

JICA's efforts to bring synergies
between climate change and the SDGs
within international cooperation

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Japan International Cooperation Agency (JICA)

Institute for Global Environmental Strategies (IGES)



Analyzing JICA's case studies from the perspective of synergy trade-offs

- Special Edition to the “Fifth Global Conference on Strengthening Synergies between the Paris Agreement and the 2030 Agenda for Sustainable Development: Building a Just World and a Sustainable Planet, 5-6 September 2024 | Rio de Janeiro, Brazil” -

With less than six years left until 2030, there are still many challenges to achieving the SDGs. With regard to climate change, countries at the Global Stocktake (GST) at COP28 agreed that, with the current efforts unchanged, the temperature would rise by 2.1~2.8°C and that the world as a whole should aim to triple renewable energy and double energy saving by 2030.

Since its establishment in 1998, IGES has focused mainly on the Asia-Pacific region, supporting environment-related research, surveys, and practices, aiming at achieving sustainable development in the region.

In April 2019, the United Nations Department of Economic and Social Affairs (UNDESA) and the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC) launched the Global Conference on Strengthening Synergies between the Paris Agreement and the 2030 Agenda for Sustainable Development, which IGES has actively supported.

IGES's President Kazuhiko Takeuchi participated every year as a speaker, and IGES also provided fundamental support for the 3rd Global Conference held at the United Nations University in Tokyo in July 2022. Today, President Takeuchi continues to contribute as a member of the Synergy Expert Group and publish Global Synergy Report in 2023 and 2024.

At the High-Level Political Forum (HLPF) 2023, IGES also compiled three examples of synergies in Japan and published them at the 4th Global Conference under the title "Case studies of domestic initiatives that have synergistic impacts on climate change, biodiversity, and the SDGs."

Starting in April 2024, IGES has joined a research project "Synergies and Trade-offs for transformative actions towards the SDGs" supported by the Environment Research and Technology Development Fund, and IGES has collected and analyzed relevant case studies on synergies.

We would like to use this opportunity to present the best practices from our long-time collaborator, JICA, utilizing a template developed by IGES. This is the English version of “国際協力において気候変動対策とSDGsに相乗効果(シナジー)をもたらす JICA の取組事例”, which was launched at HLPF2024 in New York, July 2024.

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Format of Synergy (Trade-off) Case Studies proposed by IGES

Title describes Initiatives Clearly Describing Activities for Increasing Synergies (and Resolving Trade-offs)	Targeted SDGs Key SDG Targets (Indicators)
<p>Overview of the Initiatives to provide a concise description of the initiative's background and activities, including the main entity and target areas/sectors.</p>	
<p>Characteristics of Synergy (Trade-off) Initiatives</p> <ul style="list-style-type: none"> • What kinds of trade-offs are there, and what kinds of strategies are used to create synergies? • Include possibilities for broader dissemination, etc. 	<p>Key Performance Indicators (KPIs)</p> <ul style="list-style-type: none"> • SDGs indicators and unique KPIs for the baseline year and target year, • qualitative indicators could be introduced when quantification is difficult.
<p>References 2</p>	

JICA's Case Study (1)

Support for planning and Implementation of the Nationally Determined Contributions (NDCs) in Vietnam (SPI-NDC)	Targeted SDGs 3.9/7.3/8.3/9.4/11.3/13.2/17.9
<p>Summary Following the adoption in 2015 of the Paris Agreement, a new international framework for combating climate change, the Vietnamese government, led by the Ministry of Natural Resources and Environment (MONRE), submitted a draft national commitment "Nationally Determined Contributions (NDC)" (voluntary greenhouse gas emission reduction targets) to the United Nations in 2020. Under the coordination of MONRE, ministries and agencies need to develop and implement sector-level greenhouse gas (GHG) emission reduction plans, formulate notifications, guidelines, and measure, report, and verify (MRV) GHG emission. Furthermore, in addition to efforts by each ministry, MRV at the facility level where GHG emissions are emitted will be required, and private companies that own facilities will be required to submit GHG emission reduction plans and report on their progress on a regular basis. The Vietnamese government and private sector do not have sufficient knowledge to implement such activities, and the development and implementation of measures and activities to reduce GHG emissions are not yet systematic on the Vietnamese side, which involves many challenges. JICA's technical assistance has been provided to promote private sector participation in the implementation of the NDC. JICA's technical assistance will contribute to improving the capacity of the Vietnamese government to plan and implement NDC by formulating policies and improving the capacity of MONRE and relevant ministries and agencies to plan and implement GHG reduction measures.</p>	
<p>Synergistic Activities (Solving Trade-offs)</p> <p>In Vietnam, the implementation of GHG emission reductions is focused on the national level, with limited opportunities for local governments and enterprises. In particular, passenger modal shift has been identified as an important measure for NDC implementation. The MRV methodology needs to be demonstrated and is currently not being applied in practice, so that making the implementation of activities by urban rail companies one of the challenges.</p> <p>JICA is therefore providing practical training and other activities to encourage private sector investment in decarbonization. JICA conducted a study to calculate and implement GHG emission reductions from the Hanoi BRT Line 1 by applying the methodology for modal shift (MST) developed in the "Information Collection and Verification Study on Measurement Reporting and Verification (MRV) in the Urban Railway Sector in Vietnam (JICA, February 2021)," using actual operational data.</p>	<p>KPIs</p> <p>Capacity building for the private sector: 100 plant managers participated from the cement sector across Vietnam</p> <p>Seminar on public-private partnership for decarbonization: over 140 participants (Vietnamese policy makers, sector competent authorities, economic organizations, private companies, private companies in Ho Chi Minh City and suburbs)</p> <p>Plans to conduct a quantitative evaluation of the air pollution mitigation benefits of EV conversion as a climate change measure in 2023</p>
<p>Reference : Support for planning and implementation of the Nationally Determined Contributions in Vietnam (SPI-NDC) https://www.jica.go.jp/oda/project/1904109/index.html</p>	

JICA's Case Study (2)

Project for Green Growth Promotion in Halong Bay Area, Quang Ninh Province	Targeted SDGs 6.3/ 8.2/8.3/9.4/12.5/14.1/15.5
<p>Overview In Quang Ninh Province, Vietnam, where rapid development of the coastal areas has resulted in a significant environmental issues due to industrial waste water etc, JICA is supporting pilot activities in the key industries and tourism sectors in Halong Bay, Quang Ninh Province, a World Natural Heritage Area. This project aims to contribute to the reduction of pollution and economic growth to overcome dependence on an environmentally polluting economy, as well as to a sustainable tourism sector that utilizes the natural resources of the Halong Bay area to shift to an environmentally friendly economic activity. This section introduces the implementation and monitoring of pilot activities to promote the introduction of advanced technologies that will contribute to the good management of the Halong Bay water environment.</p>	
<p>Synergistic Activities (Solving Trade-offs)</p> <ul style="list-style-type: none"> Although the company has been committed to growth in the tourism sector in Halong Bay, the growth of the service sector dependent on the World Heritage Site of Halong Bay is becoming stagnant, and the company has failed to identify and implement measures to reduce the pollution impact on the bay. JICA therefore implemented a pilot project to install bio-toilets and a composting plant to make effective use of organic waste. The used sawdust and composting products from the bio-toilet activities were distributed to cooperating farmers and used for vegetable cultivation, shrimp farming, and poultry farming. In each test site, water quality improvement was confirmed when compost was used, and cultured shrimp were 30% heavier than usual. 	<p>KPI</p> <ul style="list-style-type: none"> Composting by composting plants increases vegetable productivity by 20-80% (Choy Sum: 20-50%, lettuce: 80%)
<p>Reference Project for Green Growth Promotion in Halong Bay Area, Quang Ninh Province https://www.jica.go.jp/oda/project/1400625/index.html</p>	

JICA's Case Study (3)

Timor-Leste: The Project for Community-Based Landscape Management for Enhanced Climate Resilience and Reduction of Deforestation in Critical Watersheds	Targeted SDGs 1.4/5.5/5.c/13.1/13.3/15.2/15.3/15.6
<p>Overview Deforestation has been progressing in Timor-Leste since 1975, with an estimated loss of about 184,000 hectares of forest in the past 10 years, especially since 2003. Continued forest loss and degradation has led to the livelihood insecurity of many people in Timor-Leste. In 2015, JICA began develop a "Community-Based Natural Resource Management Mechanism (CBNRM)" aimed at sustainable forest management and appropriate agricultural land management. In this project, JICA's technical cooperation and the Green Climate Fund (GCF) are collaborating to deploy the mechanism in 70 villages in four important watersheds, and are promoting the improvement of practical capacity of government officials in implementing CBNRM.</p>	
<p>Synergistic Activities (Solving Trade-offs)</p> <p>In order to improve the high dependency on forest resources and the unplanned use of forests by local residents, it was necessary to improve natural resource management by local community.</p> <p>JICA's design was intended to promote sustainable natural resource management by encouraging residents to comply with village rules based on traditional practices called tara bandu. Livelihood improvement activities through improved farming techniques and introduction of livelihood opportunities were incorporated to ensure that the use of natural resources is not excessive.</p> <p>The micro-programs (MPs) and field farmers' schools, which are led by local residents, are designed to reduce CO2 emissions by reducing the use of chemical fertilizers and introducing agroforestry practices that avoid forest clearing, and to teach the introduction of agricultural methods that take into account the effects of climate change.</p>	<p>KPIs</p> <p>Beneficiary population: Direct beneficiaries: 8,160 households / 48,110 people Indirect beneficiaries: 148,143 people</p> <p>Forest conservation of approx. 1,954 ha GHG emission reduction of approx. 996,000 t-CO2 Resilience enhancement of 8,160 households against climate change (per project cycle)</p> <p>The project was implemented while taking trade-offs into consideration. Ensure that village institutions address issues related to gender, with at least 30% of committee members discussing and deciding on land use plans to be women</p>
<p>Reference The Project for Community-Based Landscape Management for Reduction of Deforestation and Strengthening of Climate Resilience of Local Livelihoods in the Priority Watersheds https://www.jica.go.jp/oda/project/2005105/index.html SAP02: Community-based Landscape Management for Enhanced Climate Resilience and Reduction of Deforestation in Critical Watersheds Green Climate Fund https://www.greenclimate.fund/project/sap021</p>	

Support for planning and Implementation of the Nationally Determined Contributions in Vietnam (SPI-NDC)

1. Basic Information

This project is a technical cooperation project to strengthen the capacity of Vietnamese countries to formulate and implement nationally determined contributions (NDCs) over a total period of 3.5 years, from 2021 to 2024.

2. Background and Project Summary

Vietnam's economy has been experiencing stable and high economic growth in recent years, and investment by domestic and foreign companies has accelerated, with GDP per capita exceeding US\$2,000 in 2014 and reaching US\$2,385 in 2017, a seven-fold increase from US\$310 in 1996, while the living standards of the people have also improved. However, along with the expansion of corporate investment, environmental pollution has become apparent, and various environmental problems have been identified despite economic development, such as air pollution, waste disposal, and soil contamination.¹ After the adoption of the Paris Agreement at the 21st Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) in 2012, Vietnam set a target of reducing greenhouse gas (GHG) emissions by 8% through domestic self-help efforts by 2030, The goal of a 9% reduction through domestic self-help efforts by 2030 was set. The Ministry of Natural Resources and Environment (MONRE), which is responsible for climate change policy in the Vietnamese government, has been working with donor support to develop policies and legal infrastructure to reduce GHG emissions in the country, and in November 2020, the Law on Environmental Protection was amended to expand the areas subject to environmental protection, strengthen information disclosure, and review environmental assessment procedures. The revised Environmental Protection Law was approved by the Diet. With the approval of the revised Environmental Protection Law by the Diet, measures for the implementation of the Paris Agreement, including NDC, became law, which stipulates the formulation and implementation of GHG emission reduction plans for each sector to reduce GHG emissions, formulation of notices and guidelines, etc., GHG measurement, reporting, and verification (MRV), including GHG inventories, and GHG emissions accounting and reporting at the business site level were stipulated. The government of Vietnam is promoting public-private climate change measures with the involvement of the private sector to achieve the NDC targets and achieve carbon neutrality by 2050 as indicated at COP26. JICA is implementing this project to support the Vietnamese government's NDC implementation by developing policies to promote private sector participation in NDC implementation, and by strengthening the capacity of MONRE and related ministries and agencies to develop and implement GHG reduction plans. The following section describes the monitoring and evaluation of the progress of measures to achieve the

¹ [JETRO \(jetro.go.jp\)](http://jetro.go.jp)

mitigation targets in the transportation sector as part of this project, as well as the synergies generated by these measures.

3. Implementation Activities and Synergies

Piloting MRVs in the transportation sector's NDC measures

Passenger modal shift is one of the key measures of the transportation sector in Vietnam NDC, and its MRV is included in the sector-level MRV implemented by the Ministry of Transport of Vietnam. Although the reduction of automobile traffic due to the modal shift of passenger traffic through the development of urban railroads is expected to bring co-benefits such as reduction of traffic congestion, GHG reduction, and improvement of air pollution, quantification of these co-benefits has not been conducted until now. Therefore, JICA first estimated GHG emission reductions in order to understand the impact of urban railroad projects on three lines (Hanoi Line 1, Hanoi Line 2, and Ho Chi Minh City Line 1) for which JICA financially supports.

Table 1-1. Estimated GHG emission reductions

Emission	Hanoi		Ho Chi Minh
	Line1	Line2	Line 1
Baseline Emission (tCO ₂ / year)	130,492	93,711	133,916
Estimated Emission (tCO ₂ / year)	75,951	54,097	77,040
Emission Reductions (tCO ₂ /year)	54,541	39,614	56,877

In addition, for the Ho Chi Minh City Urban Railway Line 1, the project assumed that the modal shift from existing modes of transportation such as cars to railroads would reduce traffic volume on surrounding roads and conducted a quantitative evaluation of its air pollution improvement effects on reducing air pollutants such as PM_{2.5} and NO_x by using the air dispersion model² (= Co-benefit calculation). The quantitative evaluation was based on the difference between the case where the Ho Chi Minh City Urban Railway Line 1 was not constructed and the case where it was constructed in terms of emissions and ambient concentrations of air pollutants. Target substances included PM_{2.5}, NO_x, CO, SO₂, etc. for emissions and PM_{2.5}, NO₂, CO, SO₂, etc. for ambient concentrations, and were evaluated using daily average concentration, annual average concentration, and peak concentration. Table 1-2 shows the emission reductions of air pollutants, and Table 1-3 shows the concentration

² Methodology for Modal Shift (MRT) developed in the "Information Collection and Verification Study on Measurement Reporting and Verification (MRV) in the Urban Railway Sector in Vietnam (JICA, February 2021)" is applied in this calculation

reductions. The Ho Chi Minh City Urban Railway Line 1 is expected to reduce emissions of each substance, with particularly large reductions of 57% for non-methane volatile organic compounds (NMVOC), 60% for CO, and 45% for NO_x. For PM_{2.5}, the relatively low proportion of diesel vehicles results in a 16% reduction. PM_{2.5} was also reduced by 16% due to the relatively low proportion of diesel trains. Thus, it is clearly shown that not only more emission reductions can be obtained by increasing the number of passengers per trip through urban rail improvements, but also reductions in other pollutants can be achieved.

Table 1-2: Reductions in Air Pollutant Emissions from the Construction of Ho Chi Minh City Urban Railway Line 1 *.

	NO _x	CO	SO ₂	NMVOC	PM _{2.5}
WITHOUT MRT (ton/year)	958	22,580	36	1,998	150
WITH MRT (ton/year)	528	8,944	25	860	125
Emission reductions (ton/year)	430	13,636	11	1,138	24
Reduction Rate (%)	45	60	31	57	16

Table 1-3.Reduction of air pollutant concentrations due to the construction of Ho Chi Minh City Urban Railway Line 1 **.

	No urban rail (µg/m) ³	Urban railroads available (µg/m) ³	Concentration reduction rate
PM _{2.5} Daily average	321	256	-20.3
PM _{2.5} Annual average	54.9	43.7	-20.4
SO ₂ 1-hour average	748	465.65	-37.8
SO ₂ Daily average	64.8	40.4	-37.7
SO ₂ Annual average	11.1	6,9	-37.8
NO ₂ 1-hour average	29,516.34	16,527.67	-44.0
NO ₂ Daily average	2,558	1,432	-44.0
NO ₂ Annual average	436	244	-44.0
CO 1-hour average	608,406.49	238.492,72	-60.8
CO 8-hour average	149,717	58,688	-60.8

*Table 1-2: Boundary for emissions calculation is the roads along HCMC MRT Line 1 (not the entire Ho Chi Minh City) **Table 1-3: Each concentration in the table is the point where the highest concentration of each substance was calculated.

JICA's private-sector partnership activities

Quantifying the impact of air pollution from the transportation sector can contribute to improving the energy efficiency of transportation (SDG 7) and facilitate the implementation of plans to reduce GHG emissions. It will also work effectively as a private sector incentive measure and contribute to economic growth (SDG 8). A modal shift from existing modes of transportation to rail will occur, reducing traffic on surrounding roads, which will not only reduce air pollution and GHG emissions (SDG 13), but also create a more stable infrastructure. This will provide access to affordable transportation for all, especially contributing to the reduction of service costs required by low-income and poor people (SDG 1).

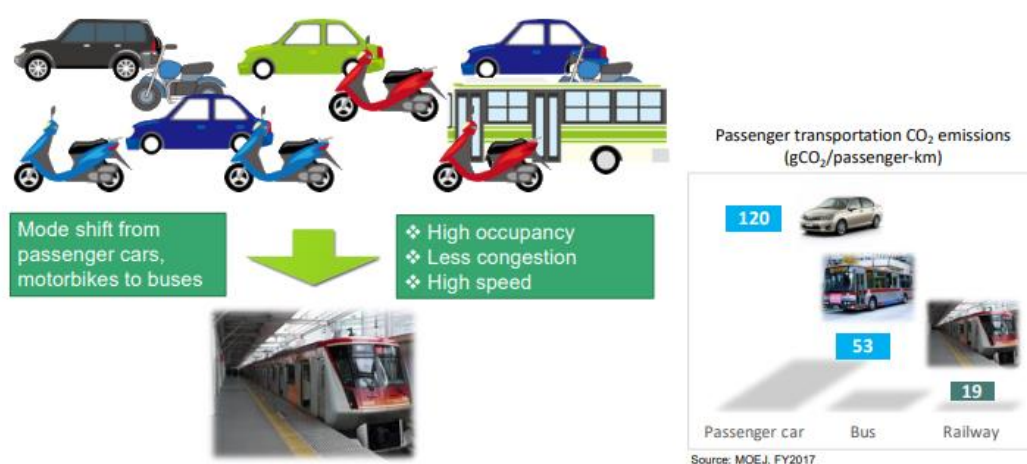


Figure 1-1. Image of GHG reduction by urban railroads ³

Furthermore, to achieve inclusive and sustainable industrialization and innovation promotion (SDG 9), JICA is implementing public-private partnerships and enterprise capacity building. For example, in June 2022, JICA, MONRE, the Vietnam Chamber of Commerce and Industry (VCCI), and the Vietnam Business Council for Sustainable Development (vbcsd) will co-host in Ho Chi Minh City the "Accelerating Business Engagement in the Pathway of Vietnam 's NDC and Net Zero Emission" seminar in Ho Chi Minh City. In addition to an explanation of the latest domestic policy trends and future regulatory requirements in Vietnam, companies that have been actively working to address climate change shared actual examples and the opportunities and challenges that companies are finding in their decarbonization efforts, and the nature of public-private partnerships were discussed. This case study is a good example of a paradigm shift toward building a decarbonized society through public-private partnerships, in addition to promoting NDC implementation and reducing air pollution.

³ [ベト事 JRVT21001 ベトナム国 \(jica.go.jp\)](https://www.jica.go.jp/press/2022/06/22062201.html)



Photo 1-1: Seminar on Private Sector Cooperation

Project for Green Growth Promotion in Halong Bay Area, Quang Ninh Province

1. Basic Information

This is a three-year technical cooperation project, from November 2016 to December 2019, to promote green growth through the implementation of sustainable policies in environmentally polluting industries in Quang Ninh Province, Vietnam, and is expected to generate synergies between climate change measures and green growth.

2. Background and Project Summary

Ha Long Bay was recognized as a World Natural Heritage site by UNESCO in 1994. After its designation as a World Heritage site, the number of large tourist boats and resort hotels increased rapidly, causing problems related to waste and wastewater from tourists and the tourism industry. In Quang Ninh Province in northern Vietnam, with the rapid development of coastal areas, the establishment of economic zones and industrial parks, and the active attraction of domestic and foreign investment, insufficient conservation and mitigation measures related to water pollution have resulted in environmental degradation caused by the increased pollution load from domestic and industrial wastewater. In order to overcome these problems, Quang Ninh Province has adopted a green growth policy, aiming to shift to industries with reduced environmental impact and to shift the economic growth structure to the service sector through the promotion of tourism. The Quang Ninh Province Green Growth Action Plan, based on the National Green Growth Strategy, was approved in November 2015 as an action plan to achieve green growth in Quang Ninh Province. However, in order to achieve the goals, set forth in the plan, the province faced many implementation challenges, including prioritization of plans and measures, concretization of measures, and establishment of institutions to put them into practice.

The Quang Ninh Province Socio-Economic Development Plan (2020-2030) aims for the province to develop modern socio-economic and urban infrastructure and environmental protection by 2020, and to achieve economic development while preserving and promoting sustainable use of the World Natural 10 Heritage site of Ha Long Bay and Bai Tu Long Bay National Park. The project aims to achieve economic development while preserving and promoting the sustainable use of the World Natural Heritage site of Ha Long Bay and Bai Tu Long Bay National Park. Specific numerical targets have been set for the economy, society, and the environment. For example, the goals include a GDP growth rate of 6.7% and a service sector share of 51% of GDP by 2030, as well as environmental goals such as wastewater treatment systems in all industrial zones and manufacturing plants by 2020⁴.

Therefore, JICA has conducted a pilot project to test the green growth promotion system in the Ha Long Bay area through five pilot activities (1. Fund and financial mechanism, 2. Energy conservation and

⁴ [Project Evaluation Project Search | JICA](#)

energy management, 3. Tourism promotion, 4. Direct bay waste management, and 5. Green growth white paper), and to identify the achievements and lessons learned. In order to institutionalize relevant regulations and improve and build relevant organizations, this project aims to contribute to pollution waste reduction and economic growth as a way to break away from dependence on a polluting economy, and to contribute to a sustainable tourism sector utilizing the natural resources of the Ha Long Bay region as a way to shift to an environmentally friendly economy. In the following, we will discuss the synergy between these activities and the SDGs, using examples of the establishment of an eco-tourism system based on Lake Biwa's (located in west central in Japan) environmental conservation efforts and the use of technology to reduce pollution burdens as specific activities.

3. Implementation Activities and Synergies

Contribution of the Lake Biwa Model to Quang Ninh Province Quang Ninh Province is working with Shiga Province, which has extensive experience and technology in improving the environment, on this project. Quang Ninh Province's Green Growth White Paper is based on the province's Environmental White Paper. Since Shiga Prefecture has experience in environmental conservation of Lake Biwa, the project is implementing environmental technologies and workshops accumulated by related companies in Shiga Prefecture. As a successor activity to this project, JICA dispatched experts on the Lake Biwa model as advisors from April 2021 to help raise community awareness. In this way, JICA has developed Shiga Prefecture's efforts and experience into something mutually beneficial, contributing to both environmental conservation and economic development in Quang Ninh Province. Currently, solar power generation and refrigeration boilers are being installed under private initiative, and a project to install septic tanks in toilet wastewater treatment facilities is being promoted with public funds.

Composting plant activities

In relation to waste and wastewater management in the tourism industry in Ha Long Bay, the proposal was to install and use environmentally friendly and sustainable equipment and technology to reduce the pollution load to the bay. The pilot composting plant (manufactured by Shudensha Co., Ltd.) is a proven technology in Vietnam, and was installed in consideration of the negative impact (trade-off) if the latest technology is not acceptable to the installation site and users. The composting plant has been in operation since early October 2018. The composting plant processes organic waste in a short time through the action of specific microorganisms to produce a high-value-added product called bioproducts, which are used in organic fertilizers and aquaculture feed additives. Cooperating farmers have begun using the products on their farms and have established appropriate methods for their use in fertilization and feeding.

Synergies from contribution to clean food production

The composting plant activity, which involves the recycling of organic waste into organic fertilizers and feed additives, contributed to the promotion of clean food production as follows. Activity used sawdust

generated by the use of the bio-toilet was collected every three months and composted on farmland in Quang Eng town. The composted sawdust was used by farmers to promote organic farming. The composting plant activity formed a model for recycling organic waste between waste generation sites in the seafood processing industry and farmers; by March 2019, more than 2,000 kg of composting products had been distributed to cooperating farmers and provided for vegetable cultivation (240 kg to vegetable farms and 970 kg to individual farmers) and shrimp and poultry farming. High yields and improved water quality in shrimp farming were confirmed at each test site. For example, shrimp farmed with compost in the feed were 30% heavier and yielded 1000 kg more than those without.

Photo 2-1: Photo of composting plant activity



Composting Plant Installed



Composting Products



Vegetable Farm Applied for Pilot Activity
出典: JICA 専門家チーム



Harvested Shrimps

The use of compost increased vegetable yields. In other farm areas where compost was not used, there were significant differences in seedling height and root length. Choysum (a type of green vegetable) production increased by 20-50%, and lettuce showed an 83% increase in production.

The project's community-driven institution building and introduction of environmental management technologies in the tourism sector will contribute to achieving economic growth (SDG 8) and promoting innovation (SDG 9) through community-based and sustainable ecotourism. And reducing the pollution burden on the Gulf will protect coastal and marine ecosystems and reduce marine debris and eutrophic pollution (SDG 14). In particular, synergies are maximized by utilizing the latest technologies for ecotourism contribute to a local circular society and reduce negative impacts not only on the Bay, but also on forest and lake ecosystems (SDG 15). The installation of bio-toilets and the effective use of organic waste collected from composting plants will contribute to the reduction of waste generation. These will promote environmentally friendly agriculture in collaboration with local farmers. The active

introduction of composting activates microorganisms in the soil, which explicitly allows farmers to implement sustainable production (SDG 12). Furthermore, fertilizer management and modification has reduced fertilizer and organic matter entering water bodies (SDG 6), reducing the pollution load of the bay. This case study is an excellent example of a paradigm shift to a recycling-oriented society through the promotion of community collaboration and the introduction of environmental management technology, in addition to the synergy between climate change measurements and economic growth.

Timor-Leste: The Project for Community-Based Landscape Management for Enhanced Climate Resilience and Reduction of Deforestation in Critical Watersheds

1. Basic Information

Community-driven natural resource management methods will be introduced to reduce deforestation and thereby contribute to the reduction of greenhouse gas emissions.

2. Background and Project Summary

Timor-Leste has a higher deforestation rate than other countries, -1.7% compared to the average of -0.31% in Southeast Asia. The country is also highly dependent on forest resources. The dependency rate on forest resources is also high, with about 80% of the population collecting firewood and charcoal from the forests for subsistence or as a source of income. In addition, about 40% of the population was highly dependent on forests as a source of nutrition. Ongoing forest loss and degradation has led to the deterioration of the living conditions and circumstances of many people in Timor-Leste. Deforestation and degradation were strongly related to slash-and-burn, agricultural land conversion, excessive firewood extraction, overgrazing by livestock, and forest fires, and to improve the situation, local people needed to improve their natural resource management, land use, and farming methods.

In response to this situation, JICA launched a technical cooperation project in 2005 to promote sustainable forest management and appropriate farmland management, and in the process developed, operated, and improved a community-based natural resource management mechanism (CBNRM), a management method in which the people who live on the land and depend on natural resources take the initiative. and improvement of the CBNRM. Currently, JICA is aiming to expand the CBNRM model to about 70 villages in four basins by 2027 through a combination of the Green Climate Fund (GCF) and JICA's technical cooperation projects in order to expand the model to other regions in Timor-Leste.

3. Implementation Activities and Synergies

The CBNRM is designed to utilize the traditional practice of informing the population of prohibited activities (tara bandu), with the intention that residents' compliance with village rules will lead to sustainable natural resource management. The project incorporates livelihood improvement activities through improved farming techniques and the introduction of cash income means, and incorporates measures to ensure that the use of natural resources is not excessive. In addition, they have promoted behavioral change in the residents' awareness of forests by instilling in them the belief that forests can be used without planning, and that they will be degraded and diminished if not used in a planned manner. Since careful dialogue is necessary for residents to change their behavior, a mechanism has been created through dialogue with residents from the start of the cooperation to the present. In the target communities, activities have been introduced in phases based on their ability to adapt to the technology.

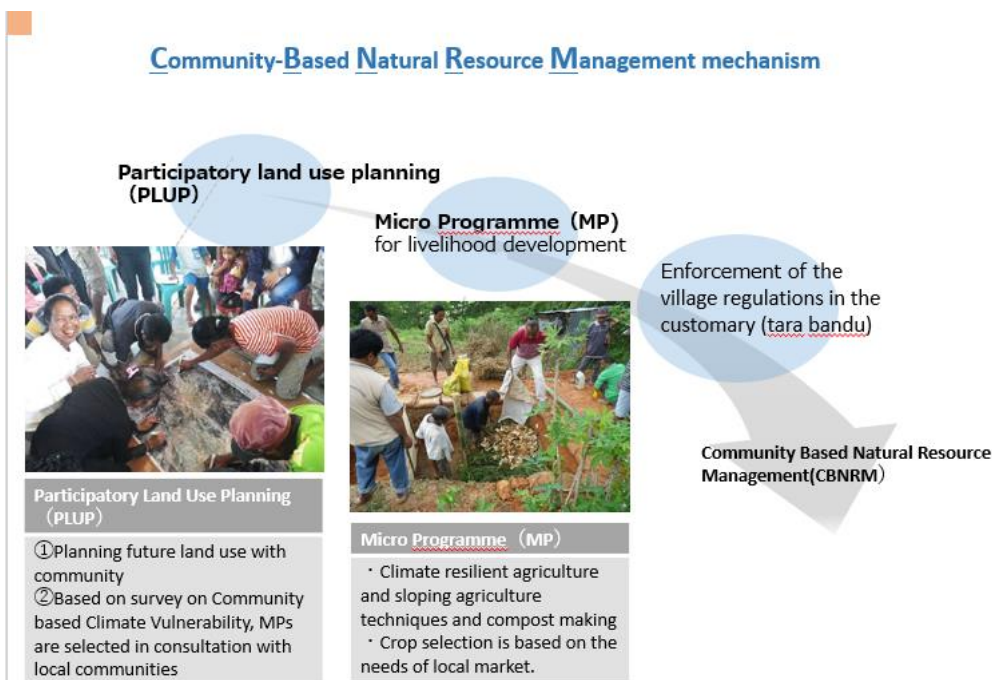


Figure 3-1: CBNRM mechanism flow

In the participatory approach, projects are implemented while considering various trade-offs as well as synergies between improved natural resource management and climate change countermeasures, etc. For example, when introducing CBNRM, one of the evaluation targets is whether the village institutions address gender-related issues (e.g., gender-based violence, unequal division of labor and gender gap in employment, etc.), so that women's participation is incorporated in the institutionalization process 16 of the plan. It stipulates that at least 30% of committee members who discuss and decide on land use plans must be women (SDG 5). In addition, micro-programs (MPs) and field farmers' schools, which are led by local residents, are reducing CO₂ emissions by reducing the use of chemical fertilizers and introducing agroforestry that avoids forest clearing, as well as teaching agricultural methods that take into account the effects of climate change. For example, in Cotelau village, as part of agroforestry efforts, residents received training on everything from nursery establishment to planting, and selected tree species that could be a future source of income, such as lime, sandalwood, cacao, dingko, and mahogany, to produce seedlings. In addition, the project is providing support in a manner that meets the needs and characteristics of each village and local residents, such as making compost, applying lime for soil correction, and terrace cultivation, with the aim of converting from slash-and-burn agriculture to permanent farming.



Photo 3-1. Residents transplanting for sapling production.

To ensure that CBNRM activities are properly sustained, and administrative guidance is obtained from the government, the capacity of government officials to provide administrative services to the population is improved and necessary institutional arrangements are supported, which will enable the diffusion of CBNRM and scale-up of climate change mitigation and adaptation measures.

Since micro-programs are carried out from project planning to implementation by local residents, they will lead to community-led implementation of CBNRM. The micro-program also contributes to both mitigation and adaptation measures, as it includes the absorption of greenhouse gases by forests and response to the effects of climate change, thus contributing to emergency response to climate change and its effects (SDG 13) and forest management (SDG 15). The project is characterized by the fact that the promotion of community-driven, needs-based activities maximizes synergies that lead to poverty 17 alleviation (SDG 1), such as securing alternative livelihoods, in addition to natural resource management and climate change mitigation. This is an example of optimizing and minimizing the trade-offs of restricting access to natural resources on which the population originally depended, in accordance with their needs.

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