

Business for Sustainable Society Project (BSS)

1. Project theme and background

“Integrated studies for achieving a sustainable society via local society¹ reform and business model change.”

It is widely accepted that attaining sustainability at the local, national and global level will require significant transformation of the “mass-production, mass-consumption and mass-disposal” industrial economy. However, up to this point, Japan has only proposed immediate and essentially incremental actions to be taken by national/local governments, businesses², NPOs and local communities within the context of current industrial and social structures.

Incremental measures are important, but cannot be sufficient. This is illustrated by the case of greenhouse gas emissions, perhaps the broadest indicator of the environmental sustainability of society. Japan’s national greenhouse gas emissions have increased from 1990 levels, and Japan will find it extremely difficult to meet its Kyoto Protocol reduction target of 6% compared to 1990 levels. If incremental measures have difficulty attaining a 6% reduction, they will surely fall far short of the drastic reductions in greenhouse gas emissions (e.g. by 50%) thought to be necessary over the mid- and long-term to stabilize CO₂ concentration in the atmosphere.³

Clearly, in a society that emits CO₂ at sustainable levels, economic systems such as energy supply, material circulation and transportation would be vastly different from present systems. A basic principle for sustainability is that the local consumption of resources and choices of technologies must be strongly influenced by local availability and conditions; the “one size fits all” approach of mass production/mass consumption cannot always be compatible with sustainability needs at the local level. This implies that sustainability requires a shift towards appropriate local technology and local societies that are far more reliant on sustainable use of local resources, resulting in an economic structure in which large-scale and local technologies are far more in balance.

¹ The BSS project defines “local” areas as analogous to or smaller than a local government area. Local areas can be classified as follows: a) urban area (metropolitan area or industrial complex area), b) non-urban area (rural area of developed country), and c) under-developed area (rural area of developing country). BSS focuses on a) and b).

² The BSS project deals with a wide range of businesses from Small and Medium-sized Enterprises (SMEs) to Multi-national Enterprises (MNEs).

³ Some European countries perceive this issue to be a national commitment and have formulated plans to reduce greenhouse gas emissions to that level.

Transformation towards sustainable national and global societies thus has an essential *local* component, requiring both local implementation and local decision-making. A number of active movements exist at the local level in Japan for conducting fundamental review of the socio-economy, and planning and implementing innovative changes with the view to responding to global environmental constraints and achieving a society that is socially, economically and environmentally sustainable. The most notable characteristic of such activities is that they are often not led by national government, but are collaborative initiatives among various sectors: community members, NPOs, local governments and private sector entities.

Transformation toward sustainability has another critical, decentralized component: the development and adoption of new business models by the private sector as its voluntary action. The social and economic transformations required for sustainability present critical challenges and opportunities for the private sector; these transformations will not be successful unless the private sector can successfully implement business models that are both economically and environmentally sound.

Such “environmental business models” must accommodate and respond to the reality that a structural transformation is already ongoing in all wealthy industrial economies, including Japan. This is the growth in importance of services.⁴ Beginning in the mid-1980s, early scholars and commentators examining this trend speculated that a service-led economy has the potential to separate economic growth from growth in material and energy throughput in the economy. It seems clear, however, that this structural transformation is *not* automatically resulting in a “green” economy.⁵

Thus, if we are to achieve meaningful movement towards a truly sustainable future economy, we *must* find a way to make a service- and information-led economy a green economy. Put another way (and more specifically), we must find ways that services can change—for the better—the ways that

⁴ In the US, *White et al* note that: “Narrowly defined, the [service] sector’s relative contribution to U.S.GDP has increased by over 200% since 1950. Over the past decade, manufacturing employment has shrunk at an average annual rate of 0.3% while service employment has grown at an annual rate of 4.2%. These changes have created enormous opportunities for entrepreneurs and new national wealth on the one hand — and huge social costs attendant to the decline of traditional industries and challenges for public policy on the other.” (White, Stoughton & Feng. *Servicizing: The Quiet Transition to Extended Product Responsibility?* Tellus Institute, Boston: 1999.

⁵ There are at least two reasons for this. First, the service economy depends fundamentally on the industrial economy. Delivering health care services, for example, requires a large and sophisticated set of manufactured goods, and an extensive transportation network. Second, many of the fastest-growing, most dynamic service sectors require corresponding growth in the most environmentally problematic products. (e.g. IT hardware, vehicles, fuels, health care products)

products are made, used and disposed of.⁶

For this reason, Product Service Systems (PSSs)⁷ and allied service-centered business models⁸ are of particular interest, as *in principle*, they can have precisely this effect. The economic viability of such business models is likely to depend both on fundamental “success factors” (e.g., core competency, customer acceptance) and on national and local government policies, which are likely to have significant influence in incentivizing business model changes.

2. Objectives

Both society at the local level and the private sector have a critical need for information that will inform decision-making for and implementation of transformations towards sustainability. This is particularly true because the environmental constraints driving such transformation are expected to become more and more severe. Because sustainability issues are complex, information is most useful when presented in terms of *illustrative scenarios* focusing on “what to change”, “when to change”, “to what extent” and “how to change.” Such illustrative scenarios are in fact integrated policy proposals.

Global environmental constraints (especially CO₂) are expected to have a great influence on national and local society in terms of industrial, economic, as well as environmental policy. Similarly, activities conducted by local society and the company are closely related to socio-economic activities at the national and global level. Thus, in order for local society and companies to develop strategies, they require knowledge not just of the policy measures or models to be employed, but the timing and extent of future global environmental constraints.

The BSS project is therefore endeavouring to construct the knowledge structure depicted in Figure 1. Due to limited resources, the areas of emphasis will be the “business model” and “appropriate local technology⁹” areas, the policy issues associated with each, and the way to integrate research results in these areas and make them useful in strategy making.

Category	Items	Key questions
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⁶ Wording adapted from White, Stoughton & Feng.

⁷ Product Service System is a system that is provided as a marketable set of “products ” and ”services” and create value-added which fulfills customers’ needs. The term “servicizing” has been used to describe the situation in which a product service system results in the transition from selling a traditional “product in a box” to deriving profit and value-added from the service or function the product provides.

⁸ The scope of the business models research is detailed in the “outputs” section.

⁹ In this research, “appropriate local technology” means technologies which support greater reliance on local energy and material resources by local societies. The appropriate local technology includes intermediate technology and appropriate technology, and may be in contrast to large scale advanced technologies which have supported urban-industrial society.

Environmental & Socio-Economic Context (global & national)	Total CO ₂ (reduction, emission), total waste	When, and to what extent, does the context restrict local society and the company?
	Estimation of population, the price of natural resources, economic growth rate	
	Lifestyle changes	
Policy Context	Environmental, industrial and local development policy at global, national and local levels.	What kinds of policy can promote sustainability strategies of local society and the company?
Concrete and direct measures	Development and dissemination of large-scale advanced technology. (energy conservation technology, renewable energy technology)	To what extent can large-scale advanced technology solve environmental problems?
	Dissemination and systemization of appropriate local technology. (transportation, energy, housing, water treatment, disposition of municipal solid waste)	To what extent can appropriate local technology effect environmental conservation? What are the social and economic effects?
	Business model changes - Product service systems and allied business ("PSS plus") models - Community related business	To what extent can business model change effect environmental conservation? How does the cost structure change? What are the social effects?
Analytical methods	Indicators to evaluate policy and countermeasures.	Which indicators are appropriate for use by the BSS project? How are these to be calculated?

Figure 1. The knowledge structure under construction by the BSS project

3. Major outputs in three years

As a project which has been started in the third IGES strategic research phase, the first year of the BSS Project will focus on research to establish basic concepts for the BSS Project, the objective of which is to make policy proposals based on concrete scenarios for sustainable society. Specifically, the researchers will make studies of environmental business models and local community models that appear to have promise as mid-and-long-term strategies to reduce greenhouse gas emissions and to create a sound material-cycle society. They will also develop and deepen the basic concepts for these models for mutual understandings; design research approaches and set up outlines of research outputs.

In the second and third years, the researchers will carry out in-depth analysis of environmental business models and local community models and make efforts to improve the quality of outputs,

including development of scenarios with higher accuracy.

The BSS Project will develop sustainable local development visions/scenarios for a limited number of local communities in Japan. (Only a limited number of such community cases are possible due to limited research resources.) Agendas for action will be presented to the national and local governments, private enterprises and citizen groups. Similar scenarios for the other Asian countries will commence in earnest only in the fourth phase.

Major outputs planned by the BSS Project are described below. In addition to these outputs, related papers will be published.

3-1 Research on environmental business models

Environmentally friendly business models have been described in “Factor 4” and other publications. Recently, various initiatives on environmental business models have emerged. These include SusProNet, a researcher/industry network established under the EU’s Fifth Framework Programme (FP5) of funded research that “develops and exchanges expertise on design of product-service systems for sustainable competitive growth”¹⁰, as well as activities undertaken by UNEP and WBCSD.

The feasibility of their introduction in Japan and other Asian countries must be carefully investigated, building on the international scholarship and experience represented by these initiatives. In this context, policymakers in national and local governments have a significant need for case analyses that can help them make policies for promoting corporate voluntary introduction of environmental business models, creating a sound material-cycle society and taking countermeasures against global warming. Therefore, business model research efforts will be mainly directed toward analyzing the characteristics of *Japanese* PSS and related environmental business models that have the promise to reduce CO2 emissions and support recycling-oriented local economies, but which are not well-known or well-studied internationally. Research will focus on comparison of these business models with their counterparts and analogues in Western and other Asian countries.

Research scope: Specifically, and as described in section 1, the scope of the research is Product Service Systems (PSSs) and allied business models. We focus on three types of innovative business models in which services are central to the creation of value-added and/or competitive advantage, and in which the services may provide environmental or sustainability benefits:

- **Product-Service Systems**, narrowly defined. A PSS is “a marketable set of products and services capable of jointly fulfilling a user’s ‘need.’”¹¹ (Services in a PSS go beyond distribution to point-of-sale & typical warranty service. In a PSS, value-added and profit derive from the combination of product and service.)

¹⁰ SusProNet website, www.suspronet.org. 29 Sept 2004.

¹¹ Government of the Netherlands

- **Performance-based “pure” services** such as waste management, energy services, and logistics management. In these services, traditional compensation mechanisms (per ton waste hauled, per BTU used) are replaced by *performance-based compensation mechanisms* that give the service provider incentive to reduce the customer’s generation of waste or use of energy or other environmentally problematic goods or services. These services are *called PSSs by some researchers, but the lack of a product creates an awkward fit with the PSS definition*
- **Recycling or re-use based business models depending on the creation of a new service in the supply chain.** In these cases, the introduction of a collection or re-processing service at end-of-life allows a waste to be transformed to a new product.
- E.g., collection of food waste + composting = compost

We term this research scope “PSS plus.”

Relationship to sustainable society typology: As for the models of sustainable society conceived by the BSS Project, research and analysis will be conducted with emphasis on “PSS plus” models as promising environmental business models of the “urban/industrial type.” (Environmental business models of the “village type” will be studied to the extent possible, but are not the primary focus.)

Approach: The research is case-study based. Analysis of case studies will in part adapt the analytical method developed in PSS research carried out at the University of Cambridge “Implementation of Innovative Product-Service Systems in the Consumer Goods Industry” (Marcus Wong, 2004).¹² However, in contrast to Wong’s focus on business-to-consumer (“B2C”) models, we will address PSS applications throughout the supply chain, including business-to-business (“B2B”) applications.

For evaluation of these business models, the BSS Project will define its own analytical framework and methodology to support analysis of business model environmental performance and contribution to local sustainability, objective rating of cases, and comparison with prior studies. The framework and methodology will be used to identify the characteristics of environmental business models that are consistent with environmentally sound local development systems and technology systems, and to identify the “universal” and “local” factors that contribute to or limit their success. Factors of interest include the views of both the supply side (businesses) and the demand side (consumers), social infrastructures, institutions and customs. More detail is found in the methodology section, below.

Products :

3-1-1 Guidance materials which help companies introduce environmental business models

¹² Research description and results available at www.sustainablepss.org.

(PSS etc.)

Findings of the environmental business model research will be made publicly available in a manner that provides companies wishing to assess or implement environmental business models (PSS etc.) with easy access to research results in order to promote voluntary efforts by companies. In concrete terms, practical guidance materials such as database or introduction support tools that meets users' needs will be created with reference to those developed in the abovementioned research by Wong (2004).

Case analysis fact sheets prepared in the course of research will also be made publicly available, so companies, administrative officials and NGOs can easily get access to them.

3-1-2 Report on environmental business (PSS, etc) utilization and promotion measures for policymakers

The results of the above research efforts will be integrated for better understanding of policymakers about background and environmental benefits of environmental business models by way of introducing typical real-life examples of environmental businesses, describing environmental benefits which are expected to generate by introducing environmentally sound business models, and categorizing factors contributing to and limiting the success of these models. Such research outcome will be compiled into a report which also describes how to utilize and promote environmental business (e.g. PSS) not only for environmental policies like waste disposal but also for environment-related other policy areas such as in urban and transport policies. The report is expected to be useful for policymaking and NGO activity, especially paying due attention to introduction and dissemination in the Asia-pacific region.

3-2 Research on environmentally sound local development systems

3-2-1 Planning/management guidebooks for environmentally sound local development

Planning guidebooks for sustainable development have been issued for national governments by the Division for Sustainable Development of the UN Department of Economic and Social Affairs and for local governments by ICLEI (International Council of Local Environmental Initiatives). In some local communities, citizens, including architects and non-profit organizations, have formulated and published rules for sustainable local development. Some companies and organizations have introduced environmental management systems that are contributing to environmental load reduction. And there are energy service companies which attempt to reduce environmental impacts through environmental management at the local community level.

Existing technologies have played a significant role in supporting our current “mass production, mass consumption, mass disposal” society. To attain a sustainable society, a different technology system is needed. The BSS Project will categorize societies into three groups:

- (1) Developing society model
- (2) Environmentally sound society model
- (3) Urban/industrialized society model

The technology systems that support these society models will also be divided into three categories:

- (1) Technologies in harmony with nature
- (2) Appropriate local technologies (locally available intermediate technologies)
- (3) Large-scale advanced technologies.

Research efforts will centre on appropriate local technologies which are thought to gain more and more importance in the future.

Appropriate local technologies are often developed within and for a particular local context, with the result that they are often hardly commercialized and not disseminated widely. In order to overcome this problem, the BSS Project plans (1) to collect data on appropriate local technologies in a wide range of fields by taking full advantage of existing databases with the cooperation of non-profit organizations which possess the requisite technical information and by visiting environmentally sound communities in Japan and abroad; (2) to, investigate the requirements for the application of these technologies and their estimated environmental conservation effects; and (3) to identify the business potentials involved in it .

The BSS Project will concentrate research efforts on sustainable development of local communities in Japan and publish more concrete and systematic planning/management guidebooks. In this process, the natural and social attributes, cultural heritages and industrial infrastructures of individual local communities will be regarded as local resources, and how environmentally sound local development systems can be constructed utilizing local resources will be clarified. In addition, the Project will determine the methods of calculating typical sustainability indicators and show know-how about introduction of local currencies and local production for local consumption for the purpose of local economic independence. The methods and knowledge will be publicized in the form of comprehensive instruction manuals convenient for local governments, non-profit organizations and companies which are involved in sustainable local development.

These manuals will be used to encourage environmentally conscious local people to step up their efforts toward environmentally sound local development, and to guide other stakeholders like industrial decision makers, policy planner and other development partners in local communities to realize the benefits of appropriate local technologies—thus encouraging them to take the initiative in adopting and disseminating these technologies for a sustainable society. These manuals will be used to promote environmentally sound local development and transformation into sustainable local communities where local resources are locally reused and recycled. Also, the Project will submit policy proposals for sustainable local development to the national government.

3-3 New scenarios for environmentally sound society and BSS strategies

The final target in this aspect of the Project is to show, as quantitatively as possible, strategies for business and local community models which the national and local governments may adopt in order to attain the objective of “reducing fossil energy consumption by half by 2050,” a milestone for a more sustainable society. The Ministry of the Environment drew up three scenarios for sustainable

society to formulate such strategies. A major theme in this aspect of the Project is to work out a fourth scenario for environmentally sound society. The fourth scenario will include:

1. New business models centering on product service systems (PSS) and
2. New systems of environmentally sound technologies and local development

In order to see whether the above scenarios are effective or not, we will select several typical communities in Hyogo Prefecture (population 5.6 million, land area 8,392 km²)—a prefecture considered to typify Japan—and evaluate the scenarios quantitatively based on locally gathered information and real data with the cooperation of local stakeholders. The use of the scenarios tested in Hyogo Prefecture will be extended nationwide and CO₂ emissions as a major indicator for global warming in the coming years up to 2050 will be estimated using the scenarios in combination with the AIM (Asia-Pacific Integrated Model) to assess Japan’s sustainability. Furthermore, scenario element options such as technologies, institutions, business and lifestyle will be categorized and checked for consistency according to the AIM/Enduse model and their influences on economic activity will be quantitatively measured.

Whether the scenarios and strategies based on them are feasible in socioeconomic terms depends on how the global environment will change from now on and where the world economy and politics go in conjunction with it. For quantitative estimation of future change in the long term, the Project will use AIM/Material, an applied general equilibrium model designed for the Japanese environmental and economic systems, to forecast what will happen in the next five decades. At the moment, it is assumed that the first to third (Ministry of Environment) scenarios, which concern “extensions of existing systems and feasible technologies,” will be practicable for the society and economy in 2020 and the fourth scenario, which refers to “new developments of social and economic systems including significant change and ambitious environmentally sound technologies,” will be most feasible in 2050 onward.

4. Project design

4-1. Components of the project

The major components of the Project are research on business models and research on local community models. A component which supports mid-and-long-term quantitative analysis is added to develop scenarios. A sub-project leader for business models research and an advisor have been appointed to provide a well-organized research system that can handle this wide range of research themes.

Component 1: Research on environmental business models

The team in charge of this component focuses on business models with the promise to reduce GHG emissions and help create a sound material-cycle society. The team will develop guidance materials which are useful for companies to introduce environmental businesses (PSS etc), compile a

report on environmental business (PSS etc) utilisation and promotion measures for policymakers, and categorize business model options for scenarios.

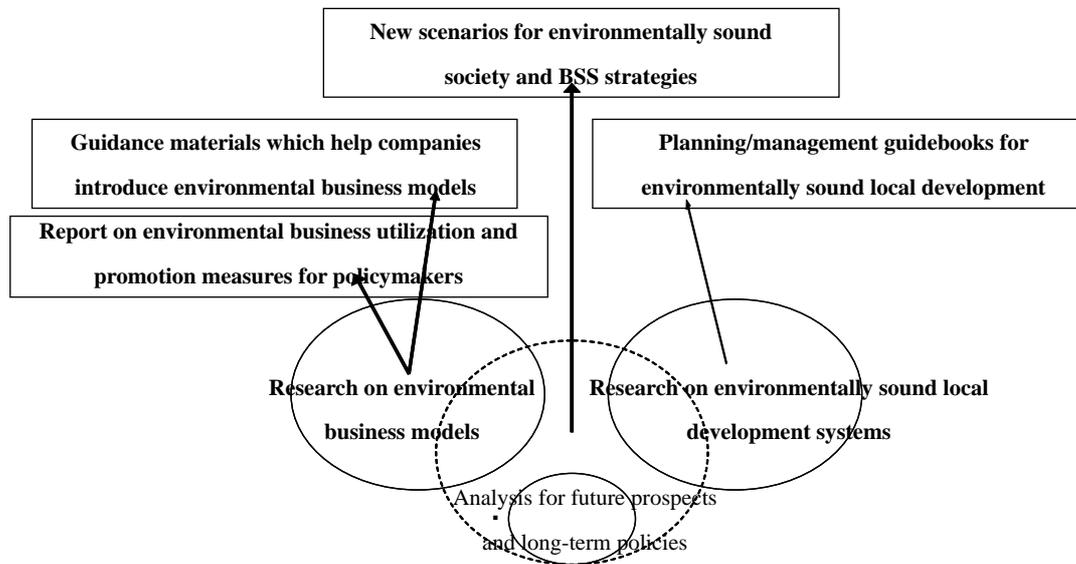
Component 2: Research on environmentally sound local development systems

This team focuses on local community models with the promise to address global warming problems and help create a sound material-cycle society. The team will publish environmentally-sound local society development/management guidebooks as mentioned earlier. In addition, they will categorize local community model options for scenarios and coordinate the whole scenario development process.

Component 3: Analysis for future prospects and long-term policies

This team will collaborate with the teams for Components 1 and 2 and make quantitative simulations using AIM/Material and AIM/Enduse.

The diagram depicts the relationship between the four major outputs (boxes) and the three components (circles). Of the five major outputs, “New Scenarios for Environmentally Sound Society and BSS Strategies” comes from the collaboration between the three components.



4-2. Methodology

4-2-1 Research on environmental business models

Research scope and an overview of the research approach are presented in the “Outputs” section, above. Specific research steps are presented below:

1. Define & test case study selection criteria
Criteria are required to select case studies for detailed analysis. Criteria are applied in a screening process. The criteria are that the case:
 - a. Must be within the scope of the research
 - b. Must have environmental significance
 - c. Should have local significance.
 - d. Should contribute to a diversity of markets, products, mechanisms, and supply chain positions in the case study set.
2. Define & test methodology for characterizing the business attributes of in-depth case studies
Methodology is based on “scoring” cases against a set of key attributes, and is based on (Wong, 2004). This will allow statistical analysis and comparison between cases. Metrics categories are:
 - 1) Basic information
 - Characteristics of customers & key markets
 - Seller company characteristics
 - PSS Attributes
 - 2) Drivers & barriers
 - Drivers & enabling factors for PSS development
 - Barriers to PSS development & implementation
 - 3) PSS performance (economic/non economic (environmental etc.))
3. Screen initial Japanese case universe & choose first in-depth case studies
4. Perform in-depth case studies to identify Japanese cases with significant sustainability potential
5. Complete the case study set with less successful cases and counterpart cases in the US/EU
6. Analysis of case study data (statistical & qualitative)
7. Study on specific issues related to business strategy and public policy which derive from step-6.
8. Development of the key outputs

The case studies will be supplemented with research targeted at (1) *demand-side* issues associated with these business models (e.g., the critical issue of consumer acceptance) and (2) the relevance of these business models to (and their impact on) social and local community systems: Towards this end, review of the Japanese and international literature may be supplemented with questionnaire

surveys administered to consumers, investigation of specific local community systems (relevance to social infrastructures, institutions, partnerships and so on) and studies of relevance to corporate social responsibility.

The Environmental Business Model Study Group¹³ will hold discussions in order to supplement the above researches and enhance their effectiveness. For the above researches to be carried out effectively, the researchers concerned will cooperate and exchange information with the Tellus Institute (U.S.), the Wuppertal Institute (Germany), Institute for Industrial Environmental Economics of Lund University (Sweden), Macquarie University (Australia), the Global Environment Forum-KANSAI (a local network organization in the Kansai area, Japan) and other related organizations such as in U.K., China, Korea. The researchers will also work together with the CP and LTP Projects of IGES on specific themes.

4-2-2 Research on environmentally sound local development systems

Along with review of Japanese and international literature and field studies of environmentally sound local development, several local communities (municipalities) will be selected for simulations of community development and urban infrastructure. Candidate communities will be selected from among the cities and intermediate and mountainous areas of Hyogo Prefecture. Community development and urban infrastructure management plans for these municipalities will be drawn up, taking the relationship among municipal, prefectural and national institutions into consideration.

Concretely, the researchers will investigate local resources including natural and social attributes, cultural heritages and local industries and conduct comprehensive analysis of urban infrastructures including energy supply, water supply and drainage systems, traffic and transportation systems, and information and communication systems. In addition, evaluations will be made of the feasibility of environmentally friendly technologies (with a particular focus on “softer” technologies such as small-scale hydroelectric power generation and local currencies). The findings obtained from these efforts will be compiled into manuals.

Furthermore, with a view to disseminating research findings throughout Asia, researchers specialized in local development will be invited from China, South Korea, India and other Asian countries to workshops held in Japan to expand and strengthen the BSS research network.

4-2-3 Scenarios

A socio-economic vision will be depicted that incorporates significant structural changes from today’s “business as usual” in terms of business models and local community models.. The linkage between the vision and AIM, a computable general equilibrium model, will be designed, and then scenarios will be developed through discussions based on the results of computation with AIM etc.

¹³ Mainly composed of private enterprises, organizations and researchers that support the Kansai Research Centre, the study group holds discussion meetings periodically. Sometimes, external lecturers are invited to meetings for exchange of opinions and review of research findings of the BSS Project.

4-3. Schedule

4-3-1 Outline of the three-year schedule

	Research on Environmental Business Models	Research on Environmentally Sound Local Development Systems	BSS Project General Activities
	<ul style="list-style-type: none"> •Guidance materials which help companies introduce environmental business models (PSS etc.) •Report on environmental business (PSS, etc) utilization and promotion measures for policymakers 	<ul style="list-style-type: none"> •Planning/Management Guidebook for Environmentally Sound Local Development 	<ul style="list-style-type: none"> •Scenarios •Outreach, etc.
1 st Year	Establishment of Research System, Research Concept Sharing among Researchers, and Research Planning		
	Collection & Analysis of Cases (Supply Side) Fact Sheets	Periodic Study Analysis of Relevance with the Demand Side and Social Infrastructures	Analysis of Existing Manuals/Guidebooks Manual/Guidebook Ver.1
2 nd Year	Revision of Major Output Composition and Detailed One-Year Plan		
	Categorization into Universal Success and Failure Factors	Group Meetings	Invitation of Researchers from Asian Countries (Workshop) Manual/Guidebook Ver.2
3 rd Year	Revision of Major Output Composition and Detailed One-Year Plan		
	Guidance materials which help companies introduce environmental business models, Report on environmental business utilization and promotion measures for policymakers Publication of Papers and Books	Invitation of Researchers from Asian Countries (Workshop)	Manual/Guidebook Ver.3
	Planning of Next-Phase Strategic Research		

4-3-2 FY2004 action plan (Sep. 2004 onward)

(1) Research on environmental business models

Month	Research Activities (Supply Side)	Dialogues with Stakeholders	Research Activities (Demand Side, Social & Local Systems)
Sep.	<ul style="list-style-type: none"> Analytical framework and Methodology Gathering PSS cases in Japan and case studies (success/failure factors) [Key factors: Eco-efficiency, contribution to local sustainability, comparison with the counterparts in Western countries]	•EBM Society (1 st Meeting)	<ul style="list-style-type: none"> Studies of prior cases (sharing cars etc.), consumer awareness, social infrastructures, etc. (comparison with the Western countries) Preparation and cooperation system for next int'l consumer awareness comparison
Oct.		•EBM Society (2 nd Meeting)	
Nov.			
Dec.		•EBM Society (3 rd Meeting)	
Jan.		•EBM Society (4 th Meeting)	
Feb.			
Mar.	Simple case database, fact sheets of case analysis and discussion papers		

(2) Research on environmentally sound local development systems

Month	Research Activities	
Sep.	Collection of Appropriate Local Technology Materials; Establishment of Analytical Framework	Analysis of Existing Local Planning Manuals etc.
Oct.		
Nov.	Research on Environmentally Sound Local Development Cases (in Japan and Overseas)	Simulations of Local Development Planning
Dec.		
Jan.	Planning/Management Guidebook for Environmentally Sound Development Ver.1	
Feb.		
Mar.	Research on Manual/Guidebook Revision	

(3) General activities of the BSS project

Month	Research Activities	Others
Sep.		
Oct.		
Nov.	(1) Review of Technological, Institutional, Behavior Options for Business/ Local Community Models	<ul style="list-style-type: none"> •IGES Int'l Workshop (Nov. 16, in Kobe)* •IGES Int'l Symposium (Nov. 17, in Kobe)
Dec.	(2) Quantitative Assessment with AIM	
Jan.		
Feb.	Scenarios Ver.1	•KRC Promotion Council
Mar.	Research on Revision of Scenarios	

*The information on environmental business models will be exchanged among invited lecturers and researchers

5. Dissemination of research results

5-1 Major outputs and dissemination method of research results for application by practitioners & decision-makers

Major research outputs of the BSS project in the third IGES research phase were stated previously in section 3. These outputs, along with other research accomplishments, will be disseminated to practitioners and decision-makers by employing approaches below:

(1) Guidance materials which help companies introduce environmental business models & Report on environmental business utilization and promotion measures for policymakers

These dissemination approaches will be taken for helping companies and NGOs with drawing up strategies and policymakers with formulating environmental policies from industrial and economical point of view. They will focus on Japanese cases, but will include comparative analysis with Western cases as well so as to be useful for application into other Asian countries.

In the course of developing these approaches, Study Group Meeting on Environmental Business Models will be held periodically. Research findings will be reported to stakeholders at the meeting, and information will be exchanged with related organizations in Japan and overseas. The BSS Project will be actively participating in international PSS networks such as any SusPronet successor, and will present research accomplishment at international workshops related to corporate sustainable strategies held in Asian countries.

The report/tools will be made available both in Japanese and English and downloadable from IGES Website to be dispersed to government and business corporations of Japan and overseas. They will be also made available in printed form so that they can be distributed at IGES and partner meetings and conferences.

(2) Planning/management guidebook for environmentally sound local development

The guidebook will be created targeting NPOs, local governments involved in building of eco-villages or transformation to sound material-cycle society, and also policymakers of local development. Case analysis will be made centering on Japanese cases, but those of other Asian nations such as China, Korea and India will be also included in the study with an aim of easier applications to other Asian countries.

Information will be exchanged with relevant parties in the process of conducting field study on environmentally sound local development in Japan and overseas. In an effort to further promote information exchange, international workshop will be organized annually with distinguished researchers of Asian countries invited. The BSS Project will present its research accomplishments at academic conferences and workshops on local development planning, and disseminate such research findings through various networks.

The manual/guidebook will be made available both in Japanese and English and downloadable from IGES Website to be dispersed to local government network of Japan and overseas. They will be

also made available in printed materials so that they can be distributed at various related events.

(3) New scenario for environmentally sound society

This scenario will be depicted widely for citizens, national/local government, companies, NPOs and any other parties related with intent to show vision and prospective direction for sustainable society of Japan. To this end, website and printed materials will be made available, and efforts for contribution to various magazines will be made.

The scenario will focus on local development cases in Hyogo Prefecture. Information will be provided through discussion with people of Hyogo Prefecture in the process of developing the scenario.

It will be made available both in Japanese and English and disseminated to parties engaged in local development, particularly national/local government and research institute of Asian countries.

5-2 Other methods for dissemination of research output

Academic research results will be posted on IGES website in the form of BSS Discussion Papers, and efforts will be made for contribution to academic journals and publishing books.

As for research findings of case studies targeting certain local area, they will be explained to people responsible for local development of the relevant case studies for promoting the application of case study results.

6. Measures to evaluate research quality

The BSS Project research team consists of the Project Leader (PL); the Sub-Project Leader (SPL); an Advisor; full-time researchers and part-time researchers from companies, universities and research institutes; and graduate students who serve as research assistants. Research activities are evaluated internally at each stage of the research via reporting of interim research results and discussion of these results within the research team. A Project Meeting is held monthly with participation of the research team, the KRC Director, Counsellor of KRC, and relevant representatives from the private sector. At the project meeting, progress of each research area is reported and discussed with the purpose of encouraging internal evaluation.

As for the external evaluation, research accomplishments will be presented at academic conferences and workshops. Research results will be also presented and critiques solicited at the following study/stakeholder meetings organized by the BSS project/KRC for more effective dissemination to public:

- Regular open study group meetings in which ordinary (??) companies and NPOs can participate will be organized. (One meeting every 1-2 months)
- The Kansai Research Centre Promotion Council, consisting of local governments, companies, NPOs and academic experts, will be convened 1-2 times per year.

7. Financial resources

In addition to its funding received from IGES, the BSS project has secured funding from Hyogo Prefecture and will endeavour to obtain further funding from external sources.

Funding source	Total Funding (1,000 yen/year)	Notes
Hyogo Prefectural Government (subsidy)	58,700	In addition to this subsidy, the Hyogo Prefectural Government provides office space and two staff members.

8. Human resources

A highly qualified and experienced Sub-Project Leader and an Advisor have been appointed to accommodate the wide range of BSS research ..

The present BSS research members are as follows:

Title	Name etc.	Notes
Project Leader	Masaaki NAITO	Professor emeritus of Kyoto University
Sub-Project Leader	Takashi GUNJIMA	Professor, Faculty of Economics, Doshisha University
Full-time Researcher	4 persons	One member is dispatched from Hyogo prefecture.
Part-time Researcher	9 persons	8 of which are from companies.
Advisor	Yuzuru MATSUOKA	Professor, Graduate School of Engineering, Kyoto University

*In addition to hosting researchers from overseas institutes and interns, students at relevant graduate schools will be employed as part-time research assistants.

In addition to the research members above, Prof. Katsuhiko Kokubu of the Graduate School of Business Administration, Kobe University is employed as an advisor to continue research on “Management tools and governance for corporate sustainability” conducted in the second strategic research phase at KRC. He is supported by additional part-time researchers.

Concerning the administrative section of KRC, Prof. Dr. Akihiro Amano, continuing from the last research phase, will be the director. Prof. Amano will be supported by a part-time advisor, by a full-time Head of General Affairs and Research Planning Division (on loan from Hyogo prefectural government), by a full-time General Affairs manager, and a full time Project Secretary.

Reference Materials

(Diagrams depicting the structure of the BSS research program & its conceptual approach)

Chart 1: Overview of the BSS project

Chart 2: Three types of technology and society

Chart 3: Transition of the level of environmental constraint and the attainable level of countermeasures

Chart 4: Research image of the socio-economic scenarios for global community and Asian countries

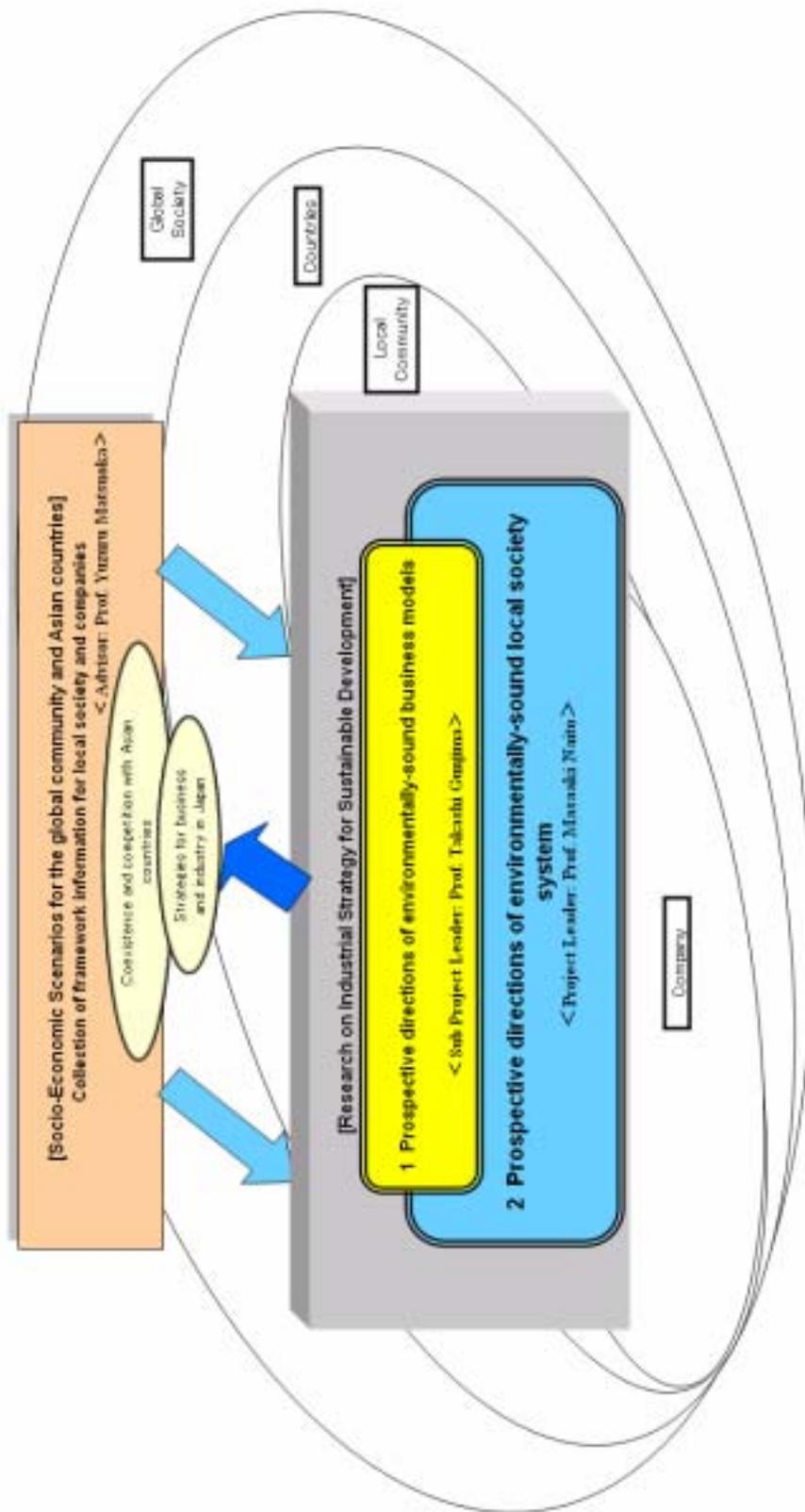
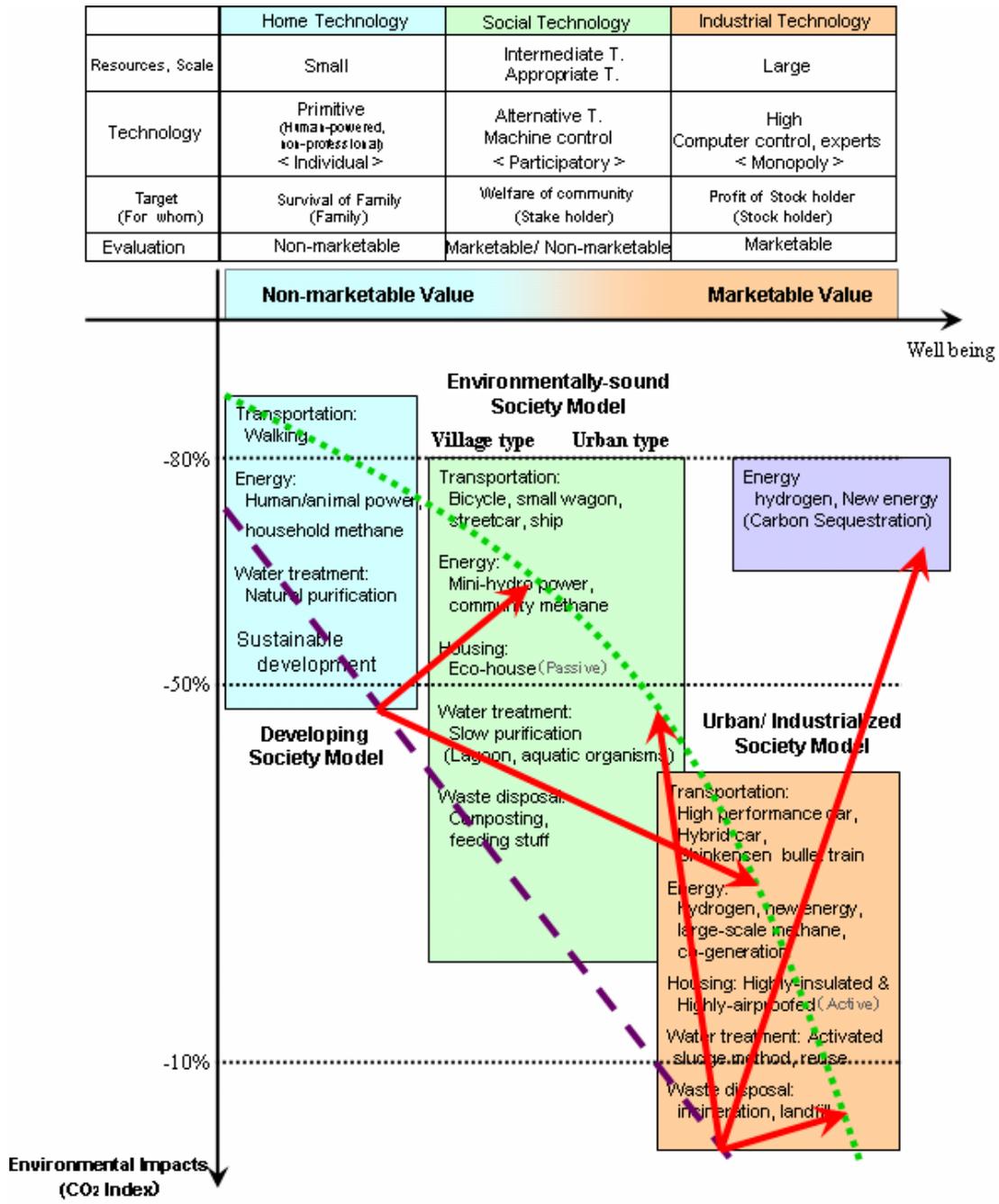


Chart 1: Overview of “Business and Sustainable Society Project”



Technology	Eco-efficiency	Policies and business strategies	Eco-efficiency	Policies and business strategies (PSS etc.)	Management efficiency
	Renewable resources		Renewable resources		Extensible resource
Society	Family-specific	Self-organizing community	Local-specific	Self-organizing community	Global common
	In-house production		Community production		Industrial production
	In-house use		User-driven		Supplier-driven
	Self-maintenance		Community-maintenance		Maintenance by supplier
	Natural circulation		Harmonization of natural/artificial		Artificial circulation
	Self-contained material balance (Individual)		Self-organized material balance (Regional)		Transitory
	Balance of making things		Balance of agriculture and industry		Extensive industrialization
	Independent, geographically dispersed		Geographically mixed (cities and villages)		Megalopolis
	Self-sustaining family		Self-sustaining community		Wide-range cooperation

Chart 2: Three Types of Technology and Society

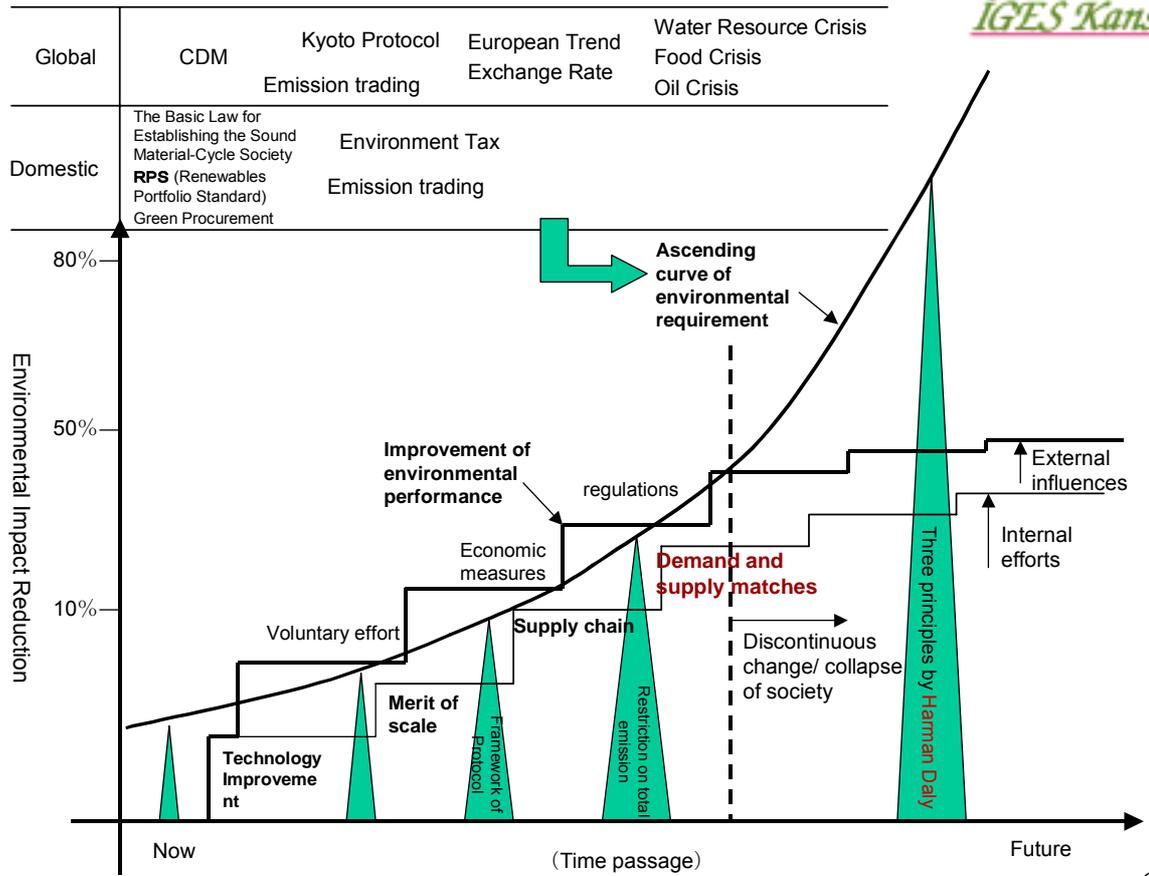


Chart 3. Transition of the Level of Environmental Constraints and the Level of Countermeasures

The research image about the social economic scenario based on the long-term view of global environment

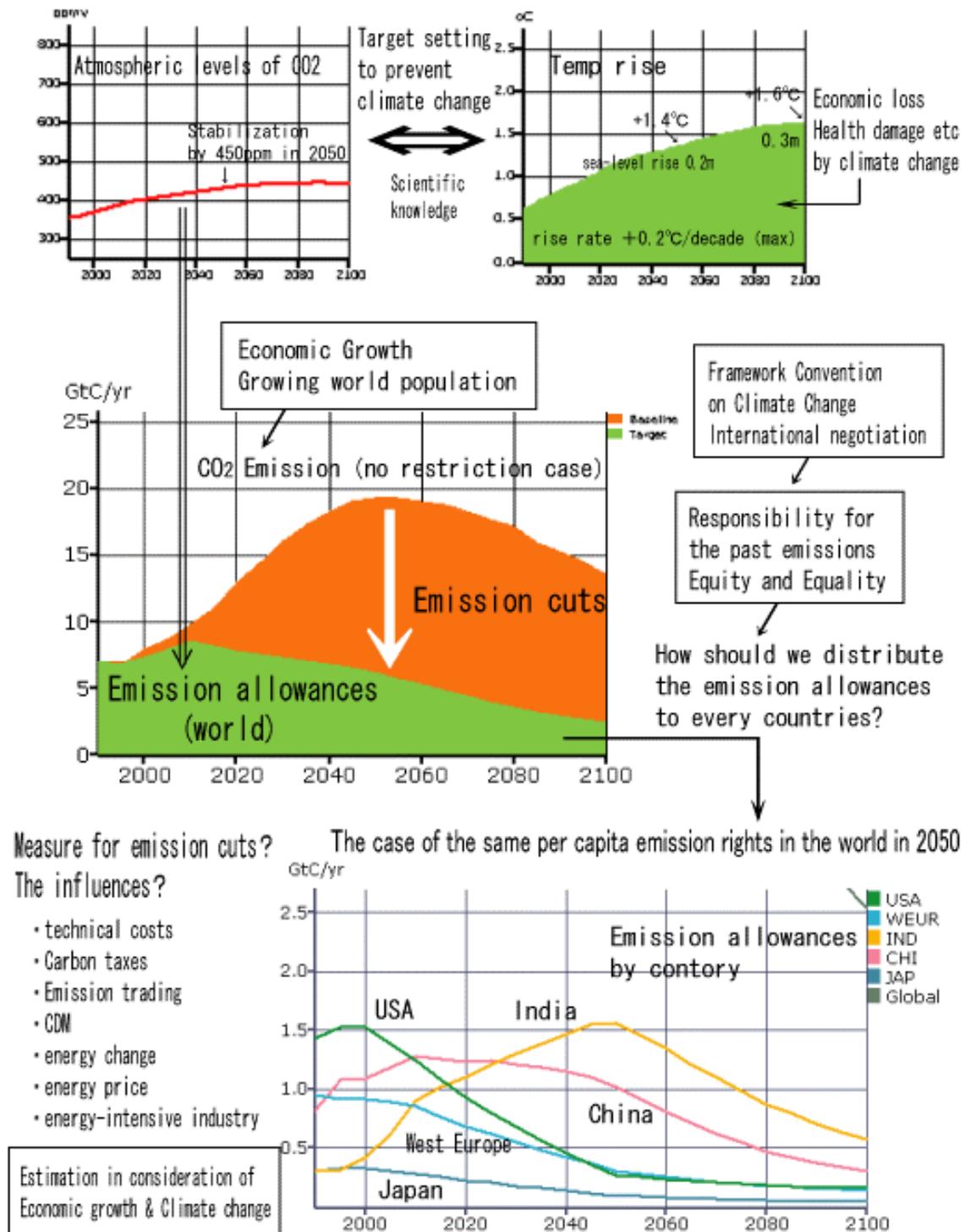


Chart 4. Research image of the socio-economic scenarios for global community and Asian countries