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Indian Pharmaceutical Industry and Environmental Sustainability: An Exposition

Debashree Bhattacharya
Department of Economics, Ramakrishna Sarada Mission Vivekananda Vidyabhavan, West Bengal, India

Corresponding Author's Email: debashreebhattacharya33@gmail.com

Abstract

The Indian Pharmaceutical Industry (IPI) is considered one of the core industries of India, contributing around 2 percent to India's GDP and around 8 percent to the country's total merchandise exports. IPI has successfully proven itself as one of the major players globally, particularly after the outbreak of the Novel Corona virus. However, the pharmaceutical industry needs a proper understanding of chemical processes that will be helpful in balancing coexistence with natural resources and competitiveness. The objective of this research is to investigate sustainability awareness in the Indian pharmaceutical industry by looking into social well-being as well as economic and environmental aspects and the achievement of sustainability goals. Their awareness and related activities need to be scrutinized by integrating them into the planned, strategic, and effective functions of a pharmaceutical organization. The objective of the paper is to highlight the issue of environmental sustainability at pharmaceutical companies. In this research, an analytical approach based on a qualitative study is adopted. The article also presents a case study of an Indian pharmaceutical company in this context for a better understanding of the subject matter. It is found that, as the industry responds to compression from social and environmental concerns, it needs to align profitability with greener actions. So not only imposition by government but a spontaneous practice of CSR can pave the way towards environmental sustainability.

Keywords: *Indian Pharmaceutical Industry; Environmental Sustainability; Welfare; Corporate Social Responsibility*

Introduction

One of India's main industries is thought to be the Indian Pharmaceutical Industry (IPI). According to production volume, it is in third place globally, while according to production value, it comes in fifteenth. According to the Department of Pharmaceuticals' report for 2019, this industry made up about 2% of India's GDP and about 8% of all of its exports of goods. The Indian pharmaceutical sector also draws new domestic and foreign businesses to set up operations here due to its low production costs. Additionally, IPI has effectively established itself as one of the key participants on the international stage, notably during the Novel Corona virus outbreak. Thus, undoubtedly, it can be said that IPI can be regarded as the backbone of the Indian economy.

The process of evolution of the Indian pharmaceutical industry adopted a sustainable process of production, considering environmental aspects and economic and social welfare. The pharmaceutical industry needs a proper understanding of chemical processes that will be helpful in balancing coexistence with natural resources and

competitiveness. In this respect, the E-factor metrics are used to evaluate sustainable practices (Chaturvedi *et al.*, 2017). According to Narayana, Pati and Padhi (2019), the main objectives of Indian pharma companies are to achieve low-cost, high-quality production to compete in the international market. So, the environmental damage that is caused by them is not a major concern for the companies. Moreover, proper treatment of industrial waste and the adoption of reverse logistics require huge investments, which are difficult for small companies to make.

Alshemari *et al.* (2020) noted that the creation of a circular pharmaceutical supply chain can minimize pharmaceutical waste and maximize the value of medicines. It enables sustainability within the supply chain. Mathew and Unnikrishnan (2012) noted that India, like many other countries, does not have any standard medication disposal protocols. Also, a policy shift from pollution control to pollution prevention is very much recommended. Schneider, Wilson and Rosenbeck (2010) opined that sustainability should be measured through the triple bottom line, and pharmaceutical companies should ensure that they follow the sustainability line during the production process. According to Veleva, Cue Jr. and Todorova (2018), the Indian pharma supply chain should obtain green chemistry mechanisms that design the chemical process and product in such a manner that can reduce or eliminate the generation of hazardous substances. Sreenivasan and Reddy (2019) investigated the performances of different Indian pharmaceutical companies and discussed the importance of CSR in social and environmental development. Gupta (2019) has used a qualitative approach in determining the sustainability, ESG and CSR reports of various Indian pharmaceutical companies and concluded that CSR has a positive role in achieving sustainable development goals.

In recent times, the role and importance of IPI in the Indian economy have been understood. The sector is also a major contributor to environmental pollution in India. The objective of this research is to investigate sustainability awareness in the Indian pharmaceutical industry by looking into social well-being as well as economic and environmental aspects and the achievement of sustainability goals. Despite innovations and economic attainments, it is a fact that sustainability aspects in the Indian pharmaceutical industry are still in their infancy. Thus, looking at sustainability broadly, its awareness and related activities need to be scrutinized by integrating them at the planned, strategic, and effective levels of a pharmaceutical organization. The objective of the paper is to highlight the issue of environmental sustainability at pharmaceutical companies.

Methodology

Since IPI is an important factor for the development of an economy, the Government is quite concerned about its progress, problems, and prospects. However, at the same time, the issue of environmental degradation by these pharma companies cannot be ignored, especially in recent times. The general approach of these companies to maintaining environmental sustainability has been discussed here. In this research, an analytical approach based on a qualitative study is adopted. The article also presents a case study of an Indian pharmaceutical company in this context for a better understanding of the subject matter. The case study methodology contains the use of cases to create

theoretical constructs, propositions from case based (within and across) empirical indications (Eisenhardt, 1989).

Case Study

In this section, a case study will be presented that depicts the need for investment in order to reduce industrial waste and associated difficulties. A case study on the performance of GlaxoSmithKline Pharmaceuticals Ltd. can be mentioned in this context. An Indian pharmaceutical company is trying to maintain environmental sustainability. The company was established in India in 1920. They publish the Sustainability Accounting Standard Board (SASB) index to show how the companies reports align with the Biotechnology and Pharmaceutical industry guidelines. GSK places emphasis on nature-based solutions that can offset the harmful impacts of industrial waste. In 2021, they reduced 7 percent of the waste from the sites and recovered 43 percent of these materials through reuse and recycling. This year, they have launched 40 million recycle-ready toothpaste tubes in 20 markets. The company has joined the public-private Lowering Emissions by Accelerating Forest Finance (LEAF) program. Under this program, importance is given to the protection of forests from deforestation. The company has aimed to achieve net zero emissions across its full value chain by 2030. The target is also set to use 100 percent renewable electricity. In 2020–21, they reduced their scope 1 and 2 carbon emissions by 15 percent compared to the previous year. The emissions are being reduced through investment in on-site generation of renewable energy and reducing the number of sites. Another target of the company is to achieve a net positive impact on nature by 2030 by reducing adverse environmental impacts on water, materials, and biodiversity. This can only be achieved by protecting and restoring nature through huge investments.

The company sets water targets through good water stewardship. It aims to reduce water usage by 20 percent by 2030. It also wants to achieve a zero-impact active pharmaceutical ingredient level for all manufacturers and key suppliers in the next ten years. In view of industrial waste and their harmful effects, the company sets the target of zero operational wastes, which also includes one-time use plastics and a 25 percent environmental impact reduction. This impact has been created by products and packaging. They mostly use recycled plastics and encourage the recycling of plastic components. Their aim is to repurpose the waste for beneficial use. They try to avoid the harmful environmental impacts that arise from landfills and try to use the materials in circulation for the production of new products. Another aim in this regard is a 10 percent waste reduction in the supply chain. This case study can be compared with the case study of Sun Pharmaceutical Industries Limited. Sun Pharma targets reducing water usage by 10 percent and co-processing hazardous waste by 2025. They have set a target of a 35 percent reduction in Scope 1 and Scope 2 emissions by 2030. The company aims to reduce Green House Gas emissions by de-carbonizing through an annual tree planting program in each of its operating locations. Sun Pharmaceutical has planted 4,899 trees and saplings within its manufacturing locations in India. The comprehensive EHS (Environmental Health and Safety) governance structure of Sun Pharmaceutical ensures effective implementation of it.

Discussion

The case study of a particular pharmaceutical company and its comparison with another company reveal the fact that more and more investment in corporate social responsibility results in a movement towards the goal of environmental sustainability. In this respect, the aim to reduce carbon footprint and water usage is an improvement towards sustainable development. Thus, pharmaceutical companies should invest more in CSR. They have to balance financial gains with the environmental and social costs associated with their activities. This is their responsibility for the greater good. The companies have to accept the challenges of economic consequences related to instant investments and long-term returns with sustainability drives in the Indian pharmaceutical industry. This will definitely be a forward step towards the circular economy. To achieve net positive biodiversity, the company tries to improve habitats, protect species, and improve soil and water quality. Certainly, a huge investment should be made in this regard.

An organization-based case study design permits an in-depth analysis in different contexts and allows researchers to better understand the occurrence of outcomes (Miles & Huberman, 1994). The tentative clarifications found in a within-case analysis can be verified across different cases, enhancing the consistency and validity of the conclusions (Yin, 2009). The case study approach is better than the survey or exploratory approach in situations where there is a need to maintain a holistic perspective and analysis of the real-life actions in the study (Yin, 2009). The case study approach is helpful for theory development (Dubois & Gadde, 2002).

Goal of Environmental Sustainability: Role of Corporate Social Responsibility

It is evident from various studies that carbon dioxide emissions are 50 percent greater in pharmaceutical industries than in automotive industries globally (Belkhir & Elmeligi, 2019). The Indian pharmaceutical industry is no exception in this regard. The total environmental scenario due to IPI and allied activities is rather scary. As we have already mentioned, India is a low-cost production hub for medicine production, but at the same time, it compromises with environmental damage. Except for some large companies, most of the companies still follow ineffective methods in the treatment of industrial waste; they are also not concerned about the fact of chemical emissions. It is observed that the areas that are in close proximity to the manufacturing units are more directly and adversely affected, which results in the contamination of the water source and food source. Naturally, this is a matter of serious concern. In this context, the well-known disaster of Patancheru Bollaram Zone, Hyderabad, where all the collected specimens have shown evidence of contamination with antimicrobials, can be mentioned. The production of both the APIs and the finished dose creates drug resistance. Another serious concern is the process of disposing of medicines. Though IPI is not directly responsible for it, it should be mentioned that this medicine disposal is equally harmful for the environment. There is no proper guideline for the disposal of drugs in India. Discharging antibiotics into the environment can create the natural development of antibiotic resistant pathogens, which are harder to treat.

Thus, it is observed from the discussion that a drug can create pollution in its entire life cycle, starting from its production and ending with its disposal. The Supreme Court of India ordered a zero liquid waste policy in 2016. But the majority of IPIs rely on the treatment

and disposal of waste water instead of source reduction. For environmental sustainability, adoption of green chemistry metrics becomes necessary, which can create a green supply chain for a better future. Here we should also mention the Triple Bottom Line, which integrates three dimensions of sustainability, namely, the environmental, social, and economic dimensions of sustainability. The economic dimension of sustainability places emphasis on external impacts on financial health, economic performance, and potential financial benefits. The social dimension of sustainability measures the well-being of people and communities, workplace health and safety, etc. The environmental dimension of sustainability measures the impacts of processes, products, and services on the environment, biodiversity, and human health.

It is interesting to note that a conflict of interest exists between large pharmaceutical industries (who are the contributors to a large supply chain) and individual communities (who are adversely affected in many ways). So, a balancing of power is required, which can be ensured by firms adopting corporate social responsibility. CSR is expected to be helpful in accelerating the rate of both social and economic development. CSR includes corporate responsibility, corporate accountability, corporate ethics, responsible entrepreneurship, etc. It is basically the responsibility of an organization to maintain transparency and ethical behavior that is consistent with the sustainable development and welfare of society.

In India, under the CSR concept, pharmaceutical companies take responsibility for the impacts of their activities on different stakeholders, along with profitability and growth. The big business houses earn enormous profits from society, and it is their responsibility to return a part of this profit to society. It is expected that companies should not be driven only by profit motives; they should share their benefits with society as well. Also, when a company expands, it aims to build a trustworthy relationship with consumers as well as with the community. Thus, opting for corporate social responsibility becomes evident. Initially, CSR was associated with charity and donations to overcome different social issues. But nowadays, IPI plays an important role through CSR, which facilitates extensive social changes. CSR has become an extended part of corporate strategies. It focuses on the improvement of health and education in underserved communities. The pharmaceutical industry has expertise, a financial advantage, manpower, etc. These facilities are used to secure social development. As an integral part of social development, a huge emphasis is given to environmental sustainability. CSR is no longer a voluntary act by the company; it is now mandatory in India under the Indian Companies Act 2013. It is expected that Corporate Social Responsibility will act as a positive measure of sustainable development. In the past, these two concepts moved separately. CSR was explained as the social responsibility of the business, and sustainable development was explained as the effects of business on the environment. But presently, it is understood that due to CSR, the goal of sustainable development can be achieved.

Conclusion

The corporation now places a high value on sustainability, and it must report on it in order for the public to be aware of it. The government has this industry on its radar for sustainability. Despite the fact that the law was implemented nine years ago, many small and medium-sized pharmaceutical businesses still put profit before the dreadful

consequences of their activities on the environment. Industry must balance profits with greener initiatives as a response to pressure from social and environmental issues. So, not only imposition by government but a spontaneous practice of CSR can pave the way towards environmental sustainability.

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