Chapter 21
Bioeconomy and Ecosystem of China's Polar Silk Road

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ABSTRACT

The Polar Silk Road is one of the People´s Republic of China's big projects. As part of the grand plan of the "One Belt, One Road" initiative, it is the continuation, and reinforcement, of the country's Arctic strategy. In 2018, China officially affirmed its goals with the publication of the book China's Arctic Policy announcing the creation of the Arctic Route, reinforcing a more proactive policy towards the region. The exploration of the Arctic with the ongoing thaw raises major questions about the sustainability of a changing ecosystem. The concerns of the Arctic bioeconomy are increasingly high, not only with navigability but also with the exploitation of the riches under the ice. This article is about the political and economic ambitions of China in the Artic, and how they are compatible with bioeconomy and sustainability policies, being the North Polar region one of the most fragile ecosystems on earth, and one of the most dynamic, derivatives of the permafrost thawing.

INTRODUCTION: CHINA AND BIOECONOMY

According to the definition of the Council for the Bioeconomy, Bio-based Economy or Bioeconomy is the science that studies a new model for industry and the economy, using in a sustainable way renewable sources, biological systems, and natural resources allied to the use of new technologies. The economic model of the bioeconomy replaces the use of fossil resources with bio-based renewable resources and aims to create more sustainable products and services by exploiting the untapped stored potential of land and marine resources in millions of tonnes of biological waste. In this way, it is intended to allow economic and social development, respecting the natural limits of terrestrial and marine ecosystems (BW 2023)

Building a sustainable growth strategy with greater use of renewable resources is no longer just an option, it is a necessity and is expected to play a significant role in post-oil economic production, facilitating the evolution to a green economy based on renewable and biological resources. Sustainable

DOI: 10.4018/978-1-6684-8879-9.ch021

bioeconomy strategies are consistent with the United Nations (UN) Sustainable Development Goals (SDGs) (OECD 2018).

The bioeconomy requires a unique knowledge of the sectors involved and their economic, social, and environmental metrics to be able to adapt the policy measures needed to achieve a sustainable circular economy based on renewable resources. The fact that it has already gained traction in numerous sectors and industries shows that it is possible to build great products, services, businesses, and careers in a much more sustainable way, using life sciences and biotechnology as a model for the future development of human society. (Bracco, S.et al., 2018)

The emerging bioeconomy is expected to reach a global dimension and be fundamentally guided by green development and environmental sustainability. The transition to a postoil economy has been widely recognized. More than 50 countries, such as European Union, United States, China, India or South Africa, have already developed sustainable bioeconomy strategies, driven by biotechnology-related research and development (Kuosmanen et al. 2020, Lier et al. 2018, FAO 2018, Bracco et al.2018).

China has joined the bioeconomy with the "Bioindustry Development Plan", for the sustainable development of society and technological development, promoting biotechnology and life sciences, and fostering the use of biological resources. applied to agriculture, science, and technology (Xu Zhang et al. 2022).

The Chinese Biocenomy Plan, the 14th Five-Year Plan for Bioeconomy Development- figure 1, is divided into two phases, the first from 2021-2025, focusing on innovation, and industrial development. Has strategic priorities for agriculture, energy, forestry, and the environment. Despite initial scepticism, China's bioeconomy has been steadily growing, with direct government support through China's National Development and Reform Commission (PRC 2018).

The second phase, from 2026-2035, aims to create an innovative and intelligent ecosystem, based on technological innovation and bioindustry with controlled bio risks, to position China as a leader in the global bioeconomy industry. (Xu Zhang et al. 2022)

Figure 1. 14th five-year plan for bioeconomy development
Source: Graphic outline of China's 14th Five-Year Bioeconomy Development Plan (Xu Zhang et al. 2022)