JICA Cooperation Strategy for Natural Environment Conservation

Working toward a sustainable society
that leaves no one behind

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Japan International Cooperation Agency

Introduction

In 2015, the Sustainable Development Goals, a collection of 17 global goals, were adopted as the agenda for the year 2030 at the UN Sustainable Development Summit. Under a commitment to leave no one behind, the international community has embarked on initiatives to usher in a sustainable society. To eradicate poverty and address inequality while sustainably managing the natural environment, three goals are being pursued, namely Goal 13 (Climate actions), Goal 14 (Oceans), and Goal 15 (Terrestrial ecosystems/biodiversity).

In 1992, the Rio de Janeiro Earth Summit built momentum for global efforts to address environmental issues. In 2015, the Paris Agreement was adopted at COP 21 of the United Nations Framework Convention on Climate Change (UNFCCC) to provide a framework for the year 2020 onward in order to combat climate change and to curb global warming. Initiatives related to biodiversity conservation have been implemented to achieve the Aichi Biodiversity Targets, which were adopted at COP 10 of the Convention on Biological Diversity (CBD). Moreover, under the UNCCD's current 10-year strategy, battles are being waged against desertification and land degradation.

Despite these efforts, humanity still faces enormous challenges. The world's average CO_2 concentration hit a record high in 2016. The impact of the resulting global warming and climate change can be noticed in the increasing scale and frequency of natural disasters. The deforestation of tropical rainforests continues and an increasing number of species has become endangered. In developing countries that are vulnerable to climate change, these environmental challenges are obstacles to accomplishing their sustainable development.

Since the conservation of the natural environment is closely related to developments in multiple sectors, such as agriculture, urban areas, and industry, collaboration with multi-stakeholders is necessary to address this issue.

This paper presents JICA's basic policy on natural environment conservation under the agency's aspiration to contribute to the achievement of the key development goals adopted by the international community. This paper explains why the natural environment must be conserved, how the international community and Japan are implementing the necessary efforts, what kinds of assistance JICA can provide based on Japan's experience and technologies, which issues are being prioritized, and which approaches will be taken.

JICA hopes that this paper will help to deepen the understanding of stakeholders involved in JICA activities related to the conservation of the natural environment and deliver tangible benefits to each and every inhabitant of developing countries through effective project implementation.

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1. Why the natural environment must be conserved

In 1992, the Rio de Janeiro Earth Summit built momentum for global efforts to address environmental issues; it was followed by the signing and enforcement of three treaties, namely the United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD), and the United Nations Convention to Combat Desertification (UNCCD). Nevertheless, the burgeoning growth of emerging and developing economies as well as other factors in the increasingly globalized economy have caused the global environment to deteriorate as described below. This development has given rise to fears that the associated challenges will also escalate.

(1) Despite the recent slowing of deforestation at the global level, CO_2 emissions from deforestation and changes in land use remain a major cause of climate change. Economic damage from droughts and other types of natural disasters induced by global warming is increasing.
(2) Biodiversity is threatened by the disappearance and degradation of natural habitats as well as by overuse of natural resources that drives the extinction of species. Research and technology development related to genetic resources is essential in order to develop new drugs and to increase food production. However, inequitable benefit sharing between developing countries as stock suppliers and developed countries as users hampers this.
(3) Desertification is advancing in many countries that are vulnerable to conflicts and terrorism, which are partly fueled by issues related to deteriorating livelihoods (e.g., access to necessary land).
(4) The poor mostly rely on ecosystem services for their livelihoods. Destruction of and changes to such ecosystems threaten the livelihoods and survival of the poor.

[Facts related to (1) to (4)]

(1) The pace of deforestation has slowed (to -0.14% annually) worldwide over the past 25 years (from 1990 to 2015). Still, deforestation continues, most notably in Myanmar (-1.2%), Indonesia (-1.1%), Mozambique (-0.5%), and Brazil (-0.4%) (i.e., between -0.2 and -0.7% annually).[1]
   a. Annual CO_2 emissions increased by 1.5 times from 1970 to 2010. Emissions associated with deforestation and forest degradation as well as changes in land use accounted for 11% of the total.[2] Countermeasures against deforestation and forest degradation can effectively reduce CO_2 emissions and are expected to mitigate climate change with greater cost-benefit performance than that of other sectors.[3]
   b. IPCC reports that both the incidence of natural disasters caused by climate change and the resulting damage have been on the rise since the latter half of the 1990s. According to the statistics,[4] developing countries suffer 20-30 times greater socio-economic impact than developed countries do.
   c. In 2016, the World Meteorological Organization (WMO) announced that the global average CO_2 concentration had hit a record high of 403.3 ppm, noting a need to reduce emissions more radically.[5]

(2) Due to the signing of international treaties and other efforts, the total area of protected areas in

[1] FRA 2015 (report by FAO) (2015)
[2] 5th IPCC Report (2014)
[3] Stern Review (2006)
[4] IPCC (http://www.ipcc.ch/ipccreports/tar/wg2/index.php?idp=354)
[5] https://public.wmo.int/en/media/press-release/greenhouse-gas-concentrations-surge-new-record

terrestrial and inland water areas as well as coastal and marine areas has been increased from 8.3% and 1.1% in 1990 to 14.7% and 10.1% in 2016.[6] Still, the number of threatened species has increased from 10,533 in 1996 to 25,821 in 2017.[7]

(3) Over the past 20 years, reduced productivity and other negative effects have been observed in 20% of farmland globally. The livelihoods of more than 1.3 billion people are affected by desertification and land degradation.[8]

(4) About 300 million people (mostly the poor) worldwide depend on non-timber forest products and forest diversity for their livelihoods. Unfortunately, about 13 million hectares of forests are lost each year.[9]

Measures to address natural environment degradation and to curb the resulting climate change are crucial to achieve quality growth in developing countries. These measures should be continued in close cooperation with the rest of the international community.

2. Efforts by the international community and by Japan to conserve the natural environment in developing countries

(1) Efforts by the international community

i **Sustainable Development Goals (SDGs)**: In September 2015, the UN Sustainable Development Summit was held at the UN Headquarters in New York. The 193 member countries unanimously adopted the 2030 Development Agenda entitled "Transforming our world: the 2030 Agenda for Sustainable Development." In this agenda, the international community pledged that "no one will be left behind" in the collective journey. The 17 Sustainable Development Goals (SDGs) were set to provide core guidelines for the international community to eradicate poverty by 2030 and to usher in a sustainable society. The SDGs are regarded as the successors to the Millennium Development Goals (MDGs) established in 2001. The SDGs seek to address challenges left after the MDGs, including urbanization, climate change, income inequality, and other challenges that have become increasingly visible in the past 15 years. These 17 goals mutually reinforce and influence one another, a fact that necessitates a more comprehensive approach. In particular, Goal 13 (Climate actions), Goal 14 (Oceans), and Goal 15 (Terrestrial ecosystems/biodiversity) are closely related to natural environment conservation. The UNFCCC mentioned that the following 'ii' is also included under Goal 13.

ii **United Nations Framework Convention on Climate Change (UNFCCC)**: In 2015, the Paris Agreement was adopted at COP 21 in France to provide a framework to combat climate change from the year 2020 onward. Implementation of REDD+ was explicitly recommended along with provision of necessary assistance. The parties recognized the role of market mechanisms, including the Joint Crediting Mechanism (JCM), as well as the importance of bilateral cooperation, the Green Climate Fund, and other multilateral financing entities; public-private cooperation; and diversified funding sources. Article 9 stipulates that developed country Parties shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation, and also continue to take the lead in mobilizing climate financing from a wide variety of sources, instruments, and channels, noting the significant role of public funds. In addition, in 2017, peatland management and blue carbon (carbon capture and storage in coastal ecosystems, such as mangroves and seagrasses) were discussed

[6] UNEP-WCMC and IUCN (2016)
[7] IUCN Red List (2017) (Note the increase in the number of assessed species.)
[8] 2017 UNCCD, Global Land Outlook
[9] UNEP magazine, Our Planet (2010)

as new topics at COP 23 in Bonn, Germany, in light of their potential contribution.

iii **Convention on Biological Diversity (CBD)**: In 2010, the Aichi Biodiversity Targets were set as an urgent call to take effective action to conserve biodiversity and to ensure its sustainable use. Still, a report at 2016's COP 13 in Cancun, Mexico, noted the need for further efforts to achieve this set of 20 global targets by 2020 while acknowledging some remarkable progress. More specifically, Target 10 (Ecosystems vulnerable to climate change) and Target 17 (National biodiversity strategies and action plans) had not been achieved by the target year (2015). Limited progress was acknowledged at the national level in achieving Target 14 (Ecosystem services) and Target 18 (Traditional knowledge). Moreover, the Cancun Declaration was adopted at the ministerial meeting for COP 14 to mainstream biodiversity into agriculture, forestry, fisheries, and tourism through a multi-stakeholder approach in order to achieve the SDGs and the Aichi Biodiversity Targets.

iv **United Nations Convention to Combat Desertification (UNCCD):** The fight against desertification and land degradation is being waged during the current United Nations Decade for Deserts (from 2010 to 2020). In 2017, the 2018-2030 Strategic Framework was adopted at COP 13 in Ordos, China to achieve goals such as enhancing the productivity of degraded land, improving the livelihoods of over 1.3 billion people, and mitigating the impact of droughts on the vulnerable population. In addition, with the aim of achieving land degradation neutrality (LDN) under SDG 15.3, each country set baselines and indicators, progress of efforts including monitoring was checked, and the launch of the LDN Fund for encouraging LDN projects in which the private sector is also involved was announced. Moreover, the Ordos Declaration was adopted to strengthen the commitment to curbing desertification with the aim of contributing to food security, peace building, and biodiversity conservation.

v **Sendai Framework for Disaster Risk Reduction (2015-2030)**: In March 2015, the Sendai Framework for Disaster Risk Reduction (from 2015 to 2030) was adopted at the Third UN World Conference on Disaster Risk Reduction. It calls for the mainstreaming of disaster risk assessment and mapping into rural development planning and community management while identifying safe habitation areas and conserving ecosystems to reduce disaster risks. Particular emphasis is placed on mountains, rivers, floodplains, dry land, bogs, and other areas prone to droughts and flooding. As action priorities, it mentions sustainable use and management of ecosystems as well as an integrated management approach for environment conservation and natural resource management that take into account disaster risk reduction.

(2) Efforts by Japan

i **Japan's Assistance Initiatives to Address Climate Change 2017:** In carrying out its commitment to the Paris Agreement, Japan presented its vision based on a core concept of co-innovation in collaboration with developing countries while effectively applying its advanced technologies and know-how. Japan has committed to establishing the Partnership to Strengthen Transparency for Co-Innovation with developing countries and international agencies while collaborating with a wide array of stakeholders domestically and abroad based on the initiatives.

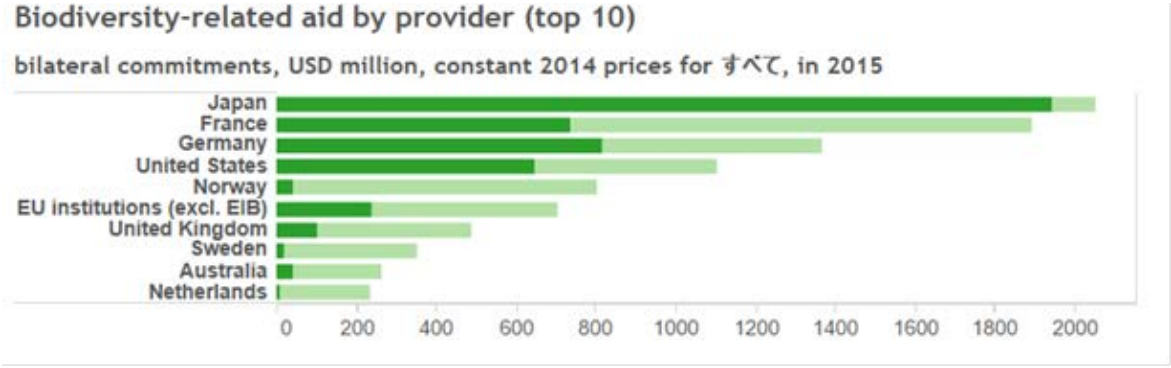
ii **National Biodiversity Strategy and Action Plan 2012-2020:** Japan presented its policy toward 2020 to mainstream biodiversity in society, review and rebuild the relationship between humanity and nature, secure the connection among forests, villages, rivers and seas, act with a global view and strengthen the scientific basis for the policy.

iii **G7 Toyama Environment Ministers' Meeting (May 2016):** A common understanding was confirmed regarding the need to promote environmental, social, and governance (ESG) investments and to

transform the economic system by encouraging a greener financial system.

(3) Trends in international assistance

i In 2015, Japan was the top bilateral donor in natural environment conservation (comparison of 2014 figures).[10]



ii The Japanese government has been making sizeable aid contributions to climate change countermeasures through international agencies and other channels. Major examples include contributions of 1.5 billion dollars to the Green Climate Fund (GCF) (as of 2016) and 14 million dollars to the Forest Carbon Partnership Facility (FCPF) from 2008 to 2012.

iii The REDD+ program's transition from the demonstration phase to the full implementation phase is gathering pace as the program was clearly stipulated in Article 5 of the Paris Agreement. The GCF officially adopted result-based payment (RBP) for REDD+ programs (note that RBP applies to REDD+ programs on a sub-national level or above; it does not apply to REDD+ programs on a project basis).

3. JICA's contribution based on Japan's experience and technologies, and lessons learned

(1) Japan's experience and technologies that help conserve the natural environment in developing countries

i Forest coverage in Japan fell to almost 50% as forest use grew during the *Edo* period despite efforts in some feudal domains to protect forests and control erosion through afforestation. In the subsequent Meiji period, forest coverage recovered to almost 70% thanks to the establishment of forest-related systems and technical advancement. Japan has both forest management technologies and forest planning systems in place for producing timber as well as for preventing disasters through afforestation,[11] conserving biodiversity, and curbing global warming.[12]

ii Japan has a long history of sustainable use of natural resources in socio-ecological production landscapes (called *satoyama* in Japanese) that have been maintained in tandem with agriculture, forestry, and fisheries. In 2010, Japan presented the Satoyama Initiative at CBD COP 10, which was held in Aichi Prefecture, Japan.

iii Since the successful launch of Japanese Earth Resources Satellite 1 (JERS-1), Japan has developed excellent satellite technologies. The ALOS (launched in 2006), which is equipped

[10] OECD (https://public.tableau.com/views/Biodiversity_0/ByRecipient?%3Aembed=y&%3Adisplay_count=no&%3AshowVizHome=no%20#3)

[11] Various kinds of erosion control work through afforestation have been carried out to recover from disasters caused by heavy rains in steep mountains, typhoons, storm surges in coastal areas, and so forth.

[12] Japan reduced GHG emissions by 3.8% through thinning and other proper forest management against a total reduction target of 6% for the first commitment period of the Kyoto Protocol.

with an improved spatial resolution sensor and PALSAR (Phased-Array type L-band Synthetic-Aperture Radar), has significantly contributed to fighting illegal logging in Brazil. The follow-up ALOS-2 has the world's best performance in terms of resolution, observation band, observation range, and observation time. It is useful for monitoring tropical forests (during the rainy season).

(2) JICA's contribution based on Japan's experience and technologies

i JICA implemented 293 projects in 66 countries from 2000 until 2016.

Scheme	Technical cooperation	Grant aid	ODA loan
Number of projects	242 (including 79 grassroots technical cooperation projects)	16	35 (*including irrigation and flood control)
Actual expenditures (billion yen)	56.6 billion yen (including 1.9 billion yen for grassroots technical cooperation projects)	11.9 billion yen	294.8 billion yen (91% for China and India)

Achievements (FY2000-2016)

- Forest reserves and ranger districts: 12.14 million ha (1.5 times the area of Hokkaido)
- Afforestation: 3.05 million ha (ca. 1.5 times the area of Shikoku)
- Trainees: ca. 640,000 persons (administrative officers, local residents, and others)

ii JICA's strengths

- Recognition of ownership by developing countries and capacity development, recommendation of policies and systems based on experience gained on-site, and sustainability of the outcomes of cooperation projects
- Contribution to the development of science and technology in developing countries through the Science and Technology Research Partnership for Sustainable Development (SATREPS), which involves leading researchers, as well as the social application of outputs in related technical cooperation projects (e.g., peatland management in Indonesia)
- Promotion of better forest governance and sustainable forest management, including the JICA-JAXA Forest Early Warning System (JJ-FAST) employed to tackle illegal logging by establishing extensive monitoring systems in tropical forests
- Network building and knowledge sharing among multiple countries in partnership with regional organizations, such as the Southern African Development Community (SADC), the Central African Forest Commission (COMIFAC), and the Gulf Regional Organization for the Protection of the Marine Environment (ROPME)

(3) Lessons learned from past projects

In FY2014, JICA conducted "theme-specific evaluation, cross-sectional analysis of evaluation results, and extraction of practical knowledge and lessons learned regarding natural environment conservation." For these works, JICA invited external experts and experienced practitioners to obtain and extract implicit knowledge from the technical cooperation and grant aid projects conducted since

2001 (72 in total). As a result, 14 lessons learned were compiled as feedback for future projects.[13] The three key lessons are as follows.

i To ensure sustainability, always bear in mind the wider application of model projects (including financing mechanisms, funding sources, and implementation systems) (application should be part of project activities to the extent possible).

ii If multiple organizations need to be involved in addition to the direct counterparts, carefully establish an appropriate system for managing the various parties involved.

iii Take heed of relevant laws and systems, including those related to land issues.

4. Further efforts

(1) JICA's basic policy

1) With a view to 2020 and beyond, JICA will help the international community to achieve its pledges--specifically, the SDGs (Goals 13, 14 and 15 in particular), the Paris Agreement, the Aichi Biodiversity Targets, and the Ordos Declaration.

2) Activities based on lessons learned from past projects

i Reinforce activities that directly address laws, policies, and institutions of developing countries' governments to ensure proper financing for the continuity of projects that constantly lack sufficient funds as well as to encourage local community participation in more sustainable forest and resource management (in particular, initiatives to access external funds like GCF (REDD+ programs) and private sector partnerships).

ii Reinforce activities related to forest management and biodiversity conservation in developing countries to build more collaborative management systems that involve not only administrative agencies but also local communities, the private sector, and other diverse stakeholders (effectively utilize international treaties and frameworks, such as UNESCO's MAB program and the Ramsar Convention).

iii Avoid negative impacts on local communities' livelihoods caused by limited access to land and forest resources. Ensure that no one is left behind in cooperation efforts by not excluding local residents from project planning, implementation, and decision-making processes.

3) Leveraging the advantages of Japan and JICA

i Effectively utilize satellites, drones, and other new technologies. To promote forest monitoring via satellites, conduct feasibility studies on the application of satellites, organize international conferences on forest governance, host training programs in Japan, and utilize satellites in ongoing projects. With this in mind, boost the JICA-JAXA partnership to develop and improve the Forest Early Warning System (JJ-FAST) with better accessibility to meet the needs of developing countries with limited resources.

ii Foster business partnerships, build a network with partners for development, and collect and share knowledge on REDD+ programs and forest conservation through the "Forests Can Change the World" REDD+ Platform (with JICA acting as a hub for partnerships among industry, academia, and governments).

iii Effectively apply Japan's technologies and knowledge to *chisan* (erosion control by

[13] Theme-specific report (Japanese)
https://www.jica.go.jp/activities/evaluation/tech_ga/after/ku57pq00001cdfnb-att/201412_02.pdf

afforestation that has been practiced since the Edo period) in order to prevent and mitigate disaster damage through the utilization of ecosystems. Also, effectively apply relevant lessons from Japan's forest reserve system and forest policy, which are designed to ensure proper forest conservation and management by regulating logging and earthwork to ensure public benefits, such as water source recharging, disaster preparedness, and living environment protection.

iv In cooperation with the International Partnership for the Satoyama Initiative, apply the experience and knowledge gained from the sustainable, wise use of natural resources in socio-ecological production landscapes and seascapes (called *satoyama* or *satoumi* in Japanese) that have been maintained through agriculture, forestry, fisheries, and other human activities.

4) Enhancing the effectiveness of development using external funds

i In response to heightening needs, REDD+ is moving forward from the preparation phase to the implementation phase. However, since most international funds are provided ex-post as result-based payments for supporting the preparation phase and reducing greenhouse gas emissions, the governments of developing countries lack sufficient funds to implement projects. Eliminate this funding gap to facilitate the implementation of pioneering REDD+ programs by utilizing GCF, private funds (JCM or donations), or other funding sources; securing funds for projects in developing countries through outsourcing; or supporting groundbreaking activities through yen loans.

ii Bear in mind each project's exit strategy by working with partners to scale up the project. Ensure that project outcomes take root and continue to bring tangible benefits.

(2) Three strategic agendas based on JICA's basic policy

[Strategic agenda 1] Sustainable forest management and its contribution to climate change countermeasures

FCPF, GCF, and other initiatives in the lead-up to the REDD+ implementation phase are picking up pace in anticipation of the new framework's enforcement from 2020 onward under the Paris Agreement. According to its Intended Nationally Determined Contributions (INDC), Japan is expected to reduce emissions by roughly 27.8 million CO_2-tons by 2030 through the adoption of forest carbon sink measures. Among the options, REDD+ is expected to earn more credits at a smaller cost than that of other sectors (i.e., higher cost-benefit performance). Thus, JICA will seek to apply REDD+ alongside the private sector and external funding sources (e.g., FCPF, GCF, and JCM).

1) Forest conservation and climate change mitigation (REDD+, etc.)

In the Amazon, Congo Basin, Southeast Asia, and other humid regions, strengthen the capacity for forest resource management using Japanese satellites and forest management through stakeholder cooperation. In this manner, help developing countries achieve economic development while sustainably managing the environment. In addition, curb global warming through forest conservation. Specific activities are as follows.

i Sustainable forest management and timber processing

ii REDD+ under the UNFCCC: Support Readiness activities (e.g., inventory of national forests using Japanese satellites and institutionalization assistance in partnership with other donors). In particular, try to introduce new technologies, such as the use of JJ-FAST and other Japanese satellite-based systems to monitor illegal logging (e.g., in Brazil, Peru, Papua New Guinea, the Democratic Republic of Congo, and Mozambique). Effectively apply tablets and develop cloud-based MRV systems to reinforce forest management and to enhance the precision of forest monitoring.

iii Support for implementation of REDD+ programs under the UNFCCC: Scale up projects (wider application of project outcomes, or expansion to the sub-national or national level) in a timely manner with external funding sources (e.g., GCF and the Central African Forest Initiative (CAFI)) as well as yen loans (e.g., Myanmar, Vietnam, India, Indonesia, and the Democratic Republic of Congo).

iv Assistance via JCM to implement REDD+ programs: In collaboration with Japan's government, provide technical assistance to deepen partnerships with private business operators and to build up the relevant capacities of developing countries' governments. Effectively use the REDD+ platform to encourage partnerships among governments, the private sector, and academia.

2) Forest conservation and climate change adaptation (e.g., ecosystem-based disaster risk reduction (Eco-DRR), forest fire control, and watershed conservation)

Apply Japan's afforestation technologies and experience in introducing appropriate technologies in other countries to support Eco-DRR and watershed management in disaster-prone regions, water conservation forests, and other important watersheds. Specific activities are as follows.

i Afforestation and watershed management: In addition to introducing technologies, build a system for sustainable forest management.

ii Coastal disaster prevention: Plant mangroves and trees to mitigate damage from typhoons, storm surges, and other natural disasters and to prevent coastal erosion. Strengthen systems for regenerating lost or damaged ecosystems as well as for managing them.

iii Forest fire control: Promote satellite-based monitoring of forests and peatlands as well as early

forest fire detection and prevention.

[Strategic agenda 2] Enhance resilience and livelihoods through sustainable use of natural resources (e.g., combating desertification)

Promote the African Initiative for Combating Desertification (AI-CD) in Sahel and the Horn of Africa based on ownership by African countries and partnerships with international organizations and aid agencies. Support activities to improve livelihoods by reinforcing the policy and response capacity of national governments in semi-arid and other vulnerable regions, and by properly conserving forests and soil. In vulnerable countries, seek proactive partnerships with international organizations and NGOs. Specific activities are as follows.

i Combatting desertification: Enhance food security in Sahel, the Horn of Africa, and other areas that are vulnerable to climate change by curbing desertification, restoring vegetation, and conserving soil. In the fight against desertification, build up the capacity to achieve SDG 15.3 and enhance international awareness.

ii Improving livelihoods: Pursue sustainable use of natural resources by encouraging income generation from coffee, fruits, honey, and other non-timber forest products. Assist in building value chains in partnership with the private sector to enhance the added value of such non-timber forest products.

[Strategic agenda 3] Conservation of biodiversity through management of protected areas and buffer zones

In order to achieve the Aichi Biodiversity Targets (2011-2020) and the post-2020 targets, ensure proper conservation and sustainable use of biodiversity in protected areas and their surrounding areas (connected ecosystems, landscapes) by promoting the green economy, strengthening environmental and social considerations in development practices, strengthening cooperation for natural environment conservation in marine coastal areas, and mainstreaming biodiversity in other sectors (e.g., agriculture, forestry, fishery, tourism and energy) while pursuing development in harmony with nature.

Recognize important protected areas and buffer zones that are inhabited by threatened or endemic species as connected ecosystems (landscapes). Strengthen protected area management capacities by involving local communities in biodiversity monitoring as well as by enhancing management governance. Promote the green economy to secure sustainable use of natural resources in buffer zones and to improve local communities' livelihoods. Specific activities are as follows.

i Participatory management: Develop and implement management plans for protected areas (including buffer zones) by involving local communities.

ii Enhanced management and governance: Build up staff capacity to manage protected areas, provide policy support for zoning and expanding protected areas, help build up funding mechanisms by introducing payments for ecosystem services (PES), and help conserve threatened species.

iii Ecosystem-based management: Based on an understanding of the mutual relationships among species, their habitats, people, and other ecosystem elements, promote integrated management across sectors (e.g., conservation, fisheries, agriculture, and tourism) to balance biodiversity conservation and the sustainable use of ecosystem services. To this end, apply adaptive management through monitoring with appropriate indicators and build functional management

systems with stakeholder involvement.

iv Promotion of the green economy: Promote the green economy to improve the livelihoods of local communities in buffer zones through sustainable use of natural resources. Examples include the enhancement of value-added products from agriculture, forestry, and fisheries as well as the promotion of eco-tourism and the introduction of PES. While promoting the green economy, encourage partnerships with private companies to ensure continuity and the scaling up of project activities and outputs.

v Management of coastal ecosystems: To achieve Goal 14 of the SDGs, gradually expand assistance for conservation of coastal ecosystems with which JICA has had limited involvement thus far. Examples include the conservation of coral reefs and mangroves that provide a variety of ecosystem services in the form of blue carbon, fishery resource management, and disaster risk reduction.

vi Encourage environmental and social considerations to mainstream biodiversity conservation into development.

(3) Key points to be addressed when implementing strategic agendas

1) Enhance project quality and strategic impacts.

i Identify useful resources in Japan and pursue partnerships with the private sector to consider exit strategies for REDD+ programs from 2020 onward, ways to help achieve the post-2020 biodiversity targets, and initiatives to take after JJ-FAST.

ii Work with JICA offices throughout Japan to identify resources and needs in Japan in order to explore opportunities and develop projects with new domestic partners.

iii Strengthen partnerships with universities and research institutes to gain deeper scientific knowledge needed to achieve each strategic agenda. Proactively communicate with potential stakeholders (e.g., peatland management, blue carbon, desertification prevention, threatened species protection, and genetic resources management).

iv Proactively develop human resources in developing countries who specialize in natural environment conservation by making the most of JICA's Knowledge Co-Creation Programs (training programs in Japan) and international study programs.

v The rights and methods for using natural resources as well as management methods may differ between women and men. For this reason, continue to carry out gender-conscious project planning, implementation, monitoring, and evaluation to ensure sustainable management of natural resources.

2) Encourage expansion of project outcomes and pursuit of greater efficiency.

i Strategically combine yen loans and technical cooperation to implement REDD+ programs in, for instance, India (possible bridge financing to implement REDD+ programs that cannot be covered by other funds).

ii Pursue grassroots technical cooperation and partnerships with JOCVs and other volunteers in environmental education, threatened species protection, and other areas where grassroots activities are more effective (e.g., initiatives for programs carried out during the development needs analysis phase).

3) Effectively expand cooperation, including South-South cooperation (connect dots into networks).

i Implement technical cooperation projects in the 24 countries of SADC and COMIFAC based on the

TREES[14] initiative presented at TICAD V. Seek greater outcomes by effectively applying limited resources and stronger engagement with officers responsible for policies at forest ministries and agencies in each country.

ii Reinforce ongoing regional cooperation in Central America in the aid for the Mesoamerican Biological Corridor Initiative. In so doing, effectively apply experience from, for example, regional cooperation for watershed management led by Panama as well as participatory protected area management in Costa Rica.

4) Strengthen partnerships with international organizations and other parties.

i MOUs have already been signed regarding cooperation with the Secretariat of the Convention on Biological Diversity, Ramsar Convention Secretariat, Centre for People and Forests (RECOFTC); FAO; and ITTO. Seek closer dialog and partnerships with institutions that finance biodiversity programs, REDD+ (e.g., the World Bank, GEF, and GCF) and GCF (JICA has been made an Accredited Entity for GCF).

ii Actively share and disseminate information at side events of international conferences, including COPs.

[14] This initiative seeks to curb deforestation in 34 target countries. Comprehensive assistance is provided for managing natural resources, curbing climate change, conserving ecosystems, and achieving sustainable development in order to properly conserve and sustainably use natural resources in diverse and vulnerable forests in Africa.

[Project examples]

1) Sustainable forest management and its contribution to climate change countermeasures

Example 1: Development of a forest monitoring system by effectively using satellites [grant aid for environmental programs & technical cooperation]

In fiscal year 2009, grant aid for environmental programs provided 23 countries with equipment for forest management (satellite imaging systems, GIS, vehicles, and so on). This aid is now used for technical cooperation to develop forest base maps in 13 countries, thereby significantly contributing to preparations for REDD+ programs (total area: around 2.42 million square meters, or more than six times the area of Japan). Particularly in African countries like the DRC, Mozambique, and Gabon, assistance is provided to develop national or sub-national forest monitoring systems in order to effectively use the equipment provided as well as to facilitate sustainable forest management and REDD+ programs.

Example 2: Joint forest management in India for forest conservation and livelihood improvement for the poor [yen loans & technical cooperation] (from 1990)

As of August 2017, 25 yen-loan projects amounting to a total of 246.5 billion yen have been provided for the afforestation of 3 million hectares in 14 states in India. In addition to participatory forest conservation, activities to enhance livelihoods have been organized to help reduce poverty. Synergy effects have been obtained through technical cooperation in training for forest rangers and afforestation.

2) Enhance resilience and livelihoods through sustainable use of natural resources

Example 3: Assistance in soil conservation and livelihood improvement in vulnerable communities in Africa [technical cooperation]

In countries such as Malawi and Madagascar, land is being ruined by excessive logging for fuel. Under the concept of equal opportunity for everyone, a technical training program was organized to conserve the soil and to improve livelihoods. In this intensive training, local resources were used to help participants acquire necessary skills quickly. Scale-up was sought by fostering future training leaders among the local trainees. As a result, in the two aforementioned countries, a total of 65,000 households completed technical training programs on natural environment conservation and livelihood improvement. Income has been generated and productivity has been improved. In addition, a high implementation rate for activities related to afforestation and silviculture has been confirmed.

3) Conservation of biodiversity (management of protected areas)

Example 4: Cooperation to conserve and wisely use wetlands in Uganda [technical cooperation] (2012-2016)

In Uganda, wetlands cover about 13% of the national territory. Conservation and sustainable management are key national agenda items. In the wetland management project, two eastern wetland areas (Namatara and Awonja) were chosen as pilot sites. There, assistance was provided to improve the wetland database; develop scientific data and a wetland management plan that includes zoning; carry out sustainable income generation activities that harness wetland ecosystems; and share knowledge with the agriculture and irrigation sectors. Achievement of both conservation and development while giving due consideration to residents' livelihoods was compiled into Uganda's wetland management and the wise use of wetland guidelines as a role model. The project has also been highly evaluated by the Ugandan government and Ramsar Convention Secretariat for its contribution to "enhancing biodiversity in rice

paddies as wetland systems" (Resolution X.31) in Africa under the Ramsar Convention.

Example 5: Coral reef conservation in Palau through science and technology research [science and technology research partnership] (2013-2018)

How coral reef and island ecosystems are affected by climate change and land areas were scientifically examined. As a result, the biological connectivity that exists among marine creatures in Palau due to the impact of ocean current dispersion was scientifically demonstrated for the first time. Assistance for policy-making regarding the conservation of coral reef and island ecosystems was provided based on many scientific findings. In addition, a task force was set up with the counterpart organizations to bring together research outcomes from biology, chemistry, social science, and other disciplines. In this manner, the project facilitated consensus building among diverse stakeholders across different disciplines.