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COVER PAGE AND DECLARATION

	Master of Business Administration (M.B.A.)
Specialization:	(M.B.A) in General Management.
Affiliated Center:	Center of Entrepreneurs Orientation, CEO
Module Code & Module Title:	MGT550: Managing Operations MBA-EIU
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Word Count:	3570
Date of Submission:	09-03-2023

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Table of Contents

Introduction.....	1
Standard Operation Procedure.....	2
Procedural Guidance for the Company.....	3
Material Acquisition.....	3
Quality Control.....	4
Assembly of Tractor Components.....	4
Painting and Finishing.....	4
Packaging and Shipping.....	4
Cost Efficient Manufacturing Processes.....	5
Brings Down to Material Cost.....	5
Changing the Supplier	5
Low Energy Consumption.....	6
Methods to Reduce Defects in Manufacturing Processes	7
Greener Methods for the Company.....	8
Industrial Standards for Disposal of Chemical Waste.....	9
Methods for the removal of Chemical Waste.....	10
Green Alternatives to Traditional Manufacturing Process.....	11
Conclusion.....	12
Reference.....	13

Assessment of Operational Procedure & Guide

Introduction

The assessment is about The Big Green Tractor company located in Palembang, Indonesia. It is a popular company in Indonesia that manufactures different types of machinery for different purposes, especially green tractors. In recent years, the growth of the manufacturing of products has decreased and trying to overcome this loss by using the help of different operations. The Green Big Tractor company hired me as an operational manager to make streamline its operations to make the growth of the company more efficient. The company hired me to give recommendations to streamline its operations and reduce the pollution of the environment.

Standard Operating Procedure (SOP)

Every organization or company has different practices and standards on a daily basis to perform different types of operations for different purposes. The different organizations set up them for business purposes and some are taken them in a formal way. A standard operating procedure is a written document that contains all the instructions step-by-step for the specific tasks in an organization or a company (Ampa & Event, 2023). It makes the standard criteria and standard for the employees of the company that how they do their job in accordance with policies of the organization. They follow the correct procedures for the company and help the company to achieve its goals and requirements to make the company successful in the world. The SOP manual is a handbook that contains all the instructions for the essential tasks of the company. There are different instructions that are taken into account under consideration to make the standard SOP manual for the company.

- Make sure that all the instructions are in a simple and formal language that can easily be understandable by the employees of the company.
- Don't use complex language and technical symbols that are not approachable to the employees of the company.
- Use specific formatting that suits the basic and formal employees of the company to understand the SOP manual of the company for them.

There are different components that are taken into account under consideration for the SOP of the Big Green Tractor Company of Indonesia.

- **Introduction:** This section provides a brief overview of the SOP and explains its purpose and scope.
- **Responsibilities:** This section outlines the responsibilities of the employees involved in the process and their roles in carrying out the SOP.
- **Procedure:** This is the main section of the SOP that details the step-by-step process to be followed to complete the task. This section is usually divided into sub-sections to make it easier to understand and follow.
- **Safety precautions:** This section highlights the safety precautions that must be taken during the process to prevent accidents or injuries.
- **Quality control:** This section explains the quality control measures that need to be implemented to ensure the final output meets the required standards.
- **Documentation:** This section explains the documentation requirements to be followed during the process, including record-keeping and reporting.
- **References:** This section includes a list of relevant documents, procedures, and regulations that are related to the SOP.

It's important to note that each company's SOP may vary depending on their specific industry, processes, and regulations.

Procedural Guidance for the Company

The following procedural guide provides detailed information on the production process for the Big Green Tractor Company in Indonesia. This guide outlines the essential steps and procedures that the company should follow to produce high-quality tractors efficiently.

Material Acquisition

To begin the production process, the company must procure the necessary raw materials required to manufacture the tractors. The procurement team should be responsible for sourcing high-quality raw materials from reliable suppliers at a competitive price (Setiawan & Ellitan, 2023). The raw

materials required for tractor production include steel, rubber, plastic, electronics, and other components.

Quality Control

Once the raw materials have been procured, the Quality Control (QC) team should inspect them thoroughly to ensure that they meet the company's quality standards. The QC team should conduct a visual inspection of the materials, check for any defects or damage, and verify that the materials are of the correct grade and quantity.

Assembly of Tractor Components

After the raw materials have been inspected and approved, the production team should assemble the components of the tractor. This process involves attaching the engine, wheels, transmission, and other components to the tractor's frame. Each component should be inspected for quality and assembled according to the manufacturer's specifications.

Painting and Finishing

Once the tractor's components have been assembled, the tractor should be painted and finished to give it a polished look. The paint and finishing team should be responsible for painting the tractor's body and applying decals, logos, and other branding elements. The finishing team should ensure that the tractor's surface is smooth and free of defects and that all the components are properly installed.

Testing and Inspection

After the tractor has been painted and finished, it should undergo rigorous testing and inspection to ensure that it meets the company's quality standards. The testing team should conduct a series of tests, including functional testing, stress testing, and durability testing, to verify that the tractor is safe and reliable to use.

Packaging and Shipment

Once the tractor has passed all the quality control tests and inspections, it should be packaged carefully to prevent damage during transportation. The packaging team should be responsible for packing the tractor securely, including attaching any necessary labels and documentation

(Alsudani et al., 2023). Finally, the shipment team should arrange for the tractor to be transported to its destination, ensuring that it is delivered on time and in perfect condition.

By following the above procedural guide, Big Green Tractor Company can efficiently produce high-quality tractors in Indonesia. The guide emphasizes the importance of quality control at every stage of the production process, ensuring that the company produces tractors that meet its customers' expectations.

Cost Efficient Manufacturing Processes

The cost of the product is the most important thing for every organization to make it successful and famous in the world. There are different processes that are taken into account under consideration for The Big Green Tractor company to manufacture different types of products at low cost with high quality. They help the company to make quality products at a very low cost than the other organizations. There are different process are taken into account under consideration for the manufacturing process of the Big Green Tractor Company located in Indonesia to for the different types of productions at low cost.

Brings Down to Material Cost

Materials are significant factors that are taken into consideration during the manufacturing of different products. Materials are the main components of the company where a lot amount of money is invested to bring the materials for the manufacturing of different purposes (Wibowo & Ryalvin, 2023). The costs of the materials can be reduced by changing the sources of materials. But the qualities of the materials can not be affected. Because sometimes different companies use low-cost materials that have poor qualities and cause negative effects on the reputation of the companies. So, it must be ensured that the raw materials that are used for the production of The Big Green Tractor

Changing the Supplier

Changing suppliers can help an organization reduce the cost of its products in several ways. Negotiating lower prices: When an organization switches suppliers, it can often negotiate lower prices with the new supplier. This is because suppliers may be willing to offer discounts to win new business or to retain existing business that is at risk of being lost to a competitor.

- **Accessing cheaper materials:** Different suppliers may have access to different sources of raw materials or components, which can vary in price. By switching to a supplier that has access to cheaper materials, an organization can reduce the cost of its products.
- **Reducing transportation costs:** If a supplier is located closer to the organization's manufacturing facility, it can reduce transportation costs, which can be a significant contributor to the overall cost of a product.
- **Improving supplier efficiency:** Switching to a supplier with more efficient production processes can help reduce costs. This may include suppliers with better machinery, more skilled workers, or more streamlined production processes.
- **Eliminating middlemen:** Some suppliers may act as intermediaries, buying materials from one source and then selling them to the organization. By switching to a supplier that sources materials directly from the manufacturer, an organization can eliminate the middleman and reduce costs.

Low Energy Consumption

low energy consumption can help to make low-cost products in several ways: **Reduced Manufacturing Costs:** Lower energy consumption during the manufacturing process can reduce the cost of production by lowering the energy bills (Sadiq et al., 2023). This can help manufacturers to keep their production costs down and ultimately sell their products at a lower price.

- **Lower Operating Costs:** Low energy consumption also means lower operating costs. For example, if a product consumes less energy, it would require a smaller battery or a smaller power supply, reducing the overall cost of the product.
- **Increased Efficiency:** Low energy consumption can also lead to increased efficiency in the manufacturing process. If the machinery and equipment used in manufacturing are designed to use less energy, they will be able to operate more efficiently, which can lead to higher production rates and lower production costs.
- **Environmental Benefits:** Low energy consumption can also have environmental benefits, as it can reduce the carbon footprint of the manufacturing process. This can help

manufacturers to market their products as environmentally friendly, which can attract environmentally conscious consumers and help to increase sales. In summary, low energy consumption can help to make low-cost products by reducing manufacturing and operating costs, increasing efficiency, and providing environmental benefits.

Methods to Reduce Defects in Manufacturing Processes

There are different methods are taken into account under consideration to minimize the defects during the manufacturing processes of The Big Green Tractor company is found in Indonesia. These are some recommendations as guidance for the company to minimize the defects in the manufacturing processes.

- **Identify the root cause of defects:** The first step in minimizing defects is to identify the root cause. The company should conduct a thorough analysis of its manufacturing process to identify the reasons behind the defects.
- **Implement Statistical Process Control (SPC):** SPC is a powerful tool that helps in monitoring the production process and detecting any variation or deviation from the standard process. The company should implement SPC to detect any variations that lead to defects and take corrective action.
- **Train Employees:** The employees play a significant role in the manufacturing process, and they need to be trained to identify and address defects. The company should invest in regular training programs for its employees to ensure they have the knowledge and skills required to prevent defects.
- **Develop Standard Operating Procedures (SOPs):** The company should develop SOPs for each step of the manufacturing process. These procedures should clearly outline the steps involved in manufacturing and the quality standards that need to be met. This will help to ensure that each product is manufactured to the same high standard, minimizing defects.
- **Improve Quality Control (QC):** The company should improve its quality control process to identify and address defects before they reach the customer. This can be achieved by implementing an inspection process at different stages of the manufacturing process, such as raw materials, in-process, and finished goods.
- **Review and Improve the Design:** The company should review and improve the design of its products to minimize defects. This can be achieved by analyzing the design of the

products, identifying any weak points, and making necessary changes to improve the quality of the product.

- **Monitor Supplier Quality:** The company should monitor the quality of its suppliers to ensure they are meeting the required standards. This can be achieved by conducting regular audits of the supplier's manufacturing process and ensuring they meet the required quality standards.
- **Continuous Improvement:** The company should implement a continuous improvement process to identify and address any issues in the manufacturing process. This can be achieved by regularly reviewing the manufacturing process, identifying areas for improvement, and implementing necessary changes.

By implementing these eight steps, The Big Green Tractor Company can minimize the defects in its manufacturing process and improve the quality of its products, ensuring customer satisfaction and repeat business.

Greener Methods for the Company

The use of 21st-century tools can help create a greener process for the Big Green tractor company in Indonesia by implementing more sustainable and efficient practices. Here are a few examples:

- **Renewable Energy:** The company can install solar panels to generate clean energy for its manufacturing plants and offices. This can help reduce their reliance on fossil fuels and lower their carbon footprint.
- **Data Analytics:** By analyzing data from sensors and other sources, the company can identify areas where it can improve energy efficiency and reduce waste. This can help them optimize their operations and reduce their environmental impact.
- **3D Printing:** The use of 3D printing technology can help reduce the amount of waste generated during the manufacturing process. By creating parts on demand, the company can avoid overproduction and reduce the need for excess inventory.
- **Electric Vehicles:** The company can transition to electric vehicles for its transportation needs. This can help reduce their emissions and improve air quality in the local community.

- **Sustainable Materials:** The company can explore the use of sustainable materials in its products, such as biodegradable plastics or recycled materials. This can help reduce their impact on the environment and promote a more circular economy.

Overall, by leveraging 21st-century tools and technologies, the Big Green tractor company can create a more sustainable and efficient manufacturing process, reduce its environmental impact, and promote a greener future for Indonesia.

Industrial Standards for Disposal of Chemical Waste

The disposal of chemical waste is subject to strict regulations in many countries to protect the environment and human health. The most widely recognized standards for chemical waste disposal are set by the United Nations, specifically the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. This convention aims to ensure that hazardous waste is managed and disposed of in an environmentally sound manner.

In addition to international standards, individual countries often have their own regulations for chemical waste disposal. In Indonesia, the Ministry of Environment and Forestry is responsible for regulating the management and disposal of hazardous waste. Some general guidelines for the disposal of chemical waste include:

- Segregate hazardous waste from other waste streams
- Store waste in secure containers that are appropriately labelled
- Transport hazardous waste in specialized containers to a licensed treatment facility
- Dispose of hazardous waste in accordance with local regulations and industry standards.
- It's important for companies to comply with these guidelines to avoid penalties and negative impacts on the environment and public health.

Chemical waste can be generated during various stages of manufacturing processes such as cleaning, chemical processing, and finishing. The waste can be in the form of liquids, solids, or gases, and may contain hazardous materials that can be harmful to human health and the environment.

- To remove chemical waste, manufacturing companies often use a combination of physical, chemical, and biological treatment methods. The specific treatment methods used depend on the type and quantity of waste generated.
- Physical treatment methods involve the use of physical processes such as filtration, sedimentation, and centrifugation to separate waste from water or other liquids. Chemical treatment methods use chemical reactions to break down or neutralize hazardous substances. Biological treatment methods use microorganisms to break down organic compounds.
- Once the waste is treated, it is often sent for disposal or further treatment, depending on the regulations and guidelines set by the local environmental authorities.

In general, manufacturing companies are encouraged to reduce the amount of waste generated by implementing best practices such as reducing the use of hazardous materials, recycling, and reusing materials wherever possible. This helps to minimize the amount of waste that needs to be removed and reduces the impact of manufacturing processes on the environment.

Methods for the removal of Chemical Waste

There are different methods that are used to remove the chemical waste from the Big Green tractor Company of Indonesia during manufacturing processes.

- **Incineration:** This is a process that involves burning chemical waste at high temperatures in a controlled environment. This method is commonly used for the disposal of hazardous waste that cannot be treated or recycled.
- **Chemical treatment:** This method involves the use of chemicals to break down or neutralize hazardous waste. This can be done through processes such as oxidation, reduction, or precipitation.
- **Physical treatment:** This method involves the use of physical processes to separate or remove hazardous waste from the rest of the waste stream. Examples of physical treatment methods include filtration, sedimentation, and centrifugation.

- Landfill disposal: This method involves the burial of hazardous waste in a specially designed landfill. The landfill is constructed with a liner to prevent the waste from contaminating the surrounding environment.
- Recycling: This method involves the recovery of usable materials from hazardous waste. This can be done through processes such as distillation, evaporation, or extraction.

It's important to note that the choice of waste removal method depends on the specific characteristics of the waste and the regulations in the local jurisdiction. The Big Green Tractor Company of Indonesia must comply with the relevant laws and regulations governing the management of chemical waste in their country.

Green Alternatives to Traditional Manufacturing Process

- There are several green alternatives to traditional manufacturing processes that the Big Green Tractor Company of Indonesia can consider. Here are some options:
- Renewable Energy Sources: The company can shift its energy consumption to renewable sources like wind, solar, or hydropower. This would reduce the carbon footprint of its manufacturing processes and contribute to the country's transition to clean energy.
- Material Recycling: The company can use recycled materials for manufacturing instead of using raw materials, which would significantly reduce the amount of waste generated and reduce the impact on the environment.
- Lean Manufacturing: Lean manufacturing is a process that focuses on reducing waste and maximizing efficiency. By implementing this approach, the company can reduce its environmental impact and save resources.
- Green Chemistry: The company can adopt green chemistry processes that use environmentally friendly chemicals and processes. This approach minimizes the production of hazardous waste and emissions of greenhouse gases.
- Life Cycle Assessment: By conducting a life cycle assessment (LCA) of its products, the company can identify areas where it can reduce its environmental impact, such as reducing energy consumption during manufacturing or improving the product's end-of-life disposal process.
- Sustainable Supply Chain: The company can ensure that its suppliers adhere to sustainable practices by using eco-friendly materials and minimizing waste generation.

- **Water Conservation:** The company can implement water conservation measures to reduce its water consumption during manufacturing. This can include using recycled water, improving wastewater treatment systems, and implementing water-saving technologies.

Adopt sustainable production practices: The Big Green Tractor Company can reduce its pollution impact by adopting sustainable production practices. This can include using renewable energy sources, reducing waste generation, and using eco-friendly materials in production.

Implement pollution control technologies: The company can implement pollution control technologies such as scrubbers, filters, and wastewater treatment systems to reduce its environmental impact.

Conduct regular environmental audits: The company should conduct regular environmental audits to identify areas of environmental impact and develop strategies to reduce them (Li, Chen, & Wan, 2023).

Engage with stakeholders: The company should engage with stakeholders such as communities, government agencies, and non-governmental organizations to understand their concerns and develop strategies to address them.

Promote environmental awareness: The company can promote environmental awareness among its employees, suppliers, and customers to encourage them to adopt environmentally friendly practices.

Monitor compliance with environmental regulations: The company should monitor its compliance with environmental regulations and ensure that its operations comply with local laws and regulations.

Encourage sustainability in the supply chain: The company can encourage sustainability in its supply chain by working with suppliers who use environmentally friendly practices and materials. By adopting these responsible social procedures, the Big Green Tractor Company can reduce its environmental impact and promote sustainability in its operations. Overall, there are several green alternatives that the Big Green Tractor Company of Indonesia can consider to reduce its environmental impact and move towards more sustainable manufacturing processes.

Conclusion:

In conclusion, it can be claimed that Big Green Tractor has a number of serious sustainability and high operational cost challenges. Through operational simplification, the organization is concentrating on lowering its operational costs. The organization's strategic managers may concentrate on achieving cost-efficiency through a decrease in material costs, automation, selling scrap to vendors, and a variety of other methods. Along with this, a number of procedures, including quality management systems, external and internal audits, customized training, and

standardization, can be taken into account to minimize errors throughout the manufacturing process. Additionally, a number of instruments, such the process mass intensity calculator and solvent selection tool, can be suggested to Big Green Tractor in order to harness greener operations.

The research further clarifies that Big Green Tractor can take into account a variety of CSR strategies, including the reduction of carbon emissions, electrification, the acquisition of energy-efficient equipment, and many more. These procedures can also relieve the organization of some of its legal and regulatory obligations. Big Green Tractor may take into account a variety of industry standards and protocols, such as safe landfills, processing and treatment standards, recycling methods, and more.

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