BIZ N BIODIVERSITY PLATFORM

Biz N Biodiversity Platform
According to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) report, the economic value of ‘pollination’ that insects and animals, including bees and butterflies transport pollen and make plants bear fruit, is estimated to be US $ 235 to $ 577 billion. These results suggest the economic benefits and importance of biodiversity. In order to preserve biodiversity, the Korean government is making efforts to preserve biodiversity by establishing a ‘basic plan for nature conservation’ ahead of the ratification of Nagoya Protocol by the National Assembly, and will increase awareness of the importance of biodiversity throughout the industry and actively support the biodiversity conservation activities of companies through establishment of a public-private partnership. Based on these endeavors, we hope that all of us will be able to create the cornerstone of an environmental welfare nation that will be passed on to future generations. Thank you.

As biotechnology is developing and various drugs, cosmetics and health supplements using biology are developed, the value of biology is newly on the rise. Biodiversity is the foundation of bio industry, and although it provides necessary raw ingredients stably and provide new business opportunity through development of new substance, the rate of loss is accelerating due to severe environmental pollution and rapid climate change. In order to reduce the rate of loss of Biodiversity and enhance the awareness on the importance of Biodiversity, Convention on Biological Diversity was adopted in 1992, and Nagoya Protocol on the approach of genetic resource and fair profit share took effect in 2014. ‘BNBP Secretariat’, jointly launched by KoreaBIO and KBCSD, will continue activities for awareness improvement in the importance of Biodiversity conservation and sustainable use and strengthen the ability to counteract against Nagoya Protocol, to fulfill the pivotal role in conservation of Biodiversity.
Introduction of Biz N Biodiversity Platform, BNBP

BNBP (Biz N Biodiversity Platform) actively cooperate with the industry to preserve national genetic resources and emphasizes on using green energy. The Platform helps businesses finding alternative solutions in purchasing, manufacturing, and distribution of goods while achieving the ultimate goal of improving the environment and conserving resources.

Objective

BNBP actively participate conservation of genetic resources
Support to addressing Nagoya Protocol
Develop business solution for preserving Biodiversity and sustainable use of genetic resources
Discovering and sharing best business practices of the related fields
Sponsoring conservation of Biodiversity activities

History

2012-2013 | Government-Industry discussion panels on cooperative business for Biodiversity conservation
2013. 08 | Ministry of Environment-Industry Joint statement signing ceremony for bioresource conservation
2014. 05 | Biodiversity Day seminar
2014. 06 | Professional training for Biodiversity conservation and sustainable use
2014. 10 | Green Company Council general assembly for corporation Biodiversity conservation activity expansion
2015. 05 | Operation of Biodiversity and Nagoya Protocol Promotion Hall
2015. 11 | Biodiversity seminar for enhancement of competency coincides with the Nagoya Protocol
2016. 03 | Secretariat inauguration and an opening ceremony

Project System

KoreaBIO
- Educational seminar
- Project management
- Promote industry-leading business planning best practices
- Develop/enforce guidelines
- Market research

KBCSD
- Professional training for employers
- Promote industry-leading business planning best practices
- Develop/enforce guidelines
- Project management
- Market research

Run by KBCSD, Supported by KoreaBIO
- Project managers
- Direct policy meeting
- Cooperate with international initiative
- Community outreach, Homepage
- Out-performers award ceremony

Companies in M.o.E-Industry Biodiversity conservation Joint Declaration

Daewoong Pharmaceutical
Korean Air Lines
Dong-A ST
LOTTE CHEMICAL
BiONEER
Samsung Institute of Safety & Environment
Samsung Electro-Mechanics
ASIANA AIRLINES
LG Display
LG Chem
S-OIL
SK Innovation
LG Electronics
Hyundai Oilbank
MS Biotech
Samsung Display
GeneMatrix
GeneMatrix
POSCO
Korea Biodiversity Industry Organization
Frontier Life
GeneMatrix
Bioneer

Adress by KBCSD, KoreaBIO
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Korea Health Supplements Association
Korea Land & Housing Corp.
Korea Business Council for Sustainable Development
Korea Biotechnology Industry Organization
Conservation of marine ecosystem and publication on Biodiversity

POSCO is leading the restoration of marine ecosystem using steel slags. Triton is the mythological Greek god of the sea that calls fish and dolphins by blowing on a twisted conch shell like a trumpet. He has the ability to restore sea forests. It is also the brand name for the low-carbon artificial fish reef using steel slag as aggregate. Triton, which is used to restore coastal areas damaged by whitening caused by rising sea temperatures, helps restore marine resources such as seaweeds, fish and shellfish. Steel slag, the main material for Triton, has high content in minerals such as calcium and iron that are beneficial to the marine ecology, which speed up the growth and photosynthesis of seaweeds, purifies polluted sediments and water quality. A sea forest made with Triton can fixate CO$_2$ due to carbonization of the slag and photosynthesis of seaweeds. After signing an MOU with the Ministry of Oceans and Fisheries in 2007 for establishing measures against marine climate change, POSCO signed another MOU in 2010 for building sea forests and marine resources. Under this agreement, we are continuing the project for building sea forests in cooperation with FIRA (Fisheries Resources Agency) and RIST. POSCO plans to reinforce the cooperative activities with the government, civilians (fishing villages), and academia to build new sea forest models, and for the management of existing marine forests and surveying their effectiveness.

POSCO has been working on publication project with civic environment groups on endangered species. They chose eagle-owl in 2014 and red-crowned crane in 2015 to provide the opportunity to think about biodiversity and environment in various sectors through the publication of books that included experiences and episodes from figures in all levels of society. POSCO will continue to expand environmental contribution activities with the cooperation of civic environmental organizations.

Terms

**Marine forest**
Inserting artificial structures on the coastal bedrock area that is damaged by coralline flat or creating artificial bedrock in areas that lack in bedrock to create marine algae colony such as kajime or sargassum, creating a spawning ground/habitat for marine organisms.

**Coralline flat**
A phenomenon where beneficial marine algae like seaweed, kelp, sargassum or kajime disappear and white crustose coralline algae settle down on the coastal bedrock area, which makes the fishes and shellfishes that use marine algae as spawning ground or food disappear—also known as seaweedification.
Endangered Natural Treasure Protection Campaign

Contributing to the improvement of social awareness on the value of biodiversity

S-OIL is implementing various social contribution activities for environment, heroes, local community and needy people through the social contribution program called ‘Sunshine Sharing Campaign’. Among them, the ‘Natural Treasure Protection Program’ has selected otters in 2008; Red Crowned Crane in 2009, Eoreumchi (Cyprinid Fish) in 2010, and Long-Horned Beetle in 2013 and have been operating 5 kinds of support programs. S-OIL has been continuously making small efforts to the conservation of biodiversity and sustainable use by participating in the treatment of biospecies with environmental damage and constructing safety net through the protection of endangered natural treasure. S-OIL’s Natural Treasure Protection Program offers direct activities including species conservation research, treatment, feeding, increase in population and discharge, and are also operating ecology camps and University Students’ Natural Treasure Protection Public Service Corps to help understand natural treasures better and spread more information about the value and importance of natural treasures. S-OIL has supported total 1.7 billion won in the last 9 years for the protection of 4 endangered species, has held children’s natural treasures classes to over 3,000 children from low-income families, is operating University Students’ Natural Treasure Protection Public Service Corps of 280 university students, and over 3,000 employee family members are participating in volunteer activities.

Support in protection selected species and research activities in relevant organizations

S-OIL is sponsoring the research and activities of endangered species organizations that are working under harsh conditions. Association of Korean Otter Conservation, Korean Association for Bird Protection, Crane Protection Association, Korean Association for Conservation of Freshwater Fish, and Natural Treasure Insect Research Center are working as partners. S-OIL’s Natural Treasure Protection Program has selected otters in 2008, Red-Crowned Crane in 2009, Eoreumchi (Cyprinid Fish) in 2010, and Long-Horned Beetle in 2013 and have been operating 5 kinds of support programs. S-OIL has been continuously making small efforts to the conservation of biodiversity and sustainable use by participating in the treatment of biospecies with environmental damage and constructing safety net through the protection of endangered natural treasure. S-OIL’s Natural Treasure Protection Program offers direct activities including species conservation research, treatment, feeding, increase in population and discharge, and are also operating ecology camps and University Students’ Natural Treasure Protection Public Service Corps to help understand natural treasures better and spread more information about the value and importance of natural treasures. S-OIL has supported total 1.7 billion won in the last 9 years for the protection of 4 endangered species, has held children’s natural treasures classes to over 3,000 children from low-income families, is operating University Students’ Natural Treasure Protection Public Service Corps of 280 university students, and over 3,000 employee family members are participating in volunteer activities.

Korea’s only university student volunteer group for natural treasure protection, ‘University Students’ Natural Treasure Protection Public Service Corps (USNTPPSC)

S-OIL is also operating S-OIL University Students’ Natural Treasure Protection Public Service Corps with young university students. With students in biology, veterinary science and general studies, they are implementing various activities including the support for understanding of protected species and civic promotion activities. Starting with the starting ceremony each July, the group visits organizations related to the 4 protected species to understand the current status of ecosystem and understand the organization’s activities. Next, in connection with these organizations, USNTPPSC frequently supports organization activities and holds nationwide awareness improvement campaign. Also, the advisory committee consists of professors in relevant departments, so these activities serve as practical activities that provide actual help in the protection of natural treasure.

Natural Treasure Class for Children from Low-Income Family

Spreading the importance of natural treasures among children of future generation is very important as well. S-OIL works with Korea Food for the Hungry International in the operation of 1-day natural treasure class on 400 children from low-income families each year. They visit Hwacheon for otters, Cheorwon for red-crowned cranes, Cheongpyeong for Eoreumchi (cyprinid fish), and Yeongwol for long-horned beetles for education on protected species and natural experience learning, providing the opportunity for children from low-income families to recognize the importance of environmental protection.

Employee and customer volunteering

S-OIL holds family volunteer activities that combine ecological education each year, including fry discharge, otter discharge, feeding red-crowned crane in Cheorwon, and visiting insect museum in Yeongwol. These programs are very popular within the company, and have 400-500 people participating 4 times a year.

Sisterhood relationship with and visits to military unit in charge of DMZ

Through the sisterhood relationship units in Hwacheon and Cheorwon, S-OIL is supporting organic research and protection activities of protected species organizations in DMZ area. Also, the family volunteer groups pay visits to the relevant military unit for encouragement, providing a different kind of experience. It is setting an example of private-corporation-military cooperation for ecological protection in DMZ area.

To us humans that are living in the Mother Nature, protecting the precious value that we created is important, but we have the responsibility to preserve the natural environment that serves as the base for people, along with numerous animals and plants. As a way to join in such responsibility, S-OIL’s social contribution activities to protect endangered natural treasures will continue on in the future.
Conserving and Utilizing Biodiversity and Sharing Benefit

Restoration and utilization of rare white Chrysanthemum flower

Among over 3,000 species of chrysanthemum, AmorePacific focused on Chrysanthemum indicum, which is known to be used as medical and edible purposes. Among them, it discovered that white chrysanthemum indicum not only has more outstanding whitening effect than the general yellow chrysanthemum and existing whitening ingredient, but also can control expression of gene related to freckles. It was back in 2010 when AmorePacific began their joint research with Kyug Farm to restore the rare white chrysanthemum for the first time in the world, and this led to the development of new varieties ‘Gukyaseolhwa’ and ‘Gukyasuyul’ in 2012. As a result of such efforts, AmorePacific released products like ‘Hanyul White Chrysanthemum Powder Serum’ and ‘Hanyul White Chrysanthemun Sun Screen’.

Restoration and research of rare native beans

AmorePacific is also working on the restoration of rare native beans, to reinforce competitiveness of native beans that are disappearing with the increased use of GMO beans, to conserve biodiversity and to investigate and value of native beans. In 2011, it bought about 140 species of rare native beans through Rural Development Administration and proceeded with cultivation for restoration and proliferation. Passing through the cultivation complex in Paju, Gyeonggi-do, this led to the seed multiplication and species classification. In September 2013, it signed MDGU for the creation of AmorePacific complex specializing in beans and development with functional material through restoration and research of rare native beans, and succeeded in mass cultivation of flat beans in the clean areas of Yeongweol, Gangwon-do. AmorePacific Technology Research Center focuses on napttegikong, horangikong and saeal with anti-oxidant and creation of AmorePacific complex specializing in beans and development cultivation complex in Paju, Gyeonggi-do, this led to the seed multiplication reinforcement competitiveness of native beans that are disappearing with the AmorePacific is also working on the restoration of rare native beans, to conserve biodiversity and to investigate and value of native beans.

Development and use of new shrub hibiscus

AmorePacific is striving to remind the importance of shrub hibiscus and spread its inherent beauty. After the MOU (2014) with Chollipo Arboretum Foundation, which has been studying shrub hibiscus for decades, it has been working on joint research and developed a new variety that has outstanding effects in moisturizing. Moreover it has been working on its proliferation since 2016. It also discovered a natural moisturizing factor in the bark of Shrub Hibiscus, and launched Mamonde Moisture Ceramide Intense Cream to successfully spread the value of Shrub Hibiscus’s vitality. In addition, a part of profit made from the sales of Mamonde Moisture Ceramide Cream was donated to Chollipo Arboretum Foundation’s restoration project for yellow rosemallow in February 2016.

Beautiful Fair Trade

AmorePacific has been carrying out Beautiful Fair Trade, which is designed to contribute to the customer, environment and society positively by following three principles of raw material safety, environmental protection, and contributions to the local community in the processes of selecting and purchasing raw materials, since 2010. Starting with camellia in Jeju Dongbaek village in February 2010, AmorePacific has been purchasing outstanding raw ingredients through the agreements with 8 regions of Korea, and expanded it internationally in 2013. The region that entered into Beautiful Fair Trade agreement with AmorePacific in 2013 is Jamui district in Bihar state, India. AmorePacific has proceeded with the Global Beautiful Fair Trade project, where it purchase mango seeds from Jamui district to produce mango butter, Mango seeds were used as AmorePacific’s germination plant brand, Pridera’s Mango Butter Comforting Body Lotion; Pridera has been continuing donations to the region through “Let’s Love” campaign, where it present mango seedlings to families with girls in Jamui.

Supporting Biodiversity Foundation

For the conservation of natural ecology, AmorePacific has been supporting Biodiversity Foundation since its establishment to educate and inform the biodiversity to the public. Biodiversity Foundation is a non-profit organization that researches wild animals and plants and strives to solve the problems of environmental destruction in more fundamental ways. Also, a naturalist brand, Pridera, spreads the importance of the wetland’s ecosystem through “Love the Earth” campaign, and continues donations to ‘Ecology of Wetlands Conservation Project’.

Publication of <Story of Beautiful Plants in Jeju> and <Beyond Flower>, Korean native plant book

AmorePacific has been participating in the research and preservation activities for local Jeju plants and traditional knowledge related to them. In order to help understand Jeju’s native plants and contribute to the conservation activities, it has published ‘Stories of Beautiful Plants in Jeju’, which includes traditional knowledge on native plants of Jeju, twice in 2012 and 2014. The book includes miniatures and dermatological effects of Jeju native plants, and Jeju’s traditional knowledge related to those species. Also, in 2015, it published a raw material plant catalog ‘Beyond Flower’, including 100 miniatures of Korean traditional plants, in order to record, preserve and spread about Korea’s plants. This catalog includes the detailed structure, form and information of raw ingredients, where AmorePacific’s old know-hows in plants are summarized in.

Hosting Biodiversity Conservation Symposium/ Asia Women Eco-Science Forum

In November 2012, AmorePacific hosted ‘Joint Symposium for Biodiversity Conservation and Sustainable Development’ with Korea Federation of Women’s Science & Technology Associations. This symposium was held for cooperative approach among industry-academia-research for Biodiversity conservation and formation of social sympathy, and gave an opportunity to seek the role of women’s science and technology circle for practical plans. In November 2013 as well, it hosted ‘Asia Women Eco-Science Forum 2013’ with Korea Federation of Women’s Science & Technology Associations on the theme of ‘Biodiversity and Sustainable Development’, with faculty and rising women scientists from over 10 Asian countries participating, to examine the status of Biodiversity in different Asian countries and discuss for the better future.
The Development of Novel Botanical Drugs that Maximizes the Value of Biological Resources

Development of new global botanical drug using biological resource

The history of new drug development in Korea began in 1999 with a platinum anticancer drug ‘Sunplala’. By the end of the first half of 2016, 27 new drugs and 8 new botanical drugs have been developed. It is a satisfactory quantity of new drugs developed in less than 20 years, yet not satisfactory performance in global market, as only a few of them were approved in developed countries.

Dong-A ST is focusing on developing new botanical drugs not only in Korea, but in the global market. The efforts are not only in optimizing the knowledge and technology but also in pursuing open-innovation to work with both domestic and international experts from universities and research institutions. As a result, a quality control system that is considered as fundamental in developing new botanical drug was successfully established, which helps Dong-A to possess world-class competitiveness. Dong-A ST believes that a local development should be essential to be approved in developed markets that are not familiar with botanical drugs, it has established networks with local clinical experts and is conducting clinical studies locally to demonstrate the efficacy.

As a result of such efforts, DA-9801, a treatment for diabetic neuropathy extracted from Dioscorea Rhizome and Dioscoreae Nipponicae Rhizoma has successfully completed phase II clinical study in the U.S., and a U.S. phase III clinical study is scheduled in 2017. Also, Moltox®, which had been released in domestic market, is under phase II clinical study in the U.S. as well. The neurodegenerative disease drugs that are previously mentioned are being developed and nonclinical studies are actively in progress in the U.S., targeting for phase II clinical study in 2016 for the treatment of Parkinson’s Disease and initial clinical study in early 2018 for Alzheimer’s Disease.

Preparation Combat the Threats of Nagoya Protocol

Establishment of Corporate SOP against the activation of Nagoya Protocol

Nagoya Protocol was first adopted in 2012 in Nagoya, Japan, and achieved ratification in 50 countries in 2014, taking effect in Pyeongchang, Korea. China has ratified it in June 2016, taking effect since September, bringing the total number of ratification to the treaty to 78. So far, there is no report of damage case arose from Nagoya Protocol by domestic corporations, marking the threat appear to be far off. In fact, to have Nagoya Protocol comes into effect, the law of country that is fulfilling it must be amended or modified but in pursuing open-innovation to work with both domestic and international experts from universities and research institutions. As a result, a quality control system that is considered as fundamental in developing new botanical drug was successfully established, which helps Dong-A to possess world-class competitiveness. Dong-A ST believes that a local development should be essential to be approved in developed markets that are not familiar with botanical drugs, it has established networks with local clinical experts and is conducting clinical studies locally to demonstrate the efficacy.

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Pathophysiology & MoA

The main purpose of the Convention on Biological Diversity is to increase ‘sustainable use of components of biological diversity’, which makes it different from other general natural preservation activities. Convention on Biological Diversity is an international effort to secure the possibility of efficient and sustainable use of biological resources.

Convention on Biological Diversity and its annex protocol, Nagoya Protocol were expected to decrease the use of biological resources, on the other hand, the activation of Nagoya Protocol would increase world wide interests in biological resources and accelerate database formation, thus activate the use of biological resources in contrast. In other words, Nagoya Protocol is a crisis yet an opportunity for companies working on biological resources.

Dong-A ST is focusing on the discovery of biological resources in Korea and R&D of new botanical medicine based on that, and is also making efforts to combat the threats which arise from Nagoya Protocol.
Overview
• KBCSD (Korea Business Council for Sustainable Development) is a CEO-led organization of forward-thinking companies that endeavors to put Korean industry on track to economic development in harmony with environment and social development.
• KBCSD is a regional network partner of the World Business Council for Sustainable Development (WBCSD).

Major Public-Private Policy Consultation
Convene CEO gatherings with high-level officials from politics, government and the National Assembly with a view to providing business inputs regarding pending policy issues on sustainable development.

Policy Research
Provide a platform for member interaction in developing sustainability policies, publishing policy recommendation reports, etc.

Visions and Roadmaps
Establish mid- and long-term visions and action plans for the business sector in its response to major sustainability megatrends (Sustainable Korea 2030 Master Plan)

International Relations
Interact closely with WBCSD, CBCSD, Nippon Keidanren, ADB, GCF and other like-minded organizations to promote regional and global collaboration in such fields as climate change, energy, inclusive business, and global CSV

History
2001 MOU concluded between FKI (Federation of Korean Industries) and KBCSD on the establishment of KBCSD
2002 Inaugural General Meeting held on March 21
2008 Designated as a focal point for ‘Green Growth Business Dialogue’ under the Presidential Committee on Green Growth (Recognized as a premier business voice in shaping national sustainability policies)

Business History
1982.03 Korea Genetic Engineering Research Association established, Board president Chung Ju-yung (President, Hyundai Group) inaugurated
1991.11 Korea Bioindustry Association established, President Cho, Wan Kyu and Board president Huh, Yeong Seop inaugurated
1995.05 Korea Genetic Engineering Research Association, changes name to Korea Biotechnology Research Association
2000.07 Korea Bio Venture Association established, President Han, Min Hee (President, Proteogen) inaugurated
2005.02 Korea Bioindustry Association, changes name to Korea Biotechnology Industry Organization
2008.11 Joint establishment of Korea Bio
2012.11 Business & Biodiversity Initiative Workshop held
2013.08 Joint declaration on Biodiversity conservation and sustainable use
2014.10 Symposium at Convention on Biological Diversity 12 (Biosource policy and industrialization plan)
2015.11 Hosted bioindustry seminar for enhancement of competency in response against Nagoya Protocol

Overview
A representative organization in bioindustry to contribute to nation’s economic development through invigoration of relevant companies and improvement of national competitiveness by playing a central role in solidifying the bond in bioindustry and promoting technical development and expedition of industrialization in bioindustry

Major Business
• Support in government’s development of bioindustry development policy
• International marketing invigoration support through global exchanges
• Support of invigoration of bio-business by inducing virtuous circle in bioindustry’s ecology
• Research of bioindustry statistics, etc. and PR activities
• Promotion of members network including gathering opinions from bioindustry
• Think Tank role through the provision of global bio information

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