

JICA's WORLD

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**Forests can
Change the World**

Forests can Change the World

Since ancient times, forests have been the basis for civilization and supported human life. However, with population growth, forests have been cut down and are gradually decreasing.

The decrease in tropical rainforests had already begun in the 1970s when many developing countries began exploiting forests to pursue economic growth. In the world, 80 percent of deforestation is concentrated in three areas: Brazil, Tropical Africa and Indonesia. Indonesia is experiencing deforestation and carbon dioxide stored in peat swamp forests is being released due to land reclamation for oil palm plantations.

Now, global warming has become an international issue. Attention is also focused on the adverse impact of deforestation on the environment. Cutting down forests into fields results in releasing carbon dioxide that was previously absorbed by the



forest. In the 1990s, about 20 percent of carbon dioxide emission was due to deforestation. Thus, the importance of forest conservation for reducing the emission of greenhouse gases such as carbon dioxide began to be realized.

Forest conservation prevents global warming while contributing to maintaining biodiversity and enabling local communities to benefit from the forests. Nevertheless, the effects are somewhat indirect and require much time to be visible. If developing countries can receive economic support for not cutting down trees, this will create direct and short-term benefits for forest conservation.

The Director of the REDD Research and Devel-

opment Center of the Forestry and Forest Products Research Institute, Mitsuo Matsumoto, points out, "It is important to understand the reasons behind deforestation in each country to appropriately plan for forest conservation. In most cases, the reason for deforestation is agricultural development but other reasons exist like civil war. Also cash crops differs in each country such as oil palm, cassava and rubber trees."

Trees are cut down in order to harvest food or earn cash income in the first place. Striking a balance between meeting local needs or sustaining a decent living and forest conservation is a challenge. Every country, including Japan, is formulating guidelines which work for all of them. Initiatives for the future have just begun.





A large amount of logs are being transported. Some trucks drop their loads and escape into the woods to avoid getting caught.

Preserve the Amazon Forest, a Treasure of Our Planet

Amazon is the biggest rain forest in the world extending in seven South American countries. Much work has been done so far to protect the forest that is disappearing due to development .



From a chopper, Ono checks a logging site spotted via an ALOS satellite image.

GREEN DISAPPEARING FROM THE LAND OF TREES

Have you ever heard of Pau brasil? This tall tree, also called Brazilwood, can be over 10 meters high, with a trunk as big as one meter in diameter. Pau brasil produces red dye: Brazilin. The name comes from the Portuguese word Brasa, which means burning red, and gave the country where this tree lushly grows its name: Brazil.

Today, even this precious tree that Brazil's name comes from is registered as an endangered species due to excessive logging. Brazil has 60 percent of the Amazonian forest on earth, which is about half of the world's rainforest. Illegal logging is a critical issue for our planet and the possible impact on global warming is also a concern.

Although the government of Brazil once actively promoted deforestation for industrial development, the government has been more enthusiastic about forest preservation since the 1980s due to severe environmental damage.

Secret illegal logging is all over the vast Amazon forest. Every single instance of this logging is hard to spot and control, but Japan introduced breakthrough technology in 2009.

PROTECT THE FOREST FROM SPACE

Since the 1970s, the Brazilian government has been using satellite images to protect the Amazon forest from deforestation. The chief research scientist at the Remote Sensing Technology Center of Japan, Makoto Ono, explains: "The satellite images back then weren't that effective as they didn't show what was going on at ground level if there was cloud cover. In contrast, ALOS from Japan can capture the images of the ground regardless of clouds, so it began to be used for stricter response to illegal logging."

In Japan, ALOS is also known as Daichi. ALOS is an earth observation satellite launched by Japan Aerospace Exploration Agency (JAXA) in 2006. Ono

is an expert in remote-sensing technology which observes the earth from a distance such as from satellites; he helped provide technical support from 2009 to 2012 in Brazil for developing a monitoring system to detect illegal Amazon forest logging.

"The two project goals were to build a computer system that processes ALOS satellite images for better applications and to train the Brazilian engineers who interpret the images."

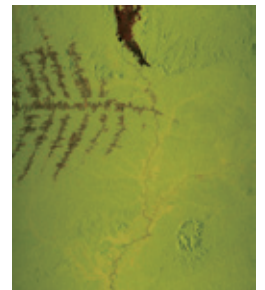
Since ALOS circles around the earth once every 46 days, changes in the forest can be spotted if the images are lined up chronologically. First, it was necessary to create a data-processing computer system to load the images from ALOS to fully use the new technology.

"It was a tough job. The factory had stopped working and we couldn't get the necessary materials. We had to wait six months," says Ono. After the trouble, the system was completed and its use produced effective results on computers. Today by minimizing the data size, even investigators walking through the Amazon can see the images on their mobile devices when they work on illegal logging detection.

Ono taught satellite image interpretation and educated 30 Brazilian technical engineers from the Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (IBAMA) and the federal police, which are the authorities on deforestation and illegal logging control in Amazon.

"As you can see, substantial changes in the forest are highlighted in color. That spot that looks like a fish bone is literally called a 'fishbone' and shows where the logging is happening," Ono explains. "It didn't take long for the staff trainees to understand the system because they were all IT-literate. During the three years of the project, we held training in Japan annually. We used to go skiing together on weekends in the winter. I enjoyed my time with those friendly and cheerful Brazilians," said Ono, looking back delightedly.

A 'fishbone' identified via ALOS satellite (above) and the actual logging site (below)



FORESTS CAN CHANGE THE WORLD: BRAZIL

The project has dramatically slowed down the pace of forest loss in Brazil in recent years. IBAMA and the federal police staffs who are now familiar with the technology are promoting remote-sensing by holding workshops around South America such as in Bolivia and other neighboring countries. Today, ALOS is no longer at work as a satellite, but the project will be carried on to Phase 2 via ALOS 2, the new satellite, waiting in outer space.

PROTECTING WILDLIVES THROUGH A NEXT GENERATION ZOO

Now, let's shift back from space and look at Manaus in the center of the Amazon. The city has a wide variety of ecosystems and wildlife, but much forest and wildlife have been lost due to rapid urban expansion.

Takehide Ikeda, a fish researcher from the Wildlife Research Center of Kyoto University says, "De-

spite being surrounded by rich nature, the people in Manaus are not very interested in local nature and animals. Most of the fish they choose to have in their homes are foreign species as well."

Kyoto University started its Field Museum project with JICA, the Japan Science and Technology Agency and a Brazilian institute in 2014 July. They are planning to create an outdoor museum within the actual natural environment, preserving wild animals there, unlike a usual zoo which keeps and exhibits animals in artificial facilities. The project is aiming for sustainable development along with ecosystem research and environmental education for the local public.

The Instituto Nacional de Pesquisas da Amazônia (INPA), which collaborates on the project, protects Amazon manatees injured by poachers. Using urban locations, INPA also advocates for animal conservation through exhibitions and educational activities for citizens.

"Under the project, a research station will be built by the riverside near Manaus. The station will be mainly for Amazon river and forest researchers, but we are also planning to utilize it for the community to understand local nature, for programs like eco-tours. Also, in an exhibition at INPA located in the city center, we will be presenting the latest research results from the Amazon," Ikeda says.

In the project, all these research stations are to be linked together to make real-time underwater sounds in the Amazon audible in the urban area. Returning Amazon manatees preserved and raised by humans in a semi-natural environment to the natural river is another example of promoting river ecology research and preservation.

Image of Field Museum



Returning a rescued Amazon manatee back to the wild. On this occasion, advocacy work in the local community was done for better understanding rare animal conservation.





Producers at Comprehensive Agricultural Cooperatives in Tomé-açu.
FRUTA FRUTA contributes to sustain and expand Agroforestry through the business.

The idea of a Field Museum is for one that has space for ecological research and environmental education that will help us to progress toward a co-existence model for humans and nature.

ACAÍ BUSINESS FOR FOREST RESTORATION

Work for Amazon forest preservation can be seen in Japan too. FRUTA FRUTA Inc. is an Amazon fruit importer and food maker with a philosophy of living in harmony with nature and is known for raising açai's popularity in Japan. The company is an exclusive distributor of Comprehensive Agricultural Cooperatives in Tomé-açu in Japanese market and sells raw material fruit such as açai and acerola, produced mainly through agroforestry by Japanese-Brazilian farmers in Amazon.

Agroforestry in Tomé-açu is characterized by planting in a desolate part of the Amazon. Usually pepper plants easily get sick and die, but anticipating this loss, farmers plant fruit or tree seedlings between them. This enables harvesting a variety of crops and naturally cultivating the forest. Further, pest damage can be minimized unlike with monoculture, and it brings stabilized income for farmers.

"Agroforestry in Tomé-açu was created, learning from failures in monoculture. People had seen agroforestry as a form of sustainable agricultural management, but as environmental awareness in-

creases, the focus on forest development capacity is also growing," according to Keiko Matsuda from FRUTA FRUTA.

Tomé-açu had many poverty-related crimes before, but after the Japanese-Brazilian farmers brought agroforestry knowledge to poor local farmers, the city gradually became safer. A new form of development, in which people improve the environment while seeking better economic performance, is now becoming reality.

The farmers working hard in Tomé-açu's fields, the vast and rich natural forest, and wildlives. We should all take a moment to think about them and reflect on the gifts they give us from the faraway Amazon that we receive here.



Açai products of FRUTA FRUTA



About 20 years after planting, an agroforestry farm became mature forest.



Planted six months ago, these mangrove trees are now three meters high.

Protect People and Nature with Natural Seawalls



Mangroves that stretch along the coastline in tropical regions are important as animal habitats and natural seawalls. Japan and Myanmar have worked together to restore Myanmar's mangroves, which were damaged by illegal deforestation and cyclones.

THE GROVES THAT STRETCH ALONG THE SEASHORE WERE DAMAGED BY CYCLONES

Most people can imagine mangroves along the coast facing the blue ocean in tropical countries. Mangrove is a generic name for dozens of species of plants that grow in areas covered with shallow brackish water which is mixture of fresh and salt water, near the mouths of rivers, not a specific tree. Many creatures live in the mangrove forests, which

also provide food and fuel for people. A mangrove forest like this served as a natural seawall during the 2004 Sumatra Earthquake, where it became obvious that the forest helps protect areas from high waves. This has contributed to growing momentum to conserve mangroves.

However, Myanmar's mangrove forests are at risk. Myanmar has a high deforestation rate compared to other countries in the Association of South-east Asian Nations (ASEAN). Deforestation caused by illegal tree cutting and conversion to cropland is a serious problem in the estuary delta area of the Ayeyarwady River, which flows through the center of Myanmar. In addition, Cyclone Nargis in 2008 greatly damaged Myanmar, a country rarely affected by cyclones. The Ayeyarwady Delta's mangrove forests also suffered enormous damage. For the Myanmar government, rebuilding the forests with their limited resources would be difficult, so they asked Japan for



Above: Young plants to be planted this year. They are supposed to protect the myanmarese coastline.
Below: Hideto Yamazaki conducted research on the field.

assistance. Thus, the Project for Mangrove Rehabilitation Plan for Enhancement of Disaster Prevention in Ayeyarwady Delta started.

Hideto Yamazaki, JICA's forestation project expert in Myanmar, emphasizes, "Myanmar's coastal areas are covered with vast forests. Maintaining the mangrove forests will become a great example of Myanmar's Ecosystem-based Disaster Risk Reduction (ECO-DRR). We are working to help the Ayeyarwady Delta's devastated mangrove forests to recover. Our goal is to reestablish the natural ecosystem to strengthen the coast against wind and tide, and to improve the residential living environment."

This project is funded by Japan's grant aid initiative and is executed with the assistance of groups including the Myanmar government, administrative officers and workers of the targeted reforestation areas. Yamazaki manages the project, considering the interests of each group. Yamazaki says, "We are

trying to show Myanmar a good example of quality control, process management and safety control in reforestation."

The main partner in the project is Ministry of Environment Conservation Forestry staff; Yamazaki recognizes their strong desire to care for and conserve their own forests. The Myanmar government obviously has great interest in this project as the top officials of the Ministry visit the conservation site every month.

REMOTE DELTA AREAS GROWING FORESTS LONG TERM

The project is located in the delta areas of the Ayeyarwady River's estuary. The project office is four hours away by boat from the port town of Bogale.

Mangrove trees were planted on 300 hectares of land in the rainy season last year and are growing steadily. The final goal is to plant about 1200 hectares of land; this year's planting started after the rainy season.

Along with tree planting, a watch tower to observe the forests and be a cyclone shelter has been built and donated to the Myanmar government. A patrol boat has also been donated to the government and is now used by the forestry office in daily patrols around the plantation and surrounding areas.

The director of the Ministry of Environmental Conservation and Forestry and the manager of the plantation project were Japan's partners when Japan assisted in building the Forest Development Training Center as technical assistance in the 1980s. The manager at the plantation site has received a Ph.D. from Yokohama National University; thus there has been a long-term partnership in this project.

Yamazaki emphasizes improvement, "Because seeing the effects of natural environment improvement in human lives over the short term is hard, some people may think this area has a lower priority. However, it will obviously bring great benefits to local residents indirectly and in the long term for disaster prevention, climate change and sustainable forest usage."

If the Ayeyarwady Delta's mangrove forests recover, local resident lives are stabilized and the forest will prevent future disasters. Simultaneously, the forests will increase on a global scale which will lead to reducing greenhouse gas emission. The trusting relationship between Japan and Myanmar through the reforestation will continue into the future.



The daily patrol uses a boat from Japan. Local personnel are determined to protect the forest.

The watch tower is also used as a shelter during cyclones. To protect the forest, illegal deforestation must be stopped.



Mowing the leaves of chit, a plant for making brooms. In Viet Nam, the livelihoods of about 30 percent of the population depend on natural resources.

Building a Society that Coexists with the Forest



Dien Bien Province. Across the river, one can see mountains where the soil is exposed due to slash-and-burn agriculture.



Viet Nam focuses on forest rehabilitation as a national policy. However, they must pay attention to the lives of people who depend on forest resources. Therefore, Viet Nam has advanced projects to realize forestry management as well as improve livelihoods.

COMMUNITY PARTICIPATION IS THE KEY TO SUCCESS

Viet Nam, which is located in the eastern part of the Indochinese Peninsula, has much in common with Japan. For example, they are both stretched out from north to south and rice farming flourishes in both countries. Furthermore, much of the land is covered by forests and both countries have a variety of climates and natural features, and diverse ecosystems. However, management of the rich Vietnamese nature, which has been Viet Nam's national pride, has largely become a cause of worry in recent years.

The forest area in Viet Nam had decreased to 28 percent of the country in 1995, due to converting forest land into agriculture and illegal logging. Although the forested land has recovered to over 40 percent today thanks to policies including tree-planting programs, much remains in order to achieve the government goal of recovering the rate to 45 percent by 2020.

One place needing urgent response is Dien Bien Province, which is located in northwestern Viet Nam. "There has been severe degradation and reduction of forests here; about 90 percent has been caused by slash-and-burn agriculture, according to a survey. A large amount of wood is used for food, income, houses and cooking," explained Baku Takahashi, a JICA expert who has been involved in environmental conservation in Viet Nam for a long time. People's

lives being excessively dependent on forest resource has become a major issue in promoting conservation, which is why Japan was asked to help. Takahashi said, “As seen in the *Satoyama* landscape, Japan has knowledge for protecting forests while the community makes good use of its resources. This knowledge can be used by the Vietnamese people.” Then, the forest management project with community participation started in 2010 in cooperation with JICA.

The project has two important challenges. The first is improving the forest management. To start with this issue, the project clarified who had the responsibility in utilizing the forest which had been free for anyone before, by dividing the forest for each village. Furthermore, they established community-based patrol teams in each village to organize a system to regularly monitor the forest. Takahashi said, “We established a system that notifies the Forest Rangers of Dien Bien Province and enables the Rangers to investigate immediately when anyone notices any changes in the forest while they are on patrol. We introduced tablet PCs which have functions including GPS receivers and cameras in order to efficiently undertake the monitoring.” The tablet PCs enable more accurate measurement with less omission, and cost reduction is also expected with no need of purchasing GPS receivers and cameras separately.

TO ESCAPE FROM EXCESSIVE DEPENDENCY

The second challenge is to introduce alternative livelihood improvement method that replaces the work and activities of the past so that the local residents will be free of negative effects. The project introduced various means of livelihood such as livestock-raising and cultivation of mushrooms, vegetables and fruit trees. The project also introduced new facilities including biogas generators using livestock manure and improved cooking stoves.

Private companies in Japan also support this initiative. Hirotaka Sato of Sumitomo Forestry Co., Ltd., one such Japanese company, is facing difficulties while he strives to establish a business model with initiatives leading to forest conservation. Sato said, “I examined establishing a business combining planting fast growing trees and wood processing. However, I found that realizing such a business is difficult concerning cost-effectiveness. Now, I am focusing on



Administrative officers discussing with local residents and deciding the distribution of the forest to clarify the management.

coffee; how we market coffee as a product will be important.”

Such initiatives have gradually produced results. In addition to having achieved the goal of the forest cover rate, a survey result also shows an increase in income from livestock-raising. Introducing biogas that can be used for cooking and improved stoves led to reducing the firewood used and has been effective for livelihood improvement and forest conservation. Dang Thi Thu Hien of the Sub-Department of Forestry, Dien Bien Province, who has promoted the initiative together since the beginning of the project development said, “It was hard for us to repeatedly explain the necessity of forestry management. However, our efforts were rewarded as local residents started to have awareness to protect the forest on their own.”

Today, a new initiative has started to expand the experience in Dien Bien Province to other provinces in northwestern Viet Nam. “The forest in northwestern Viet Nam is extremely important as the country’s watershed protection forest. It is important to establish a system that enables the local residents and the government administration to cooperate and promote sustainable forestry management,” Takahashi said. Their challenge to recover the rich nature in Viet Nam has now reached a crucial moment.



Left: Planting projects at slash-and-burn agriculture sites where productivity had decreased.

Right: Terraced rice fields spread out in the forest; adequate management is also required to protect beautiful scenery.

Corporations Support the Forests of the World



UCC Ueshima Coffee Co., Ltd.

Producing high-quality 'forest coffee'

from
Ethiopia

UCC Ueshima Coffee Co., Ltd. develops its integrated coffee business from growing coffee seedlings on directly owned farms in the production countries to procurement, manufacturing, distribution and sales. Based on tasty coffee needing a rich natural environment, the company proactively works on protecting the environment. One of their initiatives is a project to protect forests in the Belete-Gera region in Ethiopia in cooperation with JICA.

In Ethiopia, people cut down trees for income and therefore environmental destruction has become a concern. That is why the company focused on coffee, which grows naturally in the forests as a product, to simultaneously realize economic activities and environmental protection. First, the company gained a Rainforest Alliance certification which proves the sustainability of the production method. Then, they worked on quality improvement by teaching local producers how to separate the coffee beans by maturity and quality management. As a result, specialty coffee produced in Ethiopia was finally commercialized and has contributed to improving the motivation

and income of local residents. UCC Ueshima Coffee Co., Ltd. will continue this initiative so that local residents will be able to live without relying on income from logging.



A Japanese expert teaching the drying method of coffee cherries

Kanematsu Corporation

Decreasing slash-and-burn agriculture through cacao cultivation

from
Indonesia

Kanematsu Corporation participates in the new REDD+ business and engages in environmental business as a trading company, different from a manufacturing company. Under public-private partnership, the company is developing a mechanism in which credits for reducing greenhouse gas emission can be obtained by contributing to REDD+ and used to achieve Japan's reduction goal through market transactions.

Kanematsu is currently developing a project to introduce cacao cultivation in Gorontalo Province, Indonesia, which is suffering from deforestation due to slash-and-burn maize cultivation. In cooperation with Dari K Co., Ltd., which engages in producing and selling chocolate, Kanematsu provides technical guidance to local farmers to produce good-quality cacao and promotes value chain development such as purchasing cacao and marketing. The goal is to sell products made of cacao from this region in Japanese and Indonesian markets in the future, cooperating with product manufacturers. Kanematsu also promotes REDD+ projects in countries such as Vietnam

where the company started a survey for REDD+ business with a focus on reforestation.



Farmers receiving instructions of cacao cultivation
(Photo courtesy of ERM Japan Ltd.)

Environmental conservation is an important issue for corporations too. Many Japanese corporations develop business overseas, utilizing their strength such as environmentally-friendly production and technologies related to forest rehabilitation.



Supporting the initiatives of private corporations!

Japan Public-Private Platform for REDD+

REDD+ is a system for developed countries to help developing countries. When developing countries reduce greenhouse gas emissions through forest conservation and maintaining or increasing carbon accumulation, they obtain financial support. The contributions of developed countries which support developing countries will also be evaluated and the developed countries will be rewarded by emission reduction credits.

Consideration on REDD+ started when it was proposed at COP 11 in 2005. The Paris Agreement, which will be the new framework to prevent global warming after 2020, was adopted at COP 21 at the end of 2015 and included articles to recommend promoting REDD+ in both developed and developing countries.

In order to implement REDD+, continuously measuring the forest area and amount of carbons is necessary. JICA supports countries in Asia and Africa that have insufficient know-how on such measuring technologies, using technical cooperation projects and training to strengthen forest monitoring systems and build policies and systems.

Furthermore, the Japan Public-Private Platform for REDD+ was established in November 2014 for private corporations, government organizations and research institutes to cooperate with each other in the All-Japan system towards full operation of REDD+. Having JICA and Forestry and Forest Products Research Institute as the



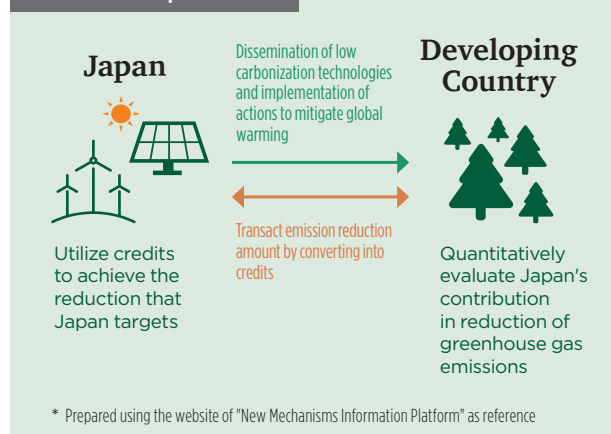
Members of the platform discuss developing business models which lead to forest conservation.

secretariat, 78 organizations have joined this project as of March 2016. The platform activities are largely categorized into three groups. The first is to expand understanding inside and outside Japan by communicating the importance of forest conservation and the content of participating organizations' activities through websites and events, as well as by also spreading information on occasions such as at international conferences. The second is to share information, knowledge and experience that are necessary to promote forest conservation and construct a network between the participating organizations. The third is to examine and make proposals about combining public support and private capital, and to develop business models related to forest conservation.

The government of Japan has advanced initiatives on REDD+ with the Joint Crediting Mechanism (JCM). JCM is implemented between two countries, Japan and a developing country that agreed on implementing the system; Japan has already signed agreements with 16 countries as of February 2016. The system enables Japan to provide partner countries with low carbon technologies and systems, work on reducing greenhouse gas emissions and utilize such contributions to reach Japan's emission reduction target.

• **Website of REDD+ platform (in English)**
http://www.reddplus-platform.jp/index_en.html

Basic concept of JCM



· TRENDS ·



Nepal

Signing of grant aid agreement with Nepal



On February 17, JICA signed a grant agreement with the Government of Nepal to provide grant aid of a maximum of 4 billion yen for The Project on Rehabilitation and Recovery from the Nepal Earthquake.

On April 25, 2015, Nepal was struck by an earthquake of magnitude 7.8, with its epicenter in the Gorkha District, about 80 km northwest of the capital of Kathmandu. According to the Post Disaster Needs Assessment conducted by the Nepali government with assistance from the World Bank, JICA and other developing partners, the earthquake and its aftershocks caused 8,702 dead, 22,303 injured, and 498,852 totally collapsed and 256,697 partially collapsed houses.

The Project includes 4 sub-projects: 1) reconstruction of National Bir Hospital, the largest and oldest hospital in the Kathmandu Valley; 2) recon-

Tsutomu Shimizu, chief representative of the JICA Nepal Office (left) and Baikuntha Aryal, joint secretary of the International Economic Cooperation Coordination Division, Ministry of Finance

struction of Paropakar Maternity and Women's Hospital which receives expectant mothers from across Nepal; 3) reconstruction of water transmission pipelines in the most damaged Sindhu-palchowk District; and 4) construction of bridges in the Gorkha District, the epicenter of the earthquake.

The Project's goal is to strengthen the public services offered in the severely damaged northern mountain areas.

Based on the Build Back Better concept adopted at the 3rd UN World Conference on Disaster Risk Reduction in Sendai in March 2015, the Japanese government plans not merely to restore the society to how they were before disaster, but to make it more disaster-resilient.

JICA also assists with reconstructing the houses and schools most affected by the earthquake through the Emergency Housing Reconstruction Project and the Emergency School Reconstruction Project, for which a Japanese ODA loan agreement was signed on December 21, 2015.

Forest Monitoring System

Conserve the world tropical forests by a JICA-JAXA Forest Monitoring System -Using ALOS-2 Satellite

On December 1, 2015, JICA and the Japan Aerospace Exploration Agency (JAXA) announced the Initiative for Improvement of Forest Governance at the twenty-first session of the Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) in Paris. The initiative will create a new tropical forest monitoring system that tracks deforestation and forest loss with JAXA's Advanced Land Observing Satellite-2 (ALOS-2).

JICA and JAXA signed a partnership agreement in April 2014 with the objective of using

aerospace technology aiming to solve the many types of development challenges that developing countries face and also to address global issues. The initiative has been conducted as one of the specific activities under the agreement.

JICA and JAXA expect that private corporations will also join to the initiative for contributing to the conservation of the world's tropical forests. Activities will include building a forest monitoring system, training human resources in developing countries on how to use the system, and spreading knowledge about successful forest conservation projects around the world.

Tropical forests serve as an immense storage tank to hold carbon dioxide. Thus the forest conservation is critical in the fight against climate change. However, the loss of tropical forests continues unabated due to illegal logging and other factors, and implementing measures to stop the loss is a global priority. The forest monitoring system will maintain a constant watch on deforestation and forest

loss in tropical regions of the globe and provide open access to its findings. With a resolution to 50 meters, the findings of the monitoring system will be updated about every six weeks on average to the JAXA website and aimed to be made its trial version available in the late 2016. It is expected that these efforts will help countries with serious deforestation issues restrain illegal logging, and in the long term, help control the reduction of forests as an effective measure against climate change.

Aboard the ALOS-2 satellite is PALSAR-2 (L-band Synthetic Aperture Radar-2), a system that uses L band radio waves suitable for forest observation and capable of monitoring the ground surface 24 hours a day regardless of weather. PALSAR-2 can thus monitor for illegal logging and other changes in tropical forests despite the cloud cover that is typical found in such areas.

With technical cooperation provided by JICA in Brazil from 2009 to 2012 and data gathered by ALOS, the predecessor to ALOS-2, illegal logging was monitored and assistance provided in near-real time. More than 2,000 incidents were discovered and the action taken contributed to a 40 percent reduction in the amount of forest area destroyed. The ALOS-2 uses two types of reflecting radio waves that make it possible to analyze the data and detect deforestation with greater precision.

The use of ALOS-2 observation data to search for illegal logging has heightened interest in Brazil, home to the Amazon rainforest, and other countries with tropical forestland. JICA and JAXA intend to build on this interest with their collaborative development of the forest monitoring system and provide the data to the world. Both agencies will continue to use satellite technology to conserve the world's tropical forests.

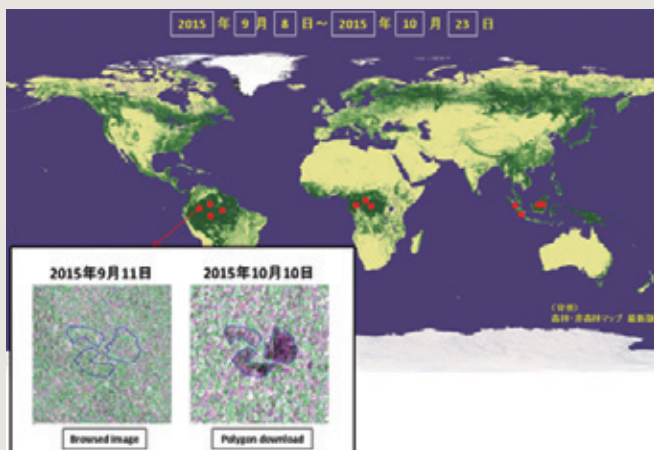


Image of an output of the system



Vineet Sahai Sarin

Principal Development Specialist, JICA India

Vineet Sahai Sarin has over 24 years of experience in the development sector. He started working with JICA (then OECF) in 1991 and is currently the National Sector Leader for Forestry & Natural Resource Management (FNRM), cumulative commitment for which by JICA to India stands at JPY 225.8 billion, as of 2016, covering 13 states across India, through 23 projects.

Since the commencement of JICA assisted FNRM projects in 1991, forestry management in India has shifted from government controlled to community based through the Joint Forest Management (JFM) approach. Forest fringe villages in India are generally very poor and suffer from poverty. Thus JICA worked towards improving the socioeconomic conditions of the village communities by blending forestry management with community and livelihood improvement through JFM.

"It was challenging in the beginning, as Forest Department officials believed that forests would be plundered if communities were involved and community development was not their mandate," he explained. Sarin persisted with project implementing agencies to make JFM an integral part of the implementation strategy. Finally, in 1998, Tamil Nadu state agreed to include community and livelihood development activities through JFM approach, as

a component under the project. The results were outstanding and thereafter, all JICA projects were required to adopt and pursue a similar approach to maximize the socioeconomic impact of the projects.

Sarin says, "JICA projects can credibly reach poor remote villages and bring happiness to the people. This provides me with a great sense of pride and motivation."

As the main author, Sarin was instrumental in preparation of the '*Guidelines for Designing Forestry Projects for JICA (then JBIC) Assistance*', in 2005, which were concurred by the Ministry of Environment, Forest and Climate Change, Government of India.

Further, amongst various other initiatives, he also took the initiative of encouraging the project implementing agencies to organize annual national workshops, wherein even non-JICA supported states are invited for cross learning and experience sharing.

"Working for JICA has been a very rewarding experience, as I have had the privilege of being an integral part of JICA's journey in the FNRM sector in India for the past two and a half decades. Further, I want to formulate new projects by incorporating innovative and practical ideas from field experience to improve future JICA projects."

Protecting the “Lungs of the world”

Japanese contribution will promote sustainable use of Congo Basin forest

Raymond Mbitikon

Executive Secretary of Commission of Central African Forests (COMIFAC)

THE SECOND LARGEST FOREST IN THE WORLD

In 1999, Central African leaders met and discussed protecting and utilizing forest resources in Central Africa. As a result, the Commission of Central African Forests (COMIFAC), headquartered in Yaounde, the capital of Cameroon, was founded in 2005 by ten countries in the region. Central Africa has the Congo Basin forest, which is the second largest forest in the world after the Amazon in land area, and the countries in the region working in concert for the protection and sustainable use of the forest resources is increasingly important. COMIFAC monitors and gives guidance on activities related to the forests and the environment in this region.



ing the needs of all the people. Fighting against poverty and unemployment, finding energy sources other than firewood and developing farming methods that improve the food supply level with less damage to the forests will slow down the expanding destruction of Central Africa's forest resources.

TECHNOLOGY FOR THE BETTER USE OF FORESTS

Japan has taken forest inventories in three COMIFAC nations so far and would like this work to be continued in the other seven nations as well. The professional training of Geographic Information System (GIS) image analysts in Central Africa is something that Japan would display its strength in. Financial and material support for

Although the Congo Basin forest has rich biodiversity, it has been affected by human activities such as land reclamation in response to growing demand for food. Irrational and uncontrolled deforestation, including slash-and-burn farming, seriously threatens the conservation of the Congo Basin forest. Additionally, degradation of the forest resources is accelerated by increasing production of commercial crops, utilization of forest and mineral resources, and construction of transportation infrastructure and hydroelectric dams.

To manage the effects from forest-related activities, assessing the forest resources in the region through a forest inventory is necessary. Then we must create a detailed map so that we can draw up plans for appropriate forest use while consider-

our expanding work will also be valuable help for COMIFAC to fulfill its duties.

As the world's second largest forest, the Congo Basin forest has played and will continue to play an important role in addressing global warming. However, Japan's aid for Africa has not emphasized forests and the environment over a long period of time. Japan must move in step with other countries, sharing the awareness that conservation of the Congo Basin forest must be done by the ten COMIFAC nations and the entire international community. With this in mind, we expect Japan to assist Central African countries both financially and technically in the protection and sustainable use of the Congo Basin forest.

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Cover: Biodiversity is important for the forest. Cutting down trees put many species in peril.
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Photo on pages 2-3:
People plant trees together in Burkina Faso ©Akio Iizuka



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