Let's Study Biodiversity!

(L S B)

- Conservation of ecosystem services and biodiversity, the foundation of our lives and economy -

The Biodiversity Working Group,
The 4 Electrical and Electronic Industry Associations

September 2016

LSB: Let's Study Biodiversity!

The Biodiversity Working Group of the 4 Electrical and Electronic Industry Associations has compiled some educational material to help deepen company employees' knowledge of biodiversity conservation and promote business activities which take biodiversity into consideration.

We hope companies which plan to raise awareness of biodiversity will use it as educational material for introduction training for their employees.

Examples of how to use the tool

- Pick out and use elements situation by situation.
- Use the tool as in-house and external presentation material.
- Explain to environmental personnel what specifically can be done.
- Use the tool as material for local events.

Precautions Regarding Use

This file is provided by the Biodiversity Working Group of the 4 Electrical and Electronic Industry Associations on the assumption that it will be used in-house and in events which your company is involved in.

Therefore, it is prohibited to publicize this file, for example by releasing it on the Internet.

Furthermore, when citing figures and tables used in this file, where the reference sources are stated, please check with the reference sources.
In all other cases, use the elements together with the caption, "Reference: The Biodiversity Working Group, the 4 Electrical and Electronic Industry Associations: LSB."

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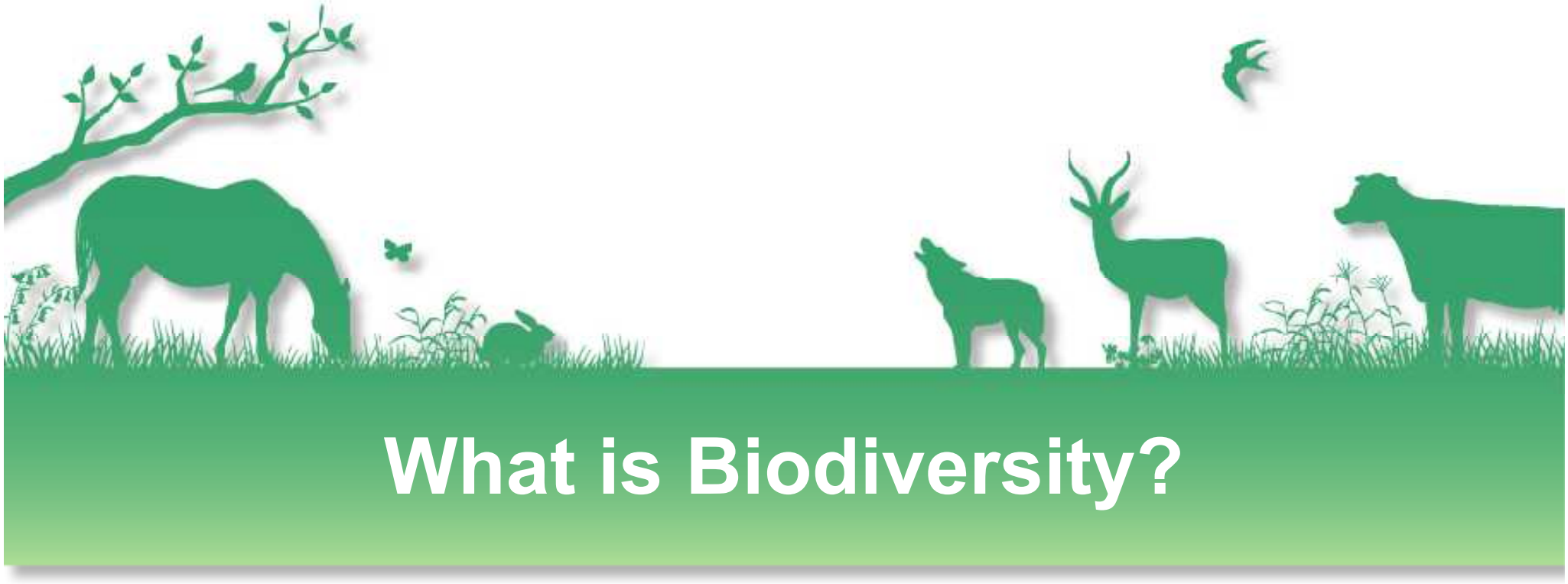
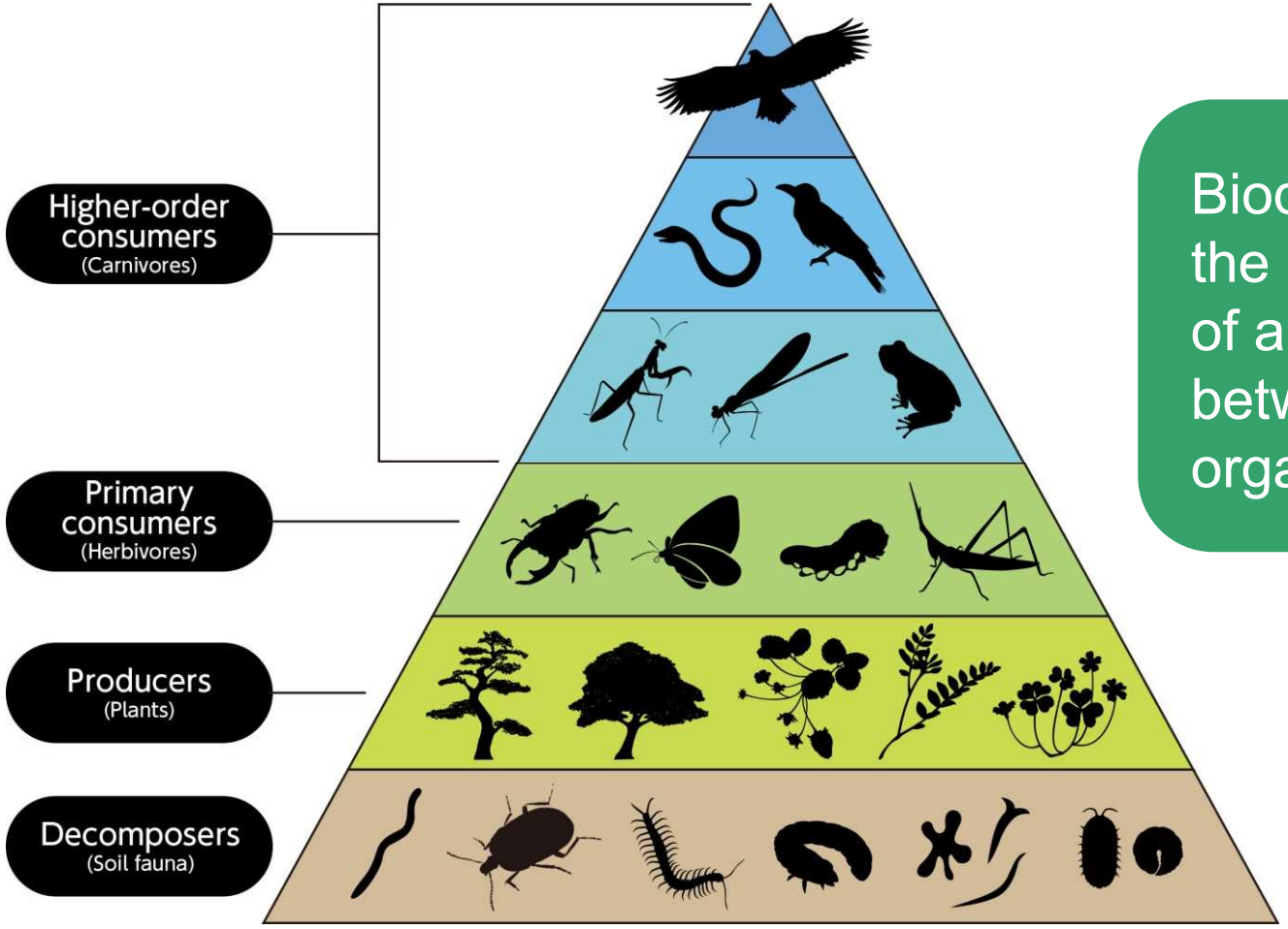


What is Biodiversity?

What is Biodiversity?



Biodiversity means the rich individuality of and connection between living organisms

- The current diversity of life has been created over the course of 4 billion years, since the birth of life on Earth.
- As represented by the "food chain," there are many connections between all the various kinds of living organisms on Earth, and these connections are maintained while keeping a close balance.
- Biodiversity is an indicator of the richness of life on Earth, and at the same time, something which brings us humans a variety of benefits.

What is Biodiversity?

- All living organisms have their own individuality, and as they go about their lives, they support each other directly and indirectly.
- Biodiversity has 3 levels of diversity.

Diversity of ecosystems

There are various types of natural environments, such as forests, satoyama, rivers, marshes and coral reefs

Diversity of species

There are various kinds of living organisms, from animals and plants to microorganisms such as bacteria

Diversity of genes

There is individuality of form and ecology even within the same species, through the possession of different genes.

The definition of “biodiversity” in the Convention on Biological Diversity adopted in the United Nations Conference on Environment and Development (held in 1992 in Rio de Janeiro): The variability among living organisms from all sources; this includes diversity within species, between species and of ecosystems.

Reference: Biodiversity website, Ministry of the Environment, Government of Japan

The connection between the 3 Levels of Diversity

Diversity of ecosystems



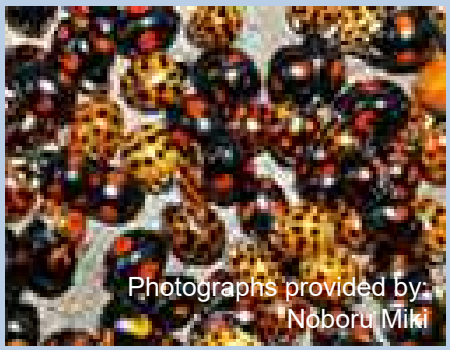
Even in a given ecosystem (e.g. a satoyama), there are various kinds of living organisms (species).

Diversity of species



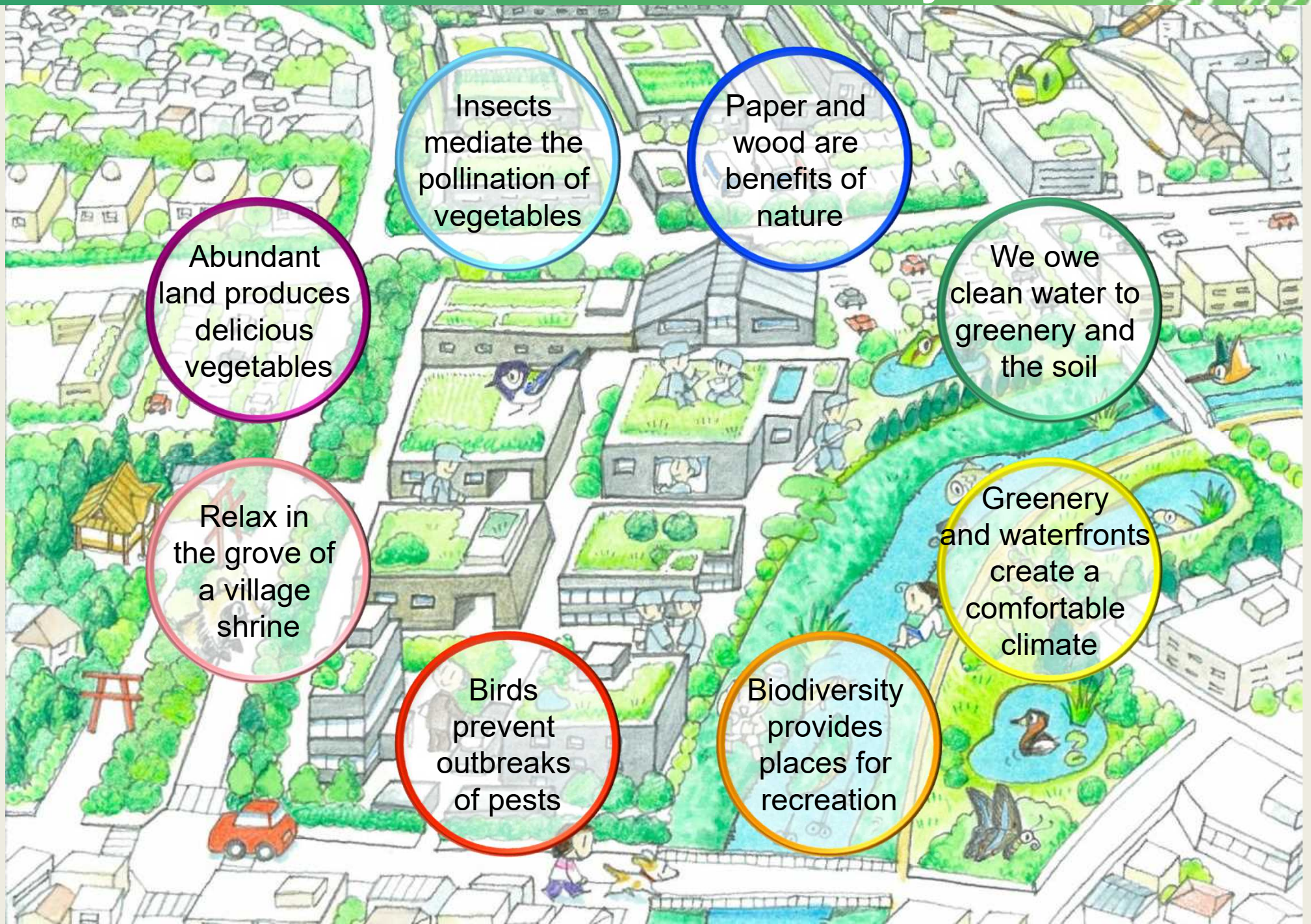

Even within the same species of ladybug, for example *Harmonia axyridis*, there are various kinds of individuality.

Diversity of genes


Reference: Biodiversity website, Ministry of the Environment, Government of Japan

Our Lives, Supported by the Benefits of Biodiversity



Benefits of Biodiversity : Ecosystem Services

- Ecosystem services means the benefits which humankind can get from the ecosystem.
- Our lives, economy and industry are all supported by ecosystem services.

Provisioning services

Services which provide key resources for life, such as food, fuel, wood, fiber, water and chemicals

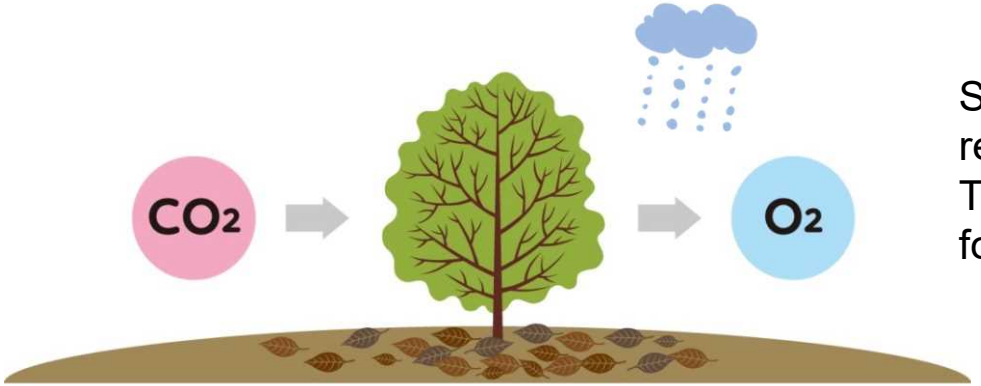
Regulating services

Services which control the environment, such as natural disaster control and water and air purification by forests

Cultural services

Services which offer mental satisfaction such as healing, aesthetic/cultural pleasure, etc.

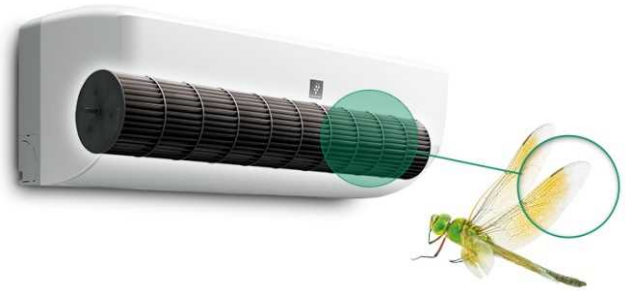
Supporting services



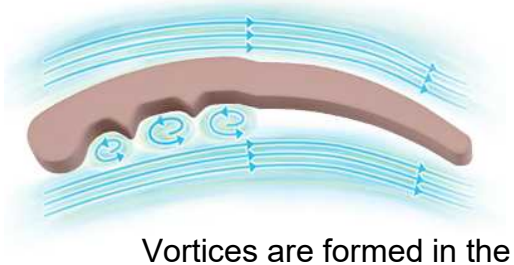
Services which form the basis for provisioning, regulating and cultural services
The generation of oxygen by photosynthesis, soil formation, the circulation of water and nutrition, etc.

Benefits of Biodiversity : Biomimetics

- Biomimetics (or biomimicry) means developing new technologies and products by looking at the functions living organisms have.
- Biomimetics is also a benefit of biodiversity.



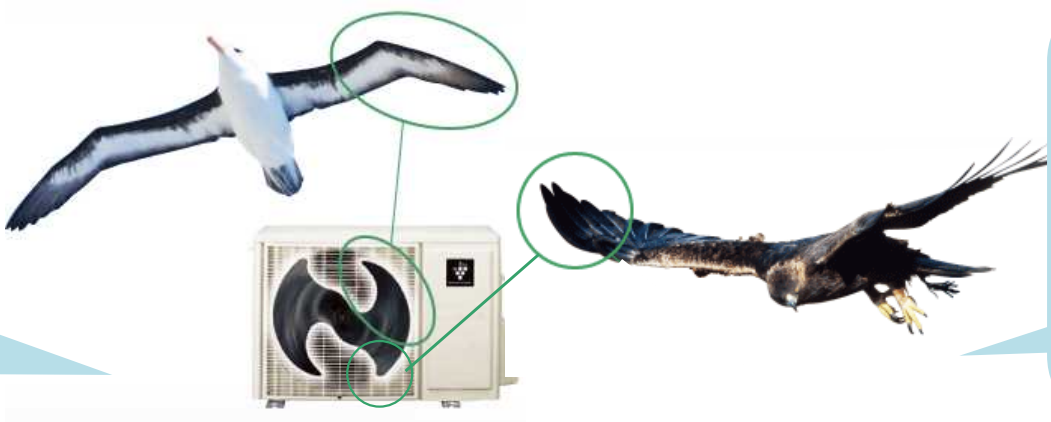
Cross-section of
a new dragonfly-wing fan



Vortices are formed in the concave sections, and these act as bearings

The uneven surface of a dragonfly's wing has been applied to an indoor unit fan, giving improved ventilation efficiency.

The shape of an albatross wing has been applied to the tip of an outdoor unit fan to achieve efficient ventilation.



The shape of a golden eagle's wing has been applied to an outdoor unit fan to achieve efficient ventilation.

Materials provided by: Sharp Corporation

Examples of the Economic Value of Ecosystem Services

US$30 billion to 172 billion: Benefits provided by coral reefs

Although just covering 1.2% of the world's continent shelves, coral reefs are home to an estimated 1-3 million species including more than a quarter of all marine fish species. Some 30 million people in coastal and island communities are totally reliant on reef-based resources as their primary means of food production, income and livelihood. Estimates of the value of human welfare benefits provided by coral reefs range from US$30 billion to US$172 billion annually.

US$50 billion: The economic loss due to the over-exploitation of fisheries

Competition between highly subsidized industrial fishing fleets coupled with poor regulation and weak enforcement of existing rules has led to over-exploitation of most commercially valuable fish stocks, reducing the income from global marine fisheries by US$50 billion annually, compared to a more sustainable fishing scenario.

US$3.7 trillion: Reducing the cost of damage due to natural disasters by preventing deforestation

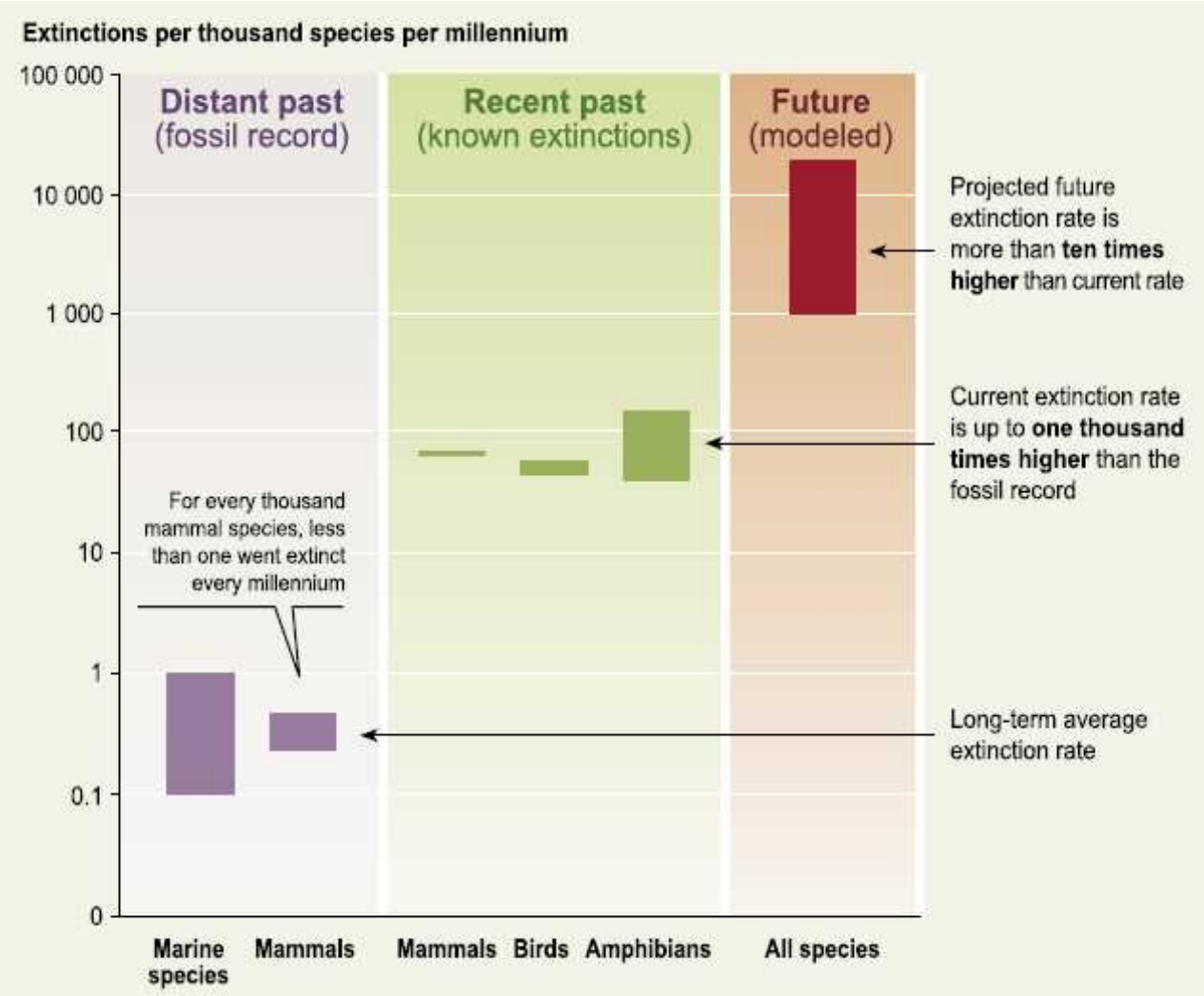
According to computer simulation called the PAGE Model, which was also used in the Stern Review, halving deforestation rates by 2030 would avoid damages from climate change estimated at more than US$3.7 trillion, thereby avoiding global greenhouse gas emissions by 1.5 to 2.7 GT CO_2 per year.

Source: "Valuable Nature" (Report pamphlet issued by Ministry of the Environment, Government of Japan to spread and raise awareness of The Economics of Ecosystems and Biodiversity (TEEB))

Rate of Extinction of Species

The rate of extinction of living organisms is 100 to 1000 times faster than it was in the past

- Humans are causing an extinction of species that is 100 to 1000 times faster than extinctions that occur in nature.
- Results from research on fossils, etc. have revealed that in the past there had been five "mass extinctions" in which many living organisms died out in the same period.
- The situation regarding current extinction is that it is progressing at a scale which surpasses these, and it is said to be the 6th mass extinction, this time caused by humans.



Loss of biodiversity is caused by development, climate change, invasive species, over-exploitation, pollution, etc.

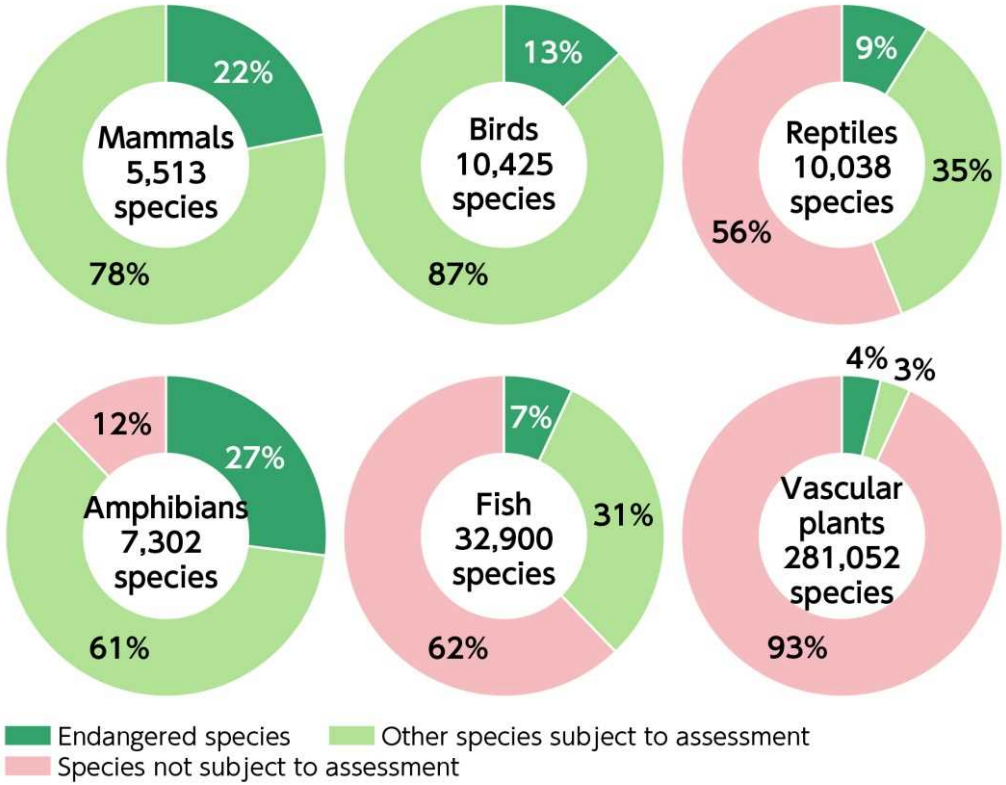
Source: Millennium Assessment Reports

Risk of Extinction of Species

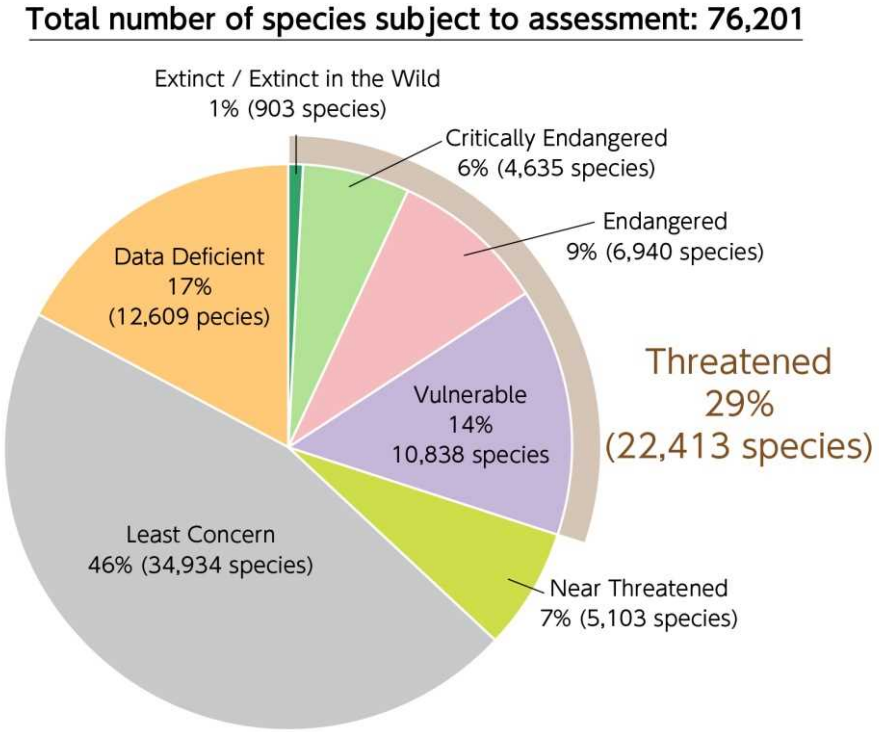
- About 30% of the wildlife on Earth is facing the risk of extinction.
- With our own hands, we have driven biodiversity, which supports our "lives" and our "ways of life," into a crisis.

Assessment of the situation regarding endangered species by the International Union for the Conservation of Nature and Natural Resources (IUCN)

Percentage of endangered species from main taxonomic groups



Percentage of each category of species subject to assessment



Source: The IUCN Red List (2012)

Examples of the Impact of Ecosystem Service Deterioration

For example, the degradation of a "forest" ecosystem may lead to the **loss of the following ecosystem services**.

Provisioning services

Deterioration of groundwater recharge function of forest → Depletion of groundwater

Regulating services

Decrease in the capacity to prevent soil erosion → Floods and landslides

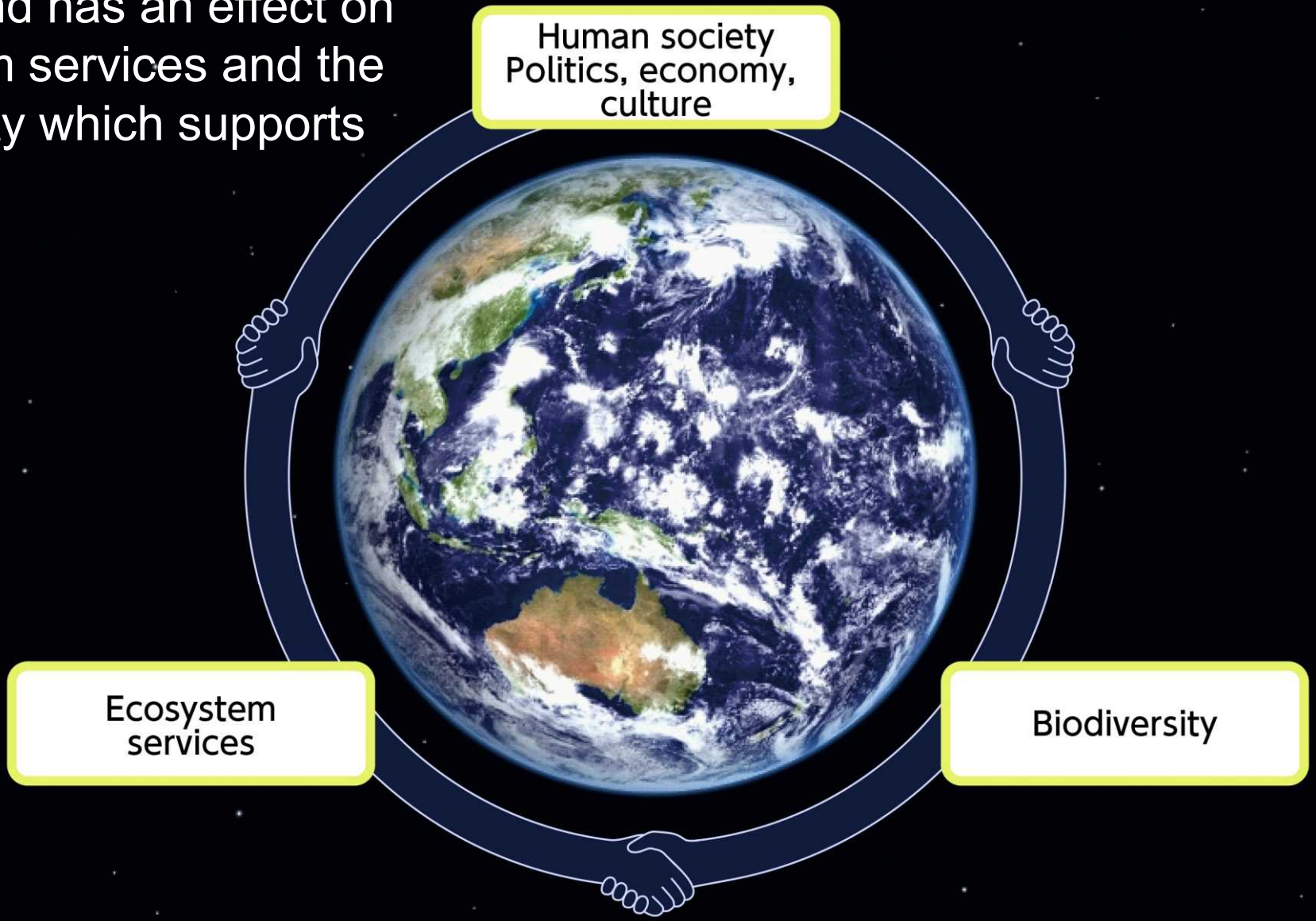
Supporting services

Decrease in the capacity to absorb carbon dioxide → Advance of global warming, frequent occurrences of natural disasters

! This deterioration of ecosystem services can affect human's lives, in forms such as depletion of groundwater, landslides due to heavy rain, etc.

Biodiversity and Human Society

Our human society is both built on and has an effect on ecosystem services and the biodiversity which supports them.



Aiming a Sustainable Society Which Takes Biodiversity into Consideration

"**Global warming**" may dominate headlines today.
"**Ecosystem degradation**" will do so tomorrow.

(WBCSD: The World Business Council for Sustainable Development)

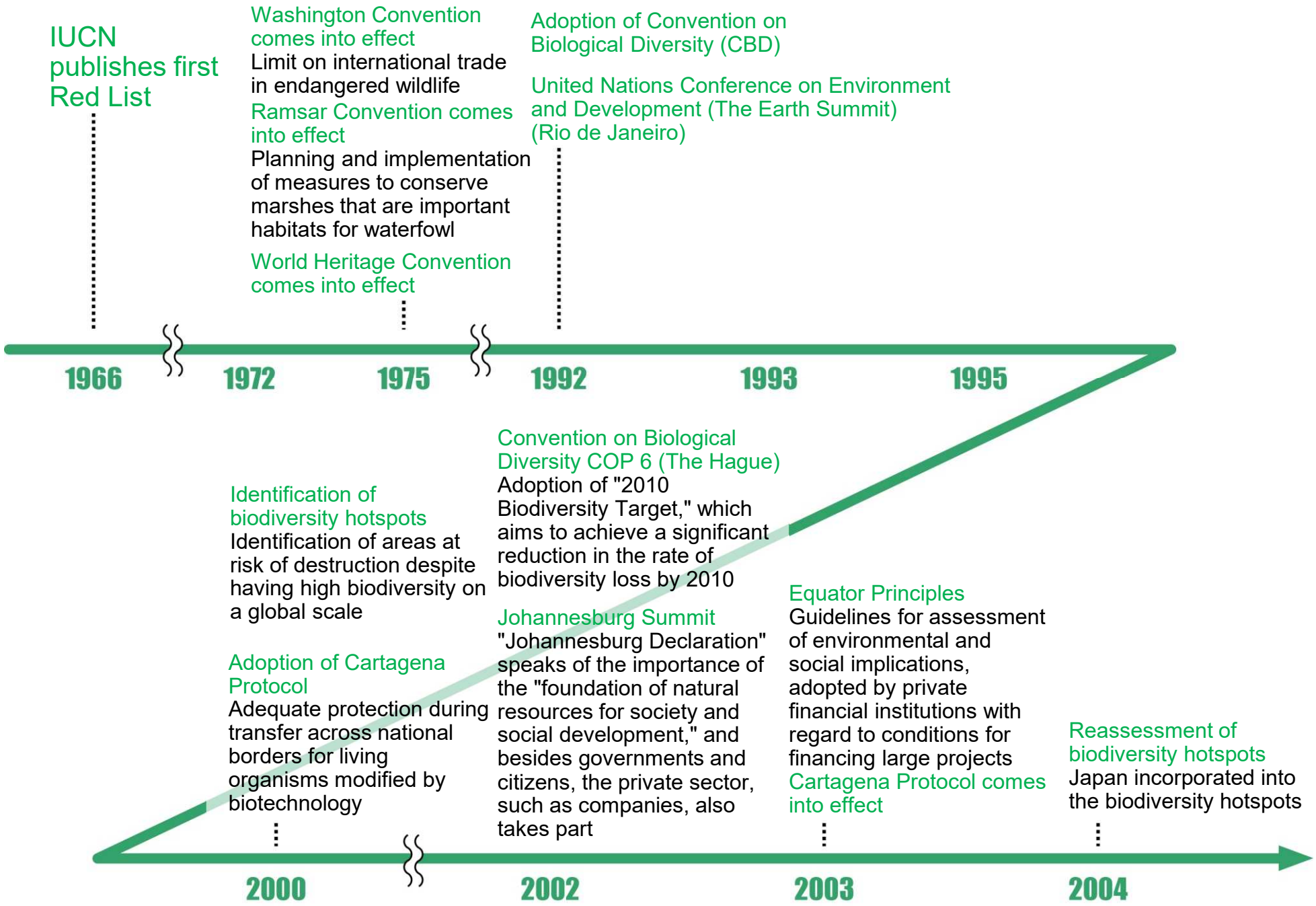
There are no economies without environments, but there are environments without economies

(TEEB: The Economics of Ecosystems and Biodiversity)

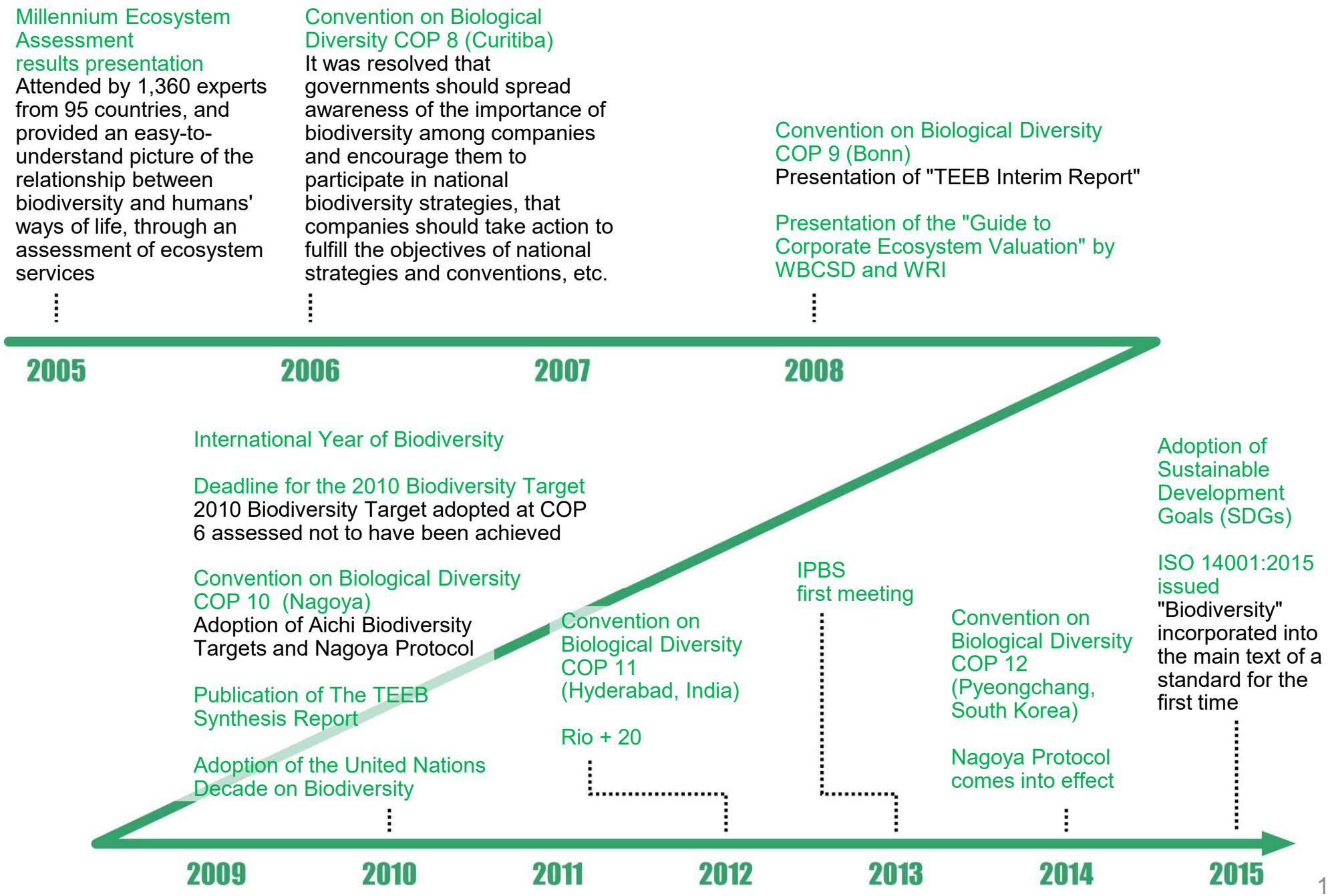
Live within the carrying capacity.
Live only on the interest,
and do not touch the principal.

Trends of Biodiversity

Trends Related to Biodiversity



Trends Related to Biodiversity



United Nations Convention on Biological Diversity (CBD)

Convention on Biological Diversity adopted at the United Nations Conference on Environment and Development (Rio de Janeiro, 1992)

Objectives of the Convention

1. Conservation of biological diversity
2. Sustainable use of the components of biodiversity
3. Fair and equitable sharing of the benefits arising out of the utilization of genetic resources

It is necessary to take "biodiversity" into careful consideration as an important element of a sustainable society, and to act accordingly.

COP 10: 10th Meeting of the Conference of the Parties to the Convention on Biological Diversity (Nagoya, 2010)

"Aichi Biodiversity Targets" agreed at COP 10

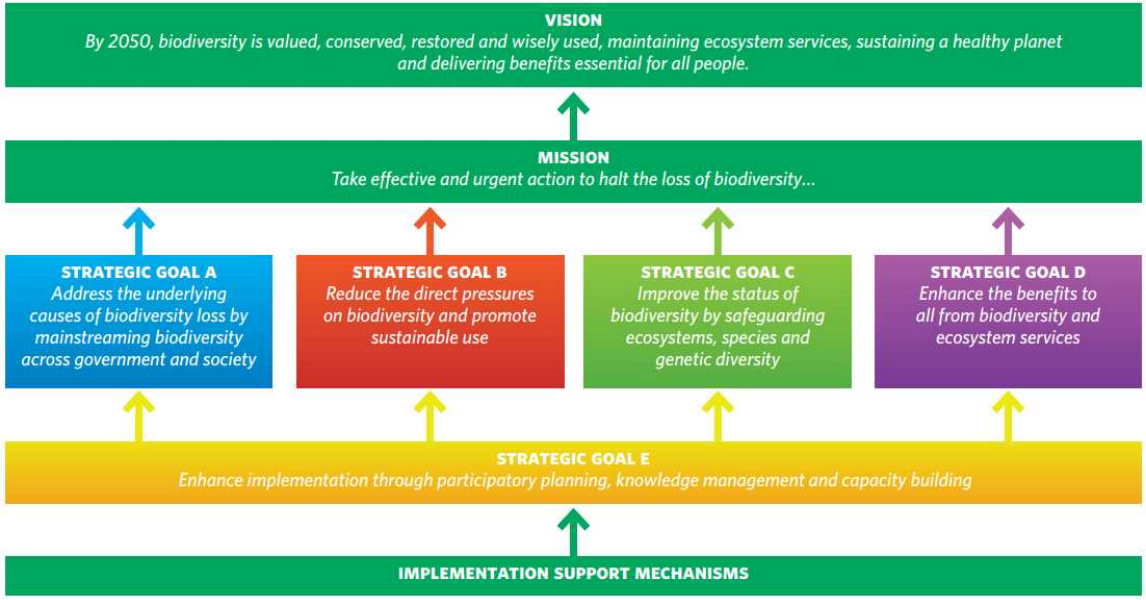


Figure 0.1. This diagram shows the structure of the Strategic Plan for Biodiversity 2011–2020. Progress towards a 2050 Vision is achieved through a 2020 Mission. In turn, the Mission is addressed through five Strategic Goals under which the 20 Aichi Biodiversity Targets are organized, and supported by implementation mechanisms. The Strategic Plan serves as a flexible framework for the establishment of national and regional targets and it promotes the coherent and effective implementation of the three objectives of the Convention on Biological Diversity.

Source: Global Biodiversity Outlook 4

Aichi Biodiversity Targets: 20 Individual Targets

Strategic Goal A — Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

Target 1	By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.
Target 2	By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.
Target 3	By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.
Target 4	By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

Strategic Goal B — Reduce the direct pressures on biodiversity and promote sustainable use

Target 5	By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.
Target 6	By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.
Target 7	By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.
Target 8	By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.
Target 9	By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.
Target 10	By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

Source: The Convention on Biological Diversity

Aichi Biodiversity Targets: 20 Individual Targets

Strategic Goal C — To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Target 11	By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.
Target 12	By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.
Target 13	By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Strategic Goal D — Enhance the benefits to all from biodiversity and ecosystem services

Target 14	By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.
Target 15	By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.
Target 16	By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

Strategic Goal E — Enhance implementation through participatory planning, knowledge management and capacity building

Target 17	By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.
Target 18	By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and rAelevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.
Target 19	By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.
Target 20	By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

Source: The Convention on Biological Diversity

National Biodiversity Strategies and Action Plans (NBSAPs)

Target 17 stipulates that by 2015, each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated National Biodiversity Strategy and Action Plan (NBSAP).

Number of countries which have submitted and revised an NBSAP (as of July 27, 2014)

	Number of countries
Parties that have submitted an NBSAP at least once	179
Parties that have not yet submitted an NBSAP	15
Parties that have revised their NBSAP at least once	45
Parties that currently have targets for 2014 or later stipulated in their NBSAP	57
Parties that have an NBSAP that was adopted in 2010 or later	26

The latest situation regarding NBSAP submission can be checked on https://www.cbd.int/nbsap/.

Source: Global Biodiversity Outlook 4

Nagoya Protocol

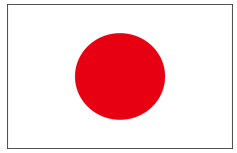
3 Objectives of the Convention on Biological Diversity

(1) Conservation on biological diversity

(2) Sustainable use of the components of biodiversity

(3) Fair and equitable sharing of the benefits arising out of the utilization of genetic resources

Adopted at the 10th Meeting of the Conference of the Parties to the Convention on Biological Diversity (COP 10), held in Nagoya, Aichi Prefecture, in October 2010



Nagoya Protocol
“Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity" (hereinafter, "the Protocol")
*** ABS: Access and Benefit-Sharing**

- The Convention on Biological Diversity stipulates the followings:
  - A country which possesses a genetic resource has sovereign rights over it
  - Fair and equitable sharing of the benefits arising out of the utilization of genetic resources
  - Prior written consent from the other country must be obtained when accessing genetic resources

Sustainable Development Goals (SDGs)

Sustainable Development Goals: SDGs

Development goals for ending world poverty and hunger, reducing inequality and securing permanent conservation of the global environment by 2030.

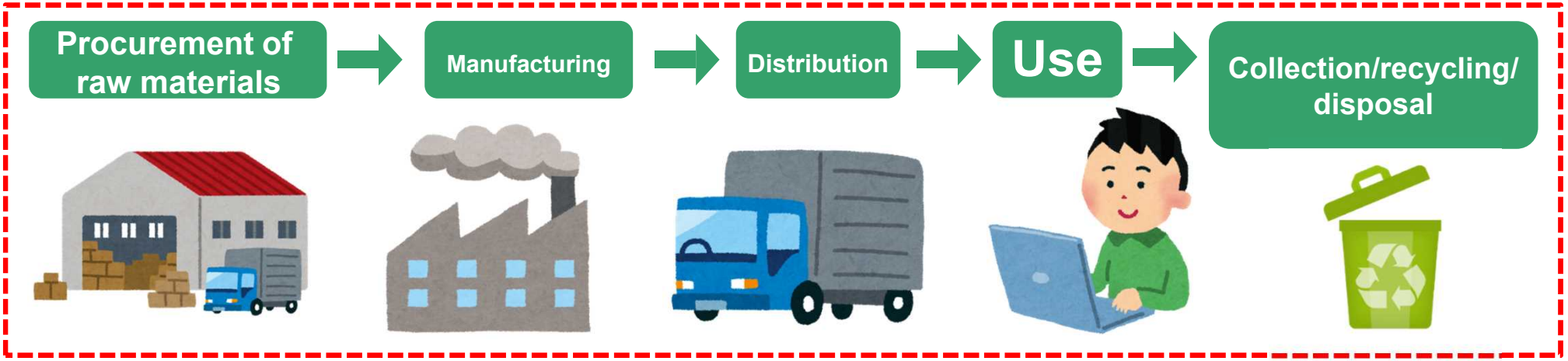
There are 17 goals and 169 targets.

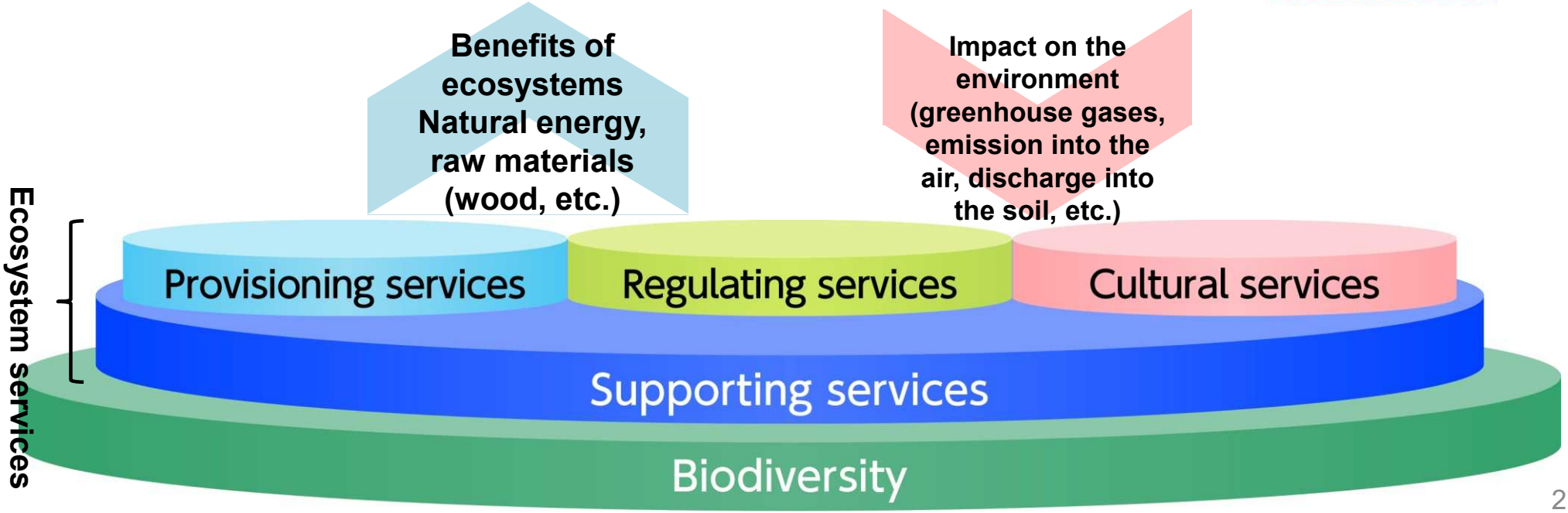
Source: United Nations Development Programme (UNDP)

The Relationship between Companies and Biodiversity

The Relationship between Business Activities and Biodiversity

- Business activities are established as a result of receiving the benefits of ecosystems in each stage of their life cycle.
- Business activities have impacts on biodiversity.





Examples of the Impact of Business Activities on Biodiversity

Life cycle stage

Procurement of raw materials → Manufacturing → Distribution → **Use** → Recycling/disposal

Business activities

- Land alteration
- Consumption of mineral resources
- Use of freshwater
- Emission of gases
- **Reuse**
- Recycling
- Consumption of fossil fuels
- Consumption of forest resources
- **Land use**
- Wastewater
- Incineration
- Landfilling

Environmental burden/ environmental impact

- Consumption of mineral resources
- Deforestation
- Pollution
- Vibration/noise
- Bad odors
- Invasion by alien species
- Global warming
- Air pollution
- Toxic chemicals
- Soil contamination
- Ground subsidence
- Acid rain
- Ozone depletion
- Ecotoxicity
- Eutrophication
- River and marine pollution

Changes in ecosystems Impact on biodiversity

- Forest depletion
- Changes in precipitation
- Declines in plankton
- Desertification/drying
- Changes in ecological environments
- Declines in native species
- Extinction of living organisms
- Declines in marine organisms
- Changes in habitats
- Rises in sea level
- **Deforestation**
- **Heat islands**
- Decreases in amounts of groundwater
- Migration of animals

Lead to a decrease in biodiversity and a deterioration of ecosystem services

Risks Related to Biodiversity

Biodiversity loss represents a major risk for business continuity and growth

Reputational risk

- Adverse effect on product brand image and corporate image
- Becoming a target for environmental organizations and protest campaigns

Regulatory and legal liability risk

- Imposition of new governmental regulations, fines and charges
- Legal action by communities which have lost ecosystem services
- Demands for restoration liability against companies which have damaged biodiversity

Operational risk

- Destabilization of procurement of freshwater and biological resources as a result of biodiversity loss
- Impact on companies' daily operations and work processes

Source: Based on “The Economics of Ecosystems and Biodiversity Report for Business Executive Summary,” The Economics of Ecosystems and Biodiversity, 2010

Respond to Biodiversity Risks

7 action points for promoting initiatives

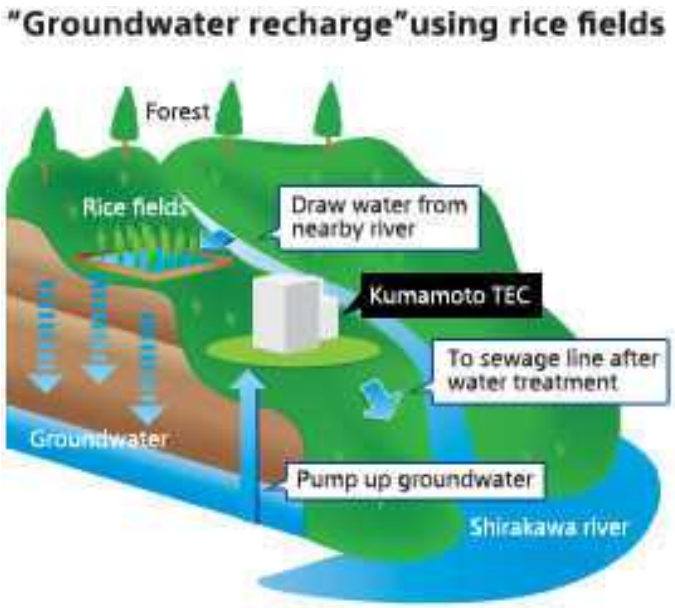
1. **Identify the impacts and dependencies of your business on biodiversity and ecosystem services (BES)**
2. **Assess the business risks and opportunities associated with these impacts and dependencies**
3. **Develop BES information systems, set SMART targets, measure and value performance, and report your results**
4. **Take action to avoid, minimize and mitigate BES risks, including in-kind compensation ('offsets') where appropriate**
5. **Grasp emerging BES business opportunities, such as cost-efficiencies, new products and new markets**
6. **Integrate business strategy and actions on BES with wider corporate social responsibility initiatives**
7. **Engage with business peers and stakeholders in government, NGOs and civil society to improve BES guidance and policy**

Source: Based on "The Economics of Ecosystems and Biodiversity Report for Business Executive Summary," The Economics of Ecosystems and Biodiversity, 2010

Examples of Avoiding Biodiversity Risks

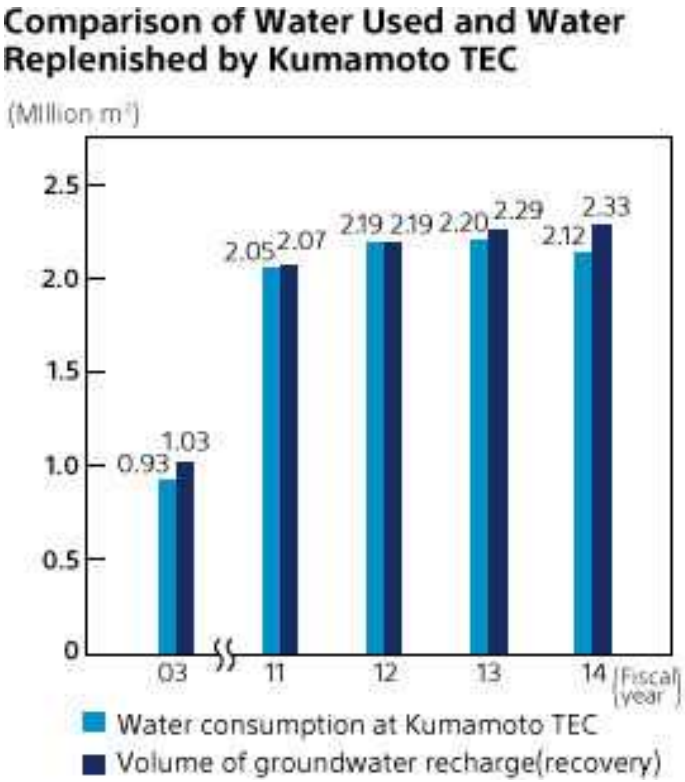
Recharging groundwater at Kumamoto Technology Center, Sony Semiconductor Manufacturing Corporation

- The production of semiconductors uses a large amount of groundwater (an ecosystem service), and consequently, the depletion of groundwater is regarded as a business risk.
- Starting in 2003, recharging of groundwater which exceeds the amount used has been carried out every year in collaboration with parties in the region and various other parties concerned.
- Water drawn from rivers is supplied to fields (crop-rotation fields) before and after planting in summer and autumn and to rice fields that are not in season for rice cultivation, in order to let it penetrate through and recharge the groundwater.



Rice grown in a rice field belonging to a collaborating farm


Farmland coming back to life through water



Business Opportunities Regarding Biodiversity

Initiatives which take biodiversity into consideration can bring companies business opportunities, and future continuity and development.

- **Making decisions which take the impact on biodiversity into consideration in relation to the purchase of and investment in raw materials**

  ➡ Avoiding reputational risks /
  Obtaining a high reputation as a company that responds to new needs of consumers, etc.

- **Getting actively involvement in the government's policy dialogues, etc. with respect to biodiversity**

  ➡ Being able to respond appropriately to regulatory risks /
  Being able to obtain advice, support and incentives from the government

- **Striving to optimize the use of natural resources and reduce dependency**

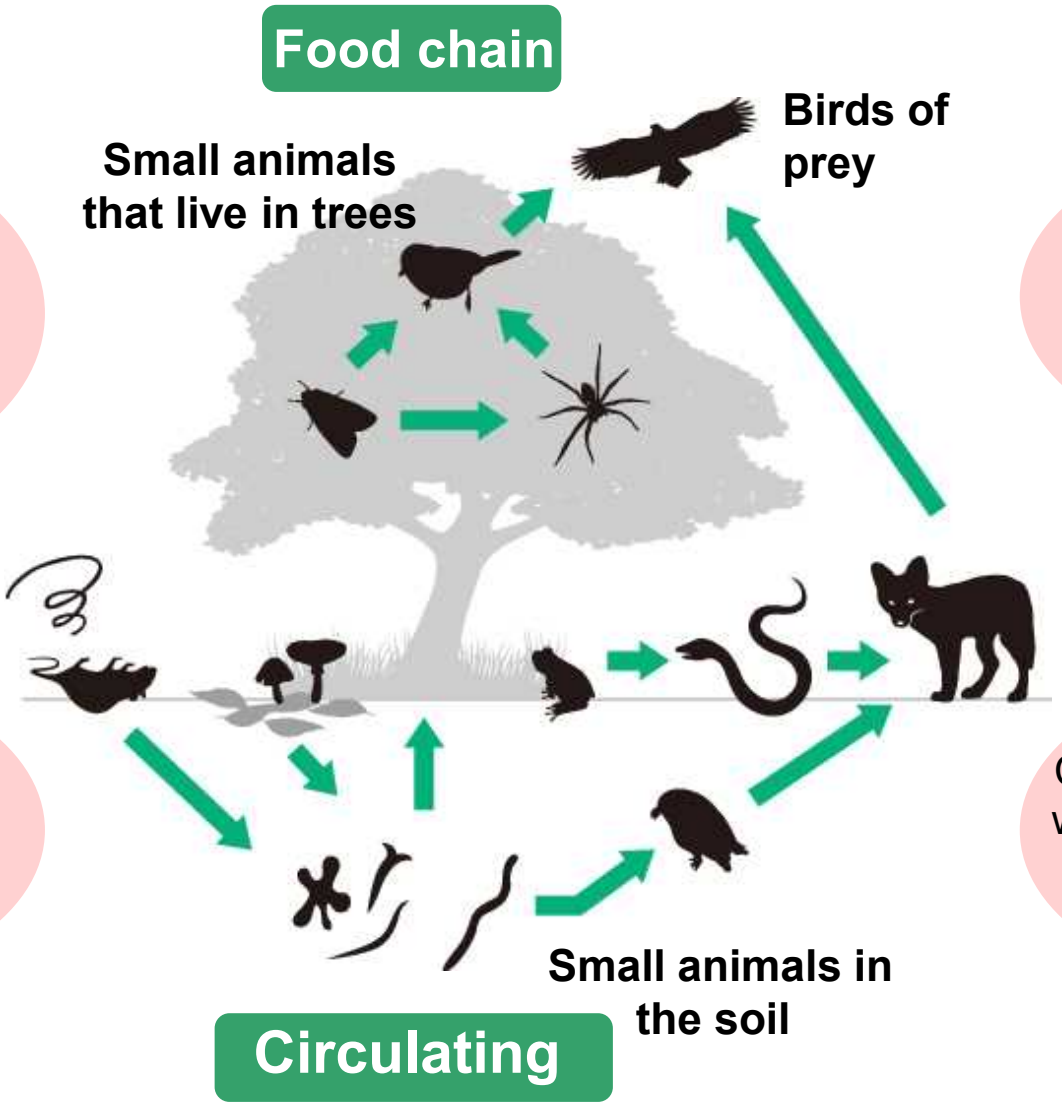
  ➡ Avoiding the risks of resource depletion and increasing costs /
  Securing business continuity and development

Source: Based on "The Economics of Ecosystems and Biodiversity Report for Businesses: Executive Summary," The Economics of Ecosystems and Biodiversity, 2010

Points to Take into Consideration in Biodiversity Conservation Activities

Take into consideration the balance of the entire ecosystem and the circulation of material.

Take into consideration the ecosystem networks of surrounding areas.



Do not stir things up genetically.

Create an environment which will be easy for a variety of animals and plants to inhabit.

Future Initiatives
Expected in Business Activities

● Key words for biodiversity conservation: Individuality, connection and balance

- Protection and conservation of nature which take "the connections and balance of life" into consideration are required
- Networks between living organisms, such as predatory and symbiotic relationships, need to be taken into consideration

● Changes in the stakeholders involved in the activities

- From individual responses to comprehensive responses
- Toward an age in which the government, municipalities, companies, individuals and so on are each required to play their part

● What is being demanded of companies

- Companies are being required not only to conduct activities which contribute to society, but also to make a comprehensive respond as part of their core business.
- For example, consideration with a broader scope, such as value chains, corporate collaboration, life cycles, etc.

Activities by the Electrical and Electronic Industries

Declaration of Biodiversity by Keidanren (March 17, 2009)

We aim for the conservation of biological diversity, the sustainable use of the components of biological diversity and the fair and equitable sharing of the benefits derived from genetic resources. Herewith we adopt the Declaration of Biodiversity which further develops the actions for biodiversity outlined in the "Nature Conservation Declaration".

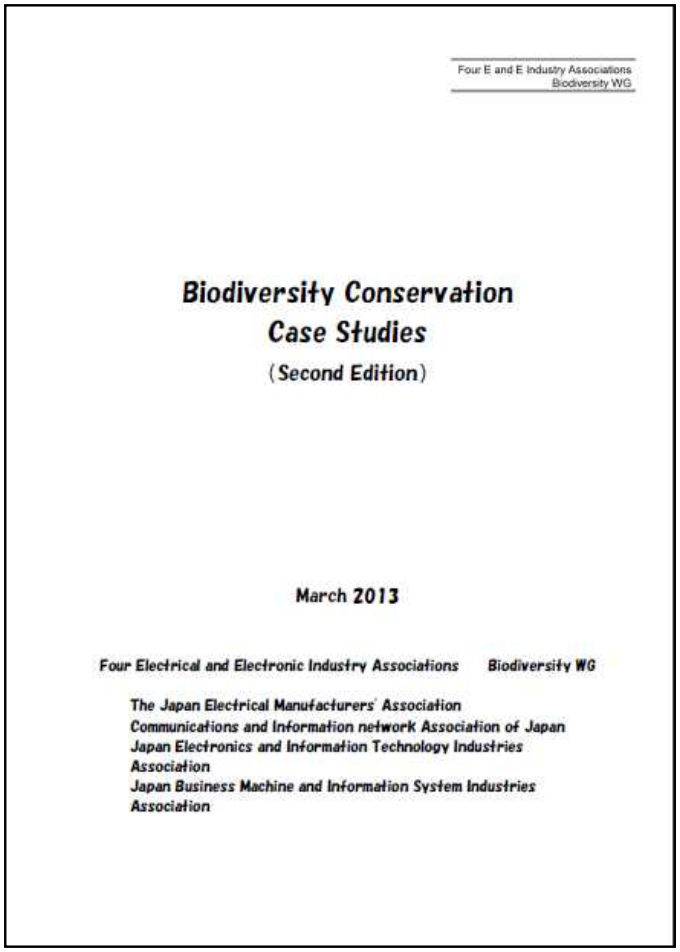
1. Appreciate nature's gifts and aim for corporate activities in harmony with the natural environment
2. Act from a global perspective on the biodiversity crisis
3. Act voluntarily and steadily to contribute to biodiversity
4. Promote corporate management for sustainable resource use
5. Create an industry, lifestyle and culture that will learn from biodiversity
6. Collaborate with relevant international and national organizations
7. Spearhead activities to build a society that will nurture biodiversity

Source: Keidanren (Japan Business Federation)

Biodiversity Conservation Case Studies

"Biodiversity Conservation Case Studies" by the Biodiversity Working Group of the 4 Electrical and Electronic Industry Associations

- Published on the JEMA website (http://www.jema-net.or.jp/English/businessfields/environment/biodiversity.html)
- Includes a relationship map summarizing the impact of each life cycle stage on biodiversity, and the policies
- Includes specific policy case studies from electrical and electronic companies



Four E and E Industry Associations
Biodiversity WG

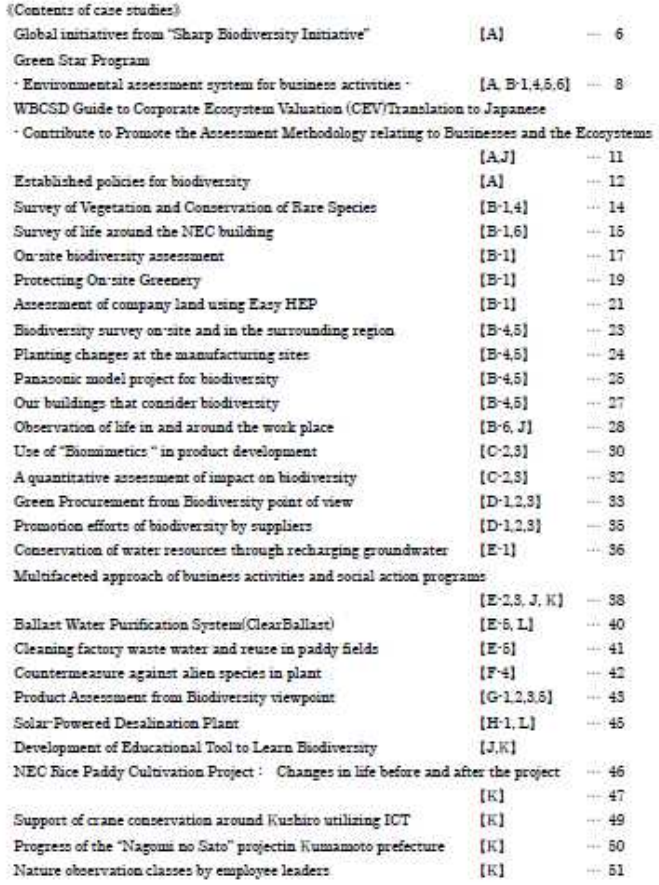
Biodiversity Conservation Case Studies

(Second Edition)

March 2013

Four Electrical and Electronic Industry Associations Biodiversity WG

The Japan Electrical Manufacturers' Association
Communications and Information network Association of Japan
Japan Electronics and Information Technology Industries Association
Japan Business Machine and Information System Industries Association



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The Relationship between the Electrical and Electronic Industries and Biodiversity

Biodiversity conservation activities are implemented in all processes in business activities

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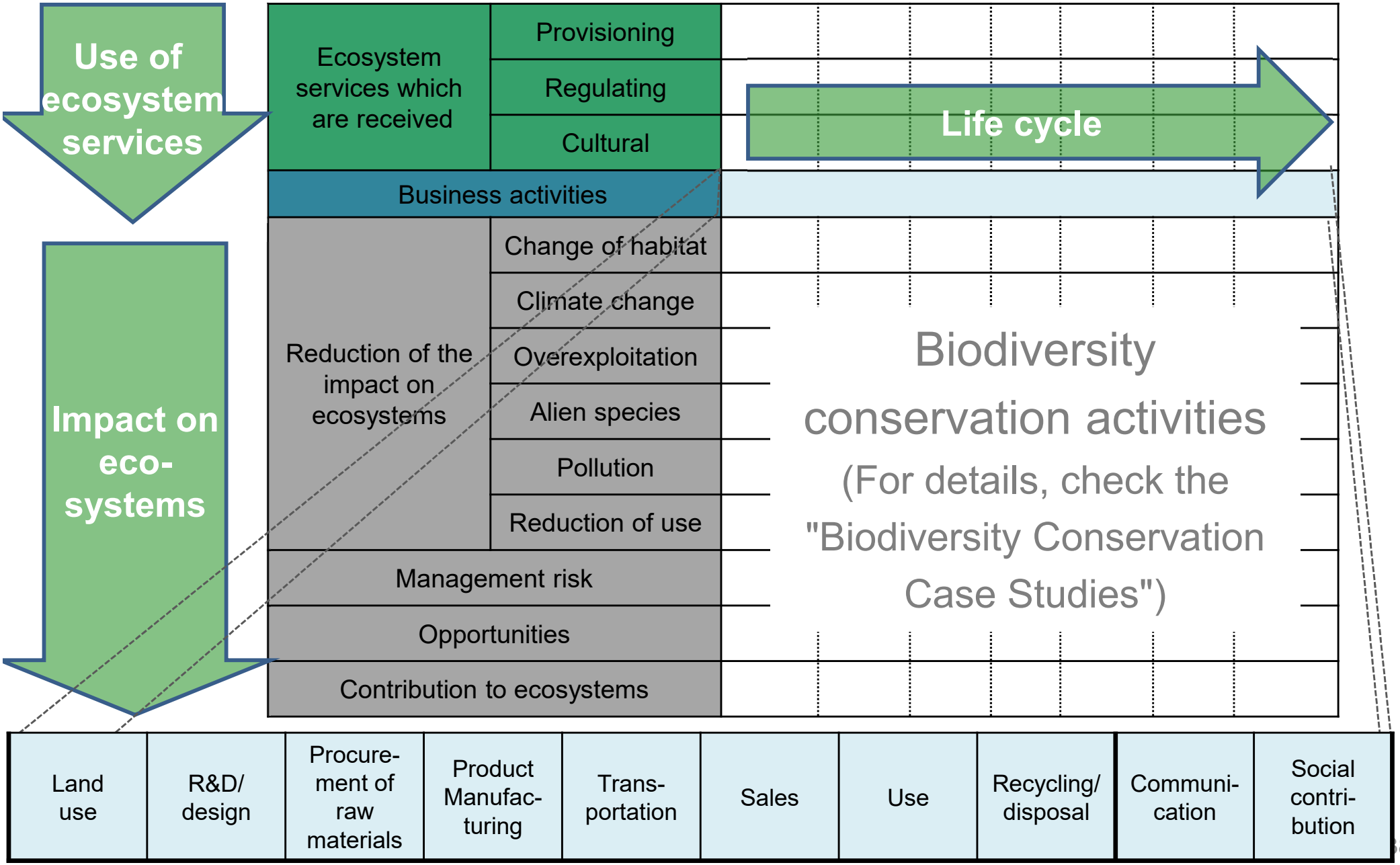


Impact Factors for Ecosystems and Reduction Actions, by Life Cycle

Land Use Pertaining to Business Sites

Impact factors for ecosystems

Changes in habitats owing to plant / business site construction (loss, contamination, etc.)

Disturbance of regional ecosystems due to the use of alien organisms, such as by planting

Emission of chemical substances into the water, air and soil

Desertion and inadequate management of company land

Actions to reduce the impact on ecosystems

- Implementation of environmental assessments for the location of business sites
- Implementation of repair, recovery, restoration and compensation activities for the ecosystem before construction
- Management which takes biodiversity into consideration (use of native species, extermination of alien species, appropriate use of insecticides and chemical fertilizers, biotopes, etc.)
- Management in cooperation with the surrounding area (ecological networks, etc.)

Related Aichi Biodiversity Targets

- (1) Awareness increased
- (2) Biodiversity values integrated
- (3) Incentives reformed
- (4) Sustainable consumption and production
- (5) Habitat loss halved or reduced
- (7) Sustainable agriculture, aquaculture and forestry
- (8) Pollution reduced
- (9) Invasive alien species prevented and controlled
- (10) Pressures on vulnerable ecosystems reduced
- (11) Protected areas increased and improved
- (12) Extinction prevented
- (14) Ecosystems and essential services safeguarded
- (15) Ecosystems restored and resilience enhanced
- (17) NBSAPs adopted as policy instrument
- (19) Knowledge improved, shared and applied

Impact Factors for Ecosystems and Reduction Actions, by Life Cycle

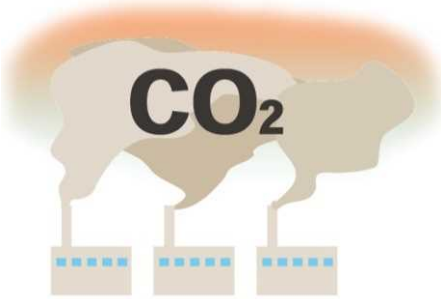
R&D/Design

Impact factors for ecosystems

Excessive use of materials originating from living organisms

Emission of chemical substances into the water, air and soil

Climate change due to the emission of greenhouse gases



Actions to reduce the impact on ecosystems

- Promotion of designs that are easily disassembled and separated for products
- Use of circulating resources
- Reduction of the amount of resources used

- Product designs which will lead to reductions in the use of pollutants

- Quantitative assessment of the impact on biodiversity, using LCA

Effective use of biodiversity

- Product design based on biomimetics (biomimicry)

Related Aichi Biodiversity Targets

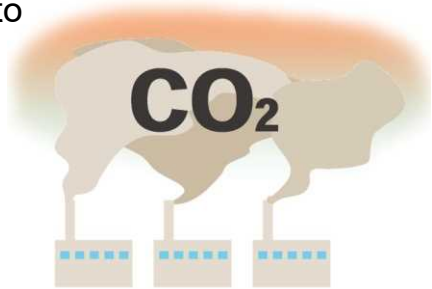
- (4) Sustainable consumption and production
- (8) Pollution reduced
- (16) Nagoya Protocol in force and operational
- (19) Knowledge improved, shared and applied

Impact Factors for Ecosystems and Reduction Actions, by Life Cycle

Procurement of Raw Materials

Impact factors for ecosystems

Destruction of ecosystems due to the mining of mineral resources and the development of wood resources



Climate change due to the emission of greenhouse gases

Excessive use of materials originating from living organisms

Emission of chemical substances into the water, air and soil at suppliers' sites

Actions to reduce the impact on ecosystems

- Green procurement which incorporates the perspective of biodiversity conservation
- Procurement of materials which take biodiversity into consideration, such as FSC-certified paper
- Manufacturing in liaison with suppliers (reduction of waste, CO_2 and chemical substances)
- Understanding the situation regarding the use of products from mines which have problems, and reducing/stopping the use of them

Related Aichi Biodiversity Targets

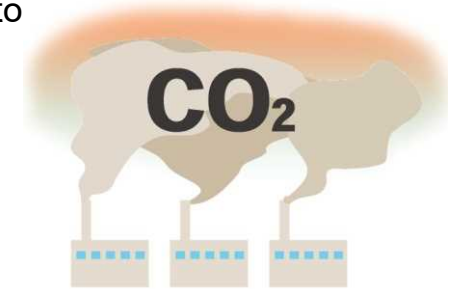
- (1) Awareness increased
- (4) Sustainable consumption and production
- (5) Habitat loss halved or reduced
- (7) Sustainable agriculture, aquaculture and forestry
- (8) Pollution reduced
- (9) Invasive alien species prevented and controlled
- (10) Pressures on vulnerable ecosystems reduced
- (12) Extinction prevented
- (14) Ecosystems and essential services safeguarded
- (16) Nagoya Protocol in force and operational

Impact Factors for Ecosystems and Reduction Actions, by Life Cycle

Product Manufacturing

Impact factors for ecosystems

Destruction of ecosystems due to the mining of mineral resources and the development of wood resources



Climate change due to the emission of greenhouse gases

Impacts due to noise, vibration and light

Emission of chemical substances into the water, air and soil at own site

Actions to reduce the impact on ecosystems

- Implementation of PES (payment for ecosystem services) (water recharging, etc.)
- Energy saving, reduction of greenhouse gas emissions and expansion of the use of clean energy in manufacturing processes
- Lighting which takes light pollution into consideration, suppression of the emission of waste and chemical substances, and proper treatment of wastewater (water temperature control, bioassays, etc.)
- Suppressing excess use of water resources
- Use of circulating resources, and reuse and proper treatment of resources

Related Aichi Biodiversity Targets

(1) Awareness increased

(3) Incentives reformed

(4) Sustainable consumption and production

(5) Habitat loss halved or reduced

(6) Sustainable management of marine living resources

(7) Sustainable agriculture, aquaculture and forestry

(8) Pollution reduced

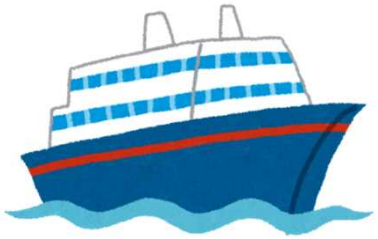
(10) Pressures on vulnerable ecosystems reduced

(14) Ecosystems and essential services safeguarded

Packaging/Transportation

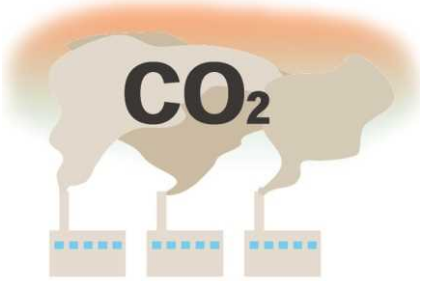
Impact factors for ecosystems

Impacts due to noise, vibration and light



Disturbance of ecosystems due to ballast water and cargo contaminants (alien species)

Climate change due to the emission of greenhouse gases



Emission of chemical substances (SOx, NOx, etc.) into the air, soil and water

Actions to reduce the impact on ecosystems

- Selection of transportation routes and transportation contractors which take biodiversity into consideration
- Requesting consideration on the part of transporters, and raising their awareness

- Selection of forms of transportation with lower emissions of greenhouse gases
- Promotion of modal shifts

- Use of ships which treat ballast water properly
- Measures against invasion by alien species

Related Aichi Biodiversity Targets

(1) Awareness increased

(4) Sustainable consumption and production

(5) Habitat loss halved or reduced

(8) Pollution reduced

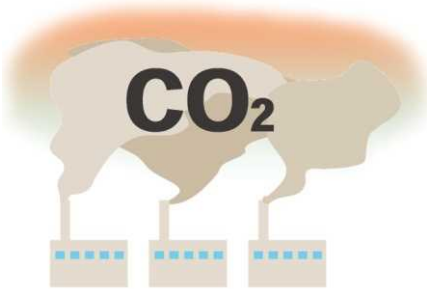
(9) Invasive alien species prevented and controlled

Impact Factors for Ecosystems and Reduction Actions, by Life Cycle

Sales

Impact factors for ecosystems

Changes in habitats when facilities are constructed at customers' sites



Climate change at customers' sites due to the emission of greenhouse gases

Excessive use of resources at customers' sites (water, materials originating from living organisms, etc.)

Contamination of ecosystems at customers' sites

Actions to reduce the impact on ecosystems

- Provision of information and raising of awareness so that customers will use products while taking biodiversity into consideration

- Assessment by third parties of the products offered (consideration for biodiversity)

Related Aichi Biodiversity Targets

(1) Awareness increased

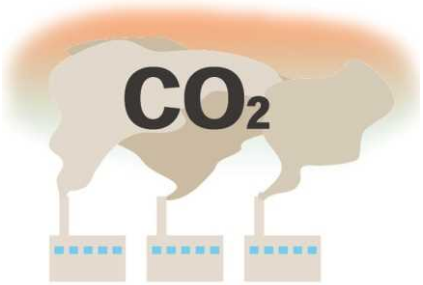
(4) Sustainable consumption and production

Impact Factors for Ecosystems and Reduction Actions, by Life Cycle

Use

Impact factors for ecosystems

Excessive use of water resources



Climate change due to the emission of greenhouse gases

Emission of chemical substances into the water, air and soil at customers' sites

Actions to reduce the impact on ecosystems

- Promoting the sale of products which take biodiversity into consideration
- Energy saving and reduction of greenhouse gas emissions in the use stage
- Reduction of the amount of water used in the use stage
- Reduction of chemical substances contained in the products offered

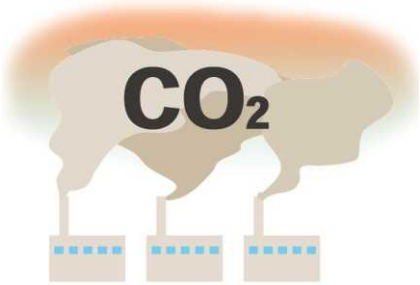
Related Aichi Biodiversity Targets

- (4) Sustainable consumption and production
- (5) Habitat loss halved or reduced
- (6) Sustainable management of marine living resources
- (7) Sustainable agriculture, aquaculture and forestry
- (8) Pollution reduced
- (14) Ecosystems and essential services safeguarded

Collection/ Recycling/Disposal

Impact factors for ecosystems

Expansion of new resource mining due to a stagnation of collection/recycling activities



Climate change due to the emission of greenhouse gases

Land use due to landfilling

Emission of chemical substances into the water, air and soil

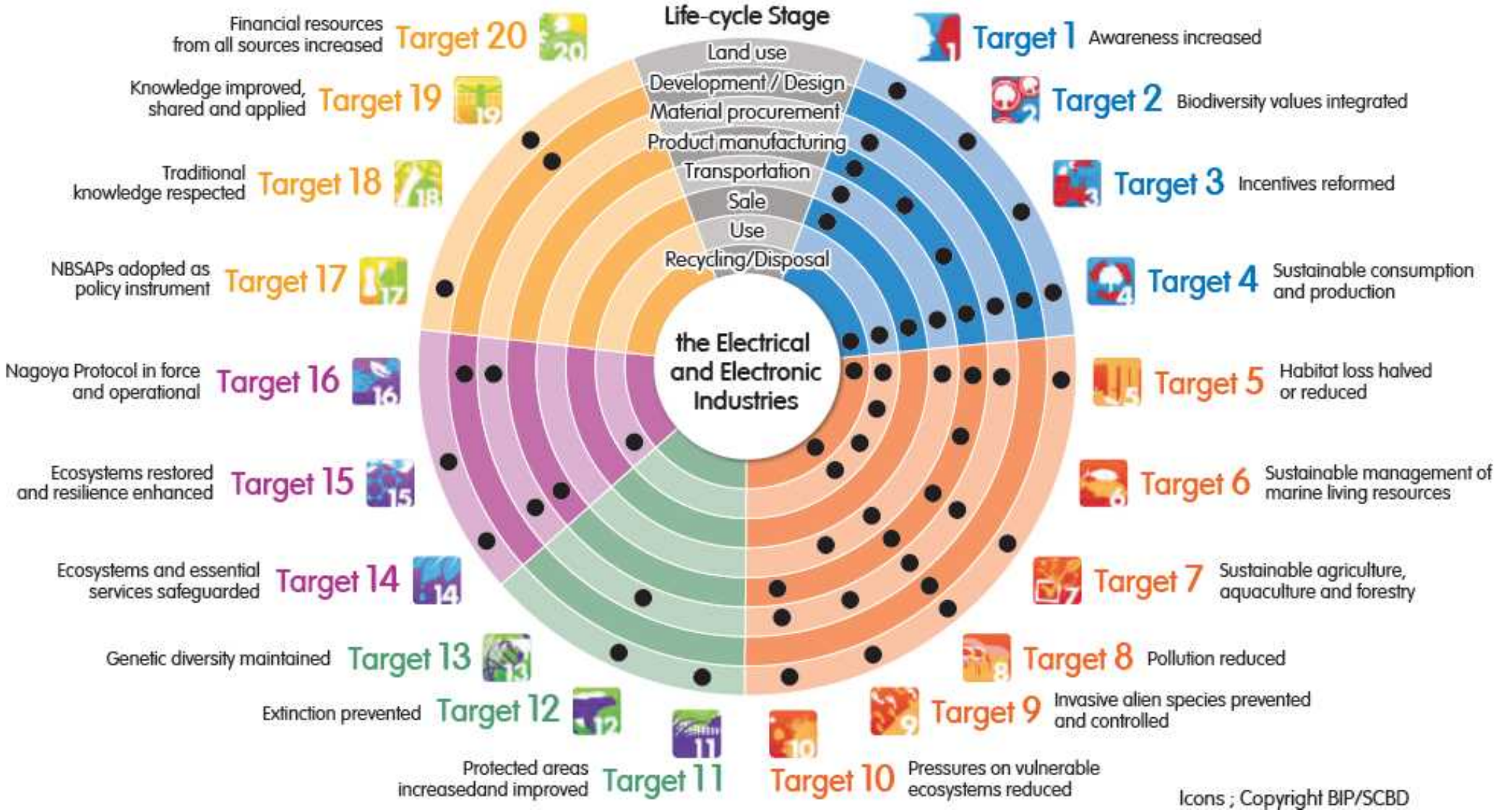
Actions to reduce the impact on ecosystems

- Efficient resource collection through the collection/recycling of used products
- Improvement of reuse/recycling technologies
- Energy saving and reduction of greenhouse gas emissions at recycling plants
- Proper treatment of pollutants at recycling plants

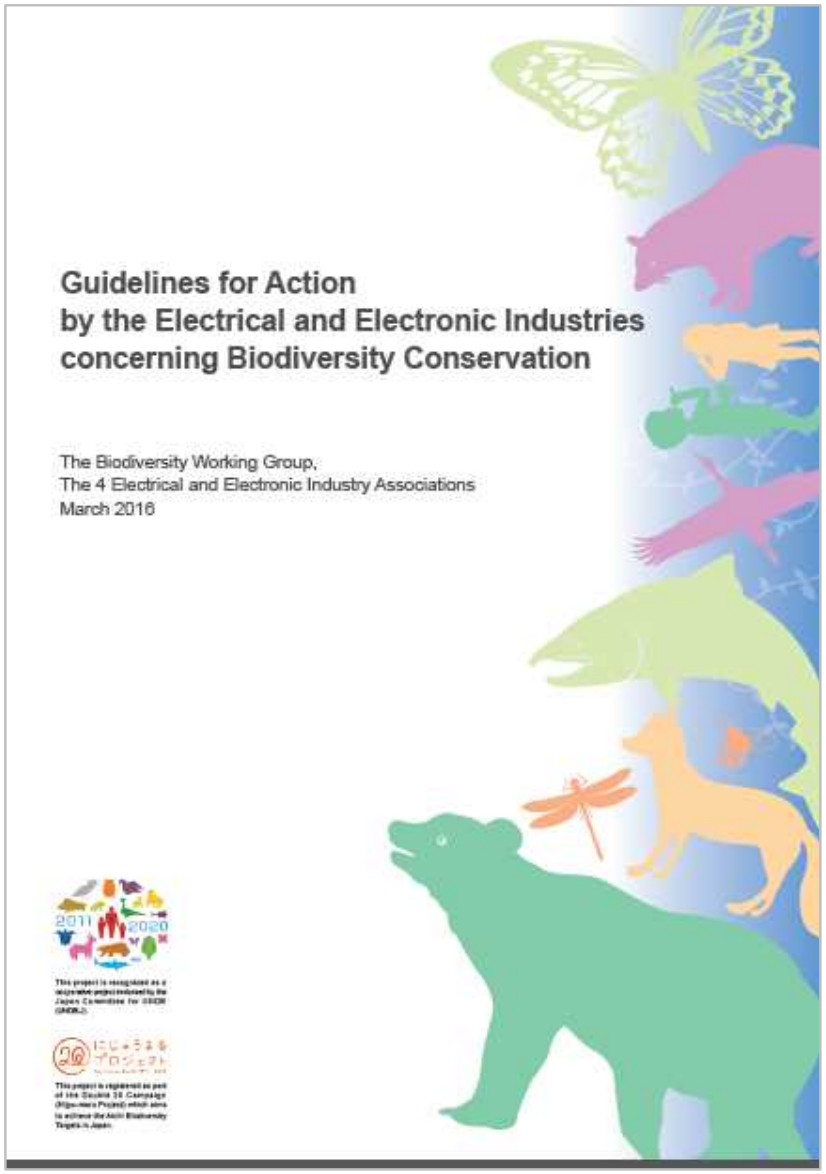
Related Aichi Biodiversity Targets

- (4) Sustainable consumption and production
- (5) Habitat loss halved or reduced
- (8) Pollution reduced

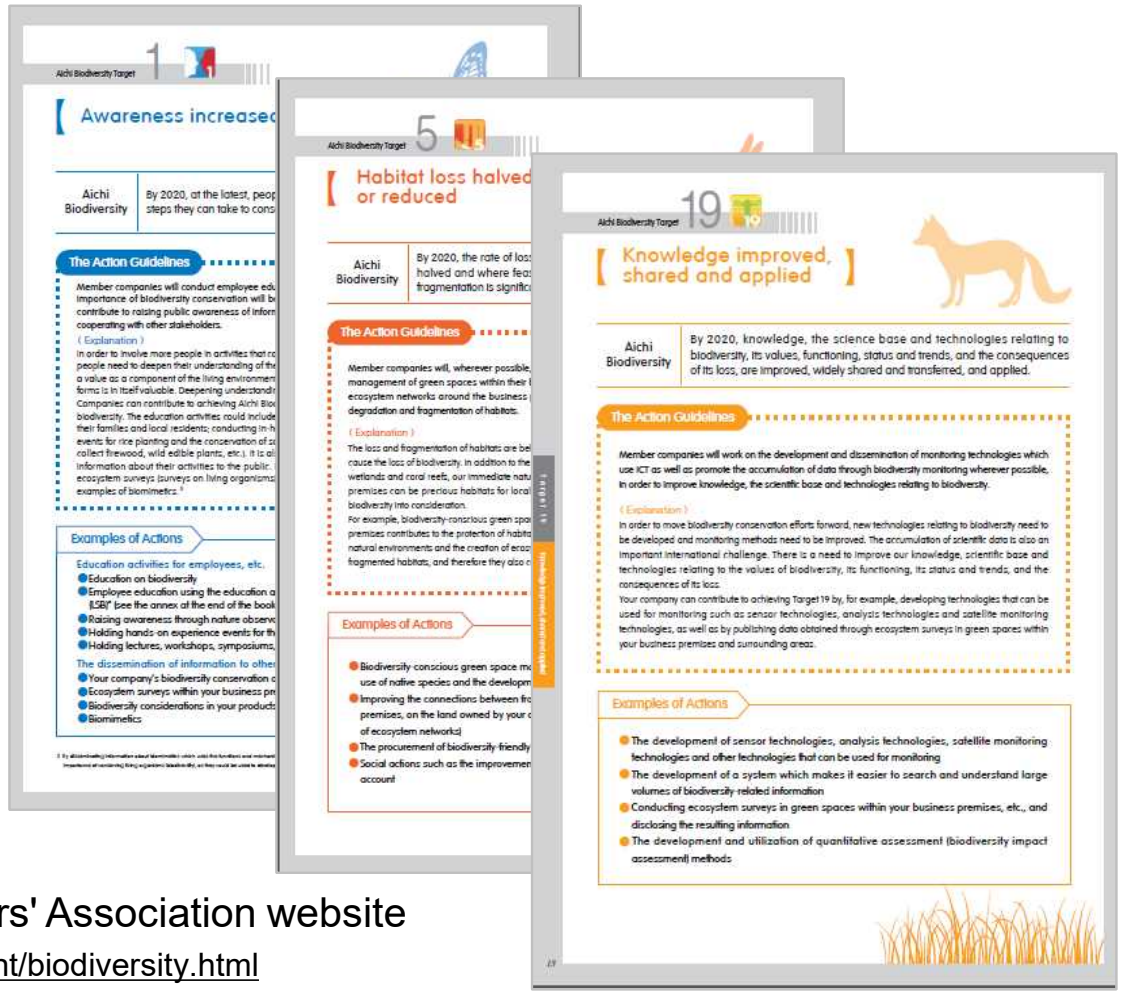
The Relationship between Aichi Biodiversity Targets and the Electrical and Electronic Industries



Guidelines for Action by the Electrical and Electronic Industries concerning Biodiversity Conservation



In the guidelines, eight targets from the 20 Aichi Biodiversity Targets, namely Targets **1, 4, 5, 8, 9, 11, 14** and **19**, have been selected as items which are highly relevant to the electrical and electronic industries and should be promoted actively. The guidelines also summarize the directions in which member companies can contribute with regard to each target.



Published on the Japan Electrical Manufacturers' Association website

http://www.jema-net.or.jp/English/businessfields/environment/biodiversity.html

List of Action Guidelines

Aichi Target	Action Guideline
Target 1 Awareness increased 	Member companies will conduct employee education on biodiversity wherever possible so that the importance of biodiversity conservation will be widely recognized. Member companies will also contribute to raising public awareness of information about their conservation activities through by cooperating with other stakeholders.
Target 4 Sustainable consumption and production 	Member companies will conduct the following activities in their production activities and supply chains at each life-cycle stage wherever possible, in order to achieve sustainable consumption and production. : Continuous efforts to reduce CO_2 emissions in the production process : The provision of products and services that contribute to achieving a low-carbon society : Reducing the volume of waste to be landfilled : The 3R activities (Reduce, Reuse and Recycle) : The procurement of biodiversity-friendly materials, etc.
Target 5 Habitat loss halved or reduced 	Member companies will, wherever possible, take social actions and conduct biodiversity-conscious management of green spaces within their business premises, as well as promote the creation of ecosystem networks around the business premises, in order to protect habitats and reduce the degradation and fragmentation of habitats.
Target 8 Pollution reduced 	Member companies will strive for the appropriate management of chemical substances from a global perspective and reduce adverse effects on ecosystems wherever possible, in order to prevent pollution that is detrimental to ecosystems and biodiversity.

スライド 50

安藤1

ノートtaaget9~19は削除

安藤 直子,

List of Action Guidelines

Aichi Target	Action Guideline
Target 9 Invasive alien species prevented and controlled 	Member companies will actively work on the eradication of invasive alien species, the prevention of the introduction of invasive alien species and awareness-raising activities about the problem, particularly in the transportation of their products, in the management of green spaces within their business premises and in their social actions, in order to prevent the impacts caused by invasive alien species.
Target 11 Protected areas increased and improved 	Member companies will, wherever possible, conduct biodiversity-conscious green space management which contributes to protected areas within their business premises and on land owned by their companies, as well as conduct conservation activities in protected areas outside their company premises, in order to expand protected areas that are important for biodiversity.
Target 14 Ecosystems and essential services safeguarded 	Member companies will conduct activities for conserving and restoring ecosystems wherever possible, so that ecosystem services can be used sustainably.
Target 19 Knowledge improved, shared and applied 	Member companies will work on the development and dissemination of monitoring technologies which use ICT as well as promote the accumulation of data through biodiversity monitoring wherever possible, in order to improve knowledge, the scientific base and technologies relating to biodiversity.

スライド 51

安藤2

ノート部分のtarget1-8は削除

安藤 直子,

Conclusion

Let's start biodiversity action!

Let ‘s start taking action by doing what we can, in order to be able to pass on the biodiversity which supports our lives, and continue business into the future.

The Biodiversity Working Group, the 4 Electrical and Electronic Industry Associations

The Japan Electrical Manufacturers' Association

Japan Electronics and Information Technology Industries Association

Communications and Information network Association of Japan

Japan Business Machine and Information System Industries Association

<Contact us>

Environmental Department,
The Japan Electrical Manufacturers' Association
http://www.jema-net.or.jp/English/