

**THREE-YEAR ACTION PLAN
FOR ACCELERATING THE DEVELOPMENT
OF THE BAMBOO AS A SUBSTITUTE FOR
PLASTIC (BASP) INDUSTRY IN CHINA**



International Bamboo and Rattan Organization (INBAR)

The International Bamboo and Rattan Organization (INBAR) is an intergovernmental organization that promotes environmentally sustainable development using bamboo and rattan.

Since its establishment in 1997, INBAR has been making a real difference to people and environments around the world. In the future, INBAR hopes to move further. Since 2015, INBAR has focused on helping countries integrate bamboo into their national sustainable development plans through four strategic areas: Policy shaping, representation and advocacy, knowledge sharing and learning, and action research and country support.

INBAR also uses its influence to advocate for bamboo and rattan across UN, international, national and regional platforms.

From nine founding members back in 1997, INBAR is now made up of 50 Member States (till the end of August, 2024) from across the world. In addition to its Secretariat Headquarters in China, INBAR has five Regional Offices in Cameroon, Ecuador, Ethiopia, Ghana, and India.

About this report

This report offers the English translation of the Three-Year Action Plan for Accelerating the Development of the Bamboo as a Substitute for Plastic (BASP) Industry in China.

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Tel: +86-10-6470 6161; Fax: +86-10-6470 2166

Email: info@inbar.int

www.inbar.int

International Bamboo and Rattan Organization
(INBAR)

PO Box 100102-86, Beijing 100102, P. R. China

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Bamboos are fast-growing and biodegradable biomass materials. Bamboo products are among the key plastic-substituting products. The Chinese government and the International Bamboo and Rattan Organization (INBAR) have jointly launched the Bamboo as a Substitute for Plastic (BASP) Initiative, aimed at deepening cooperation of the Global Development Initiative and providing an effective solution to reduce plastic pollution. As an emerging industry, the BASP industry is currently facing a series of problems, including limited scale and production capacity, comparatively higher costs, and lack of advanced technologies and equipment. This action plan is thus formulated to accelerate the development of the BASP industry.

I. General Requirements

(1) Guiding principles

The main guiding principles of this plan are the concepts and ideology of socialism with Chinese characteristics in the new era. Under the spirit of the 20th National Congress of the Communist Party of China, this plan is firmly established on the development philosophy of “Lucid water and lush mountains are invaluable assets,” also known as “Yinshan” philosophy. The guiding principles are: Focusing on building a BASP industry system, fostering the coordinated development of all elements across the entire chain, including cultivation of bamboo forests, processing of high value-adding bamboo products, bamboo product design and manufacture, and expansion of bamboo product market applications; improving the driving force, production capacity, and effectiveness of the BASP industry; promoting high-quality development; and contributing to curbing plastic pollution.

(2) Basic principles

Guiding facilitation to achieve a market-oriented BASP industry. Fully leveraging markets’ decisive role in resource allocation, guiding support will be provided to enhance the endogenous driving forces of the BASP industry and to explore high value-addition of BASP products. Relative government departments shall play a stronger role in coordination among sectors such as forestry, industry, commerce, cultural and innovation industries, etc., to create a favorable development environment.

Consistent promotion of scientific innovation in the BASP industry. In order to facilitate a demand-oriented industry, innovative sciences and technologies will be pooled, and related fundamental research and key technical research addressing common issues in the BASP industry will be fostered. Extension and application of the research results in the BASP industry will be promoted through refining the development models.

Consistent promotion of pilots in prioritized regions to facilitate orderly progress. The resource endowments and industrial development conditions of different regions shall be comprehensively considered while progressively pushing forward BASP industry development. Main development efforts will focus on major fields and scenarios. Regions with well-established industries and comparatively greater potential as well as stronger willingness will be selected to carry out pilot projects. The pilot experiences and development results shall be extended to other locations and regions gradually. The industry development shall advance step-by-step.

(3) Objectives

By 2025, the BASP industry system shall be preliminarily established, with further advanced product quality, variety, scale and profitability, and significantly increased market share of key products. The value-addition of main BASP products shall be increased by 20% compared with 2022, while the utilization rate of bamboo materials shall be raised by 20%.

II. Key Actions

(1) Improving technological innovation

Research and development of breakthrough technologies will be organized. Guides will be provided to bring up a number of national key laboratories in order to achieve breakthroughs in a number of key common technologies and major equipment. Selection of fine species and oriented breeding of superior germplasms will be carried out with intensified efforts. Cultivation of new bamboo species suitable for industrial productions of different types of BASP products will be carried out. Efforts in research and development of high value-addition BASP products will be strengthened, addressing the property shortages of natural bamboo materials. The development of advanced manufacturing equipment will be sped up in order to optimize the production processes and improve the mechanization level of bamboo harvesting, transportation and processing. Support will be provided to enterprises for increased investments in core technology research, development and transfer, fostering new BASP technologies and products. Qualified enterprises will be encouraged to access grants for national industrial design centers, national technology innovation model enterprises, and SMEs that use specialized and sophisticated technologies to produce novel and unique products. *(The National Development and Reform Commission, the Ministry of Science and Technology, the Ministry of Industry and Information Technology, the National Forestry and Grassland Administration, etc., are responsible according to their respective duties.)*

(2) Creating an ecosystem for BASP industry growth

Major bamboo-producing regions will be supported to develop scaled-up business entities such as household farms and cooperatives. Professionals will be organized in teams to provide comprehensive technical services to bamboo forest cultivation, management and harvesting. Major regions are also encouraged to expand the industrial chain from upstream to midstream, and to downstream covering “raw materials supply – processing – products – marketing,” at the same time cultivating a number of leading enterprises to accelerate the scaled-up and intensive production of BASP products. Circular economy development is encouraged; full-biomass utilization models will be promoted to strengthen the recycling of residues from bamboo processing. Comprehensive bamboo utilization technologies and equipment and their applications will be promoted. *(The National Development and Reform Commission, the Ministry of Industry and Information Technology, and the National Forestry and Grassland Administration, etc., are responsible according to their respective duties.)*

(3) Enhancing linkages between production and sales

Fora and dialogues among public and private sectors will be promoted, taking advantage of a

number of international events in China, such as the forum on “Promoting Green Consumption: Bamboo as a Substitute for Plastic” organized during the China International Consumer Products Expo. Dialogue platforms will be established to promote public and private cooperation and interactions between research institutes and enterprises to combine efforts in addressing plastic pollution in commercial circulation. Bamboo products and sales channel promotion activities will be carried out in major bamboo-producing regions. Product promotion activities will be carried out in major bamboo-producing regions to facilitate linkages between commercial circulation enterprises and bamboo enterprises in terms of sales and production as well as supply and demand. These activities include but are not limited to releasing product lists, demand lists, and signing agreements. Measures will be taken to lift up the green consumption market of bamboo and to promote green lifestyles and production. *(The Ministry of Commerce, the National Development and Reform Commission, and the National Forestry and Grassland Administration, etc., are responsible according to their respective duties.)*

(4) Promoting substitution in key scenarios

A Checklist of major BASP products will be released based on a comprehensive review of the development base and market demand. The Checklist will facilitate the accurate identification of the substitution scenarios, substitution actions, and improvement of the substitution ratio. Bamboo-based plastic-substituting products, such as shopping bags, stationaries, cutleries and furniture will be encouraged to be used in people’s daily life, as well as cultural tourism sectors. Bamboo winding composite materials, bamboo grid packing (for use in cooling tower), bamboo vehicle interiors, and bamboo packaging materials will be encouraged to be used in industrial production. Bamboo winding composite pressure pipes, bamboo grilles and bamboo panels will be encouraged in construction as substitutes for plastics. A national campaign on the exploration of effective and practical substitution scenarios will be carried out. *(The National Development and Reform Commission, the Ministry of Industry and Information Technology, the Ministry of Housing and Urban-Rural Development, the Ministry of Commerce, the Ministry of Culture and Tourism, the State Administration for Market Regulation, and the National Forestry and Grassland Administration, etc., are responsible according to their respective duties.)*

(5) Enhancing the leading roles of featured bamboo regions

National application and promotion bases for BASP products (5–10) will be established in selected regions with abundant bamboo resources and solid bamboo industrial foundation. A series of activities will be carried out to strengthen regional foundations for BASP development, including technological research and development, product standards formulation, and brand building. Priority will be given to explore and promote substitute products that are easily accepted by the public, generate positive effects, and show high market potential in public institutions, transportation, commerce, catering, accommodation, postal, courier services, and more. Best practices and typical cases will be summarized into advanced models that can be replicated and expanded elsewhere. *(Headed by the National Development and Reform Commission, the Ministry of Industry and Information Technology, the Ministry of Transport, the Ministry of Commerce, the Ministry of Culture and Tourism, the State Administration for Market Regulation, the National Forestry and Grassland Administration, the National Government Offices Administration, and the State Post Bureau, etc., are responsible according to their respective duties.)*

(6) Raising public awareness, advocating for BASP actions

Multiple methods, such as the comprehensive application of traditional and new media, will be applied to raise public awareness on BASP-related scientific knowledge, advocating for green production, lifestyle, and consumption patterns. All localities are encouraged to promote BASP actions in communities, business districts, and public institutions through various types of activities in order to raise wide awareness on the advantages of BASP products, popularize knowledge on the risks of environmental pollution caused by the improper use of plastic products, and guide the public to new life habits with reduced consumption of disposable plastic products and increased consumption of substitute products. *(Relevant departments are responsible according to their respective duties.)*

(7) International exchange and cooperation

Under the principles of the “Belt and Road” Initiative and cooperating with INBAR, support will be provided to countries with comparatively abundant bamboo resources to develop BASP industries, conduct research on BASP production and products, develop international brands, and enhance cooperation in production capacities. Chinese enterprises are encouraged to support the initiative by going global, taking full advantage of technological, equipment, processing, and talent strengths. China will support INBAR and other international organizations to carry out trainings and exchanges for specialized human resources as well as reinforce BASP-related standardization and certification systems to facilitate international trade. *(Headed by the National Forestry and Grassland Administration, The National Development and Reform Commission, the Ministry of Commerce, etc., are responsible according to their respective duties.)*

III. Safeguard Measures

(1) Improved legal regulations, standards, and certification systems

Revision to relevant laws and regulations will be urged to include the development of a bamboo-based circular economy. Construction of the technical standardization system for BASP products will be intensified through accelerating bamboo structural design standardization and further improving the standard system for bamboo cutlery products and other related products. These include appearance quality, basic physical and chemical properties, safety and comprehensive performance analysis, as well as inspection and testing methods. Increased efforts will be made to push forward international standardization processes. The same efforts will be made to implement certification for green products such as bamboo building materials, bamboo furniture and bamboo flooring, and all parties will be encouraged to adopt and use the certification results. *(The National Development and Reform Commission, the Ministry of Industry and Information Technology, the State Administration for Market Regulation, and the National Forestry and Grassland Administration, etc., are responsible according to their respective duties.)*

(2) Increased policy and institutional support

BASP product development, production, and application projects will be enlisted as encouraged projects for industrial structure adjustment. Existing funding channels will be coordinated to

support the construction of BASP application promotion bases. Local governments are allowed to include qualified bamboo forest cultivation projects into the scope of central government-financed silviculture and forest quality improvement policies. Financial service mechanisms will be improved to provide guidance to financial institutions to develop tailored financial products according to features of the BASP industry. BASP products will be included into the scope of government procurement, and efforts will be made to increase relative government procurement. All public sectors are encouraged to actively purchase BASP products. *(The National Development and Reform Commission, the Ministry of Finance, the People's Bank of China, and the National Government Offices Administration, etc., are responsible according to their respective duties.)*

(3) Role of industry societies given full play

Industry societies, standardization organizations and other relevant bodies are encouraged to give their roles full play in operational monitoring, surveys and studies, brand assessment, brand advocacy, standards identification, personnel training, etc. Guidance will be provided to BASP enterprises to take full advantage of various types of national policies to create a concerted and complete industrial chain. Various related societies will be encouraged to increase efforts in training domestic technical workers, skilled craftsmen, and enterprise executives to cultivate a group of backbone talents who are proficient in technologies, management and operations. *(Relevant departments are responsible according to their respective duties.)*

Annex: Checklist of Major Bamboo as a Substitute for Plastic Products (2023 edition)

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Bamboo as a Substitute for Plastic (BASP) refers to the process and activities of substituting plastic products with bamboo products. It mainly includes the complete substitution or partial substitution of plastic products with bamboo products and bamboo-based composite materials. BASP is of great significance for the full-chain governance of plastic pollution control, realization of ecological product values, facilitation of the achievement of the goals of carbon peaking and carbon neutrality, and advancing developments in line with the Beautiful China Initiative. The Checklist of Major Bamboo as a Substitute for Plastic Products (2023 edition) is identified to better advance BASP developments and for different regions and localities to carry out BASP product substitution activities in an orderly, steady way.

I. Daily necessities

1. Bamboo shells

To substitute plastic shells for casing of electronic products, clothing accessories with bamboo shells, for example, bamboo cell phone cases, bamboo speaker shells, bamboo buttons, etc.

2. Bamboo stationery

To substitute plastic stationary products and office supplies with corresponding bamboo products, such as bamboo pen holders, bamboo casing pens, bamboo mice, bamboo keyboards, etc.

3. Bamboo-made personal care products

To substitute plastic personal care products with corresponding bamboo-made products, such as bamboo-handled toothbrushes, bamboo cups, etc.

4. Bamboo housewares and furnishing

To substitute plastic housewares and furnishings with corresponding bamboo products, such as bamboo lamps, bamboo furniture, bamboo desks and chairs, bamboo storage boxes, bamboo shoe racks, etc.

5. Disposable bamboo cutleries

To substitute plastic cutleries in the catering industry with corresponding bamboo products, such as bamboo straws, bamboo fiber lunch boxes, bamboo chopsticks, bamboo knives, forks, and spoons, bamboo toothpicks, bamboo stirrers, etc.

6. Durable bamboo dining utensils

To substitute plastic dining utensils with bamboo products, such as bamboo bowls, bamboo plates, bamboo cutting boards, bamboo tea sets, etc.

7. Bamboo biodegradable bags

To substitute plastic bags commonly used in daily life with bamboo biodegradable bags.

II. Industrial products

8. Bamboo winding composite materials

To substitute plastic products used in constructions in municipalities, water conservancy,

transportation, housing, etc.

9. Bamboo grid packing

To substitute plastic grid packing used in cooling towers of power plants, steel mills, chemical plants, and other industries with bamboo packing.

10. Bamboo vehicle interior decoration products

To substitute plastic decoration products used in vehicles, such as cars, trains, and high-speed trains with corresponding bamboo interior decoration products.

11. Bamboo packaging materials

To substitute plastic packaging materials with bamboo-modular manufactured products, such as bamboo-made packaging bags and boxes, bamboo trays, bamboo fiber packaging cushioning materials, bamboo baskets, etc.

12. Bamboo flooring material

To substitute plastic flooring materials used in containers and other relative scenarios with bamboo flooring material.

III. Architecture and building materials

13. Bamboo winding composite pipelines

To substitute plastic pipes used in water conservancy, municipality construction, and telecommunications facilities with bamboo winding composite pipes, tunnels, etc.

14. Bamboo boards

To substitute plastic products used in architecture and building materials with various manufactured bamboo boards, such as flattened bamboo panels, bamboo scrimber, bamboo-wood composite boards for engineering structures, etc.

15. Bamboo decoration materials

To substitute plastic products used in architectural decoration with bamboo materials, such as bamboo floorboards, wall panels, floorings, doors, windows, partitions, etc.

16. Bamboo fiber composite materials

To substitute plastic products used in architecture, decoration, and furniture with bamboo fiber composites.

17. Bamboo grilles

To substitute plastic grilles used in agricultural shed frames, outdoor fencing, slope protection, soil stabilization, roadbed reinforcement, water conservancy facilities, and other fields with bamboo grilles.

Note: The products listed herein are subject to adjustment based on dynamic changes in the course of BASP development. Regions and relevant departments can identify local or industry checklists based on actual circumstances and in referring to this Checklist.



This is a translation of *Three-Year Action Plan for Accelerating the Development of the Bamboo as a Substitute for Plastic (BASP) Industry in China*.

The plan was translated by the International Bamboo and Rattan Organization, an intergovernmental development organization which promotes environmentally sustainable development using bamboo and rattan.