

## **Komatsu's Guidelines for Biodiversity**

The year 2010 is a milestone year for biodiversity as the United Nations has declared 2010 to be the International Year of Biodiversity. Also in 2010, the tenth session of the UNFCCC Conference of the Parties (COP 10) was held in Nagoya, Japan, and the session reviewed the 2010 Biodiversity Target\* and set the Post-2010 Biodiversity Target. People's interest in biodiversity is heightening around the world, and corporate efforts in this area are also attracting keen attention. Unfortunately, COP 10 found not only that the 2010 Biodiversity Target had not been achieved but also that biodiversity had been damaged at an unprecedented pace over the last 50 years. The biodiversity crisis has become more evident.

Over the years, Komatsu people at every plant have worked voluntarily to protect biodiversity through such activities as the reduction of environmental impact based on its assessments, planting and local environmental conservation efforts as part of its social contributions. Recognizing the importance of biodiversity in this milestone year, Komatsu has decided to comprehensively implement global, group-wide activities to be led by biodiversity.

\*The 2010 Biodiversity Target: Held in The Hague, the Netherlands in 2002 under the theme of "from dialogues to actions," COP 6 adopted the 2010 Biodiversity Target which called for significant reduction of the speed in losing biodiversity.

### 1. Biodiversity

Biodiversity represents the well balanced conditions of a diverse range of life forms living in different natural environs. It is often defined as consisting of ecosystem diversity, species diversity and genetic diversity.

- 1) Ecosystem diversity: A variety of communities in the form of an ecosystem, such as tidal flats in the Tokyo Bay, coral reefs in Okinawa, forests such as natural woods, woodlands and man-made woods, marshes in Kushiro and Oze, different rivers and grasslands.
- 2) Species diversity: All kinds of life forms, such as cherry trees, honey bees, sparrows, mice, carps, humans, and so forth.
- 3) Genetic diversity: The variation of inheritable characteristics present in a population of the same species.

#### [Convention on Biological Diversity]

The United Nations Conference on the Environment and Development, Rio de Janeiro in 1992, adopted the United Nations Framework Convention on Climate Change (effective in 1994) and the Convention on Biological Diversity (effective in 1993).

The Convention on Biological Diversity regards biodiversity in terms of ecosystems, species and genes with the following respective goals.

- 1) To conserve a diverse range of life forms on earth together with their respective habitats.
- 2) To use biological resources in a sustainable manner.
- 3) To ensure the fair and equitable distribution of benefits from using genetic resources.

[Ecosystem services]

To understand the importance of biodiversity, we can think about all those rich services which we receive from a diverse range of ecosystems in our daily living or corporate activities. As shown in Figure 1, ecosystem services are generally divided into four categories.

- 1) Provisioning services: Food, fuel, lumber, textile, water, pharmaceuticals and other vital resources for humans are supplied.
- 2) Regulating services: Benefits for humans from natural control of the ecosystem, such as purification of water and air, waste decomposition and detoxification, climate regulation, pest and disease control.
- 3) Cultural services: Non-materialistic benefits for humans in the ecosystem, such as recreational experience, natural landscape, forest therapy and ethnic cultures.
- 4) Supporting services: Services that support other services, such as oxygen from photosynthesis (primary production), nutrient dispersal and cycling and water circulation by means of evaporation.



Figure 1. Ecocycle Services

[4 Crises]

Animals and plants of diverse types are an important element of biodiversity, but the extinction of species is on the rise. The ICUN Red List of Threatened Species counted 11,167 in the 2002 version but increased to 17,291 in the 2009 version.

Factors responsible for the extinction of species are categorized as “4 crises (3+1 crises)” of biodiversity as follows.

- 1) First crisis (caused by human activities and development): The number of species reduced or extinction of species caused directly by human activities and development, or habitat space reduced or lost through destruction, disruption or deterioration of the ecosystem
- 2) Second crisis (caused by reduced human activities): Changes in environmental quality, reduced number of species and changes in habitat and growing conditions resulting from reduced or withdrawn human activities for nature against the backdrop of lifestyle and industrial structural changes as well as socio-economic changes such as declining population.
- 3) Third crisis (brought by humans): Ecosystem is disturbed by alien species which were artificially brought by humans or is affected by chemical substances.
- 4) Global warming crisis: Biodiversity is very fragile regarding climate change. For example, when global average temperature increases by 1.5 to 2.0 Celcius, it is predicted that an extinction risk will increase among roughly 20 to 30% of animals and plants which have been studied.

2. Why companies get involved: Risks emerging from not getting involved.

While business activities are possible with benefits for biodiversity (ecosystem services), they also affect the natural environment and ecosystems.

Accordingly, it is indispensable for companies to fulfill corporate social responsibility by not only avoiding negative effects on the ecosystem but also engaging in social contribution activities designed to materially protect biodiversity and thus to ensure that business activities are sustainable into the future.

In the following, we are going to qualitatively describe the possible effects we could have on biodiversity as well as the risks emerging from not getting involved in protecting biodiversity.

[Possible effects by Komatsu]

1) Changes in the habitat

\*The area of habitats is reduced or disrupted by the changing landscape for construction of factories, etc. The number of such life forms and species is reduced in the concerned area.  
Animal trails are disrupted.

\*Changes in the habitat environment are caused by changes in the flow and volume of rainwater after rainwater has been used.

2) Excessive use of biological resources

(\*Minimal effects directly)

3) Alien species

- \*The ecosystem is affected by immigration (or emigration) of alien species during transportation.
- \*The ecosystem is affected by using alien species as part of greenery and other projects.

4) Pollution

- \*Chemical substances contained in wastewater affect the ecosystem.
- \*Contaminated soil and groundwater affect the ecosystem.
- \*Chemical substances in exhaust gasses affect the ecosystem.
- \*Environmental impact when disposing of industrial waste affects the ecosystem.

5) Climate change

- \*Climate change caused by emission of greenhouse gasses affects the ecosystem.

6) Other effects on biodiversity

- \*Changes in habitats are caused by lighting at night.
- \*Breeding of animals is affected by noise.

[Risks emerging from not getting involved in protecting biodiversity]

1) Business operation

- \*Lack of raw materials or expanded procurement costs of raw materials are caused by reduced biological resources. (Minimal effects on Komatsu)

2) Legal matters

- \*Payment of fines for the violation of biodiversity-related regulations, cancellation or rejection of the permit, etc.
- \*Additional surcharge or alternative land when developing land
- \*Damaged reputation of quarrying companies and contractors resulting from the violation of law and regulations

3) Reputation

- \*Damaged brand and corporate image or crisis of social acceptance of doing business after bad effects on biodiversity becoming more obvious (construction equipment suffers from the image of destroying the environment).

4) Marketplace and products

- \*Lowered competitiveness of products and services on the market resulting from deterioration of environmental quality
- \*Customers running away first from products with a big impact on the ecosystem

5) Financial

- \*Possibility of not being able to get loans because of more stringent loan conditions.

6) Internal

- \*Lowered employee morale

We can anticipate a change in people's expectations from companies (higher levels), and thereby we should be prepared to see higher risks.

### 3. Komatsu's Efforts

As shown in Figure 2 below, Komatsu's efforts for protection of biodiversity are not only directed to biodiversity conservation activities in the narrow sense of the term (regeneration capacity of Earth's environment) but also include conventional efforts to reduce environmental impact.

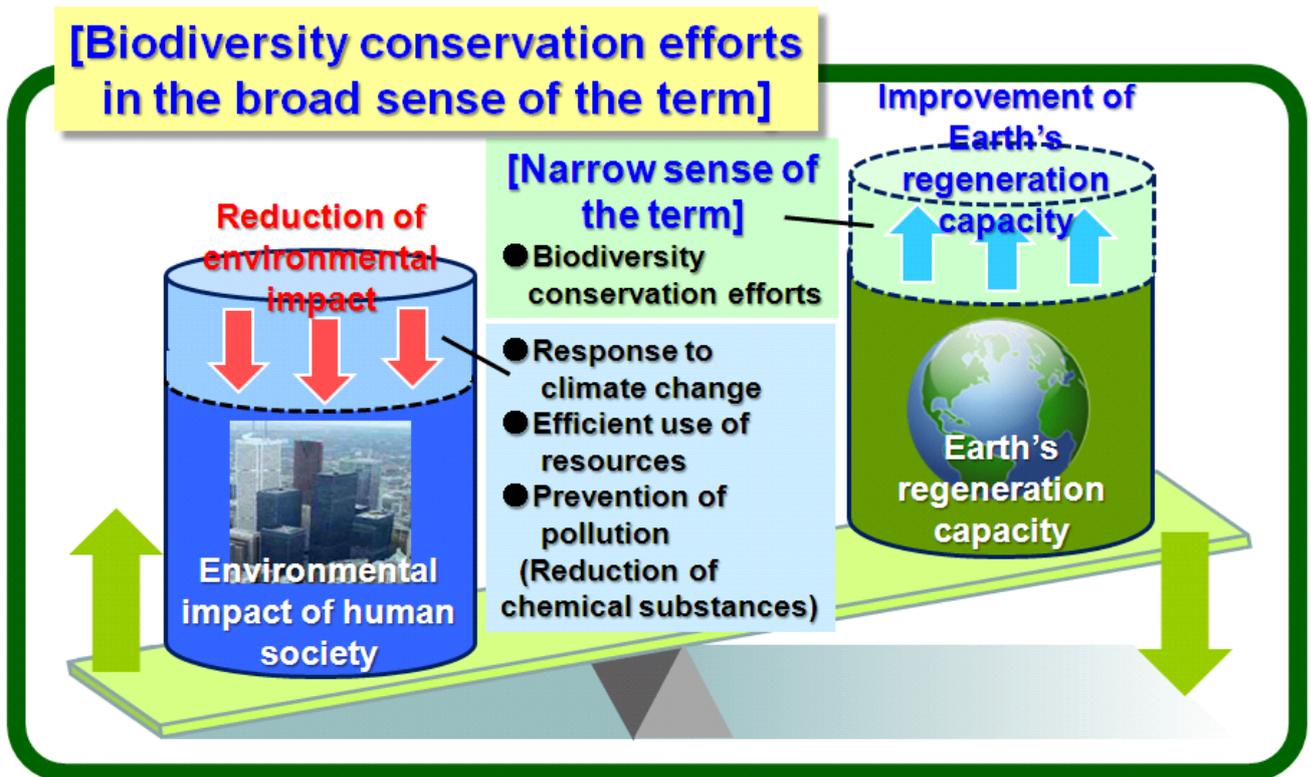


Figure 2. Komatsu's Stance on Biodiversity

#### [Basic stance on efforts]

It is fundamentally designed to foster the growth of employees with a mindset of biodiversity. Based on the "Declaration on Biodiversity by Komatsu," we are going to engage in activities by paying attention to the following matters.

- 1) Work on biodiversity by integrating climate change problems.
- 2) Engage in activities by considering the lifecycle of our products.
- 3) Take a global, group-wide approach (all operation bases and divisions).
- 4) Take a step-by-step approach by considering the possibility of actual achievement.

#### [Stance on efforts]

Based on the concepts of biodiversity, we are going to carry out activities basically from the following two perspectives.

- 1) To protect biodiversity through business activities.
  - (1) To reduce the environmental impact of our products.
  - (2) To directly reduce the environmental impact of our products through their lifecycle.
  - (3) To consider biodiversity when developing land for new factories in addition to when building new factories.
- 2) To enhance employees' awareness. Social contribution activities (provision of opportunities to

relate to nature).

[Promotion of efforts]

Promotion of the “One Topic for Each Base” campaign. Each and every business base of the Komatsu Group shall promote one topic for one year. Initially, topics should be oriented for the respective local communities. In the future, we may be able to implement the best practice horizontally.

[Examples]

1) Procurement of raw materials

(1) We shall incorporate “considerations for biodiversity” into procurement standards.

(2) We shall reduce the amount of resources in use.

(3) Business partners in each phase of the supply chain shall promote the procurement of raw materials by considering biodiversity.

\*Use recycled materials rather than virgin materials.

\*Compliance is ensured for biological resources and other raw materials to be procured. Ensure that no conversion of land use has been made from land with a high value of protection. Ensure sustainable use of raw materials by using a management system and the like.

\*Separate, segment and display raw materials for which biodiversity is considered from other raw materials.

\*Utilize certified raw materials for procurement.

(4) We shall work to offer cooperation and education to business partners in the supply chain, within our range of influence.

(5) Business partners in the supply chain shall also participate in the social contribution activities of our plants and/or in communities.

2) Sales and service

(1) Check the effects of our products and service on biodiversity.

(2) Promote the handling of products which consider biodiversity.

(3) Disclose information concerning the contents of products and service which respect biodiversity.

(4) Promote communications concerning biodiversity in marketing and sales activities.

\*Support rehabilitation/re-use of land after mining; Bring back local vegetation.

3) Research and development

(1) When conducting research and development of products, etc., consider their possible effects on biodiversity in all stages of their product lifecycle.

\*Reduce environmental impact on the natural environment.

(2) Study business models which take biodiversity into consideration.

\*Conduct research and development of products which are designed to promote the reduction of industrial waste volume.

\*Conduct research and development which certifies biodiversity considerations.

(3) Protect local rare species and endangered species.

- (4) Protect the local natural environment, such as forests (woodland).
- (5) Promote Reman activities (recycling parts of construction equipment).

#### 4) Factories

- (1) With respect to CO<sub>2</sub>, waste water, chemical substances, etc., study their effects on biodiversity, check their types and volume and carry out reduction measures, etc. → Reduce direct environmental impact on the natural environment.
- (2) Build factories which are rich in biodiversity. (Increase the proportion of greenery area.) → Build factories surrounded by forests. (Planting based on the concepts of natural forests)
- (3) When conducting research and development of manufacturing engineering, consider its potential effects on biodiversity.
- (4) Conduct research and development of manufacturing engineering which can reduce the use of raw materials.
- (5) Conduct research and development of manufacturing engineering which can reduce its effects on biodiversity.
- (6) Protect local rare species and endangered species.
- (7) Protect the local natural environment, such as forests (woodland).

#### 5) Logistics

- (1) Think about not bringing in (or taking out) alien species.
- (2) Consider biodiversity when deciding on the transportation routes.
- (3) Use low-pollution vehicles and be sure to turn off the engine while parking or stopping for a while.
- (4) Study and implement measures concerning ballast water. (Criteria when selecting vendors)
- (5) Cooperate with the quarantine system and engage in voluntary fumigation.

#### 6) Land use: Land modification and building structures

- (1) Avoid land development where the protection value is considered high in terms of biodiversity.
- (2) When developing land, the business owner shall consider the protection of biodiversity in the selection of contractors, decisions regarding development plans, management of construction, etc.
- (3) When modifying land where ecosystems remain intact, the contractor shall work to reduce the area of modification as much as possible and reduce effects on an area with high degree of biodiversity or an important area as part of a network of habitats and implement measures to protect rare species.
- (4) When building structures, consider biodiversity appropriately at the stage of planning by conducting environmental research in not only the concerned project area but also surrounding environs, studying the installation position of temporary structures after considering the ecological network and implementing measures against noise.
- (5) With respect to construction, consider the effects of procurement of building materials, disposal of waste soil and construction materials on biodiversity in addition to construction per se.

(6) When creating a green space, think about using locally indigenous species and transplanting alien species. Also consider the relationship with ecosystems of surrounding areas, such as networks with other habitats.

7) Land use: Management of owned land

(1) When converting corporate owned land or woods to a green space, the concerned company shall construct a biotope to protect the local ecosystem and provide environmental education to its employees. In cooperation with local universities, NGOs and NPOs, it shall monitor the biotope as appropriately needed and understand its effects on biodiversity.

(2) Get management and operation of the corporate owned green space assessed from diverse perspectives by means of evaluation systems for green space, such as Social and Environmental Green Evaluation System (SEGES).

8) Land use: Re-use of pre-used land

(1) Plant trees in order to bring back the original vegetation of the concerned land before modification of the local vegetation, as soon as possible, while considering a network with surrounding ecosystems.

9) Offices

(1) Reduce direct environmental impact on the natural environment.

(2) Use FAIRTRADE products.

FAIRTRADE: Purchase of FAIRTRADE products mean to promote fair trade between advanced and developing countries by offering better transaction conditions to producers and workers in disadvantaged developing countries and to make contributions for these people to engage in sustainable growth by strengthening their rights.

(diagram)

	Indirect	Effects on Biodiversity	Direct
Business activities	<ul style="list-style-type: none"> <li>• Reduction of environmental impact at factories                             <ul style="list-style-type: none"> <li>– Management of CO<sub>2</sub>, VOC and waste water</li> </ul> </li> <li>• Reduction of environmental impact from products in use                             <ul style="list-style-type: none"> <li>– CO<sub>2</sub>, NO<sub>x</sub>, etc.</li> </ul> </li> <li>• Incorporation into procurement criteria</li> <li>• Biodiesel fuel project</li> <li>• FAIRTRADE office</li> </ul>		<ul style="list-style-type: none"> <li>• Making factories rich in biodiversity                             <ul style="list-style-type: none"> <li>– Factories surrounded by woods (local vegetation)</li> </ul> </li> <li>• Considerations for biodiversity when using land                             <ul style="list-style-type: none"> <li>– Land modification, building structures and management of owned land</li> </ul> </li> <li>• Support for re-using land after mining                             <ul style="list-style-type: none"> <li>– Bringing back vegetation (local nature) before mining</li> </ul> </li> </ul>
Social activities	<ul style="list-style-type: none"> <li>• Social activities                             <ul style="list-style-type: none"> <li>– Fostering the growth of action-oriented employees</li> </ul> </li> </ul>		<ul style="list-style-type: none"> <li>• One-theme activities per one business base                             <ul style="list-style-type: none"> <li>– (Provision of a place where people can relate to nature)</li> </ul> </li> <li>• Protection of rare species and endangered species in local environs</li> <li>• Planting activities based on natural forests (Protection of Satoyama)</li> <li>• Planting activities in Indonesia</li> <li>• Use of the former Komatsu Plant site (biotope)</li> <li>• Collaboration with NGOs and NPOs</li> </ul>

(end)