

評価結果要約表（英文）

I. Outline of the Project	
Country : Independent State of Papua New Guinea	Project title : Capacity Development on Forest Resource Monitoring for Addressing Climate Change in Papua New Guinea
Issue/Sector : Forestry and Forest Conservation	Cooperation scheme : Technical Cooperation
Division in charge : Global Environment Department	Total cost : 239 million yen
Period of Cooperation	(R/D) :Nov.26, 2010 (Period) :March 2011 - March 2014
	Partner Country's Implementing Organization : PNG Forest Authority Supporting Organization in Japan : Forestry Agency, Ministry of Agriculture, Forestry and Fisheries
Related Cooperation :	
<p>1. Background of the Project</p> <p>The Independent State of Papua New Guinea (herein after referred to as “PNG”) has one of the world’s largest tropical rainforests and leads the Coalition of Rainforest Nations. Wood harvested from forests is one of the major export goods alongside with mineral resources and agricultural products and contributes significantly to the country’s economy. As approximately 87 % of the people of PNG live in rural areas, forests play important roles in the lives of people in rural areas as sources for food supply, fibers and construction materials. The tropical rainforests of PNG are important also for conservation of biodiversity, as new species of organisms have been registered almost every year.</p> <p>The conversion of forest areas through gardening, subsistence agriculture, commercial plantation and other uses has reduced the forest cover from 38 million ha (approximately 82 % of the total land area of PNG) in 1972 to 33 million ha (approximately 71 %) in 2002. The rate of decline and degradation of forest resources is a serious problem in PNG.</p> <p>PNG, jointly with Costa Rica, first proposed “Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD) ” at the 11th Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC COP11) in 2005. Since then, the Government of PNG has been working actively toward developing and implementing measures against reduction and degradation of forests through participation of relevant government offices and donors. Its achievement so far includes the formulation of “the Forest and Climate Change Policy Framework” in 2009 and the establishment of a technical working group on REDD² under the Office of Climate Change and Development (OCCD) in 2010.</p> <p>Estimation of CO₂ emissions and sequestration/storing by forests is a basic requirement for the implementation of REDD+. However, the data on forests at the appropriate level of accuracy required for the estimation have not been fully available in PNG. This is the one of the major obstacles to the implementation of practical REDD+ measures.</p> <p>Based on the situation above, the Government of PNG submitted a request to the Government of Japan for technical cooperation for the capacity development on forest resource monitoring with the aim of constructing a system to monitor vast forest areas in PNG using remote sensing technology and Geographic Information System (GIS) and developing necessary human resources for the system construction. In response, JICA conducted a detailed project design survey in November 2010. During this survey, JICA and the Government of PNG reached an agreement on the framework for the cooperation and signed and exchanged the Record of Discussions (R/D) describing the details of the framework on November 26th, 2010.</p> <p>In accordance with the R/D, JICA is implementing “the Project for the Capacity Development on Forest Resource Monitoring for Addressing Climate Change in Papua New Guinea,” for three-years between March 2011 and March 2014, with PNG Forest Authority (PNGFA) as a counterpart (C/P) .</p>	

² At present, REDD+ which includes not only measures against the reduction and degradation of forests, but also promotion of sustainable forest management, conservation and enhancement of forest carbon stocks, is being discussed under the framework of UNFCCC.

<p>2. Project Overview</p> <p>(1) Overall Goal Forests in PNG is conserved and managed in sustainable manner as an important mitigation and adaptation measure against climate change.</p> <p>(2) Project Purpose To address climate change, the capacity of relevant institutions in PNG is enhanced for the monitoring of nation-wide forest resource including carbon stock.</p> <p>(3) Outputs 1) Nation-wide forest base map is improved by using remote sensing technology. 2) National level forest resource database is improved. 3) To address climate change, the monitoring system of forest resource including carbon stock is improved.</p> <p>(4) Inputs Japanese side : Expert: 8, Operational cost (as of Sep.2013) : 63,050,000 Yen Provision of Equipment: 11,543,950 Yen (in total) , Trainees received (Training in Japan) : 6 PNG side : Counterpart: 15, Local Cost: 988,000 PNG Kina (as of Sep.2013) , Land and Facilities: the office space in PNGFA, utilities, A/C, office furniture and telephone lines.</p>	
--	--

II. Evaluation Team

Japanese side	Mr. Hiroki MIYAZONO, Team Leader, Senior Advisor, JICA	
	Mr. Toshio SHIMA, Forest Planning / Forest Carbon Sink, Forestry Agency, Ministry of Agriculture, Forestry and Fisheries	
	Mr. Hiroyuki MIYAZAKI, Forestry and Nature Conservation Division 1, Global Environment Department, JICA	
	Ms. Asako TAKIMOTO, Evaluation Analysis, Global Link Management	
PNG side	Mr. Michael Gigmai, Team Leader, Foreign Aid Division (Bilateral) , Department of National Planning and Monitoring	
	Mr. Michael Ketava, Monitoring and Evaluation Division, Department of National Planning and Monitoring	
	Mr. Wakai Digne, Infrastructure and Economic Division, Department of National Planning and Monitoring	
Period of Evaluation	October 3 rd , 2013 ~ October 22 nd , 2013	Type of Evaluation : Terminal evaluation

III. Results of Evaluation

<p>1. Result of Achievements</p> <p>(1) Achievement of Outputs</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Output 1: Nation-wide forest base map is improved by using remote sensing technology.</p> </div> <p>Version zero of the forest base map was developed in July 2013. It is necessary to conduct follow-up data checking and revising to improve the accuracy of the map. Part of the planned documents such as a manual for satellite image classification and a user manual for GIS/GPS devices were formulated which will be part of the manual for utilizing and managing the map. For the manual of preparing process, technical chapters were completed and introduction chapters are to be finalized. Ten technical officers went through the training while five of them were trained extensively as leading officers. The workshops for the developed nation-wide forest map are being held from September to November 2013, dividing the nation-wide participants (trainees) into five areas. The participants' feedback is being collected at the end of each workshop through the survey.</p> <p>The nation-wide forest base map is a significant achievement of the Project since the previous nation-wide map was made back in 1970s (with limited update in 2000s) . However, it was formulated with given limited data and interpretation ability to meet the project's PO schedule and still in a draft stage. Currently, the Project is trying to incorporate agriculture information into the draft version. This activity will be completed by the end of this year. Then PNGFA management will decide when the forest base map will be</p>	
---	--

launched.

Output 2: National level forest resource database is improved.

GIS-based national forest resource database was developed in May 2013. To construct manuals and database design documents for preparing, utilizing and managing the forest resource database, Forest Inventory Processing System (FIPS) was reformulated. The database design documents and user manual for utilizing Forest Inventory Mapping System (FIMS) are also completed while managing manual is being drafted. Eleven officers went through the training of the relevant techniques while five of them are trained with more focus to be in charge of preparing and managing the database. At the workshop held in March 2012, 97% (32 out of 33 trainees) found it useful. Similarly at the workshop in March 2013, 94% (15 out of 16 trainees) stated it was useful for their work.

Mainly due to the delay of the Grant Aid program titled ‘The Forest Preservation Programme’ (GA) , which was to provide equipment for the Project, and the cancellation of the EU funded University of PNG (UPNG) ’s project that were to share remote sensing data with the Project, activities on the output 2 have been slightly delayed. Activity 2.3 “Develop the national level forest resource database linked with the forest base map and ground survey data” was largely affected and the order of planned activities had to be changed. After the modification of the implementation process, the output 2 is expected to be achieved by the end of the Project.

Output 3: To address climate change, the monitoring system of forest resource including carbon stock is improved.

All the components of the basic design of the forest resource monitoring system (i.e. monitoring through satellite data, ground survey with regional offices, capacity development of the local stations, collecting existing data and comparing with satellite images acquired by the Project) are defined and completed. But it was not yet summarized as a document. Japanese experts and C/P agreed on conducting forest carbon estimation in a specific area (likely to be one of REDD+ pilot project area). With given time and data availability, estimating changes of national forest carbon stock is not feasible, while current forest carbon stock is under the process of estimation. It is planned to estimate historical trend and develop a preliminary reference emission level (REL) of a specific area, the same way as the carbon stock change estimation.

Most activities for the output 3 are ongoing, but the Japanese experts are confident to produce the modified products by the end of the Project. With the delay of the output 1 and 2 as well as given time and data availability, it is not feasible estimating forest carbon stock change and REL nationally. Rather, the process of developing more accurate forest carbon stock change data and REL in a specific area (sub-national) would provide more lessons, i.e. what would be the challenges for data collection, processing, and presentation. The lessons can be used when the data for national level is ready to establish national forest resource monitoring system.

(2) Achievement of Project Purpose

To address climate change, the capacity of relevant institutions in PNG is enhanced for the monitoring of nation-wide forest resource including carbon stock.

Main sources to conduct nation-wide forest resource monitoring (forest base-map and forest resource database) are ready from achievements of output 1 and 2. Due to the modification of activities under output 3, it is not likely to be able to complete nation-wide forest resource monitoring by the end of the Project. However, activities under 3 will develop a methodology to conduct nation-wide forest resource monitoring and thus the capacity of relevant institutions in PNG will be sufficiently built. Overall, the project purpose is expected to be achieved by the end of the Project.

(3) Achievement of Overall Goal

Forests in PNG is conserved and managed in sustainable manner as an important mitigation and adaptation measure against climate change.

The FIMS is incorporated into forest resource database developed by the Project, and the FIMS is the main information source to formulate the government’s National Forest Plan. Also, the forest base map produced by the Project is planned to be used for the revision of PNG’s Forestry and Climate Change Framework for Action (2009-2015). From this project’s outputs, the PNG government now obtains current data of its forest resources as well as methods to monitor changes in forests. Also, assumptions for overall goal in the PDM ‘Appropriate satellite images are continuously provided’ is likely to be achieved through

upcoming satellite launch. The Project will strongly contribute to the achievement of overall goal.

2. Summary of Evaluation Results

(1) Relevance

Relevance of the Project is “high” based on the observation by the evaluation team. Although there was an administration change and consequent political unrest in central government, policies on climate change and forest have been relatively consistent in PNG. Promoting REDD+ is one of the sector strategies in Medium-Term Development Plan (MTDP), and the Project is corresponding to most of principles of Forestry and Climate Change Sectoral Framework. The Project is designed to contribute to the future REDD+ scheme, thus, strongly in line with the PNG’s policy. In addition, 97% of PNG’s lands are customary owned by clans, and the outputs of the Project are expected to be utilized for sustainable and environmental-friendly management of those lands. In this sense, the Project is expected to contribute to peoples’ needs in PNG. Also, this Project is the first of technical cooperation from JICA in a scope of REDD+, and it has been accumulating significant experiences for Japanese side as well to showcase its support on forest and climate change sector.

While it keeps remaining uncertain how and when an international REDD+ mechanism is established, having a sound forest resource monitoring system is imperative for national development goal in a forest rich country such as PNG whether REDD+ takes a place or not. The focus of this Project is technical aspect of establishing forest resource monitoring. It seems to be the main reason the Project has been implemented relatively smoothly and achieves the outputs successfully, since many of REDD+ policy oriented projects/programmes are moving slow due to the pending of the REDD+ negotiation and uncertainty in the policy aspect. The choice of the Project’s focus and approach was quite appropriate to achieve subsistent outcomes.

Regarding the design and logical flow of the PDM, not much problem was identified. To achieve the overall goal, it needs not only achievement of the project purpose but also other contributing factors and political support. The Project was designed to have various collaboration to produce more impact on the project purpose and overall goal, but at the same time, the collaboration plans added more risk to smooth and planned implementation since the partners’ actions are not controllable from the Project. Most activities of the Project require hands-on co-work between PNGFA C/P and Japanese experts, going through all the processes together for the technical transfer. This approach was quite new to C/P officers and highly appreciated, leading to their strong commitments to the Project and achievement of the outputs.

(2) Effectiveness

Effectiveness of the project is “high” based on the observation by the evaluation team. Knowledge and skills of technical staff in PNGFA are significantly improved (i.e. the project purpose is basically achieved) and three outputs effectively contributed to the enhancement of organizational capacity of PNGFA. It should be noted, however, that the level of staff’s knowledge and skills should be further enhanced in order to effectively conduct forest resource monitoring. One weakness is the publication of results to the public, which has not been conducted much. The Project’s effectiveness was enhanced with collaboration with other projects/programmes and institutions. Also, since it is expected that the project’s products (ex. forest base map and forest resource database) be utilized in other projects such as NFI by UN-REDD/FAO and EU funding, the effectiveness and significance of the project outcome is likely to be increased even after the project period.

Regarding the contribution of outputs to the project purpose, output 3, forest carbon stock change estimation is not likely to be achieved in national scale as originally planned, but through the process of calculating carbon stock change and REL in a specific area, the Project will gain enough lessons to conduct national level estimation of carbon stock change and REL in the future with data and skills PNGFA acquired. In this way, the Project’s three outputs are likely to contribute to the achievement of the project purpose sufficiently.

(3) Efficiency

Economically, the collaboration with many stakeholders (not only GA, but also data sharing with various governmental institutions as well as contribution to REDD+ policy dialogues from technical perspective) enabled the Project to gain more outcomes than its input. It can say that the efficiency is “relatively high”. Throughout the implementation period, various unexpected problems occurred that were beyond the control of the Project. Despite such difficulties, the Project manages to produce its outputs and achieves the project purpose at satisfactory level.

The number of activities and contents were mostly sufficient to achieve the outputs, but the planned schedule of PO turned out to be somewhat unrealistic due to the delay of the Project and unforeseen

technical difficulties. In addition, the amount of work planned in PO regarding data collection might have not been enough for a part of the output 3, which requires national level forest carbon stock change estimation and calculation of REL. Because of the complexity and diversity of PNG forests, inputs (resources and time) for the output 1 and 3 could be more to improve the quality of the products, while capacity development aspect is largely achieved.

(4) Impact

The evaluation team considers impact of the Project is “relatively high”. In general, much of the outputs will be achieved or the process to achieve them will be clear by the end of the Project, thus the project purpose is likely to be achieved. Although the project purpose alone is not enough to achieve the overall goal, in addition to PNG’s own effort, with NFI by UN-REDD/FAO with EU funding, REDD+ pilot activities funded by GIZ, USAID’s LEAF projects as well as relevant activities supported by international NGOs such as The Nature Conservancy and World Wildlife Fund, the PNG government has a good potential to reach to the overall goal. The map and database from the Project will be one of the fundamental information for the rest of the REDD+ relevant supports. The information is going to be incorporated into the future actions such as NFI project; thus, the positive impact of the Project is going to be multiplied over time.

The products from the Project are likely to be utilized both inside the PNGFA (different directorate with different purposes) as well as outside of the office (ex. for land use management and natural disaster control) . On the other hand, these products from the Project attract some unexpected attentions. For example, several landowners have contacted PNGFA asking what exactly is being done in their lands through mapping and its consequences. The external (especially public) communication is not a big scope of this Project in the PDM. However, achievements of the Project should be shared widely if it can benefit the general public, and the way to announce them and control the information are something the project might need to consider and act more towards the end of the project.

So far, negative impact through the Project has not been observed nor expected. If REDD+ scheme and its payment system are established in the near future, the forest resource management by the government is likely to affect the livelihoods of forest dependent communities. But the PNG government has been taking approaches that are respectful for community’s rights, for example, applying Free Prior and Informed Consent (FPIC) . Thus, there is little risk foreseen. Regarding the assumptions to lead to the overall goal, the project has been using the radar data (PALSAR) from Japanese satellite (ALOS) . This satellite is not active since May 2011, but the next satellite is expected to be launched by the end of 2013 for further data provision.

(5) Sustainability

Sustainability of the project is in general considered to be “high”. At the national policy level, National Climate Office Act is under the consideration in parliament, and promoting REDD+ is one of the main components of the Act. Forestry is one of the major industries for the country and 97% of forests lands are customary owned. Thus, forests and forest resource are quite important issues for the country and public, and the support for REDD+ and forest resource management are likely to be continued.

At the organizational level, the main project C/P staff who enhanced their knowledge and skills are expected to stay in the same position and keep maintaining/improving the products of the project such as forest base map and forest resource database. Also, the GA provided GIS and remote sensing software and equipment to UPNG and UNITEC. The software are the same with ones provided to PNGFA and the GA supported establishment of the training program in these universities, so that technically well-trained new graduates from the universities could address the human resource demands in PNGFA sustainably.

From the financial viewpoint, the PNGFA’s budget relevant to the project’s activities is the top priority of their budget request for fiscal year 2014 to DNPM. It is likely that at least some extent of the budget will keep being allocated after the Project period. Also, many hardware and software for GIS and remote sensing were already purchased by the GA and technical C/P gained enough knowledge to maintain them, thus, inputs for continuing the project activities do not need to be huge. However, updates of some software programs for GIS and remote sensing were quite expensive and may need external financial support in the long run.

Technical sustainability is basically high as technical C/P of PNGFA demonstrated significant improvement in their knowledge and skills for forest resource monitoring and they are now capable of implementing many of activities without external assistance in due course. This achievement, however, faces a risk. Although their capacity has been enhanced to a great extent, they need further improvement for effective implementation of monitoring activities.

(6) Conclusion

The terminal evaluation team concludes that the Project can be closed as scheduled, as it is likely to achieve the project purpose in a sense that PNGFA is enhanced their capacity extensively for conducting forest resource monitoring. Despite limited amount of time frame and unexpected technical difficulties, the Project worked remarkably well because of a strong ownership of PNGFA and great teamwork between Japanese experts and PNG C/P personnel. It also should be noted that combination and allocation of responsibilities among Japanese experts, i.e. the short-term experts successfully transfer highly technical issues and the long-term experts supervise, support, and sustain these activities and encourage incorporating them into PNG's forest and climate change policies, is a major factor of the implementation success.

While this enhanced capacities and tangible products from the project outputs are significant achievements, it can be recognized that the quality of these products still has a room for further improvement, and the process for future application through combination with other data sets are not entirely clear for the Project. The Japanese government and PNG government already have agreed on implementing the new technical cooperation project with PNGFA based on the achievement of this Project. The sustainability of the project is, consequently, somewhat secured and the next project can include activities necessary to enhance current Project activities.

3. Recommendations

(1) Improving accuracy of forest base map / consideration for the publicity of the Project's products/achievements

The formulation of forest base map has been introduced in several public venues such as Climate Change Day; yet, the map has not been shared externally. In order to improve the accuracy of the forest base map and to make it ready for public sharing, the Project should continue its further efforts including verification of forest lands/non-forest lands, forest types, and agricultural land-use patterns. Already various stakeholders contacted PNGFA for their interests of acquiring the map including the raw data, but PNGFA has yet to determine the measures for the publication. It is important to determine the criteria and level of information sharing, and at the same time to widely announce the availability of the forest base map and database once it is ready. Although it is not specifically mentioned in the PDM, the project needs to consider how to present and share its achievements outside of PNGFA.

(2) Enhancing information management system for data sharing

To expand the positive impact of the project, not only focal C/P personnel but also other directorates of PNGFA and external institutions should be able to utilize the products of the Project. The information management system is not yet well placed in PNG and thus the Project should pay extra attention on how to make sure the information can be utilized by other projects and institutions. If necessary, management level agreements are encouraged to initiate discussion for designing information sharing systems.

(3) Joint efforts for finalizing manuals/guidelines

Many of manuals and guidelines stated in the Project activities are not yet finalized. It is highly important to ensure these products are completed with the participation of C/P in the formulation process so that these materials are understandable for PNG side and can be effectively utilized especially during the transition period between the current project and the next project.

(4) Work load management for technical C/P

As UN-REDD/FAO's NFI project is launching and the same technical officers are assigned as C/P, each officer's workload is expected to be increased greatly, while they are already quite occupied with the Project. The management of PNGFA needs to fully take account of appropriate workload allocation.

(5) Seamless transition to the new project

While the new project is expected to launch in 2014, it is likely that there will be some period between the end of this Project and the launch of the new project. Even though there are some technical C/Ps who are confident to sustain the activities without Japanese experts during that period if it is not so long, it is recommended to secure smooth and seamless transition to the new project through various measures, ex. formulating manuals and guidelines by joint efforts and securing communication channel with JICA's headquarter office for trouble shooting if any unexpected technical difficulties arises.