The year 2010 is the United Nations International Year of Biodiversity, and in October, Nagoya will hold the two-week tenth meeting of the Conference of the Parties (COP10) to the Convention on Biological Diversity, preceded by the one-week fifth Meeting of the Parties (MOP5) to the Cartagena Protocol on Biosafety. Roughly 8,000 people from around the world – not only government officials and ministers, but also representatives from academic groups, companies, NGO/NPO, and the media – will converge on Nagoya. Although the word "biodiversity" tends to conjure up images of pandas, elephants, and other animals, the term applies to all living organisms and microbes, spanning three main categories: "biological diversity," "species diversity," and "genetic diversity."

It has only been several thousand years since human civilization has laid its foundations and become cognizant of its own history. For much of that time, relatively few areas were inhabitable to humans, population was limited, and humans were essentially one part of the greater natural ecosystem. Humanity's respect for nature, I think, was a matter of course. However, after humanity made the transition from wood energy to fossil fuel energy and began to develop scientific technology, Earth's inhabitable area has grown dramatically; and to support an explosive population boom, humans have replaced forests with fields, farms, and cities, and overexploited fishing resources. These developments gave rise to two important global environmental issues: biodiversity and climate change.

With the recent progress in genetic engineering, researchers have developed numerous theories about ways to create life forms – all they would need to know is the life form's genetic structure. Science fiction movies like "Jurassic Park" and "Resident Evil" have applied these concepts, using genetic engineering as a central theme. At the current stage, however, it is impossible to create genes from scratch: for genetic engineering to operate, a virus, bacteria, plant or animal must provide the basic genetic material. And yet, these genes are disappearing at an alarming rate.

It is often said that roughly 1,750,000 species have been formally described and given names, while the total of all species, known and unknown, amounts to 30 million. It may seem a bit odd that we can estimate the number of as-yet-unknown life forms, but humans are only aware of slightly more than 6% of all life on earth, and no matter how advanced our intelligence investigative capabilities may become, in my view, our knowledge of nature will be no more than a tiny fraction of the whole. Right now, as new books enter library catalogs, others are lost - valuable books might be disappearing without us noticing. Similarly, organisms that could serve as effective treatments against new infection diseases might be swept away with all of the other organisms on the path to extinction. It is very possible that organisms of any kind, from microbes to large animals, could be the raw material for the food production that supports growing populations and the development of medical products that keep us healthy. How are we to ensure their genetic safety?

One way is to define goals in numerical terms. In climate change, for example, "Measurable, Reportable, and Verifiable" (MRV) goals and actions are becoming increasingly important. The current biodiversity target is "to achieve by 2010 a significant reduction of the current loss rate of biodiversity," but the "post-2010 target," expected to be adopted at the Nagoya COP10, will likely be a more MRV-oriented goal. In addition, people also need to accept that "our knowledge of nature will be no more than a tiny fraction of the whole," think about ways to cope with that fact, and try to make the transition from the traditional perspective in which people "use materials for further development unless the resource has been proven valuable" to one in which we "preserve the things we don't yet fully understand." To put it simply, we need to treat nature with a "sense of reverence."

What does this mean in concrete terms? As stated above, it is very possible that organisms of any kind, from microbes to large animals, could be the raw material for the food production that supports growing populations and the development of medical products against new infectious diseases - and progressive, innovative structures are required to ensure that those organisms are safe and used well. At COP10, several related structures and systems will be opened to discussion.




The first structure is related to gene trading. The British Royal Botanical Gardens at Kew preserves a wide variety of plants from all over the world, even plants collected by Darwin that are now extinct. European plant hunters scoured the globe for various plants, eventually securing a food supply. Potatoes, corn, and other plants that now serve as staple foods and sources for animal feed, in fact, were not originally European commodities. Quinine, the widely-used remedy for malaria, was made from plants found in local areas. Evidently, the freedom to harvest animals and plants allowed the major industrial powers to reap historically mammoth benefits.

However, looking back now on the history of developing countries that were exploited by developed countries for their animals, plants, and genes, it is clear to me that at COP10, those developed countries have a responsibility to distribute their benefits to developing countries and indigenous peoples and create an international access and benefit sharing system (ABS) for genetic resources. The freedom of gene trading is already becoming a thing of the past, as developing countries rich in biological resources are restricting the removal of genetic resources. The Food and Agriculture Organization has also set up treaties on genetic resources for food and is emphasizing the rights of farmers against major grain companies. With an ABS system, corporations that deal in food, medical supplies, cosmetics, and other fields that make use of genetic material would be required to pay compensation for the protection of genetic resources and divide profits appropriately as the genetic resources are put to use.

Second, considerations for biodiversity are growing more important in corporate activity. Conventional CSR would normally detail areas under company control, like "going green" in a company factory, or forays into cleanup activities that have little bearing on actual company business. This format must take another step forward. Financial institutions, for instance, are beginning to investigate whether their loan customers pose a threat to biodiversity. As exemplified by the Washington Convention, which regulates the supply chain of international trading to protect endangered species, COP10 will likely be a forum for further debate on guidelines on how the raw materials acquired by companies affect biodiversity. Just as supermarkets that sell produce have to pay careful attention to whether their products harm biodiversity, pharmacies that sell medical products will have to ensure that their medicines do not do damage. CSR would then be a key element of actual business.

Come October, COP10 participants will be debating many matters. Hopefully the discussion will be met not with a passive response, but be taken as an opportunity to demonstrate Japan's abilities to define clear rules and establish principles of action.

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