

**Aiming to realize a Biosociety and a Bio-based Economy
that Simultaneously Achieve Health, Safety, and
Harmony with Nature**

--Recommendation of b-Japan Plan--

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**Japan Association of Bioindustries Executives
JABEX**

Recommendations (Summary)

Japan is very well aware that the practical application and industrialization of biotechnology (BT) will be of decisive importance in the 21st century in improving public welfare, strengthening economic and industrial competitiveness, and achieving sustained development, and that its significance continues to grow in the midst of fierce international competition where time is key. Accordingly, realizing the world's most cutting-edge biosociety and bio-based economy (a society and economy that simultaneously achieve harmonization among health, security, and nature) by 2010 has been set forth as a major national objective, and the general public, industry, government, and academia should join forces in promptly designing and implementing a “National Comprehensive Strategy for Promoting the Practical Application and Industrialization of BT” (b-Japan Strategy).

In order to realize this biosociety, the Japan Association of Bioindustries Executives hereby submits, together with the main text of the report, the following recommendations.

1. Establish a BT Strategy Headquarters within the cabinet, and promptly design and implement a comprehensive “b-Japan Strategy” for the country as a whole, with strong leadership from the Prime Minister
2. Build the social infrastructure needed to support a biosociety
 - (1) Design and promotion of a comprehensive policy program for gaining public understanding and consensus
(Safety research and public relations, comprehension of safety and ethical issues, communication, education)
 - (2) Transverse research evaluation and organic cooperation in research for the effective utilization of bioscience-related budgets
(Bioscience Research Evaluation Committee, Bioscience (Life Science) Research Network)
 - (3) Establishment of a fast and efficient evaluation system in which the public has firm confidence
(“Pharmaceuticals, Food, and Environment Evaluation System”: Japanese version of FDA)
 - (4) Comprehensive plan to foster 1000 bioventure companies

(Making use of local vitality to form bioclusters featuring cooperation among local governments, industry, and academia)

3. Infrastructure for maintaining and improving health
 - (1) Establishment of seamless infrastructure for pharmaceuticals and medical care development at a world-class level, and introduction of a mixed public/private insurance system
 - (2) Promotion of health and nutrition science for the effective utilization of functional foods, review of evaluation systems and labeling standards (government promotion of fundamental research on safety that will lay the groundwork for evaluation)
 - (3) Creation of a comprehensive health information service network
4. Measures towards achieving a sustainable and comfortable society that utilizes biofunctions, Japan's strong suit
 - (1) Conversion of industrial structure through biomaterials and bioprocesses (biofactories)
 - (2) Local bioenergy supply from organic waste (designs for green biotowns)
 - (3) Establishment of research and safety infrastructure to foster environmental bioindustries

In conjunction with the implementation of these recommendations, bioindustries are prepared to meet the nation's expectations by doing their utmost, together with other parties concerned, to build a sound biosociety, convert to a 21st century-style BT-based industrial structure, and achieve sustained economic growth.

(Background of recommendations)

1. The most important issue now facing the nation is that of building a social and economic structure that can simultaneously achieve improved public welfare/QOL and sustained economic growth.

At present, the most important and pressing national issue is that of quickly switching over to a 21st century-style knowledge-based structure that makes sustained growth possible while at the same time improving the nation's QOL and achieving a symbiosis with nature.

2. The practical application and industrialization of BT offers enormous possibilities for resolving this national issue.

Three national interests that will be served by a biosociety achieved through the practical application and industrialization of BT:

- (1) Realization of a very healthy society

Ready-made medical care and other forms of highly effective medical treatment, improved QOL through the prevention of lifestyle-related illnesses via functional foods, extension of healthy lifespans, achievement of a clean and comfortable society in harmony with nature, etc.

- (2) Increased economic growth and job creation in Japan after structural reform

Creation of new industries and new hi-tech employment opportunities such as a new functional food industry based on human genome data, a health information industry, an environmental bioindustry, a bioresearch support industry, and bioventures; greater competitiveness and vigor through the introduction of BT into the chemical, machinery, textile, pulp/paper and other existing industries

- (3) The trump card in resolving the antinomic issues of overcoming global environmental problems while pursuing economic growth, and improving public health while addressing the problem of national health care costs

3. Obstructions to the realization of a sound 21st century-style biosociety

- (1) Lack of a comprehensive national strategy for promoting the practical application and industrialization of R&D results

The money budgeted for bio-related R&D has been substantially increased through the Millennium Project, the Japan Revitalization Plan, etc., and a national system for pursuing science and technology set up through the Council for Science and Technology Policy. Lacking, however, is a national

strategy that broadly encourages the practical application and industrialization of BT from the perspective of the general public and industry in terms of returning the results of research to the public and creating new industries and employment.

(2) Insufficient efforts made to further understanding and consensus among the Japanese public

BT is a technology that utilizes biostructures, and its introduction into society requires sufficient understanding and agreement among the general public on such issues as safety, ethics, and privacy. If this public understanding is not forthcoming, then BT will not be introduced into the society – regardless how substantial the sums invested in R&D and how spectacular the results achieved – and, in fact, to attempt to do so would be wrong. Thus far, there has not necessarily been sufficient effort made by the country as a whole with regard to this fundamental issue. As things stand now, it is quite possible that the public's unease with, and mistrust of, BT will grow in parallel with any progress made in R&D and, hence, a large-scale and comprehensive effort to avoid this should be set underway immediately.

(3) Practical application and industrialization hindered by inefficient controls and systems and lack of a “promotion infrastructure”

Building a sound biosociety requires that radical reforms be made to those wide-ranging and inefficient systems/structures that cut across multiple ministries, that a new framework be promptly constructed, and that the groundwork be laid for promoting a diversity of approaches to practical application and industrialization.

The problem here is that, because the scope of BT utilization and its repercussions are so broad, there are many ministries involved and many political issues where vested interests are at stake. Therefore, all parties concerned must come together under the strong leadership of the Prime Minister to address the issues that confront the nation.

(4) Pressing need to address time-sensitivity in the face of fierce international competition

Continuing efforts towards the practical application and industrialization of BT are being made worldwide in this post-genome age. The US already leads

the world, and Europe is working on a region-wide BT strategy, with greater competitiveness of the intra-regional economy and the creation of employment as trump cards. Japan cannot afford to fall a single step behind, and a rapid response is thus needed. It must be clearly recognized that the slightest lag at the start will mean a fatally large disparity at some point in the future, and the nation will pay a heavy price for this. When taking specific steps in this regard, however, Japan must avoid a narrow-mindedly introverted stance, and should instead cooperate with Europe, the US, and Asia as it internationalizes in this borderless age.

4. The importance of an approach backed by the whole country, and resolutions as an industry

The Council on Science and Technology Policy and the BT Strategy Headquarters will work together in directing efforts to realize a biosociety and a bio-based economy, and will develop a system by which a common approach can be implemented quickly, efficiently, and effectively. If this approach is implemented dynamically on a top-down basis by the country as a whole, Japan will likely be able – despite having one of the world’s most rapidly aging populations and confronted with some of the most severe global environmental problems – to achieve early on a biosociety that simultaneously achieves a harmonization of health, security, and nature, to promote the creation of new bioindustries and knowledge-intensive employment, and to contribute substantially to the growth of the Japanese economy revived through structural reform by the present cabinet.

In helping to implement the above recommendations and satisfy the expectations of the public, the industrial sector is prepared to do its utmost to realize a sound biosociety.