

# Expansion of Market Mechanisms that Sustain Ecosystem Services

## —Certification Systems to Promote Ecosystem Conservation in Daily Consumption—

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### 1 Introduction

Two major conventions were adopted at the United Nations Conference on Environment and Development (UNCED), also known as the Earth Summit, held in Rio de Janeiro, Brazil in June 1992: the United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD).<sup>[1]</sup> Essential discussion on relationship between human activity and the Earth began to take shape at this time.

The UNFCCC's goal is to stabilize the concentration of greenhouse gases in the atmosphere. Under this convention, the Kyoto Protocol was agreed at the 3<sup>rd</sup> session of the Conference of the Parties of the convention (COP3) in Kyoto in 1997. The protocol stipulated binding greenhouse gas emission cuts for developed countries.<sup>[2]</sup> Since then there has been a growing global interest in the problem of global warming and the general public has become aware of the importance of energy-saving and green initiatives. Concern over global warming's impact on our lives is becoming more widespread, as exemplified by companies that include environmental accounting as part of their performance reports, as well as Japan's Eco-points system coupled with subsidies and other policy measures to expand the market for energy-saving products.

Meanwhile, the CBD recognizes three levels of biodiversity – “ecosystems,” “species” and “genes” – with the purposes of conserving biodiversity, the sustainable use of its components and the fair

distribution of the benefits gained from the use of genetic resources.<sup>[3]</sup> Under this convention, in 1995 Japan formulated the National Biodiversity Strategy of Japan. Based on two later discussions concerning modifications to the strategy, Japan developed policies to promote conservation and sustainable use.<sup>[4]</sup> The Diet passed the Basic Act on Biodiversity in May 2008. In accordance with this law, the National Biodiversity Strategy of Japan 2010 was adopted by a cabinet decision as a concrete strategy (with roughly 720 specific measures and thirty-five numerical targets).

Although both Convention got started at the same time in this manner and were put together via similar decision-making bodies and discussion arrangements, one thing that has changed much in the present is the public's awareness level concerning global warming and biodiversity. According to the Survey on Environmentally Friendly Corporate Behaviors<sup>[5]</sup> released by the Ministry of the Environment in December 2010, 59.4% of companies that responded said their corporate management has “set policies and implemented on preventive measures” concerning global warming, while only an extremely low 17.2% of companies answered that conserving biodiversity was “closely related to business activity and is important.”

Against these, five bodies including the International Union for Conservation of Nature (IUCN) and Shell International Limited published “Building Biodiversity Business”<sup>[6]</sup> in 2008, which declares: “Action is urgently required to halt the loss of biodiversity, but governments and nongovernmental organizations (NGOs) cannot do it alone.” The document also

states that there is a pressing need for the business sector to participate in conservation efforts. Estimates put human activity's current ecological footprint, a measure of our impact on the environment, at over 40% of the Earth's biological capacity.<sup>[7]</sup> Policies that has a global sense of urgency utilizing market mechanisms are required.

This paper will provide an overview of ecosystem services and effective methods and scheme to promote the conservation of biodiversity and ecosystems.

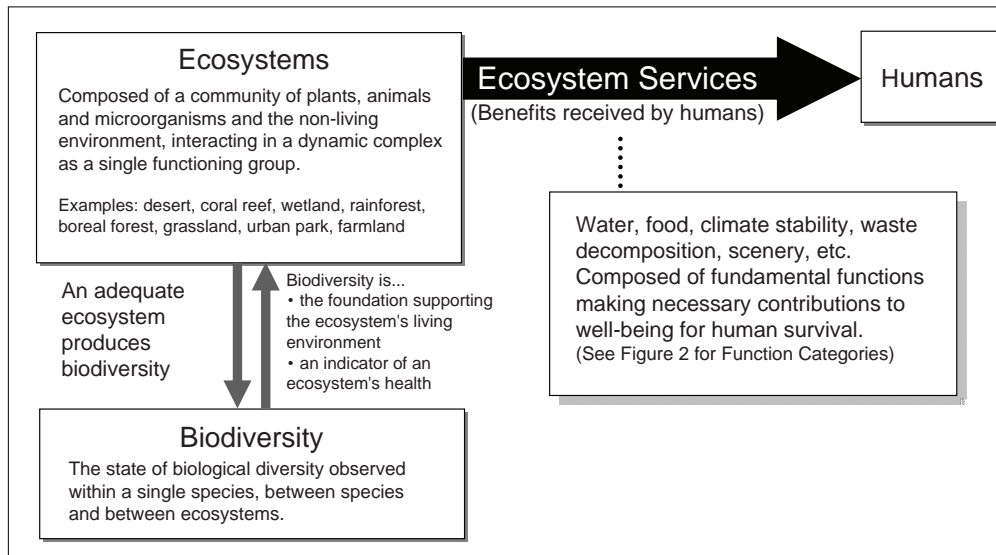
## 2 Overview of Ecosystem Service and Ecosystem Conservation

### 2-1 Definition of Ecosystem Service

In 2005, the Millennium Ecosystem Assessment (MA),<sup>[8]</sup> a global ecosystem assessment established in 2001 at the behest of the United Nations,

conceptualized relationship between humans and ecosystems/biodiversity that had until then been an ambiguous: "Ecosystem services' are the benefits provided by ecosystems to humans, which contribute to making human life be rich and comfortable" (see Figure 1). The MA defined four categories of ecosystem service functions and summarized their relationship to the lifestyles and benefits received by humans (see Figure 2). Demonstrating this relationship, the fact is that quite extensive things such as, of course, our everyday lives, as well as others ranging from components of public services to commercial activity in the private sector, depend on ecosystem services.

Biodiversity, the variety of living creatures, supports the biological environment that is a component of an ecosystem. An ecosystem and biodiversity are mutually dependent upon each other. Both conserving



**Figure 1 :** Concept of Ecosystem Services in the Millennium Ecosystem Assessment (2005)

Prepared by the STFC based on Reference<sup>[7-9]</sup>

<p><b>Provisioning Services</b> Provide goods that directly benefit humans. Often have clear monetary value. Includes timber and medicinal plants from forests, fish from seas, rivers, lakes and marshes, etc.</p>
<p><b>Regulating Services</b> Climate regulation by controlling carbon storage and local rainfall, pollutant removal by filtering air and water, protection from natural disasters such as landslides and strong coastal storms, etc.</p>
<p><b>Cultural Services</b> Scenery and coastal beauty that attracts tourists, psychological value assigned to certain ecosystems such as holy forests, etc.</p>
<p><b>Supporting Services</b> Do not provide direct benefits to humans, but are essential for ecosystem functions and indirectly support all other services. Includes soil formation, vegetation growth processes etc.</p>

**Figure 2 :** Ecosystem Service Functions

Prepared by the STFC based on Reference<sup>[7-9]</sup>

biodiversity and conserving ecosystems contribute to the sustainable use of ecosystem services. Although the main point of discussion in this paper is the conservation of ecosystem services (this paper's main theme) and the ecosystem functions that create them, this paper will use phrases such as "conservation of biodiversity" with, as necessary, descriptions concerning references cited, since this sort of expression is gradually penetrating into society more (see Chapter 1).

**2-2 Value of Ecosystem Services**

In recent years, researchers have been testing ways of quantitatively calculating the value of ecosystem services. A joint report entitled "The Economics of Ecosystems and Biodiversity" (TEEB) was released at the 10<sup>th</sup> Conference of the Parties to the Convention on Biodiversity (COP10) held in Nagoya in October 2010.<sup>[10]</sup> The study employed an economic approach to analyzing the value and effects of ecosystems and biodiversity and the report is regarded as similar to the earlier Stern Review that addressed global warming's effects on society in terms of economic loss. The report presents examples concerning the quantitative value of ecosystem services such as the following.

- The economic benefit of preventing greenhouse gas emissions through forest conservation: US\$3.7 trillion
- The economic loss of decreasing fishery resources: US\$50 billion a year

- The output of pollinated fruit and honey from bees: US\$200 million (Switzerland only)
- The market size of nature-dependent industries: US\$5 billion annual increase in natural foods and beverages; 20% annual increase in ecotourism (est.)

For example, the news that the sudden drop in the global bee population damaged fruit farmer's production is fresh in our mind.

This is how the discussion has turned to how connected ecosystem services are to our lives and what the quantitative value of ecosystem services is. "Biodiversity and business" is an especially important agenda item in discussions on conserving biodiversity and ecosystems. This conversation is based on the argument that ecosystem services' interconnection with industry and business activities is far-reaching.

**2-3 Overview of Corporate Awareness and Action**

Figure 3 is an extraction of results concerning corporate awareness and action for global warming prevention and biodiversity conservation from the survey on Environmentally Friendly Corporate Behaviors (most recently released in December 2010<sup>[10]</sup>) that the Ministry of the Environment has carried out since 1991. Responses on what place global warming prevention and biodiversity conservation have in corporate policy and business are shown chronologically. The number responding that they have "implemented measures" for global warming (the sum of ① and ②) has increased each year, reaching

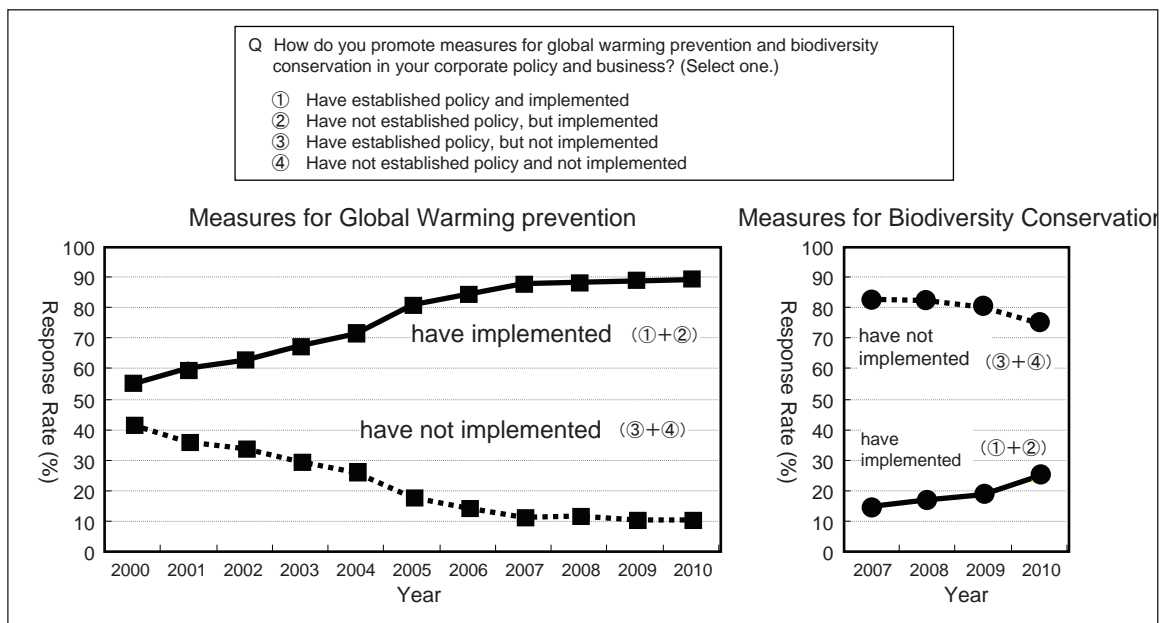


Figure 3 : Corporate Promotions on Global Warming and Biodiversity Conservation (MOE Survey Results)  
Prepared by the STFC based on Reference<sup>[11]</sup>

89% in 2010. Meanwhile, the number responding that they have “not implemented measures” to conserve biodiversity (the sum of ③ and ④) was still 75% in 2010, demonstrating a large gap between these and action to prevent global warming.

Figure 4 shows that the reason for this is that 66% of companies answered that biodiversity conservation “is not closely related to business activity ( ③ )” We can interpret this to mean that action to conserve biodiversity is not very necessary for their business.

**2-4 Obscure Relationship between Corporate Behavior and Ecosystem Services**

As shown by Figures 3 and 4, the reason why companies split into two groups who do and do not

place importance on biodiversity conservation is likely a difference in how far each company recognizes the extent of their responsibility for their corporate behavior. As an example, a company in the middle of the supply chain shown in Figure 5 that engages in “production, manufacturing, sales” often does not supply materials as upstream companies do or dispose of waste as downstream companies do. These tasks are usually performed by other companies in completely different industries. Such companies probably do not recognize a responsibility spanning the entire supply chain. Instead they would consider it the responsibility of other companies and industries that are directly connected to the ecosystem services corresponding to the upstream and downstream processes. This is why

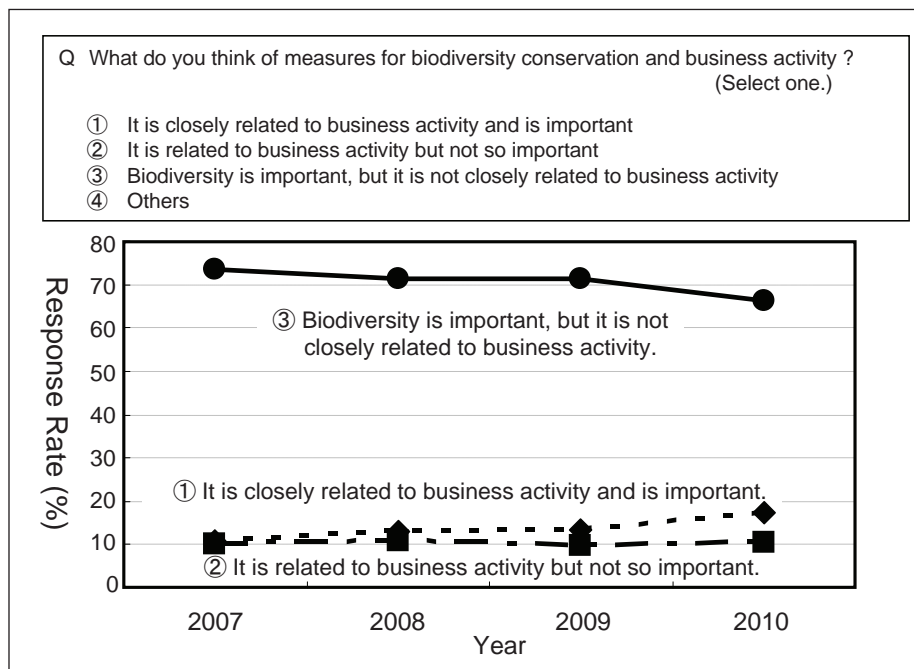


Figure 4 : Corporate Concern for Biodiversity Conservation (MOE Survey Results)

Prepared by the STFC based on Reference<sup>[11]</sup>

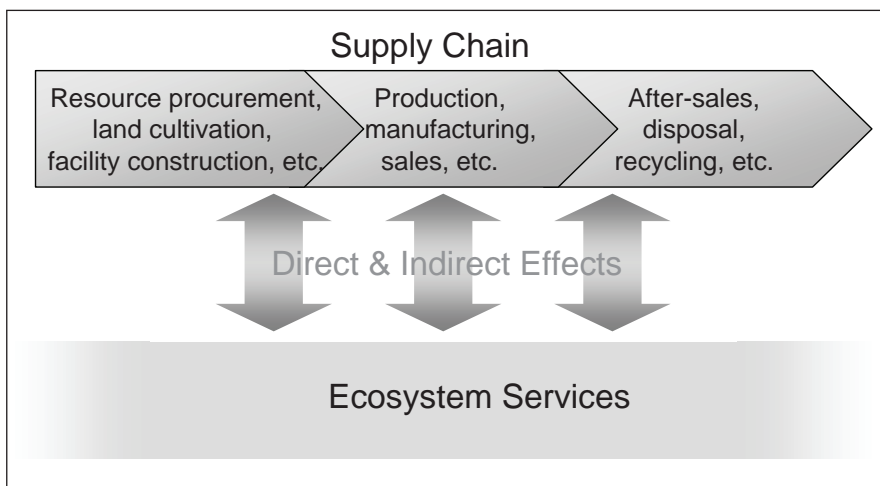


Figure 5 : Relationship between Business Supply Chains and Ecosystem Services

Prepared by the STFC

it is more difficult to feel the need for one's company to take action to conserve biodiversity and recognize that the company is connected to ecosystem services.

Meanwhile, it is also difficult to say that companies have a broad understanding of what they exactly should do to conserve biodiversity. In the case of combating global warming, "reducing greenhouse gases = reducing CO<sub>2</sub> = saving energy" is a relatively easy concept to understand. If the company takes action to conserve energy, then that will become its benefit by cutting costs. However, in many cases the company perceives no direct benefits, while targets of ecosystem conservation is connected with extensive human benefits as shown in Figures 1 and 2.

In consideration of the above, the main factor for why ecosystem and biodiversity conservation have not made advances in corporate behavior is probably that the relationship between corporate behavior and ecosystem services is difficult to recognize. Accordingly, an important task at hand is to establish the general tools or indicators that provide an overview of this relationship.

The following chapter provides examples of methods and schemes that have been tried out to resolve this issue.

### 3 | Activities on Corporate Ecosystem Conservation

#### 3-1 Examples of Recent Action

The following methods have been established to assess the impact on nature by business activity.

- Environmental impact assessments: LCA
- Environmental performance assessments: LEED, CASBEE, etc.
- Habitat assessments: HEP, JHEP, etc.

The above methods can be used to assess the impact of specific business operation processes –such as facility construction or land cultivation that an operation entails – on an ecosystem service. However, there is no exhaustive assessment approach anywhere in the world that can cover business activities in their entirety.

In March 2008, the World Business Council for Sustainable Development (WBCSD), the Meridian Institute, the World Resources Institute (WRI) and others published "The Corporate Ecosystem Services

Review," which proposed the Ecosystem Services Review (ESR) as a way to approach assessments of the relationship between business activity and ecosystem services in terms of both dependence and impact.<sup>[12]</sup> Since then, much corporate action today seeks to find solutions based on ESR frameworks. The following section gives examples of assessment frameworks observed in corporate business processes.

#### 3-1-1 Framework Example: Supply Chain-Based Impact Assessment Index

Fujitsu Limited is developing a framework to view the impact on ecosystem services based on its supply chain and products including land used for the business (see Figure 6). The company identified the components that impact ecosystem services by using existing an environmental impact assessment method (LCA) and habitat assessment (HEP) to calculate the impact level, and formulated an integrated index for the entire Fujitsu Group. Since ICT is the Fujitsu Group's major business, ICT technologies into gathering, analyzing, evaluating, managing and monitoring the necessary data for biodiversity conservation is investigating to apply on the integrated index.

#### 3-1-2 Framework Example: Relationship between Business Life Cycle and Ecosystem Services

Accor Group, a French hotel operator active in ninety countries, formulated guidelines for the sustainable use of biological resources in terms of its hotel business life cycle (see Figure 7). The guideline considers conservation activities from long term view; planning phase in land use for hotel, construction phase of hotel gardens, operational phase such as sightseeing and hotel food ingredients, and even closing phase of hotel business. Accor has been implementing sixty-five conservation items based on eight topics including water, energy, the ozone layer and biodiversity since they introduced the Hotel Environment Charter in 1998. As of 2007, 3,900 hotels (84% of whole Accor hotels) are taking action based on this charter.

#### 3-2 Guidelines Encouraging Corporate Conservation

In April 2011, the WBCSD released, in the form of a report, the Corporate Ecosystem Valuation to further assess the relationship between business activities and ecosystem services, in order to promote ESR

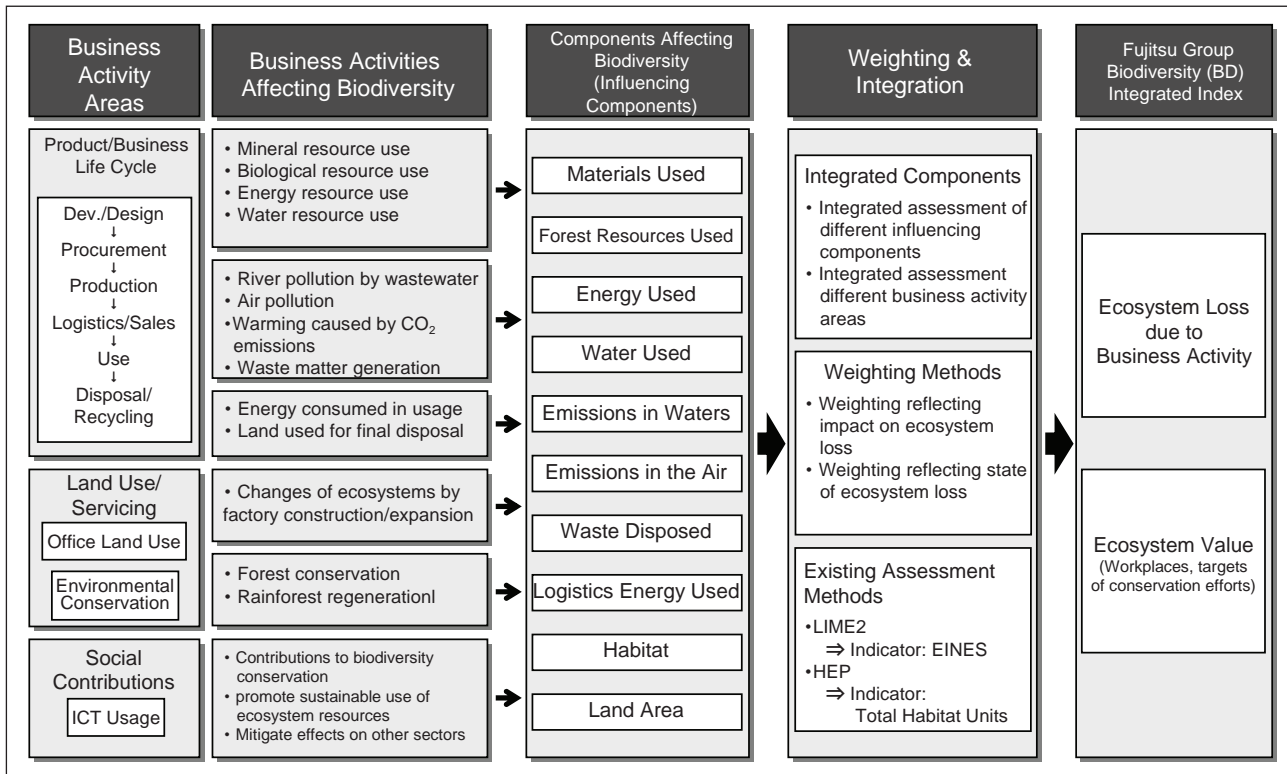


Figure 6 : Fujitsu Group Framework (Example)

Prepared by the STFC based on Reference<sup>[13]</sup>

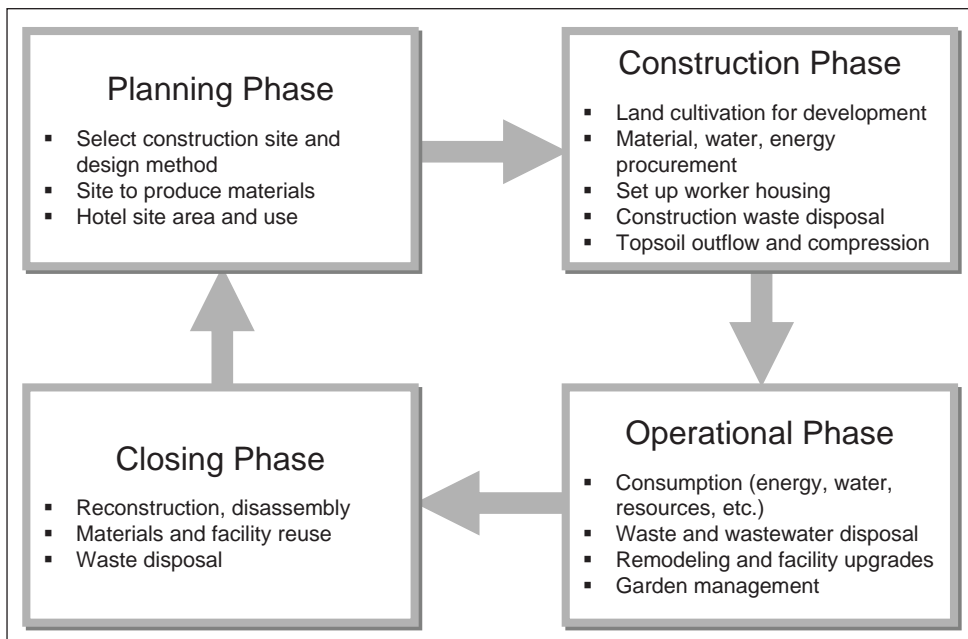


Figure 7 : Hotel Business Framework (Example)

Prepared by the STFC based on Reference<sup>[14]</sup>

(as proposed in March 2008).<sup>[15]</sup> The report provides detailed descriptions of the CEV method and steps to execute it. A notable point in the document is that the correlation, which is analyzed with dependency and impact of industry on ecosystem services for five industries, is indicated on a framework consisting of an industrial sector/ecosystem services matrix (see Figure 8). As many companies and businesses fit

within these five industrial sectors, those involved in starting up conservation activities can recognize the macro-relationships between business activities and ecosystem services. However, a more detailed examination requires reference to preceding cases as shown in Section 3-1.

The correlation in Figure 8 shows that all five industrial sectors depend on ecosystem services

somewhat and have an impact on them. Considering that the matrix covers not just single businesses but entire supply chains, including upstream and downstream processes, it signifies that these interconnections appear between various corporate activities and ecosystem services (see Section 2-2).

Green industries such as organic farming and ecotourism are industrial sectors that are particularly highly dependent upon ecosystem services. On the other hand, primary industries such as fishery, agriculture and forestry, and financial service industries such as banking and insurance, have an especially large impact on ecosystem services.

### 3-3 Corporate Promotion of Ecosystem Conservation in Global Supply Chains

British-Dutch company Unilever, which sells a vast array of foods, detergents and other daily necessities across the globe, announced a vision to “double the size of our business while reducing our overall environmental impact across our entire value chain.” The company is proactively developing a biodiversity conservation certification system to promote ecosystem conservation through Unilever's main products.<sup>[16]</sup> Many of the products the company

handles are dependent upon ecosystem services, and one of its defining characteristics in particular is that many of its raw materials are supplied by agriculture. Unilever, which were facing problems such as rainforest destruction by one of its traditional suppliers, palm tree orchards, formulated its own Sustainable Agricultural Practice Guidelines (now known as the Unilever Sustainable Agriculture Code) in the latter half of the 1990s. Since 2002, the company has put the guidelines into practice for five grain species and has worked to expand its certification system throughout the industry. Below are some typical raw materials involved in the certification system Unilever established (see Chapter 4 for certification system details).

#### (1) Palm Oil

Unilever, a founding member of the Roundtable on Sustainable Palm Oil (RSPO)<sup>[17]</sup> established in 2004, has pulled the general industry along in a transition to sustainable palm oil. In 2009, Unilever makes 15% of purchases from producers with the company's GreenPalm certificates. Unilever has set the goal of having 100% of its palm oil supplied by producers employing sustainable farming methods by 2015.

Ecosystem Services (Excl. supporting services) (Examples)		Biodiversity dependent industries (fishing, agriculture, forestry)		Large "footprint" industries (mining, oil and gas, construction)		Manufacturing & processing (chemicals, ICT, consumer products)		"Green" enterprises (organic farming, ecotourism)		Financial services (banking, insurance & other financial intermediaries)	
		Depend	Impact	Depend	Impact	Depend	Impact	Depend	Impact	Depend	Impact
Provisioning Services	Food	●	●	○	●	●	●	●	○	●	●
	Timber & fibers	●	●	●	●	●	●	●	○	●	●
	Freshwater	●	●	●	●	●	●	●	○	●	●
	Genetic/ Pharmaceutical resources	●	●	○	○	●	●	●	○	●	●
Regulating Services	Climate & air quality regulation	●	●	●	●	●	●	●	○	●	●
	Water regulation & purification	●	●	●	●	●	●	●	○	●	●
	Pollination	●	●	—	○	○	○	●	●	●	●
	Natural hazard regulation	●	●	●	○	●	○	●	○	●	●
Cultural Services	Recreation & tourism	○	●	—	●	—	○	●	●	●	●
	Aesthetic/ non-use values	○	●	—	●	—	○	●	●	○	●
	Spiritual values	○	●	—	●	—	○	●	●	○	●

●: Moderate to Major relevance ○: Minor relevance —: Not relevant

Figure 8 : Analysis of Correlation between Industrial Sectors and Ecosystem Services (from WBCSD-CEV)

Prepared by the STFC based on Reference<sup>[15]</sup>

**(2) Tea**

In 2009, Unilever purchases 15% of its black tea from Rainforest Alliance (RA) Certified<sup>[18]</sup> tea farms. The company has set the goal of having 100% of its black tea for teabags supplied by tea farms employing sustainable farming methods by 2015.

**(3) Seafood**

In 1996, Unilever partnered with the World Wildlife Fund (WWF) to establish the Marine Stewardship Council (MSC)<sup>[19]</sup> and began certifying seafood.

**4 Certification Systems to Promote Ecosystem Conservation in Supply Chains**

**4-1 Distribution of Ecosystem-Friendly Certified Products**

As explained by the examples in Section 3-3, distribution of certified products is an effective means to promote ecosystem conservation in global supply chains by utilizing market mechanisms (see Figure 9). This approach is based on the products with certification label qualified by conservation activities for biodiversity and ecosystems, and is also utilized as part of a company’s marketing or corporate social responsibility (CSR). Figure 9 is the case applied with a particularly strong connection to ecosystem services in the upstream processes from Figure 5. In current certification systems, method of ecosystem conservation implemented when delivering resources in upstream processes is general.

The basic concepts of a certification system are as

below.

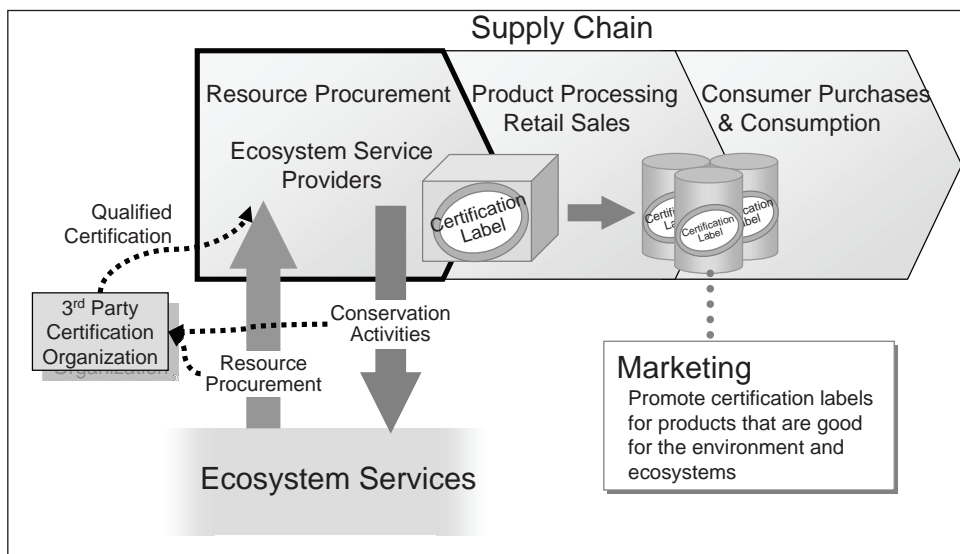
1. Certification labels are given for ecosystem-friendly products that are qualified with an assessment/certification by an examining authority to judge whether the products meet criteria prescribed by a third-party certification body.
2. Consumers understand that a certification label shows a good product for the environment or ecosystems and selectively purchase certified products.
3. Expanding sales volume of products encourages ecosystem conservation relevant to ecosystem service functions.

Furthermore, since certified products also provide traceability from upstream to the downstream processes, they have been regarded as safer products recently, thus their added value is increasing.

The main industries in which certification systems are spreading at present are the primary industries of forestry, fishery and agriculture. Figure 10 shows typical examples of certification labels and certification organizations.

**(1) Forestry**

The Forest Stewardship Council (FSC)<sup>[20]</sup> was founded in 1993 by international NGOs and companies involved in forestry with the purpose of solving deforestation problems and increasing the economic and social value of forests. FSC-certified products are distributed worldwide on an extremely large scale and are very well known. It has become a



**Figure 9 : Market Mechanism-based Ecosystem Conservation Methods**

Prepared by the STFC



model for many other certification bodies and systems established later. The Sustainable Green Ecosystem Council (SGEC)<sup>[21]</sup> is a Japanese organization that gives certifications based on the state of domestic forests.

## (2) Fishery

The MSC is a seafood certification body established in 1996 by Unilever and the WWF (see Section 3-3), said to be done with the FSC model. There exist over 5,000 products worldwide carrying the MSC certification label. Marine Eco-Label (MEL) Japan<sup>22</sup> is an organization promoted by the Japan Fisheries Association certifying seafood products that are good for Japanese marine resources and ecosystems.

## (3) Agriculture

The RA is a certification body established in 1987 to protect the rights and social conditions of agricultural labor and local communities, in addition to ecosystem conservation by the agricultural industry. The RA-certified products totally include more than just products, it has also certified 640,000 hectares of forest, 690,000 hectares of small, family-run farms, as well as associations and plantations in more than 70 countries.

This is how international certification systems in the forestry, fishing and agriculture industries have spread and become models for others. These systems will

likely expand further to new regions, countries and economic zone. However, internationally uniformed certification standards do not necessarily suit the conditions and customs in every country. Certification systems require glocalization to follow international certification criteria that make up the de facto standard while adapting to the circumstances of each country. Meanwhile, we must avoid creating excessive kinds of certification labels so that consumers will not confuse.

## 4-2 Certification Systems to be improved in the future

### 4-2-1 Industrial Product Applications

Manufactured product seems to be typical area where certification systems have not advanced yet regardless of the widespread use

There are various stages in the lifecycle of an industrial product that affect the environment in many ways: material mining/delivery (upstream processes), production, sales and disposal (downstream processes). The Life Cycle Assessment (LCA), an environmental impact assessment method developed to quantitatively and objectively calculate future environmental impact, is a general-purpose tool that is also an international standard as ISO 14040-14043. One can use this method to calculate things such as utilization efficiency of energy, resources and materials and the impact of substances released over the entire life

Industry	Certification label	Certification organization name	Certification base
Forestry	FSC	Forest Stewardship Council 20)	World
	SGEC	Sustainable Green Ecosystem Council 21)	Japan
	SFI	The Sustainable Forestry Initiative 24)	USA
	CSA-SFM	The Canadian Standards Association - Sustainable Forest Management 25)	Canada
	PEFC	Programme for the Endorsement of Forest Certification Schemes 26)	Europe
Fishery	MSC	Marine Stewardship Council 19)	World
	ASC	Aquaculture Stewardship Council 23)	World
	MEL Japan	Marine Eco-Label Japan 22)	Japan
Agriculture	RA	Rainforest Alliance 18)	World
	Good Inside	Good Inside 27)	World
	4C	Common Code for the Coffee Community Association 28)	World
	RSPO	Roundtable on Sustainable Palm Oil 17)	World
	RTRS (Preparatory phase)	Round Table on Responsible Soy Association 29)	World

Figure 10 : Certification Labels and Certification Organizations (Examples)Methods

Prepared by the STFC based on Reference<sup>[17-29]</sup>

cycle into the atmosphere, water and soil. It can also be used to acquire a product's environmental impact certification from a third-party organization.

In an environmental impact assessment using the LCA method, the atmosphere, water and soil in particular are ecosystem services categorized as regulating or support services (see Figure 2). Accordingly, using the LCA method to reduce manufactures' environmental impact level consequently leads to ecosystem conservation. Applying LCA method into CEV method have implemented as one means of executing the CEV method of evaluating the relationship between business activity and ecosystem services (see Figure 8). However, this integration is not simple and common. It is expected that this methodology improvement enables manufactures to add certification conserving biodiversity and ecosystem. It is also expected that systemization based on ecosystem conservation index so that consumers will not confuse with CO<sub>2</sub> footprint. In order to establish comprehensive evaluation method combined with LCA method and CEV method, immediate methodology development is required by gathering various experts on LCA, ecosystem conservation and biodiversity conservation from academia and research institute. Of course, it is essential to train experts versed in the LCA and CEV methods, as well as detailed information on inventory (assessed items) and simulation logic. Industrial organizations and other key players involved with manufactured goods need to promote investigative projects while training experts.

#### *4-2-2 Service Industry Applications*

It is conceivable that the service industry, which handles the sale of various products, could provide packaged certification services that are good for conserving biodiversity and ecosystem conservation. For example, the restaurant store offering menus used at least a certain amount of existing certified distributed products (agricultural produce, seafood, etc.), is qualified with "ecosystem conservation-certified service store" certification label. Consumers get a new channel for purchasing value-added services from service industry businesses. In addition to the existing distribution channels by which stores purchase certified products. Popularizing certified products, this could spread to even more diverse consumer segments because of knowing

and remembering the significance of many different products with certified labels in each industry, they could just remember one packaged certification service. A clear example is the hotel service discussed in Sub-Section 3-1-2. Packaged certification services could be an area of growth, having the potential to become a new guarantee of safety and a contributor to stimulating the primary, secondary and tertiary sectors of the economy.

When setting up certification systems such as packaged services that bring benefits on a wide range of stakeholders, it is preferable for industry groups and academic societies to implement referencing international NGO's past experiences. In the hotel business, for example, proposing concrete projects to examine would be basic roles for industry groups and academic societies

Moreover, it is particularly effective in packaged services, including the industrial product applications discussed in Sub-Section 4-2-1, for economic experts with specialties such as market structure analysis, business analysis and environmental management to clarify the social external costs (the social costs that cannot be resolved by market mechanisms) and benefits on ecosystem conservation due to ecosystem services based on market mechanisms.

The role of the media is also important for promoting discussion on ecosystem services and for encouraging social participation for the sake of popularization and raising public awareness.

## 5 | Conclusion

This paper has explained the concept of ecosystem services and presented examples of certification systems as one effective means of sustaining them. Market mechanisms within daily consumption, by which companies on the supply side provide certification systems for biodiversity and ecosystem conservation and consumers on the demand side selectively purchase those certified products, are an extremely effective way to foster awareness in the form of active participation in conservation throughout society, in addition to the rapid global spread of conservation. Japan in particular, which is heavily dependent on the overseas provision of many daily necessities such as food, at the same time imports many ecosystem services. Thus, we need an international perspective of our responsibility to

conserve ecosystems on a global level.

According to the results of “The 9<sup>th</sup> Science and Technology Foresight – Contribution of Science and Technology to Future Society – The 9<sup>th</sup> Delphi Survey” executed by NISTEP, a “comprehensive landscape evaluation taking the value of biodiversity into account during the environment assessment process” is predicted by 2025, and “market economy methods including mitigation banking (biodiversity offset banking) that offsets the environmental load on urban areas by the rehabilitation and maintenance of natural resources in rural areas” by 2026.<sup>30</sup> Contributing to conserving the Earth’s environment and ecosystems will probably be one of many restraints on humanity in the foreseeable future.

Another thing that ecosystem conservation certification labels correspond to traceability requirements for more secure society. An advanced global market model in regions and economic zone actively embraced certification systems, is the image of future vigorous society. In the service industry sectors with high added value including manufactures that are Japan's advantage, encouraging certification distribution leads to realize next-generation environmentally-friendly market mechanisms. It is expected that companies that have not addressed the relevance of ecosystems much before, as well as government agencies, take actions and efforts forward-looking as described in this paper.

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