Green Shipping: Good Practices and Popular Strategies

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Introduction

Shipping has become a vital part of the worldwide supply chain. With the expansion of the transport industry, carbon dioxide (CO2) and greenhouse gas (GHG) emissions from this sector are increasing rapidly. According to recent European Commission statistics, the marine transport industry emits approximately 940 million tonnes of CO2 and produces 2.5% of greenhouse gas annually. Vessels currently use HFO, a filtrate derived from the distillation of crude oil Crude oil contains sulphur and is emitted by vessels during transportation. This sulphur is not only harmful to human health and contributes to respiratory and human diseases, but SO2 also causes acid rain, which is highly harmful to crops and ocean species and acidifies the oceans. To minimize these harmful effects, Green Shipping is becoming more popular day by day. In Green Shipping, ships are encouraged to make use of resources and energy to preserve the global environment from GHGs and environmental pollutants. It promotes cleaner practices for emissions control, effective harbour management, and equipment management. The Green Shipping concept also supports the International Maritime Organization's (IMO) environmental regulations. According to the IMO Conventions, ships are to be constructed with a reduction in GHG emissions of 30% by 2025; in addition, IMO revised Marine Pollution (MARPOL) Annex VI at MEPC's 62nd General Meeting in July 2012 for the reduction of CO2 emissions from ships by 2030.

Green Shipping Practices (GSP)

GSP is an environmental management practice undertaken by shipping companies that emphasizes waste reduction during operation and resource conservation during cargo handling and distribution. Shipping companies are facing increasing pressures from international communities for greener operations; as a result, more and more shipping companies are starting to adopt the GSP. For the GSP to be effective for all stakeholders, 04 issues need to be considered. Firstly, each company must commit to its vision or practice of sustainability. Senior and middle managers must comply with the obligations set out in the GSP. Strong senior management support is needed within the company to have an effective environmental core practice. Secondly, the shipping equipment and facilities have to be environmentally friendly. For instance, shippers may try to avoid using refrigerated containers containing chlorofluorocarbon (CFC). They can also use environmentally friendly equipment or technologies based on renewable resources, thus minimizing the harmful effects produced during operation.

Figure: Green Shipping Practices (GSP)

Thirdly, the shipping materials can be recycled to reduce costs and improve operations. This includes selling surplus equipment and facilities rather than slowing them down in storage. In addition, this includes selling shipping materials, such as packaging and cartons, rather than considering them as waste, and collecting used oil and selling it afterward. Finally, effective vessel design and compliance with IMO regulations can reduce environmental damage to a minimum.

Popular Strategies

Although sea transportation is generally considered cleaner than other modes, it also faces significant environmental challenges. Leading shipping companies, therefore, attempt to respond to these environmental challenges, which are part of the green shipping strategies.

LNG as an Alternative Fuel. Using LNG is a popular green shipping strategy. It is an alternate fuel option for vessels. But this alternative raises many safety issues. It is essential to ensure safety, as low emission shouldn't mean less safety. Great care needs to be taken, as using gas as a fuel is not suitable for all ships, and this requires a change in the structure and outfit of the vessel. But those structural problems can be solved by redesigning them. Using LNG as a fuel will reduce CO2 by 20% and reduce SOx and NOx.

Slow Steaming. This is nothing other than slowing the speed of the ship, this is a concept that was previously introduced into the shipping industry. This is one of the most effective ways to reduce emissions. Slow steaming is a fiscal practice with economic and environmental advantages. It reduces the ship's waiting time for harbour calls and relies on just-in-time arrival. Many shipping companies are already reaping the economic benefits of this method.

Reducing Empty Containers. It is known that every third container is shipped empty. According to a recent survey, approximately 50 million containers have been displaced empty in the past year. This has cost the shipping industry about $20 billion in storage fees, handling fees, and low utilization charges.

Ballast Water Management. Large container vessels use water as a ballast to maintain stability when they are not carrying any cargo. The water is pumped into the port when the cargo is loaded onto the ship. Ballast water, which contains organisms, enters the aquatic ecosystem as extraterrestrials, infecting the ecosystem and posing threats. Therefore, ballast water can first be filtered to remove sediments and micro-organisms and then disinfected with medium-pressure UV lamps or hypochlorite from the electro-chlorination process.

Renewable Energy. The infinite energy of wind and sun can be used to power all kinds of vessels, helping to reduce fuel consumption, emissions, and greenhouse gases. Many companies are passionate about designing and developing emissions-free or low-emission, eco-friendly, sail-assisted propulsion solutions for wind-and-solar-powered ships. These technologies will help shipyards and shipowners meet the requirements of the Energy Efficiency Design Index (EEI).

Factors Influencing GSP Adoption

Some factors shape the policies to adopt GSP by shipping companies. The most important factors include:

Regulation Enforcement. Government regulation is often a significant driver for companies to adopt environmental initiatives. An example of an environmental initiative is the adoption of ISO 14001 certification which provides the requirements for an Environmental Management System (EMS). As a result, it is believed that strong enforcement of government environmental regulations will encourage marine transportation companies to adopt environmentally sound practices.

Industrial Norms. Most industries have their own environmental practices. There may be three motivations for firms to adopt environmental practices, ie, business competitiveness, legitimacy, and environmental responsibility. Moreover, most shipping lines are members of industrial associations where they have their missions and visions. Some industrial norms are institutionalized by regional dimensions, eg, Green Award by a Dutch initiative; Clean Shipping Project - a Swedish one; and the Clean Cargo Working Group - an American one.

Customer Inquiry. Customers are consumers to use products and services provided by commercial entities in the manufacturing and service industries. They have a direct impact on the company's operation, especially in environmental activities. Customers may lobby shipping companies to adopt GSP by requiring them to be ISO 14001 certified. Generally, large companies that deal with international customers tend to adopt environmental initiatives to meet their customers' expectations. In addition, environmentally conscious customers can ask for an environmental audit report of the shipping company to increase their environmental performance. As a result, customers' strong environmental demand can greatly influence shipping companies to adopt green practices.

Company-specific Environmental Strategy. It is a general tendency that most companies want to improve their company image. A good reputation is a key asset in the current market with increasing awareness of the environment. All customers consider the reputation of the company, its image, and its products as major driving forces when purchasing transportation services. Companies adopt environmental initiatives primarily for commercial advantage. Implementing environmental initiatives can serve a business's bottom line. Many companies adopt pro-environmental strategies in order to gain a competitive advantage by differentiating their strategies from those of their competitors.

Conclusions

With increasing international trade volume and aggravating global warming and climate change issues, reducing the emissions of greenhouse gases and other air pollutants from international shipping has become a critical concern in the international shipping community. It is therefore, essential to understand and be aware of the factors that influence shipping companies to adopt sustainable transportation practices. Shipping companies are motivated to adopt the GSP mainly by industrial standards set by institutionalized associations, for example, shipowners' associations. They are also driven by customer demand for environmental friendliness and their strategy for getting a good image. In addition, government regulations and international environmental legislation can have a significant impact on shipping companies in adopting the GSP. Moreover, the adoption of eco-friendly Green shipping practices can improve the environmental performance and productivity of shipping companies. Efforts to build environmentally friendly ships, known as 'Green Ships' perhaps another Green Shipping milestone, which will have a competitive advantage due to environmental regulations, fines, and incentives. As a maritime country, the Bangladesh government is also increasingly pushing its shipping companies and industries to adopt the GSP. The necessary work is being done to prepare a roadmap on this issue by the Ministry of Shipping, Bangladesh. In parallel, a variety of awareness and motivation programs, such as seminars, rallies, etc., on Green Shipping will definitely boost our shipping industry to adopt GSP in Bangladesh.

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