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Current Japan bamboo industries and domestic organizations, and the condition of international relationship

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Abstract

Japan has been one of the most important bamboo countries in the world. But its very skillful and traditional techniques and the advanced new technology are not sent to the world enough for some reasons. This paper introduces the current status of bamboo industries in Japan and the activity of two main bamboo organizations. Nowadays, in Japan, a lot of trials for new utilization of bamboo are continuing at the domestic level and some of them are exported to foreign countries. They are skillful and sometimes useful from the view of environmental mitigation. Some international organizations established by the Japanese government also carry out international activities. They are also noticeable when we consider the contribution to bamboo industries at the international level. At the domestic level, the Japan Bamboo Society and the Japan Bamboo Association are still active with a long history of about 50 years. Through these examples, the possibility of internationalization of them in Japan will be discussed.

Keywords Bamboo Industries in Japan; Internationalization; International Exchange

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1. Introduction

Japan has a long intimate relationship with bamboo and developed a culture worthy of being called "bamboo culture". Furthermore, this knowledge, experience, and technology have gathered global attention, prompting the Japanese government to actively promote traditional bamboo processing techniques and more through initiatives like talent exchange since the 1960s. However, in recent years, this may not be the case anymore. This is due to the fact that while activities emphasizing bamboo as a crucial resource have increased worldwide, Japan has not fully embraced internationalization. In this paper, I will consider the necessity of understanding the distribution of bamboo worldwide and how Japan can adapt its international interactions accordingly.

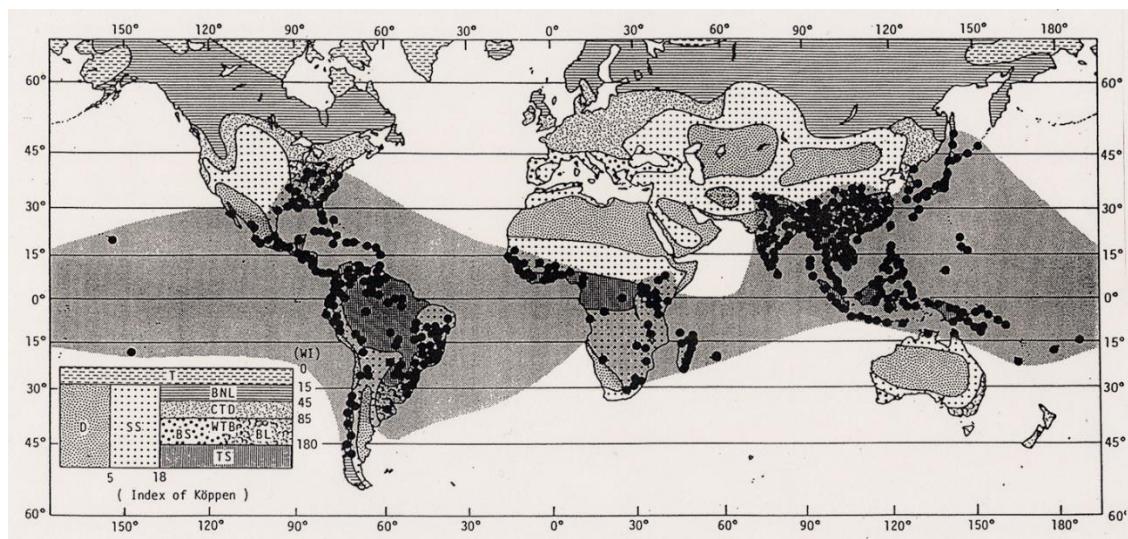


Figure 1. Bamboo distribution in the world (Map by Watanabe 1987)

1.1. Distribution of Bamboo in Temperate Regions and Recent World Trends in Bamboo

As is widely known, bamboo predominantly distributes in the humid tropical to subtropical regions of the world. Its presence in temperate zones is limited to Eastern Asia, western South America, and the south eastern parts of North America (Watanabe 1987, Fig. 1). In temperate regions, bamboo is believed to have evolved uniquely to adapt to climates with four seasons. In Japan, three-quarters of bamboo species are dwarf bamboo (Sasa), and from a global

perspective on the distribution of bamboo species, Japan falls on the northern fringe. In addition to these, temperate bamboo can also be found in high-altitude regions such as the Himalayas and the Andes. In these cool mountainous areas, the species of bamboo that appear change with altitude, resulting in a vertical distribution of bamboo. While the Japanese consider temperate bamboo that spreads by long rhizomes with a monopodial growth type as "normal" bamboo, they may not fully grasp that it is markedly different from tropical, clump-forming bamboo, with sympodial rhizome style. In worldwide scale, in regions where bamboo is abundant, it has been cherished as a valuable resource, leading to the formation of bamboo-based cultures. Conversely, people in Europe, where bamboo does not grow naturally, have favored bamboo as a cold-hardy, evergreen plant with pale green leaves not found in native species since the 19th century (Shibata 1997).

1.2. Leading Bamboo-Related Organizations in Japan and the Current State of Japan's International Bamboo Exchange.

In Japan, there are primarily two bamboo-related organizations: the Japan Bamboo Society (JBS) and the Japan Bamboo Association (JBA).

a) Japan Bamboo Society (JBS)

JBS was established in Kyoto in 1976 by the late Dr. Koichiro Ueda, a prominent figure in Japan's bamboo issues. Kyoto is one of the centers of bamboo culture in Japan, alongside Oita. JBS primarily consists of individuals who have deep connections to traditional culture related to bamboo and bamboo enthusiasts. They focus on the allure, characteristics, and utility of bamboo, which has been traditionally used in various ways. The organization facilitates information exchange on topics such as resource utilization, cultural uses, disaster prevention applications, and environmental mitigation functions of bamboo. Supported by traditional cultural organizations such as those associated with tea ceremony and flower arrangement, as well as regional businesses mainly in Kyoto, JBS began its activities. Initially, it had around

300 members, but at one point, the membership grew to around 6,000. Currently, it maintains a membership of approximately 2,400 individuals. JBS holds an annual general meeting, often accompanied by information exchange sessions. Every year, JBS donates bamboo plants to elementary and junior high schools across Japan, striving to promote the effective educational use of bamboo. JBS also publish three to four newsletters annually, with a total of 152 issues published to date. Additionally, it publishes the research journal "Bamboo Journal", which has reached 33 volumes. This journal features articles in both English and Japanese and was, until recently, the only research journal worldwide dedicated exclusively to bamboo.

b) Japan Bamboo Association (JBA)

JBA was established in 1960 as a nationwide organization, by uniting the previously existing regional organizations within Japan's bamboo industry. It is the only national umbrella organization representing Japan's bamboo industry. The late Dr. Koichiro Ueda played a significant role in the establishment of this organization. JBA's membership consists of individuals and organizations related to the bamboo industry, including those involved in bamboo timber production, bamboo shoot cultivation, and landscape architecture. At the time of its founding, bamboo was a crucial resource in Japan, and many organizations related to traditional bamboo industries, bamboo shoot production, landscaping, and more were members. JBA holds the annual "National Bamboo Conference", which is in its 64th year, faces an issue of having little change in its membership composition. In Japan, various venture companies are engaged in activities utilizing bamboo, as mentioned in the last chapter, but very few of them join the JBA. There is a need for a more open organizational approach. However, with the rapid decline in bamboo resource utilization following the flowering and death of important bamboo species, *Phyllostachys bambusoides* (Madake), the bamboo industry in Japan has continued to decline. Following this flowering event, Japan didn't attempt to restore the bamboo forest despite their recovery. In response to this decline, bamboo

resources in Japan have increasingly been supplemented by imports from other Asian countries, leading to significant changes in the industry's structure. At present, bamboo production has dwindled significantly, with production over the past decade being only around 1.2 million bundles (30,000 tons), which is approximately 9% of its peak production (Fig. 2). As a result, the number of bamboo harvesters has also decreased, making the supply of bamboo resources increasingly difficult. At the same time, although the bamboo forest area in Japan has shown a slight increase, the managed bamboo forest area continues to decline. Currently, there are efforts to revitalize the domestic bamboo industry in Japan, but there aren't many organizations that can envision internationalization. Additionally, the infrastructure for supplying domestic bamboo resources is gradually deteriorating, resulting in the pursuit of solutions for the efficient utilization of bamboo resources.

On the other hand, Japan engages in various international exchanges and activities from the perspective of forest resources and environmental conservation. However, apart from the two organizations mentioned above that lack international focus, there are organizations like the Japan International Cooperation Agency (JICA) and the Japan International Forestry Promotion and Cooperation Center (JIFPRO) that conduct international activities including bamboo. Nevertheless, these activities heavily emphasize Japanese support. This raises several issues, including the fact that these activities rarely seek information sources or technology providers from abroad and remain rooted in the outdated idea of exporting Japanese technology from 50 years ago. Furthermore, very few Japanese individuals actively participate in international activities like the World Bamboo Organization (WBO). Only two Japanese individuals have been selected as Bamboo Ambassadors by the WBO, and aside from them, only a few internationally renowned bamboo professionals such as Dr. Masatoshi Watanabe, who have received the Ueda Award from the WBO, and some skillful bamboo artists (Fig. 3) are known. There is a need for more proactive involvement from Japanese talent. Moreover,

despite repeated requests, the Ministry of Foreign Affairs has not allowed Japan to join the International Network for Bamboo and Rattan (INBAR) due to its policy of not recognizing INBAR as an international organization for the past 25 years.



Figure 3. Tanabe Chikuunsai's work "Heaven and Earth" (2012)
Photo by Tadayuki Minamoto, Masaki Museum 3 x 3 x 3 m
He is one of the most skillful bamboo artist in Japan.

When considering international bamboo exchanges, it is important to understand that Japanese bamboo enthusiasts are familiar with bamboo species like *Phyllostachys* species and *Pleioblastus* species, but they may not be aware of the characteristics of clump-forming bamboo species that grow in tropical regions, or they may lack opportunities to understand them. The shortage of young people with the initiative to go abroad may be attributed to a lack of proficiency in English or communication skills, which is also a problem. Furthermore, the lack of recognition at the government level regarding the necessity or importance of such activities is problematic. There are very few government officials who should be involved in these activities. For example, the Forestry Agency of Japan used to be active in the bamboo sector in a department for international cooperation. However, the current primary tasks of this department are related to international-level measures against illegal logging and the afforestation of fast-growing tree species, with little attention to native bamboo species in developing countries. In any case, Japan's most significant weakness lies in the absence of

international organizations engaging in bamboo-related activities on a global scale.

2. Japan's Lagging Bamboo International Exchange

It is a well-known fact that Japan is a pioneer in bamboo culture both domestically and internationally. However, with a few exceptions, its lack of influence has remained unchanged for the past 60 years. On the other hand, many developing countries, particularly those with bamboo as a natural resource, have been vigorously engaging in information gathering and international exchanges in recent years. They have been developing their bamboo industry through the accumulation of their own researches. Unfortunately, Japanese technology is rarely included in this process. Currently, Japan's overseas assistance does highlight bamboo processing technology, but it often fails to make significant international contributions. Japan sometimes becomes too fixated on its own technology, which is often outdated except in design, and this can limit its international impact.



Figure 4. Bamboo plantation by JICA project in Tripura, India



Figure 5. Production of trainee at Bamboo and Cane Development Institute, Agartala, Tripura, India

As an example, I introduce the assistance provided by JICA in the Tripura state of India as part of a concessional yen loan project that has been ongoing for more than ten years. Now this project is entering its second phase. The first phase involved creating bamboo plantations, with the hope of increasing local villagers' income through resource supply. However, I could see issues such as not fully recognizing local traditional techniques, a lack of bamboo craft skills, and marketing experts. Additionally, the growth and resource volume of the created bamboo plantations were not sufficient, and there might be a lack of understanding of bamboo

plantation management techniques (Fig. 4). Furthermore, while the Indian government provides technical guidance on bamboo processing in similar facilities, JICA seems primarily focused on creating industry and income sources. Moreover, the products produced in Indian government-led training centers often have superior design qualities (Fig. 5), highlighting the need for new ideas when considering Japan's international exchanges. The Indian government has been steadily promoting the bamboo industry as a national policy especially in the Northeastern states of India for over 20 years. Their technology is now highly advanced, and the results are becoming evident.

3. Conclusion: The potential and expectations of bamboo in Japan

Around the world, various uses of bamboo are being practiced, including the utilization of bamboo as a construction material, edible shoots, and for disaster mitigation. Many of these uses are based on a deep understanding of bamboo's properties, and the knowledge is being passed down through generations. Also in Japan, bamboo has long been recognized as a valuable plant. However, the current generation of Japanese is losing their knowledge of bamboo. In daily life, bamboo products are becoming scarce. In such a situation, deepening the Japanese understanding of bamboo seems difficult.

On the other hand, there is a glimmer of hope in Japan, especially among the younger generation. The current high school generation has grown up without knowing the Japan where bamboo was a common part of daily life, and they haven't had the opportunity to hear about it from their grandparents. However, when they seriously consider global environmental issues like climate change and plastic waste, they are starting to recognize the importance of bamboo. They are looking at bamboo as a potential solution for energy problems through the use of bamboo as woody biomass. They also view bamboo as a sustainable alternative to petroleum-based products, for example, in the production of baskets and sieves. They aren't aware that bamboo was a common daily item during their grandparents' generation. I often recommend

that they can start their activities by asking their grandparents about their experiences with bamboo in their younger years.



Figure 7. Steering wheel with antibacterial properties as a new bamboo product in Japan

(Source: <https://www.mirokutw.com/>)



Figure 8. Additive-free laundry detergent using bamboo extract as a new bamboo product in Japan

(Source: <https://ethicalbamboo.com/>)

Among the younger generation, there is a growing trend of entrepreneurs considering the use of bamboo in their ventures. Many of the products they are developing are intriguing. These include the production of bamboo-based plastics for space shuttles, trials for developing car bodies using bamboo nanofibers, the incorporation of bamboo in car interiors and steering wheels due to its strong antibacterial properties (Fig. 6), the development of new beverages using bamboo extracts, the additive-free laundry detergent using bamboo extract (Fig. 7), and the use of bamboo powder as livestock feed, among many others. These examples are expected to be introduced to the world soon. Promoting these new uses of bamboo resources in Japan will contribute to the revival of bamboo resources domestically and the rejuvenation of Japanese understanding of bamboo resources.

To consider how Japan can contribute international exchanges through bamboo, as mentioned above, there is a need to propose new uses for bamboo and promote its sustainable production within society. This initiative will not only help restore the dwindling knowledge and

experience of the Japanese people but also present Japan with the challenge of reevaluating bamboo as a valuable resource. Without this understanding, for Japan, international bamboo exchanges would be difficult.

Conflict of interest

Authors declare there is no conflict interest.

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