

## Overview of Industrial Development- Green Manufacturing

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### Abstract:

This review article aims to familiarize you with green manufacturing, particularly as it relates to mechanical applications, as it is urgent to address concerns regarding the impact of current production on the environment and natural resources. These problems can be properly addressed with the aid of green manufacturing, and thus sets the stage for practical implementation in the current powerful world.

This research will inform you about how green manufacturing practises are implemented in various businesses and what issues need to be resolved in order for these practises to become increasingly persuasive for the improvement of organisation in more realistic ways.

**Key words:** Green manufacturing, practices, Green methods, impact.

### 1. INTRODUCTION

Population growth and dwindling supplies are key issues in today's globally interconnected society. The delicate balance of Earth's biosphere is threatened by any change in the temperature. The new quality management system has been proposed by ISO for use in managing both product quality and environmental impact. The fundamental goal of this time is to reduce the harm that companies are doing to the environment. Green Manufacturing, a new manufacturing method that is appropriate for a sustainable development strategy, is required, according to X. C. Tan and others (.2002). Due to escalating demand and constrained availability, the cost of commodities and energy is always growing. Due to the volatility of these input costs, companies must work hard to maximize profits within wide price ranges. Customer markups are one method of dealing with price volatility. Yet, if the price of the product goes up too much, improvements may have to be made. Instead, increasing production efficiency—which is possible by lowering resource consumption and streamlining the industrial system—might help keep costs stable. Nancy Diaz-Elsayed, among others (2013).

This research will provide you with in-depth understanding of green technology, various green manufacturing techniques, and how businesses may employ green processes to advance their operations at a time when the market is fiercely competitive. In this article, the paper industries highlight how incorporating green practises into their production process has helped them advance. The purpose of this study is to collect data, distinguish between them, and offer an overview of green manufacturing from an industrial standpoint.

### Overview of Green Manufacturing

Environmental science, green chemistry, environmental monitoring, and electronic technologies are all used by green technology to better keep tabs on, model, and protect the world around us, as well as to mitigate the detrimental effects of human activity. Modern society has a serious problem with electronic waste. Renewable energy technologies include photovoltaic panels, wind turbines, bioreactors, biofiltration, bioremediation, desalination, etc. This term may also be used to describe these methods. Not often do we take the time to learn more, to read the small print, to fully understand the complexity of the substances in issue, or to weigh all of our available alternatives. The term "natural" has been used so carelessly in modern advertising that its original meaning has been completely lost.

The term "green" first gained notoriety in the 1970s as environmental protection concerns grew, and it was initially used in business to describe practises that would lessen their adverse effects on the environment. Later on, however, the definition of the term "green" was expanded to include not only the environmental component but also the sustainable expansion of the industries with improved product design and manufacture taking into account issues that will effect the industries' long-term objectives [1].

The phrase "green manufacturing" is broad and can refer to both green processes and green products. Green products are generally those things which are made keeping in mind the environment impact due to them. These goods' main goal is to lessen their harmful effects on the environment. These goods include carry bags made of recyclable materials, paper cups, etc. Green processes are manufacturing techniques used on the shop floor with the goal of reducing the environmental effect. These techniques include optimising processes, choosing materials with low environmental impact to limit scrap creation, and reusing the scrap that is produced. Green manufacturing seeks to reduce the amount of natural resources needed to produce items through effective production.

### **Summary of Industrial Green Manufacturing**

**Entrant Supply-**Associated businesses are sometimes referred to as input supplies; these are the businesses that assist the production unit on the outside by offering services and environmentally friendly products that are used in manufacturing. These services typically include electricity, energy, etc. When it comes to green manufacturing, the major objective of input supply is to find companies who are driven to cut scrap during the first stages of production.

**Manufacturing-**All concerned parties, from the top management to those who will use the product directly, are involved in green production. Hence, green items are made to be reused, copied, and recycled. Design and process planning, which chooses the manufacturing tools and processes to be used, are therefore the key wings of the production unit that are directly accountable for green manufacturing. These two divisions are only two of the many in the sector making a concerted effort to promote green manufacturing.

**Input Chain-**Wholesale wholesalers are a crucial component of the supply chain in green manufacturing. They are in charge of managing the trade between producers and retailers. Due to the high likelihood of waste during wholesale distribution, waste management in the supply chain is a necessary part of green production. This has been implemented, resulting in cost savings from less scrap.

**Distributes-**Direct interaction between retailers or distributors and the product's final consumer occurs. These retailers serve as a sort of bridge between the market and the consumers; they foster a climate that encourages repeat business and customer loyalty, which are naturally results of plant quality, service, and location, all of which work to further minimise scrap in green manufacturing.

### **Application of Green**

Every day, we consume a lot of gasoline, which is produced from a nonrenewable resource. Renewable energy sources including solar, wind, tidal, and bio diesel are our only chance. Sustainable energy may be used as fuel, as suggested by Qinghu Zhu et al. Water is our most basic requirement, but as the human population has grown and chemicals have been used in industry, it has become more filthy to drink. Water purification using solar distillation is a viable option. Authored by Qinghua Zhu and colleagues in 2004.

The filtration of air Because all plants take CO<sub>2</sub> and convert it to oxygen, they can be cultivated indoors to maintain a clean environment. As a result, there will be less air pollution and more oxygen and less carbon dioxide available for life on Earth. The process of sewage treatment may be compared to the cleaning of drinking water. Sewage treatment has the potential to lessen the degree to which water is contaminated. Regions with a high demand for water get cleaner water through pipeline, whereas those with a greater pollution load are left with less usable water. Preservation of the natural world, sustainability, and similar ideas might develop as spinoffs. It is the responsibility of the city or municipality's government or other governing bodies to collect, classify, process, and dispose of all solid waste. Published in 2004 by Qinghua Zhu and colleagues. Using equipment with a lower energy

requirement is known as energy conservation and lower power use. Using less power means burning fewer fossil fuels to generate that electricity. Qinghua Zhu and others, 2004.

### **Traditional industries of using green processes**

By examining certain instances where green manufacturing has been used and has contributed to industrial development sustainably, it is possible to see how it is being implemented in the current old or conventional industries.

**Energy Plant-**The main environmentally friendly manufacturing practises in power plants include a variety of parameters that must be handled in accordance with the environment such as air quality preservation measures that use fuel with low sulphate and nitrogen content, exhaust gasifiers, high-quality fuel, and electric dust collectors. Sprinkler system and indoor coal storage to lessen the environmental impact.

**Waste disposal** procedures include control of ash generation and its effective utilisation, such as landfills, bricks, etc. **Water quality preservation** measures, which include the management of drainage, hot waste water, and oil leaks.

**Fast Moving Consumer Goods-**The concept behind FMCG is that the products that sell quickly and are often less expensive than other products are included in this market. Soft beverages, personal care items, over-the-counter medications, toys, processed foods, and many more consumables fall under this group. Green manufacturing is started by implementing technologies that have a smaller negative impact on the environment, such as using paper, biodegradable plastics, and other materials in the creation of FMCG products.

**Snags with Industrial Development-**The commercial case for Green is still strong even under challenging market conditions. There is a growing knowledge of the necessity of going green, as well as the necessity of addressing green in all three areas: green processes, green goods, and green energy. Yet, businesses confront difficulties on a number of fronts, with establishing leadership for such an effort being the greatest difficulty. Businesses must change from [13] - Seeing initiatives as cost centres to analysing them as commercial possibilities; Approaching Green as restricted, frequently isolated efforts with narrow emphasis; Meeting Regulatory Compliance to Developing Eco-Advantage.

## **2. CONCLUSION**

In order to have a sustainable development of industry while keeping environmental impact in mind, we addressed several green manufacturing technologies in this review article and how green manufacturing can be adapted to various units of any industry. Additionally, it opens up a way for the creation of industry-specific green manufacturing processes that will meet demand over the long term as determined by the needs of the sector. All departments in the industry need to be involved for greater green manufacturing use.

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