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Upgrading Charcoal Briquettes of Coconut Shell for Export

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ABSTRACT

The Global Value Chain (GVC) is an easy way to apply to Small and Medium Enterprises (UKM: Usaha Kecil Menengah) so that they can immediately rise to a higher level. The success of the GVC method can be applied to export-oriented UKM. ***The goals*** *to be achieved in the community service program are to improve human resource management, finance, occupational health, and increase production capacity.* ***The methodology*** *used in upgrading the production process through coordination and scientific discussion, training, and simulation, making tools with technology transfer for production efficiency, health checks, and providing tools and facilities to improve employee health.* ***The results*** *of this activity are increasing the percentage of export volume by expanding production units and adding employees, achieving production efficiency through the technology of permanent conveyor belt machine transfer and oven, forming financial management with Zahir accounting software, training on the use of fire extinguisher and first aid to the employees who get burned, checking employee health, increasing marketing knowledge capacity with English language courses to improve the quality of presentations.*

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INTRODUCTION

Small and Medium Enterprises (UKM) needs a precise and systematic method that can be used to be able to enter and survive in the global market. This method is a Global Value Chain or often abbreviated as GVC. A method that has been applied in various countries and has proven its success (Nugroho, Anita, Wulandari, 2019). Global Value Chain is an easy way to apply UKM so that they can immediately rise to a higher level. The success of the GVC method can be applied to export-oriented UKM (Kula et al., 2006).

In the global market, UKM has the opportunity to obtain significant benefits. This advantage is obtained after UKM becomes part of the production chain that involves many parties and many countries. However, many UKM still fails to access the global market. The failure is due to the lack of accessing it and maintaining its existence.

Nowadays, Global Value Chain (GVC) is seen as the most appropriate perspective and method in directing and analyzing small and medium export-oriented industries in the order they are not crushed by globalization. Export-oriented UKM is part of the value-added chain of the global market so that it can provide and get the opportunity to gain significant profits (Gereffi & Fernandez-Stark, 2016).

One of the developing UKM that has a considerable export opportunity in the global market is coconut shell charcoal briquettes. The demand for charcoal briquettes began to enter Indonesia in the early 2000s. Briquette products are needed in Europe, America and the Middle East. In Europe and America, coconut shell charcoal briquettes are needed as fuel for the barbeque. While in the Middle East, charcoal briquettes are used as fuel for sissa cigarettes. This is what drives demand from abroad quite a lot, giving rise to entrepreneurs of coconut shell charcoal briquettes. (Dunn et al., 2006).

In Yogyakarta, there are several UKM that produce coconut shell charcoal briquettes, including BriqCo and D'Briquettes. Both are in Bantul Regency. BriqCo is in Sewon Subdistrict while D'Briquettes is in Plered Subdistrict. These two UKM are quite successful for the size of small industries that penetrate the global market. They succeeded in turning coconut shells that were not so glimpsed into extraordinary opportunities. The owners are even ordinary villagers who initially did not understand about the global market at all.

BriqCo UKM was started by Novi Setiawan in 2009. It started from a trial and error to make briquettes from coconut shell charcoal. This trial and error effort emerged after Novi got an offer from his friend who got an order from abroad. UKM of D'Briquettes was started by its owner, Mas Danang Setiyo in 2012. Previously Danang Setiyo had worked at BriqCo. Then in 2012, Danang ventured to try to develop his own business and get support from Novi.

The results of the situation analysis that have been conducted show that the two UKM

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have several technical or administrative problems as follows:

1. Problems of human resources (HR). The two factories do not have employee capacity building programs. Employees are not specifically motivated, especially in the prevention of fire and first aid burns. This was felt to be serious because each factory had experienced fire during the production process.
2. Problems with financial management. In financial management, the problem faced is not bookkeeping money in and out of the rules of accounting so that the owner does not know the benefits he gains. BriqCo and D'Briguettes apply manual and conventional financial management so they do not know the cash flow, weekly wages, have not been registered as taxpayers, and lack of budget allocations for making their machines.
3. Occupational health problems. For employee health, there is no application of safety for employees. Employees work without helmets and masks. There are no health checks for workers. Besides that, there are no work safety facilities and infrastructure such as fire extinguishers.
4. Problems with export marketing knowledge and capabilities. Knowledge about upgrading and how to deal with global markets, especially by UKM, has not been owned. The main problem is limitations in language skills. Language constraints result in wider sales price disparity. The selling price of products to traders is $ 1,020/ton up to $ 1,050/ ton, while prices from traders to buyers range from $ 1,100/ton. The price difference is quite significant so that the profit from making briquettes is not maximal.
5. Problems of facilities and infrastructure. In particular, BriqCo and briquettes need several machines to improve work efficiency and increase production capacity so that it fits the specified target. Effective technology that can realize efficiency in production is a permanent belt conveyor and oven.

The goals to be achieved in the community service program are: spurring the growth of UKM product exports in Indonesia through competitive market growth, improving the quality of UKM management to enter the global market through improving product quality and marketing, accelerating technology transfer and community management of universities to UKM communities, developing synergies between UKM, Universities, Local Governments, and the community.

MATERIAL AND METHOD

The simplest and easiest GVC model was upgrading. There were four upgradings introduced in GVC, namely process upgrading, product upgrading, functional upgrading, and inter-sectoral upgrading. Process upgrad-

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ing is an effort to transform inputs into output more efficiently by reorganizing production systems or introducing more sophisticated technologies (Stephenson, 2013).

The method applied for implementing this program was upgrading the production process. The targets were accounting management, UKM HR management, improvement of employee character building and leadership, improvement of environmental health around production sites, improvement of understanding quality of SME strategies into the global market, and transfer of appropriate technology for production efficiency. The data used are primary.

RESULT AND DISCUSSION

The export program development program implementation was carried out from February to October 2018.

a. Problems with financial accounting

To solve bookkeeping problems, partners, especially BriqCo, were asked to immediately recruit employees with accounting graduates of vocational high school, who would be employed in the bookkeeping section. Bookkeeping consists of two things: administering for financial accounting and production accounting.

Some obstacles occurred because the recruitment at BriqCo occurred within two months. During two months, the accounting employees recruited only worked for three weeks, for the reason of obtaining work elsewhere. This resulted in BriqCo repeating the recruitment process. The same condition also happened at the briquettes factory. Accounting employees at the factory already existed, but due to internal conflicts between employees, accounting employees at the briquettes factory finally left. The D'Briquettes factory then recruited new bookkeeping employees back.

The proposing team and partners agreed to buy accounting software for business, namely Zahir Accounting. Zahir Software has several advantages, including: (1) Being able to determine business decisions appropriately and quickly; (2) Knowing the financial condition of the business at any time; (3) Working becomes more comfortable because the display interface is more attractive; (4) Managing debt flow easily. All debt flows are due and the current account will be displayed in forms of reminder and graphics simply; (5) Facilitating complete inventory management; and (6) Providing Software Assurance and After-Sales Service (Anita, Wulandari, & Hendrato, 2018).

The proposing team suggested purchasing accounting software because the bookkeeping process using Microsoft Excel was prone to get erased, and if it was deleted it would cause all of the accounting data lost. It contradicts when using the software. The software will still keep bookkeeping data that is done in a month-by-month category. Software purchasing was conducted at the end of May 2018 with two licenses namely BriqCo

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and briquettes, and training on their use on July 11, 2018, at Aisyiyah University of Yogyakarta. Followed by private training to each factory to see the progress of development for 4 meetings that is 2 hours in July, 2 hours in August, 2 hours in September and 2 hours in October.

The range between the first and second training was around 2 weeks (14 days) to allow employees to conduct trials in their respective factories. However, this was constrained by the personal computer (PC) in BriqCo which had not yet compatible with the software, which then was facilitated by using a personal laptop.

b. Addition of Production Capacity

One of the main problems of the two factories is to meet the demand for export quantities from buyers that have not been fulfilled until now. Therefore, to overcome this problem, partners and proposers agreed to procure machinery for the two factories.

Belt conveyor for BriqCo

Belt conveyor is simple equipment used to transport bulk with large capacity. This tool consists of a belt that resistant to solid objects carriers. The belt used in the conveyor belt was made of a type of prime quality rubber bought in Jakarta.

This conveyor belt was prepared in February 2018, material procurement was done from February to May 2018 Simple conveyor belt was designed based on the technicians' journal and assembled with the proposer team using simple tools. The conveyor belt was made by local technicians in June 2018 and

Figure 1
Accounting training at BriqCo (site visit)

Figure 2
Accounting training at briquettes (site visit)

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started to be used on that month.

The use of a made conveyor belt has been evaluated for one month. The evaluation result showed that the *conveyor belt* can increase the production speed of up to 85%. The average production of briquettes increased to 500kg/ hour, from 300kg/hour. This increase in production speed makes cutting and printing briquettes that should be done for 6 hours can be reduced so that this can be done within 4 hours.

D'Briquettes Permanent Oven

The technology used to increase production capacity that has been taken is the making of the permanent oven to reduce burning costs. Today, they used 20 permanent ovens. That combustion used gas as the fuel, it cost about IDR.800.000/day. Gas use in briquette making process cost quite a lot, particularly when the gas price was escalating and it would result in increased production costs

The permanent ovens used there were made in larger sizes. The ovens are permanently made using cement bricks which later layered with zinc to generate higher heat. The residue of used oil will be used as fuel. The use of used oil will be linked with a furnace with chimney. By using used oil as the fuel, the fuel cost will be reduced for around IDR.500.000/day.

Currently, partners have 20 semi-permanent ovens in various sizes. If all ovens are used, they can dry 5 tons of dry briquettes, from 6 tons of wet briquettes per day. While

Figure 3
Referenced *conveyor belt* design

Figure 4
Produced conveyor belt, 8 meters long and 50 cm wide.

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the new permanent oven can replace the performance of 2.5 semi-permanent ovens. 1 permanent oven will burn 2.5 tons of dry briquettes– from the initial weight of 3 tons of wet briquettes.

A permanent oven making plan was designed at the end of June 2018. Material provision to make the permanent Oven has been done since July 2018 up to now. Currently, the problem lies in the chimney production that requires accuracy and precision in size. Chimneys are made by a local technician with the design which was made together with partners. As can be seen in figure 5, 6, 7, and 8.

D'Briquettes' permanent oven is perfectly finished in August 2018, and it started its operation in early September 2018. The evaluation done at the beginning of October suggested that the use of a permanent oven has reduced 30% of the operational costs for fuel. The cost of fuel procurement which was IDR. 7,500,000/month was reduced. Therefore, the current fuel operational cost is IDR. 4,500,000/ month.

c. Occupational Health

Light Fire Extinguisher (LFE) Usage Training

Occupational Health improvement program agreed between the partner and the proposing team is a fire extinguisher training with Light Fire Extinguisher (LFE). The training was carried out for the employees at both factories. LFE usage training was carried out in late July 2018.

The participants of LFE usage training conducted at the BriqCo factory were 25 men and women employees. The participants of LFE usage training conducted at briquettes were 30 male employees. Those training were in collaboration with Regional Disaster Relief Agency (BPBD) and were assisted by 8 students of Student Activity Units, FRESHT. The training was carried out for 3 hours with 1-hour allotment for material and question-answer and 2 hours for fire extinguisher simulation. As can be seen in figure 9, 10, 11, and 12.

Occupational Health Facilities Provisions

The LFE training was ended with handover of some goods such as LFE, first aid box, fire extinguisher procedure, and LFE use posters as well as disposable masks. Employees also received additional food and attendance incentives. As can be seen in figure 13.

Training of Initial First Aid Treatment for Burns

This training was carried out for employees in both factories for two days. The training started with material delivery for 1 hour and simulation for 2 hours. The material focused on: (1) Definition of burns; (2) Causes of burns; (3) Kinds of burns; (4) Burns wrong handling; (5) How to deal with first stage burns; (6) How to call for help and an ambulance.

This training was closed with giving additional food for the employees, giving

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Figure 5
The briquettes Semi-permanent oven

Figure 6
New permanent oven, size 4x3x2,5 m
(still in the development stage)

Figure 7
Used oil fuel

Figure 8
Finished permanent oven

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Figure 9
Light Fire Extinguisher (LFE)
Usage Training

Figure 10
Teams and some BriqCo employees
after LFE training

Figure 11
LFE Use Simulation

Figure 12
The team with some of the briquettes
employees after LFE training

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burns handling posters, and health screening for all employees including blood pressure checks, blood examination which included blood sugar levels and uric acid levels checks. As can be seen in figure 14 and 15.

d. BriqCo Internet Facilities

A program agreed together with a partner was an internet facility installation at the BriqCo factory. The internet facility uses Indihome as an internet provider. The installation was done on Saturday, July 28, 2018, with the internet quota of 60 GB per month. While for the briquettes factory, we did not install the internet facility because they already have it.

e. Specific English for Business Training

Training on capacity building for human resources was carried out at the briquettes factory. The required training was in the form of Specific English for Business training in collaboration with the Language Training Program (PPB) of 'Aisyiyah University. This training was planned to be conducted in mid-August. Currently, the determination of the training curriculum has been undertaken. The training was planned to be carried out in 5 meetings which will be followed by 3 briquettes marketing staff. The curriculum in Specific English for Business training included: (1) English for telephoning; (2) English for email; (3) English for meetings;

Figure 13
The handover of the goods in the form of first aid boxes, LFE, employees' disposable masks

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and (4) English for presentation.

There were many constraints in this Specific English for Business Training. Most, of course, were not implemented because the owner and employees were less motivated. After the recommitment was made, there was agreement that the course would conduct in the second year of the export product development program implementation.

f. Factory In-Kind

BriqCo factory has provided 18 million rupiahs in-kind for warehouse rental in the second factory unit expansion. The second unit expansion was done as an attempt to meet the production *demand* from the buyer. The warehouse was rented for 3 years in Sewon Bantul and it cost 18 million per year. This kind was conducted in mid-February 2018. In-kind at d"Briquettes factory was as many as 20 million as an effort to purchase materials and labor wages during the making of the permanent oven, which was donned in early July 2018.

CONCLUSION AND RECOMMENDATION

Community service programs that have been carried out can increase the amount of production, streamline the production process, improve financial reports and improve employee health. Employers are advised to be orderly in using accounting software and em-

Figure 14
First aid treatment on burns training

Figure 15
Simulation of First aid treatment on Burns

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ployees are orderly in using self-protection tools.

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