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Green supply chain management practices: direct effects sustainability performance

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Abstract. Purpose research to determine about effect Green Supply Chain Management to Sustainability Performance from manufacturing companies in Indonesia**.** This quantitative study was conducted on 222 manufacturing companies in Indonesia, consisting of 148 manufacturing companies registered with IDX and 74 non-IDX manufacturing companies. The findings showed that ten hypotheses are green purchasing, green manufacturing, green marketing, and also internal environment has no effect to sustainability performance. While Green Distribution, Eco Design, environmental education, Investment Recovery, Customer cooperation, and Green Information system have positive and significant impacts to Sustainability Performance. The originality of this research is the addition of measurement indicators on sustainability performance from ISO 26.000, Indonesia regulation from Environment and Forestry Minister number: P.75/MENLHK/SETJEN/KUM.1/102019 regarding roadmap and waste reduction by many producers.

Keywords. Green Supply Chain Management; Sustainability Performance

1. Introduction

Green Supply Chain Management (GSCM) is increasingly in agenda or things that are important in many organizations [35][70] Supply Chain Management in Practice and logistics contribute significantly into our environment. New Issue about climate change has been a serious concern a long way in a lot of leaders in the countries, companies, universities, and also organizations in many various sectors. global climate change is related to the role of every human in maintaining and preserving the ecosystem environment wherever they are. The best practices about supply chain and logistics activities need disseminated and implemented in every company organization to reduce carbon emissions to achieve the 3Ps in company activities, namely profit, people, and the planet, as stated by [68]

Manufacturing activity in Indonesia declined at the fastest pace in March 2020, following a decline in output or new demand but increasing new demand due to factory closures and catastrophic flooding that disrupted supply chains. Industrial manufacturing in Indonesia

today has adopted a multi-stage supply network in which the supply of raw materials is supplied from various stages of the purchase of the supplier, this method leads right manufacturing industry's national crisis supply chain late.

At 2019 sectors of the manufacturing industry in Indonesia contributed 20% of national GDP, in Indonesia sector industrial manufacturing relies heavily on local supply and imports, particularly for raw materials or auxiliary. Since the Covid-19 crisis hit China at the end of 2019, the supply of raw materials has become difficult to obtain because several industries in China have chosen to go offline to minimize the spread of covid. This resulted in many manufacturing industries in the country felt dependent on China.

Indonesia is one of the countries that care about green issues and has become an important issue with the regulation issued by Environment and Forestry Minister from Republic Indonesia Number: P.75/MENLHK/SETJEN/KUM.1/102019 [52] concerning about roadmap and also waste reduction by a lot of producers it is also related to the use of plastic bags and disposable cutlery which is prohibited by Environment and Forestry Ministry.

This research is expected to find if there is relationship GSCM practices and sustainability performance. GSCM practices usually consist Green Purchasing (GP), Green Manufacturing (GMF), Green Marketing (MKT), Green Distribution (GD), Eco Design (ECO), Internal Environment Management (IEM), Environmental education (EDU), Investment Recovery (IR), Cooperation with Customer (CUST), and Green Information Systems (GIS). This research will toward what dimension will influence mostly to sustainable performance. Sustainable performance has content such as environmental, economic, social, and operational performance. A Measurement or assessment about green supply chain management in our research combines variables in previous studies, namely [70][6][24]. The significance or renewal of the research is the addition of measurement indicators on sustainability performance from ISO 26.000, Indonesia regulation from Environment and Forestry Ministry from Republic Indonesia Number: P.75/MENLHK/SETJEN/KUM.1/102019 concerning about roadmap and waste reduction by other producers.

2. Literature Review and Hypothesis Development
2.1 Literature review

Goldrat introduced Constraint Theory which is a methodology to identify the limiting factors (ie constraints) that is most important that hinder the company to achieve the goals and then systematically improve performance to such factors so as no longer to be limiting. In manufacturing, this bottleneck is often referred to as a bottleneck. GSCM Practices closely related into unraveling and also seeing things that often might be obstacles and also what things can be a driver for the occurrence of Sustainability Performance according to company expectations.

Theory of Constraint uses a scientific approach to improvement. The hypothesis used is that any complex system, including manufacturing processes, services, mining, healthcare consists of several interrelated activities, one of which acts as a constraint and becomes the weakest point in the value-added chain. This theory supports the components or constructs variables of GSCM Practices to support about Sustainability Performance.

Stakeholder theory always use to describe how effect of GSCM. Since revolution of industry grow up and until fixed period, business has been experienced a severe decline to focus solely on activities related to profit. However, how increasing competition, environmental damage, and also need to modify quality their life that comes from environment cause importance to increase social responsibility. Social responsibility becomes important,

Stakeholder's construct has importance for understanding environmentally friendly business processes. Sometime, we define as effective group or individual which influences businesses target of organization objectives or impacted by main of theory based on Freeman. Freeman divides two stakeholder groups. First, internal views are owners, leaders, member and second, external point of views are vendor, society, client, government, and adversary, etc. Based on Freeman, the strongest organizational relationship, easier it is to achieve common goals. Generally, stakeholder theory comments a business should fit with their expectations and fit necessity with possibility route well.

Stewart. Gordon [57] developed a performance measurement on supply chain implementation with Supply Chain Operation Reference Model or SCOR. It seems like cross and roof of industry for evaluating and improve model of supply chain performance and also management throughout company. SCOR provides customary method definitions, words, and metrics. The SCOR model can permit corporations to check performance between corporations, and future impact of development application efforts to make sure compliance with requirements of rising makers. A reference process model seems like logical extension about business process reengineering and also other processes as efforts to improvement.

Corporate Sustainability

Cankaya and Sezen [6] constraints created about natural environment. It is about depletion and reduction our ecosystem, threaten current resources and organization capabilities. This research expansion the resource approach, belonging chance and effectiveness decrease limit of inherent into a natural situation from environment. Researcher, Hart calls the concept Natural Resource-Based View (NRBV), stating that companies will gain benefits with develop improvement from strategies seems like doing prevention about pollution, doing a good management product, and also develop sustainable program. Based on NRBV, an environment application about GSCM can be a tool or strategic resource to improves company performance. This is because the practice of GSCM is difficult for competitors to do. After all, this practice is based on knowledge and experience. Examples of company achievements achieved from the implementation of GSCM such as, good reputation can explain about GSCM that resource is easy to competitor imitation.

Companies orientate towards environmentally friendly practices will using differentiate from the badly competitors with timeline to increase profit of sales due to get up level of market legitimacy and social approval. Result, green practices through cost advantage have positive influence to Corporate Sustainability Performance, for making growth effectiveness from building capacity, to increase about good production, performance related to environmental, some creation from new ability, to reduce their waste of goods, product quality, and the end about improvements process. The implementation of GSCM is also closely related to stakeholders to achieve the expected Corporate Sustainability Performance. Stakeholder group, who has high level of increasingly to environmental awareness, would like to see the attitude of the business towards issues about social and environmental, addition of economic success. Example, things that go against the business of environmental pollution are important for stakeholders.

Dwianika, Augustine and Murwaningsari [14] conducted research related to Manage efficiency of water will reduce costs and promote environment and public awareness about the importance things water in our governance. Research was conducted related to water conflicts and phenomenon about increasing water scarcity and our result from business stagnation, especially about sustainability performance. Research conducted from twenty manufacturing companies in Indonesia. Sample was taken 100 respondents from these companies obtained

results are water and accountability awareness, and also corporate governance with measuring ASEAN Corporate Governance Scorecard or CG to support sustainability performance. Results can be recommended for improving sustainability performance and focus to urban areas.

In this study, Corporate Sustainability Performance includes four dimensions, namely environmental, economic, social, and operational performance. A process to understand about primary environmental context and getting effectiveness solution, companies must be identified essence of the problems within their sectors involve production of goods, procurement, delivery, and products itself. Production both goods or services need to fit, its mean businesses will spend limited wealth and getting impact to the world seems like disrupt waste, water, air, and also soil are released into our environment.

Environmental performance measure how company using their members to minimize bad pollution, reduce waste, prevent usefulness of dangerous chemical. GSCM in practice include any efforts to minimize adverse from impact of company's products or services to our universe. That has positive impact to improve about environmental performance for minimizing consumption how much solid or liquid crap and also dangerous essence, minimizing bad condition such as accident in our world to get the best improving of public health. In summary, research shows that friendly environmental activities have positive influence on environmental performance with doing activities to minimize waste or effectiveness our limited resources [69][70]

Economic performance describes about company's capacity to reduce costs with good purchase strategy, waste treatment, consumption of energy, method to disposal company waste, and punishment due to our environment wrecks [70]. The most of controversial issues correlated with GSCM whether friendly environmental activities have a cost impact on businesses. There are different opinions on this. Social Environment is obtained when the company carries out practices such as activities or projects of a social nature, the welfare of stakeholders and educational opportunities to all individual. Social Environment generally to neglected among many topics about GSCM. However, increasing awareness of corporate social responsibility to require similar consideration about social issues for managing supply chains. GSCM in Practice will enable companies to get a lot of positive images on stakeholder's view, society, individual, customers, and the last government by reducing environmental damage.

2.2 Hypothesis Development
The Effect about Green Purchasing to Sustainability Performance

GSCM dimension is Green Purchasing. Researchers include purchasing because it is the first stage about value chain context. The purpose of a purchasing system in its efforts to maintain the environment depends on its integration, purchasing activities, and the environment and corporate objectives. Green purchasing has a good function to be important component from GSCM. It can be described as collaborate environmental concerns and procurement process seems like select many suppliers. It is some of significant process to achieve, but for negotiating with appropriate vendor is not easy for making improve in our environmental performance. Suitable vendors have been elected, activity of supply chain able to carried out by imitate many strategics and joint to get similar perceptions. Specially to management and supplier selection, important to assess how suppliers fit to environmental company's criteria. [33]

H1: There is a positive influence of Green Purchasing to Sustainability Performance.

Effect of Green Manufacturing on Sustainability Performance.

Gao *et al.* The best steps from our GSCM are Green Manufacturing. It is implementation and plan activities to be carried out that require deficient energy and resources in production system. Environmental pollution as possible Green Manufacturing for making different things continuously about processes and products for avoiding or minimizing air, earth, and also pollution. It has a purpose to produce easy friendly products use effectiveness resources such as materials, water and also energy to zero waste.[21]

H2: There is a positive influence of Green Manufacturing to Sustainability Performance.

Effect of Green Marketing on Sustainability Performance

Chankaya *et al.* Green Marketing includes fit between people and environment, calls Green Marketing an effort to do activity such as design, price, promote, and distribute products. It shall not harm environment. Our research, Green Marketing is considered to be part, it is not just a promotion.[6]

H3: There is a positive influence of Green Marketing to Sustainability Performance.

Effect about Green Distribution to Sustainability Performance

Gao et al., Green of distribution is important activity which affects green supply chain performance. It includes a lot of action to eliminate many environmental damages and also waste as long as shipping. The fuel consumed by vehicles to distribute company product, then operations, how far lack of customers, and how about organization packaging. It also considered about weight, material and shape. that will affect to green distribution performance [21]

H4: There is positive influence from Green Distribution to Sustainability Performance.

Effect about Eco–design on Sustainability Performance

Chankaya *et al.* Eco Design is important part. It is not only about closely linked to many items from value chain but, now a day or future will be given impact to environment. Eco-Design practices include product-appropriate packaging, biodegradability, eliminate of redundant packaging, using wrapping paper, reduction in amount of polystyrene, easy disassembly, and using simply materials packaging. [6]

H5: There is a positive influence of Eco-design to Sustainability Performance.

The Influence of Internal Environment Management on Sustainability Performance

Zhu *et al.* Internal Environment Management is creation about policies and targets to confirm about secure environmental. Zhu *et al.* many activities from high level to middle for doing some support about practices, collaborate inter division to develop an environmental improvement, and also doing a set up about system in environmental management from topic about fall within internal scope from environmental management. [69][70]

H6: There is positive impact of Internal Environment Management to Sustainability Performance.

Effect of Environmental Education on Sustainability Performance

Chankaya *et al.* Environmental Education always use to see an important instrument to ensure our expanse about human and open access for future sustainable society. Recent quantitative studies emphasizing importance of green management in companies. Environmental Education success has two important goals. First to teach individual environmental policy of company, and second to change behaviour of individual to build fixed and more responsible about relationship to our world. [6]

H7: There is a positive influence of Environmental education towards Sustainability Performance.

Effect of Investment Recovery to Sustainability Performance

Zhu, Q., Sarkis, J., & Lai, K. hung Investment Recovery which is only one of the most popular dimensions of investigated from GSCM to Investment Recovery which studies about old business which passed standard of inventory or materials beside that scrap or used materials have been resold. Investment Recovery has objective to get the highest recover value of obsolete, ending of human life, and also get a benefit of goods. Investment Recovery is a lot of trying to get these elements into reversal distribution. Thus, these elements able to be recovered or properly of disposed.[70]

H8: There is positive influence Investment Recovery to Sustainability Performance.

Effect of Cooperation with Customers on Sustainability Performance

Cooperation with a customer with the implementation of GSCM practices, starting from material acquisition, production, preproduction, utility, product distribution, and also how to disposal. Zhu and Sarkis give a lot of idea to making a good decision framework to GSCM implementation for evaluating many alternatives to replicate by organization that affect to external relations with many vendors and cooperation with all Customers. Developed multi-objective linear model that can be optimizes company operations between forward and reverses logistics from green supply chain.[70]

H9: There is a positive influence Cooperation with Customer on Sustainability Performance.

Effect of Green Information Systems on Sustainability Performance

Zhu et al. Multidimensional conceptualization provides insight into the construction of GSCM implementation practices and their relationship to underlying factors. First, elements and also factors from construction factors provide direct and also actionable information about implementation of GSCM practices.[69]

H10: There is a positive influence of Green Information Systems to Sustainability Performance.

3. Research Methodology

This research, form of quantitative research, where intent and purpose this study is to determine and test the causal relationship or influence between independent and dependent variable.

Object of research is divided into two variables. Dependent variable has object of research in the form of Sustainability Performance, while the independent variable has object of research form Supply Chain Management Practices.

Table 1 . Operational Research Variables

VARIABLE	INDICATOR
Green Purchasing (GP) Zhu et al (2008)	1. Eco-labeling activities from company goods 2. Coordination with all vendors to get environmental target. 3. Environmental audit is all internal vendor management. 4. Vendors gets classify using certification from ISO 14000 5. Second-tier many easy friendly practice evaluation. 6. Providing specifications to prepare our design to all suppliers about requirements to purchase item.
Green Manufacturing (GMF) Cankaya and Sezen (2018)	1. The manufacturing flow will be minimize noise pollution to zero 2. Subtitute about polluting and dangerous raw materials 3. Using Filters and also controls risk about emissions and discharges 4. Plan and control after production can be concern to reducing about waste and materials exploitation 5. Design will be concern to reduce our energy and natural in consumption operations
Green Marketing (MKT), Cankaya and Sezen (2018)	1. Always Supply for all client and institutions using regular environmental voluntary which management focused. 2. Environmental for sponsoring to our events or collaborate with ecological organizations 3. Using natural for environmental opinions on marketing area 4. Updating all issue in website about environmental 5. Packages essense will be getting label to retrieval objective 6. Eco-Products boost will develop to consumers willingness about purchasing area
Green Distribution (GD), Cankaya and Sezen (2018)	1. Recyclable whether reusable package or containers in logistics 2. Select a method about cleaner transportation 3. Effectiveness shipment consolidation and vehicle which needed 4. Routing systems to reduce travel activity
Eco Design (ECO)	1. Design products to eliminate material or energy consumption. 2. Design products to reuse, then recycle, or recovery from material and or parts. 3. Design products to reduce of dangerous products or their

Zhu et al (2008)	manufacturing process. 4. Product packaging in form of plastic, aluminum cans, paper, or glass following Indonesian Regulation Environment and Forestry Number P.75
Internal Environment Management (IEM), Zhu et al (2008)	1. Commitment GSCM from our senior managers. 2. Always Support to GSCM from mid-level managers. 3. Cross-functional cooperation to improvements. 4. Total quality to natural management 5. Environmental dicipline and also doing auditing programs. 6. ISO certificate of 14001 7. Environment develop with Management Systems.
Environmental education (EDU), Cankaya and Sezen (2018)	1. Holding awareness about seminars to vendors or contractors 2. Natural environmental with seminars to executives 3. Natural environment to purpose about training programs to managers and also members 4. Participation on government subsidized program about environmental.
Investment Recovery (IR), Zhu et al (2008)	1. Investment recovery or sale from inventories or materials excess. 2. Scrap and also materials used will be sold 3. Capital equipment will be sold
Cooperation with Customer (CUST) Zhu et al (2008)	1. Cooperation to all client for using eco-design. 2. Cooperation to all client for using cleaner production. 3. Cooperation to all client for using green packaging and client less energy during product will be distributed
Green Information Systems (GIS) Esty and Winston (2006)	1. Reducing distrubution costs. 2. Supporting teamwork and also fit of globally distributed employees about travel limitation. 3. Tracking issue about environment such as toxicity, energy, water, and pollution.
Environmental Performance (ENP) Zhu et al (2008)	1. Reduction air emissions. 2. Reduction carbon waste. 3. Reduction about solid waste. 4. Eliminate our consumption about dangerous, harmful or toxic raw material. 5. Getting decrease in Frequency to accidents in world. 6. Try to improve in enterprise of situation. 7. Reduction pollution, visual impressions, light of pollution, vibration, electro-magnetic emissions, radiation, and also infectious agents
Economic Performance (ECP) Zhu et al (2008)	1. Reduce cost of purchasing. 2. Reduce cost to energy consumption. 3. Reduce fee to waste treatment. 4. Reduce fee to waste discharge. 5. Reduce fines to accidents in environment.
Operational Performance (OPP) Zhu et al (2008)	1. Increase number delivered goods on time. 2. Eliminate inventory levels. 3. Eliminate scrap rate. 4. Try to Increase about product quality. 5. Try to Increasing about product line. 6. Improving about capacity.

Social Performance (SOCP) Cankaya nad Sezen (2018)	1. Improvement customer satisfaction 2. Improvement image in first sight of its customers 3. Investments social projects seems like education, culture, sports 4. Relations stakeholder community, e.g., non-governmental organizations (NGOs) and activists 5. Improved awareness and also protection claims and rights people in community served 6. Improvement employee for training and education 7. Improvement occupational and employee safety 8. Improvement stakeholder welfare and betterment

Source: Rizki and Augustine, 2022

4.   Results & Discussions

The study obtained a total sample of 222 questionnaires and all of them can be processed and used as data information. In the research data, the values of the dependent and independent variables are known to have descriptive statistical data values as follows:

Table 2. Statistic Descriptive

	Mean	Median	Maximum	Minimum
EP	6.235521	6.285714	7.000000	2.000000
ECP	5.934234	6.200000	7.000000	2.000000
OPP	6.347598	6.500000	7.000000	3.000000
SOCP	6.311937	6.500000	7.000000	3.000000
GP	5.806306	6.000000	7.000000	1.000000
GMF	6.225225	6.400000	7.000000	1.000000
MKT	6.069820	6.333333	7.000000	1.000000
GD	6.297297	6.500000	7.000000	2.000000
ECO	6.306306	6.500000	7.000000	2.000000
IEM	6.270270	6.428571	7.000000	1.000000
EDU	6.063063	6.500000	7.000000	1.000000
IR	6.171171	6.333333	7.000000	1.000000
CUST	6.243243	6.333333	7.000000	1.000000
GIS	6.331832	6.333333	7.000000	2.000000

Source : Rizki and Augustine, 2022

The results of descriptive statistical data on Eviews 10 show that the range of the average - average mean value of dependent and independent variables has the lowest lies in

variable 5.806306 Green Purchasing while the value of the mean highest in variable dependent Operational Performance with a value of 6.347598. The median value in the variable data has an average of 6.500000, while the maximum and minimum data values are 7 for the maximum for each variable and 1 for the minimum value.

Reliability and Validity Test Results

In testing the validity and reliability using PLS software where the data variable indicator is used if it has Cronbach's Alpha test, rho_A test, To getting a test, they are protect with Composite Reliability test, and Average Variance Extracted (AVE) test above 0.5 then the data value is said to be valid.

Table 3. Testing of Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
UST	0,917	0,934	0,948	0,858
CO	0,884	0,888	0,920	0,743
DU	0,947	0,952	0,962	0,863
D	0,872	0,873	0,913	0,725
IS	0,795	0,808	0,880	0,711
MF	0,932	0,935	0,949	0,787
P	0,896	0,910	0,920	0,661
EM	0,943	0,951	0,954	0,749
R	0,860	0,874	0,913	0,779
KT	0,939	0,941	0,951	0,765
P	0,978	0,979	0,980	0,651

Source: Rizki and Augustine, 2022

From the results of data processing with smart PLS, Cronbach's Alpha test, rho_A test, Composite Reliability test and Average Variance Extracted (AVE) test values for dependent and independent variables are above 0.5, then the data value is to be valid and reliable to be processed and analyzed to the next stage.

Research Hypothesis Test Results

The following will explain the results of data processing on the variables tested to answer the hypotheses that have been proposed previously. Hypothesis testing show carried out to describe effect of independent variable with dependent variable, namely construct variable GSCM on Sustainability Performance

Table 4. Hypothesis sustainability performance

Hypothesis Analysis	Coefficient	t-Statistic	Prob.	Description
C	0.882612	4.717585	0.0000	Coefficien model
GP	-0.032873	-0.805601	0.4214	Negative , Not significant
GMF	0.051830	1.125218	0.2618	Positive , Not significant
MKT	0.008308	0.190879	0.8488	Positive, Not significant
GD[**]	0.161576	3.017037	0.0029	Positive , Significant
ECO[**]	0.117900	2.296511	0.0226	Positive , Significant
IEM	0.061774	1.230158	0.2200	Positive , Not significant
EDU[**]	0.119425	3.336984	0.0010	Positive , Significant
IR[**]	0.154193	4.931625	0.0000	Positive , Significant
CUST[**]	0.118228	3.040068	0.0027	Positive , Significant
GIS[***]	0.091663	1.911944	0.0572	Positive , Significant (P=10%)

Source : Rizki and Augustine, 2022

From the hypothesis testing of the effect of the Sustainability Performance GSCM yielded five dependent variables have accepted with significant P = 5% are Green Distribution, Eco Design, Environmental Education, Investment Recovery, and Cooperation with the Customer. While the Green Information System has positive significant effect at level P = 10% with value 0.0010. From the test results in this study, there are four independent variables that have no effect or rejected on sustainable performance, namely Green Purchasing, Green Manufacturing, Green Marketing, and internal focus about environment management. The results of the data analysis will then be discussed in the discussion.

Discussion

In the previous section, a table of the results of data processing has been shown in the form of hypothesis testing on the proposed model to determine effect GSCM to Sustainability Performance which test is added a test of the constructed variable of Sustainability Performance which

From the test results, it is found that the regression model equation for influence GSCM to Sustainability Performance is as follows:

$$SP = 0{,}88 - 0{,}03\,GP + 0{,}05\,GMF - 0{,}008\,\beta_3\,MKT + 0{,}16\,GD + 0{,}12\,ECO + 0{,}06\,IEM - 0{,}12\,EDU + 0{,}15\,IR + 0{,}12\,CUST - 0{,}09\,GIS + \varepsilon I$$

In equation the magnitude of sustainability performance is influenced by a variable that does not exist in this GSCM study of 0.88. Green performance, Green Marketing,

Environmental Education, and Green Information System have negative coefficient values on sustainability performance, while the variables Green Manufacturing, Green Distribution, Eco Design, Internal Environment Management, Investment Recovery, Cooperation With Customer have a positive influence on sustainability. performance.

Table 4 describes results of regression hypothesis analysis of GSCM variable with sustainability performance, the results show that the probability value of green purchasing is 0.4214 with a t- statistic of -0.805601 this results in the rejection of the first hypothesis H1 where according to results of this study it is stated that Green Purchasing negatively and also does not affect Sustainability Performance, Results of research are not in line with results studies conducted by Holt [33], Zhu [69][70]. This can be because the country of Indonesia where the research is carried out in making purchases to meet production needs is very dependent on foreign supplies so that when supply from outside experiences obstacles, the sustainability performance of the company cannot be as expected. In addition, these results also show that the purchasing function ensures that supplies purchased from within and outside the country are not following the environmentally friendly elements that support GSCM.

The green manufacturing variable also has an insignificant effect on sustainability performance because the prob value is above 0.5%, which is 0.4214, but the t-statistic direction is positive with a value of 1.125218, Results of research are contradict with results studies by Gao et al [21], Cankaya and Sezen [6]. Results of research indicate of rejection second hypothesis H2 which can be analyzed that the environmentally friendly production system in Indonesia has not been implemented properly so that the existence of current production is more due to production based on market needs for the products produced so that it does not support the company's sustainability performance. Even though government regulations from the Ministry of the Environment often recommend green manufacturing, companies still pollute the environment from their production waste.

Green Marketing is the third independent variable that is used as a reference to test the hypothesis that manufacturing companies in Indonesia have not carried out green marketing which is part of GSCM so that they can succeed in the sustainable performance of a company. The results found that green marketing does not affect sustainability performance and has a positive direction. These findings are not by the third hypothesis H3 which states that positive significant impact to marketing on sustainability performance. The probability value of this variable is 0.2618 with a positive t-statistic of 0.190879 which can be interpreted as having no significant effect. results of research are not in line with results studies conducted by Cankaya Sezen [6] Green et al [24]

The fourth independent variable in the GSCM is the green distribution, from the results of the study, it is known that the green distribution has a prob value of 0.0029 which is less than 0.5%, which means that the green distribution has significant positive effect to SP because t-statistic value is 3.017037, Results is similar with research conducted by Gao [21], Cankaya and Sezen [6], Zhu [69][70]. Producers in Indonesia have focused on paying attention to their distribution process by using transportation modes that have passed the environmentally friendly emission test. Not only in the fleet used but also in the termination of the distribution chain that is not needed from DC to DC (distribution center) has switched DC to the customer, this is also a positive step in GSCM which analytically can significantly affect sustainability performance of Indonesian manufacturing companies. Green distribution of results of this study is under the fourth hypothesis H4 in the second part of this study.

Eco Design on product packaging on the market today is common and very easy to find, from simple things like throwing away the packaging or trash in its place to recycling the

packaging that is attached to the product packaging. This result is in line with the fifth hypothesis H5 proposed that eco-design has significant effect to sustainability performance, which is supported by the results of a regression test with a probability value of 0.0226 and a t-statistic of 2.296511.

The Internal Environmental (IEM) in this study has an insignificant regression test result and has a positive direction, this is indicated by a prob value greater than 5% which is 0.2200, and a t-statistic value of 1.230158 resulting in the rejection of the six hypothesis H6 in this research. This condition is possible because the company's internal concerns are still not entirely concerned about an environmentally friendly supply chain. It is possible that internally it is more directed to sustainable company performance from an economic point of view because where the GSCM construct variable is tested on the economic performance variable the results of the IEM are also not significant. The dilemma of the company's internal condition that has a team that is not entirely concerned with the sustainability performance of environmentally friendly products or environmentally friendly supply chains has triggered the assumption from company management that the GSCM process requires a more economical effort that must be spent by the company.

Contrary to the regression results shown in table 9 where the environmental education variable has a prob value of $0.0010 < 0.5\%$ or is declared to have a significant effect with a t-statistic value of 3.336984 where the value is positive. The results of this study indicate conformity with hypothesis seven H7 where EDU has significant positive effect to sustainability performance. When examined indicators from EDU which provide counseling and education on the importance of GSCM processes for supporting Sustainability Performance, especially the social performance of the company, which is shown in table 8 where the EDU prob value of SCP is 0.0000 which is positive and very significant. Importance of education to support environmentally friendly actions will be needed in the manufacturing process in Indonesia.

Investment Recovery (IR) has a prob value of 0.0000 with a t-statistic of 4.931625 in table 9. Furthermore, if we look at table 6 on environmental and economic performance, and table 8 on operational, prob value is all below 0.5% on the variable IR. Manufacturing companies in Indonesia have been recycling a lot of the rest of their production materials to be used as by-products which then have economic value for the company and indirectly reduce the waste that will be disposed of into nature. Machines and production materials that are not used or have become obsolete are used for sale to third parties so that they do not become useless supplies or tools. IR in this study is following the eighth hypothesis H8 which has a significant effect on SP.

Customer Cooperation in this study has four indicators that show the relationship between manufacturing companies in Indonesia and their customers. Table 9 shows the CUST probability 0.0027 or less 5% and t-statistic 3.040068 so that the Nine H9 hypothesis is accepted where CUST has a positive and significant effect on SP. Cooperation with customers in determining product or packaging designs that are environmentally friendly but still attractive to customers and products that can be consumed by customers but are still environmentally friendly both in terms of waste after consumption or the production process. The distribution process that has changed a lot in Indonesia allows the receipt of goods from the hands of producers directly to the hands of customers, this in transportation supports a good GSCM process or cycle.

The tenth hypothesis test on the Green Information system (GIS) variable on SP is the last test which shows a significant positive value with P = 10% and the prob value is 0.0572; t-statistic 1.911944. The process of information systems that support GSCM is very important in

today's technological era. Sustainable company performance will be easily achieved if it is supported by the company's advanced IT capabilities. In Indonesia, many manufacturing companies have evolved following technological advances in their supply chain management processes. These results agree with or accept the ten H10 hypotheses in part two of this research report.

Product packaging in manufacturing companies in Indonesia has been regulated by Indonesian Regulation Environment Minister No. P.75 which is an additional indicator as an update on the ECO variable indicating that the additional indicator hypothetically indicates the possible influence that occurs between the ECO variable on the SP variable and is also significantly there is an effect of ECO on the construct variable SP, namely economic performance and social performance in manufacturing companies in Indonesia.

The update added by the researcher to the indicator of the environmental performance variable is to ensure that the company does not pollute the environment with smoke, visual pollution, light pollution, electromagnetic vibration emissions, radiation, and infectious agents based on sustainability reporting standards with ISO 26000 standards. and the normality of the data, the 7th indicator of this ENP qualifies as an indicator that can be processed in the hypothesis and gives results that can be analyzed that manufacturing companies in Indonesia are trying very hard to protect the environment for their production processes so that they do not pollute the environment with their waste.

Research related to GSCM has wide potential if it is associated with the supporting factors for the implementation of GSCM properly, such as its relation to the company's information system, the risks that may occur in the GSCM process, and the awareness of all relevant parties from all parties for the goodness in protecting the environment. A wider sample is also expected to be carried out by further research in determining the success of GSCM on its effect on the company's sustainability performance.

5. Conclusions

This study examines the construct variables of GSCM and sustainability performance. Where in main part of this research is testing ten independent variables in GSCM to see their effect on SP. The study was conducted on 222 manufacturing companies in Indonesia, consisting of 148 companies listed on IDX and 74 non-IDX companies. From the test obtained ten answers to the problems faced in this study with the hypothesis proposed in part two of this research report. Green Purchasing, Green manufacturing, Green Marketing, and also Internal environment have no significant effect on Sustainability Performance. Meanwhile, Green Distribution, Eco Design, environmental education, Investment Recovery, Customer cooperation, and Green Information system all have positive and significant impacts on Sustainability Performance.

The results of hypothesis testing with the results of six accepted and four rejected hypotheses have a lot of understanding on implementation GSCM in manufacturing company in Indonesia, the answers that environmental care in Indonesia is supported by internal companies through the implementation of GSCM and is also regulated by the government of the Republic of Indonesia with various rules or standards that are the requirements of every company. So that the supply chain management system that is commonly used in the past must be transformed into GSCM so that environment is maintained and will certainly affect sustainability performance.

This study has the first limitation of the number of samples that are still small compared to the total population of more than 1,300 small to large companies in Indonesia based on BPS

data. The second limitation is that the questionnaire form given to respondents through electronic media such as email, direct message Linked and what app allows respondents who provide answers to questionnaires that are not following the reality that occurs in their company due to misunderstandings in translating questions because they are not accompanied by researchers in answering or fill out a questionnaire. The last limitation is the lack of time in conducting research conducted within 6 months so that the data obtained may not be optimal to reflect the actual conditions.Green Supply Chain Management is an issue that will continue to grow in the business world and its relation to the sustainability of company performance. Theories related to supply chain systems that have been used for a long time will shift towards environmentally friendly processes so that this research will continue to develop and theoretically will improve the theory of SCM that has been developing for long time. The development of an environmentally friendly system that offers the sustainability of a business is important information for company management, so the implications of the results of this research are considered for management to immediately implement GSCM in their companies.

The Ministry of Environment Regulation No. P.75 which is included in this study has implications for the Indonesian government regulations to find out whether producers or manufacturing companies in Indonesia have followed the provisions or regulations. Practically, GSCM research has implications in the form of designs or models that can be taken in implementing GSCM, where indicators of each existing variable can be used as steps for implementing GSCM.

Nature must be maintained and the contribution of the research is very helpful for continuous improvement for nature. Researchers hope that this GSCM research can continue with a wider sample of this research.

Further researchers can also relate technological advances and company strategies to develop models from GSCM so that business people are more interested in implementing GSCM so that Sustainability Performance can be achieved for their business

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