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**SUSTAINABILITY BALANCED SCORECARD: AN ALTERNATIVE TO
APPLY LEGITIMACY THEORY (THE CASE OF MADUKISMO SUGAR
FACTORY)**

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Abstract

Purposes. Sustainability Balanced Scorecard (SBSC) is the development of balanced scorecard as a comprehensive company performance appraisal method, which the assessment focus on financial perspective, customer, internal business processes, growth and learning as well as the social and environmental perspective as an effort of sustainability. This sustainability effort is in line with the legitimacy theory, which states that the company should be run in accordance with the prevailing norms of the place where the company is located. Madukismo Sugar Company (PG. Madukismo) is a company that has potential environmental destruction is the subject of this research. This research is intended to provide an overview of PG Madukismo's performance evaluation using the SBSC method, whether it is able to explain the legitimacy theory. The case study with a descriptive qualitative method by triangulation system becomes a method of this research development. **Findings.** Outlined, the performance of PG Madukismo shows good results, the financial perspective shows some improvement, profit has increased, as well as efficiency. The customer's perspective also shows satisfactory performance, the high level of customer retention and the minimum level of complaints is enough to explain. The internal business process perspective results are also satisfactory, innovation on production, sales and after-sales processes are considered good. A less encouraging perspective is the perspective of growth and learning, even though employee retention is good but the amount of employee training actually shows a downward trend. Last but not least, is a social and environmental perspective. The results obtained were quite surprising, although in 2016 the news about Madukismo waste management was less pleasant, in 2018 Madukismo was able to improve its waste management and get a positive response from surrounding communities who said that the stench from Madukismo waste continued to decrease.

Implication. This research gives insight and detail of how to assess a company using five perspectives of SBSC to prove that legitimacy theory can be applied and bringing the hope of sustainable business.

Keyword: *Sustainability Balanced Scorecard, social and environmental, PG.Madukismo*

ABSTRAKSI

Penelitian ini bertujuan untuk menelaah lebih lanjut konsep Sustainability Balanced Scorecard (SBSC) dan pengaplikasiannya di PG. Madukismo Yogyakarta. Hasil menunjukkan bahwa kinerja PG Madukismo menunjukkan hasil yang baik, perspektif keuangan menunjukkan beberapa peningkatan, laba meningkat, serta efisiensi. Perspektif pelanggan juga menunjukkan kinerja yang memuaskan, tingkat retensi pelanggan yang tinggi dan tingkat keluhan minimum sudah cukup untuk dijelaskan. Hasil perspektif proses bisnis internal juga memuaskan, inovasi pada produksi, penjualan dan proses purna jual dianggap baik. Perspektif yang kurang menggembarakan adalah perspektif pertumbuhan dan pembelajaran, meskipun retensi karyawan baik tetapi jumlah pelatihan karyawan benar-benar menunjukkan tren menurun. Yang terakhir namun tidak kalah pentingnya, adalah perspektif sosial dan lingkungan. Hasil yang diperoleh cukup mengejutkan, meskipun pada tahun 2016 berita tentang pengelolaan limbah Madukismo kurang menyenangkan, pada tahun 2018 Madukismo mampu meningkatkan pengelolaan limbahnya dan mendapat respons positif dari masyarakat sekitar yang mengatakan bahwa bau busuk dari limbah Madukismo terus berkurang.

Kata kunci: *Sustainability Balanced Scorecard, sosial dan lingkungan, PG.Madukismo*

1. Introduction

Balanced Scorecard (BSC) is a strategic performance measurement ¹. It does not only measure performance in terms of financial aspect but also equipped with future performance support measurement ². The objective and measurements are then interpreted into the company's vision and mission which reflect four

¹Arum and Handayani, "Penerapan Metode Balanced Scorecard Sebagai Tolok Ukur."

²Kaplan et al., *Focus Your Organization on Strategy — with the Balanced Scorecard*, 3rd Edition.

perspectives i.e. finance, customers, internal business processes, and growth and learning ³.

The four perspectives, once fulfilled by the companies, enable them to sustain in the future. Notwithstanding, in the past years' companies' focus to sustain has extended to three aspects of sustainable development namely economics, ecology and social matters ⁴. This progress is based on increasing community's awareness of environmental preservation along with the times and facts about pollution as an adverse effect of the production process of industries. It is therefore urgent that every industry takes care of their impacts on surrounding environments ⁵.

Environmental accounting information becomes a unique unconventional measurement which challenges accountants to combine it with traditional dimension so as to assist decision making ⁶. Mansour (2017)⁷ argued that inclusion of social and environmental aspects as the fifth perspective in BSC by Fale, et. Al (2016)⁸, also known as Sustainability Balanced Scorecard (SBSC) yielded a better measurement than BSC. Alewine& Stone (2013) as well stated that SBSC was superior to BSC⁹.

Various environmental devastation occurred in Indonesia as caused by production activities of manufacture and resource processing companies. Among others were PT LapindoBrantas, PT Newmont Minahasa Raya, PT Freeport, and some other cases ¹⁰. In a case of Madukismo sugar factory, as reported by Ismiyanto (2016) and Radar Jogja (2016), it was exposed that liquid waste of the factory was disposed to Bedogcreek¹¹. The waste caused thousands of fish cultured by local community died. Besides the liquid waste, polluting gas and ashes from the sugar factory brought about respiratory disorder and dirt to the surrounding community and housing.

One of the interesting findings obtained from a study on Madukismo sugar factory in 2016 was that the factory was estimated unable to reach its production target due to the occurrence of climate anomaly. Heavy rainfall had made

³Suryani and Retnani, "Implementasi Balanced Scorecard Dalam Pengukuran Kinerja Manajemen Rumah Sakit Yulana Tri Suryani Endang Dwi Retnani Sekolah Tinggi Ilmu Ekonomi Indonesia (STIESIA) Surabaya."

⁴Burhany, "Akuntansi Manajemen Lingkungan, Alat Bantu Untuk Meningkatkan Kinerja Lingkungan Dalam Pembangunan Berkelanjutan."

⁵Zulhaimi, "Pengaruh Penerapan Green Accounting Terhadap Kinerja Perusahaan."

⁶Alewine and Stone, "How Does Environmental Accounting Information Influence Attention and Investment?"

⁷Mansour (2017)

⁸Falle, Rauter, Engert, & Baumgartner (2016)

⁹Alewine and Stone, "How Does Environmental Accounting Information Influence Attention and Investment?"

¹⁰Burhany, "Akuntansi Manajemen Lingkungan, Alat Bantu Untuk Meningkatkan Kinerja Lingkungan Dalam Pembangunan Berkelanjutan."

¹¹Ismiyanto, "Protes Limbah Pabrik Gula Madukismo, Warga Unjuk Rasa Di Tengah Sungai."

increasing production of sugar cane plants but their yield content decreased¹². Consequently, the profit earned declined. In addition, customers were disappointed since the factory failed to satisfactorily meet their requirement. Sustainability Balanced Scorecard (SBC) was applied regarding those purposes.

2. Theoretical Review

Legitimacy Theory

According to Aditya¹³, legitimacy theory states that an organization or company must continually ascertain whether all its activities are in accordance with the prevailing norms in the company's environment and ascertain whether all of its activities can be accepted by outsiders. Legitimacy theory encourages companies to convince the public that all activities and performance can be accepted by the community within the company¹⁴.

Applying the basic thinking of legitimacy theory, companies that use a performance measurement system with SBSC can be accepted by the surrounding community because of its environmental care. According to this theory, organizations make possible to maintain their existences on the condition that their surrounding community considers the company to have managed its entire operations in accordance with the norms of society¹⁵.

Legitimacy theory is a company management system that is more oriented towards society, government, individuals and groups of people. Therefore, when carrying out its activities, a company must meet the expectations of the community¹⁶.

Sustainability Balanced Scorecard (SBSC)

Companies with sustainability strategy will integrate their business goals into social and environmental goals completely in order to develop market¹⁷. Therefore, a system capable of evaluating the company's performance by including social and environmental aspects is needed¹⁸. The sustainability strategy can be included in the performance measurement system with Balanced Scorecard (BSC) method (Blocher, 2007:78). The social and environmental

¹²Aditya, "Produksi Gula Madukismo Tak Mencapai Target."

¹³Sulistiawati & Dirgantari (2016)

¹⁴Suryani and Retnani, "Implementasi Balanced Scorecard Dalam Pengukuran Kinerja Manajemen Rumah Sakit Yulana Tri Suryani Endang Dwi Retnani Sekolah Tinggi Ilmu Ekonomi Indonesia (STIESIA) Surabaya."

¹⁵Muallifin and Priyadi, "Dampak Pengungkapan Sustainability Report Terhadap Kinerja Keuangan Dan Kinerja Pasar."

¹⁶Meek, Roberts, and Gray, "Factors Influencing Voluntary Annual Report Disclosures by US, UK and Continental European Multinational Corporations."

¹⁷Pratiwi and Sumaryati, "Dampak Sustainability Reporting Terhadap Kinerja Keuangan Dan Risiko Perusahaan (Studi Empiris Perusahaan Yang Masuk Ke SRIKEHATI Tahun 2009-2010)."

¹⁸Mansour, "Evaluating the Sustainable Performance of Corporate Boards : The Balanced Scorecard Approach."

aspects become the fifth perspective in BSC, so that BSC with the fifth perspective is called Sustainability Balanced Scorecard (SBSC) ¹⁹.

Perspectives of the performance measurement system with SBSC method are as follows:

1. Financial Perspective

Performance measurement through financial perspective is rated with Return on Investment (ROI), Net Profit Margin (NPM), Revenue Growth Rate (RGR) and cost efficiency.

2. Customer Perspective

Within customer perspective, companies focus on their customers who constitute a success factor of financial and revenue gained from product and service buying ²⁰. Kaplan and Norton (2000) in ²¹ found measurement groups commonly similar and were used for all types of companies, i.e. customer retention, customer acquisition, and customer satisfaction.

3. Internal Business Process Perspective

Within this perspective, companies measure all activities carried out either by managers or employees in order to make products to provide certain satisfaction for customers as well as their shareholders ²². Kaplan and Norton divided the internal business perspective into three categories namely innovation, operation, and after-sales service ²³.

4. Growth and Learning Perspective

This perspective identifies infrastructures which have to be developed by companies in order to set off growth and increased employment in the long term (Purnawiranti&Retnani, 2015). The purpose of this perspective is to provide infrastructures to support fulfillment of the previous three perspectives (Suryani&Retnani, 2016). Kaplan and Norton in ²⁴ found two factors which require more attention, i.e, employee retention and employee training.

5. Social and Environment Perspective

¹⁹Falle et al., "Sustainability Management with the Sustainability Balanced Scorecard in SMEs: Findings from an Austrian Case Study."

²⁰Radithya and Tin, "Evaluasi Penerapan Balance Scorecard Terhadap Efisiensi Kinerja Karyawan Di Divisi Penjualan PT Auto 2000."

²¹Purnawiranti & Retnani (2015)

²²Ciptani, "Balanced Scorecard Sebagai Pengukuran Kinerja Masa Depan : Suatu Pengantar."

²³Arum and Handayani, "Penerapan Metode Balanced Scorecard Sebagai Tolok Ukur."

²⁴Oktaviani & Idayati (2013)

Three indicators were included in the fifth perspective i.e. social and environmental perspective, namely operational, environment management and environment conditions²⁵.

Framework of Thought

Madukismo was one of the sugar factories located in Padokan Hamlet, Tirtonirmolo Village, Kasihan Subdistrict, Bantul Regency. The sugar company's area was amidst settlement. Therefore, the factory was considered having social and environmental impacts due to the waste is discharged. Legitimacy theory plays role in this issue.

There has been news came out of the media issuing both sugar production and pollution of Bedog creek due to Madukismo operations. This indicated that Madukismo sugar factory had not optimally applied Sustainability Balance Scorecard system.

3. Research Method

The objective of this study was to find out how a company's performance measured with Sustainability Balanced Scorecard method. In this regard, data sources of the study included several informants or interviewees i.e. head of human resource department, head of marketing, head of the warehouse, head of production, employees and community in surroundings of the sugar factory. Besides by doing the interview, direct observation and documentation were also done to obtain relevant data.

Data reliability and validity were determined with source triangulation techniques, in this case by examining information of the interviewees i.e. head of human resource and general affairs, head of marketing, head of the warehouse, head of production, employees and the surrounding community. The information was then compared to the results of observations and documentation.

4. Results and Discussion

Performance of Madukismo Sugar Factory Measured by Financial Perspective

1. Return On Investment (ROI)

Year	Operation Profit	Operation Activity	ROI	Growth
2016	4,292,798,029	263,487,637,898	2%	-
2017	8,146,619,084	272,572,557,608	3%	1%

Sources: PG Madukismo, 2016/2017 (Processed Data)

Based on the processed data, it was identified that Madukismo gained ROI of 2% in 2016 and 3% in 2017. This implies a 1% increase of ROI in 2017, due to an increase in profits from Rp. 4,292,798,092 in 2016 to Rp. 8,146,619,084 in

²⁵Monteiro and Ribeiro, "The Balanced Scorecard as a Tool for Environmental Management : Approaching the Business Context to the Public Sector."

2017. The higher ratio of values gained, the better performance the company could attain (Syamsudin, 2011:63). From this perspective, the ROI values of Madukismo sugar factory was remarkably fair.

2. Net Profit Margin (NPM)

Year	Operation Profit	Revenue	NPM	Growth
2016	4,292,798,029	240,182,562,430	2%	-
2017	8,146,619,084	422,190,196,385	2%	-

Source: PG Madukismo, 2016/2017 (Processed Data)

Based on the processed data, the factory operation in 2016 gained profits of Rp. 4,292,798,029 and revenue of Rp. 240,182,562,430. In 2017 the profits were Rp8,146,619,084 and revenue of Rp422,190,196,385. The NPM values in 2016 and 2017 were similar, i.e. 2%. This suggests that there was no difference in NPM values within two years. The absence of variation was due to the increase in revenue obtained along with profits of almost similar percentage. Sulistyanto(2008:7) argued that NPM was remarkably good when the values achieved more than 5%. It was considered profitable and interesting for investors. The NPM values of Madukismo was not so good since it was only 2%.

3. Revenue Growth Rate (RGR)

Year	Revenue	RGR	Growth
2015	213,336,637,888	-	-
2016	240,182,562,430	11%	-
2017	422,190,196,385	43%	32%

Source: PG Madukismo, 2016/2017 (Processed Data)

Based on the processed data, the RGR value was 11% with total revenue of Rp.240,182,562,430 in 2016. The value was 43% with total revenue of Rp 422,190,196,385 in 2017. This meant the RGR value raised 32% in 2017. The increased RGR value showed that the company's performance in terms of activities i.e. product sales, providing services for customers, and other attempts to maintain the customers had been implemented better. It was proven by a significant increase in customers in 2017.

4. Cost Efficiency

Year	Operation Expense	Revenue	Expense Efficiency (%)	Growth (%)
2016	2,714,989,742	240,182,562,430	88,47	-
2017	2,845,438,643	422,190,196,385	148,37	59,91

Source: PG Madukismo, 2016/2017 (Processed Data)

Based on the processed data, it demonstrated that the operational costs of the factory were Rp2,714,989,742, with revenue gained of Rp240,182,562,430.

The cost efficiency was then 88.47% in 2016. In 2017, the operational cost was Rp2,845,438,643, with revenue gained of Rp422,190,196,385 so that the cost efficiency was 148.37%. These results showed that the management had efforded to minimize their expenditures so as to increase yearly profits. The cost efficiency values of Madukismo sugar factory was remarkably good with a trend to raise (more efficient).

The more efficient cost expenditures were due to, firstly, a change in chief commissioner from GKR Pembayun to GKR Mangkubumi, and as vice chief commissioner AgusPurnomo was replaced by Joko Retnadi. Secondly, the replacement of commissioners was proceeded by improvement of company policies, as the previous unsuitable policies were changed with newly proper ones.

Performance of Madukismo Sugar Factory Measured by Customer Perspective

1. Customer Retention

Year	Numbers of Customers	Total Order	Customer Retention	Growth
2016	324	1,601	20%	-
2017	782	2,866	27%	7%

Source: PG Madukismo, 2016/2017 (Processed Data)

Based on the data processing, in 2016 it was found out that total received orders of sugar was 1,601 from 324 customers with customer retention percentage of 20%. In 2017, there had been total received orders of sugar around 2,866 from 782 customers with customer retention percentage of 27%.

Customer retention was remarkably good if, within the period of observation, it increased. It was said to be fair when it appeared constant and was considered poor if it decreased (Lestari, 2013). Customer retention of Madukismo was relatively good since it showed an increasing trend. This implied that the sugar factory has served its customers well so that those had bought the company's product would return to buy again.

2. Customer Acquisition

Year	Numbers of New Customers	Total of Customers	Customer Acquisition	Growth
2016	103	324	32%	-
2017	624	782	80%	48%

Source: PG Madukismo, 2016/2017 (Processed Data)

Based on the processed data regarding the number of customers, in 2016 103 out of 324 were new customers with customer acquisition percentage of 32%.

In 2017, the number of new customers was 624 out of 782 total customers with customer acquisition percentage of 80%. Customer acquisition was considered poor if it decreased. It was said to be fair when it appeared constant and was perceived good when it increased ²⁶. Customer retention of Madukismo was considered good since it showed an increasing trend. This demonstrated that Madukismo had a remarkable marketing strategy in promoting the products to the public so that they were interested in consuming these products.

3. Customer Satisfaction

Based on the interviews with employees of Madukismo sugar factory, it was found out that in the previous years, customers frequently complained because the sugar they bought was not desirable such as less white granules, wet texture, and others. Madukismo sugar factory then improved their services upon receiving customers' complaints. The number of complaints became less and less after years of operation. Moreover, since Madukismo has applied the Indonesian National Standard (SNI) on sugar production in 2015, the company never received such complaints anymore. In this case, Madukismo has provided suitable service in terms of products which meet the customers' want.

Performance of Madukismo Sugar Factory Measured by Internal Business Process Perspective

1. Innovation

Madukismo sugar factory has attempted to raise customers' interests by offering quantity contract and price discount for sugar buy at a certain amount. In addition, the company also has employed sales and marketing staffs to promote its products. What was meant by quantity contract was an initial agreement to provide desirable products for certain customers. The contract was only given for reliable and loyal customers such as Lottemart, Lion Superindo, Carrefour and others. The contract was intended to secure the product availability in high-seasons i.e. during Ramadhan month, Idul Fitri days, year-end events and the like. Besides quantity contract, Madukismo company also offered a price discount for customers buying sugar at a certain amount. The discount was given to customers buying at least one tons of sugar. Therefore, customers would get a different price for buying 100 kilograms compared to purchasing 1000 kilograms of sugar.

2. Operational Process

Operational process constitutes a performance measurement within the internal business process perspective intended to find out how a company attempts to provide service for its customers. The service begins from receiving customers' order and ends at delivering products or service to the customers. A similar process was conducted by Madukismo sugar company when the customers

²⁶Lestari, "Analisis Penilaian Kinerja Lembaga Pendidikan Tinggi Dengan Metode Balanced Scorecard : Penerapannya Dalam Sistem Manajemen Strategis (Studi Kasus Pada Universitas Brawijaya Malang)."

ordered sugar to the marketing department. The process ended when the ordered sugar was delivered to the customers. Provided the customers ordered a large amount of sugar, then Madukismo company would make the agreement so as to determine when the large amount would be available.

Purchase orders were made via telephone, by contacting sales staffs or directly coming to the factory's office. Upon completion of the purchase orders, sales and marketing staffs would make a payment agreement with the customers. Payment could be made via bank transfer or direct payment. Moreover, payment could be made cash or by installment according to the contract agreed. Next, the sales and marketing staffs would make delivery order (DO) letters and passed them to the warehouse section in order to provide the ordered amount of sugar.

3. After Sales Service

After sales service constitutes one of performance measurement within the internal business process perspective in order to find out how well a company has efforted to provide services to its customers in the post-sales period. Madukismo sugar factory served sugar purchases with two types of packages, i.e. bulk sugar (containing 25 kg per sack of sugar) and packed sugar (a sack containing 25 packs of sugar, with each pack of 1 kg). The sugar company also served returns damaged goods bought by the customers. If for instance, five out of 25 packs of sugar were found leaked or broken, then Madukismo factory would replace them with one package containing 5 kg of sugar, within one week after the purchase.

Performance of Madukismo Sugar Factory Measured by Growth and Learning Perspective

1. Employee Retention

Year	Numbers of Employee	Numbers of Resigned Employee	Turn Over	Growth
2016	1,644	74	5%	-
2017	1,663	61	4%	-1%

Source: PG Madukismo, 2016/2017 (Processed Data)

Based on the processed data, it was found out that 74 employees retired out of 1,644 employees overall in 2016. Whereas in 2017, 61 out of entirely 1,663 employees retired. The company's turn over gained in 2016 and 2017 was of 5% and 4% respectively. Employee retention of Madukismo sugar factory was considered fine since the turn over decreased within two consecutive years. According to the informant, over the years the employees stopped working not because they resigned or were dismissed but since they went into retirement period.

2. Employee Training

Year	Numbers of Employee	Numbers of Trained Employee	Employee Training	Growth
2016	1,644	1,118	68%	-
2017	1,663	989	59%	-9%

Source: PG Madukismo, 2016/2017 (Processed Data)

Based on the processed data, it was noted that Madukismosugar company carried out the regular training program for its employees. The number of employees trained in 2016 was 1,118 out of 1,644 persons overall. In 2017, there were 989 out 1,663 employees underwent the training program. This showed a decrease in employee training of 9%. Hence the employee training could be said fairly poor due to that decline.

Performance of Madukismo Sugar Factory Measured by Social and Environmental Perspective

1. Operational Indicators

The core business of Madukismosugar company was cane sugar production. The sugar production process in Madukismocompany consisted of several steps, i.e. milling step, refinement step, evaporating step, boiling step, stirring step and finishing step. The potential impact on the surrounding environment brought about by operational processes of Madukismo sugar factory came up with massive solid waste. The waste appeared in three forms namely dregs, *blotong* filter cake and ashes of the steam boiler. Dregs came from sugar cane debris out of milling step. *Blotong* filter mud was a sediment of sugar juice left from the refinement station. It looked like black sandy soil and smelled bad when still wet. The characteristics of boiler ashes were gray in color and had the specific smell of ashes. Madukismo sugar factory produced boiler ashes around 20 tons every day.

According to Decree of Minister of Environment Number 51/MENLH/10/1995, liquid waste constitutes waste produced by industrial activities which were in form of a fluid and discharged to the environment. Liquid waste emitted by Madukismo sugar factory was in sort of cooling water, planning-rinsed water, used soda water, distilled water, condenser drips, molasses, sugar juice drench, ex-floor mopping water, and steam boiler water.

Liquid waste is easily degraded and becomes pollutant to the environment, especially when its BOD and COD content is high. The BOD and COD content of liquid waste emitted by Madukismo factory had different rates depending upon the production process carried out by the factory. Besides solid and liquid waste, Madukismo factory also produced gas waste released to the air. Kinds of gas waste emitted by the factory were SO₂, Co, CO₂ and NO at the refinement

station, boiler exhaust, and genset exhaust. Moreover, CO and CO₂ gases were emitted by vehicles in the surroundings of the factory.

The gas waste emitted by Madukismo sugar factory came out along with smoke emerged from steam boiler chimney. The smoke carried combustion residue. The combustion residue consisted of tiny particles which, along with gases formed during combustion, came out through the chimney. Another kind of waste generated by the production process of Madukismo factory was hazardous and toxic substances (B3). This B3 waste appeared in form of leaked lubricant and used batteries. The leaked lubricant was from production machines. Around 70 to 105 liters of this machine lubricant leaked daily. As for used batteries, they have trashed from vehicles belonged to Madukismo factory.

2. Environment Management

a. Environmental Activities to Control Solid Waste

Madukismo sugar factory has attempted to manage environmental conservation by making use of *blotong* filter mud collected from the production process as fertilizer to enrich the soil. The filter mud was collected in dump trucks and then was distributed as much 60% to sugar cane plantation owned by Madukismo factory, and the rest 40% was distributed to a fertilizer factory (PT Victory) which was then processed to become compost fertilizer.

Blotong Filter Mud Transportation Cost of Madukismo SF

Year	Activity	Cost
2016	Distribution to Sugar Cane Plantation	223,616,977
	Distribution to PT Victory	65,008,337
2017	Distribution to Sugar Cane Plantation	242,095,301
	Distribution to PT Victory	212,689,875

Source: Madukismo SF, 2016/2017

As for the steam boiler ashes, Madukismo company utilized this kind of a waste as compound material partly for making Mix Madros fertilizer, and partly other for making concrete bricks.

b. Environmental Activities to Control Liquid Waste

The environmental activities done by Madukismo sugar factory to control liquid waste was by building wastewater processing installation (IPAL). Besides building IPAL, Madukismo factory also had the water quality examined by Yogyakarta Center for Environmental Health and Disease Control. In addition, Ministry of Health also carried out an examination at Laboratory of Water Physical-Chemical and Environmental Biology. Water samples were taken from

four spots namely IPAL canal, spray pound waterways, boiler ash waterways, and combined waterways.

Liquid Waste Managemet Cost

Year	Activites	Cost
2016	Liquid Waste Testing	16,815,000.00
	Operational of UPLC	1,823,000.00
2017	Liquid Waste Testing	16,635,000.00
	Operational of UPLC	2,499,000.00

Source: PG Madukismo, 2016/2017

c. Environmental Activities to Control Gas Waste

To control the gas waste, Madukismo factory carried out ambient air examination. Ambient air constitutes free air on the surface of the troposphere layer of the earth. Ambient air quality was used as an initial benchmark to figure out and determine the adverse impact of air pollutant on the environment. Air samples were taken from 10 spots, among others were foreground of the factory near a flag pole, the southern part of the factory, and near houses of the surrounding community.

The air quality examination, in this case, ambient air check, was carried out once within 6 months generally during milling period. The air check was executed by Yogyakarta Center for Corporate Hygiene, Health and Work Safety. The air monitored at Maduksimo factory was taken from around chimneys of milling station. Parameters used in examining the air quality included NO₂, SO₂, opacity, airflow velocity and particle content. Hazardous and toxic waste in the form of leaked oil was separated with an oil trap. The trapped oil was then collected in drums. The oil would be used again to lubricate machines during the milling operation. Whereas the used batteries were distributed to another company, PT Mutomas, in order that the waste would be recycled.

Cost of Ambient Air Check

Tahun	Kegiatan	Biaya
2016	Ambient Air Checking	4,650,000.00
2017	Ambient Air Checking	5,550,000.00

Source: PG Madukismo, 2016/2017

There is an improvement in budget and costs of solid, liquid and gas waste of Madukismo from 2016 to 2017, that can be interpreted that Madukismo's concern in environmental perspectives considered to be increasing. This budget increase with the aim of realizing sustainability.

d. Environmental Activities to Overcome B3 Waste

B3 waste produced by PG Madukismo is a leak of lubricating oil and used batteries. Lubricating oil leakage comes from engine lubricants that are used for the process of milling sugar cane and lubricants that are carried along with vehicle

washing water in the factory garage. The lubricating oil leaks are separated using an oil catcher which is then accommodated in drums and will be used again to lubricate the machines at the grinding stage.

The next B3 waste is a used battery. Used batteries produced by PG Madukismo come from vehicles owned by PG Madukismo. To preserve the environment, PG Madukismo distributes the used batteries to third parties, namely PT Mutomas for reprocessing.

e. Replantation

Replantation activity done by Madukisosugar company did not seem to be planned before. The activity was held with the guidance of the Board of Environment Management to add vegetation around the factory. Purposes of this replantation were to revamp the factory's ground and to reduce air pollution due to production activities.

Year	Activities	Costs
2016	-	-
2017	Replantation	3,345,000.00

Source: PG Madukismo, 2016/2017

3. Environment Conditions

a. Monitoring the Environmental Quality

1) Air Quality Assessment

The environmental activities in this regard were air quality assessment carried out once within 6 months, generally during the milling period. The air check was executed by Yogyakarta Center for Corporate Hygiene, Health and Work Safety. Results of air quality examination 2016 showed that the air content at three spots inside the factory met the quality standard, except particle content at those spots apparently exceeded a threshold.

As for the air quality examination at seven spots outside the factory, the results indicated that the air over those seven spots had met the quality standard based on determined parameters, except at two locations i.e. Kasongan and Tamatirto.

Data of Ambient Air Checking

No	Monitoring Location	Parameter	Quality Standard	Monitoring Result		
				2016	2017	
1	North of the scale	NO ₂	400	29.98	-	Ppm
		SO ₂	900	32.74	-	mg/m ³
		O ₃	235	20.38	-	Ppm

		CO	300000	824.2 2	-	Ppm
		Particle	230	406.3 9	-	mg/m ³
2	Near the Sulfur Tower	NO2	400	11.90	-	Ppm
		SO2	900	28.50	-	mg/m ³
		O3	235	9.10	-	Ppm
		CO	300000	591.0 0	-	Ppm
		Particle	230	784.0 0	-	mg/m ³
3	Near the Flagpole	NO2	400	29.98	-	Ppm
		SO2	900	32.74	-	mg/m ³
		O3	235	20.38	-	Ppm
		CO	300000	824.2 2	-	Ppm
		Particle	230	406.3 9	-	mg/m ³
4	In front of Bu Tanjiyi House	NO2	400	18.14	-	Ppm
		SO2	900	27.88	-	mg/m ³
		O3	235	19.55	-	Ppm
		CO	300000	869.6 0	-	Ppm
		Particle	230	64.18	-	mg/m ³
5	Mosque of Sholihin	NO2	400	16.49	-	Ppm
		SO2	900	34.33	-	mg/m ³
		O3	235	22.08	-	Ppm
		CO	300000	1135. 28	-	Ppm
		Particle	230	128.4 8	-	mg/m ³
6	In front of BapakMuhdiono House	NO2	400	15.49	-	Ppm
		SO2	900	29.37	-	mg/m ³
		O3	235	20.86	-	Ppm
		CO	300000	615.2 7	-	Ppm
		Particle	230	29.96	-	mg/m ³
7	KelurahanPatang puluhan	NO2	400	21.17	-	Ppm
		SO2	900	32.76	-	mg/m ³
		O3	235	18.87	-	Ppm
		CO	300000	680.5 9	-	Ppm
		Particle	230	118.2	-	mg/m ³

				2		
8	Kweni	NO2	400	17.13	-	Ppm
		SO2	900	35.98	-	mg/m ³
		O3	235	24.80	-	Ppm
		CO	300000	975.9 2	-	Ppm
		Particle	230	59.70	-	mg/m ³
9	Kasongan	NO2	400	18.35	-	Ppm
		SO2	900	28.13	-	mg/m ³
		O3	235	870.5 6	-	Ppm
		CO	300000	22.00	-	Ppm
		Particle	230	70.03	-	mg/m ³
10	Tamantirto	NO2	400	17.75	-	Ppm
		SO2	900	25.19	-	mg/m ³
		O3	235	938.0 6	-	Ppm
		CO	300000	21.37	-	Ppm
		Particle	230	39.93	-	mg/m ³

Source: PG Madukismo, 2016/2017

2) Water Quality Assessment

Data of water quality assessment results were available only for the examination in 2016. Those of examination in 2017, for the time being, had not been released by Yogyakarta Center for Environmental Health and Disease Control. The 2016 assessment data showed that, out of the water samples taken from four spots inside the factory, the results were satisfactory.

All examined parameters out of the four spots inside the factory showed quite safe rates, or still under the safe threshold. Therefore it was noted that the water in the surroundings of the factory contained a very low pollution rate, or it was notably unpolluted. This because the liquid waste processing at Madukismo factory had always been monitored by Board of Environment of Bantul Regency and Yogyakarta Center for Environment.

4. Conclusion

From the financial perspective, when viewed from ROI values, Madukismo sugar factory could yield positive values and hence it was noted good. Viewed from NPM values, in 2016 and 2017 Madukismo company achieved less since the NPM values gains were less than 5%. As for the RGR values, the RGR values of Madukismo company was notably good since they could increase considerably. In addition, when viewed from cost-efficient values, Madukismo factory gained markedly good cost efficient values since they showed an increasing trend.

From customer perspective especially with regard to customer retention, it was determined that customer retention of Madukisme sugar company was notably good with an increasing trend. Next, viewed from customer satisfaction, Madukismosugar company reached an outcome as indicated by lessening of customers' complaints about time. Recently, such complaints were not found anymore.

From the internal business process perspective, when noticing innovation aspects, Madukismosugar company had attempted well in innovation so that the company was capable of retaining former and existing customers. With regard to operational processes, Madukismocompany has been remarkably good in delivering services for its customers. In terms of after-sales services, Madukismo was notably good to provide return-goods service for flaw products.

From the growth and learning perspective, especially in terms of employee retention, the employee retention value of Madukismosugar company was notably fine so as to demonstrate an increase. Nonetheless, when viewed from the employee training aspect, the employee training rate of Madukismo sugar company was considered less since it showed a decrease.

The last perspective to discuss here was a social and environmental perspective. When observed on the production activities' impact on the surrounding environment, Madukismo sugar factory had been managed well. The waste emitted by its operations was recycled to become support following productions. In terms of environmental management, the waste handling of Madukismo sugar factory had been improved. The waste was not disposed to Bedog creek anymore so as to avoid pollution. Based on the environmental quality assessment, it was noted that the environmental quality of Madukismo sugar factory had improved significantly since most of the parameters measured showed results which did not exceed the threshold. The environment was then kept safe from contamination. According to the interviewed community in the surroundings of Madukismo sugar factory, the stinky smell brought about by production activity of the sugar factory became less and less. The community experienced a more convenient condition.

5. Suggestions

1. Madukismo sugar factory should expand its business targets, review its product price, set off promotion programs, and sustain customers' dependability in order that the net profits increase so as to raise the company's NPM values.
2. Madukismo sugar factory should increase the number of employees participating in training programs so that the company possesses more professional workers so that they are capable of performing their tasks and obligations better. This, in turn, will raise their revenue, along with an increase in profits.
3. Madukismo sugar factory should maintain the environmental activities which have successfully done in order that no parties will be disadvantaged due to the

production processes of the sugar factory, especially the surrounding community as direct impact receivers.

REFERENSI

- Aditya, Ivan. "Produksi Gula Madukismo Tak Mencapai Target." *Kedaulatan Rakyat Yogyakarta*, 2016.
- Alewine, Hank C., and Dan N. Stone. "How Does Environmental Accounting Information Influence Attention and Investment?" *International Journal of Accounting and Information Management* 21, no. 1 (2013): 22–52. <https://doi.org/10.1108/18347641311299731>.
- Arum, Noer Fadilah, and Nur Handayani. "PENERAPAN METODE BALANCED SCORECARD SEBAGAI TOLOK UKUR" 2, no. 2 (2013).
- Burhany, Dian Imanina. "Akuntansi Manajemen Lingkungan, Alat Bantu Untuk Meningkatkan Kinerja Lingkungan Dalam Pembangunan Berkelanjutan," 2012.
- Ciptani, Monika Kussetya. "Balanced Scorecard Sebagai Pengukuran Kinerja Masa Depan : Suatu Pengantar." *Jurnal Akuntansi Dan Keuangan* 2, no. 1 (2000): 21–35. <http://jurnalakuntansi.petra.ac.id/index.php/aku/article/view/15665>.
- Falle, Susanna, Romana Rauter, Sabrina Engert, and Rupert J. Baumgartner. "Sustainability Management with the Sustainability Balanced Scorecard in SMEs: Findings from an Austrian Case Study." *Sustainability (Switzerland)* 8, no. 6 (2016): 1–16. <https://doi.org/10.3390/su8060545>.
- Ismiyanto, Agung. "Protes Limbah Pabrik Gula Madukismo, Warga Unjuk Rasa Di Tengah Sungai." *Tribunnews.com*, 2016. <https://www.tribunnews.com/regional/2016/06/05/protes-limbah-pabrik-gula-madukismo-warga-unjuk-rasa-di-tengah-sungai>.
- Kaplan, Robert S, David P Norton, Robert S Kaplan, and David P Norton. *Focus Your Organization on Strategy — with the Balanced Scorecard , 3rd Edition*, 2000.
- Lestari, Ambar Sri. "Analisis Penilaian Kinerja Lembaga Pendidikan Tinggi Dengan Metode Balanced Scorecard: Penerapannya Dalam Sistem Manajemen Strategis (Studi Kasus Pada Universitas Brawijaya Malang)." In *2nd International Seminar on Quality and Affordable Education*, 52:441–50, 2013.
- Mansour, Ahmed Huseein Aly Mohammed Elsayed. "Evaluating the Sustainable Performance of Corporate Boards : The Balanced Scorecard Approach." *Managerial Auditing Journal* 32, no. 2 (2017).

- Meek, G.K., C.B. Roberts, and S.J. Gray. "Factors Influencing Voluntary Annual Report Disclosures by US, UK and Continental European Multinational Corporations." *Journal of International Business Studies* 3 (1995): 555–72. <https://doi.org/10.1057/palgrave.jibs.8490186>.
- Monteiro, Sonia, and Veronica Ribeiro. "The Balanced Scorecard as a Tool for Environmental Management: Approaching the Business Context to the Public Sector." *Management of Environmental Quality: An International Journal* 15, no. 6 (2017): 622–28. <https://doi.org/10.1108/1477783041056070>.
- Muallifin, Ovi Rizki, and Maswar Patuh Priyadi. "Dampak Pengungkapan Sustainability Report Terhadap Kinerja Keuangan Dan Kinerja Pasar." *Jurnal Ilmu Dan Riset Akuntansi* 5, no. 5 (2016): 1–20.
- Oktaviani, Feny, and Farida Idayati. "Implementasi Balanced Scorecard Sebagai Pencapaian Visi Misi PT. Smart Mulia Abadi Sidoarjo." *Jurnal Ilmu Dan Riset Akuntansi* 2, no. 6 (2013): 1–20.
- Pratiwi, Ririh Dian, and Anna Sumaryati. "Dampak Sustainability Reporting Terhadap Kinerja Keuangan Dan Risiko Perusahaan (Studi Empiris Perusahaan Yang Masuk Ke SRIKEHATI Tahun 2009-2010)." *Jurnal Dinamika Akuntansi* 6, no. 2 (2014): 153–67.
- Purnawiranti, Yuliana, and Endang Dwi Retnani. "Implementasi Balanced Scorecard Sebagai Alat Penterjemah Strategi Dan Pengukuran Kinerja Perusahaan." *Jurnal Ilmu Dan Riset Akuntansi* 4, no. 11 (2015): 1–18.
- Radithya, Edwin, and Se Tin. "Evaluasi Penerapan Balance Scorecard Terhadap Efisiensi Kinerja Karyawan Di Divisi Penjualan PT Auto 2000." *Akurat Jurnal Ilmiah Akuntansi* 6, no. 2 (2011): 1–24.
- Sulistiawati, Eka, and Novi Dirgantari. "Analisis Green Accounting Terhadap Profitabilitas Pada Perusahaan Pertambangan Yang Terdaftar Di Bursa Efek Indonesia." *Jurnal Reviu Akuntansi Dan Keuangan* 6, no. 1 (2016): 865–72.
- Suryani, Yulana Tri, and Endang Dwi Retnani. "IMPLEMENTASI BALANCED SCORECARD DALAM PENGUKURAN KINERJA MANAJEMEN RUMAH SAKIT Yulana Tri Suryani Endang Dwi Retnani Sekolah Tinggi Ilmu Ekonomi Indonesia (STIESIA) Surabaya." *Jurnal Ilmu Dan Riset Akuntansi* : 5 (2016): 1–15.
- Zulhaimi, Hanifa. "Pengaruh Penerapan Green Accounting Terhadap Kinerja Perusahaan." *Jurnal Riset Akuntansi Dan Keuangan* 3, no. 1 (2015): 603–16.