

ENVIRONMENTAL AND ECONOMIC PERFORMANCE MEASUREMENT THROUGH GREEN SUPPLY CHAIN AND GREEN IN STORE MICRO, SMALL AND MEDIUM ENTERPRISES IN PROBOLINGGO CITY

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Abstract : Micro, Small and Medium Enterprises or MSMEs are a business group with a very large number in Indonesia. According to the Central Statistics Agency (BPS) the number of Micro, Small and Medium Enterprises (MSMEs) is 64,000,000 MSMEs and the City of Probolinggo has 33,395 MSMEs. Indonesia ranks second in Asia as the country that produces the most plastic waste after China. High waste production and the majority of the MSME industry make it important to implement Green Supply Chain Management. This study aims to determine the impact of the Green in Store Processes dimension on Performance Outcomes through the mediation of the Green Supply Chain Processes dimension with the research object of MSMEs in Probolinggo City. This study uses quantitative methods with multivariate analysis methods in data processing assisted by SmartPLS. Data was collected by distributing questionnaires using a Likert scale as a measurement scale. Data processing in this research is Direct and Indirect using SmartPLS software by carrying out two Bootstrapping processes in one tailed and two-tailed to determine the direct and indirect effects between variables. Based on the results of research conclusions, it is proven that many variables do not have a significant effect. The researcher suggests that the Probolinggo City Government should directly guide MSMEs regarding the implementation of Green Supply Chain Management.

Keywords: *Green Supply Chain Management, MSMEs, Green in store Processes, Environmental Performance, Economic Performance, SmartPLS*

1. Introduction

Micro, Small and Medium Enterprises or MSMEs, are a group of businesses with a very large number in Indonesia. The number of Micro, Small and Medium Enterprises (MSMEs) is 64,000,000 MSMEs. In 2016 on the website of the Central Bureau of Statistics of the City of Probolinggo, it was recorded that there were 32,789 Micro, Small and Medium Enterprises in Probolinggo City (Admin, 2018). The majority of MSMEs use plastic in their business. According to katadata.co.id stated that plastic bags and plastic straws are the types of plastic most often used by MSME actors, according to the Central Statistics Agency in 2018 the number of MSMEs in Indonesia reached 64,000,000. (Berty, 2019) Based on data from the

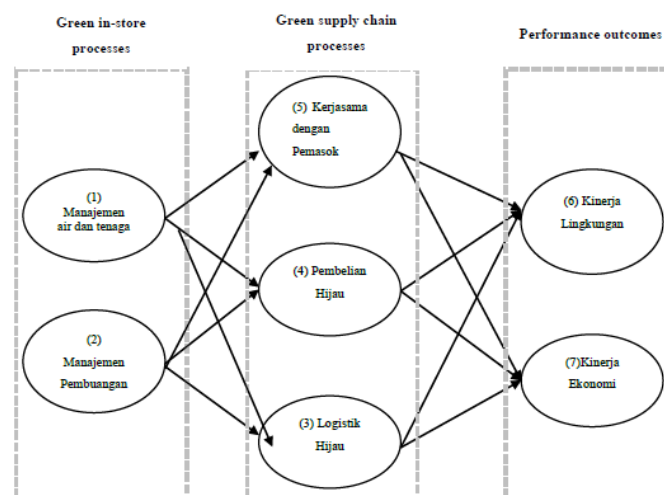
Environment Service in 2019, every day the amount of plastic waste that goes to Final Disposal Sites is 64 tons per day (Hidayatulloh, 2019).

Supply Chain itself has the meaning as a network of all organizations and activities related to the flow and transformation of goods, information and money. However, in the process it can pose a very dangerous risk, namely pollution, waste and other environmental hazards. Green Supply Chain Management is a supply chain system with the concept of reducing these dangerous risks (Kumar, 2013).

Meanwhile, according to Peltjak, Kristina (2018), states that the results of his research hypothesis on food retail in Croatia show that there is no relationship between green supply chain process variables (mediating variables) economic performance, but there is a relationship with environmental performance. Based on this research, the authors are interested in knowing environmental and economic performance based on green in store processes and green supply chain management processes in MSMEs in the city of Probolinggo.

2. Literature Review

According to Agus Purnomo (2010), Green Supply Chain Management is a management tasked with integrating business processes by collaborating between supply chain partners and other stakeholders. Green Supply Chain management itself will reduce the risk of effects such as pollution, waste, and other environmental hazards. According to (Kovács, 2008) Disposal management is in charge of managing the residue from the management of a product or service. Disposal of that management will reduce and control the effects of production that can pollute the environment. Rodrigue, (2001), defines Green Management as a management concept in business but still pays attention to the environment. The concept of Green Management is now a concern in academic circles. Green Management shows the construction of green business, which if applied in a company can prevent negative effects in the social and environmental environment, but can still be profitable for the company. There are three levels in the implementation of a Green Management system by a company, namely the development of environmental regulations, system planning for implementing the rules, and their application in practice. The rules must contain the company's commitment to focus on the environment. At the second level, plan the system in the company. And third, is the implementation. Environmental Performance is a measurable achievement of the environmental management system, which is related to the control of environmental aspects, environmental targets and environmental targets. According to Ikhsan (2008), Environmental performance is the activities carried out by the company that are directly related to the surrounding natural environment. Meanwhile, according to Ari Retno (2010) Environmental Performance is how the company's performance to take part in preserving the environment. Environmental Performance is made in the form of a rating by an institution related to the environment.



Picture 1 Framework

Resource: Green Supply Chan Manajemen in food retailing: survey-evidence in Croatia (Peltjak, Kristina, 2017)

According to Peltjak, Kristina (2017) Green In-Store Processes as Independent Variables that will affect Performance Outcomes (Environmental Performance and Economic Performance) as Dependent Variables by using Green supply chain processes (Cooperation with Suppliers, Green Purchasing, and Green Logistics) as mediating. The framework as shown in Figure 1 explains the relationship between Green In-Store, Green In-Store (Water and Energy Management, and Waste Management), Green supply chain processes (Cooperation with Suppliers, Green Purchasing, and Green Logistics), on the Performance Outcomes (Environmental Performance, and Economic Performance) of an object of research, in this case the UMKM in Probolinggo City. The difference from previous research is in terms of the object of this research is MSMEs in Probolinggo. Previous researchers only tested the hypothesis with a direct effect by looking for the relationship between each variable. While the focus of this research is to find the relationship of each variable directly or indirectly. The role of researchers in this study as data collectors, data managers, and analyzers on the results of this study.

3. Research Methodology

The population is the entire element that will be used as inference or generalization. According to Hadari Nawawi (1983) The population in this study is MSMEs in Probolinggo City. According to Sugiyono (2013:81) Sampling is part of the population in the form of numbers and characteristics. For the sample from this study, 30 samples of MSMEs in Probolinggo were taken. In this study, the sampling procedure used a non-probability technique using the purposive sampling method. Quantitative research uses clear data analysis techniques and is directed to answer the problem formulation or test hypotheses in the proposal. The data analysis technique uses statistical methods that are already available because the data is quantitative. This study uses descriptive analysis and uses a continuum line to help analyze the results of the questionnaire. In this study, researchers also used quantitative methods obtained from respondents using a Likert scale through questionnaires distributed using google forms and then processed using the PLS program because in the framework of this research there were more than one dependent variable. There are several

structural model assessment procedures that can be used to justify the results of the PLS called the rule of thumb.

4. Result

Based on the results of the data that has been obtained, the next step researchers process data using smartPLS 3.0 software, the option used to calculate the model is using PLS Algorithm and Bootstrapping.

Table 1 Outer Loading Result (Factor Loading)

Latent Variable	Indicator	Loading	Conclusion
Water and Power Management	X1.1	0,869	reliable
	X1.2	0,948	reliable
Disposal Management	X2.1	0,853	reliable
	X2.2	0,809	reliable
	X2.3	0,772	reliable
Green Logistics	Y1.1	0,930	reliable
	Y1.2	0,848	reliable
Green Purchase	Y2.1	0,937	reliable
	Y2.2	0,820	reliable
Cooperation with Suppliers	Y3.1	0,774	reliable
	Y3.3	0,860	reliable
	Y3.4	0,795	reliable
Environmental Performance	Z1.1	0,729	reliable
	Z1.2	0,776	reliable
	Z1.3	0,707	reliable
	Z1.4	0,763	reliable
	Z1.5	0,703	reliable
Economic Performance	Z2.1	0,873	reliable
	Z2.2	0,824	reliable
	Z2.3	0,779	reliable

Table 2 Construct Realibility dan Validity Result.

	Cronbach's Alpha	rho_A	Composite Reliability (CR)	Average Variance Extracted (AVE)
Water and Power Management	0,798	0,909	0,905	0,826
Disposal Management	0,746	0,751	0,853	0,660
Green Logistics	0,746	0,816	0,884	0,792
Green Purchase	0,725	0,848	0,873	0,775
Cooperation with Suppliers	0,744	0,779	0,851	0,657
Environmental Performance	0,793	0,796	0,855	0,542
Economic Performance	0,774	0,815	0,886	0,683

Based on the results of the table above, the results of data processing show that all variables have a Cronbach's Alpha value above 0.7, it can be concluded that all of these variables are reliable. Internal Consistency reliability is used to measure and test the consistency of indicators on one variable, as measured by the value of Cronbach's alpha and the value of composite reliability. A construct is declared reliable if the value of Cronbach's alpha and composite reliability is above 0.7. All variables have Cronbach's alpha and CR values of more than 0.7, it can be concluded that the construct is declared reliable. Convergent Validity is used to measure the validity of indicators as a measure of variables that can be seen from the outer loading of each variable indicator. An indicator is said to have good reliability if it has an outer loading value above 0.7. The indicator is said to be valid if the AVE (Average Variance Extracted) value is above 0.50 so it can be said that the measurement has met the criteria for convergent validity. Each variable indicator has a value of more than 0.50 which means that all indicators are declared valid.

Discriminant Validity is a reflective indicator that can be seen in the cross loading value between the indicator and its construct. The results of the discriminant validity test can be seen from the cross loading correlation table which is an alternative to the AVE test and the Fornell-Larcker Criterion Correlation.

Table 3 Fornell-Larcker Criterion Correlation

	Water and power management	Disposal Management	Green Logistics	Green Purchase	Cooperation with Suppliers	Environmental Performance	Economic Performance
Water and power management	0,909						
Disposal Management	0,040	0,812					
Green Logistics	0,216	0,053	0,890				
Green Purchase	0,103	0,283	0,524	0,880			
Cooperation with Suppliers	0,192	0,215	0,319	0,470	0,810		
Environmental Performance	0,191	0,297	0,173	0,271	0,263	0,736	
Economic Performance	0,358	0,182	0,161	0,179	0,277	0,497	0,826

Table 4 Cross Loading

	Water and power management	Disposal Management	Cooperation with Suppliers	Green Purchase	Green Logistics	Environmental Performance	Economic Performance
X1.1	0,869	0,006	0,144	0,127	0,107	0,181	0,355

X1.2	0,948	0,057	0,233	0,073	0,220	0,171	0,311
X2.1	0,082	0,853	0,046	0,260	0,111	0,270	0,230
X2.2	0,025	0,809	0,068	0,217	0,095	0,314	0,142
X2.3	0,032	0,772	0,024	0,210	0,281	0,164	0,082
Y1.1	0,182	0,100	0,930	0,527	0,239	0,215	0,116
Y1.2	0,211	0,027	0,848	0,386	0,354	0,067	0,115
Y2.1	0,066	0,310	0,455	0,937	0,342	0,301	0,160
Y2.2	0,134	0,158	0,488	0,820	0,547	0,145	0,159
Y3.1	0,022	0,198	0,253	0,388	0,774	0,254	0,190
Y3.3	0,186	0,249	0,268	0,378	0,860	0,235	0,275
Y3.4	0,263	0,037	0,256	0,388	0,795	0,138	0,192
Z1.1	0,109	0,208	0,122	0,274	0,186	0,729	0,273
Z1.2	0,260	0,192	0,155	0,191	0,216	0,776	0,536
Z1.3	0,226	0,207	0,078	0,087	0,108	0,707	0,551
Z1.4	0,092	0,136	0,080	0,224	0,107	0,763	0,335
Z1.5	0,061	0,322	0,163	0,163	0,282	0,703	0,231
Z2.1	0,285	0,019	0,182	0,226	0,262	0,364	0,873
Z2.2	0,351	0,302	0,119	0,143	0,237	0,469	0,824
Z2.3	0,244	0,162	0,074	0,021	0,167	0,423	0,779

Table 5 Heterotrait-Monotrait Ratio of Correlations (HTMT)

	Water and power management	Disposal Management	Green Logistics	Green Purchase	Cooperation with Suppliers	Environmental Performance	Economic Performance
Water and power management							
Disposal Management	0,076						
Green Logistics	0,271	0,098					
Green Purchase	0,154	0,357	0,720				
Cooperation with Suppliers	0,258	0,280	0,448	0,691			
Environmental Performance	0,260	0,387	0,219	0,309	0,312		
Economic Performance	0,459	0,279	0,193	0,211	0,342	0,688	

Table 6 Result R square, R Square Adjusted dan Q square

	R square	R square Adjusted	Q ² (=1-SSE/SSO)
Green Logistics	0,049	0,029	0,017
Green Purchase	0,088	0,069	0,052
Cooperation with Suppliers	0,080	0,061	0,043

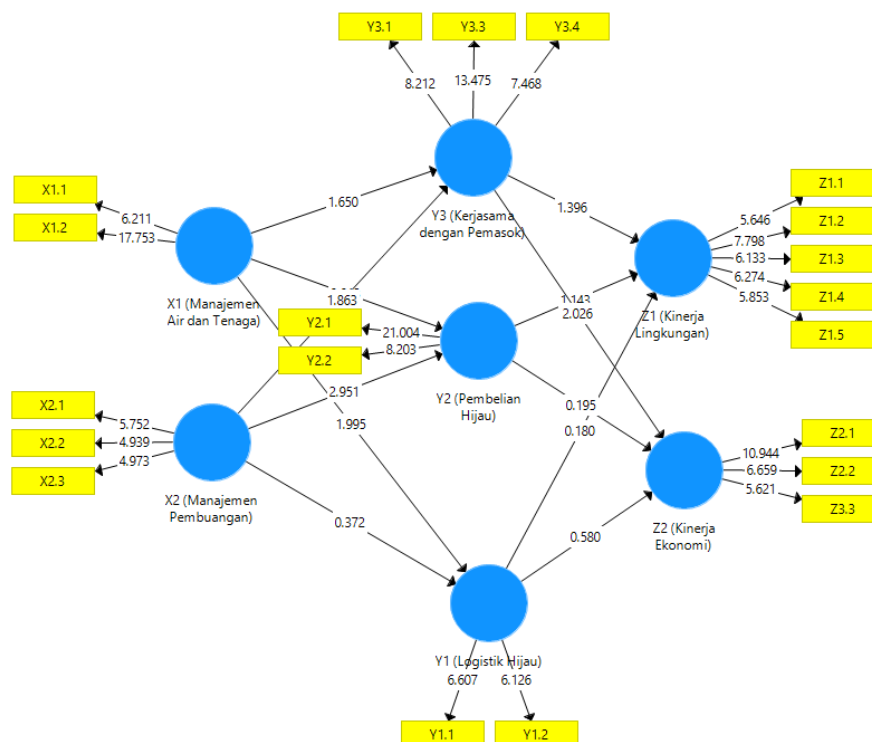
<i>Environmental Performance</i>	0,097	0,069	0,038
<i>Environmental Performance</i>	0,083	0,055	0,034

1. **R square**

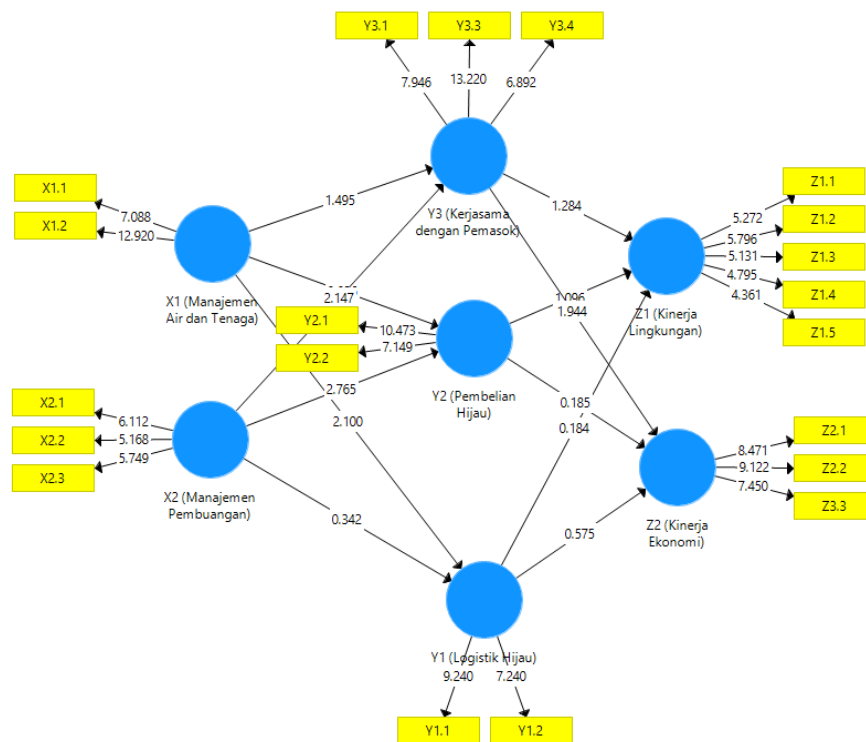
The value of R square for variable Y (Green Logistics, Green Purchasing, and Cooperation with Suppliers) means that the effect of Variable X (Green in Store Processes) on Variable Y (Green Supply Chain Processes) is $4.9\% + 8.8\% + 8.3\% = 22\%$, because it is less than 50% then the relationship between variables X and Y is weak. Meanwhile for Variable Z, Performance Outcomes (Environmental Performance and Economic Performance) amounted to $9.7\% + 8.3\% = 18\%$, because below 50%, the relationship between Variable X and Z is categorized as a weak relationship.

2. **Q square**

Q Square is used to measure how well the observed values generated by the model and parameter estimates are. If the Q Square value is less than 0 (zero) then the model lacks predictive relevance, whereas if the Q Square value is greater than 0 (zero) then the model has predictive relevance. So from the data obtained, the five variables have a value greater than 0 (zero), meaning that the model has predictive relevance. Researchers conducted two measurements of bootstrapping by differentiating the type of test into one-tailed and two-tailed.



Picture 3.9 Model Struktural Bootstrapping one-tailed Result
 Source: Processed data (2021)



Picture 3.10 Model Struktural Bootstrapping two-tailed Result
Source: Processed data (2021)

5. Result

Based on the calculation of R Square, it is found that all variables have a weak relationship because the R Square value is less than 50%. The value of R square for variable Y (Green Logistics, Green Purchasing, and Cooperation with Suppliers) means the effect of Variable X (Green in Store Processes) on Variable Y (Green Supply Chain Processes) of $4.9\% + 8.8\% + 8.3\% = 22\%$, because it is less than 50%, the relationship between Variables X and Y is weak. Meanwhile, for Variable Z, Performance Outcomes (Environmental Performance and Economic Performance) amounted to $9.7\% + 8.3\% = 18\%$, because below 50%, the relationship between Variable X and Z is categorized as a weak relationship. Based on the Q Square calculation, all variables have results above 0, so it can be concluded that the model has predictive relevance.

Table 3.21 Direct Effect Result

Hypothesis	Connection	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Value	P Value	Result
H1a	X1 -> Y1	0,214	0,218	0,113	1,897	0,029	Accepted
H1b	X1 -> Y2	0,092	0,094	0,115	0,802	0,212	Not Accepted
H1c	X1 -> Y3	0,183	0,183	0,117	1,565	0,059	Not Accepted
H2a	X2 -> Y1	0,045	0,052	0,119	0,376	0,354	Not Accepted

H2b	X2 -> Y2	0,279	0,282	0,094	2,964	0,002	Accepted
H2c	X2 -> Y3	0,208	0,230	0,099	2,094	0,018	Accepted
H3a	Y1 -> Z1	0,025	0,024	0,134	0,188	0,426	Not Accepted
H3b	Y1 -> Z2	0,069	0,077	0,121	0,572	0,284	Not Accepted
H4a	Y2 -> Z1	0,177	0,179	0,169	1,046	0,148	Not Accepted
H4b	Y2 -> Z2	0,029	0,014	0,156	0,189	0,425	Not Accepted
H5a	Y3 -> Z1	0,171	0,196	0,130	1,323	0,093	Not Accepted
H5b	Y3 -> Z2	0,241	0,266	0,123	1,960	0,025	Accepted

Source: Processed data (2021)

Based on the results of the table above, the following conclusions can be drawn:

1. The relationship between Water and Power Management and Green Logistics is significant.
2. The relationship between Water and Power Management with Green Purchasing is not significant.
3. The relationship between Water and Power Management with Cooperation with Suppliers is not significant.
4. The relationship between Disposal Management and Green Logistics is not significant.
5. The relationship between Disposal Management and Green Purchasing is significant.
6. The relationship between Disposal Management and Cooperation with Suppliers is significant.
7. The relationship between Green Purchasing and Environmental Performance is not significant.
8. The relationship between Green Purchasing and Economic Performance is not significant.
9. The relationship between Green Logistics and Environmental Performance is not significant.
10. The relationship between Green Logistics and Economic Performance is not significant.

Based on the calculation of the smartPLS software, the data is processed by Direct Effect using Bootstrapping with a one-tailed test type, it can be concluded that the Water and Power Management variable for Green Logistics has a T Value of 1.897 which is greater than the direct T table of 1.65 and has a significance level of 5%. Then H0 is rejected and H1 is accepted, meaning that the green logistics variable has a direct effect or has a relationship with Water and Energy Management. Then H1a is accepted. These results are in line with previous research conducted by Peltjak, Kristina (2018), explaining that Green Logistics has a positive effect on Water and Energy Management. Disposal Management of Green Logistics has a negative effect with a T Value of 0.366 which is smaller than the direct T table of 1.65 and has a significance level of 5%. Then H0 is accepted and H1 is rejected, meaning that the Green Logistics variable has no direct effect or has a relationship with Disposal Management. Then H2a is rejected. These results are in line with previous research conducted by Peltjak, Kristina (2018), explaining that Green Logistics has a negative effect

on Disposal Management. Disposal Management of Green Purchases has a positive influence with a T Value of 2,964 which is greater than the direct T table of 1.65 and has a significance level of 5%. Then H0 is rejected and H1 is accepted, meaning that the Green Purchase variable has a direct effect or has a relationship with Disposal Management. Then H2b is accepted. These results are in line with previous research conducted by Peltjak, Kristina (2018), explaining that Green Purchasing has a positive effect on Disposal Management. Disposal Management on Cooperation with suppliers has a positive influence on the T Value of 2.094 which is greater than the direct T table of 1.65 and has a significance level of 5%. Then H0 is rejected and H1 is accepted, meaning that the Cooperation with Suppliers variable has a direct effect or has a relationship with Disposal Management. Then H2c is accepted. These results are in line with previous research conducted by Peltjak, Kristina (2018), explaining that Cooperation with Suppliers has a positive effect on Disposal Management. Green Purchase on Economic Performance has a negative effect with a T Value of 0.189 which is smaller than T table indirect 1.65 and has a significance level of 5%. Then H0 is accepted and H4 is rejected, it can be concluded that the Economic Performance variable has no direct effect or has no relationship to green purchases. So H4b is rejected. This result is in line with previous research conducted by Peltjak, Kristina (2018), explaining that economic performance has a negative effect on green purchases.

6. Conclusions and Recommendations

From the results obtained, not all variables affect Environmental and Economic Performance, if MSME actors in the city of Probolinggo want to improve Environmental and Economic Performance then they need to pay attention to aspects of the Green In Store Processes and Green Supply Chain Processes variables. In the Green In Store Processes variable, implementing good Water and Energy Management, and Waste Management will improve performance in the Green Supply Chain Processes field. The Green Supply Chain Processes variable that affects the field of Economic Performance is the Cooperation with Suppliers variable. MSME actors must also pay attention to external factors that affect Environmental Performance and Economic Performance. The variables that have a direct significant effect are Water and Power Management with green logistics, Waste Management with Green Purchasing, Disposal Management with Cooperation with Suppliers and Cooperation with Suppliers with Economic Performance. For further research, it is possible to use the same research model in different industries with a wider scope. From the results obtained, not all variables have an effect on Environmental and Economic Performance. Probolinggo city government wants to improve Environmental and Economic Performance, so they need to pay attention to aspects of the Green In Store Processes and Green Supply Chain Processes variables. Researchers suggest that the Probolinggo city government should directly guide MSMEs regarding the implementation of Green Supply Chain. The Probolinggo city government can help fund MSMEs and suppliers to produce or use environmentally friendly bags in order to reduce the plastic waste produced by MSME actors. In addition to educating MSME actors and suppliers, the researchers also suggest that the Probolinggo city government also educates the city community to be wiser in using and disposing of plastic waste.

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