SUGAR CANE MADURA AN OPPORTUNITY FROM THE PERSPECTIVE ON SOCIAL AND ECONOMIC DIMENSIONS

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Abstract

Today, the national sugar demand for household and industrial in line with the increasing population. The existence of a program to establish sugar factories, of course, offset by increased production of cane as the main raw material. Madura Island has a chance to become sugarcane island, based on the result of study of Indonesian Sugar Plantation Research Center (P3GI), spread in various areas which then need to develop the potential of sugarcane. So the research set the goal to analyze the social and economic aspects of sugar cane agribusiness development in Madura Island. Data analysis used is qualitative descriptive analysis and return cost analysis (R / C) ratio including break even point (BEP). The location of this research was done in 3 districts (Bangkalan, Sampang, Sumenep) Madura which is the scope of work of PG Candi Baru, with informants 15 farmers and officers of PG Candi Baru and related institutions so total 50 respondents. The results showed that the perception of sugar cane farmers in Madura has a strong acceptance attitude only on the ease and assistance provided, both in the form of funds and production facilities received. The institutions involved are still not optimal in supporting the development undertaken. Beside that, the calculation of R / C ratio obtained results of 1.0017, then declared feasible, but with a very small profit of 0.17%. Break Even Point (BEP) of sugarcane per hectare production must be achieved with the average cost assumption of 757.369.681 IDR and sugarcane price 44.158 IDR and the average yield of 6.66% is 698,74 kwintal of sugarcane so that this potential is needed for continuous development effort.

Keywords: Sugar cane, Sustainable Agriculture and Food Security.

BACKGROUND

Indonesian government is inevitably aware that the people's need for sugar will always increase. Lack of supplies for domestic demand, the government is trying to bring in sugar from abroad to cover the need. The improvement is done through the rehabilitation of sugarcane by unloading ratoon and intensive ratoon treatment, structuring of varieties and provision of superior quality seeds through tissue culture, application of cultivation according to technical standard through demonstration or demonstration plot, improvement of farmer capability through farmer empowerment, escort and assistance. In addition, it is endeavored by extensification measures by extending the area or maintaining the existing area and construction of a new sugar mill (Muljana, 2006).

Madura Island has the potential to become sugar cane island, based on the study of Indonesian Sugar Plantation Research Center (P3GI), there are approximately 65,000 hectares of land spread over Bangkalan and Sampang regencies have potential for cultivation

of sugar cane development. From the result of planting experiments that have been done PG Candi Baru Sidoarjo, in District Omben, Ketapang and Jrengik in Sampang Regency, per-hectare able to produce 70-90 tons of ready-to-milled sugarcane. However, not all potential land will be fully utilized (New PG Candi 2014).

This research focus on sugar cane industries in social and economic perspective and has not been done much for researched, morely discuss about financial economy. Based on, it describe sugar cane agribusiness development in social and economic aspect analysis can give benefit for company and government and related stakeholders in it can determine policy in developing agriculture development especially on sugar cane agribusiness in order to realize self-sufficiency of sugar to be achieved. According that reality, this study aims to analyze sugarcane agribusiness in Madura through social and economic sustainability dimension.

METHODS

Sites

The location of research is determined purposively in Madura area, with consideration that Madura area is development area of sugarcane production area of PG. Candi Baru. According to 4 districts in Madura region, three districts were chosen as development areas of PG Candi Baru as research sites, namely Bangkalan, Sampang and Sumenep districts. The three districts represent Madura in the working area of PG. Candi Baru. The object of this research is sugarcane commodity in the scope of agribusiness covering subsystem II, subsystem III and supporting subsystem, with discussion of sugar cane agribusiness development.

Respondents

Informants and respondents in this study were taken from a population consisting of smallholder sugarcane farmers in the Madura area in 3 districts (Bangkalan, Sampang and Sumenep) who established a partnership with PT. Sidoarjo New Sugar Factory and SKK (Head Garden Sinder) Rayon II, SKW (Regional Garden Cinder) and PLPG (Field Worker of Sugar Factory) which handles development area in Madura. So the total number of respondents are 50 people.

Data Analyzed

a).   Qualitative Descriptive Analysis

Qualitative descriptive analysis used in this research for interpretation of the data obtained so it becomes more clear and meaningful than just the numbers. The steps are data reduction, data presentation with charts and texts, then drawing overviews with deductive methods, ie methods of thinking that apply common things first to be connected in their particular sections or from general statements drawn conclusions Which is specific Suriasumantri (2003).

b).   R / C Ratio Analysis

R / C ratio is the amount of value that shows the comparison between Revenue = R and Total Cost (C = C). Within the limits of the R / C value, it can be seen whether a business is profitable or unprofitable. There are 3 (three) possibilities obtained from comparison between Revenue (R) and Cost (C) of sugarcane cultivation in Madura, namely:

a)   R/C > 1 = Feasible / profitable
b)   R/C = 1 = BEP
c)   R/C < 1 =Not Feasible / losses

c).   Break Event Point Analysis

Break Event Point Analysis is a technique to study the relationship between fixed cost, variable cost, profit and activity volume. According to Yacob (2003) Break Event Point (BEP) is the principal return point where total revenue is equal to total Cost. According to S.

Munawir (2002) The point of break even point (BEP) can be interpreted as a condition where in its operation the company does not earn profit and does not suffer loss (total income = total cost). Break even point calculation on unit basis can be done using the following formula:

$$BEP\,(Q) = \frac{TC}{P}$$

Where:
P = the selling price per unit
TC = total cost
Q = number of units / quantity of products produced and sold

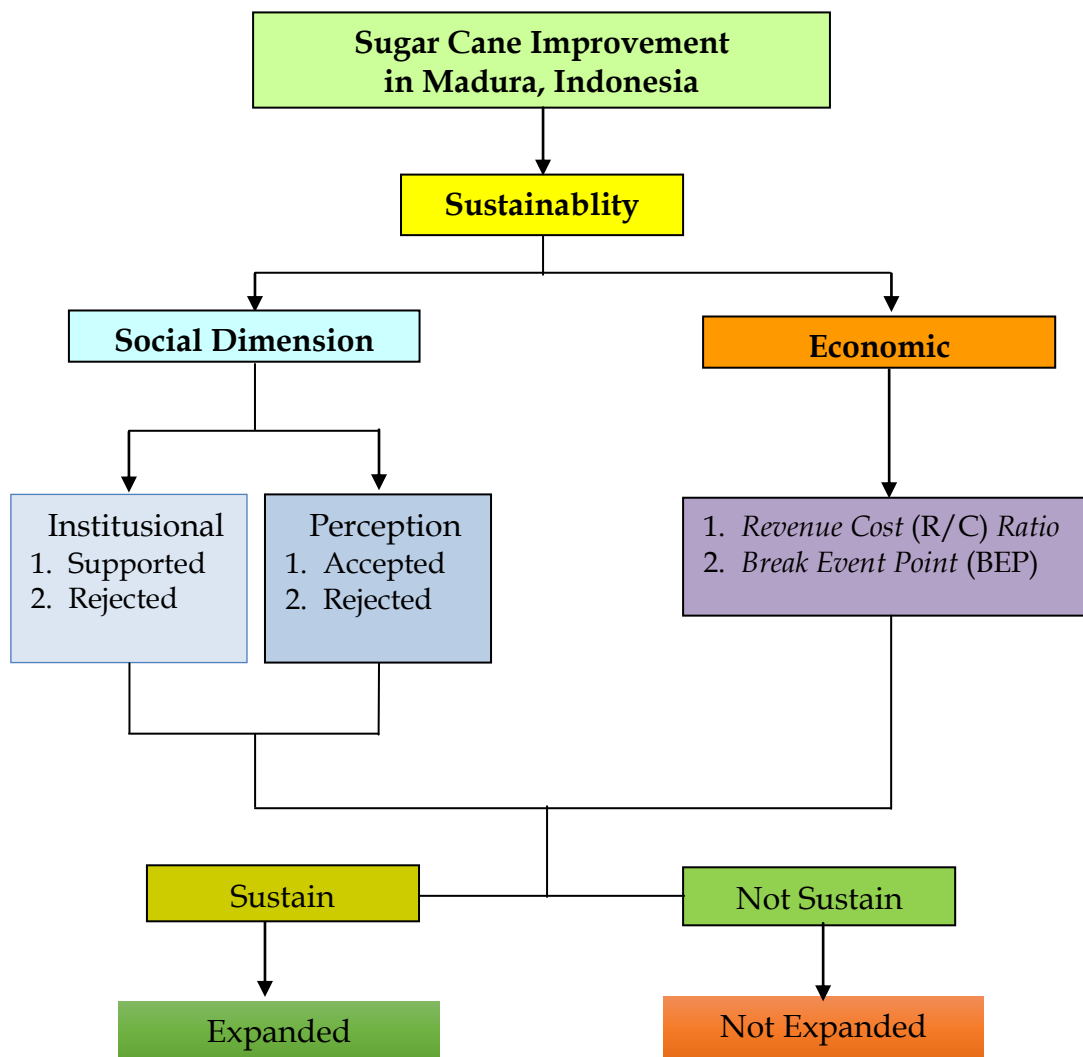**Figure 1. Research Framework**

RESULTS AND DISCUSSIONS

Partnership between PT. Sugar Factory New Candi and Farmer

Since 1975 to 1993 all the sugar cane fields in the working area of PT. New Candi Sugar Factory is controlled by PG through leasing system. After the revocation of Presidential Instruction no. In 1995, the government required sugar mills to involve smallholder sugarcane farmers as partner farmers, resulting in a partnership system in the form of

business cooperation of TR KSU (Tebu Rakyat Kerjasama Usaha). The scope of PT. New Sugar Factory There are three patterns of cooperation between PG and sugarcane farmers consisting of two patterns of farming cooperation, namely TR KSU-A (Tebu Rakyat Kerjasama Usaha, Category A) and TR KSU-B (Tebu Rakyat Kerjasama Usaha, Category B) as well as one pattern with the land lease system is TSS (Own Sugar Cane) which is woven between the PT. Sugar Factory New temple with the smallholder sugarcane farmers as partner farmers on the basis of deficiencies and advantages of each party to complement each other with a policy that has been agreed by both parties. Pattern of cooperative relationship applied by PT. Sugar Factory New temple with sugar cane farmer in Madura is pattern of cooperation relationship with pattern TR KSU-A (Tebu Rakyat Kerjasama Usaha, Category A).

Partnership pattern of sugarcane farmers in Madura who became partner farmers, has full ties with the PT. New Candi Sugar Factory and get assistance in the form of coaching and technical guidance in particular, starting from the preparation process, planting, harvesting to post harvest from the company and can apply for loan fund KKPE (Credit of Food Security and Energy). Special assistance provided by the PT. Sugar Factory New temple dikoodinatori by 1 person SKK (Sinder Garden Head) which executed by 1 SKW (Regional Garden Cinder) and assisted by 1 person PLPG (Field Officer of Sugar Factory).

The profit sharing system applied to the TR KSU-A partnership pattern is calculated as follows; Rendemen ≤ 6%, then the calculation of 66% of the yield is the right of farmers and 34% of the yield is the right of PG. If the yield yielded ≥ 6%, then the excess is 70% to the right of farmers and 30% to the right PG. Drops produced from the sugar production process are divided between the farmers and PG by dividing 3 kg of drops for farmers from 1 milled sugarcane kwintal and the rest into PG ownership. Based on interviews with sugar cane farmers in Madura who have cooperative relationship with PG Candi Baru, it is known that local government has a role in developing sugar cane agribusiness in Madura. At the beginning of the development of sugar cane agribusiness done in Madura is a request from the government of Sampang Regency who want to bring new superior commodities in the field of agriculture in the area. Since the beginning, the development of sugarcane agribusiness in Madura has received a positive response from the local government. The government provides convenience for PT. New Candi Sugar Factory to open sugar cane fields by empowering local farmers. The government's reason for making sugar cane development permit in Madura is not only based on the desire to empower the community, but also to utilize and empower the land that is rarely used for planting during the dry season. The lack of water and irrigation facilities that exist in the Madura region, the main reason in the cultivation is rarely done during the dry season.

2. R / C Ratio Analysis

In early development in 2013, the cultivation of sugar cane was done independently by farmers in Madura with loan funds KKPE (Credit of Food Security and Energy) through PT. New Candi Sugar Factory, without any intervention and assistance from the central government. After running for 2 years then the government looked at the potential of the island of Madura as an extensification of sugar cane cultivation attempted as an attempt to meet the self-sufficiency of sugar in 2016. The central government began to provide assistance and entry in the development of sugarcane agribusiness in Madura in 2014.

Table 1. Revenue and Total Cost of Sugarcane Farmer Madura Milling Period Year 2013-2016

Year	Land (Ha)	Price (Rp)	Amount		Government Subsidy	Total Cost
			Revenue	Cost		
2013	14,98	8.105	420.984.894	417.500.091	0	417.500.091
2014	18,70	8.001	425.926.872	319.347.328	0	319.347.328
2015	24,78	10.244	979.706.321	405.436.726	458.677.800	864.114.526
2016	39,725	10.572	1.208.069.700	693.207.028	735.309.750	1.428.516.778
Total	98,185		3.034.687.787	1.835.491.173	1193987550	3.029.478.723

Source: Data Analysis.

In period years 2013 and 2014, the development of sugarcane agribusiness in Madura has not received any attention from the central government. All funds used for cultivation are loan funds from KKPE (Credit of Food Security and Energy). The calculation of R / C ratio in MILLAGE (MG) 2013 and 2014 is as follows:

$$R/C \text{ ratio} = \frac{TR}{TC} \qquad R/C = \frac{Revenue}{Total\ Cost}$$

$$\text{Years 2010 } R/C = \frac{420.984.894}{417.500.091} = 1,0083 > 1 \text{ Feasible / Profitable}$$

$$\text{Years 2011 } R/C = \frac{425.926.872}{319.347.328} = 1,3337 > 1 \text{ Not Feasible / Losses}$$

Based on the above calculation results, it is known that the ratio between total revenue and total cost of sugarcane cultivation in Madura which is included in the development area of PT. New Candi Baru Sugar Mill in Mild (MG) 2013 has a comparison of 1.0083. With the break even point (BEP) calculation R / C ratio = 1, then the calculation results > 1 or greater than 1 and fall into the category decent. Thus, the result of comparison between total revenue with total cost, sugar cane cultivation in Madura In 2010 worth / profit. With a R / C ratio of 1.0083, the net profit or profit received by the farmer is very small, with a percentage of 0.83% and profit which is only Rp.3.484.803, -, for a cultivation business carried out for one year with the assumption of tribe Bank deposit interest of 4.08% would be more profitable if the cost used for the business is deposited.

R / C ratio on Milling Period (MG) in 2015 and 2016 from cultivation in sugar cane agribusiness development in Madura.

$$\text{Years 2015 } R/C = \frac{979.706.321}{864.114.526} = 1,1337 > 1 \text{ Feasible / Profitable}$$

$$\text{Years 2016 } R/C = \frac{1.208.069.700}{1.428.516.778} = 0,8456 < 1 \text{ Not Feasible / Losses}$$

Based on the calculation of R / C ratio it can be seen that the ratio between total receipts with total cost added with the cost of assistance from the government looks much different. The calculation of R / C ratio on Milling Period (MG) in 2016 by adding the cost of assistance provided by the central government, then resulted in R / C ratio calculation of 1.1337. With the break even point (BEP) calculation R / C ratio = 1, Then the results of the calculation are> 1 or greater than 1 and fall into the appropriate category. Thus, the result of comparison between total revenue with total cost, sugarcane cultivation in Madura in 2015 is worth / profit because it produces profit of Rp. 115,591,795, - with a percentage of 13.37%.

3. Break Event Point (BEP)

Break Even Point (BEP) calculation in this research, in the effort of sugar cane agribusiness development in Madura using the calculation of BEP in terms of production BEP production = Total Cost / Selling Price.

Table 2. Production of Break Even Point (BEP) Year 2010 - 2013

Years	Land (Ha)	Price (Rp)	Total Cost	Production (Kw)	Rend (%)
2013	14,98	35.303	417.500.091	11.925	5,85
2014	18,7	40.250	319.347.328	10.582	6,78
2015	24,78	54.598	864.114.526	17.944	7,61
2016	39,725	46.480	1.428.516.778	25.991	6,41
Rata-rata		44.158	757.369.681	16.611	6,66

Source : Data Analysis

Year 2013 BEP Production = $\dfrac{417.500.091}{35.303}$ = 11.826,29

Year 2014 BEP Production = $\dfrac{319.317.328}{40.250}$ = 7.934,07

Year 2015 BEP Production = $\dfrac{864.114.526}{54.598}$ = 15.827,85

Year 2016 BEP Production = $\dfrac{1.428.516.778}{46.480}$ = 30.733,81

The calculation result of Break Even Point (BEP) of sugarcane production that must be reached in 2013 is 11,826.29 kwintal of sugar cane for 14,980 Ha of land area with yield of 5.85%. So with a total cost of Rp. 417.500.091, - and sugarcane price of Rp. 35.303, - per quintal, the Break Even Point (BEP) of sugar cane production to be achieved in 2013 is 11,826.29 sugar cane kwintal for an area of 14.980 Ha and for a hectare of land must reach 789.51 Quintal of sugarcane for every harvest period. With BEP of production at a calculation of 11,826.29 quintals which is smaller than the realization of production in the table of 11,925 quintals then development in 2013 is declare to be feasible or profitable.

On the other hand, the calculation result of Break Even Point (BEP) of sugar cane production to be achieved in 2016 is 30,733.81 sugar cane for 39.725 ha of land area with yield of 6.41%. So with a total cost of Rp.1.428.516.778, - and sugarcane price of Rp. 40.250, - per kwintal, the break even point (BEP) of sugarcane production to be achieved in 2016 is 30,733.81kwintal of sugar cane for a land area of 39.725 ha and for per hectares of land must reach 773.66 quintals Sugar cane for each harvest period. As of BEP of production at a calculation of 30,733.81 quintals greater than the production realization in the table of 25,991 quintals then development in 2016 is declare to be feasible or profitable.

CONCLUSION

1. Social Dimension, sugar cane agribusiness development in Madura region has acceptance and rejection. Based on open interviews and field observations, the barriers are more to sugar cane farmers and existing facilities. Perceptions of farmers in Madura who accept the development of sugarcane agribusiness have a strong acceptance attitude only on the ease and assistance provided, both in the form of funds and production facilities received. The institutions involved need to be optimized in support of the development undertaken.

2. Economic dimension, based on the calculation of R / C ratio for 4 years in Mixed Period (MG) 2013-2016 obtained a comparison of 1.0017. With the break even point (BEP) calculation R / C ratio = 1, then the calculation result> 1 or greater than 1. Based on the calculation result of Break Even Point (BEP) for 4 years in Mixed Period (MG) 2010-2013, the production of sugarcane per hectare must be achieved with the assumption of average cost of Rp.757.369.681, - and sugar cane price Rp.44.158, - and the average yield of 6.66% is 698,74 kwintal of sugarcane.

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