The Influence of Green Supply Chain management on Company’s Performance and Competitiveness in Wood Furniture Industry: An Overview of Conceptual Model

F M Likumahwa¹, R Purwaningsih¹ and N U Handayani¹
Industrial Engineering Department, Faculty of Engineering, Diponegoro University Jl. Prof. Soedarto, Tembalang, Semarang, Indonesia 50275
likumahwaf@gmail.com

Abstract. Based on the literature review, this research proposes a conceptual model to measure the influence of green supply chain management (GSCM) practice toward the performance and companies’ competitiveness in wood furniture industry in Jepara. The model shows how the performance and company’s competitiveness depends on GSCM practice. The conceptual model are consists of three hypotheses which are the influence of GSCM’s practice on company performance, company competitiveness and hypothesis, and the influence of performance on the company competitiveness. This research uses Interview and design questions by giving it directly to owners of the wood furniture industry as the respondents in testing the conceptual model empirically.

1. Introduction
In the last few years, the development of industrial activity is increasing rapidly and all of the companies in the world must face the increasingly fierce competition [1]. The rapid development of industrial activity creates a public health and environmental crisis, such as the effects of greenhouse gases, water and air pollution, chemical spills and industrial accidents that cause a negative impact to the people around the world [2].

As the times develop, the companies have faced regulatory demands to protect the environment. The balance between economic and environmental performance are important for the companies to face competitive pressures, rules, and the demands from the society that the companies should care environment [3].

The companies are hoped to implement the strategies to reduce environmental impact of products and services because the increasing pressure for environmental sustainability by [4] stated that clean production, environmental management systems and environmental efficiency have been implemented.

The wood furniture industry is a labor-intensive industry that uses wood as its basic material in its production process and it uses supplementary materials such as metal, foam, cloth and plastic. The wood furniture industry is mostly owned by small and medium enterprises [5]. In 2012, one of Indonesia's main export commodities worth 1.79 billion US dollars was contributed by the wood furniture industry. Jepara Regency is one of the central areas of the furniture industry in Indonesia that has 12,000 business units which consists of 75% micro enterprises, 17% of small business, 6% medium-sized businesses, and 2% large businesses and processes around 0.9 million cubic meters of wood in every year. The furniture industry’s contribution to the regional economy reached 26% with an export value of 110 million US dollars in 2012 [6][7].
In fact, there are several problems faced by the wood furniture industry in Jepara with the environment, which are illegal logging and solid waste deposits. The Illegal logging happened to the state forest company and it caused the scarcity of wood such as teak and mahogany trees. It is the most popular trees in the world because its strength and aesthetics. The problem can be solved by improving the use of certified wood. Then, the furniture industry also removes a number of waste or pulp from the manufacturing process to the solid waste disposal. The remaining type pulp of wood varies based on the manufacturing process such as sawmills, wood scraps or waste from plywood mills, and wood furniture factories [8]. This unprocessed residue or pulp can cause a lot of damage in economy and environment. This problem can be overcome by recycling the wood waste or wood waste can be used as an energy source or heat [9]. Moreover, there is another obstacle in the Jepara furniture industry which is the decline of demand for raw material supply and limited product marketing. This thing can cause the high price of wood raw materials and the low quality of raw materials while for limited product marketing is caused by the small and medium entrepreneurs have difficulty to access the raw materials with the best price and quality. This condition made the low industrial competitiveness in Jepara Regency. This problem can be solved by increasing the raw materials with the best price and quality [10]. All of the factors can be overcome by using GSCM [11].

By applying the green supply chain practice, the companies can fix its performance and improve the competitiveness by following the environmental regulations and reprocess the used products [12]. There many reasons of the company to apply the green supply chain with the aim to improve the competitiveness through performance improvement which is from environmental, operational, economic and social aspects [13][14]. The modern companies have acknowledged the importance to adapt the environmental problems and supply chain management to win and maintain competitiveness to improve the performance of their organizations [15]. Furthermore, many companies begin to acknowledge the significance of green supply chain management (GSCM) to build their competitiveness in a competitive market environment [16]. The companies believe that green supply chain management (GSCM) will rise performance and competitiveness [17]. The purpose of this research is to propose the model and design of the method to test the influence of green supply chain management (GSCM) practice toward the performance and the competitiveness of the companies.

2. Literature Review

2.1. The impact of green supply chain management (GSCM) toward the companies’ performance

The four practice of GSCM are used to identify the impact toward companies’ performance that is done to the 186 manufacturing company in China. The results of the research showed that companies with a higher level of GSCM adoption had a better performance (environmental and economic) [18]. Then, 171 manufacturing companies in China have been done to detect the effect of GSCM practices on company performance [19]. The results of the research showed that there is a significant influence between GSCM practices on company performance. The survey was conducted on 127 companies in China to explore the influence of GSCM on the performance of SMEs. The results of the research found that the performance of SMEs had a positive influence in implementing GSCM [20].

There are 159 samples of manufacturing industries to recognize the impact of the implementation GSCM practices on company performance in the United States. The results of the study showed that the positive influence of GSCM practice was different with the companies’ performance [21]. Moreover, 118 respondents are analyzed by [22] about the influence of the GSCM practice and companies performance in Taiwan manufacturing industry. It is found that there was an influence of GSCM practice toward the companies’ performance. Then, [23] identify the relation between GSCM by using questionnaire survey to 50 respondents from industry and academia. The result of the research is found that GSCM practice had an influence in economic performance and it can produce a better corporate performance.

The application of GSCM practice becomes the most significant thing that should be done by the large and small scale companies especially in developing countries such as Indonesia. The Preliminary
study conducted by [24] about the effect of GSCM practice toward the environmental performance with the same research object which is the wood furniture industry. This research is conducted to the three areas in Central Java Province (Kudus, Jepara, Semarang) by using primary data through questionnaires. There were 142 furniture industry used as the samples in this research and 6 hypotheses were tested to the diverse scale (small and medium scale businesses) and the type of companies (company with Indonesia products and abroad products). This hypothesis testing is done by multiple linear regressions and it is operated by using SPSS 16. The results of this research showed that the level of application of GSCM practices is neither small nor large (moderate). In this case, the measure furniture industry has reached the stage to determine to applied more than 90% of the proposed GSCM practice. Only two GSCM practices have been initiated (initiation) to be implemented and one practice of GSCM has reached the stage of implementation successfully. It is also found that the influence in implementing GSCM practice and the performance of environment were not always significant.

2.2. The influence of green supply chain management (GSCM) toward the competitiveness

A research is done to the 163 respondents and it is tested about the influence of GSCM practice to the companies’ performance and competitive performance to the container shipping company in Taiwan. The results of the research showed that GSCM practice had an influence to the companies’ performance and it helped to improve competitiveness of the companies [9]. Also, a research is done by [14] to detect the effect of GSCM practice toward the competitiveness of companies. By using the samples from 144 manufacturing companies, the researcher found that two GSCM practice have influence toward the companies’ competitiveness. Moreover, [25] also analyzed the influence between GSCM practice and the companies’ competitiveness to analyze the influence of manufacturing company in China and the results showed that it was positive.

2.3 The influence of green supply chain management (GSCM) toward the performance and companies’ competitiveness

All of the organizations around the world work hard to develop the new and innovative ways in improving their performance and competitiveness. The research has been done by [26] to the 62 manufacturing companies in India to identify the influence of GSCM practice and performance had a positive influence to the companies.

There has been many previous researches related with the GSCM from large scale industries and most of the researches are done in developing countries. But, there are still a few researchers discuss the influence of green supply chain management practices (GSCM) on the performance and competitiveness of companies.

The authors try to develop a conceptual model of the effect of GSCM's practice on the performance and competitiveness of companies that are different from previous research in the model preparation. The authors will use five GSCM practices which are internal environment management, green purchasing, customers’ cooperation, eco-design, and investment recovery. Furthermore, there will be three variables of company performance which are environmental, economic and social performance and three variables of competitiveness are price, quality and delivery.

3. Research Methodology

This study is a descriptive study to propose a model toward the influence of green supply chain management practices (GSCM) on the performance and competitiveness of companies in furniture industry. Observation through literature study is used to collect many kinds of related research journals or articles with previous research directed in the GSCM area and its influences to performance and competitiveness in companies.

3.1. Definition and Basics of Literature
Table 1 Definition and Basics of Literature

| Construct                          | Definition                                                                                                                                                                                                 | Basic of literature |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Internal environmental management  | The senior and mid-level managers determine the practice of developing environment as a strategic organizational.                                                                                      | [6][18][21][27][28] |
| Eco design                         | Design with environment consideration of a product and its packaging in order to minimize the undesirable environmental impacts of the products and its packaging all through its whole life and encouraging positive environmental practices such as recycling and reusing of the products. | [6][18][27][28]    |
| Green purchasing                   | Purchasing practice with environment consideration in order to ensure the procured items fulfill the environmental goals of company such as reduce or eliminate the harmful substances, eliminate the causes of waste, and promote the recycling and reclamation of procured materials. | [6][18][27][28]    |
| Customer cooperation for environmental concerns | The aim is to improve the environmental performance and capabilities of customers in undertaking joint projects for development of green products and innovations.                                             | [6][18][27][28]    |
| Investment recovery                | It is a strategy that concerned to the use of recycling, remanufacturing, redeployment and reselling to create value from materials, components and products or companies that are adequate to change some idle assets to minimize the inventory level. | [6][18][27][28]    |
| Social                             | The aim of social is to develop and maintain the business practices to be fair and satisfactory to the labor, communities, and regions affected by the supply chain.                                          | [6][29][30][31]    |
| Economy                            | It relates with the financial advantages from initiatives green supply chain. The Economic outcomes includes portability, the growing in revenue, the increasing in market share and productivity.             | [6][29][30][31]    |
| Environment                        | It is the positive significant of green supply chain advantages on the natural environment inside and outside organizations. It includes a decrease of solid/liquid wastes, decrease of emissions, resource reduction, and reduction of consumption for hazardous, harmful, toxic materials, the decreasing of frequency of environmental accidents, and increased employee and community health. | [6][29][30][31]    |
| Price                              | The amount of money that should be paid by customer for the products. If all of the factors are same, the customer will choose the lowest price.                                                              | [6][32]             |
| Quality                            | It is a strategy for the material, workmanship and design because it relates with perception of the customer toward the quality of the products and service.                                                | [6][32]             |
| Delivery                           | It relates with the Special features such as design, money, quality, ease of use, convenient location, warranty, that cause the products or service that more suitable than competing products.             | [6][32]             |

3.2 Research Conceptual Model
In proposing a model, there are five practices of GSCM which are internal environment management, green purchasing, customers’ cooperation, eco-design, and investment recovery. There are variables of company performance (environmental, economic and social) performance and competitiveness variables (price, quality, delivery). The conceptual model can be seen in Figure 1 below:
Hypothesis 1. The effect of green supply chain management (GSCM) practices toward the company performance
Hypothesis 2. The effect of green supply chain management (GSCM) practices toward company competitiveness
Hypothesis 3. The effect of green supply chain management (GSCM) practices toward the performance and company

This research will use data collection method by conducting the interviews in depth and designing to test the conceptual model empirically. The questions will be given to the owner of furniture industry directly. 35 wood furniture industries will be used as the samples in Jepara district. The method to analyze the data is Structural Equation Modeling approach (SEM-PLS). Then, the evaluation of the outer model and the last stage is hypothesis test to know the effect of GSCM practices toward the performance and company competitiveness in Jepara furniture industry.

4. Conclusion
Based on the literature review, the study propose conceptual model to measure the influence of green supply chain management (GSCM) toward the performance and company competitiveness in Jepara furniture industry. It is stated that the model explains how the results of the performance and company competitiveness depends on GSCM practice. The conceptual model involves of three hypotheses which are the influence of company performance, practice of GCSM toward company competitiveness, and the influence of company competitiveness. Moreover, there are 5 GSCM practice the limitation of the conceptual model which are internal environment management, green purchasing, customers’ cooperation, eco-design, and investment recovery. Three variables of company performance (environmental, economic and social) performance and three competitiveness variables (price, quality and delivery).

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