Proceedings of Business and Economic Studies, 2024, Volume 7, Issue 1
http://ojs.bbwpublisher.com/index.php/PBES
Online ISSN: 2209-265X
Print ISSN: 2209-2641

The Sustainable Development Pathway of the Biomedical Industry Based on Environmental, Social, and Governance (ESG) Concepts

Yangyan Chen*

Shanghai Zhangjiang Institute of Medical Innovation, Shanghai 201204, China

***Corresponding author:** Yangyan Chen, chenyangyan6@126.com

Abstract: There is a growing global awareness of environmental, social, and governance (ESG) concerns. The biopharmaceutical industry is an important field that affects human health and well-being, and its sustainable development is now the industry's focus. Based on the current state of the green development of China's biopharmaceutical industry, the article proposes suggestions and paths for promoting the industry to better fulfill its social responsibilities and protect the environment while pursuing economic benefits. By doing so, the industry can make a greater contribution to global public health and become an important factor in promoting human health and social prosperity.

Keywords: ESG concept; Biomedical industry; Sustainable development

Online publication: February 25, 2024

1. Introduction

Issues such as global climate change and biodiversity protection continue to heat up, profoundly affecting the development pattern of the biopharmaceutical industry [1]. The "Opinions of the Central Committee of the Communist Party of China and the State Council on Comprehensively Strengthening Ecological Environmental Protection and Resolutely Fighting the Fight against Pollution" clearly states that it is necessary to "strengthen the green development of biomedicine and other industries." To implement the central deployment, six departments, including the Ministry of Science and Technology, the Ministry of Finance, and the Ministry of Ecology and Environment, jointly issued the "Notice on Carrying out the 2021 National Key Research and Development Plan "Green Development in the Biomedical Field" Key Special Project (from now on referred to as the "Key Special Project"). It is proposed to "research and establish an evaluation indicator system for green development of the biomedical industry, and conduct regular green development performance evaluations." As the concepts of environment, society, and governance (ESG) become increasingly popular, integrating ESG concepts with the biopharmaceutical industry has strong practical significance [2]. On one hand, ESG can fully reflect the performance of enterprises in terms of environment, society, and corporate governance and

can provide enterprises with reference standards for sustainable development. On the other hand, through a complete information disclosure system, ESG can promote enterprises to achieve scientific decision-making and efficient management. The concept of ESG has gradually become an important framework for corporate sustainable development and is valued by more and more investors and stakeholders. As an important part of the global economy, sustainable development affects the environment and is closely related to social and governance factors. However, the current rapid development of the biopharmaceutical industry is also facing many challenges, such as high resource consumption, serious environmental pollution, lack of social responsibility, etc. Therefore, addressing the integration of ESG concepts into the sustainable development path of the biopharmaceutical industry has emerged as a pressing imperative. For the biopharmaceutical industry, sustainable development helps reduce its negative impact on the environment and improves corporate competitiveness to achieve long-term and stable development.

2. Current status of green development of China's biopharmaceutical industry

The 14th Five-Year Plan proposes "strengthening the green development of biomedicine and other industries." In recent years, China has successfully introduced a series of relevant policies to support the green development of the biomedicine industry.

2.1. Industry scale continues to grow

According to statistics from the China Pharmaceutical Industry Information Center, in 2022, the national pharmaceutical manufacturing industry above the designated size achieved main business revenue of 4,023.3 billion Chinese Yuan (CNY), a year-on-year increase of 11.5%; total profits of 282.1 billion CNY, a year-on-year increase of 33.7%. Among them, the main business income of the chemical pharmaceutical preparation manufacturing industry and the Chinese patent medicine manufacturing industry were 486.9 billion CNY and 297.8 billion CNY, respectively, a year-on-year increase of 14.4% and 14.1%; the total profits were 80.6 billion CNY and 50.4 billion CNY, respectively, a year-on-year increase of 25.3% and 22.5%. With the continuous increase of national support, the continuous expansion of industrial scale, and the continuous improvement of innovation capabilities, China's biopharmaceutical industry is expected to maintain a high growth rate.

2.2. Green innovation capabilities continue to increase

Through statistical analysis of key special projects, it was found that biopharmaceutical companies in China have progressed in environmental protection and governance. As of the end of 2022, 331 key special projects have been established (of which corporate research and experimental development projects account for 86.3%), with project funds of approximately 13.5 billion CNY. Among them, the number of research and experimental development projects accounted for more than 70% of the total; capital investment reached 8.56 billion CNY (of which enterprise research and experimental development projects accounted for more than 90%). However, at the same time, it was also discovered that due to factors such as the low overall development level of the domestic biopharmaceutical industry, insufficient research and development (R&D) investment, and inadequate industry supervision, companies still need to work on environmental protection and governance. For example, some enterprises have the phenomenon of "heavy investment and neglect of management," while some enterprises lack effective measures and institutional guarantees in environmental protection and governance, others have not yet established a complete environmental governance system, environmental risk prevention mechanism, and emergency mechanisms to deal with environmental emergencies, etc.

2.3. Industrial development faces new challenges

As an important part of the national economy and one of the key areas for cultivating new driving forces, the biopharmaceutical industry has high technological content, a long industrial chain, and a strong driving role [3]. China's biopharmaceutical industry faces problems such as an insufficient supply of raw materials, low resource utilization efficiency, and a lack of core technologies [4]. For example, from the perspective of raw material supply, China's biopharmaceutical industry relies on imported raw materials, and foreign technical barriers are high. From the perspective of resource utilization, some types of raw materials are in short supply, and the utilization rate is low; from the perspective of core technology, China's biopharmaceutical industry lacks independent intellectual property rights of core technologies and key components [5]. In addition, there is a common phenomenon among biopharmaceutical companies that "emphasis on investment and neglect of management." For example, some companies still have problems such as substandard emissions of "three wastes" and insufficient resource recycling during product development and production processes, while some companies have weak R&D and design capabilities and insufficient product innovation capabilities, which also restrict the development of the Chinese biopharmaceutical industry. Therefore, addressing these problems by strengthening technological innovation and management improvement is one of the key tasks that need to be conducted urgently.

3. Sustainable development path of the biopharmaceutical industry

ESG is the abbreviation of three English words: environmental, social, and governance. It gained prominence in the mid-2000s and emphasizes the role of enterprises in creating value. Simultaneously, consideration of social, environmental, and corporate governance responsibilities and obligations is essential for achieving long-term sustainable development. With the promotion of ESG concepts, more biopharmaceutical companies are aware of the importance of ESG aspects and actively incorporate them into corporate development strategies [6,7]. Against this background, the biomedical industry at home and abroad has begun actively exploring and practicing applying ESG concepts in biomedicine and has achieved good results. Among them, the domestic biopharmaceutical industry's practice in ESG is somewhat representative.

3.1. Biopharmaceutical companies actively explore ESG concepts

In November 2019, adalimumab injection, the first domestic innovative drug jointly developed by Fosun Pharma and Tsinghua University, was officially approved for marketing to treat moderate to severe plaque psoriasis in adults with a high risk of recurrence. During the process from project establishment to approval for marketing of this drug, Fosun Pharma continued to strengthen R&D, production, and quality control, fully fulfilled its social responsibilities, explored incorporating ESG concepts into the entire R&D process, and disclosed this product in the prospectus. The listing not only reflects Fosun Pharma's strong R&D strength and high-quality product quality but also highlights Fosun Pharma's practical results in the field of ESG. In addition, by disclosing ESG information, Fosun Pharma also provides investors with valuable reference material. Applying ESG concepts in biomedicine can help enhance investors' understanding of the company's overall development strategy and values.

3.2. Domestic biopharmaceutical companies actively implement ESG concepts and promote high-quality development of the industry

Domestic biopharmaceutical companies actively respond to the national green development strategy, take the initiative to assume social responsibilities, practice ESG concepts, and promote high-quality industry

development [8,9]. The China Biotechnology Development Center took the lead in launching the "China Biotechnology Innovation Strategic Alliance ESG Working Group" (from now on referred to as the "ESG Working Group") to actively organize and carry out ESG-related work in the industry and promote enterprises to practice ESG concepts in innovation, production, and social responsibility. As of 2022, the ESG working group has released multiple reports such as the "China Biotechnology Innovation Strategic Alliance ESG Development Report" and "China Biotechnology Innovation Strategic Alliance Environmental, Social and Corporate Governance Report." As an innovative biotechnology company with a sense of social responsibility, pharmaceutical company Fosun Pharma (600196.SH) actively fulfills its corporate social responsibilities and practices sustainable development in the environment, society, and governance in product research and development, production, and sales. For example, Fosun Pharmaceutical strictly abides by green and environmental protection requirements in its R&D, production, and sales processes and actively promotes environmental protection [10,11].

3.3. Deepen technical measures and innovate development paths

(1) Technological innovation: Increase R&D investment, promote biomedical technological innovation, develop more efficient, safe, and environmentally friendly drugs and treatments, reduce production costs, improve resource utilization efficiency, and reduce negative environmental impacts through technological innovation influence [12,13].

(2) Win-win cooperation: Strengthen cooperation between enterprises, industry, academia, and research institutes, achieve resource sharing, and enhance the overall competitiveness of the industry [11]. This collaborative effort can reduce market risks and accelerate the development and launch of new drugs [14,15].

(3) Talent training: Pay attention to talent training, strengthen the construction of professional talent teams, improve employees' professional skills and ESG awareness through training and education, and provide talent guarantee for the sustainable development of enterprises.

(4) Policy support: The government should introduce relevant policies to encourage the sustainable development of the biopharmaceutical industry [16], such as providing tax incentives for green production and research and development, setting up special fund support, and formulating strict environmental protection regulations.

(5) International cooperation: Actively participate in international exchanges and cooperation, learn from advanced international experience and technology, enhance the international competitiveness of China's biopharmaceutical industry [17,18], jointly respond to global public health challenges, and promote the sustainability development of the global biopharmaceutical industry.

4. Conclusion

The development of the biopharmaceutical industry in China has entered a new historical stage. How to achieve green development is an important issue facing biopharmaceutical companies. In the context of the increasing rise of global ESG investment, the sustainable development of the biopharmaceutical industry is both a general trend and a manifestation of social responsibility. By integrating ESG concepts into corporate operations and development, biopharmaceutical companies can better respond to global public health challenges, improve enterprise competitiveness, and achieve a win-win situation of economic and social benefits. At the same time, the government and all sectors of society should also jointly support the sustainable development of the biopharmaceutical industry and create a good external environment for it. In the future, further exploration of

the sustainable development of the biopharmaceutical industry based on ESG concepts is necessary. Firstly, a unified green development evaluation index system for the biopharmaceutical industry must be established. This system would conduct a comprehensive evaluation of the green development performance of biopharmaceutical companies through quantitative standards, holding important reference significance for the industry. Secondly, by improving the information disclosure system, urging companies to proactively disclose ESG-related information to reflect better the company's performance in environmental, social, and corporate governance; finally, by carrying out green development performance evaluation, it has important guiding significance for promoting the sustainable development of the biopharmaceutical industry.

Disclosure statement

The author declares no conflict of interest.

References

[1] Hu P, Zhang Z, Ning J, et al., 2023, Construction of a Collaborative Scientific and Technological Innovation Achievement Transformation System – Experience of Central South University Xiangya Hospital. Chinese Research Hospitals, 10(4): 20–24.

[2] Zhang J, Wang X, Sha C, et al., 2023, Research on Constructing Digital Infrastructure Systems for Biomedical R&D. Chinese Engineering Science, 25(5): 92–102.

[3] Li J, Shen J, Chen M, 2023, Evolutionary Dynamics of Biomedical Innovation Clusters in the Yangtze River Delta. Science and Technology Management Research, 43(20): 197–204.

[4] Ge Y, Fang Z, Zhang Y, et al., 2023, The Achievements and Prospects of the "Modernization Research of Traditional Chinese Medicine" Project During the "Thirteenth Five-Year Plan" Period to Support Research on the Sustainable Utilization and Development of Traditional Chinese Medicine Resources. Modern Chinese Medicine in China, 25(10): 2061–2064.

[5] Liang L, 2023, Health-Centered Medical Model and Transformation of Medical and Health Science and Technology Innovation Achievements. Health Examination and Management, 4(3): 299–302.

[6] Li X, Liu Z, 2023, Research on the Financial Performance of the Pharmaceutical and Biological Industry from the Perspective of ESG Disclosure. Business Accounting, 2023(10): 49–54.

[7] Zhang J, 2023, Thoughts and Suggestions on the Sustainable Development of "Chinese Medicine Valley" in Zhumadian City. Henan Agriculture, 2023(13): 54–55.

[8] Zhang R, Hu Q, Gao Y, et al., 2022, Research on the Biopharmaceutical Industry Development Strategies in Yunnan Province from the Biodiversity Perspective. China Science and Technology Resources Guide, 54(6): 85–91.

[9] Liu R, Wu W, Zhu Y, et al., 2022, Progress and Prospects of Modern Research Methods for Animal Drugs. Journal of Nanjing University of Chinese Medicine, 38(10): 857–869.

[10] Ma Y, 2022, The Biomanufacturing Industry is the Key Development Direction of the Economy. Chinese Journal of Bioengineering, 42(5): 4–5.

[11] Pu A, Liu Q, Guo S, et al., 2022, Evolution Rules of the Global Economy and Suggestions for Countermeasures for Developing China's Economy. Chinese Journal of Bioengineering, 42(5): 146–153.

[12] Jiang W, Zhang J, Guo L, et al., 2022, Ideas and Suggestions for the Ecological Development of the *Gastrodia elata* Planting Industry. Chinese Journal of Traditional Chinese Medicine, 47(9): 2277–2280.

[13] Liu C, 2022, Taking Stock of 2021: A Brief View on the Innovative Development of Biomedicine in China. China Pharmaceutical, 31(4): 1–7.

[14] Li J, Ge Y, Gao L, 2022, Research on the Dynamic Mechanism of the Evolution of Innovation Clusters in China's Biomedical Industry – Based on Complex Adaptive System Theory. Science and Technology Management Research, 42(3): 176–183.

[15] Huang L, Pan C, Guan X, et al., 2021, Thoughts on the Current Status of Marine Medicinal Organism Research and Industrial Development in Guangxi. Fisheries Research, 43(6): 651–660.

[16] Robinson K, 2023, Overcoming Bio/pharmaceutical Production Hurdles: An Industry Insider Perspective. Manufacturing Chemist, viewed 26 Dec 2023, https://www.manufacturingchemist.com/overcoming-bio-pharmaceutical-production-hurdles-an-industry-insider-perspective

[17] Strauss D, Ghosh S, Murray Z, et al., 2022, Psilocybin Containing Mushrooms: A Rapidly Developing Biotechnology Industry in the Psychiatry, Biomedical and Nutraceutical Fields. 3 Biotech, 12(12): 339. https://doi.org/10.1007/s13205-022-03355-4

[18] Debon A, Siirola E, Snajdrova R, 2023, Enzymatic Bioconjugation: A Perspective from the Pharmaceutical Industry. JACS Au, 3(5): 1267–1283. https://doi.org/10.1021/jacsau.2c00617