PROCEEDINGS

OF

TOKYO INTERNATIONAL CONFERENCE

ON

THE FOREST GOVERNANCE INITIATIVE

- Improving Forest Governance using Forest Early Warning Systems and Satellite Technologies -

October 24-26, 2017

Tokyo, Japan

November 2017

Japan International Cooperation Agency (JICA)

and

Japan Aerospace Exploration Agency (JAXA)

Table of Contents

Acknowledgements

We, Japan International Cooperation Agency (JICA) and Japan Aerospace Exploration Agency (JAXA), the co-organizers of the Tokyo International Conference on the Forest Governance Initiative, would like to thank the Forestry Agency, the Ministry of Agriculture, Forestry and Fisheries of Japan and the International Tropical Timber Organization (ITTO) for their cooperation and support in holding the 1st international conference under the Forest Governance Initiative. We are grateful to all of the moderators, speakers, panelists and participants for sharing their knowledge and experience and contributing to the conference. We also recognize the considerable efforts made by those who helped to prepare and hold the conference, including representatives of Deloitte Touche Tohmatsu LLC and their cooperating companies and agencies, the Remote Sensing Technology Center, the Tokyo Denki University, JAXA, and JICA, including its project experts and consultants. We are well aware that the conference would not have been the success that it was without the contributions of those who participated in and supported the conference.

Summary

First International Conference on the Forest Governance Initiative

In cooperation with the Forestry Agency of Japan and the International Tropical Timber Organization (ITTO), the Japan International Cooperation Agency (JICA) and the Japan Aerospace Exploration Agency (JAXA) co-organized the Tokyo International Conference on the Forest Governance Initiative that was held in Tokyo from October 24 to 26, 2017. The conference was composed of two days of sessions (Oct. 24–25) and a one-day visit for overseas participants to the JAXA Tsukuba Space Center (Oct. 26). The conference was attended by 144 participants from 24 countries representing our partner countries, international and regional organizations (including COMIFAC, CI, FAO, IUFRO, NASA, UNFCCC, UNFF, and WRI), development partners, the private sector and civil society.

Opening Session with High-level Representatives

The following individuals made speeches or key presentations at the Opening Session: H.E. Dr. Amy Ambatobe Nyongolo, Minister of Environment and Sustainable Development, Democratic Republic of the Congo; Mr. Etienne Yoyo, Director General of Forestry Economy, Ministry of Forest Economy, Republic of the Congo, as a representative of H.E. Dr. Rosalie Matondo, Minister for Forest Economy, Republic of the Congo, Dr. Gerhard Dieterle, Executive Director, International Tropical Timber Organization (ITTO); Mr. Koji Makimoto, Deputy Director-General, Forestry Agency of Japan; Ms. Noriko Suzuki, Senior Vice President, JICA; and Prof. Teruyuki Nakajima, Director, Earth Observation Research Center (EORC), JAXA.

Conference Key Question: How can countries use satellite technologies to promote forest management effectively?

Forests—particularly tropical ones—are directly and indirectly contributing to the UN Sustainable Development Goals (SDGs), and they are also critical for economic development, biodiversity conservation, and climate change measures. However, monitoring and managing forests sustainably is not an easy task—especially for developing countries—due to factors such as their huge area, accessibility, insufficient resources and capacity. Given this, satellite technologies are indispensable in the monitoring and managing of forests these days.

In light of this, the conference was held with the aim of providing participants with opportunities to exchange views on the following: 1) how developing countries can promote forest management effectively, including by means such as tackling illegal deforestation activities, using JJ-FAST and other forest early warning systems and satellite technologies and implementing the necessary policy

measures; and 2) how development partners can support a country's efforts. The sessions focused on two different aspects of the issue: governance and satellite technologies.

Discussion: Satellite technologies present many opportunities to address forest-related challenges, but good governance is indispensable

During the conference, the challenges faced by our partner countries and the international community in terms of improving forest governance by using the tools of forest monitoring and forest management were discussed. The participants recognized that the effective use of satellite technologies, such as JJ-FAST and other satellite-based systems, present many opportunities to address these challenges. The participants pointed out the need for these satellite-based systems to meet the needs and circumstances of the relevant developing countries and stakeholders and for them to be user-friendly solutions that require fewer resources and technical inputs. They also pointed out that several satellite-based systems are now available—including JJ-FAST, Global Forest Watch, SEPAL, and GLAD—and that they each have different advantages and disadvantages. Therefore, these systems should be used in a complementary and comprehensive manner. Furthermore, the participants shared a common understanding that technologies or systems cannot provide a single solution for all forest-related challenges and that effective solutions require good forest governance, such as strong political will, effective policies, law enforcement, anti-corruption measures, capacity building, and effective coordination among stakeholders.

Discussion: JJ-FAST can be an effective tool for forest management, and further upgrading of its functions is expected

The participants expressed great interest in JJ-FAST and had high expectations that it would prove to be an effective tool for forest monitoring and management through its incorporation in national forest monitoring systems and management plans based on their needs and objectives. Further study would be beneficial in seeking an effective means of utilizing JJ-FAST in the enforcement of regulations designed to address illegal deforestation activities, the tracking of legally harvested wood and wood products, the conducting of appropriate concession management and the implementation of other measures. The functionality of JJ-FAST can be enhanced to allow it to be used more effectively by developing countries and all stakeholders in conjunction with other available systems and tools both complimentarily and comprehensively. At the same time, participants pointed out that JJ-FAST, which is still a new system, has room for improvement in terms of matters such as the size of objects that can be detected and accuracy (e.g., through the use of dual polarization and time series data on multiple data items). The JJ-FAST Development Team requested participant feedback from the field as it would help them to improve their algorithms and data accuracy.

Conference Outcomes

The output from each session was summarized by the moderators and shared with the participants. At

the end of the conference, the co-organizers issued the "Statement on the Tokyo International Conference on the Forest Governance Initiative," which incorporated the findings from the various sessions and called for further partnerships among the stakeholders.

Visit to JAXA Tsukuba Space Center

On October 26, overseas participants visited the JAXA Tsukuba Space Center (TKSC) to learn about JAXA's mission and its space activities.

Photos

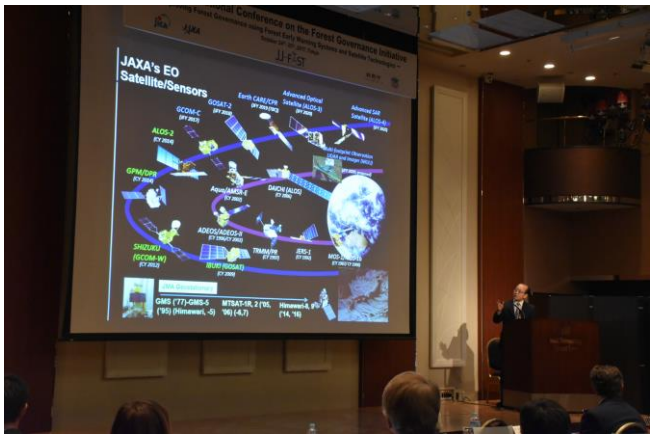

Tokyo International Conference on the Forest Governance Initiative
JJ-FAST


try Agency of Japan
JICA


JICA


note Speech
Amy Ambatobe Nyongolo
of Environment and Sustainable Development,
JAXA


Hotel Metropolitan
Edmont Tokyo


JAXA's EO
Satellite/Sensors


Deforestation Monitoring System:
JICA-JAXA
Forest Early Warning System in the Tropics
(JJ-FAST)
Masato Hayashi & Izumi Nagatani
Japan Aerospace Exploration Agency (JAXA)


Forest Governance Issues


Tokyo International Conference on the Forest Governance Initiative
Drafted date: 25 October 2017

I. Details of the Conference

1. **Date:** October 24–26, 2017 *The third day involved a visit to the JAXA Tsukuba Space Center.
2. **Place:** Hotel Metropolitan Edmont Tokyo (3-10-8 Iidabashi, Chiyoda-ku, Tokyo 102-8130, Japan)
3. **Co-organizers:**

   Japan International Cooperation Agency (JICA) and Japan Aerospace Exploration Agency (JAXA)

   in cooperation with

   Forestry Agency, Ministry of Agriculture, Forestry and Fisheries of Japan and International Tropical Timber Organization (ITTO)
4. **Participants:** The conference was attended by 144 participants, including the following:

- High-level and senior officials involved in forest management from our partner countries: Brazil, Cambodia, Cameroon, the Democratic Republic of the Congo, Ethiopia, Gabon, Indonesia, Kenya, the Lao People's Democratic Republic, Mozambique, Papua New Guinea, Peru, the Republic of the Congo, Tanzania, and Vietnam;
- Participants in the JICA Knowledge Co-Creation Program called "Tropical Forest Conservation using the Forest Monitoring System with ALOS-2 Satellite" (under the Forest Governance Initiative) from Botswana, Colombia, the Democratic Republic of the Congo, Gabon, Malaysia, Mozambique, Peru, and the Philippines;
- Representatives from international and regional organizations, including the Central African Forests Commission (COMIFAC), Conservation International (CI) Japan, the Food and Agriculture Organization of the United Nations (FAO), the International Union of Forest Research Organizations (IUFRO) / Southern Cross University, National Aeronautics and Space Administration (NASA) Asia, the United Nations Forum on Forests Secretariat, the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat, the United Nations Forum on Forests (UNFF) Secretariat, and the World Resources Institute (WRI); and
- Domestic participants from governmental agencies, research institutions, NGOs, private companies, and other related organizations in Japan.

5. **Working Language:** English and French

6. **Background:**

Forests are vital for all life on earth, as they provide rich biodiversity, act as a source of food and water, offer economic opportunities related to the use of timber, foster culture, and support people's livelihoods. Recently, the role of forests in climate change mitigation and adaptation has been gaining increasing attention worldwide as deforestation and forest degradation now account for

more than 10 percent of total CO_2 emissions. Although everyone recognizes the importance of forests, there was a net forest loss of 129 million hectares between 1990 and 2015[1]. The loss of tropical forests continues unabated due to factors such as agricultural expansion, wood extraction, infrastructure expansion, and illegal logging, and the need to address these factors in order to stop this loss is now high on the global political agenda. In light of these circumstances, various countries and relevant organizations have, in recent years, developed and adopted satellite technologies that can be utilized as effective and indispensable forest monitoring systems and tools.

Against this backdrop, the Japan International Cooperation Agency (JICA) and the Japan Aerospace Exploration Agency (JAXA) announced the **Forest Governance Initiative** (Annex 1) at UNFCCC COP 21 in Paris in December 2015. The initiative led to the creation of the **JICA-JAXA Forest Early Warning System in the Tropics (JJ-FAST)** (Annex 2), a new system for tracking deforestation and forest loss using JAXA's Advanced Land Observing Satellite-2 (ALOS-2). JJ-FAST carries out regular monitoring of deforestation and forest loss in the tropical regions of the world, and access to its imagery findings is unrestricted. By using ALOS-2, this system can monitor forest cover changes in tropical forests even under the cloud cover conditions that are typically found in the tropics. At a resolution of up to 50 meters, the JJ-FAST findings are updated on the JJ-FAST website every six weeks.

The potential uses of JJ-FAST can be expanded even further. Owing to its relatively frequent data collection intervals and its capacity for monitoring the earth's surface even under cloud cover, JJ-FAST is expected to function as an early warning system that will help improve forest governance. Using JJ-FAST, the relevant authorities can monitor forest changes to trace possible illegal deforestation activities and develop countermeasures to curb them. The fact that JJ-FAST can be used to monitor forest changes uninterrupted throughout the entire year is expected to help make deforestation activities more transparent, thereby acting as an increased deterrent for anyone engaged in illegal activities.

By conducting training courses in Japan and holding regional seminars on JJ-FAST and other forest monitoring measures, this initiative also promotes personnel capacity building with the aim of ensuring the effective use of JJ-FAST to improve forest governance in developing countries. The initiative disseminates knowledge about good practices concerning forest monitoring around the world through the JJ-FAST website and at international conferences.

Activities conducted under the Forest Governance Initiative and other such global efforts are intended to help countries promote more effective forest management and control forest loss in line with legitimate national land use policies. Such efforts are expected to make an important contribution to the fight against climate change.

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[1] Global Forest Resources Assessment 2015, FAO

7. Objectives:

This three-day conference was held with the aim of providing participants with opportunities to exchange views on the following: 1) how developing countries can promote forest management effectively, including by means such as tackling illegal deforestation activities, using JJ-FAST and other forest early warning systems and satellite technologies and implementing the necessary policy measures; and 2) how development partners can support a country's efforts. The sessions focused on two different aspects of the issue: governance and satellite technologies.

In terms of governance, participants were expected to discuss how countries could improve their forest governance by making effective use of forest early warning systems such as JJ-FAST and satellite technologies, as well as measures dealing with matters such as policy making and implementation, law enforcement, and closer collaboration among stakeholders involved in forest management.

With regard to satellite technologies, participants were expected to discuss how countries could strengthen their national forest monitoring systems by adopting JJ-FAST and other such systems or tools, incorporating JJ-FAST into their national forest monitoring systems, and improving their monitoring accuracy through grand truth surveys.

Another goal of the conference was for participating countries and organizations to strengthen networks and partnerships aimed at collectively addressing the deforestation of developing countries and global climate change.

II. Details of the Sessions

Day 1 (October 24)

Session I: Opening Session

Moderator: Ms. Kanako Adachi, Director, Natural Environment Team 2, Global Environment Deptment, JICA

The conference was opened by **Mr. Koji Makimoto, Deputy Director-General, Forestry Agency of Japan**. In his **Opening Remarks,** Mr. Makimoto pointed out that forest governance, including measures to prevent illegal logging, is critical to realizing the ambitious goals and targets set forth in the SDGs and the UN Strategic Plan for Forests 2017–2030. The Forestry Agency has endeavored to promote forest governance by carrying out the national procurement policy on sustainably sourced wood products domestically, based on the principle of not using illegally harvested timber and the Act on Promotion of Use and Distribution of Legally-Harvested Wood and Wood Products ("Clean Wood Act"). The agency is also actively promoting international cooperation in this area on a global scale and working to support the initiative with the aim of promoting good forest governance through the adoption of satellite technologies as part of the "All Japan" program.

Ms. Noriko Suzuki, Senior Vice President, JICA addressed all of the participants in her **Welcome Remarks.** In her speech, Ms. Suzuki described JICA and JAXA's contribution to the Brazilian Government's efforts to reduce illegal deforestation through the use of ALOS. Building on this success, JICA and JAXA launched the Forest Governance Initiative, which is intended to contribute to forest conservation, sustainable forest management, and climate change measures through the development of JJ-FAST, the conducting of capacity building programs and the holding of international and regional seminars. She encouraged all organizations and countries to work with this initiative. Emphasizing that deforestation reduction measures are critical to achieving not only SDG targets 13 and 15 but also many SDG targets, she also reiterated JICA's belief that forests can change the world for the better.

The first **Keynote Speech** was delivered by **H.E. Dr. Amy Ambatobe Nyongolo, Minister of Environment and Sustainable Development, Democratic Republic of the Congo (DRC)**. H.E. Dr. Nyongolo shared information on the DRC's forest management and REDD+ initiatives for forest conservation, poverty reduction, improved community life and livelihoods, and climate change

mitigation. The DRC has been working to establish the National Forest Monitoring System (NFMS) with the support of JICA and its other international partners, and the DRC will make a presentation on its national forest reference emission level (FREL) at UNFCCC COP23, which is to be held in Bonn this November. H.E. Dr. Nyongolo expressed his hope that JAXA and JICA will continue to provide support for forest management through measures such as the introduction of JJ-FAST and capacity building.

Another **Keynote Speech** was delivered by **Mr. Etienne Yoyo, Director General of Forestry Economy, Ministry of Forest Economy, Republic of the Congo, in his capacity as a representative of H.E. Dr. Rosalie Matondo, Minister for Forest Economy, Republic of the Congo**. Mr. Yoyo shared information on the forest management initiatives being implemented through the country's forest policy and management plan, as well as on the difficulties that they are experiencing in terms of controlling illicit activities and unauthorized forest resource exploitation. Given its current situation, the country is keen to continue accelerating innovation in technologies used for forest resource monitoring, which is not a single-country issue since a collective effort is required to achieve it. The government of the Republic of the Congo has just published the first results of its national forest inventory for promoting emission reductions from deforestation and forest degradation.

The **Keynote Presentation** entitled **"JAXA Earth Observation Program"** was given by **Prof. Teruyuki Nakajima, Director, Earth Observation Research Center (EORC), JAXA**. JAXA has been operating the Earth Observation Program to achieve societal benefits such as climate change mitigation and disaster risk reduction through measures such as forest monitoring, forest/non-forest (FNF) mapping, and early warning systems for flooding and other disasters by using L-band SAR. To help improve environmental and carbon monitoring, the organization is planning to launch a new satellite, GOSAT-2, in 2018, followed by the ALOS-3 and the ALOS-4 at a later date.

The **Keynote Presentation** entitled **"Support for Forest Sector Development in Tropical Countries: The Role of ITTO"** was given by **Dr. Gerhard Dieterle, Executive Director, International Tropical Timber Organization (ITTO)**. Dr. Dieterle pointed out that productive forests are essential for fulfilling the basic needs of growing populations and providing global, national and local services. Given this, strengthening the role of productive forests in developing countries is critical in order to achieve development and climate goals, including Nationally Determined Contributions (NDCs). ITTO supports tropical countries in their efforts to adapt internationally agreed forest-related policies to local circumstances, implement projects, access data on the production and trade of tropical timber, and strengthen their capacities.

A presentation entitled **"JICA's Mission in the Nature Conservation Sector and Introduction of the Forest Governance Initiative"** was given by **Mr. Takahiro Morita, Senior Deputy Director General, Global Environment Department, JICA**. Mr. Morita explained JICA's strategic plan for between 2015 and 2020 in the nature conservation sector. This includes the provision of bilateral forest monitoring support for sustainable forest management and REDD+, regional cooperation, and the global-level initiative called the Forest Governance Initiative (FGI). Established through a partnership between JICA and JAXA, the FGI provides the JJ-FAST service, conducts capacity building programs, and holds international and regional seminars to promote effective forest monitoring using satellite technologies.

Building on Mr. Morita's description of the FGI, **Dr. Masato Hayashi, Associate Senior Researcher, EORC, JAXA** and **Dr. Izumi Nagatani, Researcher, EORC, JAXA introduced and demonstrated JJ-FAST**. Dr. Hayashi explained the basic concept, system elements and uniqueness of JJ-FAST with an emphasis on the efficacy of PALSAR-2, which can periodically observe forested areas regardless of the amount of cloud cover. After that, Dr. Nagatani demonstrated the operational procedure for JJ-FAST, explaining that it is free of charge and user-friendly. A Q&A session followed, with some technical inquiries being made by members of the audience.

Session II: Sustainable Forest Management using Forest Early Warning Systems and Satellite Technologies

Moderator: Dr. Hideyuki Kubo, Chief Advisor, IJ-REDD Project in Indonesia

Key Presentations

A presentation entitled **"Deforestation Detection Activities @ IBAMA Brazil for Law Enforcement"** was given by **Dr. Edson Eyji Sano, Chief, Remote Sensing Center, Brazilian Institute of Environment and Renewable Natural Resources (IBAMA)**. Dr. Sano described a conventional deforestation monitoring system in Brazil and the government's efforts to strengthen law enforcement in cooperation with the regulatory bodies of local governments. IBAMA has been conducting activities related to automatic and radar-based deforestation detection using ALOS satellites. Recently, IBAMA has begun cooperating in the validation of data generated by the advanced JJ-FAST algorithms to improve its accuracy. He found that the challenge is to validate the deforestation data in light of the various patterns of deforestation.

A presentation entitled **"Improving Forest Governance in Gabon through the Development of a Monitoring System for Forest Concessions"** was given by **Mr. Simplice Nteme, Director General of Forestry, Ministry of Forestry, Sea and Environment, Gabon**. Gabon has been

working to improve its forest governance through the development of a forest concession monitoring system that uses satellite images and drones under the MINEF-JICA project. Mr. Nteme shared his idea of incorporating JJ-FAST into the country's monitoring system. He expressed his hope that the use of JJ-FAST, through decreasing in a data update period and its technical supports, will contribute to ensure effective improvements to forest governance in Gabon.

A presentation entitled **"Overview of REDD-plus Mandates under the UNFCCC and the Role of Forest Monitoring using Satellite Technologies"** was given by **Ms. Jenny Wong Lai Ping, Programme Officer, Mitigation, Data and Analysis Programme, UNFCCC Secretariat**. After providing an overview of the UNFCCC REDD+ process, Ms. Ping touched on the potential role of satellite technologies and emphasized that the provision of transparency and accurate information is essential in the implementation of REDD+. She also mentioned the importance of development cooperation. Furthermore, financial support, technical support and capacity building for REDD+ are also critical, including in terms of data collection, estimation of emission, and measurement, reporting and verification (MRV) activities using satellite technologies. Cooperative support is also essential for mobilizing actions across all stakeholders. UNFCCC hopes that JJ-FAST will help to overcome the lack of technical capacity in developing countries.

A presentation entitled **"Global Forest Watch: Forest Monitoring Designed for Action"** was given by **Ms. Rachael Petersen, Acting Director, Global Forest Watch, World Resources Institute**. Ms. Petersen introduced and demonstrated Global Forest Watch, which is an online forest monitoring and alert system. She stressed that the data provided can be utilized not only by government organizations, but also by civil society and the private sector. She pointed out the potential benefits of a collaboration with JJ-FAST.

Panel discussion: Improving Forest Governance using Forest Early Warning Systems and Satellite Technologies

Objectives: By reviewing previous sessions, share more case studies to emphasize the need for improvements to forest governance and the strategic introduction and utilization of satellite technologies and present a way forward leading into the Day 2 sessions.

Key questions

- What issues and challenges do developing countries face with regard to forest governance?
- What kind of forest monitoring is being implemented and improved in order to enhance forest governance?
- What factors are hindering or enabling effective forest monitoring (in terms of policies, law

enforcement, coordination among relevant authorities, community participation, and systems or tools for forest monitoring)?
- How are satellite technologies being utilized to improve forest monitoring (in terms of not only illegal activity detection, but also other factors such as forest resource assessments and forest management planning)?

Panelists:
- **Mr. Gervais Ludovic Itsoua Madzous**, Deputy Executive Secretary and Technical Coordinator, Central African Forests Commission (COMIFAC)
- **Mr. John James Leigh Vetter**, Executive Director, National Forest and Wildlife Service, Peru
- **Mr. Julian Fox**, Team Leader, National Forest Monitoring, FAO
- **Dr. Aya Uraguchi,** Senior Manager, Policy and Partnership Development, CI Japan
- **Mr. Hiroshi Nakata**, JICA Senior Advisor

KEY FINDINGS

1. Issues from the perspective of developing countries

- Illegal deforestation is a key governance issue that can be controlled by using satellite technologies.
- In addressing the current state of forest governance, the following points were raised as issues that need to be addressed: the lack of law enforcement and rapid responses on the ground due to human resource and budget limitations; the lack of real-time visual information; the lack of justification for forest conservation; the limitations on internet access for monitoring; the loss of state budget revenue due to illegal logging; and the unconfirmed impact of capacity building regardless of many projects being carried out in the sector.
- Synthetic aperture radar (SAR) technology is a useful tool for forest monitoring, but developing countries with high cloud cover face difficulties in detecting deforestation. JJ-FAST could be a solution to this issue. Brazil has already successfully obtained accurate data by utilizing the ALOS/PALSAR data provided through JJ-FAST.
- Developing countries need continuous technical support to further develop their capacity to effectively apply satellite technologies and improve forest governance. It is also crucial for investments to be made in not only technologies and systems, but also human resources for technology transfers.
- An important challenge to be addressed is to not only institutionalize monitoring systems, but also get them operational.

2. Issues related to satellite technologies

- A system that utilizes a satellite technology such as JJ-FAST is one of several existing tools that

can be employed to improve forest governance. How technologies should be transferred to various stakeholders at the local and national levels is a key question. Forest monitoring using modern technologies must be accompanied by actions to prevent illegal activities and promote sustainable forest use.

- The establishment of an interface between technologies and governance is critical, and this could be viewed as a way of integrating the results obtained from satellite technologies into forest monitoring.
- Satellite technologies are still far beyond the reach of many NGOs and local communities. Efforts need to be made to utilize satellite technologies outside the government sector. Dealing with *gemba* (the Japanese word for where the work actually takes place) may be the first step in widening the benefits of satellite technologies beyond the government sector.
- Satellite technologies should be considered from a variety of perspectives and introduced in accordance with the purpose. For example, high frequency data is often available with lower accuracy.

3. Issues from an international perspective

- Since forests are important for economic growth and people's livelihoods, it is important to discuss how they can be used wisely. In particular, productive forests are essential for fulfilling the basic needs of growing populations and for providing services.
- The replacement of non-renewable materials is an additional key benefit of productive forests. Most deforestation is actually conducted on a small scale for domestic use, so some deforestation activities should be considered 'informal' rather than illegal. In order to reduce the incidence of informal activities, it is important to consider how we can incentivize local communities.
- The host country-led approach has a key role to play in promoting the development of monitoring systems in an integrated manner (i.e., different satellite technologies should be applied in an integrated manner simultaneously).
- For the implementation of REDD+, the provision of both transparency and accurate information must be pursued in parallel. Continued support for REDD+ is still urgently needed, especially for developing countries lagging behind in the REDD+ process. A significant level of investment is required to institutionalize forest monitoring, and such investment is not available to most developing countries.

Day 2 (October 25)

Session III: Separate Sessions

Group 1: Governance Session—Improving forest governance through the adoption of JJ-FAST and other satellite technologies and the implementation of policy measures

- **Moderators: Mr. Kei Suzuki**, Senior Coordinator, International Cooperation Group, Japan Forest Technology Association and **Dr. Tetra Yanuariadi**, Project Manager, Division of Trade and Industry, ITTO

- **Objectives:**

- To discuss how countries can improve their forest governance by utilizing JJ-FAST and other satellite-based systems or tools and implementing measures dealing with matters such as policy making and implementation, law enforcement, and closer collaboration among stakeholders involved in forest management.
- To seek possible solutions for countries fighting against illegal deforestation activities, including illegal logging, and other such challenges to promote sustainable forest management.

Key presentations

1. **Mr. Anthony Nsununguli Tema, Research Officer, Forestry/Research and Monitoring, Ministry of Environment, Natural Resources Conservation and Tourism, Botswana (participant in JICA Knowledge Co-Creation Program): "Challenges in Forest Governance and Opportunities for the Use of Satellite Monitoring Systems and Technologies"**

Speaking on behalf of fellow participants from 10 countries who took part in the JICA Knowledge Co-Creation Program under the Forest Governance Initiative, Mr. Tema reported on challenges encountered in the following areas: policies and legal frameworks; institutional setups; IT infrastructure and skills; data/information handling; and finance. He expressed the hope that JJ-FAST would complement existing monitoring systems and that user countries would be able to contribute to the validation of JJ-FAST data by feeding background data.

2. **Ms. Chie Matsuyama, Deputy Director, Wood Utilization Division, Forestry Agency of Japan: "Act on Promotion of Use and Distribution of Legally-Harvested Wood and Wood Products"**

Ms. Matsuyama briefed the audience on the Forestry Agency of Japan's "Clean Wood Act," which came into effect in May 2017. The act requires all wood-related entities to use legally harvested wood and wood products whenever possible and to have their timber providers issue documents

certifying the legality of the harvesting of the timber. This practice is intended to promote better governance in the trade of wood and wood products.

3. **Mr. John James Leigh Vetter, Executive Director, National Forest and Wildlife Service, Peru: "Improving Forest Governance in Peru"**

Mr. Vetter pointed out that legislation, efficient forest management, public participation, and transparency are all key elements that are necessary for improving forest governance. He described three systems for improving forest governance in Peru: 1) the National Forest Management System (SINAFOR) for integrating policies, rules and management instruments; 2) the National Forest and Wildlife Control and Surveillance System (SNCVFFS) for tackling deforestation and other issues in cooperation with various other institutions; and 3) the National Forest and Wildlife Information System (SNIFF) for sharing information with these institutions. He also reported on challenges such as the development of National Forest and Wildlife Plans, the application of forest zoning, and the monitoring of areas with permanent cloud cover. JJ-FAST is expected to contribute to the implementation of SNIFF for the monitoring of forests.

Panel discussion with contributions from the floor

Key questions

- What challenges do developing countries face with regard to forest monitoring?
- What tools and systems are available for forest monitoring and good forest governance, and what challenges are involved in their use?
- What good practices should be adopted to address the challenges mentioned above (in terms of policies, law enforcement, coordination among relevant authorities, community participation, and systems or tools used for forest monitoring)?
- What approaches to improving forest governance are effective and what role does each stakeholder play?
- How can JJ-FAST be used effectively for the strengthening of forest monitoring and governance in these countries?

Panelists:

- **Mr. Ludovic Obed Ndenfoo Uronu**, Principal Forest Officer Responsible for Training & Research, Forestry and Beekeeping Division, Ministry of Natural Resources and Tourism, Tanzania
- **Mr. Joko Prihatno**, Director for GHG Inventory, Directorate General of Climate Change, Ministry of Environment and Forestry, Indonesia
- **Mr. Frederic Djengo Bosulu**, Director, Forest Inventory and Management Directorate, Ministry of Environment and Sustainable Development, Democratic Republic of the Congo
- **Prof. Jerome Vanclay**, Member of the IUFRO Board; Dean of Science, Southern Cross

University

KEY FINDINGS

1. Challenges faced by developing countries with regard to forest monitoring

- Lack of political will and leadership
- Lack of resources (finance, personnel, equipment, and internet connection)
- Corruption (due to inadequate salaries, etc.)
- Weak law enforcement
- Lack of technical skills and capacity building
- Diverse cross-sectoral deforestation drivers (mining, agriculture, industry, etc.)

2. Good practices for addressing challenges associated with forest monitoring

- Development of a national forest monitoring system to facilitate early warnings and rapid responses
- Community-based fire monitoring system and fire suppression association or group with a legal and institutional framework
- Moratorium on new forest concessions and forest zoning
- Complementary use of different satellites
- Payments for ecosystem services (PES)

3. Proposed initiatives for improving forest governance

- *Gemba* First
- Inter-sectoral approach and zoning
- Community involvement in all stages
- Promotion of the use of legally harvested wood and wood products in the value chain through regulations, incentives and easy access to information ("Clean Wood Act")
- Good coordination and communication among stakeholders (involvement of persons engaged in illegal activities too)
- Strong political will and leadership
- Integration in JJ-FAST and other systems of monitoring functions from sectors other than the forest sector (e.g., disaster prevention) as well
- Provision of easy access to forest information systems for everybody (e.g., JJ-FAST)

** These findings were concluded with the session participants*

Session III: Separate Sessions

Group 2: Technical Session—Strengthening national forest monitoring through the adoption of JJ-FAST and satellite technologies

Moderator: Dr. Masanobu Shimada, Invited Researcher, EORC, JAXA and Professor of Architectural, Civil and Environmental Engineering, School of Science and Engineering, Tokyo Denki University, Japan and **Dr. Vu Anh Tuan,** Vice Director General, Vietnam National Space Center (VNSC), Vietnam

- **Objectives:**

To discuss, from a technical point of view, subjects related to the implementation of sustainable forest monitoring in each country by using JJ-FAST and other satellite technologies. The ultimate aim is to produce the following: 1) recommendations on how to utilize forest monitoring systems efficiently and the requirements for such systems; 2) recommendations for expanding the use of forest monitoring systems through the complex use of multiple systems; and 3) recommendations for pursuing sustainable forest monitoring, including through the use of future satellites.

- **Key presentations**

1. **Dr. Ake Rosenqvist, President, soloEO and GFOI: "Global Forest Observations Initiative - Update on Early Warnings"**

Dr. Rosenqvist described the Global Forest Observations Initiative (GFOI), which was established by the Group on Earth Observations (GEO). The "Method and Guidance Document" (MGD) provides REDD+ countries with logical, systematic guidance on the utilization of earth observation (EO) data for national carbon emission reporting. The next revision (v.3) to this document is expected to be produced after the 2019 Intergovernmental Panel on Climate Change (IPCC). Even if the number of EO satellites is increased, it is best to collaborate on optical and SAR data. L-band is much more feasible for land surface monitoring. DataCube and Analysis Ready Data (ARD) are provided by Space Data services. Under the Capacity Building initiative, the US SilvaCarbon and FAO programs are being jointly implemented. In GFOI Phase 2, early warning (EW) constitutes a key tool for countries and it is an integral part of any National Forest Management System (NFMS), but it does need to be assessed.

2. **Ms. Rachael Petersen, Acting Director, Global Forest Watch, World Resources Institute**: **"Early Warning Systems: GFW Lessons Learned and Future Directions"**

Ms. Petersen described the Global Forest Watch (GFW) early warning system, which is a platform that interconnects the convener, commissioner, and distributor. Accuracy (Peru): False positive rate, 13.5%; (majority, 9.5%); False negative, 33%. Ms. Petersen also described how alerts are used for

the national government, civil society, local communities, and commodity companies. She mentioned that early warning systems have three phases: monitoring, response, and impact. For the future Early Warning Research: Analysis, GLAD+JJ-FAST comparison, Visualizing JJ-FAST in GFW. R&D: Incorporate Sentinel-2 to improve resolution, prototype operational radar alert and optical.

3. **Dr. Edson Eyji Sano, Brazilian Institute of Environment and Renewable Natural Resources (IBAMA)**

Dr. Sano described deforestation detection activities conducted by IBAMA in Brazil. Brazil's Legal Amazon region has an area of 520 million hectares, and a deforestation mask should be applied to this area. The deforestation sites vary as follows: remaining trees, branches, trunks, leaves, burning by forest fire, etc. Three systems are used. Live polygons are important. Pará, Mato Grosso, and Rondônia states are important. The major issues that need to be addressed with regard to JJ-FAST are as follows: different deforestation patterns; significant omit number; and the use of old deforestation masks.

4. **Dr. Vũ Anh Tuân, Vice Director General, VNSC**: **"DataCube and Its Potential for Forest Monitoring in Vietnam"**

Dr. Tuan described forest monitoring in Vietnam and gave an introduction to DataCube. The authorities responsible for forest monitoring in Vietnam are the Forest Ranger Directorate (FRD) and the Forest Investigation and Planning Institute (FIPI). The FRD produces updates every year without using a map, and it rarely uses satellites data. The FIPI produces updates every 5 years using VNREDSat 1 (it used SPOT until 2013). Using data from Landsat, Sentinel, ALOS-2, and LOTUSat, the Vietnam DataCube system has been used for forest monitoring since January 2018 and it is scheduled to be used for rice monitoring from January 2019. Going forward, Dr. Tuan would like to see JJ-FAST provide data more frequently, in more detail, and with more clear evidence.

5. **Mr. Osamu Ochiai, Associate Senior Engineer, Satellite Applications and Operations Center, JAXA**: **"How Satellites Can Contribute to Forest Monitoring"**

Mr. Ochiai began the session by asking how Earth observation satellites can contribute to forest monitoring. He mentioned three potential uses: operational, research and possibly commercial. Mr. Ochiai also asked how EW systems can be used in conjunction with an NFMS. After that, he described ALOS-2, ALOS-4, GCOM-C, MOLI and other current and upcoming JAXA satellites that could prove valuable to forest monitoring.

Panel discussion with contributions from the floor

Key questions

- How do the characteristics of each forest monitoring system compare?
- How can forest monitoring systems such as JJ-FAST be used effectively and what are the requirements for such systems?
- What direction should be taken with regard to the verification method used to ensure detection accuracy and the use of ground data?
- Can the effectiveness of forest monitoring systems be improved by using multiple satellite observation data sources?
- What does the future hold for sustainable forest monitoring taking into account the development of new technologies?

KEY FINDINGS

1. Comment 1

・ Early warning (EW) systems such as JJ-FAST and GLAD are global-scale systems that (inevitably) have lower accuracy at the local scale. Countries can work to improve local-scale accuracy by combining data from multiple systems and integrating their own ancillary data (e.g., local knowledge, field information, and VHR data).

・ Note: It is necessary to take into account the various forest definitions used in different countries.

2. Comment 2 (complementary use)

・ Based on satellite and information technologies, EW systems are well accepted and recognized as useful tools for forest governance: illegal and informal detection to forest governance, while there is wide availabilities of the parameters: radar (JJ-FAST) and optical (GFW etc.), resolution, accuracy, observation frequency (revisit), and their combinations. To improve forest detection capabilities through the use of EW systems, the following actions were recommended:

- Complementary use of radar and optical data
- Collaboration to ensure simple data delivery
- Feedback from users

3. Comment 3 (JJ-FAST)

・ JJ-FAST is the first radar-based forest monitoring (FM) system to be used and its establishment was supported by the conference participants. However, this system is still in development. The comments from the conference participants were welcomed and will be reflected in future performance improvements

- Use high-resolution data to improve the degree of detail for small areas
- Use dual polarization to improve sensitivity

- Use time-series data for multiple data items to improve sensitivity
- Improve algorithms by using additional field data
- Include image data for tiles that were not labelled as having changed to allow users to validate missed alerts as well

4. Comment 4

- Countries should define the operational requirements for early warning systems (e.g., accuracy, drivers, and definitions) in the context of national forest monitoring systems.
- The global community (GFOI) can provide guidance on early warning systems.
- In the meantime, JJ-FAST and GLAD can be used as minimum viable products (MVPs) while countries work to localize and design their own systems.

** These findings were concluded with the session participants*

Session IV: Wrap-up Session

- **Moderator: Mr. Takahiro Morita**, Senior Deputy Director General, Global Environment Department, JICA

The session moderators shared the key findings for each session with the participants. Representing the co-organizers, Mr. Morita announced the "Statement on the Tokyo International Conference on the Forest Governance Initiative" (next page) based on the outcomes of the various sessions.

Finally, in his **Closing Remarks** on behalf of the co-organizers, **Mr. Kazuo Tachi, Technical Counselor, Senior Chief Officer of Space Applications, JAXA** expressed his appreciation to all of the participants for their active participation and thanked the co-organizers and cooperating organizations for making the event possible. He officially closed the conference by expressing his hope that the actions mentioned in the statement will be undertaken to achieve this global commitment.

Statement

Statement

on the Tokyo International Conference on the Forest Governance Initiative

- Partnership for Global Contributions to Forest Conservation, Sustainable Forest Management, and Climate Change Mitigation -

October 25, 2017

We, the Japan International Cooperation Agency (JICA) and the Japan Aerospace Exploration Agency (JAXA), co-organized the "Tokyo International Conference on the Forest Governance Initiative" that was held in Tokyo from October 24 to 25, 2017, in cooperation with the Forestry Agency of Japan and the International Tropical Timber Organization (ITTO). This provided us with the opportunity to meet participants representing our partner countries, international and regional organizations, development partners, the private sector and civil society.

We recalled that the Forest Governance Initiative (FGI) was launched at UNFCCC COP 21 in 2015, where the Paris Agreement on Climate Change was adopted. The FGI was launched through the commitment of JICA and JAXA based on our recognition that forests will play a crucial role in achieving the objectives of the Paris Agreement as well as the Sustainable Development Goals (SDGs). Given this, the effective monitoring of changes in global forests is critical to reducing deforestation and forest degradation and improving forest governance.

We further recalled that the JICA-JAXA Forest Early Warning System in the Tropics (JJ-FAST), which was developed under the FGI, regularly monitors deforestation and forest cover changes in the tropical regions using the cloud penetrating technologies of the ALOS-2 satellite and provides open access to its findings with the aim of improving forest governance.

During the conference, we discussed the challenges faced by our partner countries and the international community in terms of improving forest governance using the tools of forest monitoring and forest management. We recognized that the effective use of satellite technologies, such as JJ-FAST and other satellite-based systems, combined with appropriate policy measures present many opportunities to address these challenges. More specifically, we wish to highlight the following findings:

- *The currently available global satellite data, systems and tools (including Global Forest Watch, GLAD, SEPAL, and Open Foris) and various country-specific systems offer numerous opportunities for us to achieve effective forest monitoring and sustainable forest management.*
- *It is important to consider how we use satellite technologies in decision-making and action-taking on the ground since technologies or systems cannot provide a single solution for all forest-related challenges and climate change. To address deforestation and promote sustainable forest management, it is necessary to seek good forest governance by supplementing systems and tools with, among other things, effective policies, law enforcement, institutional arrangements, capacity building, and the necessary resources. Effective coordination among the related authorities, the private sector, civil society, and communities is also critical.*

- *The methods that a developing country employs to improve its forest monitoring and management can be defined according to its purpose, its needs, its deforestation patterns, and the available data and information. The county-led approach should be the center of this process.*
- *Development partners can enhance their contributions to the provision of support for developing countries' initiatives and global development agendas by further harmonizing their activities and modalities with other organizations and systems.*
- *JJ-FAST can be used as an effective tool for forest monitoring and management through its incorporation in national forest monitoring systems and management plans based on their needs and objectives. Further study would be beneficial in seeking an effective means of utilizing JJ-FAST in the enforcement of regulations designed to address illegal deforestation activities, the tracking of legally harvested wood and wood products, the conducting of appropriate concession management, and so forth.*
- *The functionality of JJ-FAST can be enhanced to allow it to be used more effectively by developing countries and all stakeholders in conjunction with other available systems and tools both complimentarily and comprehensively.*

We reaffirmed our belief that forest conservation and sustainable forest management are indispensable to ensuring the sustainable development of the world as forests are intrinsically related to economic development, people's lives and livelihoods, food security, water sanitation, ecosystem conservation, and so forth.

In light of this, we need to accelerate our efforts to achieve sustainable forest management and implement climate change countermeasures, and the optimal way for us to do this is through the effective use of satellite technologies and enhanced partnerships among stakeholders. In this sense, we are extremely grateful for the invaluable contributions made by all those who attended the conference.

Believing that forests can change the world for the better, we call upon all participants here today to commit ourselves to working together under the FGI towards realizing a more sustainable and equitable world that leaves no one behind.

Tokyo, October 25, 2017

Co-organizers:

Japan International Cooperation Agency (JICA) and Japan Aerospace Exploration Agency (JAXA)

in cooperation with:

Forestry Agency, Ministry of Agriculture, Forestry and Fisheries of Japan and International Tropical Timber Organization (ITTO)

Witnessed by 144 conference participants from 24 countries and partner organizations.

Day 3 (October 26)

Visit to the JAXA Tsukuba Space Center for Overseas Participants

Overseas participants visited the JAXA Tsukuba Space Center (TKSC) on October 26. The participants were welcomed by JAXA representatives headed by **Mr. Mitsuru Watando, Deputy Center Director, TKSC**.

The participants learned about JAXA's mission and its space activities through presentations, a visit to the Kibo mission control room and a tour of the exhibition hall.

END

Annex 1: Conference Agenda

Day 1 (October 24)

Time	Length	Topic	Presenter/Moderator
Session I: Opening Session at "Yukyu" hall Moderator: Ms. Kanako Adachi, Director, Natural Environment Team 2, Global Environment Dept., JICA			
08:45		*Registration*	
09:30	10	Opening Remarks	Mr. Koji Makimoto, Deputy Director-General, Forestry Agency of Japan
09:40	10	Welcome Remarks	Ms. Noriko Suzuki, Senior Vice President, JICA
09:50	15	Keynote Speech	H.E. Dr. Amy Ambatobe Nyongolo, Minister of Environment and Sustainable Development, Democratic Republic of the Congo
10:05	15	Keynote Speech	Mr. Etienne Yoyo, Director General of Forestry Economy, Ministry of Forest Economy, Republic of Congo, representing H.E. Dr. Rosalie MATONDO, Minister for Forest Economy
10:20	15	Keynote Presentation: JAXA Earth Observation Program	Prof. Teruyuki Nakajima, Director, Earth Observation Research Center (EORC), JAXA
10:35	15	Keynote Presentation: Support for Forest Management of Developing Countries	Dr. Gerhard Dieterle, Executive Director, International Tropical Timber Organization (ITTO)
		Photo Session	Secretariat
		Coffee break	
11:05	40	JICA's Mission on Nature Conservation Sector and Introduction of the Forest Governance Initiative (10 min.) Introduction and Demonstration of	Mr. Takahiro Morita, Senior Deputy Director General, Global Environment Department, JICA Dr. Masato Hayashi, Associate Senior Researcher / Dr. Izumi Nagatani,

		JJ-FAST (30 min.)	Researcher, EORC, JAXA
11:45	15	Q&A	Moderator
12:00	90	Lunch break	
Session II: Sustainable Forest Management Using Forest Early Warning Systems and Satellite technology Moderator: Dr. Hideyuki Kubo, Chief Advisor, IJ-REDD Project			
13:30	60	Key Presentations and Q & A	
	(10 min.)	Deforestation Detection Activities @ IBAMA Brazil for Law Enforcement	Dr. Edson Eyji Sano, Chief, Remote Sensing Center, Brazilian Institute of Environment and Renewable Natural Resources (IBAMA)
	(10 min.)	Improving Forest Governance in Gabon through the Development of a Monitoring System of Forest Concessions	Mr. Simplice Nteme, Director General of Forestry, Ministry of Forestry, Sea and Environment, Gabon
	(10 min.)	Overview of REDD-plus Mandates under the UNFCCC and Role of Forest Monitoring using Satellite Technology	Ms. Jenny Wong Lai Ping, Programme Officer, Mitigation, Data and Analysis Programme, UNFCCC Secretariat
	(10 min.)	Global Forest Watch: Forest Monitoring Designed for Action	Ms. Rachael Petersen, Acting Director, Global Forest Watch, World Resources Institute
	(20 min.)	Q & A and Discussion	Moderator
14:30	30	Coffee Break	
15:00	90	**Panel Discussion: Improving Forest Governance using Forest Early Warning Systems and Satellite Technologies** **Objectives:** By reviewing previous session, add more cases to emphasize the need of improvement of forest governance and necessity of more strategic introduction and utilization of satellite technology, and present way forward to the Day 2 sessions. **Panelists:** 1) Mr. Gervais Ludovic Itsoua Madzous, Deputy Executive Secretary/Technical Coordinator, Central African Forests Commission (COMIFAC) 2) Mr. John James Leigh Vetter, Executive Director, National Forest and	

		Wildlife Service, Peru 3) Mr. Julian Fox, Team Leader, National Forest Monitoring, FAO 4) Dr. Aya Uraguchi, Senior Manager, Policy and Partnership Development, CI Japan 5) Mr. Hiroshi Nakata, JICA Senior Advisor	
16:30		Closing	Moderator / Secretariat

17:00 - Reception (for Invitees) at Banri hall

Day 2 (October 25)

Time	Length	Topic	Presenter/Moderator
Session III: Separate Sessions * French translation service will be available only at the Group 1.			
09:30	150	Separate Sessions: Presentation & Discussions	
12:00	80	Lunch Break	
13:20	55	Separate Sessions (continue and wrap-up)	
14:15	30	Coffee Break	

Group 1 (Governance Session): Improving forest governance using the JJ-FAST and satellite technologies along with policy measures * English/French at "Yukyu" hall

Moderator: Mr. Kei Suzuki, Senior Coordinator, International Cooperation Group, Japan Forest Technology Association and Dr. Tetra Yanuariadi, Project Manager, Division of Trade and Industry, ITTO

Objective:

- To discuss how the countries can improve forest governance by effectively using of JJ-FAST and other satellite-based systems / tools along with policy measures such as policy making and implementation, law enforcement, and close collaboration among stakeholders responsible for forest management.
- To seek possible solutions of the countries to fight against illegal deforestation activities including illegal logging and other challenges to promote sustainable forest management.

Agenda:

1. Recap of the 1st day and Key Presentations (9:30-10:50)

- Recap of the 1st day discussion, clarification, and sharing of the session objectives (20 min.): Moderator
- Key presentations (10 min. each)

Speakers:

1) Mr. TEMA Anthony Nsununguli, Research Officer, Forestry/Research and Monitoring, Ministry of Environment, Natural Resources Conservation and Tourism, Botswana (JICA Knowledge

Co-Creation Program participant): “Challenges of Forest Governance and Opportunities for the use of Satellite Monitoring Systems and Technologies”

2) Ms. Chie Matsuyama, Deputy Director, Wood Utilization Division, Forestry Agency of Japan: “The Act on Promotion of Use and Distribution of Legally-Harvested Wood and Wood Products”
3) Mr. John James Leigh Vetter, Executive Director, National Forest and Wildlife Service of Peru: “Improving Forest Governance in Peru”

2. Panel style discussion with interventions from the floor (10:50-12:00)

Key Questions

- What are challenges that developing countries are facing on forest monitoring?
- What tools and systems are available for forest monitoring / good forest governance, and what are challenges?
- What are good practices on the challenges mentioned above (policy, law enforcement, coordination among relevant authorities, community participation, systems and tools used for forest monitoring)?
- What are effective approaches to improve forest governance and what are roles of each stakeholder?
- How can JJ-FAST be effectively used for strengthening forest monitoring and governance in the countries?

Panelists:

1) Mr. Ludovic Obed Ndenfoo Uronu, Principal Forest Officer Responsible for Training & Research, Forestry and Beekeeping Division, Ministry of Natural Resources And Tourism of Tanzania,
2) Mr. Joko Prihatno, Director for GHG Inventory, Directorate General of Climate Change, Ministry of Environment and Forestry of Indonesia,
3) Mr. Frederic Djengo Bosulu, Director, Forest Inventory and Management Directorate, Ministry of Environment and Sustainable Development of the Democratic Republic of the Congo,
4) Prof. Jerome Vanclay, Member of the IUFRO Board / Dean of Science, Southern Cross University

3. Wrap-up (develop key messages and way forward) (13:20-14:15)

Group 2 (Technical Session): Strengthening national forest monitoring based on the JJ-FAST and satellite technologies * English at "Kunpu" hall

Moderator: Dr. Masanobu Shimada, Invited Researcher, EORC, JAXA / Professor, Architectural, Civil and Environmental Engineering, School of Science and Engineering, Tokyo Denki University, Japan, and Dr. Vu Anh Tuan, Vice Director General, Vietnam National Space Center (VNSC), Vietnam

Objective: To discuss the subjects in implementing a sustainable forest monitoring in each country by using JJ-FAST and satellite technology, from a technical point of view. Eventually, 1) Recommendation for efficient utilization methods of forest monitoring system, and system requirements for that, 2) Recommendation on expanding use by complex use of multiple forest monitoring systems, and 3) Recommendation on sustainable forest monitoring include of the future satellites.

Agenda:

AM Session (9:30-12:00, 150 min.)

1. Explanation of aim of this session (5 min)
2. Key presentations (75 min)

Speakers:

1) Dr. Ake Rosenqvist, President, soloEO / GFOI: "The global forest observations initiative-update on early warning"

2) Ms. Rachael Petersen, Acting Director, Global Forest Watch, World Resources Institute: "Early warning: GFW lessons learned and future directions"

3) Dr. Edson Eyji Sano, Brazilian Institute of Environment and Renewable Natural Resources (IBAMA)

4) Dr. Vũ Anh Tuân, Vice Director General, VNSC: "Data Cube and its potential for forest monitoring in Vietnam"

5) Mr. Osamu Ochiai, Associate Senior Engineer, Satellite Applications and Operations Center, JAXA: "How satellite can contribute to Forest monitoring?"

3. Coffee break (10 min)

4. Panel style discussion with interventions from the floor (60 min)

Key questions:

1) Characteristics comparison of each forest monitoring system.

2) The effective usage of forest monitoring systems including JJ-FAST, and system requirements for that.

3) Direction of verification method of detection accuracy and the use of ground data.
4) Effectiveness of forest monitoring system by using multiple satellite observation data.
5) Direction of sustainable forest monitoring, looking into the development of future technology.

PM Session (13:20-14:15, 55 min.)
Wrap-up of AM session: develop key messages and way forward

Session IV: Wrap-up Session at "Banri" hall			
14:45	30	Wrap-up session: Reporting from each separate session group	Moderator / Rapporteurs
15:15	15	Announcement of Statement on Tokyo International Conference on the Forest Governance Initiative	Mr. Takahiro Morita, Senior Deputy Director General, Global Environment Department, JICA / Co-organizers
15:30	10	Closing Remarks	Mr. Kazuo Tachi, Technical Counselor, Senior Chief Officer of Space Applications, JAXA

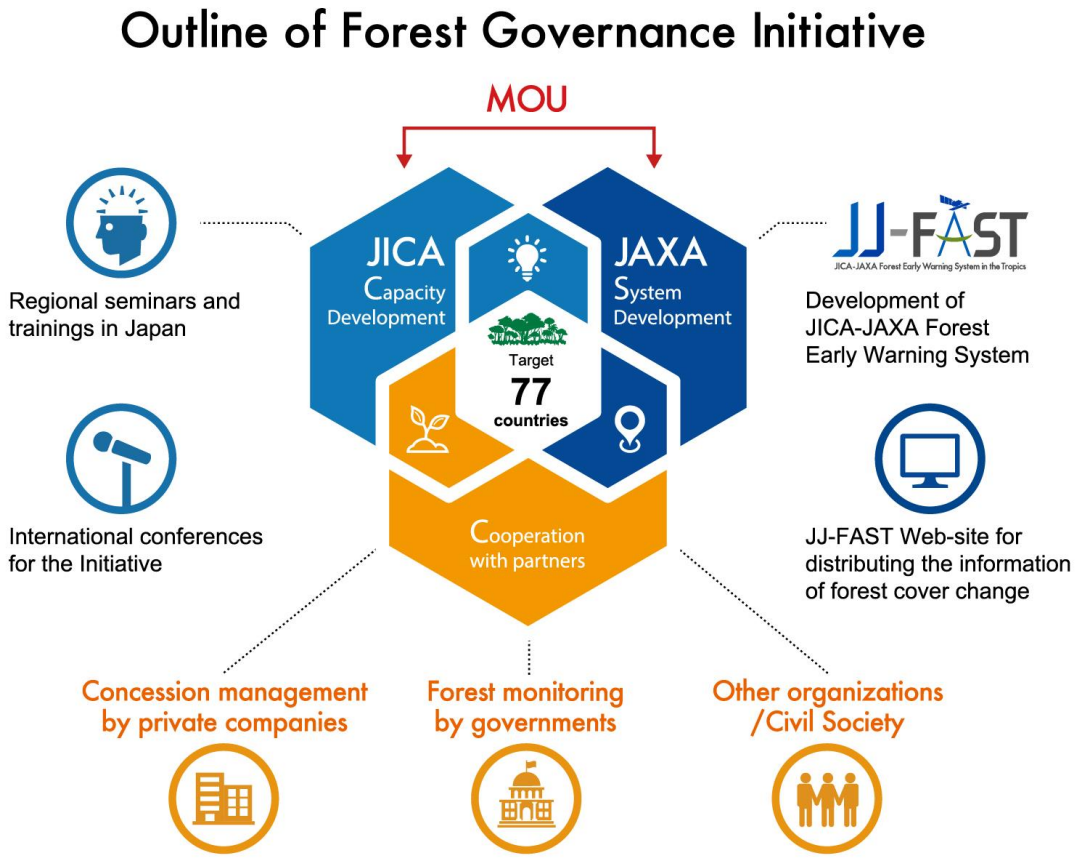
Visitor Program for Overseas Participants (Day 3, October 26)
JAXA Tsukuba Space Center (optional)

Annex 2: Forest Governance Initiative

Forest can change the world – The Forest Governance Initiative aims to encourage better use of satellite technology and multi-stakeholder partnerships to contribute to global tropical forest and biodiversity conservation and climate change mitigation.

JICA and JAXA launched the Forest Governance Initiative at UNFCCC COP 21 in Paris in 2015. JICA and JAXA have committed to the initiative through developing "JICA-JAXA Forest Early Warning System in the Tropics (JJ-FAST)", promoting capacity development and spreading good practices on forest conservation to fight against deforestation in developing countries and global climate change.

JICA and JAXA call development partners and private companies to join the initiative to work together to change the world for the better.



Annex 3: JICA-JAXA Forest Early Warning System in the Tropics: JJ-FAST

Monitor global tropical forests with ALOS-2

JICA and JAXA launched the JICA-JAXA Forest Early Warning System in the Tropics (JJ-FAST) in November 2016 as their commitment under the Forest Governance Initiative, which was announced at UNFCCC COP21 in Paris in 2015. JJ-FAST is a web-based system using JAXA's ALOS-2 to monitor tropical forests in 77 countries every 1.5 months and release deforestation data, even in the rainy season. Uses can easily access the data for deforested areas from PCs and mobile devices and download the data.

Advantage of the PALSAR-2 aboard ALOS-2

The state-of-the-art L-band Synthetic Aperture Radar-2 (PALSAR-2) aboard ALOS-2, which is active microwave radar using the 1.2GHz frequency range, have enhanced performance compared to the DAICHI/PALSAR in responding to society's needs. The PALSAR-2 can observe day and night around the clock.

Uniqueness of the JJ-FAST

- Any time of day or night Since other sources of light such as the sun are unnecessary, SAR present the advantage of providing satellite images regardless day or night.
- All-weather The L-band frequency for transmitting and receiving microwaves is less affected by cloud cover and rain.
- Land surface observation L-band microwave can reach to the ground partially penetrating through vegetation to obtain information about the current vegetation and ground surface.

■ Target Countries

Area		Country
Latin America	South America 9 countries	Bolivia, Brazil, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, Venezuela
	Central America and the Caribbean 9 countries	Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Trinidad and Tobago
Africa	West Africa 12 countries	Benin, Burkina Faso, Côte d'Ivoire, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Nigeria, Senegal, Sierra Leone, Togo
	East Africa 12 countries	Burundi, Djibouti, Ethiopia, Kenya, Madagascar, Rwanda, Seychelles, Somalia, Sudan, South Sudan, Tanzania, Uganda
	Central Africa 8 countries	Cameroon, Central African Republic, Chad, Republic of Congo, Democratic Republic of Congo, Equatorial Guinea, Gabon, Sao Tome and Principe
	South Africa 11 countries	Angola, Botswana, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Republic of South Africa, Swaziland, Zambia, Zimbabwe
Asia	14 countries	Bangladesh, Bhutan, Brunei, Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, Thailand, Viet Nam
Oceania	2 countries	Papua New Guinea, Solomon

■ JJ-FAST Web-site

http://www.eorc.jaxa.jp/jjfast/

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