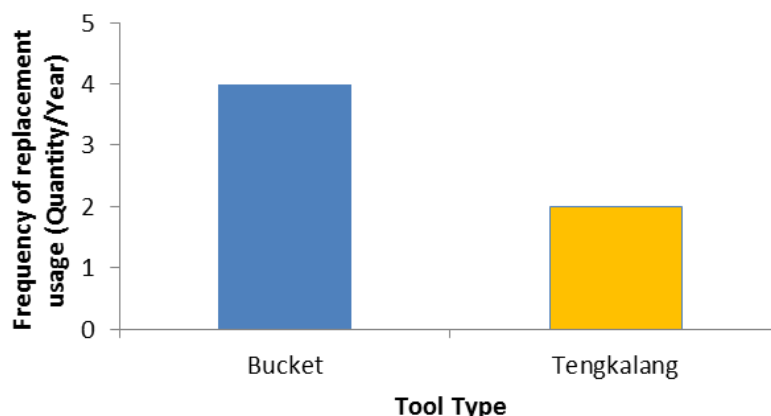


Figure 1. Frequency of usage changes

Rattan plants are easier to get around the garden because the surrounding community can cultivate them, then used by employees at PT. Sinarmas stated that the sand and leaf litter are not carried away when used to collect loose fruit, so it is beneficial for employees that they don't have to work twice to clean up leaf litter in piles of loose fruit. In addition to efficiency in work, this finding has an essential meaning that biodiversity provides enormous benefits to the community. Rattan is widespread in Indonesian forests so that with proper use, it will not harm nature but provide genuine benefits for the people around the Company. (Siebert, 2005)

The frequency of using tengkalang, which is relatively long, affects the cost of expenditure (Figure 2). The black bucket used as a means of transporting loose fruit is easily broken and only lasts three months, so that in 1 year, you have to replace it four times with the price of black plastic buckets per piece of IDR15,000,-, so the costs incurred for the procurement of black buckets as loose fruit transport is for one year is IDR60,000, -. This is considered less efficient when compared to the use of flexible fruit transportation from tengkalang.

Field testing found that the use of tengkalang is more efficient. The tengkalang is made of a non-wood material, namely rattan, with a more robust material having a service life of six months so that in one year, only the tengkalang is replaced twice. The price of one tengkalang is IDR20,000, so it only costs IDR40,000-. For one year. The cost difference between the black bucket and the tengkalang is IDR20,000. The following is a cost analysis comparing the use of black plastic buckets with the help of tengkalang.

Tabel 1. Cost analysis

Description	Bucket		Tengkalang	
	Unit	Year	Unit	Year
Lifetime	3 months	4 times	6 months	2 times
Price	IDR15.000	IDR60.000	IDR20.000	IDR40.000

Source: Primary data processed 2020

Using tengkalang there is a cost savings of IDR20.000 per person per year. The need for loose transport equipment is 0.08 units per hectare. So if one division has an area of 700 ha, 56 units of tengkalang are needed, so the cost savings in one division is $IDR20.000 \times 56 = IDR1.120.000, -$ /year. The analysis above shows that the savings obtained are quite large, considering that oil palm plantation companies have hundreds of thousands of hectares. Furthermore, the Company can also empower the community with greater management and scale.

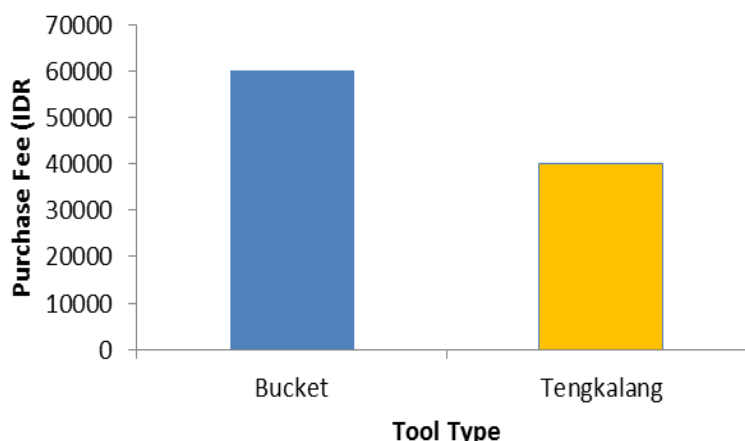


Figure 2. The cost of buying loose fruit transport equipment

In addition, the Company can also create a new organizational unit to coordinate the community who can make tengkalang. The results of this administrative unit will be developed and promoted to other farmers at a lower price and offered to other oil palm companies so that the work done is more efficient (Pardo et al., 2013). This is sustainable development for communities around oil palm plantations, reducing poverty, inequality, environmental degradation, and improving the welfare of their families (Setyawan et al., 2020). The research results are considered to positively impact the surrounding community, providing changes in village welfare and the welfare of families around oil palm plantations in Kalimantan, Indonesia (Santika et al., 2019). The government also believes that the palm oil industry in Indonesia helps the government alleviate poverty (Koko & Hartono, 2020).



Figure 3. Tengkalang (a) Making Process (b) Tengkalang (c) Tengkalang used



Figure 4. the use of (a) buckets (b) employees use the fulcrum of the fulcrum on the head

CONCLUSIONS AND SUGGESTIONS

The use of tengkalang to transport loose fruit is more effective and efficient than plastic buckets. Tengkalang is more durable (6 months of service), is environmentally friendly, carries more, and helps separate litter/dirt. Plastic buckets are easier to break/damage (1 month of use), are not environmentally friendly, the amount of transport is less, and the workforce still separates the

litter/dirt. Economically, Tengkalang is more affordable for IDR40.000,-/year, while the black bucket is IDR60.000,-/ year. Suggestions for further research are to research other oil palm plantation companies using tengkalang to transport loose fruit by using this study as a comparison.

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