パート４

その他の資料（PDM や会議、ワークショップ／セミナー等）

添付資料 41

プロジェクトデザインマトリックス（PDM）

PDM version 1.0

PDM version 1.2

PDM version 1.5

Project Design Matrix (PDM)

Version No. : 1

Project Title : Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG-FRIMS) for Addressing Climate Change
Project Period : From July 2014 to June 2019 (five years)
Target Areas : The whole of PNG
Target Group : Staff of PNG Forest Authority (PNGFA)

As of January 28, 2014

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal : Forests in PNG are conserved and managed in a sustainable manner, while at the same time, mitigation and adaptation measures against climate change are promoted.	1. National forest plan based on more accurate information is prepared or in preparation through utilization of PNG-FRIMS. 2. The information of PNG-FRIMS is utilized for the preparation of reports for UNFCCC. 3. Forest base map for the forest area change detected is updated in XX provinces except for the pilot area(s). 4. The operations of forest management plans by utilizing PNG-FRIMS are conducted in XX provinces except for the pilot area(s).	1. National forest plan, interview with PNGFA 2. Interview with PNGFA and OCCD 3. Interview with PNGFA 4. Interview with PNGFA	
Project Purpose : Capacity of the PNGFA to continuously update forest information and to fully operationalize and utilize PNG-FRIMS for promoting sustainable forest management and for addressing climate change is enhanced.	1. The average level of the capacities of PNGFA officers to update forest information is assessed as satisfactory (3.5 on a scale of one to five). • Understanding of the system • Capacity to update the map 2. The average level of the capacities of PNGFA officers to operate and utilize PNG-FRIMS for sustainable forest management and climate change is assessed as satisfactory (3.5 on a scale of one to five). • Understanding of the system • Capacity to operate the system • Capacity to utilize the system	1. Assessment by the Project team; the JICA Experts and PNGFA. 2. Assessment by the Project team; the JICA Experts and PNGFA.	There is no significant change in government's policies on forest management and climate change.
Outputs : 1. PNG-FRIMS is expanded and enhanced.	1. The manual on updating forest base map is developed. 2. Not lower than 80 % of PNGFA relevant technical officers are satisfied with the manual. 3. The design document of DB is developed. 4. The DB is developed. 5. Not lower than 80 % of PNG relevant technical officers think the DB as relevant and useful. 6. PNG-FRIMS is finalized. 7. Not lower than 80 % of PNGFA relevant technical officers think PNG-FRIMS as relevant and useful.	1. Manual 2. Questionnaire 3. Design document 4. DB 5. Questionnaire 6. PNG-FRIMS 7. Questionnaire 8. Manual 9. Questionnaire 10. Questionnaire	There is no significant organizational and policy change in PNGFA.

	8. The manual of PNG-FRIMS is developed. 9. Not lower than 80 % of PNGFA relevant technical officers are satisfied with the manual. 10. Not lower than 80 % of PNGFA officers and collaborators who received training are satisfied with the training.		
2. The national forest plan, provincial forest plans, forest management plans and their monitoring system are improved through steady operation of PNG-FRIMS.	1. Methods/procedures for solving the issues of the current forest planning system are developed where necessary. 2. The document on the usage of PNG-FRIMS is created. 3. Not lower than 80 % of PNGFA relevant technical officers in the pilot area(s) and PNGFA HQ relevant officers think the usage of PNG-FRIMS as relevant and useful. 4. The guidelines of the forest planning are developed. 5. Not lower than 80 % of PNGFA relevant technical officers in the pilot area(s) and PNGFA HQ relevant officers think the overall forest planning will be improved by the ways described in the guidelines.	1. Document on the methods/procedures 2. Document on the usage 3. Questionnaire 4. The guidelines 5. Questionnaire	
3. Forest information for addressing REDD+ is prepared.	1. The document on the draft of the technical procedures for estimation of forest carbon emissions and removals is created. 2. The document on the results of consideration on the usage of PNG-FRIMS in the calculation of the forest reference emission level and forest reference level is created. 3. The guidelines on the method of access and provision of the information are developed. 4. Not lower than 80 % of REDD+ project implementing organizations think the guidelines as relevant and useful.	1. Document on the draft of the procedures. 2. Document on the usage 3. Guidelines 4. Questionnaire	

Activities	Main Team In charge	Support Team	Input		
1.1 Examine and identify information to be added and integrated to PNG-FRIMS. 1.2 Lay out a basic design for expansion and enhancement of PNG-FRIMS. 1.3 Examine the approach of updating the forest base map. 1.3.1 Lay out a basic design for the method of detecting forest area changes with remote sensing technology. 1.3.2 Process and analyse the remote sensing data combining with ground truth on a trial basis. 1.3.3 Identify necessary additional information from other sources. 1.3.4 Develop the manual on updating forest base map. 1.3.5 Update forest base map for the forest area change detected in the pilot area(s) identified in activity 2.2.1. 1.4 Examine the method of developing and updating information on growing stock. 1.4.1 Examine the method for defining a new set of the forest management units in PNG-FRIMS based on the historical record of logging operation and vegetation type. 1.4.2 Examine the possibilities of integrating PINFORM into PNG-FRIMS. 1.4.3 Design and develop the database for calculating and recording harvested timber and timber growth on the basis of the activity 1.4.1 and 1.4.2. 1.5 Examine the method of reflecting the ground sample plot information on forest resources in the activities 1.3 and 1.4. 1.6 Examine the method of preparing information other than the methods of the activity 1.3 and 1.4 if necessary.			Japanese side Experts Chief Advisor/Forest Management /Climate Change Coordinator/Forest Planning Remote Sensing /GIS Database Management Other experts necessary for the implementation of the Project Training Remote Sensing/GIS Climate Change Other training necessary for the implementation of the Project Machinery and Equipment Vehicle(s) Equipment for training and survey Remote Sensing Data Other equipment necessary for the implementation of the Project	Papua New Guinean side Counterpart Personnel Project Director Deputy Project Director Project Manager Deputy Project Manager PNGFA technical staff Other supporting staff • Suitable office space with necessary equipment • Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other necessary materials • Admission card for the PNGFA building • Available data (including maps and photographs) and information related to the Project • Running expenses necessary for the Project • Expenses necessary for transportation within PNG of the equipment as well as for the installation, operation and maintenance	Proper number of counterparts is secured through the Project period. The Project activities are not strongly rejected by stakeholders such as provincial governments, landowners and logging companies. **Pre-conditions** A budget required for PNGFA activity is secured by the PNG government.
1.7 Develop a prototype of upgraded PNG-FRIMS on the basis of the activities 1.1 - 1.6. 1.8 Operate the prototype on a trial basis and finalize PNG-FRIMS. 1.9 Develop a work manual of the PNG-FRIMS operation including field data collection. 1.10 Conduct training for keeping and improving the technical levels of PNGFA and other collaborators particularly on remote sensing, GIS and database which are necessary for the PNG-FRIMS operation.					
2.1 Review the current status of the forest planning system. 2.1.1 Examine the current forest planning system and document issues on the implementation of the national forest plan, provincial forest plans, forest management plans. 2.1.2 Develop appropriate methods/procedures where necessary for solving the issues.					
2.2 Experiment a series of the operations of forest management plans; evaluation, advice, approval (or preparation) and monitoring by utilizing PNG-FRIMS, in the pilot area(s). 2.2.1 Identify the pilot area(s). 2.2.2 Examine the usage of PNG-FRIMS in the evaluation, advice, approval (or preparation) and monitoring of forest management plans. 2.2.3 Conduct a series of the operations of forest management plans through hands-on training for PNGFA officers in the evaluation, advice, approval (or preparation) and monitoring of forest management plans. 2.2.4 Determine how to utilize PNG-FRIMS in a series of the operations of forest management plans on the basis of the result of the activity 2.2.3.					

2.2.5 Summarize the results of the activities 2.2.1 to 2.2.4. 2.3 Hold training workshops for the PNGFA officers and other collaborators to disseminate the achievement in the pilot area(s).				
2.4 Examine the content of inputs to the process of developing the next national and provincial forest plans on the basis of the output 1 and the activities 2.1 to 2.3. 2.5 Prepare guidelines of the overall forest planning using PNG-FRIMS on the basis of the activities 2.2 to 2.4. 2.6 Prepare and disseminate information on the Project outputs, taking the opportunities such as the training workshops.				
3.1 Examine possible estimation methods for the measurement and reporting of forest carbon emissions and removals utilizing PNG-FRIMS. 3.2 Propose a draft of the technical procedures for estimation.				
3.3 Consider how to utilize PNG-FRIMS in the calculation of the forest reference emission level and forest reference level (FREL/FRL). 3.4 Identify the information which PNGFA is able to provide by using PNG-FRIMS, regarding necessary forest resource information for project-based REDD+ activities.				
3.5 Establish guidelines on the method of access to and provision of the information in the activity 3.4 and inform concerned parties about the guidelines.				
3.6 Provide technical input to committees established by PNG Government relating to climate change as needed. 3.7 Conduct training for keeping and improving the technical levels of PNGFA and other collaborators on measurement and reporting of forest carbon emissions and removals, and development of FREL/FRL.				
3.8 Prepare and disseminate information on the Project outputs, taking opportunities such as climate change related meetings and conferences.				

Team in charge

: Long Term Experts Team

: Long & Short Term Experts Team

: Short Term Experts Team

Project Design Matrix (PDM)

Version No. : 1.2

Project Title : Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG-FRIMS) for Addressing Climate Change
Project Period : From July 2014 to June 2019 (five years)
Target Areas : The whole of PNG
Target Group : Staff of PNG Forest Authority (PNGFA)
Note : Red letters indicate modification approved by JCC2 (Aug 2015) following proposal from Project Team (C/P officers and JICA experts) .

As of August 19, 2015

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal : Forests in PNG are conserved and managed in a sustainable manner, while at the same time, mitigation and adaptation measures against climate change are promoted.	1. National forest plan based on more accurate information is prepared or in preparation through utilization of PNG-FRIMS. 2. The information of PNG-FRIMS is utilized for the preparation of reports for UNFCCC. 3. Forest base map for the forest area change detected is updated in XX provinces except for the pilot area(s). 4. The operations of forest management plans by utilizing PNG-FRIMS are conducted in XX provinces except for the pilot area(s).	1. National forest plan, interview with PNGFA 2. Interview with PNGFA and OCCD 3. Interview with PNGFA 4. Interview with PNGFA	
Project Purpose : Capacity of the PNGFA to continuously update forest information and to fully operationalize and utilize PNG-FRIMS for promoting sustainable forest management and for addressing climate change is enhanced.	1. The average level of the capacities of PNGFA officers to update forest information is assessed as satisfactory (3.5 on a scale of one to five). • Understanding of the system • Capacity to update the map 2. The average level of the capacities of PNGFA officers to operate and utilize PNG-FRIMS for sustainable forest management and climate change is assessed as satisfactory (3.5 on a scale of one to five). • Understanding of the system • Capacity to operate the system • Capacity to utilize the system	1. Assessment by the Project team; the JICA Experts and PNGFA. 2. Assessment by the Project team; the JICA Experts and PNGFA.	There is no significant change in government's policies on forest management and climate change.
Outputs : 1. PNG-FRIMS is expanded and enhanced.	1. The manual on updating forest base map is developed. 2. Not less than 80 % of PNGFA relevant technical officers are satisfied with the manual. 3. The design document of DB is developed. 4. The DB is developed. 5. Not lower than 80 % of PNG relevant technical officers think the DB as relevant and useful. 6. PNG-FRIMS is finalized.	1. Manual 2. Questionnaire 3. Design document 4. DB 5. Questionnaire 6. PNG-FRIMS 7. Questionnaire 8. Manual 9. Questionnaire	There is no significant organizational and policy change in PNGFA.

	7. Not less than 80 % of PNGFA relevant technical officers think PNG-FRIMS as relevant and useful. 8. The manual of PNG-FRIMS is developed. 9. Not less than 80 % of PNGFA relevant technical officers are satisfied with the manual. 10. Not less than 80 % of PNGFA officers and collaborators who received training are satisfied with the training.	10. Questionnaire	
2. The national forest plan, provincial forest plans, forest management plans and their monitoring system are improved through steady operation of PNG-FRIMS.	1. Methods/procedures for solving the issues of the current forest planning system are developed where necessary. 2. The document on the usage of PNG-FRIMS is created. 3. Not lower than 80 % of PNGFA relevant technical officers in the pilot area(s) and PNGFA HQ relevant officers think the usage of PNG-FRIMS as relevant and useful. 4. The guidelines of the forest planning are developed. 5. Not less than 80 % of PNGFA relevant technical officers in the pilot area(s) and PNGFA HQ relevant officers think the overall forest planning will be improved by the ways described in the guidelines.	1. Document on the methods/procedures 2. Document on the usage 3. Questionnaire 4. The guidelines 5. Questionnaire	
3. Forest information for addressing REDD+ is prepared.	1. The document on the draft of the technical procedures for estimation of forest carbon emissions and removals is created. 2. The document on the results of consideration on the usage of PNG-FRIMS in the calculation of the forest reference emission level and forest reference level is created. 3. The guidelines on the method of access and provision of the information are developed. 4. Not lower than 80 % of REDD+ project implementing organizations think the guidelines as relevant and useful.	1. Document on the draft of the procedures. 2. Document on the usage 3. Guidelines 4. Questionnaire	

Activities	Main Team In charge	Support Team	Input		
1.1 Examine and identify information to be added and integrated to PNG-FRIMS. 1.2 Lay out a basic design for expansion and enhancement of PNG-FRIMS. 1.3 Examine the approach of updating the forest base map. 1.3.1 Lay out a basic design for the method of detecting forest area changes with remote sensing technology. 1.3.2 Process and analyse the remote sensing data combining with ground truth (ex. Permanent Sample Plots of Forest Research Institute, Resource Inventory of PNGA) on a trial basis. 1.3.3 Identify necessary additional information from other sources (ex. From agriculture, mining and wildlife management). 1.3.4 Develop the manual on updating forest base map. 1.3.5 Update forest base map for the forest area change detected in the pilot area(s) identified in activity 2.2.1. 1.4 Examine the method of developing and updating information on growing stock. 1.4.1 Examine the method for defining a new set of the forest management units in PNG-FRIMS based on the historical record of logging operation and vegetation type. 1.4.2 Examine the possibilities of integrating PINFORM into PNG-FRIMS. 1.4.3 Design and develop the database for calculating and recording harvested timber and timber growth on the basis of the activity 1.4.1 and 1.4.2. 1.5 Examine the method of reflecting the ground sample plot (ex. National Forest Inventory) information on forest resources in the activities 1.3 and 1.4. 1.6 Examine the method of preparing information other than the methods of the activity 1.3 and 1.4 if necessary.			Japanese side Experts Chief Advisor/Forest Management /Climate Change Coordinator/Forest Planning Remote Sensing /GIS Database Management Other experts necessary for the implementation of the Project Training Remote Sensing/GIS Climate Change Other training necessary for the implementation of the Project Machinery and Equipment Vehicle(s) Equipment for training and survey Remote Sensing Data Other equipment necessary for the implementation of the Project	Papua New Guinean side Counterpart Personnel Project Director Deputy Project Director Project Manager Deputy Project Manager PNGFA technical staff Other supporting staff • Suitable office space with necessary equipment • Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other necessary materials • Admission card for the PNGFA building • Available data (including maps and photographs) and information related to the Project • Running expenses necessary for the Project • Expenses necessary for transportation within PNG of the equipment as well as for the installation, operation and maintenance	Proper number of counterparts is secured through the Project period. The Project activities are not strongly rejected by stakeholders such as provincial governments, landowners and logging companies. **Pre-conditions** A budget required for PNGFA activity is secured by the PNG government.
1.7 Develop a prototype of upgraded PNG-FRIMS on the basis of the activities 1.1 - 1.6. 1.8 Operate the prototype on a trial basis and finalize PNG-FRIMS. 1.9 Develop a work manual of the PNG-FRIMS operation including field data collection. 1.10 Conduct training for keeping and improving the technical levels of PNGFA and other collaborators particularly on remote sensing, GIS and database which are necessary for the PNG-FRIMS operation.					
2.1 Review the current status of the forest planning system. 2.1.1 Examine the current forest planning system and document issues on the implementation of the national forest plan, provincial forest plans, forest management plans. 2.1.2 Develop appropriate methods/procedures where necessary for solving the issues.					
2.2 Experiment a series of the operations of forest management plans; evaluation, advice, approval (or preparation) and monitoring by utilizing PNG-FRIMS, in the pilot area(s). 2.2.1 Identify the pilot area(s). 2.2.2 Examine the usage of PNG-FRIMS in the evaluation, advice, approval (or preparation) and monitoring of forest management plans. 2.2.3 Conduct a series of the operations of forest management plans through hands-on training for PNGFA officers in the evaluation, advice, approval (or preparation) and monitoring of forest management plans.					

2.2.4 Determine how to utilize PNG-FRIMS in a series of the operations of forest management plans on the basis of the result of the activity 2.2.3. 2.2.5 Summarize the results of the activities 2.2.1 to 2.2.4. 2.3 Hold training workshops for the PNGFA officers and other collaborators to disseminate the achievement in the pilot area(s).				
2.4 Examine the content of inputs to the process of developing the next national and provincial forest plans on the basis of the output 1 and the activities 2.1 to 2.3. 2.5 Prepare guidelines of the overall forest planning using PNG-FRIMS on the basis of the activities 2.2 to 2.4. 2.6 Prepare and disseminate information on the Project outputs, taking the opportunities such as the training workshops.				
3.1 Examine possible estimation methods for the measurement and reporting of forest carbon emissions and removals utilizing PNG-FRIMS. 3.2 Propose a draft of the technical procedures for estimation.				
3.3 Consider how to utilize PNG-FRIMS in the calculation of the forest reference emission level and forest reference level (FREL/FRL). 3.4 Identify the information which PNGFA is able to provide by using PNG-FRIMS, regarding necessary forest resource information for project-based REDD+ activities.				
3.5 Establish guidelines on the method of access to and provision of the information in the activity 3.4 and inform concerned parties about the guidelines.				
3.6 Provide technical input to committees established by PNG Government relating to climate change as needed. 3.7 Conduct training for keeping and improving the technical levels of PNGFA and other collaborators on measurement and reporting of forest carbon emissions and removals, and development of FREL/FRL.				
3.8 Prepare and disseminate information on the Project outputs, taking opportunities such as climate change related meetings and conferences.				

Team in charge

: Long Term Experts Team

: Long & Short Term Experts Team

: Short Term Experts Team

Project Design Matrix (PDM)

Version No. : 1.5

Project Title : Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG-FRIMS) for Addressing Climate Change
Project Period : From July 2014 to June 2019 (five years)
Target Areas : The whole of PNG
Target Group : Staff of PNG Forest Authority (PNGFA)
Note : Red letters indicate modification approved by JCC2 (Aug 2015) following proposal from Project Team (C/P officers and JICA experts) .
Note : Orange letters in this sheet indicate modification approved by JCC3 (Aug 2016) and revised (April 2017)

As of April 2017

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal : Forests in PNG are conserved and managed in a sustainable manner, while at the same time, mitigation and adaptation measures against climate change are promoted.	1. National forest plan based on more accurate information is prepared or in preparation through utilization of PNG-FRIMS. 2. The information of PNG-FRIMS is utilized for the preparation of reports for UNFCCC. 3. Forest base map for the forest area change detected is updated in ~~XX~~ 7 provinces except for the pilot area(s). 4. The operations of forest management plans by utilizing PNG-FRIMS are conducted in ~~XX~~ 7 provinces except for the pilot area(s).	1. National forest plan, interview with PNGFA 2. Interview with PNGFA and OCCD 3. Interview with PNGFA 4. Interview with PNGFA	
Project Purpose : Capacity of the PNGFA to continuously update forest information and to fully operationalize and utilize PNG-FRIMS for promoting sustainable forest management and for addressing climate change is enhanced.	1. The average level of the capacities of PNGFA officers to update forest information is assessed as satisfactory (3.5 on a scale of one to five). • Understanding of the system • Capacity to update the map 2. The average level of the capacities of PNGFA officers to operate and utilize PNG-FRIMS for sustainable forest management and climate change is assessed as satisfactory (3.5 on a scale of one to five). • Understanding of the system • Capacity to operate the system • Capacity to utilize the system	1. Assessment by the Project team; the JICA Experts and PNGFA. 2. Assessment by the Project team; the JICA Experts and PNGFA.	There is no significant change in government's policies on forest management and climate change.
Outputs : 1. PNG-FRIMS is expanded and enhanced.	1. The manual on updating forest base map is developed. 2. Not less than 80 % of PNGFA relevant technical officers are satisfied with the manual. 3. The design document of DB is developed. 4. The DB is developed. 5. Not lower than 80 % of PNG relevant technical	1. Manual 2. Questionnaire 3. Design document 4. DB 5. Questionnaire 6. PNG-FRIMS 7. Questionnaire	There is no significant organizational and policy change in PNGFA.

	officers think the DB as relevant and useful. 6. PNG-FRIMS is finalized. 7. Not less than 80 % of PNGFA relevant technical officers think PNG-FRIMS as relevant and useful. 8. The manual of PNG-FRIMS is developed. 9. Not less than 80 % of PNGFA relevant technical officers are satisfied with the manual. 10. Not less than 80 % of PNGFA officers and collaborators who received training are satisfied with the training.	8. Manual 9. Questionnaire 10. Questionnaire	
2. The national forest plan, provincial forest plans, forest management plans and their monitoring system are improved through steady operation of PNG-FRIMS.	1. Methods/procedures for solving the issues of the current forest planning system are developed where necessary. 2. The document on the usage of PNG-FRIMS is created. 3. Not lower than 80 % of PNGFA relevant technical officers in the pilot area(s) and PNGFA HQ relevant officers think the usage of PNG-FRIMS as relevant and useful. 4. The guidelines of the forest planning are developed. 5. Not less than 80 % of PNGFA relevant technical officers in the pilot area(s) and PNGFA HQ relevant officers think the overall forest planning will be improved by the ways described in the guidelines.	1. Document on the methods/procedures 2. Document on the usage 3. Questionnaire 4. The guidelines 5. Questionnaire	
3. Forest information for addressing REDD+ is prepared.	1. The document on the draft of the technical procedures for estimation of forest carbon emissions and removals is created. 2. The document on the results of consideration on the usage of PNG-FRIMS in the calculation of the forest reference emission level and forest reference level is created. 3. The guidelines on the method of access and provision of the information are developed. 4. Not lower than 80 % of REDD+ project implementing organizations think the guidelines as relevant and useful.	1. Document on the draft of the procedures. 2. Document on the usage 3. Guidelines 4. Questionnaire	

Activities	Main Team In charge	Support Team	Input		
1.1 Examine and identify information to be added and integrated to PNG-FRIMS. 1.2 Lay out a basic design for expansion and enhancement of PNG-FRIMS. 1.3 Examine the approach of updating the forest base map. 1.3.1 Lay out a basic design for the method of detecting forest area changes with remote sensing technology. 1.3.2 Process and analyse the remote sensing data combining with ground truth (ex. Permanent Sample Plots of Forest Research Institute, Resource Inventory of PNGA) on a trial basis. 1.3.3 Identify necessary additional information from other sources (ex. From agriculture, mining and wildlife management). 1.3.4 Develop the manual on updating forest base map. 1.3.5 Update forest base map for the forest area change detected in the pilot area(s) identified in activity 2.2.1. 1.4 Examine the method of developing and updating information on growing stock. 1.4.1 Examine the method for defining a new set of the forest management units in PNG-FRIMS based on the historical record of logging operation and vegetation type. 1.4.2 Examine the possibilities of integrating PINFORM into PNG-FRIMS. 1.4.3 Design and develop the database for calculating and recording harvested timber and timber growth on the basis of the activity 1.4.1 and 1.4.2. 1.5 Examine the method of reflecting the ground sample plot (ex. National Forest Inventory) information on forest resources in the activities 1.3 and 1.4. 1.6 Examine the method of preparing information other than the methods of the activity 1.3 and 1.4 if necessary.			Japanese side Experts Chief Advisor/Forest Management /Climate Change Coordinator/Forest Planning Remote Sensing /GIS Database Management Other experts necessary for the implementation of the Project Training Remote Sensing/GIS Climate Change Other training necessary for the implementation of the Project Machinery and Equipment Vehicle(s) Equipment for training and survey Remote Sensing Data Other equipment necessary for the implementation of the Project	Papua New Guinean side Counterpart Personnel Project Director Deputy Project Director Project Manager Deputy Project Manager PNGFA technical staff Other supporting staff • Suitable office space with necessary equipment • Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other necessary materials • Admission card for the PNGFA building • Available data (including maps and photographs) and information related to the Project • Running expenses necessary for the Project • Expenses necessary for transportation within PNG of the equipment as well as for the installation, operation and maintenance	Proper number of counterparts is secured through the Project period. The Project activities are not strongly rejected by stakeholders such as provincial governments, landowners and logging companies. **Pre-conditions** A budget required for PNGFA activity is secured by the PNG government.
1.7 Develop a prototype of upgraded PNG-FRIMS on the basis of the activities 1.1 - 1.6. 1.8 Operate the prototype on a trial basis and finalize PNG-FRIMS. 1.9 Develop a work manual of the PNG-FRIMS operation including field data collection. 1.10 Conduct training for keeping and improving the technical levels of PNGFA and other collaborators particularly on remote sensing, GIS and database which are necessary for the PNG-FRIMS operation.					
2.1 Review the current status of the forest planning system. 2.1.1 Examine the current forest planning system and document issues on the implementation of the national forest plan, provincial forest plans, forest management plans. 2.1.2 Develop appropriate methods/procedures where necessary for solving the issues.					
2.2 Experiment a series of the operations of forest management plans; evaluation, advice, approval (or preparation) and monitoring by utilizing PNG-FRIMS, in the pilot area(s). 2.2.1 Identify the pilot area(s). 2.2.2 Examine the usage of PNG-FRIMS in the evaluation, advice, approval (or preparation) and monitoring of forest management plans. 2.2.3 Conduct a series of the operations of forest management plans through hands-on training for PNGFA officers in the evaluation, advice, approval (or preparation) and monitoring of forest management plans.					

2.2.4 Determine how to utilize PNG-FRIMS in a series of the operations of forest management plans on the basis of the result of the activity 2.2.3. 2.2.5 Summarize the results of the activities 2.2.1 to 2.2.4. 2.3 Hold training workshops for the PNGFA officers and other collaborators to disseminate the achievement in the pilot area(s).				
2.4 Examine the content of inputs to the process of developing the next national and provincial forest plans on the basis of the output 1 and the activities 2.1 to 2.3. 2.5 Prepare guidelines of the overall forest planning using PNG-FRIMS on the basis of the activities 2.2 to 2.4. 2.6 Prepare and disseminate information on the Project outputs, taking the opportunities such as the training workshops.				
3.1 Examine possible estimation methods for the measurement and reporting of forest carbon emissions and removals utilizing PNG-FRIMS. 3.2 Propose a draft of the technical procedures for estimation.				
3.3 Consider how to utilize PNG-FRIMS in the calculation of the forest reference emission level and forest reference level (FREL/FRL). 3.4 Identify the information which PNGFA is able to provide by using PNG-FRIMS, regarding necessary forest resource information for project-based REDD+ activities.				
3.5 Establish guidelines on the method of access to and provision of the information in the activity 3.4 and inform concerned parties about the guidelines.				
3.6 Provide technical input to committees established by PNG Government relating to climate change as needed. 3.7 Conduct training for keeping and improving the technical levels of PNGFA and other collaborators on measurement and reporting of forest carbon emissions and removals, and development of FREL/FRL.				
3.8 Prepare and disseminate information on the Project outputs, taking opportunities such as climate change related meetings and conferences.				

Team in charge

: Long Term Experts Team

: Long & Short Term Experts Team

: Short Term Experts Team

添付資料 42

現地再委託

TOR

Annex "A". Terms of Reference

1. Background

The technical cooperation Project of JICA (Japan International Cooperation Agency), entitled "Capacity Development Project for Operationalization of PNG Forest Resource Information Management System for Addressing Climate Change" (hereinafter referred to as "the Project"), is to be implemented as a five-year project between August 2014 and August 2019, with the PNGFA (PNG Forest Authority) as the counterpart (C/P). The purpose of the Project is that capacity of the PNGFA to continuously update forest information and to fully operationalize and utilize PNG Forest Resource Information Management System (hereinafter referred to as "PNG-FRIMS") for promoting sustainable forest management and for addressing climate change is enhanced.

Although the activities of the Project up to now have expanded and enhanced the PNG-FRIMS steadily, some tasks, which were not found at the beginning of the Project, have turned out to be necessary now. First, through the activities, it is clarified to develop digital data on Logged Over Area in logging concessions which is recorded in Annual Logging Plan (ALP) and boundaries in FCA (Forest Clearance Authority) area, both of them are paper-based information, is required for calculating stock and re-growth of timbers accurately. Second, technologies for forest monitoring is growing very rapidly and new useful technologies not being employed by the PNG-FRIMS are available now. To consider how to utilize the new technologies is beneficial to prevent the PNG-FRIMS from becoming old-fashioned. Third, to organize outputs related to the PNG-FRIMS as a compiled material is important to place the PNG-FRIMS as a tool for making governmental forest management plans in PNG.

Although each of these three tasks are important to expand and enhance the PNG-FRIMS, it is difficult for the assigned members of the Project to implement the tasks by themselves because additional workloads for it is too much to manage within little time they have. Although the natures of each task is completely different each other, those are organically united with each other. For example, the developed digital data of Logged Over Area might be used for examining new forest monitoring technologies and the new technologies might be compiled together with the outputs related to the PNG-FRIMS. Intense communication with staffs in PNGFA is necessary to implement these interwined tasks. Besides, it is necessary to handle confidential information in PNGFA to implement the tasks, so that a system which enable to control the access to those information should be prepared. Considering each condition described above, the tasks to be entrusted to one local company which can cover a wide range of specialties collectively.

2. Objective of the Assignment

The objective of the Assignment is to implement consulting services related to remote sensing and GIS technologies on additional tasks raised from the activities of the Project for expanding and enhancing PNG Forest Resource Information Management System.

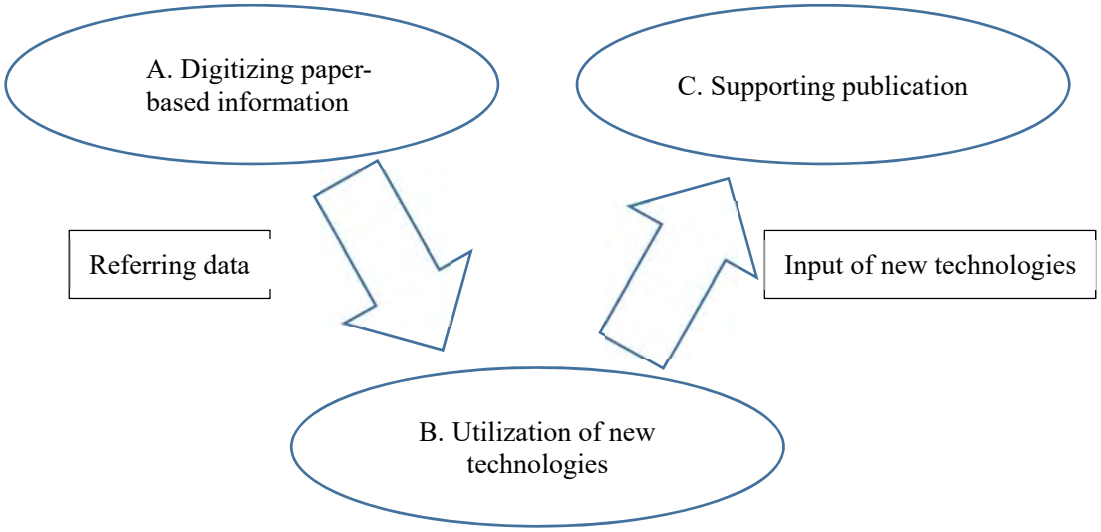
3. Scope of the Assignment

A. To search and list up the paper-based information necessary for expanding and enhancing PNG-FRIMS stored in PNGFA and to digitize those information
   a) To organize the storage room in PNGFA which contains Annual Logging Plan, FCA plans, etc. and to list up the existing information
   b) To digitize FCA boundary information
   c) To support digitizing Logged Over Area information implemented by PNGFA

B. To examine how to utilize new remote sensing technologies for forest monitoring
   a) To examine efficient technology to extract forest decreasing area utilizing free satellite imagery such as LANDSAT and Sentinel-2 and to compare the extracted information with the actual activities in logging concessions and FCA boundaries
   b) To examine utilization of the other new technologies for extracting forest decreasing

C. To support publication of outputs related to the PNG-FRIMS
   a) To support making (composing, designing, apportioning, proofreading, editing) a material compiling the outputs related to the PNG-FRIMS

4. Schematic image of the Assignment



5. Team Composition &Qualification Requirements for the Experts

No.	Personnel	Requirement	Tasks
1	01 Supervisor	Master of Science with more than 10 years of experience in Remote Sensing and GIS related work on forest monitoring	General responsibility of the Service (plan and manage), utilization of new technologies
2	01 Forester	Bachelor of Science or Agriculture with forestry background with more than 3 years of experience in documenting works	Responsible for tasks related to listing, supporting publication
2	01 GIS officer	Bachelor of Science, Agriculture, Engineering or Environment with more than 1 year of experience in GIS related work on forest monitoring	Responsible for tasks related to digitizing

6. Deliverables

A. A list of paper-based information stored in PNGFA, Digitized FCA boundaries information, Digitized Logged Over Area information
B. Analyzed forest decreasing information inside of Logged over area and FCA boundaries generated from LANDSAT or Sentinel-2 imagery, Comparison of the generated forest decreasing information with the other data utilizing new technologies for extracting forest decreasing area
C. Final report on publication support

7. Period of the Service

May 2018 – December 2018

8. Others

The listing work and digitizing work must be implemented in the buildings of the headquarter of PNG Forest Authority, located at P.O. BOX 5055, BOROKO, NCD, PNG, for handling information having confidential nature.

(End of document)

添付資料 43

合同調整委員会会議

第 1 回会議

アジェンダ
発表資料
議事録

第 2 回会議

アジェンダ
発表資料
議事録

第 3 回会議

アジェンダ
発表資料
議事録

第 4 回会議

アジェンダ
発表資料
議事録

第 5 回会議

アジェンダ
発表資料
議事録

第 6 回会議

アジェンダ
発表資料
議事録

19 September 2014

DRAFT Agenda

For the Joint Coordinating Committee of the JICA Technical Cooperation Project

JICA/ PNGFA Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG－FRIMS) for Addressing Climate Change

19th September 2014, 9:30- 11:00
Board Meeting Room, PNG Forest Authority

1. Opening remark by the Chair and the Co-Chair

2. Review on overall progress of the Project activities

3. Plan of Operations and the Annual Work Plan of the Project (to be approved)

4. Other relevant issues

Brief Outline of new JICA/ PNGFA Forestry Project

1. Project Title

   Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG-FRIMS) for Addressing Climate Change

2. Project Period

   From 24th August 2014 to 23rd August 2019 (five years)

3. Overall Goal

   Forests in PNG are conserved and managed in a sustainable manner, while at the same time, mitigation and adaptation measures against climate change are promoted.

4. Project Purpose

   Capacity of the PNGFA to continuously update forest information and to fully operationalize and utilize PNG-FRIMS for promoting sustainable forest management and for addressing climate change is enhanced.

5. Outputs

   (1) PNG-FRIMS is expanded and enhanced.
   (2) The national forest plan, provincial forest plans, forest management plans and their monitoring system are improved through steady operation of PNG-FRIMS.
   (3) Forest information for addressing REDD+ is prepared.

Capacity Development for Operationalization of PNG Forest Resource Information Management System for Addressing Climate Change

Introduction of Japanese Team

NAME	DUTY
Long Term Experts	
Tatsuya WATANABE	Chief Adviser/Forest Management/Climate Change
Masaya NISHIMURA	Forest Planning/Coordinator
Short Term Experts（KKC Team）	
Masamichi HARAGUCHI	Team Reader/Forest Remote Sensing 1/Forest GIS
Ayako OCHI	Sub-Team Reader/Forest Remote Sensing 2/Forest GIS
Yasuyuki OKADA	Forest Database 1
Takahiro KOIDE	Forest Database 2/Database Management
Stphane SALIM	REDD+ Project Planning Assistance

Masamichi HARAGUCHI: Team Leader of KKC

1. Main Role
   - ✓ Overall management of KKC team, coordination with PNGFA, long-term Experts and other projects
   - ✓ Public relation of the project such as presentation and planning of workshop/congress (such as COP)
2. Follow-up Issues
   - ① Update on GIZ Central Sual PDD study
   - ② Update on LEAF Training Workishop
   - ③ PFP (Provincial Forest Plan) reporting/update
   - ④ JICA Server/Network non-operational situation
   - ⑤ Fibre Optic Internet Feasibility Test (FAO work)

Ayako Ochi, Sub-Team leader/Forest remote sensing 2/Forest GIS 2

Main role in the project

- Coordination of the project and the team collaborating with Mr. Haraguchi
- Updating the Forest Base Maps
  - past (1990, 2000, 2005)
  - current base map (ver.1.0)
  - 2015 (benchmark map)
  - 2015~
- ✓ To verify accuracy of forest base map ver.1.0
- ✓ To Identify how to modify/update map
- ✓ To identify how to monitor forest degradation
- Technical transfer
  - ✓ Updating / monitoring forest base map

Expected work in this visit

- To discuss and update contents of Inception report
- To confirm and get the latest data related to forest base map
- To check the current situation / issues of the map
- To verify forest base map accuracy and discuss the assessment results
- To discuss overview of technical transfer

Yasuyuki OKADA, Kokusai Kogyo Co., Forest Database

1) Main role in this Project 1

Improve FIMS and FIPS functions for some issues
- Split of the provinces (Hela and Jiwaka) for FIMS and FIPS (need to improve existing functions and report form)
- Update Mep groups for FIPS
- Update for ArcGIS 10.2
- Enhance functions as necessary (discuss with C/P)

Develop new functions for Forest Plans and REDD+

Develop new function connecting with DSS (Decision support system)

Update PNG-FRIMS database (Add new forest information)

2) Expected work in this visit

Verify FIMS, FIPS and Web Browser Map

Confirm the requirements of FIMS and FIPS improvement

Collect documents about DSS

Takahiro KOIDE: Forest Database 2/Database Management

1) Background

Soil chemistry, Carbon and Nitrogen cycling in forest ecosystem, GHG emission from forest floor in Ph.D. work

2) Main role in this Project

To analyze datasets which are already existing or are going to be obtained in the future especially from an aspect of forest biomass and carbon storage in the forest (FIPS, PSP, NFI, etc.)

3) Expected work in this visit

Review and revise the classification in the Forest Base Map (v.1)

1. Establish a policy to revise the classification reviewing both the FIMS and Forest Base Map (v.1) in the Central Province
2. Discuss with PNGFA to finalize the policy and show how to revise the Forest Base Map practically
3. Hand over the revision-task to PNGFA

4) Documents and datasets needed

Datasets related with forest biomass or timber volume such as Natural Forest Inventory, PINFORM, FIPS, PSP, logging concession, etc. including those user guidebooks and manuals

Stephane Salim: REDD+ Project Planning Assistance

1) Background of the consultant

- Forest ecologist: model the variations of forest species groups with disturbance
- Tropical agronomist: design/management of sustainable agriculture and agro-forestry systems
- REDD+ adviser: voluntary project; DRC national coordination: experimental phase (PES, FIP,...)

2) Role in the project

Support project activites to reach out the ouput 3: "Utilization of FRIMS for addressing CC"

Obj.: from FRIMS, enable the multiplication of CC activities (REDD pilot, Voluntary, NAMA, etc.)
- Facilitate the CC projects' eligibility for payments based on performances (funds or credits)
- Help to certify/verify Emissions Reductions from project activities
- Support accurate and scientifc assessment and reporting of performances (effects)

3) Preliminary activities (Sept 1 - 13)

=> Compare data set available in the FRIMS *vs.* required in CC project methodologies
Identify gaps and suggest improvement.

Aims	Means
To reach a good overview of the PNG FA – JICA project activities and actors	Collect and analyse the project documents
To detail methodological requirements for the main CC project types (Voluntary, national, etc.)	Collect and analyse CC projects methodologies (VCS, CCBA, CDM, etc.)
To detail on-going projects in PNG and developers	Collect documents describing CC projects in PNG (Aus-USAID, Aus Govt, GIZ, LEAF, other?)

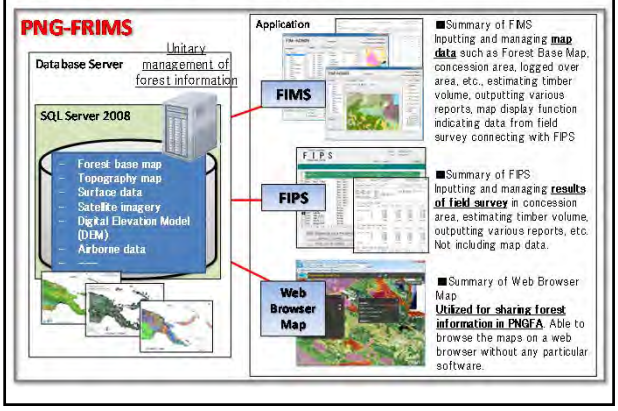
KKC Assignment Plan (Tentative)

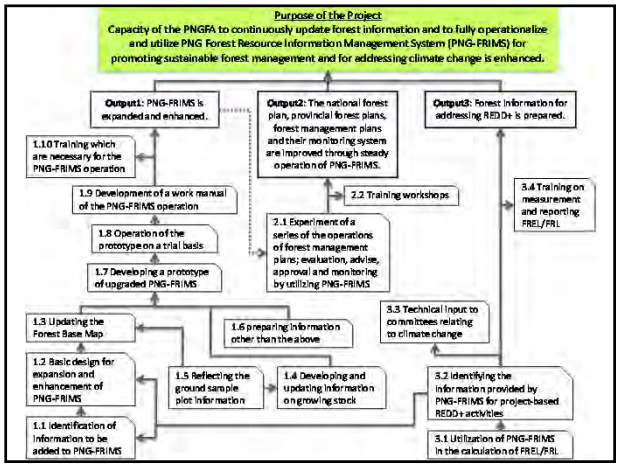
	Duty	Name	Grading	FY2014												FY2015												FY2016											
				8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7
Workin PNG	Team leader/Forest remote sensing 1/ Forest GIS	Masamichi HARAGUCHI	4		15	15						15							15								15								15			
	Sub-Team leader/ Forest remote sensing 2/Forest GIS	Ayako OCHI	3		22	29		22				22	29					29	22					22	22			22							22			
	Forest database 1	Yasuyuki OKADA	3		22	22		22				22	22					22	22					22				22							22			
	Forest database 2/Database management	Takahiro KOIDE	4		22	29		29				29	36					29	29					29	29			29							29			
	REDD+ project planning assistance	Stéphane SALIM	3		15	15						29						29								29								29			

FY2017												FY2018												FY2019				PNG	JPN
4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7		
			15				15					15						15						15				5.50	
22		22	22				22					22						22	22					22				13.90	
22		22	22									22						22	22					22				11.73	
29		29	29				29					29						29	29					22				17.17	
																												4.87	
																												53.17	

Thank you for your attention!

Applications constituting PNG-FRIMS





[Reference Material]

Excerpt from the Record of Discussions between PNGFA and JICA

Appendix 1

PROJECT DESCRIPTION

II. OUTLINE OF THE PROJECT

7. Implementation Structure

(3) Joint Coordinating Committee

Joint Coordinating Committee (hereinafter referred to as "JCC") will be established in order to facilitate inter-organizational coordination. JCC will be held at least once a year and whenever deems it necessary. JCC will approve an annual work plan, review overall progress, conduct monitoring and evaluation of the Project, and exchange opinions on major issues that arise during the implementation of the Project. A list of proposed members of JCC is shown in the Annex 4.

Annex 4 A List of Proposed Members of Joint Coordinating Committee

1. Function

The Joint Coordinating Committee (JCC) will meet at least once a year or whenever necessity arises. The main functions of JCC are:

(1) To approve the Plan of Operation and the annual work plan of the Project.

(2) To review the overall progress of the Project activities as well as the achievement of the above-mentioned annual plan; and

(3) To review and exchange views on major issues arising from or in connection with the Project, and to recommend corrective measures.

2. Members

(1) Chairperson: Managing Director, PNG Forest Authority

(2) Co-chairperson: Chief Representative, JICA Papua New Guinea Office

(3) PNG side:

(Project Director) Director, Forest Policy and Planning Directorate, PNGFA

(Deputy Project Director) Manager, Policy and Aid

Coordination Branch, Forest Policy and Planning Directorate, PNGFA
(Project Manager) Manager, Inventory and Mapping Branch, Forest Policy and Planning Directorate, PNGFA
(Deputy Project Manager) Manager Projects, Project Allocation Directorate, PNGFA
Representative from Office of Climate Change and Development
Representative from Department of National Planning and Monitoring
Other officials mutually agreed upon

(4) Japanese side:

Representative of JICA PNG Office
JICA Expert(s) of the Project
Other relevant personnel mutually agreed upon

Note: Official(s) of Embassy of Japan may attend the JCC as observer(s)

Project Design Matrix (PDM)

Version No. : 1.1

Project Title : Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG-FRIMS) for Addressing Climate Change
Project Period : From 24th August 2014 to 23rd August 2019 (five years)
Target Areas : The whole of PNG
Target Group : Staff of PNG Forest Authority (PNGFA)

As of January 28, 2014

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal : Forests in PNG are conserved and managed in a sustainable manner, while at the same time, mitigation and adaptation measures against climate change are promoted.	1. National forest plan based on more accurate information is prepared or in preparation through utilization of PNG-FRIMS. 2. The information of PNG-FRIMS is utilized for the preparation of reports for UNFCCC. 3. Forest base map for the forest area change detected is updated in XX provinces except for the pilot area(s). 4. The operations of forest management plans by utilizing PNG-FRIMS are conducted in XX provinces except for the pilot area(s).	1. National forest plan, interview with PNGFA 2. Interview with PNGFA and OCCD 3. Interview with PNGFA 4. Interview with PNGFA	
Project Purpose : Capacity of the PNGFA to continuously update forest information and to fully operationalize and utilize PNG-FRIMS for promoting sustainable forest management and for addressing climate change is enhanced.	1. The average level of the capacities of PNGFA officers to update forest information is assessed as satisfactory (3.5 on a scale of one to five). • Understanding of the system • Capacity to update the map 2. The average level of the capacities of PNGFA officers to operate and utilize PNG-FRIMS for sustainable forest management and climate change is assessed as satisfactory (3.5 on a scale of one to five). • Understanding of the system • Capacity to operate the system • Capacity to utilize the system	1. Assessment by the Project team; the JICA Experts and PNGFA. 2. Assessment by the Project team; the JICA Experts and PNGFA.	There is no significant change in government's policies on forest management and climate change.
Outputs : 1. PNG-FRIMS is expanded and enhanced.	1. The manual on updating forest base map is developed. 2. Not lower than 80 % of PNGFA relevant technical officers are satisfied with the manual. 3. The design document of DB is developed. 4. The DB is developed. 5. Not lower than 80 % of PNG relevant technical officers think the DB as relevant and useful. 6. PNG-FRIMS is finalized. 7. Not lower than 80 % of PNGFA relevant technical officers think PNG-FRIMS as relevant and useful.	1. Manual 2. Questionnaire 3. Design document 4. DB 5. Questionnaire 6. PNG-FRIMS 7. Questionnaire 8. Manual 9. Questionnaire 10. Questionnaire	There is no significant organizational and policy change in PNGFA.

	8. The manual of PNG-FRIMS is developed. 9. Not lower than 80 % of PNGFA relevant technical officers are satisfied with the manual. 10. Not lower than 80 % of PNGFA officers and collaborators who received training are satisfied with the training.		
2. The national forest plan, provincial forest plans, forest management plans and their monitoring system are improved through steady operation of PNG-FRIMS.	1. Methods/procedures for solving the issues of the current forest planning system are developed where necessary. 2. The document on the usage of PNG-FRIMS is created. 3. Not lower than 80 % of PNGFA relevant technical officers in the pilot area(s) and PNGFA HQ relevant officers think the usage of PNG-FRIMS as relevant and useful. 4. The guidelines of the forest planning are developed. 5. Not lower than 80 % of PNGFA relevant technical officers in the pilot area(s) and PNGFA HQ relevant officers think the overall forest planning will be improved by the ways described in the guidelines.	1. Document on the methods/procedures 2. Document on the usage 3. Questionnaire 4. The guidelines 5. Questionnaire	
3. Forest information for addressing REDD+ is prepared.	1. The document on the draft of the technical procedures for estimation of forest carbon emissions and removals is created. 2. The document on the results of consideration on the usage of PNG-FRIMS in the calculation of the forest reference emission level and forest reference level is created. 3. The guidelines on the method of access and provision of the information are developed. 4. Not lower than 80 % of REDD+ project implementing organizations think the guidelines as relevant and useful.	1. Document on the draft of the procedures. 2. Document on the usage 3. Guidelines 4. Questionnaire	

Activities	Main Team In charge	Support Team	Input		
1.1 Examine and identify information to be added and integrated to PNG-FRIMS. 1.2 Lay out a basic design for expansion and enhancement of PNG-FRIMS. 1.3 Examine the approach of updating the forest base map. 1.3.1 Lay out a basic design for the method of detecting forest area changes with remote sensing technology. 1.3.2 Process and analyse the remote sensing data combining with ground truth on a trial basis. 1.3.3 Identify necessary additional information from other sources. 1.3.4 Develop the manual on updating forest base map. 1.3.5 Update forest base map for the forest area change detected in the pilot area(s) identified in activity 2.2.1. 1.4 Examine the method of developing and updating information on growing stock. 1.4.1 Examine the method for defining a new set of the forest management units in PNG-FRIMS based on the historical record of logging operation and vegetation type. 1.4.2 Examine the possibilities of integrating PINFORM into PNG-FRIMS. 1.4.3 Design and develop the database for calculating and recording harvested timber and timber growth on the basis of the activity 1.4.1 and 1.4.2. 1.5 Examine the method of reflecting the ground sample plot information on forest resources in the activities 1.3 and 1.4. 1.6 Examine the method of preparing information other than the methods of the activity 1.3 and 1.4 if necessary.			Japanese side Experts Chief Advisor/Forest Management /Climate Change Coordinator/Forest Planning Remote Sensing /GIS Database Management Other experts necessary for the implementation of the Project Training Remote Sensing/GIS Climate Change Other training necessary for the implementation of the Project Machinery and Equipment Vehicle(s) Equipment for training and survey Remote Sensing Data Other equipment necessary for the implementation of the Project	Papua New Guinean side Counterpart Personnel Project Director Deputy Project Director Project Manager Deputy Project Manager PNGFA technical staff Other supporting staff • Suitable office space with necessary equipment • Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other necessary materials • Admission card for the PNGFA building • Available data (including maps and photographs) and information related to the Project • Running expenses necessary for the Project • Expenses necessary for transportation within PNG of the equipment as well as for the installation, operation and maintenance	Proper number of counterparts is secured through the Project period. The Project activities are not strongly rejected by stakeholders such as provincial governments, landowners and logging companies. **Pre-conditions** A budget required for PNGFA activity is secured by the PNG government.
1.7 Develop a prototype of upgraded PNG-FRIMS on the basis of the activities 1.1 - 1.6. 1.8 Operate the prototype on a trial basis and finalize PNG-FRIMS. 1.9 Develop a work manual of the PNG-FRIMS operation including field data collection. 1.10 Conduct training for keeping and improving the technical levels of PNGFA and other collaborators particularly on remote sensing, GIS and database which are necessary for the PNG-FRIMS operation.					
2.1 Review the current status of the forest planning system. 2.1.1 Examine the current forest planning system and document issues on the implementation of the national forest plan, provincial forest plans, forest management plans. 2.1.2 Develop appropriate methods/procedures where necessary for solving the issues.					
2.2 Experiment a series of the operations of forest management plans: evaluation, advice, approval (or preparation) and monitoring by utilizing PNG-FRIMS, in the pilot area(s). 2.2.1 Identify the pilot area(s). 2.2.2 Examine the usage of PNG-FRIMS in the evaluation, advice, approval (or preparation) and monitoring of forest management plans. 2.2.3 Conduct a series of the operations of forest management plans through hands-on training for PNGFA officers in the evaluation, advice, approval (or preparation) and monitoring of forest management plans. 2.2.4 Determine how to utilize PNG-FRIMS in a series of the operations of forest management plans on the basis of the result of the activity 2.2.3.					

2.2.5 Summarize the results of the activities 2.2.1 to 2.2.4. 2.3 Hold training workshops for the PNGFA officers and other collaborators to disseminate the achievement in the pilot area(s).				
2.4 Examine the content of inputs to the process of developing the next national and provincial forest plans on the basis of the output 1 and the activities 2.1 to 2.3. 2.5 Prepare guidelines of the overall forest planning using PNG-FRIMS on the basis of the activities 2.2 to 2.4. 2.6 Prepare and disseminate information on the Project outputs, taking the opportunities such as the training workshops.				
3.1 Examine possible estimation methods for the measurement and reporting of forest carbon emissions and removals utilizing PNG-FRIMS. 3.2 Propose a draft of the technical procedures for estimation.				
3.3 Consider how to utilize PNG-FRIMS in the calculation of the forest reference emission level and forest reference level (FREL/FRL). 3.4 Identify the information which PNGFA is able to provide by using PNG-FRIMS, regarding necessary forest resource information for project-based REDD+ activities.				
3.5 Establish guidelines on the method of access to and provision of the information in the activity 3.4 and inform concerned parties about the guidelines.				
3.6 Provide technical input to committees established by PNG Government relating to climate change as needed. 3.7 Conduct training for keeping and improving the technical levels of PNGFA and other collaborators on measurement and reporting of forest carbon emissions and removals, and development of FREL/FRL.				
3.8 Prepare and disseminate information on the Project outputs, taking opportunities such as climate change related meetings and conferences.				

Team in charge

: Long Term Experts Team

: Long & Short Term Experts Team

: Short Term Experts Team

Tentative Plan of Operation (PO)

The Project Title: Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG-FRIMS) for Addressing Climate Change

Ver No. : 1.1

Implementation Organization: PNG Forest Authority (PNGFA)

Duration: 24th August 2014 to 23rd August 2019

As of 04 September 2014

Project Purpose: Capacity of the PNGFA to continuously update forest information and to fully operationalize and utilize PNG-FRIMS for promoting sustainable forest management and for addressing climate change is enhanced.

(FM/CC;Forest Management/Climate Change, FP;Forest Planning, RS/GIS;Remote Sensing/GIS, DM;Database Management)

(FPPD; Forest Policy & Planning Directorate, PAD; Project Allocation Directorate, FSD; Field Services Directorate, CSD; Corporate Service Directorate, FRI; Forest Research Institute,)

Year	2014				2015				2016				2017				2018				2019	Directorate/Branch in Charge	JICA Expert in Charge
Months	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA			
OUTPUT 1. PNG-FRIMS is expanded and enhanced.																							
1.1 Examine and identify information to be added and integrated to PNG-FRIMS.																						All Directorates	FM/CC, FP, RS/GIS, DM
1.2 Lay out a basic design for expansion and enhancement of PNG-FRIMS.																						FPPD, CSD	FM/CC, FP, RS/GIS, DM
1.3 Examine the approach of updating the forest base map.																							
1.3.1 Lay out a basic design for the method of detecting forest area changes with remote sensing technology.																						FPPD, CSD, FRI	FM/CC, FP, RS/GIS
1.3.2 Process and analyse the remote sensing data combining with ground truth on a trial basis.																						FPPD, FRI, FSD	RS/GIS
1.3.3 Identify necessary additional information from other sources.																						All Directorates	FM/CC, FP, RS/GIS
1.3.4 Develop the manual on updating forest base map.																						FPPD	RS/GIS
1.3.5 Update forest base map for the forest area change detected in the pilot area(s) identified in activity 2.2.1.																						FPPD, FRI, FSD	RS/GIS
1.4 Examine the method of developing and updating information on growing stock.																							
1.4.1 Examine the method for defining a new set of the forest management units in PNG-FRIMS based on the historical record of logging operation and vegetation type.																						All Directorates	FM/CC, FP, DM
1.4.2 Examine the possibilities of integrating PINFORM into PNG-FRIMS.																						FPPD, CSD, FRI	FM/CC, DM
1.4.3 Design and develop the database for calculating and recording harvested timber and timber growth on the basis of the activity 1.4.1 and 1.4.2.																						FPPD, CSD, FRI, FSD	DM
1.5 Examine the method of reflecting the ground sample plot information on forest resources in the activities 1.3 and 1.4.																						FPPD, FRI, FSD	FM/CC, RS/GIS, DM
1.6 Examine the method of preparing information other than the methods of the activity 1.3 and 1.4 if necessary.																						All Directorates	FM/CC, FP, RS/GIS, DM
1.7 Develop a prototype of upgraded PNG-FRIMS on the basis of the activities 1.1 - 1.6.																						FPPD, FRI, CSD	RS/GIS, DM
1.8 Operate the prototype on a trial basis and finalize PNG-FRIMS.																						FPPD, FRI, CSD	RS/GIS, DM
1.9 Develop a work manual of the PNG-FRIMS operation including field data collection.																						FPPD, FRI, CSD	RS/GIS, DM
1.10 Conduct training for keeping and improving the technical levels of PNGFA and other collaborators particularly on remote sensing, GIS and database which are necessary for the PNG-FRIMS operation.																						All Directorates	RS/GIS, DM

Tentative Plan of Operation (PO)

The Project Title: Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG-FRIMS) for Addressing Climate Change — Ver No. : 1.1

Implementation Organization: PNG Forest Authority (PNGFA) — Duration: 24th August 2014 to 23rd August 2019 — As of 04 September 2014

Project Purpose: Capacity of the PNGFA to continuously update forest information and to fully operationalize and utilize PNG-FRIMS for promoting sustainable forest management and for addressing climate change is enhanced.

(FM/CC;Forest Management/Climate Change, FP;Forest Planning, RS/GIS;Remote Sensing/GIS, DM;Database Management)

(FPPD; Forest Policy & Planning Directorate, PAD; Project Allocation Directorate, FSD; Field Services Directorate, CSD; Corporate Service Directorate, FRI; Forest Research Institute,)

Year	2014				2015				2016				2017				2018				2019	Directorate/Branch in Charge	JICA Expert in Charge
Months	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA			
OUTPUT 2. The national forest plan, provincial forest plans, forest management plans and their monitoring system are improved through steady operation of PNG-FRIMS.																							
2.1 Review the current status of the forest planning system.																							
2.1.1 Examine the current forest planning system and document issues on the implementation of the national forest plan, provincial forest plans, forest management plans.																						All Directorates	FM/CC, FP
2.1.2 Develop appropriate methods/procedures where necessary for solving the issues.																						All Directorates	FM/CC, FP
2.2 Experiment a series of the operations of forest management plans; evaluation, advice, approval (or preparation) and monitoring by utilizing PNG-FRIMS, in the pilot area(s).																							
2.2.1 Identify the pilot area(s).																						All Directorates	FM/CC, FP
2.2.2 Examine the usage of PNG-FRIMS in the evaluation, advice, approval (or preparation) and monitoring of forest management plans.																						All Directorates	FM/CC, FP, RS/GIS, DM
2.2.3 Conduct a series of the operations of forest management plans through hands-on training for PNGFA officers in the evaluation, advice, approval (or preparation) and monitoring of forest management plans.																						FPPD, FSD, PAD, CSD	FM/CC, FP, RS/GIS, DM
2.2.4 Determine how to utilize PNG-FRIMS in a series of the operations of forest management plans on the basis of the result of the activity 2.2.3.																						FPPD, FSD, PAD	FM/CC, FP, RS/GIS, DM
2.2.5 Summarize the results of the activities 2.2.1 - 2.2.4.																						FPPD, FSD, PAD	FM/CC, FP
2.3 Hold training workshops for the PNGFA officers and other collaborators to disseminate the achievement in the pilot area(s).																						All Directorates	FM/CC, FP, RS/GIS, DM
2.4 Examine the content of inputs to the process of developing the next national and provincial forest plans on the basis of the output 1 and the activities 2.1 to 2.3.																						FPPD	FP
2.5 Prepare guidelines of the overall forest planning using PNG-FRIMS on the basis of the activities 2.2 to 2.4.																						All Directorates	FP
2.6 Prepare and disseminate information on the Project outputs, taking the opportunities such as the training workshops.																						FPPD	FM/CC, FP

Tentative Plan of Operation (PO)

The Project Title: Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG-FRIMS) for Addressing Climate Change

Ver No. : 1.1

Implementation Organization: PNG Forest Authority (PNGFA)

Duration: 24th August 2014 to 23rd August 2019

As of 04 September 2014

Project Purpose: Capacity of the PNGFA to continuously update forest information and to fully operationalize and utilize PNG-FRIMS for promoting sustainable forest management and for addressing climate change is enhanced.

(FM/CC;Forest Management/Climate Change, FP;Forest Planning, RS/GIS;Remote Sensing/GIS, DM;Database Management)

(FPPD; Forest Policy & Planning Directorate, PAD; Project Allocation Directorate, FSD; Field Services Directorate, CSD; Corporate Service Directorate, FRI; Forest Research Institute,)

Year	2014				2015				2016				2017				2018				2019	Directorate/Branch in Charge	JICA Expert in Charge
Months	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA			
OUTPUT3: Forest information for addressing REDD+ is prepared.																							
3.1 Examine possible estimation methods for the measurement and reporting of forest carbon emissions and removals utilizing PNG-FRIMS.																						FPPD, FRI	FM/CC
3.2 Propose a draft of the technical procedures for estimation.																						FPPD, FRI	FM/CC, FP
3.3 Consider how to utilize PNG-FRIMS in the calculation of the forest reference emission level and forest reference level (FREL/FRL).																						FPPD, FRI	FM/CC, FP, RS/GIS, DM
3.4 Identify the information which PNGFA is able to provide by using PNG-FRIMS, regarding necessary forest resource information for project-based REDD+ activities.																						FPPD, FRI	FM/CC, RS/GIS, DM
3.5 Establish guidelines on the method of access to and provision of the information in the activity 3.4 and inform concerned parties about the guidelines.																						FPPD, FRI	FM/CC
3.6 Provide technical input to committees established by PNG Government relating to climate change as needed.																						FPPD, FRI	FM/CC, FP, RS/GIS, DM
3.7 Conduct training for keeping and improving the technical levels of PNGFA and other collaborators on measurement and reporting of forest carbon emissions and removals, and development of FREL/FRL.																						FPPD, FRI, FSD	FM/CC, RS/GIS, DM
3.8 Prepare and disseminate information on the Project outputs, taking opportunities such as climate change related meetings and conferences.																						FPPD, FRI	FM/CC

Legened: Japanese Side Experts Team in Charge

Long & Short Term Experts Team

Long Term Expetrs Team

Short Term Experts Team

Long & Short
Main: Long Suport: Short

Long & Short
Main: Short, Support: Long

First Joint Coordinating Committee
Of the JICA Technical Cooperation Project
Meeting Minutes Memo No. 1- 2014

19th September2014, 09:40- 10:45am, Board Meeting Room, PNG Forest Authority

Chair:	Mr. Kanawi Pouru	Managing Director of PNG Forest Authority
Co-chair:	Mr. Noriyuki Ito	JICA PNG Office Representative

Attendance

Dr. Ruth Turia	Director- Forest Policy and Planning (FPPD), PNGFA
Mr. Dambis Kaip	Manager- Policy &Aid Coordination, FPPD, PNGFA
Mr. Constin Bigol	Manager- Forest Inventory and Mapping, FPPD, PNGFA
Mr. George Gunga	Acting Manager- Projects, Project Allocations, PNGFA
Mr. Benjamin Taupa	Director- Field Services (FSD), PNGFA
Mr. Karokaro Mau	Principal Field Monitoring Officer, FSD, PNGFA
Mr. Tatsuya Watanabe	Chief Advisor, JICA Project Expert, JICA/PNGFA
Mr. Masaya Nishimura	Coordinator, JICA Project Expert, JICA/PNGFA
Ms. Ayako Ochi	JICA Project Expert, JICA/PNGFA/KKC
Mr. Yasuyuki Okada	JICA Project Expert, JICA/PNGFA/KKC
Dr. Takahiro Koide	JICA Project Expert, JICA/PNGFA/KKC)
Dr. Hitofumi Abe	Advisor, UN-REDD/FAO
Ms. Margaret George	Program Officer, JICA PNG Office

---

1 Opening Remark

The Chair, Mr. Pouru congratulated on the commencement of the new project and expressed his expectation of the new project's outcome that should be built on the outcome of the previous successful project. He then expressed his appreciation to the sustained cooperation by the people and the government of Japan. He also pointed out that the expectation to access the data provided from both previous and new project is growing big from within and outside the PNG government. He stressed the importance of providing necessary and appropriate information to right parties so that the information is utilized for works in good faith not only for PNGFA, but also for other government agencies, people in PNG, industries, and the NGOs and civil society, for Climate Change mitigation and adaptation measures.

The Co-chair, Mr. Ito expressed his content of seeing commencement of new forestry project in addition to that of the previous project that was concluded six months ago with an exceptional success. He then assured the composition of the Japanese experts for this project is the very best one available from Japan. Mr. Ito also mentioned the steady-fast progress of the social and economic development of

PNG as illustrated by the announcement of the World Bank this year by ranking PNG as a lower middle income country compared to the lower income country until last year. Having said so, he emphasised the importance of pursuing "Sustainable Forest Management" is growing for PNG as its vast land is mostly covered by forest from which majority of people benefitted goods and services for their living.

Before concluding his remarks, Mr. Ito also pointed firstly the significance of the strong ownership of the PNGFA on JICA capacity development projects as a key for success for implementation. Secondly, the importance of collaborative work with other externally supported program including UN-REDD/FAO and EU Multi-Purpose National Forest Inventory. Thirdly, the publicity of the Projects' successful outcome should benefit other public institutions of PNG (including Department of Environment and Conservation, Dept. of Agriculture and Livestock, University of Technology, etc.), and land-related programmes in biodiversity, mining, agriculture, and Climate Change.

2 Agenda Items

The Chair, Mr. Pouru introduced the three agenda items which were accepted.

2.1 Review of Overall Progress of the Project activities

Dr. Turia reported that the Project was formally commenced on 24th August 2014 when the two Japanese long-term experts arrived to Port Moresby.

She then expressed her content about successful contract made between the JICA and the Kokusai Kogyo Corporation Limited (KKC) of Japan, since she appreciated its outstanding performance in the previous project and sustained commitment to the new Project. She also mentioned a local consultant of PNG hired under KKC contract for the new project. She then reported that the first mission of short-term expert team of KKC since 30th August 2014 would be soon concluded.

The Chief Advisor of the Project, Mr. Watanabe made a brief presentation on the member composition of Japanese expert teams and assignments of each experts.

The Project Manager, Mr. Bigol, reported that he and Japanese experts attended Climate Change related Technical Working Group (TWG) meetings organised by the Office of Climate Change and Development (OCCD) on 10th and 11th September. He also informed that a Japanese expert of the Project, Mr. Nishimura, made an introductory presentation of the Project during the latter OCCD TWG meeting.

2.2 Plan of Operations and Annual Work Plan of the Project

Mr. Watanabe presented the tentative Plan of Operations (PO) as attached to the Record of Discussions (R/D) for the Project. He proposed to approve the PO as it is for starting the project activities as soon as practical. He added that the content of the Project Design Matrix (PDM) defined in the R/D and PO (namely, structured project activities with timeframe) will be regularly reviewed (basically half a year) and possibly modified if necessary at the annual JCC meetings. He further explained that the Project period of five year for the new project is much longer than the three year of the previous project. This will mean that any issues faced will be addressed and corrective actions taken by the PNG counterpart officers and the JICA experts. He also proposed to adopt the first year part of the P/O as an initial Annual Working Plan of the project.

Dr. Turia suggested for the JCC to allow flexibility for Project management team to time-shift project activities listed in the PO within the planned year depending on the decision of the management team.

The Project Deputy Director, Mr. Kaip suggested to consider a mid-term review for revising the PDM and PO.

The Chair, Mr. Pouru, firstly asked whether the JCC would support those three proposals (P/O, Annual Working Plan, Limited Flexibility). No objection was observed.

Concerning the mid-term review, Mr. Watanabe stated that he was not absolutely sure if JICA sticks to conduct joint (Japan and PNG) mid-term review for each of the projects that it funds. Mr. Ito generally affirmed that JICA is not sticking to do joint mid-term review for all of the projects while pointing out the R/D of this project clearly define the joint mid-term review at the middle of cooperation term.

The Chair, Mr. Pouru then pointed out that the JCC shall jointly review the progress of the Project annually, further proposed to note the proposal by Mr. Kaip, and to consider and define the format of mid-term review including its necessity, if necessary, possibly at the third JCC meeting (in 2016).

2.3 Other relevant issues

(1) Schedule of next JCC meeting

Mr. Ito raised a question of scheduling next JCC meeting and suggested a timing of a few weeks before the PNG government closure of annual budget appropriation claiming. No objection was observed thus the scheduling of middle to end of July 2015 was decided assuming closure will be the first week of August.

(2) Counterpart (C/P) funding of PNG government for the Project activity

Mr. Kaip informed that the 2014 C/P funding was not allocated to PNGFA because the finance authorities insist that Public Investment Programme funding is not allowed to foreign grant-aided technical cooperation projects, although the consultation for 2015 is ongoing and PNGFA will make best effort to allocate appropriate C/P funding for the Project. Mr. Ito commented that there are some precedence of other JICA project with C/P funding in PNG.

(3) Draft Minutes of Agreement (MoA) on Mapping and GIS Data Sharing

Mr. Ito asked about the progress of the MoA for data sharing with relevant institutions. Responding to it, Mr. Bigol answered that OCCD, DAL and DEC finalized and agreed to MoAs respectively, while UPNG and Unitech have not yet concluded. Mr. Ito understood the situation and further asked to progress the process carefully taking into account of the sensitive nature of the data, its licencing, and the matching of the use and its purpose.

3 Closing Remark

The Chair, Mr. Pouru expressed an expectation to the coming results and outcomes of the new Project in five years, then thanked all the members for their participation in the meeting and formally closed the meeting.

JICA/PNGFA Project 1 st JOINT COORDINATING COMMITTEE MEETING – 19th SEPTEMBER, 2014

PARTICIPATION LIST

Ser.	Name	Title	Organization	Email/Telephone
01	Noriyuki Ito	Representative	JICA PNG OFFICE	Ito.Noriyuki@jica.go.jp/321-2677
02	Margaret George	Program Officer	JICA PNG OFFICE	Georgemargaret.AN@jica.go.jp
03	Takahiro Koide	JICA short term expert	KKC	takahiro koide@kk-grp.jp
04	Yasuyuki Okada	JICA short term expert	KKC	yasuyuki okada@kk-grp.jp
05	Ayako Ochi	JICA short term expert	KKC	ayako ochi@kk-grp.jp
06	Karokaro Mau	Principal Field Monitoring Officer	PNGFA	kmau@pngfa.gov.pg/327-2826
07	Benjamin Taupa	Director Field Service	PNGFA	btaupa@pngfa.gov.pg/327-7870
08	Constin Bigol	Manager Inventory & mapping	PNGFA	cbigol@pngfa.gov.pg/327-7868
09	George Gunga	A/Manager Project	PNGFA	ggunga@pngfa.gov.pg/327-7866
10	Hitofumi Abe	Advisor	UN-REDD	hitofumi.abe@fao.org
11	Dambis Kaip	Manager Polocy & Aid Coordination	PNGFA	dkaip@pngfa.gov.pg
12	Kanawi Pouru	Managing Director	PNGFA	kpouru@pngfa.gov.pg
13	Ruth Turia	Diredtor Forest Polocy & Planning	PNGFA	rturia@pngfa.gov.pg
14	Tatsuya Watanabe	JICA long term expert	PNGFA	twatanabe@pngfa.gov.pg
15	Masaya Nishimura	JICA long term expert	PNGFA	mnishimura@pngfa.gov.pg

19 August 2015

DRAFT Agenda

The 2nd Joint Coordinating Committee of the JICA Technical Cooperation Project

JICA/ PNGFA Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG－FRIMS) for Addressing Climate Change

19th August 2015, 9:30- 11:00 (tbd)
Board Meeting Room, PNG Forest Authority

1. Opening remark by the Chair and the Co-Chair

2. Review on overall progress of the Project activities

3. Plan of Operations and the Annual Work Plan of the Project (to be approved)

4. Other relevant issues

---

19 August 2015

AGENDA memo

The 2nd Joint Coordinating Committee of the JICA Technical Cooperation Project

JICA/ PNGFA Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG－FRIMS) for Addressing Climate Change

19th August 2015, 9:30- 11:00 (90 min., tbd)
Board Meeting Room, PNG Forest Authority

1. Opening remark (9:30-9:45, 15 min.)
   Chair (Mr. Goodwill AMOS[1], Acting Managing Director, PNG Forest Authority)
   Co-Chair (Mr. Shigeru SUGIYAMA[2], Chief Representative, JICA PNG Office)

2. Overall progress and achievements of the Project activities (to be reviewed) (Mr. Bigol) (9:45-10:10, 25min.)
   - ✧ Procurements, trainings (KKC, JICA), substance (PINFORM, Web Browser Map), duty trips, change of pilot area
   - ✧ Collaboration with other programmes (UN-REDD/FAO, EU/FAO, DSS, JICA/CEPA Biodiversity Project)
3. Plan of Operation (P/O) and the Annual Work Plan of the Project (to be approved) (Watanabe) (10:10-10:35, 25min.)
   - ✧ Consideration on amendments to Project Design Matrix (PDM), and P/O (last approved in 1st JCC, 19 Sep. 2014)
   - ✧ Topics of the activities in the Second Year (Aug 2015 – Aug 2016, including COP21, Group Training Courses in Japan)

4. Other relevant issues (10:35-11:00, 25min.)
   - ✧ Regular review of JICA Project activities

---

[1] Can be delegated to Dr. Ruth Turia, Director, Forest Policy and Planning Directorate, PNGFA.
[2] Can be delegated to Mr. Daisuke Horikoshi, Representative, JICA PNG Office.

2nd Joint Coordinating Committee (JCC2) Meeting
19th August 2015
Board Room, PNGFA HQ, POM, PNG

Agenda item 2.

Review of overall progress of the Project activities

Constin Otto Bigol, Mr

PNGFA/JICA Project Manager
(Manager, Inventory & Mapping
Forest Policy and Planning Directorate, PNGFA)

Contents

Introduction 1: PNGFA/JICA 1st Project

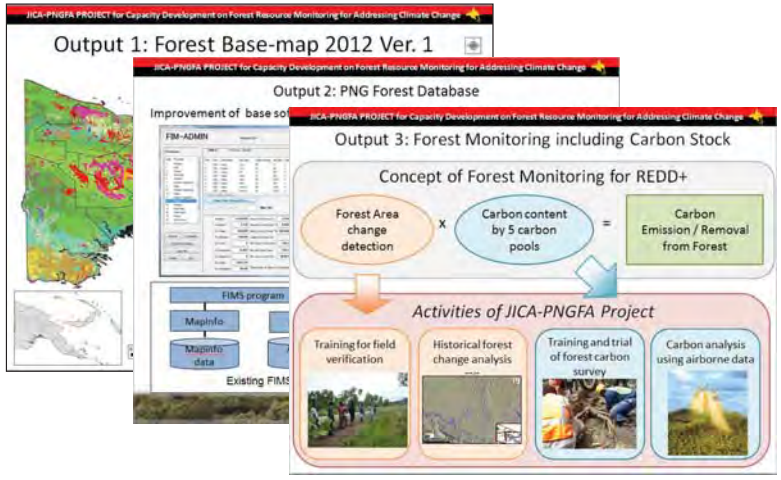
Project Title:
JICA/PNGFA Project for Capacity Development on Forest Resource Monitoring for Addressing Climate Change (2011-2014)

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.

Expected Outputs:
1. Nation-wide forest base map is improved by using remote sensing technology;
2. National level forest resource database is improved; and
3. To address climate change, the monitoring system of forest resource including carbon stock is improved.

Introduction 2: PNGFA/JICA 1st Project

Output Achieved:



PNGFA/JICA 2nd Project: Capacity Development Project for Operationalization of PNG Forest Resource Information Management System for Addressing Climate Change

Overall Goal

Forests in PNG are conserved and managed in a sustainable manner, while at the same time, mitigation and adaptation measures against climate change are promoted.

Project Purpose

Capacity of the PNGFA to continuously update forest information and to fully operationalize and utilize PNG-FRIMS for promoting sustainable forest management and for addressing climate change is enhanced.

PNG Forest Resource Information Management System (PNG-FRIMS)

Project Period: 5 years (2014 -2019)

Output 1
PNG-FRIMS is expanded and enhanced

Output 2
The national forest plan, provincial forest plans, forest management plans and their monitoring system are improved through steady operation of PNG-FRIMS.

Output 3
Forest information for addressing REDD+ is prepared

KOKUSAI KOGYO CO., LTD.

1-2 What can be detected by satellite imagery?

○: Detected, △: Depending on situation, X: Not detected

Last updated on 14th Aug 2015

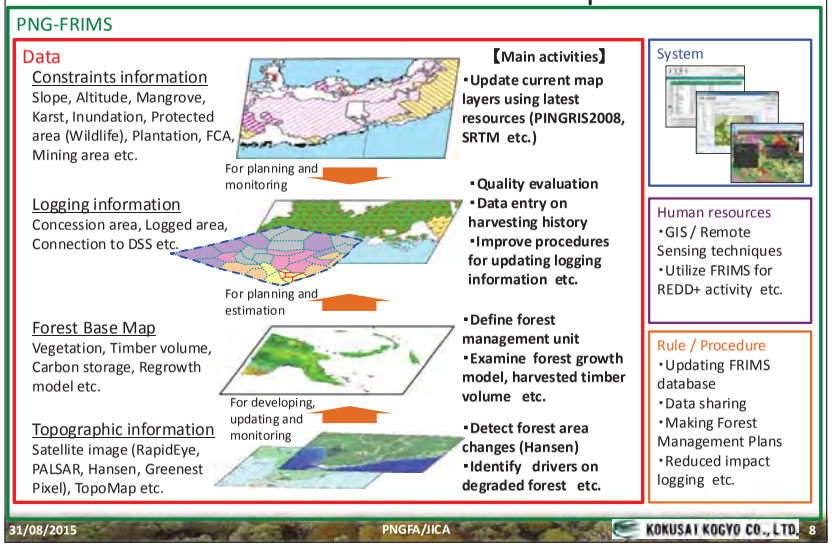
	Rapid Eye	Greenest Pixel	Hansen data	CLASlite		PALSAR
				Deforestation	Degradation	
Gardening	○	△	○	?	?	△?
Logging Road, Spur Road	○	○	△	○	—	△
Selective Logging (Individual gap)	△ When Fresh	×	×? Yet to be provided	—	△ When concentrated	×
Skidding Track	×	×	×	—	△ When highly disturbed	×
(Cloud)	Some	Less	Less	Some		Free
(Availability)	Costly Low	Mid-High	High	Mid		Mid

Note: This table shows tentative result obtained from limited examples in Asengseng Consolidated Forest Management Area (FMA) and Rottock Bay Consolidated FMA in West New Britain Province and East Fergusson TRP in Milne Bay Province Papua New Guinea.

1-1 Overall progress of Project Activities

a. Japanese Experts (2 long-term, 5 short-term KKC) deployed
b. Procurement
   - ✓ Vehicles (2 Ten-seaters to WNB and MLB)
   - ✓ Handheld GPS Terminal (12 units)
c. Trainings
   - ✓ Group Training Courses (3 x 2-3 months)
   - ✓ GIS and Database Training organized by KKC (4 x 2 weeks in September 2015)
d. Duty Trips
   - ✓ What can be detected by satellite imageries: MLB (Fergusson Island) & WNB (Rottock Bay)
e. Technical Substance
   - ✓ Re-activation of PINFORM (forest regrowth simulator) by KKC Team
   - ✓ Upgrading of Web Browser Map on PNGFA LAN
   - ✓ Change of Pilot Area (Asengseng -> Rottock Bay)
   - ✓ Development of Basic Concept of PNG FRIMS

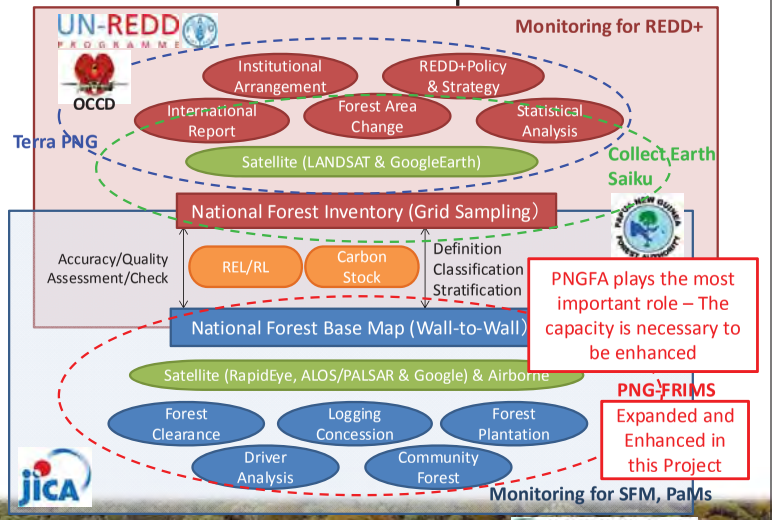
1-3 Overview of the PNG-FRIMS Concept



2-1 Collaboration with other programmes

a. Multi-purpose National Forest Inventory
   a. Preparation: UN-REDD/FAO (2012-2016)
   b. Implementation: EU/FAO (2015-2017)
b. JICA-CEPA Biodiversity Project (2015-2020)
c. Other data provision (GIZ, USAID/LEAF)
d. Rolling out of Decision Support System

2-2 Collaboration with MpNFI & OCCD



3. Challenges and issues encountered

a. Extreme weather in WNB
   - Duty trip postponed (Mar -> May 2015)
b. Budgetary issues
   - Late disbursement of 2015 recurrent budget
   - New arrangement for 2015 PNGFA budget
   - ➢ Constraint of C/P travel expenses, consumables

Closing Ceremony and final Workshop for Project Completion
5th - 6th March 2014
Holiday Inn Hotel, Port Moresby, PNG

Thank you
(Arigatou gozaimasu)

2nd Joint Coordinating Committee (JCC2) Meeting
19th August 2015
Board Room, PNGFA HQ, POM, PNG

Agenda item 3.

Project Design Matrix (PDM), Plan of Operation (P/O), and Annual Work Plan of the Project

Tatsuya Watanabe, Mr

JICA/ PNGFA Project

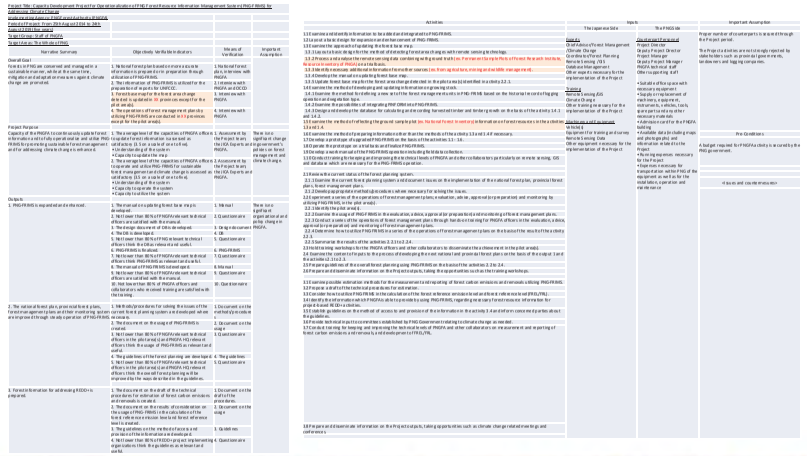
Chief Advisor, Forest Management, Climate Change

Contents

2. Background

- Under new JICA management procedure (Mar 2014-), NO JICA mission from Tokyo for Mid-term review and Terminal evaluation
- Enhanced 6 month Project Monitoring report may include (a) proposal on PDM amendment and (b) revision of P/O schedule
- The PDM of this project has
  -Two numbers not defined in 'Objectively Verifiable Indicators' for 'Overall Goal'. ➔proposal to be communicated to JICA HQ
  -Ambiguous wording in detailed 'Activities' where example may help. ➔assumed examples to be proposed to JCC
- The implementation of this Project has been fine overall though some activities in P/O are prolonged. ➔JCC to be informed and give guidance

2. Amendments to PDM (1)



2. Amendments to PDM (2)

Achieved after ca. 3-5 years after the Project completion

Narrative Summary	Objectively Verifiable Indicators	Means of Verification
Overall Goal		
Forests in PNG are conserved and managed in a sustainable manner, while at the same time, mitigation and adaptation measures against climate change are promoted.	1. National forest plan based on more accurate information is prepared or in preparation through utilization of PNG-FRIMS.	1. National forest plan, interview with PNGFA
	2. The information of PNG-FRIMS is utilized for the preparation of reports for UNFCCC.	2. Interview with PNGFA and OCCD
	3. Forest base map for the forest area change detected is updated in XX provinces except for the pilot area(s).	3. Interview with PNGFA
	4. The operations of forest management plans by utilizing PNG-FRIMS are conducted in XX provinces except for the pilot area(s).	4. Interview with PNGFA

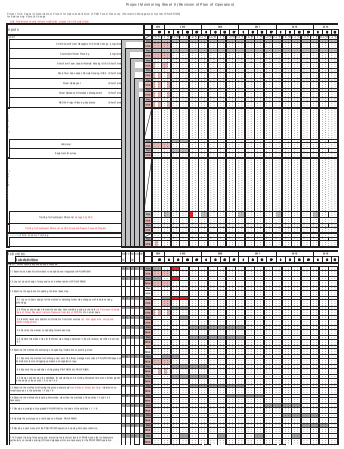
'All' ?

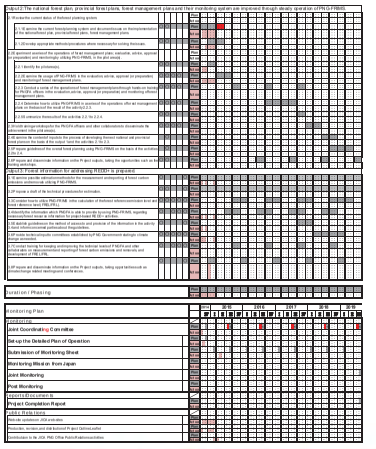
2. Amendments to PDM (3)

Activities
1.3 Examine the approach of updating the forest base map.
1.3.1 Lay out a basic design for the method of detecting forest area changes with remote sensing technology.
1.3.2 Process and analyse the remote sensing data combining with ground truth (ex. Permanent Sample Plots of Forest Research Institute, Resource Inventory of PNGA) on a trial basis.
1.3.3 Identify necessary additional information from other sources (ex. from agriculture, mining and wildlife management).
…
1.5 Examine the method of reflecting the ground sample plot (ex. National Forest Inventory) information on forest resources in the activities 1.3 and 1.4.

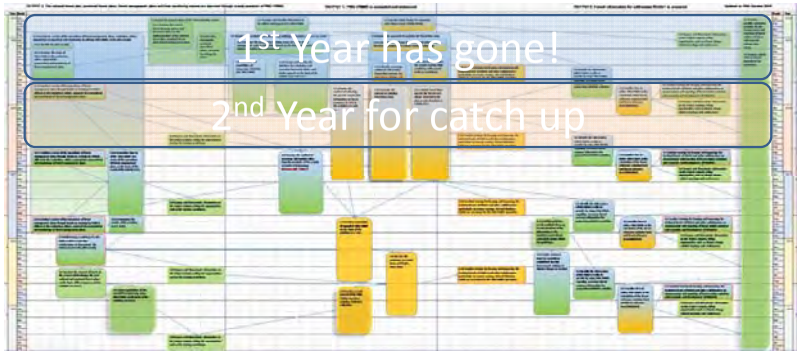
As assumed in detailed project design mission

3. Revision of P/O (1)





3. Revision of P/O (2)



- P/O's Sep 2015- August 2016 may serve as Annual Work Plan
- Catch up the schedule! By concluding prolonged activities and taking up planned activities
- Shifts of listed activities may be allowed

4. Topics of Activities in the Second Year 25th Aug 2015 – 24th August 2016

a. Continued activities for Output 1: FRIMS, 2: Use for Plans, and 3: Use for Climate Change
b. Climate Change COP 21 in Nov/ Dec 2015
   - ✓ Possibility to include JICA experts to PNG Government Delegation
c. Communication on JICA Group Training Courses in Japan for 2016
   - ✓ Timely provision of information
d. Consideration (firstly among C/P & JICA experts) on revision of Project Activities/ scope and its relation to C/P man-power implication for 3rd to 5th year and there after (up to Overall Goal!)

JICA Capacity Development Project for Operationalization of PNG-FRIMS Addressing Climate Change

Closing Ceremony and final Workshop for Project Completion
5th - 6th March 2014
Holiday Inn Hotel, Port Moresby, PNG

Thank you

Second Joint Coordinating Committee
Of the JICA Technical Cooperation Project
Meeting Minutes Memo No. 1- 2015

19th August 2015, 10:00- 11:30am, Board Meeting Room, PNG Forest Authority (PNGFA)

Chair:	Mr. Goodwill Amos	Acting Managing Director, PNGFA
Co-chair:	Mr. Shigeru Sugiyama	JICA PNG Office Chief Representative

Attendance

Mr. Dambis Kaip	Acting Director- Forest Policy and Planning (FPPD), PNGFA
	(Manager- Policy & Aid Coordination, FPPD, PNGFA)
Mr. Constin Bigol	Manager- Forest Inventory and Mapping, FPPD, PNGFA
Mr. Lyall Umbo	Manager- Projects, Project Allocations, PNGFA
Ms. Magdalen Maihua	Director- Project Allocations, PNGFA
Mr. Karokaro Mau	Acting Director- Field Services (FSD), PNGFA
Mr. George Gunga	Senior Project Officer- Project Allocations, PNGFA
Mr. Tatsuya Watanabe	Chief Advisor, JICA Project Expert, JICA/PNGFA
Mr. Masaya Nishimura	Coordinator, JICA Project Expert, JICA/PNGFA
Ms. Ayako Ochi	JICA Project Expert, JICA/PNGFA/KKC
Mr. Genaro Castro	Operation Consultant, UN-REDD/FAO
Mr. Hiromitsu Iwamoto	Assistant Representative, JICA PNG Office
Mr. Shinji Matsumoto	First Secretary, Embassy of Japan (Observer)

---

1 Opening Remark

The Chair, Mr. Amos congratulated on the progress of the project and expressed his expectation to see a presentation on the progress.

The Co-chair, Mr. Sugiyama emphasized the relevance of the Sustainable Forest Management to the 15th goal (Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss) among the 17 Sustainable Development Goals (SDGs) with 169 targets proposed in a UN meeting on SDGs last month. The 15th goal made the role of PNGFA clearer for its contribution to the SDGs. The SDGs also call for a policy of member country towards 2030 with progress reports. Mr. Sugiyama thus suggested to have a meeting led by the Department of National Planning and Monitoring to discuss PNG stance and action plan for achieving the SDGs. He also stated that one of the main outputs of this JICA project (PNG-FRIMS) forms a part of PNG's Monitoring, Reporting, and Verification system for REDD+ while the major content of the REDD+ reporting will be attained through National Forest Inventory under the assistance of UN-REDD, EU and FAO.

2 Agenda Items

The Chair, Mr. Amos introduced the three agenda items which were accepted.

2.1 Review of Overall Progress of the Project activities

Mr. Bigol briefly summarised the purpose and achieved outputs of the previous JICA project (2011- 2014) before showing overall structure and reporting the progress of the current project activities. Mr. Bigol then continued on to the progress, namely deployment of JICA experts, procurement, trainings, duty trips, and technical substances including a slide containing "What can be detected by satellite imageries" and "Overview of the PNG-FRIMS Concept". The presentation also mentioned collaborations with other programmes (MPNFI [1] of UN-REDD/EU/FAO and OCCD [2], Biodiversity Project by JICA/CEPA [3], GIZ, USAID/LEAF[4] and TNC[5], DSS[6] assisted by Australian government). At the end of his presentation, Mr. Bigol illustrated challenges and issues encountered during the Project implementation (extreme weather, budgetary issues on recurrent budget and new arrangement for PNGFA funding).

Responding to the presentation by Mr. Bigol, Mr. Amos stated that the good matching of the PNG needs and Project outputs has been demonstrated by numerous requests that came to PNGFA from various Departments, Institutions and NGOs on sharing those powerful information. The requests came from, for example, Dept. of Works, Dept. of Provincial Affairs, Mineral Resource Authority, UPNG, Unitech, OCCD, and so on.

Mr. Sugiyama assured that the PNGFA acquired one of the best GIS and its contents in PNG and encouraged PNGFA to pursue best utilization of its asset, or the GIS and map data, not only for logging project management and forest industry but also for the public interests and official use of the government sectors. Mr. Sugiyama then suggested to have an open day by PNGFA for data sharing for government organisations.

[1] MPNFI: Multi-Purpose National Forest Inventory
[2] OCCD: Office of Climate Change and Development
[3] CEPA: Conservation and Environment Protection Authority
[4] LEAF: Lowering Emissions in Asia's Forests
[5] TNC: The Nature Conservancy
[6] DSS: Decision Support System of PNGFA

2.2 Project Design Matrix (PDM), Plan of Operations (P/O), and Annual Work Plan of the Project

Mr. Watanabe informed that;

(1) there are no mid-term and terminal evaluation missions from JICA Headquarters under new JICA policy since 2014,

(2) instead of them, 6 months Project Monitoring Sheet was enhanced and used for proposing amendments to PDM and P/O,

(3) in the PDM of this project, two numbers[7] have not been defined in the 'objectively verifiable indicators' for 'Overall Goal', and there are some vague wording where example may help,

(4) some of the planned activities are prolonged and need guidance from JCC.

Mr. Watanabe then suggested to consider:

(1) 'All' or 'Three' (PNG 5 REDD+ Pilot provinces[8] minus JICA Project Province (WNB and MLB) for 'XX' in PDM,

(2) Some explanatory examples for PDM as assumed in detailed project design mission and consultation,

(3) To use the P/O's Sep 2015- Aug 2016 as Annual Work Plan,

(4) Catching up the plan by concluding prolonged activities and taking up planned activities without delay, meanwhile shift listed activities in P/O, if necessary.

By the final slide of his presentation, Mr. Watanabe pointed some of the Project activity topics as followings.

(1) Planned activity to be continued,

(2) Possible inclusion of JICA experts to PNG government delegation to Climate Change COP21 (Nov- Dec 2015),

(3) Keep good communication about JICA group training courses between JICA PNG Office and PNGFA,

(4) Consider revision of the project activities, scope and its relation to C/P manpower implication for 3rd to 5th year and after (up to Overall Goal).

Mr. Amos confirmed that the position of PNGFA is strongly supportive to include JICA experts to PNG government delegation to Climate Change COP21 because the past inclusion was useful for other members to have valuable information for efficient and effective commitment to the conference.

---

[7] (1) Forest base map for the forest area change detected is updated in 'XX' provinces except for the pilot area(s), (2) the operations of forest management plans by utilizing PNG-FRIMS are conducted in 'XX' provinces except for the pilot area(s).

[8] Sandaun, East Sepik, Eastern Highlands, West New Britain (WNB), Milne Bay (MLB) provinces.

Mr. Sugiyama cautioned that the future JCC will help alignment of the activity plan if the catch up of the P/O turns out significantly slow. Regarding the insertion of the examples to the PDM, Mr. Sugiyama supported the proposal for the sake of clarity. He then asked to Mr. Watanabe about time frame, or deadline, for the decision on 'two numbers' and other revision of the activities.

Mr. Watanabe answered that the 'two numbers' are to be decided preferably in this second JCC though it can be forwarded to next JCC in 2016. The other considerations on activity scope may begin within the project team (C/P officers and JICA experts) and takes at least several months through iterative communication among project team, PNGFA, JICA PNG Office, and JICA Headquarters.

Regarding 'two numbers' issue, Mr. Sugiyama reiterated that the overall goal must be achieved within 3-5 years after project completion and wondered whether PNGFA are confident to say "all" provinces.

Responding to the point raised by Mr. Sugiyama, Mr. Bigol indicated that it is still too early to commit "all" for overall goal. Mr. Bigol also assured that he is conscious for man-power constraint in some fields of the Project activity and it is a tough issue.

Following above discussion, Mr. Sugiyama proposed to forward "two numbers" issue to next JCC. Mr. Amos supported that proposal then suggested (a) to focus on existing JICA project pilot areas (WNB and MLB), (b) to consider to see West Sepik as a field observation mission for officers of JICA PNG Office.

Mr. Kaip stated that:
(1) the enhancement of 6 months monitoring is fine,
(2) use of the monitoring for adjusting project trajectory is a handsome way,
(3) data exchange with CEPA/JICA Project is a pleasant step,
(4) similar data exchange can be extended to other departments,
(5) this project was last year mistaken as a grant aid project that is not eligible for PIP counter-part funding, though this point will be rectified for 2016 budget appropriation,
(6) complementarity with DSS (assisted by Australian government) as well as UN-REDD/EU/FAO assistance for National Forest Inventory is important for each other among projects/ programmes, This clearly demonstrate a strong link between donor governments and organizations to achieve common objectives when assisting developing countries as is the case in PNG's forestry sector.

(7) the forwarding of 'two numbers' issue to next JCC seems appropriate.

Dr. Iwamoto clarified the JICA policy requiring local counter-part funding for project operation, in particular travel expenses for C/P officers, and encouraged due action by PNGFA and the Government of PNG as a whole.

Messrs Sugiyama, Amos, and Dr Iwamoto supported the forwarding of "two number" issues. Dr. Iwamoto asked if there are any objections to include "examples" to the PDM description. The chairs saw no objections.

Ms. Maihua pointed a high interest of Dept. of Works on map information while she acknowledged the existence of National Infrastructure Committee, concerned about the situation of isolated works of the departments including Dept. of National Planning and Monitoring. After hearing the echoing expectation from Mr. Sugiyama to the Dept. of Land and Physical Planning, Ms. Maihua mentioned that massive information accumulated in the Dept. of Provincial Affairs can be more utilised. Mr. Sugiyama reiterated that the high quality of the land cover information realised by the JICA Project in PNGFA and encouraged better sharing and use of available information among departments.

Mr. Amos mentioned the interest of the PNGFA to use the land cover information for consultation process for forest and biodiversity conservation. Mr. Sugiyama welcomed the expression and emphasised importance of awareness raising for securing budget allocation and possible value of spatial data open-day by PNGFA inviting DNPM and Dept. of Treasury among other departments.

Regarding awareness raising, Mr. Amos commended hand-held GPS[9] terminal procured by JICA project budget this year because those are essential tools to address alleged case of illegal logging and thus to counter the branding of illegal logging to PNG at international community. Mr. Sugiyama encouraged PNGFA to pursue its role of law enforcement and governance to private sector.

Mr. Castro briefed the progress of the National Forest Inventory as it is at the very beginning of the implementation stage. He pointed out that the moral commitment to the public and other stakeholders from PNGFA, JICA Project, and NFI should be commonly and seriously considered and taken because of the public and social nature of the useful data that are collected under the programmes.

[9] Global Positioning System.

2.3 Other relevant issues

(1) Possible Field Visit by Officers of JICA PNG Office to Logging Project

Mr. Watanabe explained that there is a wish to visit operating logging projects by JICA officers in JICA PNG Office since several months ago. Mr. Amos welcomed this request and recommended Sandaun (West Sepik) province where several sites are accessible from an accommodation in provincial capital of Vanimo. He left the detail and implementation of the visit to be further coordinated through day-to-day communication later.

3 Closing Remark

The Chair, Mr. Amos expressed an expectation to the more results and outcomes of the Project in coming years, encouraged to get further involvement and attendance of OCCD and DNPM to the next JCC, then thanked all the members for their participation in the meeting, and formally closed the meeting.

JICA/PNGFA Project 2 nd JOINT COORDINATING COMMITTEE MEETING – 19th August, 2015

PARTICIPATION LIST

Ser.	Name	Title	Organization	Email/Telephone
01	Shinji Matsumoto	First Secretary	Embassy of Japan	shinji.matsumoto@mofa.go.jp
02	Goodwill Amos	Acting Managing Director	PNGFA	gamos@pngfa.gov.pg
03	Shigeru Sugiyama	Chief Representative	JICA	Sugiyama.Shigeru@jica.go.jp
04	Karokaro Mau	Principal Field Monitoring Officer	PNGFA	kmau@pngfa.gov.pg
05	Lyall Umbo	Manager Projects	PNGFA	lumbo@pngfa.gov.pg
06	Constin Bigol	Manager Inventory & mapping	PNGFA	cbigol@pngfa.gov.pg
07	Genaro Castro	Operation Consultant	FAO	genaro. castro@fao.org
08	George Gunga	Senior Project Officer	PNGFA	ggunga@pngfa.gov.pg
09	Tatsuya Watanabe	JICA long term expert	PNGFA	twatanabe@pngfa.gov.pg
10	Masaya Nishimura	JICA long term expert	PNGFA	mnishimura@pngfa.gov.pg
11	Hiromitsu Iwamoto	Assistant Representative	JICA	Iwamoto.Hiromitsu@jica.go.jp
12	Ayako Ochi	JICA short term expert	KKC	ayako ochi@kk-grp.jp
13	Magdalene Maihua	Director Project Allocation	PNGFA	mmaihua@pngfa.gov.pg
14	Dambis Kaip	Manager Polocy & Aid Coordination	PNGFA	dkaip@pngfa.gov.pg
15				

25th August 2016

DRAFT Agenda

The 3rd Joint Coordinating Committee of the JICA Technical Cooperation Project

JICA/ PNGFA Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG－FRIMS) for Addressing Climate Change

25th August 2016, 9:30- 12:00 (to be decided)
Board Room, PNG Forest Authority (to be confirmed)

1. Opening remark by the Chair and the Co-Chair

2. Review on overall progress of the Project activities

Coffee Break

3. Plan of Operations and the Annual Work Plan of the Project (to be approved)

4. Other relevant issues

25th August 2016

AGENDA memo

The 3rd Joint Coordinating Committee of the JICA Technical Cooperation Project

JICA/ PNGFA Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG－FRIMS) for Addressing Climate Change

25th August 2016, 9:30- 12:00 (150 min., to be decided)
Board Room, PNG Forest Authority (to be confirmed)

1. Opening remark (9:30-9:45, 15 min.)
   Chair (Mr. Goodwill AMOS, Acting Managing Director, PNG Forest Authority)
   Co-Chair (Mr. Takashi TOYAMA, Chief Representative, JICA PNG Office)

2. Overall progress and achievements of the Project activities (to be reviewed) (9:45-10:25, 40 min.) (Dr Turia, presentations by JICA experts)
   - ✧ Procurement, training, duty trip,
   - ✧ Outputs (FRIMS, LAN Map Browser),
   - ✧ Change of pilot area
   - ✧ Collaboration with other programmes (UN-REDD/FAO, EU/FAO, DSS, JICA/CEPA Biodiversity Project)

   Coffee Break (10:25-10:40, 15 min.)

3. Plan of Operation (P/O) and the Annual Work Plan of the Project (to be approved) (10:40-11:20, 40 min.) (Dr Turia, presentations by JICA experts)
   - ✧ Consideration on amendments to Project Design Matrix (PDM), and P/O (last approved in 2nd JCC, 25th Aug. 2015,)
   - ✧ Topics of the activities in the Third Year (Sep. 2016 – Aug 2017, including JICA Group Training Courses in Japan)

4. Other relevant issues (11:20-12:00, 40 min.)

3rd Joint Coordinating Committee (JCC3) Meeting
25th August 2016
Board Room, PNGFA HQ, POM, PNG

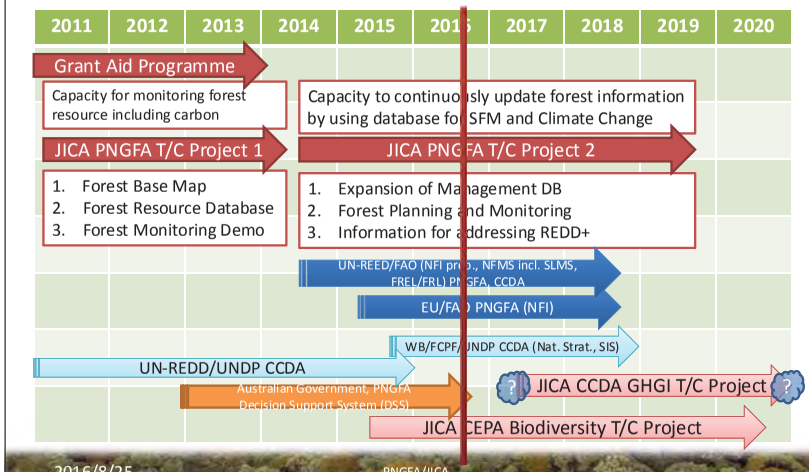
Agenda item 3.

Project Design Matrix (PDM), Plan of Operation (P/O), and Annual Work Plan of the Project

Tatsuya Watanabe, Mr
JICA/ PNGFA Project
Chief Advisor, Forest Management, Climate Change

Contents

Background Information
1. Timeframe of Forestry Cooperation Projects from 2011-2019



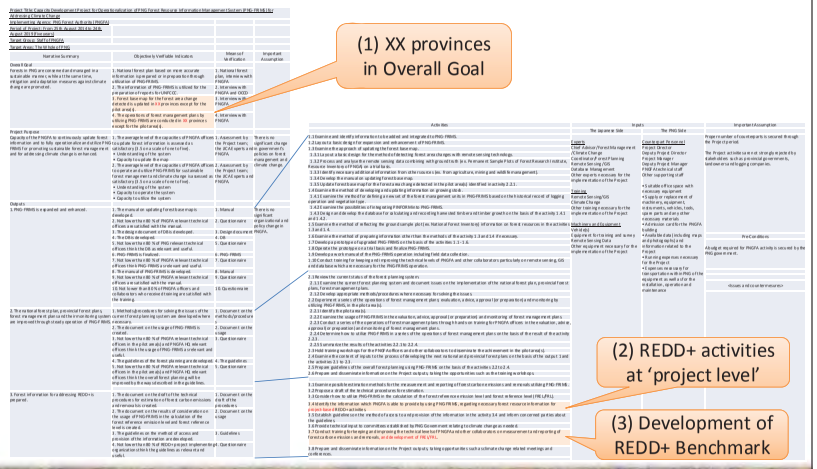
1. Background information

- Under new JICA management procedure (Mar 2014-), NO JICA mission from Tokyo for Mid-term review and Terminal evaluation
- Enhanced 6 month Project Monitoring report may include (a) proposal on PDM amendment and (b) revision of P/O schedule
  - Unless other wise decided (for example, project-self mid-term review), 6 months Project Monitoring Report serves as regular joint-review.
- The PDM of this project has

  -Two numbers not defined in 'Objectively Verifiable Indicators' for 'Overall Goal'. ➔proposal to be communicated to JICA HQ (deferred from JCC2)
- Some of activities may need modification according to the progress of other programmes. ➔JCC to be informed and give guidance
- JCC may consider and approve annual activity plan (Sep 2016 – Sep 2017)

PDM: Project Design Matrix in logical framework
P/O: Plan of operation

2. Amendments to PDM - What matter?



(1) XX provinces in Overall Goal

(2) REDD+ activities at 'project level'

(3) Development of REDD+ Benchmark

2. Amendments to PDM (a) 'XX provinces'

Achieved after ca. 3-5 years after the Project completion

Narrative Summary	Objectively Verifiable Indicators	Means of Verification
Overall Goal		
Forests in PNG are conserved and managed in a sustainable manner, while at the same time, mitigation and adaptation measures against climate change are promoted.	1. National forest plan based on more accurate information is prepared or in preparation through utilization of PNG-FRIMS.	1. National forest plan, interview with PNGFA
	2. The information of PNG-FRIMS is utilized for the preparation of reports for UNFCCC.	2. Interview with PNGFA and OCCD
	3. Forest base map for the forest area change detected is updated in XX provinces except for the pilot area(s).	3. Interview with PNGFA
	4. The operations of forest management plans by utilizing PNG-FRIMS are conducted in XX provinces except for the pilot area(s).	4. Interview with PNGFA

'All' ?, too easy to say...

2. Amendments to PDM (a) Possible 'XX' out of 22 provinces

Province	JICA Project Pilot		PNG REDD+ Pilot Prov.	Area Southern	Area MOMASE	Potential #	
	up to July 2016	Since August 2016		Area office in PoM	Area office in Lae		
WNB	✔	✔	✔			PILOT	
WSP		✔	✔		✔	PILOT	
ESP			✔		✔	1	
MLB	✔		✔	✔		2	
EHP			✔			3	
CEN				✔		4	
GUL				✔		5	
WES				✔		6	
ORO				✔		7	
MOR					✔	8	
MAD					✔	9	

The larger the number, the more resource and well managed procurement needed...

2. Amendments to PDM (b) 'project-based REDD+ activities'

Activity 3.4

Current Text

3.4 Identify the information which PNGFA is able to provide by using PNG-FRIMS, regarding necessary forest resource information for project-based REDD+ activities.

2. Amendments to PDM (b) 'project-based REDD+ activities'
Activity 3.4
Current Text

3.4 Identify the information which PNGFA is able to provide by using PNG-FRIMS, regarding necessary forest resource information for ~~project-based~~ REDD+ activities.

Proposal: Delete

Reason: No need to limit the scope of activities to 'project' scale implementation (<< Province) .

2. Amendments to PDM (c) 'development of FREL/FRL'
Activity 3.7
Current Text

3.7 Conduct training for keeping and improving the technical levels of PNGFA and other collaborators on measurement and reporting of forest carbon emissions and removals, and development of FREL/FRL.

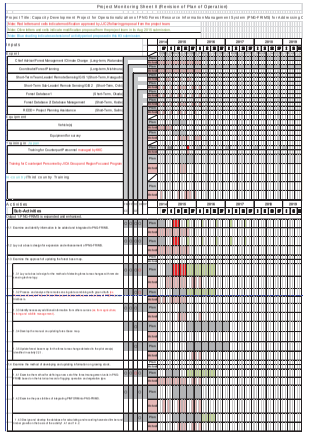
2. Amendments to PDM (c) 'development of FREL/FRL'
Activity 3.7
Current Text

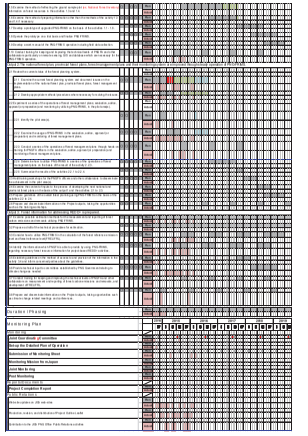
3.7 Conduct training for keeping and improving the technical levels of PNGFA and other collaborators on measurement and reporting of forest carbon emissions and removals~~, and development of FREL/FRL~~.

Proposal: Delete

Reason: The UNFCCC REDD+ FREL/FRL for PNG will be developed from output of Collect Earth analysis under EU-FAO-PNG (CCDA and PNGFA) programme.

3. P/O and Annual Work Plan - How they look like



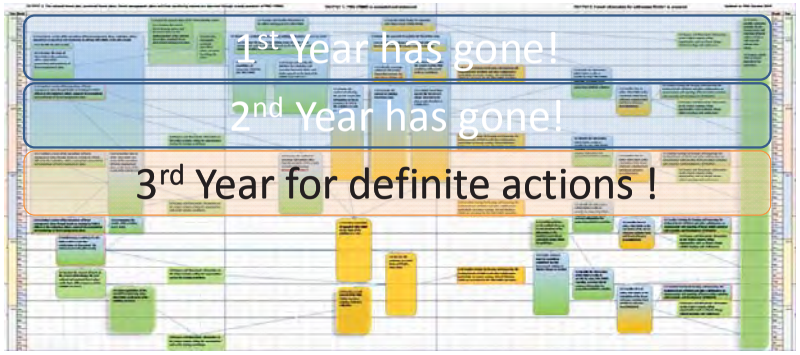


P/O legend

- Originally Planned
- Implemented
- Modification approved in Aug 2015
- Modification Proposed in Aug 2015
- Modification Proposed in Feb 2016

P/O is detailed enough to serve as Annual Work Plan Sep 2015 – Aug 2016.

3. Revision of P/O (1) P/O and Annual Work Plan



(a) P/O's Sep 2016- August 2017 may serve as Annual Work Plan
(b) Shifts of listed activities may be allowed
- Based on the achieved developments, act with determination
- Make the transition of JICA long-term experts 'opportunities' (Watanabe – Feb 2017, Nishimura – Aug 2017)

4. Topics of Activities in the Third Year Sep 2016 –Aug 2017

a. Continued activities for Output 1: FRIMS, 2: Use for Plans, and 3: Use for Climate Change
b. Climate Change COP 22 (Morroco) in Nov 2016
   - Possibility to include JICA experts to PNG Government Delegation
c. Keep communication on JICA Group Training Courses and other scholarships in Japan for 2016 & 2017
   - ✓ Timely provision of information
d. Consideration and actions may be needed, as the Project activities expanded to more provinces, in terms of well managed procurement (needs study, planning, budget appropriation, procurement, and proper maintenance) led by the Project Team under coordination among PNGFA, the Team, and JICA Office.

5. List of possible consideration points

1. Needs of mid-term review
   - ➢ Is Project Monitoring Report sufficient?
2. Revision of PDM
   a. 'XX' provinces (3, 7, 9 or other?)
   b. Deletion of 'project based'
   c. Deletion of 'development of FREL/FRL'
3. P/O and Annual Work Plan
   a. May P/O serve as Annual Work Plan Sep 2016 – Aug 2017?
   b. May shift the listed activities in P/O?
4. Other topics
   a. Inclusion of JICA expert(s) to COP22 delegation can be considered (if PNGFA join and deemed appropriate) ?
   b. Possible actions for well-managed procurement and budgetary issues?

Thank you!
More AOB?

3rd Joint Coordinating Committee (JCC3) Meeting
25th August 2016
Board Room, PNGFA HQ, POM, PNG

Third Joint Coordinating Committee - JCC3 -

25th August 2016
JICA Capacity Development Project for
Operationalization of PNG-FRIMS Addressing Climate Change

3rd Joint Coordinating Committee (JCC3) Meeting
25th August 2016
Board Room, PNGFA HQ, POM, PNG

Agenda item 2.

Review on overall progress of the Project activities

Masaya Nishimura, Mr

JICA Expert
PNGFA/JICA Project

Contents

Introduction 1: PNGFA/JICA 1st Project

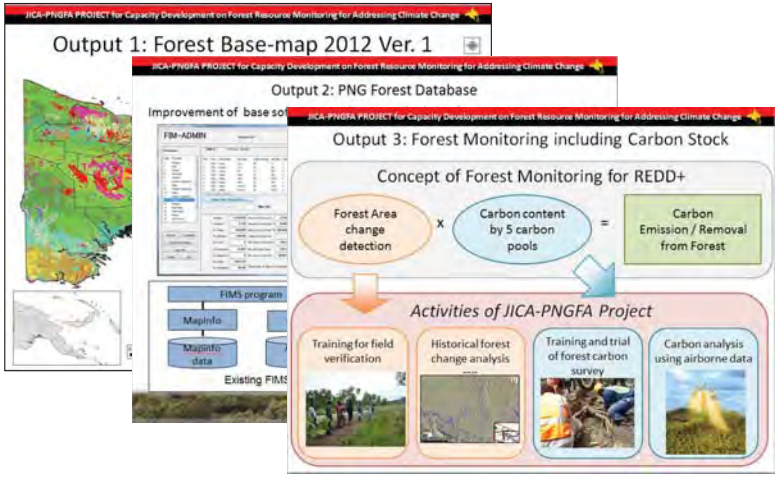
Project Title:
JICA/PNGFA Project for Capacity Development on Forest Resource Monitoring for Addressing Climate Change (2011-2014)

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.

Expected Outputs:
1. Nation-wide forest base map is improved by using remote sensing technology;
2. National level forest resource database is improved; and
3. To address climate change, the monitoring system of forest resource including carbon stock is improved.

Introduction 2: PNGFA/JICA 1st Project

Output Achieved:



Introduction 3: PNGFA/JICA 2nd Project:

Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG-FRIMS) for Addressing Climate Change

Overall Goal

Forests in PNG are conserved and managed in a sustainable manner, while at the same time, mitigation and adaptation measures against climate change are promoted.

Project Purpose

Capacity of the PNGFA to continuously update forest information and to fully operationalize and utilize PNG-FRIMS for promoting sustainable forest management and for addressing climate change is enhanced.

PNG Forest Resource Information Management System (PNG-FRIMS)

Project Period: 5 years (2014 -2019)

Output 1
PNG-FRIMS is expanded and enhanced

Output 2
The national forest plan, provincial forest plans, forest management plans and their monitoring system are improved through steady operation of PNG-FRIMS.

Output 3
Forest information for addressing REDD+ is prepared

KOKUSAI KOGYO CO., LTD.

2-1 Overall progress of Project Activities (2nd year)

a. Japanese Experts (2 long-term, 5 short-term KKC) on duty

b. Procurement
- ✓ Unstoppable Power Supply Units (4),(FRI, Oct. 2015)
- ✓ Handheld GPS Terminal (12) (Milne Bay Prov., Area - West, July 2015)
- ✓ Data Server Back-up Programme (HQ, Nov. 2015)
- ✓ Laptops (6) (HQ, Area – Highlands and NGI, Madang Prov., Jan. 2016)
- ✓ Laptops (4) and a printer (1) (Area - West May 2016)

c. Trainings in Japan
- ✓ Group Training Courses (3 x 2-3 months)
- ✓ GIS and Database Training organized by KKC (4 x 2 weeks, Sep. 2015)
- ✓ JICA Pacific LEADS (scholarship) (1 x 2 years)

2-1 Overall progress of Project Activities (2nd year) (Continued)

d. Training & workshop in PNG and duty trip of JICA experts

Year	Month	Place	Topics
2015	Aug-Sep, Sep, Oct, Dec	HQ, WNB, MLB, HQ , Central	GIS, GPS, Field observation
2016	Jan, Feb, Mar, Jun, Aug	MLB, HQ, WNB, HQ, WNB, WSP	GIS, GPS, Field Reporting Format, LAN Map Browser, Data exchange

e. Technical Substance
- ✓ Upgrading of LAN Map Browser on PNGFA LAN
- ✓ Development of Basic Concept of PNG FRIMS
- ✓ Data exchange with logging companies
- ✓ Change of Pilot Area (Milne Bay -> West Sepik)

2-2 Overall progress of Project Activities - (1) Overview of the PNG-FRIMS Concept

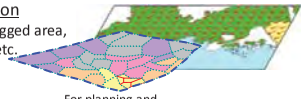
PNG-FRIMS

Data

Constraints information
Slope, Altitude, Mangrove, Karst, Inundation, Protected area (Wildlife), Plantation, FCA, Mining area etc.

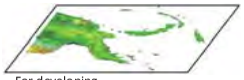
For planning and monitoring

Logging information
Concession area, Logged area, Connection to DSS etc.



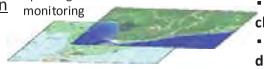
For planning and estimation

Forest Base Map
Vegetation, Timber volume, Carbon storage, Regrowth model etc.



For developing, updating and monitoring

Topographic information
Satellite image (RapidEye, PALSAR, Hansen, Greenest Pixel), TopoMap etc.



【Main activities】

- Update current map layers using latest resources (PINGRIS2008, SRTM etc.)
- Quality evaluation
- Data entry on harvesting history
- Improve procedures for updating logging information etc.
- Define forest management unit
- Examine forest growth model, harvested timber volume etc.
- Detect forest area changes (Hansen)
- Identify drivers on degraded forest etc.

System

Human resources
- GIS / Remote Sensing techniques
- Utilize FRIMS for REDD+ activity etc.

Rule / Procedure
- Updating FRIMS database
- Data sharing
- Making Forest Management Plans
- Reduced impact logging etc.

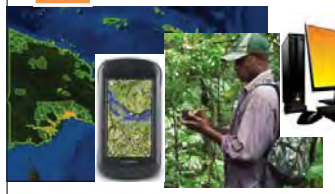
Challenges and Proposed Solutions

HQ

Existing Format of Data Dissemination

Analogue format
Digitizing:
- **Time Consuming**
- **Prone to more errors**

Field



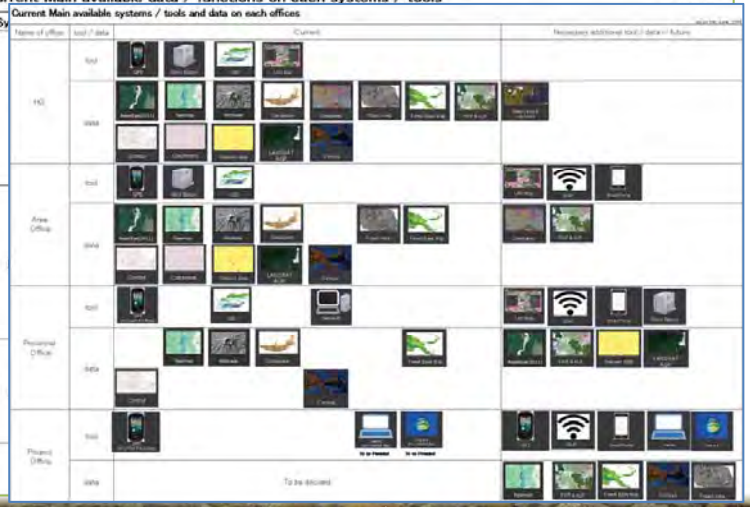
Proposed Format

Digital Format:
Fast and less error

This slide is presented by Mr. Jehu Antiko
Cartographer, I&M, FPPD, PNGFA

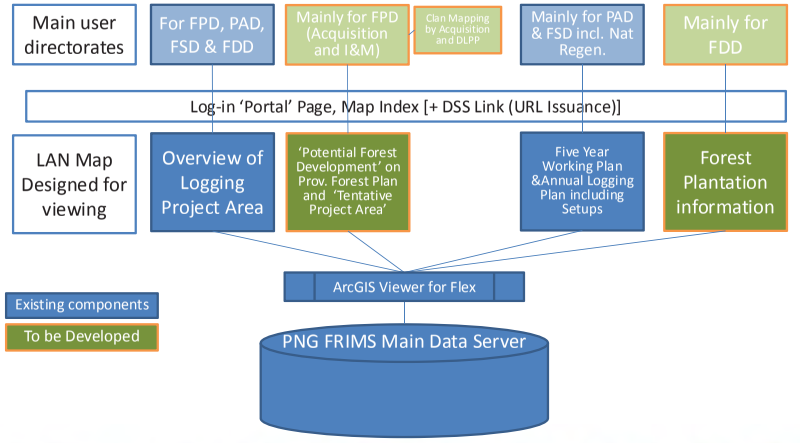
2-2 Overall progress of Project Activities - (2) New data and tools made available

Current Main available data / functions on each systems / tools



2-2 Overall progress of Project Activities - (3) Expanded use of FRIMS LAN Map

Tailored LAN Map composition for Specific Interests



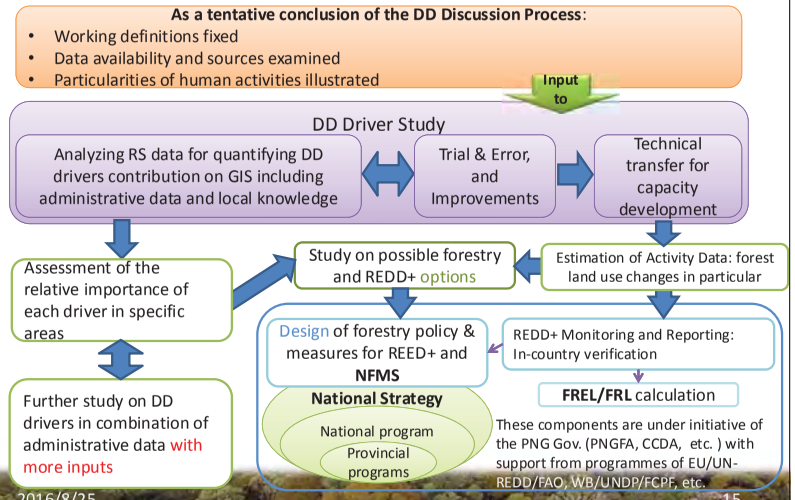
2-2 Overall progress of Project Activities - (4) Outcome and Data publicity

3-1 Collaboration with other programmes

a. Multi-purpose National Forest Inventory
   a. Preparation: UN-REDD/FAO (2012-2016)
   b. Implementation: EU/FAO (2015-2017)
b. JICA-CEPA Biodiversity Project (2015-2020)
c. Other data provision (GIZ, USAID/LEAF, TNC, CCDA, FCPF)
d. Rolling out of Decision Support System
e. New PNG JICA Project on National Green House Gas Inventory (?2017-)

3-1 Collaboration with other programmes

2. Possible Flow of Future Work, REDD+ Relevant Process, and Policy Formulation



3. Challenges and issues encountered

a. Budgetary issues
   - Late disbursement of 2015 recurrent budget
   - New levy arrangement for PNGFA budget
   - ◆ Constraint of C/P travel expenses, consumables
b. Man-power (Institutional capacity)
   - New workload for meeting new task (field reporting and recording with new technologies, REDD+ measures)
   - ✓ Utilization of new tools (FRIMS LAN Map, GIS, free-ware GIS, and GPS) in relevant branches and offices will be a key

Third Joint Coordinating Committee
Of the JICA Technical Cooperation Project 2014-2019
Meeting Minutes Memo No. 1- 2016

25th August 2016, 09:55am – 13:00pm,
Board Meeting Room, PNG Forest Authority (PNGFA)

Chair: Mr. Goodwill Amos Acting Managing Director, PNGFA
(delegated to Mr Dambis Kaip of PNGFA from Agenda item 2.2)

Co-chair: Mr. Takashi Toyama JICA PNG Office Chief Representative

Attendance

Mr. Dambis Kaip	Acting Director, Forest Policy and Planning (FPPD), PNGFA (Manager- Policy & Aid Coordination, FPPD, PNGFA)
Mr. Constin Bigol	Manager- Forest Inventory and Mapping, FPPD, PNGFA
Mr. Lyall Umbo	Manager- Projects, Project Allocations, PNGFA
Mr. Karokaro Mau	Acting Director- Field Services (FSD), PNGFA
Mr. Joseph Badi	Manager- Acquisition, FPPD, PNGFA
Mr. Gewa Gamoga	Acting Manager- REDD & Climate Change. FPPD, PNGFA
Ms Hano Yatapya	Plantations Officer, Plantations Branch, Forest Development, PNGFA
Mr. Tatsuya Watanabe	Chief Advisor, JICA Project Expert, JICA/PNGFA
Mr. Masaya Nishimura	Coordinator, JICA Project Expert, JICA/PNGFA
Ms. Ayako Ochi	JICA Project Expert, JICA/PNGFA/KKC
Mr. Yasuyuki Okada	JICA Project Expert, JICA/PNGFA/KKC
Dr. Hitofumi Abe	Chief Technical Advisor, UN-REDD/FAO, EU/FAO
Mr. Peter Katapa	Manager, REDD+ Readiness Project, WB/UNDP/FCPF
Mr. Shinji Matsumoto	First Secretary, Embassy of Japan (Observer)

---

1 Opening Remarks

Mr. Kaip informed members and observers about the JCC3 meeting on its history, purpose and the Chair and Co-chair. He then asked the Chair to offer the prayer for the meeting.

The Chair, Mr. Amos offered a prayer for the meeting, congratulated on the progress of the project as calling 'fantastic', and expressed his expectation to see a presentation on the progress.

The Co-chair, Mr. Toyama, gave an address for the beginning of the meeting. In his address he (a) introduced himself, (b) commended the strong ownership of PNGFA on this Project as a key for successful implementation, (c) emphasized importance of coordination with other programmes, in particular UN agency-backed programmes, on climate change and forestry as global environment issues, and (d) notified about

an envisaged technical cooperation project on PNG national green-house gases inventory between JICA and PNG CCDA[1] which likely commences in 2017 or early 2018. He then (e) suggested that an issue of local cost bearing would be a topic for this JCC3, (f) noted the challenges faced by the Project, (g) reiterated the significance of disseminating useful information and data from this Project, (h) appreciated the positive and strong commitment of PNGFA to JICA 'group focussed' training courses and Pacific LEADS scholarship to study in Japan, and (i) announced further support from JICA for these two training programmes in the coming year.

Following the address done by Mr Toyama, Mr. Matsumoto of the Embassy of Japan gave a speech. Mr. Matsumoto firstly acknowledged smooth implementation of the Project, then commended the ratification of the Paris Agreement done by the government of PNG on 16th August 2016. He informed that the embassy is in a process to revise its policy on Japan development assistance to PNG for sustainable socio-economic development (which totalled 7 million Kina in 2015) responding to the revision of Japan ODA policy more focussing on disaster prevention and climate change after five years since its last revision, viewing the 2018 APEC meetings in PNG. He also mentioned a commitment made under the Presidency of Group of Seven (G7) meeting in Ise-Shima by Japan Prime Minister Mr Shinzo Abe on USD 200 million assistance for quality infrastructure for developing countries. At the end of his speech Mr. Matsumoto encouraged JJC3 members make this meeting productive for smooth implementation of the Project, improvement of the well-being of the PNG people, and building up bilateral friendship between PNG and Japan.

All the members and observers did brief self-introductions as suggested by the Chair, the meeting went on to the agenda.

2 Agenda Items

The Chair, Mr. Amos introduced the three agenda items which were accepted.

2.1 Review of Overall Progress of the Project activities

Mr. Nishimura briefly summarised the purpose and achieved outputs of the previous JICA project (2011- 2014) before showing overall structure and reporting the progress of the current project activities in its second year. Mr. Nishimura then continued on to the progress, namely deployment of JICA experts, procurement, trainings in Japan, trainings and duty trips in PNG, and technical substances including slides containing 'overview of the PNG-FRIMS concept', 'new tools and

[1] Climate Change & Development Authority.

data made available', 'challenges and proposed solutions[2]' 'expanded use of FRIMS LAN Map', and 'outcome and data publicity'.

The presentation also mentioned collaborations with other programmes (MPNFI[3] of UN-REDD/EU/FAO, Biodiversity Project by JICA/CEPA[4], GIZ, USAID/LEAF[5], TNC[6], CCDA, DSS[7], and envisaged JICA-CCDA project on national green-house gases inventory). At the end of his presentation, Mr. Nishimura illustrated 'possible flow of the future project work, REDD+[8] relevant process, and policy formulation' and 'challenges and issues encountered during the Project implementation' (budgetary issues, manpower and institutional capacity).

Following the presentation by Mr. Nishimura, Mr Katapa of the UNDP/FCPF programme emphasized importance and relevance of data provision thorough PNGFA from the JICA Project activities to the process for developing a PNG REDD+ national strategy by CCDA under the UNDP/FCPF programme.

Regarding the faced challenges in the presentation done by Mr Nishimura, Mr. Bigol as the Project Manager clarified that budget allocation from Public Investment Programme is nil for this Project 2014-2016 so far and this has more serious negative impact than the delayed disbursement of recurrent budget pointed in the presentation.

Mr. Kaip confirmed the point raised by Mr. Bigol and added that the trouble happened in a broader context of budgetary problem at a national scale thus needs to be dealt in a cross-sectoral dimension.

The Chair, Mr Amos, excused himself to leave for the parliament session as advised by the Minister and delegated his role to Mr. Kaip.

[2] This slide was originally created by Mr. Jehu Antiko, Cartographer, I&M Branch, FPPD, PNGFA and presented during a JICA group focussed training course conducted in Japan in August 2016.
[3] MPNFI: Multi-Purpose National Forest Inventory
[4] CEPA: Conservation and Environment Protection Authority
[5] LEAF: Lowering Emissions in Asia's Forests
[6] TNC: The Nature Conservancy
[7] DSS: Decision Support System of PNGFA originally assisted by Australian government
[8] Reducing Emissions from Deforestation and forest Degradation, and relevant activities

2.2 Project Design Matrix (PDM), Plan of Operations (P/O), and Annual Work Plan of the Project

Mr. Watanabe informed that;
(1) there are no mid-term and terminal evaluation missions from JICA Headquarter under new JICA policy since 2014,
(2) instead of them, 6 months Project Monitoring Sheet was enhanced and used for proposing amendments to PDM and P/O,
(3) in the PDM of this project, two numbers[9] have not been defined in the 'objectively verifiable indicators' for 'Overall Goal', as explained in JCC2,
(4) some of the activities in the PDM may need modification according to the progress of other programmes,
(5) an annual work plan (September 2016 to August 2017) of the Project needs to be approved by the JCC3.

Mr. Watanabe then suggested to consider:
(1) 3, 7, 9 or other number for 'XX'[10] in PDM,
(2) deletion of a term 'project-based' in Activity 3.4 of the PDM,
(3) deletion of a term 'and development of FREL/FRL' in Activity 3.7 of the PDM,
(4) to use the P/O's Sep 2016- Aug 2017 as Annual Work Plan,
(5) to allow the project team (PNGFA officers and JICA experts) shift listed activities in P/O according to necessity,

By the final slide of his presentation, Mr. Watanabe pointed some of the Project activity topics as followings.
(1) planned activity to be continued,
(2) possible inclusion of JICA experts to PNG government delegation to Climate Change COP22 (Nov 2016),
(3) keep good communication about JICA group focussed training courses and scholarships between JICA PNG Office and PNGFA, and
(4) needs of consideration and action on well-managed procurement (needs study, planning, budget appropriation, procurement, and proper maintenance of GPS, PCs, and vehicles) as the Project activities expanded to more provinces.

The Co-chair, Mr Toyama, asked members to carefully look at and consider the description in the PDM since it is used for review and audit in a stringent manner.

[9] (1) Forest base map for the forest area change detected is updated in 'XX' provinces except for the pilot area(s), (2) the operations of forest management plans by utilizing PNG-FRIMS are conducted in 'XX' provinces except for the pilot area(s).
[10] Reasoning for these '3, 5 ,9' is illustrated in a table of the slide 7 of the presentation.

[Mid-term review]
Mr. Kaip noted the general importance of the mid-term review for projects though he see the regular review by 6-months project monitoring sheet is sufficient for this Project. Mr. Umbo supported this view. Dr. Abe cautioned to be careful to amend PDM in general and asked the reason why the mid-term and final evaluation missions from Tokyo are no longer provided in the project design. Mr Toyama and Mr Watanabe clarified the reason (not-all projects really need these missions from Tokyo, almost all projects need amendment to PDM to some extents, thus 6-months monitoring sheet is reinforced, a mission from Tokyo may be requested, if necessary). After that, no further comments were observed and the JCC3 decided to keep going the 6 months regular review by the project monitoring sheet.

[Project Activity 3.7 (to delete 'FREL development')]
Mr. Kaip suggested that the proposal to amend Activity 3.7 (deletion of FREL development) is acceptable. Dr Abe questioned the necessity of the deletion since the remaining text of the Activity 3.7 (conduct training for … improving the technical levels of PNGFA … on measurement and reporting of forest carbon emissions and removals) inevitably includes contribution to the FREL development. Mr. Gamoga pointed that the 'development of FREL' implies commitment of the FREL development by the JICA Project Activities. Mr. Watanabe echoed the view of Mr. Gamoga and expressed concern about the overstatement because the development of FREL is clearly defined as a task to be addressed by the programme supported by FAO utilizing the Collect Earth analysis. Mr. Toyama suggested to keep the text of Activity 3.7 as it is while taking note the fact that the JICA Project does not commit to develop the FREL. No objections were observed and it is so decided.

[Number 'XX']
Mr. Umbo suggested to take '7' as practically achievable target after 3-5 years of project completion. Mr. Bigol suggested to consider five region based candidates and amount of log productions instead of 22 province based indicative selection. Mr. Mau reminded that the prospect of the budget constraint for next year is no better than this year while recognizing importance of wider coverage and inclusion of New Guinea Islands and Highlands regions. Mr. Kaip suggested possible flexibility for identifying provinces. The Co-Chair, Mr. Toyama, reiterated that the number 'XX' is not assuming specific candidate provinces and will be used for ex-post evaluation of the Project as an indicative number.

Dr. Abe asked clarification on the formal procedure to finalize the amendment. Mr. Watanabe answered that those amendments will be included in the next 6-months project monitoring sheet (March – August 2016), submitted to JICA HQ, and go

through an internal sanction process in the JICA Global Environment Department for finalization.

No further suggestions and comments were observed on the 'XX' issue and the JCC3 decided to take '7'.

[Project Activity 3.4 (to delete 'project based')]
The Co-chair, Mr Toyama, asked if there is any objection or comment to proposal deleting 'project based' in the Activity 3.4. No objections were seen and the JCC3 decided to delete it as proposed.

[P/O and Annual Work Plan]
Mr. Bigol asked if the change of pilot area impacts the Plan of Operation and Annual Work Plan. Mr. Watanabe answered the impact is not significant because the relevant activities (mostly under Activity 2) are planned in an annual repetitive manner. He also mentioned that the communication with new industry partners in new provinces likely takes shorter time than the first batch of partners because the project team has clear idea of contents and procedure.
No further comments or objections were seen and the JCC3 decided to take the Annual Work Plan (as depicted in the P/O Sep 2016 – Aug 2017) as proposed and allow the project team shift the listed activities in the Plan according to necessity.

[Concept and structure of factsheets No. 1, 2, 3 and thereafter]
Following a run-down of the draft proposal by Mr. Watanabe, Mr. Kaip call this form of information dissemination timely and further suggested to link the completed factsheets to the PNGFA web-site and National Forest Monitoring site as well. The proposal was accepted with no objections. The project team will elaborate the factsheet No.1 'Project Outline', No. 2 'Forest Base Map 2012' and thereafter in consultation with PNGFA management and JICA-PNG Office.

[Possible inclusion of JICA experts to PNG delegation to COP22]
Mr. Umbo supported this possible inclusion due to the usefulness of the inclusion of the JICA experts, provided the commitment of PNGFA to the COP22 PNG delegation is enough strong for the negotiation. Dr. Abe informed that FAO programme is planning to hold a side event on PNG FREL/FRL launch and likely coverage of PNGFA officers travel expenses by the programme. Mr. Katapa referred to the contribution of the FCPF programme that assisted travel expenses of two PNGFA officers to COP21 (Paris, Nov-Dec 2015) and possibility to have similar arrangement for COP22.
The JCC3 affirmed the usefulness of the possible inclusion. The PNGFA management would make decision at its discretion taking account of an agenda

item structure of the COP22 to be circulated in near future and the PNGFA position to the negotiation process.

[Well-managed procurement]
Responding to clarification questions, Mr. Watanabe explained that this item was raised because he supposed that frank exchange of views (on what you are doing and can do) across stakeholders on this opportunity was vital for day-to-day project implementation.

Acknowledging the clarification, Mr. Mau stated that (a) the Field Services Directorate (FSD) is conducting a questionnaire survey to five area managers on priority list for replacing tools and equipment including vehicles with a view to allocate some of the funding from Forest Management Levy this year, (b) the FSD recognise the fruit from the trainings led by the JICA expert, Mr. Nishimura, in the West New Britain Area Office where GPS and GIS are well utilized while noting the importance of the maintenance, (c) the FSD is making best effort to get budget appropriation to fund the procurement in next year, (d) the FSD and the Forest Policy and Planning Directorate (FPPD) have mutual understanding on this JICA Project that PNGFA will make best effort to procure necessary items and equipment by own funding, cover the training cost as much as possible, and not fully depend on JICA project operational budget while makes best effort for next year budget.

Mr. Bigol pointed that an office of logging project supervisor must be an ultimate right place to attach a project-procured vehicle instead of area or provincial forestry offices. He further suggested to review the reasoning and necessity to attach the granted vehicle to former pilot province (Milne Bay) and its potential re-allocation to the new pilot province (Sandaun). Mr. Watanabe draw an attention to a point that the allocation of the vehicle is primarily on the discretion of PNGFA once the vehicle is handed over though he stated that the review and potential re-location of the vehicle reflecting on its purpose and usefulness is definitely a reasonable action.

Mr. Umbo admitted that at least one of the granted GPS was missing in one of the provincial office thus he insisted on importance of well-management of maintenance. Mr. Kaip suggested to set a policy on well-maintenance, stringent restriction of use on meant purpose. Mr. Gamoga suggested to take account of JICA policy on handed-over equipment after the Project completion in the proposed policy. Mr. Mau supported to have a written policy including a generic use guideline of equipment including ‘failure to do so’ clause. Mr. Bigol mentioned that most of the equipment (GPS, PC, and photocopier) maintenance and replacement after the completion of first project (2011-2014) was done by the operation budget of this second Project.

Mr. Toyama confirmed that as long as the maintenance of an equipment is necessary and important for the implementation of the Project, the use of JICA project operation budget can be considered. Mr. Kaip appreciated the confirmation and also confirmed consistent commitment of PNGFA to accomplish the Project purpose.

Mr. Watanabe proposed to consider a written policy on Project procurement, use and maintenance within the project team with consultation with PNGFA management and present its results to the JCC4 in 2017. No objections were observed and this proposal was accepted.

3 Closing Remark

The Co-chair, Mr. Toyama, expressed an expectation to the more results and outcomes of the Project in coming years, then thanked all the participants for their contribution in the meeting, and formally closed the meeting.

JICA/PNGFA Project 3rd JOINT COORDINATING COMMITTEE MEETING – 25th August, 2016

PARTICIPATION LIST

Ser.	Name	Title	Organization	Email/Telephone
01	Shinji Matsumoto	First Secretary	Embassy of Japan	shinji.matsumoto@mofa.go.jp
02	Goodwill Amos	Acting Managing Director	PNGFA	gamos@pngfa.gov.pg
03	Shigeru Sugiyama	Chief Representative	JICA	Sugiyama.Shigeru@jica.go.jp
04	Karokaro Mau	Principal Field Monitoring Officer	PNGFA	kmau@pngfa.gov.pg
05	Lyall Umbo	Manager Projects	PNGFA	lumbo@pngfa.gov.pg
06	Constin Bigol	Manager Inventory & mapping	PNGFA	cbigol@pngfa.gov.pg
07	Genaro Castro	Operation Consultant	FAO	genaro. castro@fao.org
08	George Gunga	Senior Project Officer	PNGFA	ggunga@pngfa.gov.pg
09	Tatsuya Watanabe	JICA long term expert	PNGFA	twatanabe@pngfa.gov.pg
10	Masaya Nishimura	JICA long term expert	PNGFA	mnishimura@pngfa.gov.pg
11	Hiromitsu Iwamoto	Assistant Representative	JICA	Iwamoto.Hiromitsu@jica.go.jp
12	Ayako Ochi	JICA short term expert	KKC	ayako ochi@kk-grp.jp
13	Magdalene Maihua	Director Project Allocation	PNGFA	mmaihua@pngfa.gov.pg
14	Dambis Kaip	Manager Polocy & Aid Coordination	PNGFA	dkaip@pngfa.gov.pg
15				

10th July 2017

DRAFT Agenda

The 4th Joint Coordinating Committee of the JICA Technical Cooperation Project

JICA/ PNGFA Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG－FRIMS) for Addressing Climate Change

11th August 2017, 9:30- 12:30 (to be decided)
Board Room, PNG Forest Authority (to be confirmed)

1. Opening remark by the Chair and the Co-Chair

2. Review on overall progress of the Project activities

Coffee Break

3. Plan of Operations and the Annual Work Plan of the Project (to be approved)

4. Other relevant issues

10th July 2017

AGENDA memo

The 4th Joint Coordinating Committee of the JICA Technical Cooperation Project

JICA/ PNGFA Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG－FRIMS) for Addressing Climate Change

11th August 2017, 9:30- 12:20 (170 min., to be decided)
Board Room, PNG Forest Authority (to be confirmed)

1. Opening remark (9:30-9:45, 15 min.)
   Chair (Mr. Tunou Sabuin, Acting Managing Director, PNG Forest Authority)
   Co-Chair (Mr. Takashi TOYAMA, Chief Representative, JICA PNG Office)

2. Overall progress and achievements of the Project activities (to be reviewed) (9:45-10:20, 35 min.) (Dr Turia, presentations by CP and JICA experts)
   - ✧ Procurement, training, duty trip,
   - ✧ Outputs (FRIMS, LAN Map Browser),
   - ✧ Collaboration with other programmes (UN-REDD/FAO, EU/FAO, DSS, JICA/CEPA Biodiversity Project)

Coffee Break (10:20-10:40, 20 min.)

3. Plan of Operation (P/O) and the Annual Work Plan of the Project (to be approved) (10:40-11:20, 40 min.) (Dr Turia, presentations by CP and JICA experts)
   - ✧ Consideration on amendments to Project Design Matrix (PDM), and P/O (last approved in 3nd JCC, 26th Aug. 2016,)
   - ✧ Topics of the activities in the Third Year (Sep. 2017 – Aug 2018, including JICA Group Training Courses in Japan)

4. Other relevant issues (11:20-12:20, 60 min.)

4th Joint Coordinating Committee (JCC4)Meeting
11th August 2017
Board Room, PNGFA HQ, POM, PNG

Agenda item 2.

Review on overall progress of the Project activities

Project Director Dr Ruth turia
PNGFA/JICA Project

11th August 2017
JICA Capacity Development Project for
Operationalization of PNG-FRIMS Addressing Climate Change

Contents

Introduction 1 PNGFA/JICA 2nd Project:
Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG-FRIMS) for Addressing Climate Change

Overall Goal
Forests in PNG are conserved and managed in a sustainable manner, while at the same time, mitigation and adaptation measures against climate change are promoted.

Project Purpose
Capacity of the PNGFA to continuously update forest information and to fully operationalize and utilize PNG-FRIMS for promoting sustainable forest management and for addressing climate change is enhanced.

Project Period: 5 years (2014 -2019)

PNG Forest Resource Information Management System (PNG-FRIMS)

Output 1
PNG-FRIMS is expanded and enhanced

Output 2
The national forest plan, provincial forest plans, forest management plans and their monitoring system are improved through steady operation of PNG-FRIMS.

Output 3
Forest information for addressing REDD+ is prepared

KOKUSAI KOGYO CO., LTD.

2-1 Overall progress of Project Activities (3rd year)

a. Japanese Experts (2 long-term, 5 short-term KKC) on duty

Mr.Watanabe was replaced by Mr. Kadowaki since this Feb.

Mr.Nishimura will be replaced by Mr.Koyama on 21st Aug.

b. Trainings in Japan

Training Course	Person	Duration
JICA Pacific LEADS (scholarship) [Kyoto]	1	Aug. '16 - Mar. '19 (2.5yrs)
Policy Planning skills for implementation of REDD+ activities [Tokyo]	2	May-Jun. '17 (1 week)
Proceeding Ability of Policy Making for Sustainable Forest Management[Tokyo]	1	Aug.-Oct. '17 (2 months)
Sustainable Forestry Management with Community Participation [Hokkaido]	1	Aug.-Nov. ''17 (3 months)

2-2 Overall progress of Project Activities (3rd year)

1. Equipment handed over
   - A) Vehicle WSP: 1
   - B) GPS HQ:5, WSP: 5
   - C) Laptops with free GIS software
     - ➢ HQ:5, Momase: 1 and WSP: 5

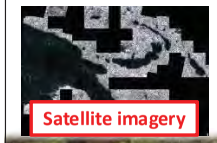

Vehicle


GPS


Laptop with GIS

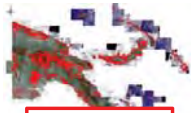
2. New GIS information provided
   - ➢ Satellite imagery, Forest Base Map with degraded driver info, Past Forest Cover Maps (WNB and WSP), Constraints, Logging roads and etc.

Past Forest Cover Map


Satellite imagery


Forest Base Map


Constraints


Logging roads

2-3 Overall progress of Project Activities (3rd year)
- Training for Map Reading, GPS/GIS and LAN Map -

HQ in October, 2016

PFO – WSP in November, 2016

AO – NGI in December, 2016

Bulolo in March, 2017

Acquisition in April, 2017

2-4 Overall progress of Project Activities (3rd year)
- Field Visit in Pilot sites -

- ➢ Aria Vanu Block2 FMA in WNB in May, 2017
- ➢ Amanab Block 1-4 and Imonda FMA and Bewani FCA in WSP in June, 2017

2-5 Overall progress of Project Activities (3rd year)
- Project Workshop in Aug. 2017-

2- 6 Overall progress of Project Activities - Overview of the PNG-FRIMS Concept

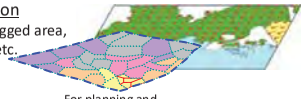
PNG-FRIMS

Data

Constraints information
Slope, Altitude, Mangrove, Karst, Inundation, Protected area (Wildlife), Plantation, FCA, Mining area etc.

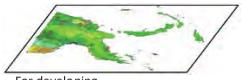
For planning and monitoring

Logging information
Concession area, Logged area, Connection to DSS etc.



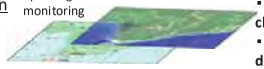
For planning and estimation

Forest Base Map
Vegetation, Timber volume, Carbon storage, Regrowth model etc.



For developing, updating and monitoring

Topographic information
Satellite image (RapidEye, PALSAR, Hansen, Greenest Pixel), TopoMap etc.



【Main activities】

- Update current map layers using latest resources (PINGRIS2008, SRTM etc.)
- Quality evaluation
- Data entry on harvesting history
- Improve procedures for updating logging information etc.
- Define forest management unit
- Examine forest growth model, harvested timber volume etc.
- Detect forest area changes (Hansen)
- Identify drivers on degraded forest etc.

System

Human resources
- GIS / Remote Sensing techniques
- Utilize FRIMS for REDD+ activity etc.

Rule / Procedure
- Updating FRIMS database
- Data sharing
- Making Forest Management Plans
- Reduced impact logging etc.

2-7 Overall progress of Project Activities (3rd year)
Future plan on Output 2

Monitoring of Logging	• To continue making reports • To develop appropriate solutions for issues to be found
Registration of ILG	• To enhance the information through actual exercise in the field
Forest Plantation Management	• To enhance the information through actual exercise in Bulolo Plantations
National Forest Plan	• To continue digitizing • To consider providing spatial information to PFMC

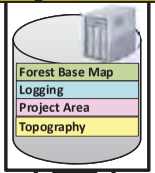
2-8 Overall progress of Project Activities (3rd year)

Forest Planning Activities
National Forest Plan
Provincial Forest Plans

Project activities:
- Decision making support for land use planning
- Support for data management

Expected outcomes:
- Better planning
- AAC volume calculation on a sustainable yield basis

PNG-FRIMS
Existing data and tools



New Projects Data

New Field Data

Forest Management Activities
Monitoring of logging
Forest plantation management
Map making support for landowners

Project activities:
- Capacity development for necessary tools operation
- Improvement of data sharing method

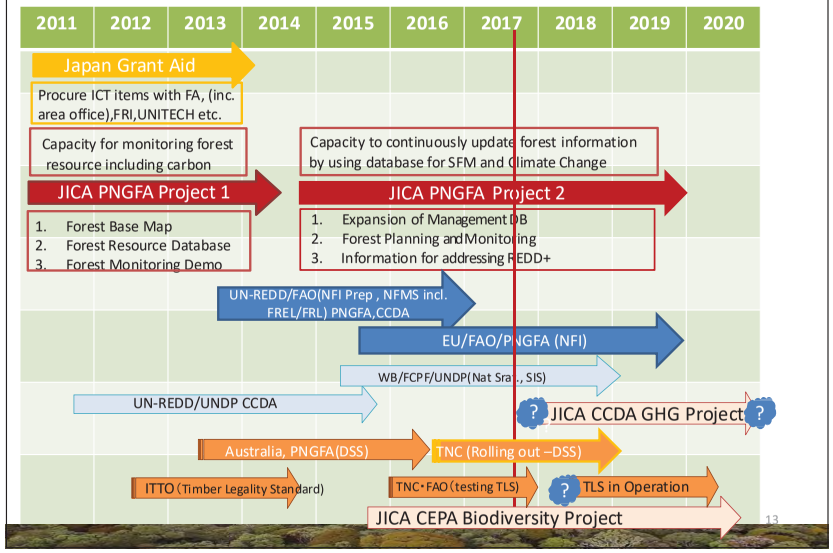
Expected outcomes:
- Enhanced field work
- Data updating on field basis

Establishment of Sustainable Forest Management

Data and skill can be used for other activities such as REDD+

2-9 Overall progress of Project Activities (3rd year)
Outcome and data publicity

3 Collaboration with other programmes



4. Challenges and issues encountered

a. Budgetary issues

- No 'Public Investment Programme' funding allocation to this project since 2013?

◆ Making it difficult to perform PNGFA's original tasks and project activities in terms of budget.

b. Man-power

▪ Ad-hoc workload (digitalization of logging road network and logged over area) presses PNGFA officers in charge.

✓ Local casual hire is used for relieving this workload now.

4th Joint Coordinating Committee (JCC4)Meeting
11th August 2017
Board Room, PNGFA HQ, POM, PNG

Thank you

4th Joint Coordinating Committee (JCC4)Meeting
11th August 2017
Board Room, PNGFA HQ, POM, PNG

Agenda item 3.

Annual Work Plan of the Project

KADOWAKI, Daisuke Mr
JICA/ PNGFA Project
Chief Advisor, Forest Management, Climate Change

Contents

1. Background information

- Under new JICA management procedure (Mar 2014-), NO JICA mission from Tokyo for Mid-term review and Terminal evaluation
- Instead of review missions ,6 month Project Monitoring report may include (a) proposal on PDM amendment following JCC decision and (b) revision of P/O schedule.

  PDM: Project Design Matrix in logical framework, P/O: Plan of operation
- The JCC 3rd (Aug. 2016) confirmed that the 6 month Project Monitoring is sufficient as a review without the missions from JICA HQ.
- The PDM has been revised per proposal made by JCCs. No amendment proposed to this JCC
- JCC may consider and approve annual activity plan (Sep 2017 – Aug 2018)

1. Background information

(Amendment of PDM Proposed by JCC 3, revised on 27th April '17)

1. Decision Number of provinces in Objectively Verifiable Indicators

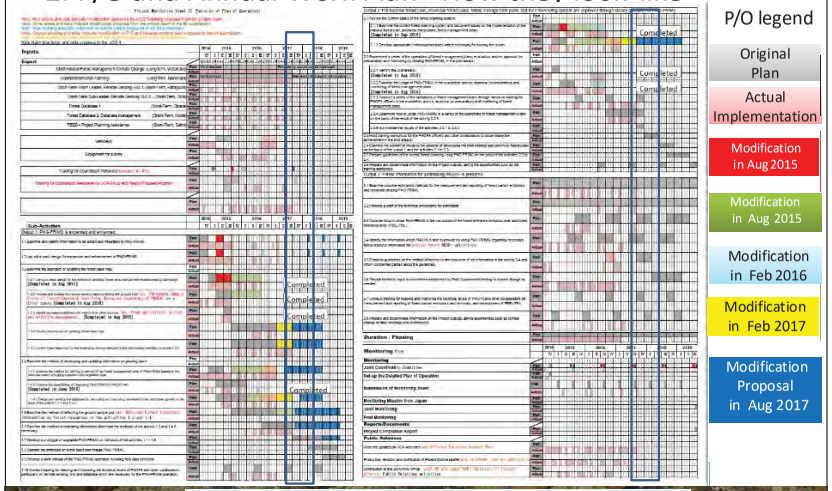
Overall Goal	Objectively Verifiable Indicators
Forests in PNG are conserved and managed in a sustainable manner, while at the same time, mitigation and adaptation measures against climate change are promoted.	1. Omission
	2. Omission
	3. Forest base map for the forest area change detected is updated in 7 provinces except for the pilot area(s).
Achieved after 3-5 years from the Project completion	4. The operations of forest management plans by utilizing PNG-FRIMS are conducted in 7 provinces except for the pilot area(s).

2.Modification of activity 3.4 under output 3.

3.4 Identify the information which PNGFA is able to provide by using PNG-FRIMS, regarding necessary forest resource information for ~~project-based~~ REDD+ activities.

Reason:No need to limit the scope of activities to 'project' scale implementation (<< province)

2. P/O and Annual Work Plan - How they look like



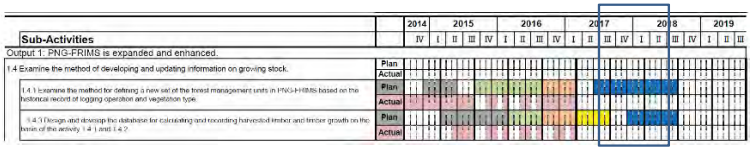
P/O is detailed enough to serve as an Annual Work Plan.

3. Topics of Activities in the 4th Year Sep 2017 –Aug 2018

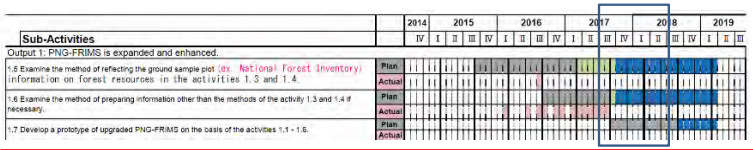
a. <u>Continue activities</u> for Output 1: FRIMS, 2: Use for Plans, and 3: Use for Climate Change including active <u>information dissemination</u>
- ✓ Continuing involvement of Acquisition Branch and Plantations Branch.
- ✓ Utilizing SNS and Web page. Develop and Revise fact sheet series. Will support compiling 'Big book' .

b. Keep communication on <u>JICA HQ for Group Training Courses and other scholarships</u> in Japan for 2017& 2018
- ✓ Timely provision of information
- ✓ Enable PNGFA to organize selection of candidates on yearly basis.

2. P/O and Annual Work Plan - Modification



Digitizing "set up" and FCA boundaries took much longer time much more than envisaged.



Activity period of the EU/FAO programme is extended from Sep. '17 to Mar. '19.
Activity 1.5, 1.6 and 1.7, which assume input from NFI programme need to be extended.

P/O is detailed enough to serve as Annual Work Plan Sep 2017 – Aug 2018.

4. List of possible consideration points

Annual work plan

May P/O serve as Annual Work Plan Sep. 2017-Aug.2018?

Other topics

a. Continuing involvement of Acquisition Branch and Plantations Branch.

b. Manual and Guidelines as Means for Verifiable Indicators in PDM of the project.

c. Contribution to the development of GCF proposal.

d. Acceptance of JICA HQ officer's visit to the project site.

Forth Joint Coordinating Committee
Of the JICA Technical Cooperation Project 2014-2019
Meeting Minutes Memo – 2017
(Draft)

11th August 2017, 09:30am – 13:00pm
Board Meeting Room, PNG Forest Authority (PNGFA)

Co-Chair:	Dr. Ruth Turia	Director, Forest Policy & Planning (FPPD), PNGFA
Co-chair:	Mr. Takashi Toyama	Chief Representative, JICA PNG Office

Attendance

Mr. Goodwill Amos	Manager- REDD & Climate Change. FPPD, PNGFA
Mr. Joseph Badi	Manager- Acquisition, FPPD, PNGFA
Mr. Constin Bigol	Manager - Forest Inventory & Mapping, FPPD, PNGFA
Mr. Gewa Gamoga	Officer- REDD & Climate Change. PNGFA
Mr. Perry Malan	Senior Cartographer, PNGFA
Mr. Patrick Laa	Cartographer, - Forest Inventory & Mapping, FPPD, PNGFA
Ms. Sonia Baine	Acting Senior Officer REDD+,CCDA
Mr. Moses Aihi	Assistant Team Leader, Economic Sector, DNPM
Mr. George Iramu	Mitigation Officer REDD+, CCDA
Dr. Hitofumi Abe	Chief Technical Advisor, UN-RED /FAO, EU/FAO
Mr. Peter Katapa	Manager, REDD+ Readiness UNDP/FCPF/WB
Mr. Mitsugu Yachidate	First Secretary- Embassy of Japan
Mr. Masatake Harada	Assistant representative, JICA
Ms. Margret George	Senior Program Officer, JICA
Mr. Daisuke Kadowaki	Chief Advisor, JICA Project Expert, JICA/PNGFA
Mr. Masaya Nishimura	Coordinator, JICA Project Expert, JICA/PNGFA
Mr. Tsutomu Koyama	Successor to Mr. Masaya Nishimura
Mr. Masamichi Haraguchi	Shirt Term Expert, JICA/PNGFA, KKC
Ms. Ayako Ochi	Short Term Expert, JICA/PNGFA, KKC
Mr. Yasuyuki Okada	Short Term Expert, JICA/PNGFA, KKC
Mr. Takahiro Koide	Short Term Expert, JICA/PNGFA, KKC

1. Opening Remarks

The Co-Chair, Dr. Ruth Turia, apologies on the unavailability of the Managing Director of PNGFA, Mr. Tunou Sabuin and welcomes everyone and asked them to introduce themselves. All the members of the meeting and observers did brief self-introductions.
The Co-Chair then highlights the importance of the meeting and thanks JICA and the people of Japan for their support to PNGFA and to PNG as a whole then asks the Co-chair to give his opening remarks.

The Co-chair, Mr. Takashi Toyama thanked the Co-Chair and gave his remarks. In his remarks he (1) commented on the strong ownership of PNGFA and its structured aid coordination, (2) appreciated the effort of the PNGFA to meet its obligations to the project under very limited budget, (3) mentioned that JCC 3 advised the project team to draft the written policy of the procurement and maintenance of the items given by JICA projects and Japan Grant Aid, (4) emphasized on the term of the project as it is nearing its third year, and expects the information

that were gained and will be gained will be disseminated to international community, taking advantage of opportunities that are related to forest management to show them PNGFA's effort to tackle global issues, (5) thanked participants in various group who attended trainings held in Japan, and added that JICA will continue to offer a series of courses in the forestry and climate change disciplines.

After the address given by the Co-chair Mr. Takashi Toyama, the First Secretary of the Embassy of Japan, Mr. Mitsugu Yachidate gave his remarks. He expressed his sincere appreciation to the PNGFA for making a great effort to materialize the smooth implementation of the project. He then highlighted on the three priority areas of Japan's policy which are being used to determine and assist other bilateral partners; -,
1. Strengthening the foundation of economic growth,
2. Improving social service and
3. Environment and climate change.

Furthermore, he made mention of the special date and day which was established in Japan last year, the Mountain Day (11th August), and added that it was a good coincidence that the JCC meeting would fall on that same date. He concluded his speech by saying that the meeting was important for the progress and areas of improvements highlighted by committee members, and hopes for best results out of the project.

2. Agenda Items
The Co-chair, Dr. Turia introduced the agenda items which were accepted.

2.1 Review on overall progress of the project activities
The Co-Chair, briefly explained the overall goal of the project which is to conserve and manage forest in PNG in a sustainable manner, while at the same time mitigation and adaptation measures against climate change are promoted. She also acknowledged the work of the Japanese Experts (2 long-term, 5 short-term KKC) and the takeover of Mr. Tatsuya Watanabe by Mr. Daisuke Kadowaki since this Feb and Mr. Masaya Nishimura by Mr. Tsutomo .Koyama on the 21st of August, 2017.

The Co-chair made a power point slide presentation on progress of the project, highlighting on the trainings for Map Reading, GPS/GIS and LAN Map, and the field Visit to Pilot sites, namely; Aria Vanu Block2 FMA in WNB in May, 2017 and Amanab Block 1-4 and Imonda FMA and Bewani FCA in WSP in June, 2017. She also mentioned the Project Workshop held in August 2017 and pointed out the need to conduct more of the similar workshop. She furtehr highlighted the importance of the project's collaboration with other programs and explained the challenges and issues encountered in the project which is mainly the budgetary issues and the manpower issue.

Mr. Patrick Laa next gave his presentation on LAN Map. The presentation included the PNG-FRIMS, function of LAN Map, the services already published and a demonstration on how to operate the LAN Map.

Ms. Sonia Baine from CCDA asked if the information on the LAN Map could also be accessed by CCDA members as it will be vital information to CCDA in terms of decision making that will benefit PNG as a whole. The Co-Chair Dr. Turia responded by stating that the information contained on the LAN Map was very detailed and sensitive and so it is currently restricted to

the PNGFA members only, but it might be shared in the near future. Miss Baine further asked if CCDA could have opportunities of training of capacity building provided by JICA in Japan. The Co-chair Mr. Takashi Toyama answered that, for the CCDA to attend JICA trainings it depends on the Department of National Planning and Monitoring (DNPM), and was supported by Ms. Margret George from JICA main office.

Regarding the Budget issue that was mentioned in the presentation by Dr. Turia, Mr. Goodwill Amos proposed that the government of PNG has to step in in order to support the project as there was no counter-part funding in the last phase of the project. The issue was made known to Mr. Moses Aihi from the DNPM. The Co-chair – Mr. Toyama also gave his support for DNPM to deliberate on this counter-part funding issue further.

Mr. Aihi asked if PNGFA would update the National Forest Plan (NFP) or was it previously updated since 1996. In response to that, the Co-Chair Dr. Turia explained that the plan was in the process of being updated several times but failed in the last years due to the fact that there was no accurate or up to date data at hand in terms of establishing the regrowth potential of logged over forest areas, however she added by pointing out that with the current help of the JICA project the NFP will be updated.

2.3. Plan of operations and the Annual Work Plan of the project (to be approved)

Mr. Kadowaki outlined the background information surrounding the implementation of the project stating that instead of review missions, 6-month Project Monitoring report may include (a) proposal on PDM amendment following JCC decision and (b) revision of P/O schedule. The 3rd JCC (Aug. 2016) confirmed that the 6-month Project Monitoring report is sufficient as a review without the missions from JICA HQ and (c) the amendment of PDM proposed by JCC 3, was revised on 27th April 2017.

Mr. Kadowaki suggested to use the P/O's for Sep 2017-Aug 2018 with some modifications as the annual work plan for Sep 2017- Aug 2018. He outlined the activities that will take place in the fourth year:

a) Continuation activities

1: Improve and develop function of FRIMS,

2: Use FRIMS for developing National Forest Plan, for monitoring of implementation of forest plans and for supporting activities of Acquisition Branch and Plantations Branch.

3: Information dissemination using SNS, Web page and the fact sheet series. Develop Manuals and guidelines as Means for verifiable indicators which will support compiling of the "big book".

b) Keep communication with JICA HQ for Group Training Courses and other scholarships in Japan for 2017& 2018.

c) Contribute to the development of GCF proposal and Acceptance of JICA HQ officer's visit to the project site in November.

Ms. Baine and Mr. Amos enquired if hard copies of the P/O and annual work plan would be made available for a better view of what is presented on it. The Co-chair responded that the hard copies would be shared after JCC4 approved them. No further comments were made and JCC 4 decided to adopt the annual work plan as proposed.

2.4. Management of ICT items procured by JICA projects and Japan Grant Aid

Mr. Constin Bigol gave a brief background information with regards to agenda item number four. The two JICA Projects (1st and 2nd) and Japan Grant Aid have handed over and provided many ICT items to PNGFA to support proper forest management in PNG. However, issue of improper management of those items was raised at JCC3. The JCC3 advised PNGFA/JICA Project team to prepare a written policy on procurement and maintenance for the items in consultation with PNGFA management and present it to JCC4. The team drafted the policy and compiled the list of ICT items. The draft policy confirms the importance and the proper management for the items so that PNGFA can expand the outputs of the Project and perform its tasks properly.
The policy will be finalized after additional work in accordance and suggestions from JCC4.
The summary of the policy will cover (A) Importance of the maintenance and the replacement, (B) Responsibility of items management, (C) Procedure for borrowing items, and (D) Procurement plan.
Mr. Bigol also made mention of the malfunctioning of the donated plotter in the Forest Inventory & Mapping Branch. For developing the Future Procurement Plan, he emphasized that PNGFA needs to consider expanding the project outputs to seven provinces after the project ends in accordance with the Project Objective and Overall Goal in PDM. He further stated that this plan (procurement plan) will be developed based on field requirement and in consultation with PNGFA's Field Services Directorate, Project Allocations Directorate and Forest Development Directorate.

The Co-chair proposed that PNGFA should be responsible for the upgrade and maintenance of the equipment to which Mr. Bigol said that PNGFA will be responsible for the upgrade, maintenance and replacement of the equipment. However, pointed out that funding is the only problem at the moment. Mr. Bigol emphasized that officers in PNGFA HQ will be sent out to each province if necessary to check/ report on the equipment and confirm their current status as well.

Mr. Perry raised a concern as a custodian speaking on behalf of the Japan tax payers that what will happen after the project ends in terms of maintenance of skill capacity gained and donated ICT items. Dr. Turia responded to the concern by challenging the current PNGFA experts who are currently being trained under the project to be well equipped and should be ready to pass that knowledge on to other PNGFA staff after the project ends.
With no further comments, JCC4 encouraged the project team to continue its works for finalizing the item list and for developing the future procurement plan.

2.5 Other relevant issues

Mr. Aihi from DNPM acknowledged the work being done in the project, and apologized for not being present in the past meetings. He also stated that he will provide a brief report of what was being discussed in the JCC4 to the Secretary so that there will be a budget in place for 2018.
Ms. George from JICA/PNG office proposed if officers from each province would present their own report (work as part of the project) in the next JCC meeting.
Mr. Amos proposed that the project must scale up from the two pilot sites and must continue to spread out to the remaining provinces in PNG as well.

3. Closing Remarks

The Co-Chair Dr. Turia again emphasized that after the project ends, those PNGFA officers who are being trained under the project must extend their knowledge to other officers as trainers.

The Co-chair Mr. Takashi Toyama thanked everyone for their participation in the meeting and closed the meeting.

19th July 2018

Draft AGENDA

The 5th Joint Coordinating Committee of the JICA Technical Cooperation Project

JICA/ PNGFA Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG－FRIMS) for Addressing Climate Change

8th August 2018, 9:30- 12:00
Board Room, PNG Forest Authority

1. Opening remark (9:30-9:45, 15 min.)
   Chair (Mr. Tunou Sabuin, Managing Director, PNG Forest Authority)
   Co-Chair (Mr. Takashi TOYAMA, Chief Representative, JICA PNG Office)
   Speech by Mr Mitsugu Yachidate, First secretary, Embassy of Japan

2. Overall progress and achievements of the Project activities (9:45-10:45, 60 min.)
   - ✧ Procurement, training, duty trip and management of ICT items (Mr.Bigol)
   - ✧ Improvement of Technical Operations for Forest Planning System utilizing PNG-FRIMS (Ms.Tongo)
   - ✧ Improving Efficiency of Forest Monitoring System Utilizing RS Techniques (Mr.Bigol)
   - ✧ Evaluation of GIS/GPS training (Mr.Moini)

Coffee Break (10:45-11:00, 15 min.)

3. Plan of Operation (P/O) and the Annual Work Plan of the Project (to be approved) (11:00-11:20, 20 min.)
   - ✧ Consideration on amendments to P/O and Topics of the activities in the final Year (Sep. 2018 – Aug 2019) (Dr. Turia)

4. Other relevant issues (11:20-12:00, 40 min.)
   - Budgetary issue
   - Next project application (Mr.Kaip)

Lunch

5th Joint Coordinating Committee (JCC5)
8 th August 2018
Board Room, PNGFA HQ, POM, PNG

Agenda item 2.

Review on overall progress of the Project activities

Contents

Mr. Constin Otto Bigol
Project Manager PNGFA/JICA Project
Manager Inventory and Mapping Branch, PNGFA

1. Introduction

Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG-FRIMS) for Addressing Climate Change

5 years (2014 -2019)

Overall Goal
Forests in PNG are conserved and managed in a sustainable manner, while at the same time, mitigation and adaptation measures against climate change are promoted.

Project Purpose
Capacity of the PNGFA to continuously update forest information and to fully operationalize and utilize PNG-FRIMS for promoting sustainable forest management and for addressing climate change is enhanced.

PNG-FRIMS

Output 1
FRIMS is expanded and enhanced

Output 2
The national forest plan, provincial forest plans, forest management plans and their monitoring system are improved through steady operation of FRIMS.

Output 3
Forest information for addressing REDD+ is prepared

2-1: Overall progress of Project Activities (4th year)

a. New Experts and Staff

- Mr. Takahashi newly assigned as a “drone expert”.
- 3 casual staff newly joined for digitizing ALP & FCA boundaries etc.

b. Equipment Procurement

- Drone(DJI Phantom 4 Pro) HQ: 1
- Mapper(PIX 4D) HQ: 1

c. Duty Trip/Field Visits

Purpose and Destination	Description
Drone usage for forest monitoring [May and Jun. ‘18,HQ and kuriva plantation]	To examine possibilities of drone use for PNGFA tasks on ground. HQ and Southern office staff joined.
Follow-up GPS/GIS training [Mar. ‘18, WNB and Sandaun office]	Implementation of forest monitoring with GPS/GIS was monitored and issues were identified.
Showing logging sites to a JICA HQ staff. [Nov. ’17, Kupiano]	To deepen understanding of JICA HQ on the situation of forestry sector, visiting logging sites around kupiano.

2-1: Overall progress of Project Activities (4th year)

d. Maintenance

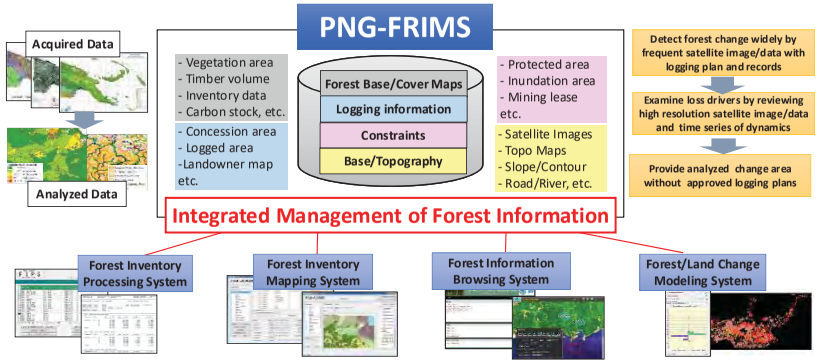
- A0 Dot printer/Scanner, Printer tonner, UPS and miscellaneous
- Vehicle (tyre, windshield and safety sticker)

e. Training in Japan

Courses	Person	Duration
ICT for the improvement of government capacity and Services: IT architect [Okinawa]	1	Jul.-Dec. ‘18 (5 month)
Policy Planning skills for implementation of REDD+ activities [Tokyo]	1	May-Jun. ’18 (1 week)
Sustainable Forestry Management with Community Participation [Hokkaido]	1	Aug.’17-Nov. ’17 (3 month)
Proceeding Ability of Policy Making for Sustainable Forest Management [Tokyo]	1	Aug.’17-Oct.’17 (2 month)
JICA Pacific LEADS (scholarship) [Kyoto]	1	Aug.’16 - Mar.‘19 (2.5yrs)

2-3: Overview of Project Activities: Output1

Enhanced PNG Forest Resource Information Management System (PNG-FRIMS)



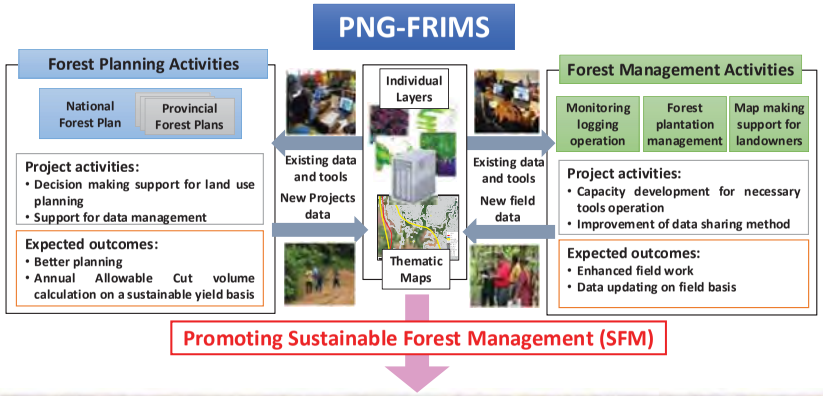
2-3: Overall Progress of Project Activities (4th year)
- Output 1 -

Enhanced PNG Forest Resource Information Management System (PNG-FRIMS)

Activities	Achievements/Progress	Challenges/Issues/next step
Updated the volume estimate function of FIMS	-FBM2012 was introduced into FIMS for calculating timber volume -FIMS adopted the new cording system of provinces in PNG (22 provinces)	-Continue keeping forest information in PNG-FRIMS up to date
Developed Forest Information Browsing System (LAN Map)	- Portal site was developed as the gateway to LAN Map to manage the access privileges.	-DSS rollout is necessary to expand LAN-Map to field offices. - Thematic contents for planning/monitoring would be ready after LAN-Map usage in field offices realize.
Development of Past Forest Cover Maps and FCM 2015	-Past Forest Cover Maps were developed. -Development of FCM2015 is ongoing.	- Lack of manpower makes the development of FCM2015 being late. Casual staff is inputted for assist.
Updating Planted Forest boundaries/area	Approaches to improve the data decided. -Privates sector was requested to give soft data of its plantation. - Ground surveys are postponed due to budget reason.	- Method and procedure of data updating in FRIMS is established after newly data is acquired.
Development of Land Change modeling system	Developed the system and trained I&M staff to use it.	Self-training in modelings by the Cartographers shall continue.

2-3: Overview of Project Activities: Output 2

Improved National/Provincial Forest Plans, Management Plan/Monitoring System



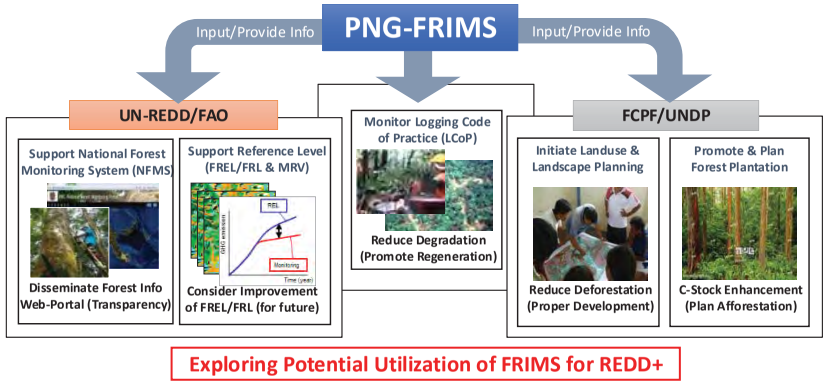
2-3: Overall progress of Project Activities (4th year)
-Output 2-

Improved National/Provincial Forest Plans, Management Plan/Monitoring System

Activities	Achievements/Progress	Challenges/Issues/next step
National Forest Plan	-ACC calculation function taking account of forest re-growth was integrated with FRIMS. -Digitized Setup boundaries of 111 ALPs -Updated Constraints data in PNG-FRIMS	-Compare AAC based FRIMS with permitted cuts based on logging projects basis. -Continue digitizing logged over area.(It is essential to make the result of AAC calculation close to real situation)
Provincial Forest Plan	-Analyzed the PFP guideline & past PFP and shared it with FCPF2. -Evaluated the potential of FRIMS to provide data on forest resources for designing Province Forest Plans (production rates and areas, conservation areas and uses, etc.)	- Support PFP review initiative under the FCPF 2.
GPS/GIS training	-Training in Goroka and Bulolo plantation are postponed due to budgetary reason. - Conducted follow up GPS/GIS training in pilot sites.	-Conduct training if the situation improved. -Bulolo plantation has to equip some ITC items for its training. -Soft copy of Forest plans are not shared with Field officers. It hinders usage GPS/GIS for their tasks.
Introduction of Drone	-Conducted Drone training and workshop to explore possible usage of Drone . -Share the result above with FA officers including Area and Provincial office.	-Verify drone application in plantation and natural forest monitoring [including field visit].

2-3: Overview of Project Activities: Output 3

Prepared/Identified Forest Information for addressing/contributing-to REDD+



Exploring Potential Utilization of FRIMS for REDD+

2-3: Overall progress of Project Activities (4th year)

- Output 3 -

Prepared/Identified Forest Information for addressing/contributing-to REDD+

Activities	Achievements/Progress	Challenges/Issues /next step
Consider FRIMS-based FRL (Forest Reference Level) for future improvement	• AAC based FRL is considered • Map-based FRL is considered (in pilot provinces) • Requirements of carbon emission estimation through logging monitoring with FRIMS is being considered.	• Compatibility between different methods and provide the roadmap with considering the characteristic and issues identified
Organize FRIMS Potentials for National REDD+ Strategy (NRS) as REDD+ Policies and Measures (PaMs)	• Overall considerations on the FRIMS usage and concept of activities was shared with FCPF for its consideration about GCF proposal.	• Contribute to GCF proposal formulation and REDD+ Financial Investment Plan (RFIP)
Provide FRIMS spatial info. to National Forest Monitoring System (NFMS) and publicity	• Provide Forest Base Map, Logging Concession, Constrains data, etc for Collect Earth Assessment • Prepare policy on data provide to public general is published in Fact Sheet #2 (Forest BaseMap) and #3 (PNG-FRIMS)	• FRIMS and Collect Earth database are not integrated (physically) • Further consider necessary information for NFMS and identify requirements of the information to NFMS with paying attention to development of NFMS.
Develop Support Functions for Decision Support System (DSS) and Timber Legality Verification System (TLVS)	• Function to publish bookmarks (URL) of LAN Map with location and scale for the area of interest • FRIMS(FIMS) data provided to DSS (but not systematically.)	• Network between FA HQ and local offices are not working yet • Explore FRIMS usage with paying attention to discussion on TLVS development.

3. Challenges and issues encountered

Budgetary issue

- Since the Public Money Management regulation Act enforced in April this year, PNGFA cannot cover necessary budget for the Project expense.

  => Some field activities have been postponed.

Manpower issue

- Workload (Digitalization of logged over area and development of Forest Cover Map) presses Cartographers.

  => Casual staff are hired for relieving these workload now.

4: Management of ICT Items(1)

- JCC4 (Aug. '17) adopted "the policy on the maintenance for the ICT items handed over to PNGFA from JICA" and advised the Project team to conduct a survey for updating ICT items list in cooperation with AOs and POs.
- The survey identified missing or not working items which needs to be replaced or procured to support PNGFA's field based activities with ICT items.
- Necessary cost roughly estimated is 450,000 kina(*). It is not small. PNGFA should consider how to ensure the budget in PIP or recurrent budget in and after year 2019 and also usage of donors support.

*:it is calculated based on items price when it was procured

Summary of the survey is shown in the next.

4: Management of ICT Items(2)

Summary of Condition of Major ICT items(*1)

	Procured By Japan(*2)		Missing and Not working (beyond service life)		Need to be replaced or Procured	
	HQ	Area and PO	HQ	Area and PO	HQ	Area and PO
Workstation	6	5	1(5)	2(3)	6	5
Desktop PC	2	-	0(2)	-	2	-
Laptop PC	16	19	6(5)	5(5)	8	7
GPS	13	31	2(5)	12(5)	5	11
A0/Scanner	1	-	1	-	1	-
A3 Laser Color Printer	1	5	0(1)	3(2)	0	3

*1 : Not including software such as ArcGIS.

*2 : including the Grant Aid program, the previous and current Project.

Thank you

Improvement of Technical Operations for Forest Planning System utilizing PNG-FRIMS

8th August 2018
Margaret Tongo

Cowriters:
Mr. Constin Bigol, Ms. Margaret Tongo, Mr. Yasuyuki Okada,
Mr. Stephan Salim, Mr. Tsutomu Koyama

Capacity Development for Operationalization of PNG Forest Resource Information Management System for Addressing Climate Change

Outline

- Objectives of PNGFA/JICA Project for Forest Planning System
- National Forest Plan
  - Current situation and planned assignment of NFP
  - AAC considering re-growth volume after logging
  - Discussion for next NFP utilizing FRIMS
- Provincial Forest Plans
  - Current situation and planned assignment of PFPs
  - PFP Guideline
  - Effort for revision of PFPs
- Remaining Activities and Expected Outputs of PNGFA/JICA project

Objectives of PNGFA/JICA Project for Forest Planning System

PNGFA/JICA project PDM (Project Design Matrix) ;

- Examining the current forest planning system and document issues on the implementation of the National Forest Plan, Provincial Forest Plans, forest management plans
- Developing appropriate methods/procedures where necessary for solving issues

National Forest Plan

Current situation and planned assignment of NFP [1 / 2]

- National Forest Plan (NFP) is required to be consistent with the national forest policy and relevant government policies, to be based on a certified national forest inventory and to consist of four primary elements.
- NFP has a significant role as it captures the current and future forest development plans contributing to forestry act and constitution.

National Forest Plan

Current situation and planned assignment of NFP [2 / 2]

- After endorsement of first NFP in 1996, several reviews were made but not fully endorsed by national executive council.
- FRIMS has to contribute to next NFP mainly improving data accuracy utilizing remote sensing technology.

Issues for next NPF

- ✓ Update fundamental forest information such as area, volume and maps
- ✓ AAC volume considering re-growth volume after logging
- ✓ Promotion of development of PFPs

National Forest Plan

AAC considering re-growth volume after logging [1 / 3]

Existent AAC calculation

$$AAC = (Atotal - Alogged) * Vstandard \quad / 35 * 0.4$$

0.4: Adjusting index

Improved AAC calculation

$$AAC = \{(Anet - Alogged) * Vstandard + \sum_{k=1}^{35}((Apermit /35) * 100k/35)\} / 35$$

Anet: Confine to net production area

$\sum_{k=1}^{35}((Apermit /35) * 100k/35)$: Insert of regrowth volume

Notice:
Formula calculates total volume of some concession by 35 years later after launching logging.

Abbreviation:

Atotal	: Total Forest Area (inc. constraints)	Apermit	: Area authorized permit
Anet	: Net Production Area (inc. constraints)	Vstandard	: Standard Volume of each forest type
Alogged	: Logged Over Area in net production area	k	: elapsed year after logging

National Forest Plan

AAC considering re-growth volume after logging [2 / 3]

Prerequisites of re-growth calculation and its issues

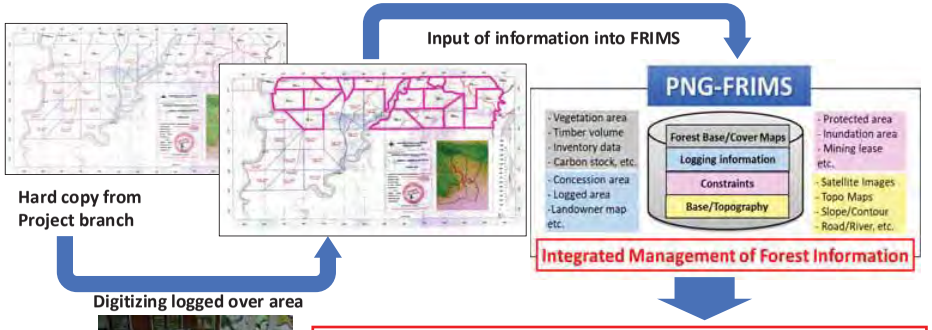
$$\sum_{k=1}^{35}((\ Apermit\ /35) * 100k/35)$$

Prerequisite	Issue	Handling line	Progress
Permitted area of logging is presumed that is religiously logged one thirty-fifth every year.	Actual logged over area may differ from one thirty-fifth.	Actual logged over area is being digitized based on ALP.	In progress
Volume after logging is presumed that recover in 35 years lineally.	Actual yield curve of volume is uncertain.	Function, switching time of years recovering volume, is implemented to FRIMS.	Completed
Regrowth volume is counted in AAC right away after logging.	Legislation limits re-entry after logging for 35 years.	Function, switching time of years adding volume to AAC, is implemented to FRIMS.	Completed

National Forest Plan

AAC considering re-growth volume after logging [3 / 3]

Digitizing logged over area for accuracy



Adding information of logged over area into FRIMS will cause more accurate re-growth volume and AAC calculation.

National Forest Plan

Discussion for next NFP utilizing FRIMS

Improvement of data accuracy

- ✓ Provision of forest classification, land area, timber volume and base map
- ✓ AAC volume considering re-growth volume after logging and comparison AAC volume with permitted cut

Strengthening supportive role to PFP

- ✓ Provision of forest information in each province to promote development of PFP

Provincial Forest Plans

Current situation and planned assignment of PFPs

- Provincial Forest Plans (PFPs) contribute to the development of NPF in conformity with National Forest Development Guideline.
- PFPs have potential to assume the role as land use planning of forest from both developmental and conservational aspects.
- All PFPs are expired now. Next NFP requires valid PFPs.

PFPs have to contain;

- ✓ Provincial Forest Development Guideline
- ✓ A five year rolling forest development program

PNGFA supports development of PFPs through PFP guideline

Provincial Forest Plans

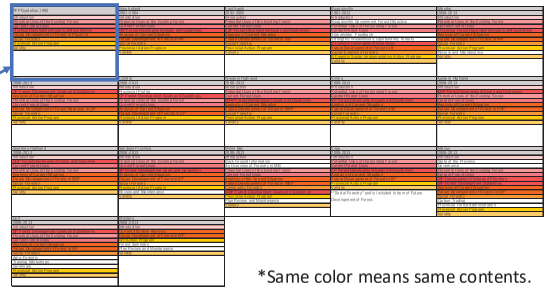
PFP Guideline

- PNGFA has standard format of PFPs as PFP guideline, and PFPs are guided by this guideline.
- But this guideline has not been revised since 1995.
- The project will contribute to review of PFP guideline.

PFP guideline consists of two parts;

- First part indicates **general information** for making PFP
- Second part provides **table of contents** as standard format for PFP

Similarity PFP guideline and past PFPs



*Same color means same contents.

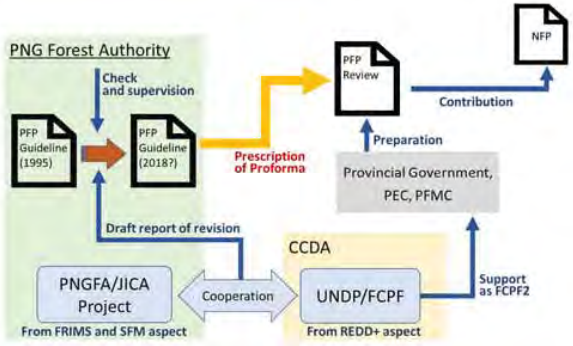
Capacity Development for Operationalization of PNG Forest Resource Information Management System for Addressing Climate Change

Provincial Forest Plans

Effort to revision of PFPs

- PNGFA reviews PFP guideline under FCPF and JICA projects support.
- This project contributes to review of PFP guideline in cooperation with PNGFA and UNDP/FCPF.

Process of review of PFP guideline and its contribution



Capacity Development for Operationalization of PNG Forest Resource Information Management System for Addressing Climate Change

Remaining Activities and Expected Outputs of PNGFA/JICA project

NFP

- ✓ Continuing to digitize logged over area
- ✓ Comparing AAC based on FRIMS with permitted cut based on project
- ✓ Examining the inputs for next NFP utilizing FRIMS

Expected outputs: Suggestion for next NFP utilizing FRIMS [Documentation]

PFPs

- ✓ Developing PFP review format and guideline in cooperation with PNGFA and UNDP/FCPF

Expected outputs: Approved PFP guideline [Documentation]

Improving Efficiency of Forest Monitoring System Utilizing Remote Sensing Techniques

8th August 2018

Constin Bigol

Cowriters:
Mr. Charles Pakure, Mr. Francis Vilamur,
Mr. Hirokazu Takahashi, Mr. Tsutomu Koyama

Capacity Development for Operationalization of PNG Forest Resource Information Management System for Addressing Climate Change

Outline

Capacity Development for Operationalization of PNG Forest Resource Information Management System for Addressing Climate Change

Objectives of PNGFA/JICA Project for Forest Monitoring System

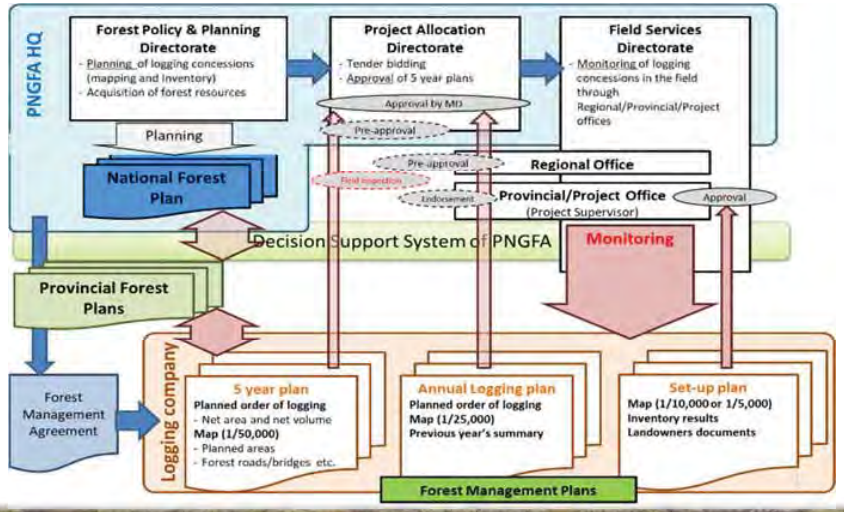
PNGFA/JICA project PDM (Project Design Matrix) ;

- Examining the current forest planning system and document issues on the implementation of the national forest plan, provincial forest plans, forest management plans
- Developing appropriate methods/procedures where necessary for addressing the issues

Capacity Development for Operationalization of PNG Forest Resource Information Management System for Addressing Climate Change

Forest Management Plans and its Monitoring System

Current situation and planned assignment of LCoP/PMCP [1 / 2]



Forest Management Plans and its Monitoring System

Current situation and planned assignment of LCoP/PMCP [2 / 2]

- ✓ PNGFA has adequate policy and legislative framework to enable sustainable forest management.
- ✓ PNGFA has limitations in terms of human resource and logistics to implement forest monitoring based on the framework.
- ✓ This project will assist with efficient monitoring tools utilizing remote sensing technology and FRIMS to forest monitoring in PNG.

Forest Management Plans and its Monitoring System

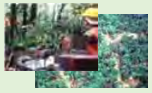
The project's focal point and past activities

PNG-FRIMS [LAN-Map]
- ✓ Development of linking point; FRIMS and field activity
- ✓ Utilization of FRIMS information in field task

GIS
- ✓ Procurement and training in GIS
- ✓ Map-base analysis for monitoring

GPS
- ✓ Procurement and training in GPS
- ✓ Promotion of accurate and efficient monitoring

Through past activities, the project has mainly contributed to implement LCoP/PMCP more efficiently utilizing FRIMS and remote sensing techniques.



Activities in Pilot Sites

Possibility of connecting FRIMS with field monitoring task

- To utilize FRIMS for forest monitoring, the project developed LAN-Map, which is browsing system of FRIMS information for field officers.
- LAN-Map is expected that is to be the link for FRIMS and field activities when Internet/Intranet conditions in PNGFA improves.

LAN-Map in FRIMS

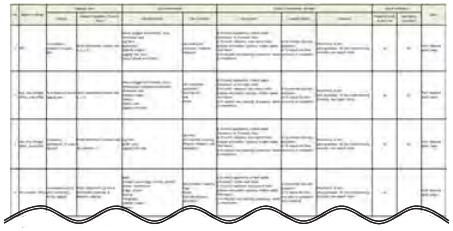
Goal	Function	Objectives	Examples of outcome
To improve PMCP for forest logging operations	Shares forest information stored in PNG-FRIMS with relevant officers	[Portal site functions] - Manage the user access privileges - Manage the map availability - Announcement postings on PNG-FRIMS [Web GIS functions] - Overlay several forest information - Search location, Measure distance and extent - Edit and update forest information - Estimate forest volume etc.	To carry out more accurate assessment of logging plans submitted by logging companies To find encroachment logging and overlapping of project boundaries

Activities in Pilot Sites

Utilizing GPS/GIS for efficient forest monitoring

- Through GPS/GIS training and workshop, contribution of improvement in forest monitoring, especially focusing on LCoP/PMCP, is verified.
- The project suggested monitoring report using GPS/GIS is helpful to implement LCoP/PMCP.

Possible contribution for forest planning



Activities in Pilot Sites

New issues occurring from through the project's activities

✓ Follow up of training/workshop in pilot sites
- To evaluate past project activities, the project conducted follow up observation in pilot sites. [West Sepik: 6th-8th Mar. 2018, West New Britain: 13th-15th Mar. 2018]

✓ Issues
- Capacity of handling GPS/GIS by officers is high and control/maintenance of procurement is well managed, however preparation of monitoring report is inadequate.

✓ Cause
- Soft copy of maps, which are necessary for preparing monitoring report, are not submitted by logging companies.
- Some activities are duplicated in monitoring report and daily task such as monthly report.

✓ Way forward
- Preparing specific documents and to submit soft copy of maps, and requesting for cooperation from logging companies.
- Examining contribution of GPS/GIS to daily task in field monitoring.

Capacity Development for Operationalization of PNG Forest Resource Information Management System for Addressing Climate Change

Introducing Drone on Trial Basis

Inquest toward introducing use of drone in the future [1 / 3]

Drone training toward its introduce in the future

- 12- 13 June 2018: Lecture and software preparation at HQ
- 14-15 June 2018: Drone flight practice and Drone Image Analysis
- 18 June 2018: Demonstration Field visit to Kuriva
- 19 June 2018: Discussion of drone use potential in PNGFA
- 20 June 2018: Second visit to Kuriva Plantation
- 21 June 2018: Results/Limitations






Capacity Development for Operationalization of PNG Forest Resource Information Management System for Addressing Climate Change

Introducing Drone on Trial Basis

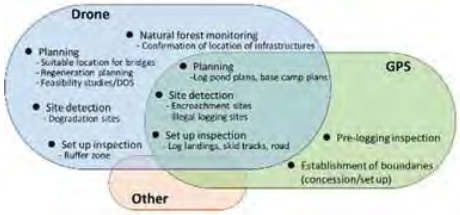
Inquest toward introducing use of drone in the future [2 / 3]

- The project targets at plantation, natural forest monitoring and forest research as priorities to invest effort in conformity with PNGFA's policy.
- The project considered and clarify on how and where drone can contribute to (improve) forest monitoring in PNGFA in each priority through training.

Drone application for forest monitoring

Major item	Item	Use	Method
Shooting	Grasping General condition	◎	From imageries and movies
	Change detection	◎	By comparison of the images obtained from the same route
Photo Survey	Stem number	○	By point data from 3D model
	Tree height	○	From point cloud data
	Tree crown density	△	Maybe possible by DSM data
	DBH	×	
	Tree volume	△	Possible from the difference of DSM and DTM or estimation from tree height
	Stand structure	○	From point cloud data
	Understory	×	Maybe possible in sparse stands

Role comparison drone with other method of monitoring in natural forest:



Capacity Development for Operationalization of PNG Forest Resource Information Management System for Addressing Climate Change

Introducing Drone on Trial Basis

Inquest toward introducing use of drone in the future [3 / 3]

- PNGFA officers participated in drone training identified issues for drone utilization in PNGFA and picked up three proposals for next step.
- The project affirms these proposals and would like to conduct some tests for verification purpose in pilot site.

Verification
- ✓ Evaluate the possibility of drone in 3 priorities
- ✓ Set strengths/weaknesses of drone in each priority

Cost analysis
- ✓ Estimate costs of drone usage in 3 priorities
- ✓ Compare costs of drone with other existent methods
- ✓ Set availability/feasibility of drone in each priority

Risk management
- ✓ Identify risks of drone usage especially in remote area
- ✓ Set rules for safety technical operation of drone
- ✓ Draw up the guideline

How can the project contribute in limited remaining term?

Remaining Activities and Expected Outputs of PNGFA/JICA project

GPS/GIS

- ✓ Preparing specific documents for submission of soft copy of maps
- ✓ Examining contribution of GPS/GIS to daily task in field monitoring
- ✓ GPS/GIS training in Goroka and Bulolo for plantation.

Expected outputs:
- Specific documents for submission of soft copy of maps
- Documentation, if possible integrated format monitoring report and monthly report
- Training report

Drone

- ✓ Testing of drone application in plantation and natural forest monitoring
- ✓ Preparing brief user manual for drone for end user in PNGFA

Expected outputs:
- Verification report/suggestion
- User manual of drone

GIS/GPS TRAINING EVALUATION

- Total number of officers trained – 87
- Respondents – 19 (21.83%)
- PAD – 2 (5)
- FSD – 5 (43)
- FDD – 0 (13)
- FRI – 2 (8)
- FPPD – 10 (17)

CONTENT ANALYSIS

Course Content	Inadequate	Sufficient	Way above expectation
Map Reading (coordinates and steepness on topographic maps	1	17	
GPS (Setting-up, acquiring points and lines, taking pictures etc.	1	15	2
GIS (ArcGIS Explorer) adding maps, adding GPS data, making reports etc.	4	11	2
Spatial Information	4	10	3

OBJECTIVES ANALYSIS

Content	Absolutely	Not Sure	No
Learn new technologies on forest resource monitoring.	16	1	1
Identify and discuss possibility and challenges in utilizing technologies for future resource monitoring in forest plans and management in PNGFA.	16	1	1
Acquire advanced skills in relating to data collection, processing and management for forest monitoring.	15	2	1

FREQUENCY IN SKILL/KNOWLEDGE USAGE

Skill/Knowledge	Weekly	Monthly	Not at All
Data Collection	2	9	7
Data Processing	3	7	8
Data Management	3	9	6
Utilizing Technologies e.g. Arc GIS Explorer, Arc Map, Garmin, Drone	4	5	9

WHAT THEY CAN DO

Skills Gained	Absolutely	Partly	Not at All
Data Collection	16	1	1
Data Processing	9	8	1
Data Management	7	10	1
Utilizing Technologies e.g. Drones	4	9	5

ON THE JOB

- List some (5) notable things you have accomplished since the GIS/GPS training.

1. Being able to use a hand held GPS (e.g. Garmin) for recording field data (waypoints/tracks).
2. Being able to upload GPS data into Google Earth or ArcGIS for processing.
3. Being able to compose output maps using GIS Software like ArcMap/ArcGIS.
4. Able to use GIS software for processing, analyzing and presentation of spatial and temporal data.
5. Map reading/standardizing, map making, remote sensing analysis and interpretation and GIS database Management.

COMMENTS

- Generally speaking the area of contention is on the frequency of skills usage and non-usage.

1. 7/18 which represents 38.8% do not use it at all. 11/18 which represents 61.1% use it either weekly or monthly for data collection.
2. 8/18 which is 44.4% users do not use it for data processing. 10/18 which is 55.5% use it either weekly or monthly for data processing.
3. 6/18 (33.3%) users do not use it for data management and 12/18 (66.6%) use it weekly or monthly
4. 9/18 (50%) haven't used associated technologies .

RECOMMENDATIONS

1. In future PNGFA must ensure the following;

a) Officers must be told their selection is to gain general knowledge only if they are not going to use the skills regularly..
b) Officers attending training for skills gap bridging must be able to apply skills gained in their work environment.
c) A Learning Contract must be instituted to ensure skills gained is applied in the field of work.

5th Joint Coordinating Committee (JCC5)Meeting
8th August 2018
Board Room, PNGFA HQ, POM, PNG

Agenda item 3.

Annual Work Plan of the Project

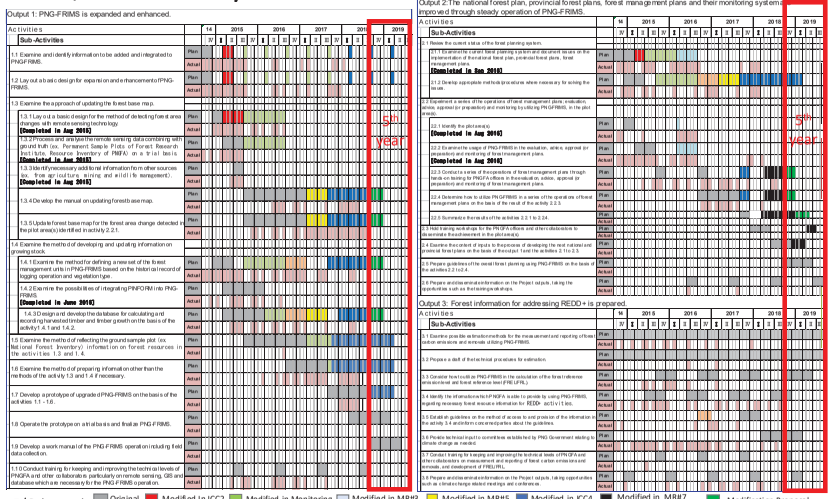
Dr. Ruth Turia
Project Director PNGFA/JICA Project
Director, Forest Policy & Planning Directorate, PNGFA

Contents

1. Background information

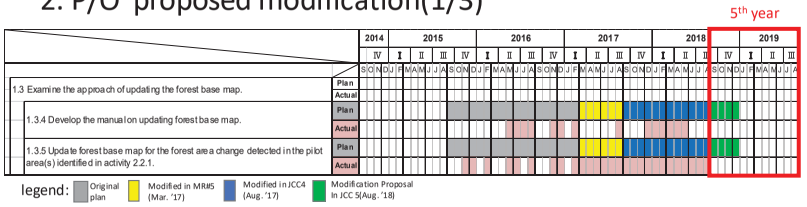
- The annual work plan(AWP) and the Plan of Operation(P/O) should be approved by an annual JCC in order to see through activities in the following year.
- In this Project, every AWP has been approved based on the P/O of respective year with some modifications. Because the P/O is detailed enough, it has been accepted as the AWP. The original P/O was adopted at the first JCC (Sep. 2014).
- Change of schedule of activities listed in the P/O need to be reported to JICA HQ for its reference through bi-annual project report.
- JCC may consider and approve a modified P/O as the AWP (Sep 2018 – Aug 2019).

2. P/O How they look like



 P/O is detailed enough to serve as an Annual Work Plan.

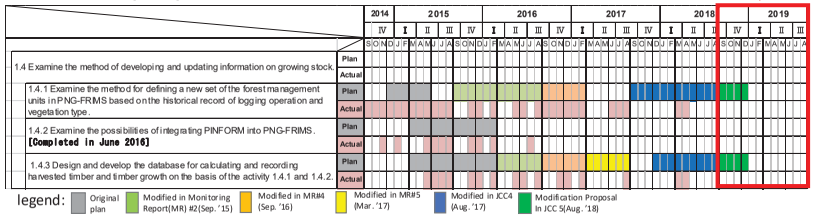
2. P/O proposed modification(1/3)



Activity 1.3.5 "Update forest base map (Forest Cover Map in 2015)" took much longer time than envisaged because of lack of manpower. Casual staff are already hired by the Project Budget (KKC) to support this task and Activity 1.3.4.

Propose to extend these activities until end of this year(green part). These activities are essential for keeping FRIMS data updated.

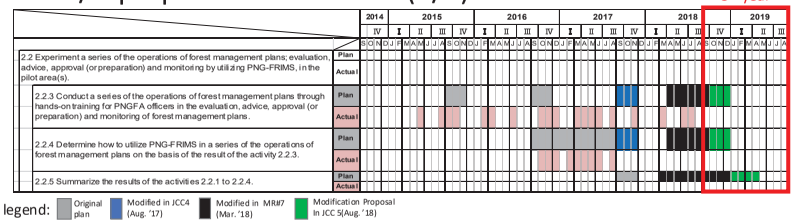
2. P/O proposed modification(2/3)



Activity 1.4.1"Digitizing set-up and FCA boundaries" took much longer time than expected because these maps are not organized well. Lack of these data affect the result of AAC model in FRIMS. Casual staff are hired by the Project budget(KKC) and support organizing the maps under the direction of PNGFA staff.

Propose to extend these activities until end of this year(green part) . These activities would contribute to improvement of data in FRIMS. And also essential for elaborating AAC model in FRIMS.

2. P/O proposed modification(3/3)



Due to the PNGFA's budget limitation, some planned trainings under Activity 2.2.3 were not conducted in the scheduled term and it affected Activity 2.2.4 & 2.2.5.

Propose to extend these activities respectively until end of this year and next April (green). These activities would contribute to improvement of data in FRIMS and are also essential for elaborating AAC model in FRIMS. Securing Budget by PNGFA is essential to conduct the Project activities.

With those modifications P/O could be served as Annual Work Plan Sep 2018 – Aug 2019.

3-1. Topics of Activities in the 5th Year Toward closing the Project

Finish activities and disseminate the outputs through/by

- ✓ Conducting workshops.
- ✓ Utilizing SNS and Web page. Developing and Revising fact sheet series. Compiling 'Big book' .
- ✓ Finalizing Manuals and guidelines prescribed as Means for verifiable indicators to evaluate the Project's impact and efficiency etc (*).

*The Project will be evaluated at the last JCC (Aug.'19) with the project completion report (PCR) made by the Project. It is highly recommended that the JICA Project communicates well with the JICA office in the preparation of PCR. Therefore, the Project will prepare first draft of PCR before March'19 and start consultation with the JICA office.

3-2. Topics of Activities in the 5th Year Collaboration with other program

Many programs are running in forestry and its related area in PNG. To address sector issues, the Project collaborates with other programs taking advantage of the progress of the Project.

○Reviewing Provincial Forest Plan guideline [PNGFA/FCPF2]
The initiative for reviewing the guideline under the FCPF2 program has started. The JICA Project supports the initiative in terms of data provision with FRIMS.
○Timber Legality Verification System(TLVS)[PNGFA/TNC/FAO/EU]
PNG-FRIMS is expected to be a part of system to implement TLVS together with DSS (Decision Support System). The Project will consider the data linkage between FRIMS and DSS with paying attention to the progress of discussion on TLVS.
○GCF funding proposal and REDD+ Financial Investment Plan(RFIP) [CCDA/UNDP/FCPF2]
The project has contributed to the development of Concept Note of GCF funding proposal submitted to the GCF sec. this July. The Project continues to join the initiative and contribute to the GCF proposal and RFIP based on the experience in the Project activities.

4. Possible consideration points

To ensure implementation of adopted Annual Work Plan, Budgetary issues might be considered in the following agenda.

1. Impacts of PNGFA's accounts closure on the Project implementation

Since the Public Money Management Regulation Act enforced in April this year, PNGFA cannot cover necessary budget for the Project expenses and some field activities such as GPS training which have been postponed.

2. PIP budget request for 2019 year

PIP budget as counterpart funding for the Project has not been allocated since the Project started in 2014. PNGFA has managed to allot its ordinary budget for the Project implementation. However, it might have adverse effect on PNGFA's performance of its original tasks.

Thank you!

New JICA Project

Project title:

Capacity Development for enhancing implementation of the planning, monitoring and control procedures and the PNG logging code of practice including natural regeneration practices in forest concessions in PNG

Overall Goal:

Forest in PNG is conserved, managed in a sustainable manner and at the same time promoted as an important mitigation and adaptation measure against climate change

Project Purpose:

Capacity of PNGFA is improved for monitoring logging operations in all timber concessions through the implementation of the LCoP and review of the PMCP and the Natural Regeneration practices.

Outline of the new JICA project request

Output:

1	PMCP and the LCoP well understood and applied by all stakeholders
2	Operational guidance and procedures for natural forest regeneration management developed and demonstrated.
3	A standard landowner awareness package developed

Duration: Sep.2019- Aug.2024

-The request of the new JICA project was submitted to DNPM on 24th July. It will be submitted to Japan Embassy through Ministry foreign affairs of PNG in this month.
-After Japan Gov. internal consultation, the result of the application will be notified to PNG Gov. in April '19 at the latest.
-If the application is approved by Japan Gov. , the next project will start in 2019.

Fifth Joint Coordinating Committee
Of the JICA Technical Cooperation Project 2014-2019
Meeting Minutes Memo – 2018
(Draft)

8th August 2018, 09:30am – 13:00pm
Board Meeting Room, PNG Forest Authority (PNGFA)

Chair: Dr. Ruth Turia Director, Forest Policy & Planning (FPPD), PNGFA
Co-chair: Mr. Takashi Toyama Chief Representative, JICA PNG Office

Attendance:

Mr. Goodwill Amos	Manager, REDD & Climate Change. FPPD, PNGFA
Mr. Gewa Gamoga	Officer, REDD & Climate Change. PNGFA
Mr. Constin Bigol	Manager, Forest Inventory & Mapping, FPPD, PNGFA
Ms. Margaret Tongo	Senior Forester, Forest Inventory & Mapping, FPPD, PNGFA
Mr. Patrick Laa	Cartographer, Forest Inventory & Mapping, FPPD, PNGFA
Mr. Jehu Antiko	Cartographer, Forest Inventory & Mapping, FPPD, PNGFA
Ms. Elizabeth Tau	Manger, Human Resource Branch, CSD, PNGFA
Mr. Geno Kini	Snr Technical Officer, Org. Dev. Branch, CSD, PNGFA
Mr. Sarto Inaido	Snr Officer, Org. Dev. Branch, CSD, PNGFA
Mr. Raphael Moini	Snr Employee Dev. Officer, Org. Dev. Branch, CSD, PNGFA
Mr. Dambis Kaip	Manager-Policy & Aid Branch, FPPD, PNGFA
Mr. Alois Jenkihau	Officer, Policy & Aid Branch, FPPD, PNGFA
Mr. Beno Ningisere	Projects Officer-NGI, PAD, PNGFA
Mr. Andrew Aopo	Acting Director, Field Services Directorate
Mr. Lyall Umbo	Manager- Projects, PAD, PNGFA
Mr. John Orabi	Coordinator-Field Mobile Surveillance, FSD, PNGFA
Mr. John Aigilo	Acting Area Office-WNB
Mr. Jim Silu	Provincial Forest Officer, Vanimo, Sandaun Province
Ms. Magdalene Maihua	Director, Project Allocations Directorate, PNGFA
Mr. Charles Pakure	Manager, Projects, PAD, PNGFA
Mr. Dan Lyanda	Manager, Department of National Planning and Monitoring(DNPM)
Ms. Dorcas Hutu	Officer DNPM
Mr. Alfred Rungol	Officer, Climate Change and Development Authority(CCDA)
Mr. Jordan Bulo	Officer, FCPF
Dr. Hitofumi Abe	Chief Technical Advisor, UN-RED /FAO, EU/FAO
Mr. Mitsugu Yachidate	First Secretary- Embassy of Japan
Mr. Ryosuke Watanabe	Representative, JICA PNG office
Mr. Masatake Harada	Assistant representative, JICA PNG Office
Ms. Margret George	Senior Program Officer, JICA PNG Office
Mr. Daisuke Kadowaki	Chief Advisor, JICA Project Expert, JICA/PNGFA
Mr. Tsutomu Koyama	Coordinator, JICA Project Expert, JICA/PNGFA
Mr. Masamichi Haraguchi	Short Term Expert, JICA/PNGFA, KKC

1. Opening Remarks

The Chair, Dr. Ruth Turia, apologies on the unavailability of the Managing Director of PNGFA, Mr. Tunou Sabuin and welcomes everyone, highlights the importance of the meeting and thanks JICA and the people of Japan for their support to PNGFA and to PNG as a whole then asks the Co-chair to give his opening remarks.

The Co-chair, Mr. Takashi Toyama thanked the Co-Chair and gave his remarks. In his remarks he (1) commented on the strong ownership of PNGFA and its structured aid coordination, (2) commented on the recent achievements in Climate Change area in Papua New Guinea (PNG), (3) confidently stated that the project outcome would contribute to the implementation of the National REDD+ Strategy, (4), mentioned the constrains to achieve Project output due to financial restrictions under the Public Finance Management Act. He further elaborated that this situation would determine the expected outputs of the project and so it might be the topic to discuss in the meeting together with the PIP budget allocation and management of ICT items which were raised at the past JCCs. (5) commented that he expected the project team will soon successfully sort out useful and powerful information and disseminate it within PNGFA and to other stakeholders in a user-friendly manner. He also added that he expects that the information will be shared with the international community, taking advantage of opportunities such as APEC and international conferences related to forest management to show PNG's efforts to tackle Global Environment issues, (6) thanked participants in various group, and added that JICA is proud to implement this technical corporation project, working closely with the PNG government and will continue their corporation for environmentally sustainable development in PNG.

After the address given by the Co-chair Mr. Takashi Toyama, the First Secretary of the Embassy of Japan, Mr. Mitsugu Yachidate gave his remarks. He expressed his sincere appreciation to PNGFA for making a great effort to materialize the smooth implementation of the project. He then mentioned that Japan's Prime Minister, Shinzo Abe extended his condolence to the earthquake victims in February. The Prime Minister also expressed the provision of equipment as a grant aid for PNG. The project aims at extending electricity and water access through providing solar panel and water desalination plant as a countermeasure for climate change as well.
He concluded his speech by saying that the meeting was important for the progress and areas of improvements highlighted by committee members, and hopes for best results out of the project and will also further strengthen the friendly relationship between the two countries.

2. Agenda Items

The Co-chair, Dr. Turia introduced the agenda items which were accepted.

2.1 Review on overall progress of the project activities

Mr. Bigol made a presentation on the overall progress of the project, highlighting the newly joined experts and stuffs, Mr. Takahashi as the "drone expert" and the three new casual staff for mainly digitizing of ALPs. In addition to that he mentioned the new equipment bought and the duty trips and workshop in May and June regarding the usage of drone at the head quarter and in Kuriva Plantation. He further highlighted the importance of the project's collaboration with other programs and explained the challenges and issues encountered in the

project which is mainly the budgetary issues and the manpower issue. In his final point on management of ICT items, he explained the result of survey which was instructed by the JCC 4 and stated that around 450,000 kina is needed to freshen up the items and maintain the Project's effect once the Project ends in next August.

2.2 Improvement of Technical Operations for Forest Planning System utilizing PNG-FRIMS

Ms. Margaret Tongo outlined the background information that supports the improvement of technical operations for forest planning system utilizing PNG-FRIMS which includes,

1) The objectives of PNGFA/JICA Project for Forest Planning System
2) National Forest Plan,
    A) Current situation and planned assignment of NFP,
    B) AAC considering re-growth volume after logging,
    C) Discussion for next NFP utilizing FRIMS
3) Provincial Forest Plans,
    A) Current situation and planned assignment of PFPs,
    B) PFP Guideline,
    C) Effort for revision of PFPs
4) Remaining Activities and Expected Outputs of PNGFA/JICA project

She stated that NFP has a significant role as it captures the current and future forest development plans contributing to the objectives required under forestry act and the fourth of the national goals declared in constitution. She further explained that FRIMS will contribute in improving the PFP and NFP. In addition to that she also mentioned that the Annual Allowable Cut (AAC) can increase its accuracy using digitized logged over area in FRIMS. And also this project will help in review of PFP guidelines in cooperation with PNGFA and UNDP/FCPF. She also mentioned that in future logging companies have to submit digital data of Forest Working Plans including ALPs to reduce PNGFA's work load.
Mr. Gamoga raised a question concerning the 3% that was used in the formula to calculate AAC; Mr. Koyama explained that the approximately 3% (2.86% to be more accurate) was leaded by 100 over 35 in presented formula.

Mr. Jim Silu asked if the digitizing work also includes data on project boundary. Mr. Antiko responded that boundary data is currently being captured through digitizing but it will take some time to have the boundaries for the concessions in for the whole country.
Mr. Silu raised a concern that the overlapping of boundary issue is more is becoming more common. He also thanked JICA for the GIS/GPS training which is currently helping them a lot, and he mentioned that drone can be used to identify the current boundary issue they are currently facing in East New Britain Province (ENB).
Ms. Tongo responded that the current boundary overlapping issue with concessions in ENB is that logging companies have a lot of concessions in that area. She suggested that those logging companies should submit digital copies of their data to PNGFA so that PNGFA can have up to date information on the concessions into FRIMS. It will be easier for PNGFA to manage and solve such disputes effectively and efficiently.

Mr. Lyall made comments on the issue of Digital data exchange from companies to PNGFA through Project Allocations Directorate (PAD). He commented that the digital copies of the FWP, ALP and FCA boundary maps produced by the companies can be arranged by PAD so

that soft copies can be passed to cartography section to ease work load on physically digitizing the maps.
He also mentioned that the FCA leased areas maps (hard copies) can be provided by PAD quickly for digitalizing such that FCA boundaries based on the leased titles are captured in the FRIMS to avoid issues of overlapping since PAD has all the hard copies with them.

2.3 Improving Efficiency of Forest Monitoring System Utilizing Remote Sensing Techniques

Mr. Bigol outlined the following points in his presentation; a) Objectives of PNGFA/JICA Project for Forest Monitoring System, b) Forest Management Plans and its Monitoring System, c) Activities in Pilot Sites, d) Introduction of Drone on trial Basis and e) Remaining Activities and Expected Outputs of PNGFA/JICA project. He also made Mentioned that PNGFA has adequate policy and legislative framework to enable sustainable forest management but has limitations in terms of human resource and logistics to implement forest monitoring based on the framework however he continued by stating that this project will assist with efficient monitoring tools utilizing remote sensing technology and FRIMS to forest monitoring in PNG. He highlighted that through past activities, the project has mainly contributed to implement LCoP/PMCP more efficiently utilizing FRIMS and remote sensing techniques such as GIS and GPS.
The presentation also mentioned inquest towards introducing the use of drone in the future where the target will be at plantations, natural forest monitoring and forest research as priorities to invest effort in conformity with PNGFA's policy. He also mentioned the PNGFA officers who participated in drone training identified issues for drone utilization in PNGFA and picked up three proposals for next step.
Mr. Amos asked if the GPS could take pictures, and record the date as well, Mr. Bigol responded that the GPS can take pictures and record date as well.

2.4 GIS/GPS Training Evaluation

Mr. Raphael Monie before starting on his presentation slides asked Mr. Geno Kini to make some comments. Mr. Kini on behalf of the Human Resource Branch thanked JICA on the training provided to the officers of PNGFA and further commented that PNGFA is very privilege to have such opportunities offered by JICA. He also extended his thank you to Dr. Turia and the senior managers for their support in the Project as well. After Mr. Kini's comments Mr. Monie continued with his presentation. In his presentation he reported on the feed-back the HR Branch got from the officers in different directorates in PNGFA, highlighting that only 19 officers responded out of the 87officers who were trained. He concluded his presentation with the following recommendations, A) Officers must be told their selection is to gain general knowledge only if they are not going to use the skills regularly B) Officers attending training for skills gap bridging must be able to apply skills gained in their work environment C) A Learning Contract must be instituted to ensure skills gained is applied in the field of work.

Mr. Geno stressed on the points mentioned in the recommendations that PNGFA officers who are sponsored by JICA Project through the capacity building programs must come back and put into practice what they have acquired since JICA has spent a lot on them.
Dr. Turia added that this issue was for PNGFA to discuss in a meeting later on.

3. Annual Work Plan of the Project

Dr. Turia explained the annual working plan of the project by giving the following points as background information, 1) The annual work plan (AWP) and the Plan of Operation (P/O) should be approved by an annual JCC in order to see through activities in the following year, 2) every AWP has been approved based on the P/O of respective year with some modifications. Because the P/O is detailed enough, it has been accepted as the AWP. The original P/O was adopted at the first JCC (Sep. 2014), 3) Change of schedule of activities listed in the P/O need to be reported to JICA HQ for its reference through bi-annual project report, 4) JCC may consider and approve a modified P/O as the AWP (Sep 2018 – Aug 2019).
Dr. Turia explained the necessity of extension of some activities such as updating of the past forest cover map 2015, and the digitizing of set-ups and the FCA boundaries with hiring Casual staff by the Project budget (KKC).

In addition to that she explained some activities towards closing the Project, such as 1) conducting workshop to share the result, 2) Utilizing SNS such as Facebook and compiling "Big book" to publish "data" in FRIMS. And 3) Finalizing Manuals and guidelines prescribed as means for verifiable indicators to evaluate and collaboration with other donor program such as 1) Reviewing Provincial Forest Plan guideline (FCPF), 2) Timber Legality Verification System (TNC/FAO/EU), 3) GCF funding proposal and REDD+ Financial Investment Plan (CCDA/UNDP/FCPF).

JCC5 approved the proposed AWP

4. Other Relevant issues

A) Budgetary issue
Dr. Turia explained the budgetary situation of PNGFA since the Public Money Management Regulation Act enforced and the progress of negotiation between PNGFA and Department of Finance. She also mentioned that PNGFA was supposed to request the PIP budget for the new project and to do so PNGFA planned a consultation with DNPM the day after the JCC.

B) Next Project application
Mr. Kaip briefly explained the title of the proposed new JICA Project, the overall goal of the project and the purpose of the new project. He also mentioned that the request of the new JICA project was submitted to DNPM on 24th July. It will be submitted to Japan Embassy through Ministry foreign affairs of PNG in this month and the result of the application will be notified to PNG Government in April '19 at the latest. He added by mentioning that if the application is approved by Japan Government then the next project will start in 2019.

Mr. Toyama mentioned the necessity of prioritization by PNG Gov. for JICA consideration because JICA receives many proposal projects from PNG Goc.. However, JICA may not extend all request due to budgetary constrain.
.
C) Dr. Turia announced that the CNN team will visit PNGFA to do a short film/interview. It aims to introduce the Project as one of the Japan contribution against Climate Change in island nations.

5. Closing Remarks

The Co-chair Mr. Takashi Toyama thanked everyone for their participation in the meeting and closed the meeting.

26th July 2019

Draft AGENDA

The 6th Joint Coordinating Committee of the JICA Technical Cooperation Project

JICA/ PNGFA Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG-FRIMS) for Addressing Climate Change

2nd (Fri.) August 2019, 9:30- 12:30
Board Room, PNG Forest Authority

1. Opening remark (9:30-9:45, 15 min.)
   Chair (Mr. Tunou Sabuin, Managing Director, PNG Forest Authority)
   Co-Chair (Mr. Takashi TOYAMA, Chief Representative, JICA PNG Office)
   Speech by Mr. Mitsugu Yachidate, First secretary, Embassy of Japan

2. Output and Evaluation of the Project (9:45-10:35, 50 min.)
   1) Process of the Project evaluation in Project Completion Report (Mr. Kadowaki) (10 min.)
   2) Progress and output of the Project (Mr. Saega) (15 min.)
   3) The evaluation of the Project by the Project Team (Dr. Turia) (20 min.)
   4) Presentation on 'the Big book'(Dr. Turia)(5min.)

   Coffee Break (10:35-10:50, 15 min.)

3. Other issues for future (10:50-11:30, 40 min.)
   1) Updating ICT items (Mr. Malan, 15 min.)
   2) Management of data and information in PNG-FRIMS (Mr. Antiko, 15 min.)
   3) Next Project application (Mr. Kaip, 10 min.)

4. Reporting on trainings in Japan. (11:30-12:30, 60min.)
   - ICT for Improvement of Government Capacity & Services (Mr. Matambuai)
   - Policy Planning Skills for Implementation of REDD+ (Mr. Rome)
   - Global Environment Management -Masters- (Mr. Evera)

Lunch

6h Joint Coordinating Committee (JCC6)
2nd August 2019
Board Room, PNGFA HQ, POM, PNG

Agenda item 2. 1
The process of the JICA project evaluation

Mr. Daisuke Kadowaki
Chief Advisor
The PNGFA/JICA Project

Contents

1. Introduction

- JICA technical cooperation projects should be reviewed at the completion.
- The review used to be done by the mission team before.

  Ex. the 1st PNGFA/JICA Forest Project
  - Start from Mar. 2011 to Mar. 2014
  - Terminal Evaluation: Oct. 2013
  - Review team members: from DNPM and JICA HQs
- Now, the review should be conducted by the Project team itself.
- And the result of the reviews are reported as Project Completion Report (PCR) to JICA

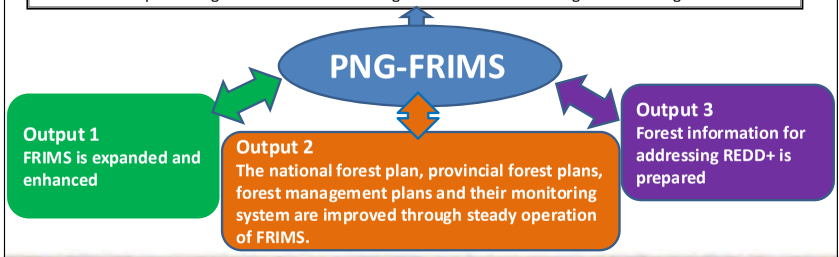
2. Overview of the Project (summary)

Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (PNG-FRIMS) for Addressing Climate Change

5 years (2014 -2019)

Overall Goal
Forests in PNG are conserved and managed in a sustainable manner, while at the same time, mitigation and adaptation measures against climate change are promoted.

Project Purpose
Capacity of the PNGFA to continuously update forest information and to fully operationalize and utilize PNG-FRIMS for promoting sustainable forest management and for addressing climate change is enhanced.



2. Overview of the Project (Input)

(1) JICA Experts:

1) Long-term Experts: Chief Advisor/Forest Management/ Climate Change Coordinator and Forest Planning

2) Short-term Experts: Forest remote sensing 1/Forest GIS 1
Forest remote sensing 2/Forest GIS 2
Forest database 1
Forest database 2/Database management:
Forest database 3:
REDD+ project planning assistance

(2) C/P personnel (Around 20 person)

1) Project Director: Director, Forest Policy and Planning Directorate, PNGFA
2) Deputy Project Director: Manager, Policy and Aid Coordination Branch, Forest Policy and Directorate, PNGFA
3) Project Manager : Manager, Inventory and Mapping Branch, Forest Policy and Planning Directorate, PNGFA
4) Deputy Project Manager: Manager, Projects, Project Allocations Directorate
5) Other staff: from Field Service Directorate and Forest Development Directorate

2. Overview of the Project (Input)

From Japan side
- Training of C/P in Japan (23 C/Ps)
- Provision of Equipment (924,000 kina as of Jul. '19)
- Total budget (561 mil. Japanese Yen as of Jul.'19)

From PNG side
- Budgetary Allocation (a half mil. Kina PIP + recurrent budget)
- Facilities(3 office rooms, Utilities, AC, Furniture, 6 PC workstations, Photo-copy machine and A0 dot printer etc.)

3. What we should evaluate and report in PCR ?

Major components of the PCR are below;

Result of the Project (main contents)

- Input by Japan side and PNG side
- Achievement of "Project Purpose", Output 1 , 2 and 3

Result of joint review (main contents)

1 Result of review based of DAC Evaluation Criteria
(1) Relevant(Consistency with Policies etc.)
(2) Effectiveness (Degree of achievement of Project purpose and Projects outputs)
(3) Efficiency (Timing and size of inputs etc.)
(4) Impact (Contribution to achievement of the Overall Goal etc.)
(5) Sustainability (budget, staff, policy etc.)
2 Lesson learn for other JICA projects

For the Achievement of Overall Goals (main contents)

- Prospects to achievement Overall Goal
- Plan of PNGFA to achieve Overall Goal

4. How did we evaluate those items ? (1)

For Overall Goal, Project Purpose and Outputs
-> indicators and verifiable means are defined in PDM.

Ex. Output 1. PNG-FRIMS is expanded and enhanced.

Indicators	Verifiable means
1. The manual on updating forest base map is developed.	1. Manual
2. Not lower than 80 % of PNGFA relevant technical officers are satisfied with the manual.	2. Questionnaire
3. The design document of DB is developed.	3. Design document
4. The DB is developed.	4. DB
5. Not lower than 80 % of PNG relevant technical officers think the DB as relevant and useful.	5. Questionnaire
6. PNG-FRIMS is finalized.	6. PNG-FRIMS
7. Not lower than 80 % of PNGFA relevant technical officers think PNG-FRIMS as relevant and useful.	7. Questionnaire
8. The manual of PNG-FRIMS is developed.	8. Manual
9. Not lower than 80 % of PNGFA relevant technical officers are satisfied with the manual.	9. Questionnaire
10. Not lower than 80 % of PNGFA officers and collaborators who received training are satisfied with the training.	10. Questionnaire

4. How did we evaluate those items ? (2)

For Five DAC(*) Evaluation Criteria
-> Questionnaire survey conducted following JICA guidance on the review.

***: Development Assistance Committee of OECD (Organization for Economic Cooperation and Development)**

	Criteria	Note
1	Relevance	Consistency with Development Policies etc.
2	Effectiveness	Degree of achievement of Project purpose and Projects outputs.
3	Efficiency	Timing and size of inputs etc.
4	Impact	Contribution to achievement of the Overall Goal and other projects etc.
5	Sustainability	budget, staff and policy etc.

Capacity Development for Operationalization of PNG Forest Resource Information Management System for Addressing Climate Change

6h Joint Coordinating Committee (JCC6)
2nd August 2019
Board Room, PNGFA HQ, POM, PNG

Agenda item 2. 2

Final Year Progress Report of the Project Activities

Mr. Ledino Saega
a/Manager-Inventory & Mapping, FPPD, PNGFA
PNGFA/JICA Project

1: Overall progress of Project Activities (5th year)

Inputs:

a. Casual staffs

- The Project hired 5 casual staff for digitizing maps(logging plans), support trainings and preparing publications.

b. Equipment Procurement

- Drone(DJI Mavic 2Pro): 4 set
- Tablet PC for Drone: 4 set (iPad)
- Desktop PC (HP800 Elite Desk G4 i7) : 2 set
- Laptop PC (HP450 G5 i7) : 4 set
- Mapper(Pix 4D) : 5 licenses

2: Overall progress of Project Activities (5th year)

c. Maintenance

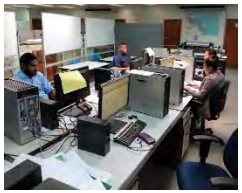
- Printer tonner, UPS and miscellaneous
- Vehicle (safety sticker)

d. Training in Japan

Courses	Person	Duration
Remote Sensing of Forest Resources [Hokkaido]	1	Aug. - Oct. '18 (2 month)
Sustainable Forestry Management with community participation	1	Sep. – Nov. '18 (2 Month)
ICT for the improvement of government capacity and Services: IT architect [Okinawa]	1	Jul.-Dec. '18 (5 month)
Remote Sensing of Forest Resources [Hokkaido]	2	May – Jun. '19 (1 month)
Policy Planning skills for implementation of REDD+ activities [Tokyo]	1	May-Jun. '19 (1 week)
JICA Pacific LEADS (scholarship) [Kyoto]	1	Aug.'16 - Mar.'19 (2.5yrs)

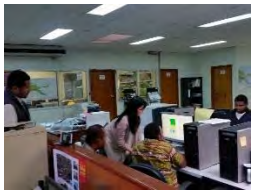
3: Overview of Project Activities: Output1

Enhanced PNG Forest Resource Information Management System (PNG-FRIMS)



Digitizing logged over area etc. by casual staff.

Training on Land Change Modeler (Oct. 2018)



Follow up training on Quality and Accuracy assessment of Forest Base Map (Jul. 2019)

Other Activities

- Training on verification of AAC calculated by the improved FIMS (Sep. 2018)
- Trial calculation of forest carbon stocks by using Forest Cover Map 2015 (Dec. 2018)
- Follow up training on Land Change Modeler (Jul. 2019)
- Designing Map layout (Sep. 2018 to Mar. 2019)

3: Overview of Project achievement : Output1

Guidelines and Manual	Main User
Manual on Updating Forest Base Map	Cartographers, I&M Branch
PNG-FRIMS Guidebook	I&M Branch / Acquisition Branch / REDD+ & Climate Change Branch / Allocations Branch / Projects / Plantations Branch
PNG-FRIMS Installation Guide	Cartographers, I&M Branch / ICT Branch
FIMS User Guide	Forest Plans officer and Cartographers, I&M Branch
FIPS User Guide	Forest Inventory officer and DB, RS/GIS officers, I&M Branch
Simple manual on LAN on PNGFA'S Intranet	I&M Branch / Acquisition Branch / Allocations Branch / Projects / Plantations Branch
Manual for Land Change Modeler Analysis	Cartographers, I&M Branch



Capacity Development for Operationalization of PNG Forest Resource Information Management System for Addressing Climate Change

✓ Achievement of Output 1

- PNG-FRIMS is expanded and enhanced. Achieved

✓ Indicators

1. The Manual on updating forest base map is developed Completed
2. Not lower than 80% of PNGFA relevant technical officers are satisfied with the manual Achieved
3. The design document of DB is developed Completed
4. The DB is developed Completed
5. Not lower than 80% of PNG relevant technical officers think the DB as relevant and useful Achieved
6. PNG-FRIMS is finalized Completed
7. Not lower than 80% of PNGFA relevant technical officers think PNG-FRIMS as relevant and useful Achieved
8. The manual of PNG-FRIMS is developed Completed
9. Not lower than 80% of PNGFA relevant technical officers are satisfied with the manual Achieved
10. Not lower than 80% of PNGFA officers and collaborators who received training are satisfied with the training Achieved

Capacity Development for Operationalization of PNG Forest Resource Information Management System for Addressing Climate Change

4: Overview of Project Activities: Output 2

Improved National/Provincial Forest Plans, Management Plan/Monitoring System


Drone training and handover at Vanimo (May, 2019)


Workshop and handover at Kimbe (April, 2019)

Other Activities
- Conducting Drone training & workshop at HQs and Kupiano (Feb. 2019)
- Joining the workshop to develop next West New Britain's PFP at Biala (Jun. 2019)
- Consultation on drafting the reporting format of the field inspection/monitoring (Jun. 2019)

Capacity Development for Operationalization of PNG Forest Resource Information Management System for Addressing Climate Change

4: Overview of Project Achievement: Output 2

Redefining AAC calculation method and updating it for next NFP

Provinces	Net Production Area(ha) (j)	Logged Over Area in Net Production Area (ha) (k)	Un-logged Area in Net Production Area (ha) (l) ((j)-(k))	Regrowth Volume in Logged Over Area(m^3) (m)	Volume in Un-Logged Area(m^3) (n)*1	Gross Merchantable Volume(m^3) (o) ((m)+(n))	AAC(m^3) (p) ((o)/35)
Western	6,669,860	817,030	5,852,830	7,516,904	169,917,727	177,434,631	5,069,561
Gulf	2,170,919	509,025	1,661,894	6,438,603	48,652,821	55,091,424	1,574,041
Central	2,085,878	286,365	1,799,513	2,581,064	45,927,677	48,508,741	1,385,964
Milne Bay	904,292	176,394	727,898	3,070,497	21,679,027	24,749,524	707,129
Northern (ORO)	1,546,215	101,633	1,444,582	1,095,049	41,934,479	43,029,528	1,229,415
Southern Highlands	647,529	13,374	634,155	333,505	22,926,011	23,259,516	664,558
Eastern Highlands	484,995	8,938	476,057	0	15,486,371	15,486,371	442,468
Simbu	258,266	0	258,266	0	8,697,756	8,697,756	248,507
Western Highlands	99,665	22,007	77,658	600,091	4,753,673	5,353,764	152,965
West Sepik	2,874,210	377,882	2,496,328	6,743,936	89,179,000	95,922,936	2,740,655
East Sepik	1,813,436	70,649	1,742,787	509,530	73,366,369	73,875,899	2,110,740
Madang	1,737,962	181,414	1,556,548	3,564,013	53,751,140	57,315,153	1,637,576
Morobe	1,918,799	177,859	1,740,940	1,132,216	66,043,919	67,176,135	1,919,318
West New Britain	1,464,855	909,974	554,881	15,629,287	17,386,992	33,016,279	943,322
East New Britain	811,472	412,115	399,357	4,695,714	11,514,601	16,210,315	463,152
New Ireland	663,801	391,805	271,996	4,850,891	7,525,085	12,375,976	353,599
Autonomous Bougainville Government (ABG)	713,663	41,129	672,534	711,660	14,440,789	15,152,449	432,927
Manus	156,806	36,569	120,237	346,518	5,374,614	5,721,132	163,461
Enga	324,420	32,804	291,616	450,165	9,108,849	9,559,014	273,115
National Capital District	7,192	0	7,192	0	23,822	23,822	681
Hela	477,546	0	477,546	0	16,285,644	16,285,644	465,304
Jiwaka	211,932	48,621	163,311	1,257,153	7,562,556	8,819,709	251,992
Total	**28,043,713**	**4,615,587**	**23,428,126**	**61,526,796**	**751,538,922**	**813,065,718**	**23,230,450**

*1: Volume is calculated by Forest Monitoring Unit of Forest Basemap 1.2 and its tentative volume

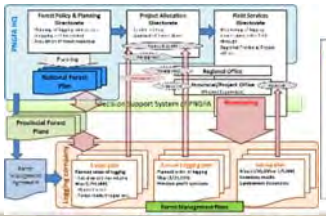
Enhancing PFPs formulation and revising PFP guidelines

Three days workshop in Bialla (from 3rd to 5th June 2019) was organized by UNDP/FCPF project, in West New Britain Province in collaboration with WNB Provincial Forest Management Committee and PNGFA to commence the process of reviewing the PFP Guidelines and the WNB PFP.



4: Overview of Project Achievement: Output 2

Guidelines and Manual	Main User
Training manuals for GPS, GIS and UAV (Drones)	PNGFA Officers intend to utilize UAV in their tasks
Development of AAC calculation scheme by PNG-FRIMS, Interpretation of AAC for forest planning in PNG	PNGFA Officers pertinent to forest planning
Revised Guidelines for Provincial Forest Plans in 2019	PNGFA Officers and Provincial Governments Officers pertinent to forest planning
Preferable information/data stored in PNG-FRIMS for developing PFPs	PNGFA Officers pertinent to forest planning
Voluntary Guidelines to Implement LCoP utilizing GPS/UAV/GIS for SFM	PNGFA Officers intend to utilize GPS/UAV/GIS for monitoring forest resources
Safe administration guideline for drone usage for PNG forest authority	PNGFA Officers intend to use drone for their tasks
Recommended data specification for submission of soft copy of maps.	PNGFA Officers who engage in managing maps in forest plans with logging companies



Development of manuals and guidelines to sustain and improve the capacity

Achievement of Output 2

- <u>The national forest plan, provincial forest plans, forest management plans and their monitoring system are improved through steady operation of PNG-FRIMS</u>

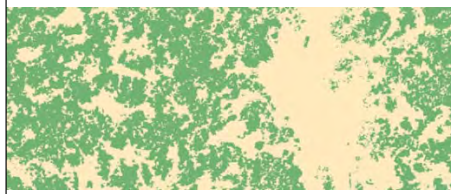
✓Indicators

1. Methods/procedures for solving the issues of the current forest planning system are developed where necessary **Completed**
2. The document on the usage of PNG-FRIMS is created **Completed**
3. Not lower than 80% of PNGFA relevant technical officers in the pilot area(s) and PNGFA HQ relevant officers think the usage of PNG-FRIMS as relevant and useful **Achieved**
4. The guidelines of the forest planning are developed **Completed**
5. Not lower than 80% of PNGFA relevant technical officers think the pilot area(s) and PNGFA HQ relevant officers think the overall forest planning will be improved by the ways described in the guidelines **Achieved**

5: Overview of Project Activities: Output 3

Prepared/Identified Forest Information for addressing/contributing-to REDD+

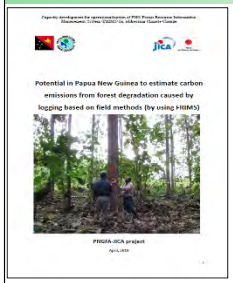
Meeting on Methods of estimation of logging emissions based on field methods and information available in PNGFA in May, 2019.



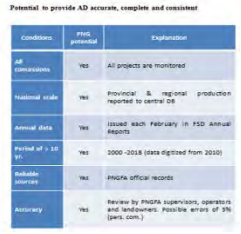
Examine potential of drone for estimating logging emissions.

5: Overview of Project Achievement: Output 3

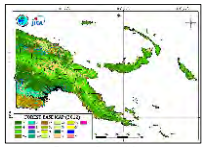
Inputs for future improvement of PNG-FRL



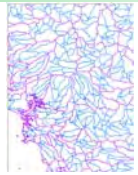
Potential of data on timber volume in PNGFA for emission calculation



Development of guidelines on the provision of information in PNG-FRIMS



Forest Base Map



Watershed Data

Data Item	Coverage	Price	Format	Medium
Forest Base Map 2012	National/Province	K200/K100	PDF	CD-ROM
Forest Cover Map 2015	National/Province			
Concession Area (Planed or Operating)	National/Province			
Constraints	National/Province			
Watershed(catchment) Data	National/Province			

✓ Achievement of Output 3

- Forest information for addressing REDD+ is prepared

✓ Indicators

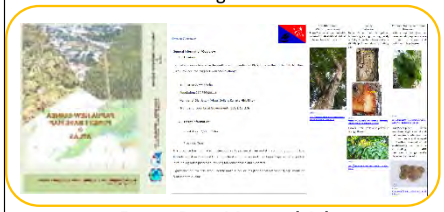
1. The document on the draft of the technical procedure for estimation of forest carbon emissions and removals is created Completed
2. The document on the results of consideration on the usage of PNG-FRIMS in the calculation of the forest reference emission level and forest reference level is created Completed
3. The guidelines on the method of access and provision of the information are developed Completed
4. Not lower than 80% of REDD+ project implementing organization think the guidelines as relevant and useful Achieved

Capacity Development for Operationalization of PNG Forest Resource Information Management System for Addressing Climate Change

Public Relations

Fact Sheet Series No.1 - No.10

"big book"



Forest Base Map and Atlas

Medias

6h Joint Coordinating Committee (JCC6)
2nd August 2019
Board Room, PNGFA HQ, POM, PNG

Agenda item 2. 3
The evaluation of the Project by the Project Team

Dr. Ruth Turia
Project Director PNGFA/JICA Project
Director, Forest Policy and Planning Directorate, PNGFA

Contents

1. Project Achievements (I)

✓ Achievement of the Project Purpose

Capacity of the PNGFA to continuously updated forest information and to fully operationalize and utilize PNG-FRIMS for promoting sustainable forest management and for addressing climate change is enhanced

✓Indicators

- The average level of the capacities of PNGFA officers to update forest information is assessed as satisfactory (3.5 on a scale of one to five)
  - Understanding of the system
  - Capacity to update the map — Achieved (3.9)
- The average level of the capacities of PNGFA officers to operate and utilize PNG-FRIMS for sustainable forest management and climate change is assessed as satisfactory (3.5 on a scale of one to five)
  - Understanding of the system
  - Capacity to operate the system — Achieved (3.7)
  - Capacity to utilize the system

1. Project Achievements (II)

✓ Achievement of Overall Goal

- Forests in PNG are conserved and managed in a sustainable manner, while at the same time, mitigation and adaptation measures against climate change are promoted.

✓Indicators

1. National Forest Plan based on more accurate information is prepared or in preparation through utilization of PNG-FRIMS. Achieved
2. The information of PNG-FRIMS is utilized for the preparation of reports for UNFCCC. Achieved[REDD+ Web portal, BUR]
3. Forest base map for the forest area change detected is updated in 7 provinces except for the pilot area(s). Achieved [Forest Cover Map 2015]
4. The operations of forest management plans by utilizing PNG-FRIMS are conducted in 7 provinces except for the pilot area(s)
   To be achieved [ensuring ICT items and Hands on training are key]

2. Evaluation Results (I)

Relevance: '*High*'

1) Closely connected to Forestry and Climate Change Policies including the National REDD+ Strategy(2017).
2) Environment and Climate Change is one of the three priority area of GoJ's country assistance policy for PNG.
3) Collaborated with other donors (UNDP/UN-REDD and FCPF, FAO/EU etc.) in REDD+, TLVS, and PFP etc.
4) Training programs for the target group(PNGFA staff) were made considering tasks and needs of them in HQs and Fields.

2. Evaluation Results (II)

Effectiveness: '*High*'

1) GPS/GIS/Drones are utilized in not only monitoring logging operations but also other FA's tasks such as demarcation of land boundaries etc.
   → achievement of Project purpose
2) Output 1, 2 and 3 directly contribute to the achievement of the Project purpose.

2. Evaluation Results (III)

Efficiency: '*Relatively High*'

1) Outcome of the previous Project and Grant Aid program were fully utilized in this Project activities.
2) Hiring local consultants relieved cartographers' workload; digitizing maps and etc..
3) The enforcement of Public Money Management Regulation Act in April 2018 limited PNGFA's budget execution and it delayed some project activities.

2. Evaluation Results (IV)

Impact: '*High*'

Many positive impacts observed;
1)For National REDD+ initiative: Some data set in PNG-FRIMS were utilized in the PNG REDD+ and forest monitoring web-portal.
2)For improvement of National Forest Plan: AAC calculated using PNG-FRIMS was used in the draft NFP.
3)For logging operators: Orthophotos taken by drones raised their awareness with compliance to LCoP.

2. Evaluation Results (V)

Sustainability: *'Relatively High'*

1) PNG policy seems to continue promoting REDD+ and SFM
2) PIP budget allotted this year enabled replacement of outdated ICT items.
   -> need to ensure the budget in the future.
3) ICT items management plan was developed and revised
   -> need to update the ICT items list every year to ensure necessary budget for proper maintenance.
4) Cooperation between directorates was promoted in updating information in PNG-FRIMS.
   -> need to keep cooperation and carry out plans to update information.

3. Summary of the achievement and the results

Achievement

Output 1,2,3 -> Achieved
Project purpose -> Achieved
Overall goal -> Almost all Achieved

Evaluation of five criteria

Relevance -> High
Effectiveness -> High
Efficiency -> Relatively High
Impact -> High
Sustainability - > Relatively High

4. The way to achieve Overall Goal by PNGFA

PNGFA acknowledges and appreciates the skills and capacities gained and will endeavor to utilize them to in-built the system to its daily operational activities so to update and use the PNG-FRIMS to its full potential after the project concludes.

JICA-PNGFA Project (Phase 2)
JCC Meeting (final) – PNGFA H/Q
August 02, 2019

Updating of ICT Items Procured by JICA Project

Perry Malan

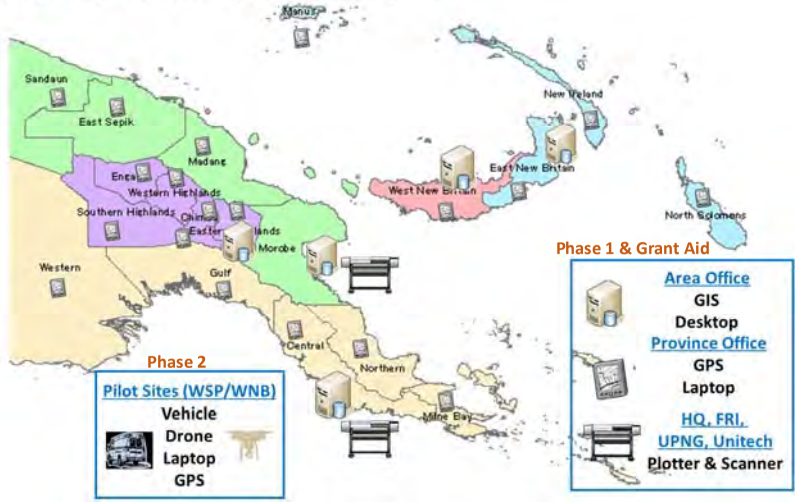
Contents

Overview

- The PNG Forest Authority has been provided with Information and Communication Technology (ICT) items through the Japanese Grant Aid and the JICA phase 1 and phase 2 projects
- The ICT items are crucial for operationalizing the PNGFA-FRIMS and also expanding its usage to the PNG Forest Authority's (PNGFA) field based activities such as monitoring logging projects and management of plantation areas
- The ICT items require budget for maintenance, replacements and procurement of consumables (or maintenance costs). PNGFA has been responsible to cover the necessary costs as part of the Government of PNG contribution in the Project term.
- Upon completion of the JICA project, PNGFA will be responsible for all the costs of maintenance for the current ICT items and also for new procurements for other project areas other than JICA pilot provinces to expand the output of the JICA project across the country.
- Recipients of ICT items are custodians and shall be responsible for the usage, security and liabilities of the items.

Equipment Procurement

Equipment Delivery, Setting-up and Training



Management of ICT Items(1)

- JCC4 (Aug. '17) adopted "the policy on the maintenance for the ICT items handed over to PNGFA from JICA" and advised the Project team to conduct a survey for updating ICT items list in cooperation with Regional (Area) Offices and Provincial Offices.
- The survey identified status of items which need to be replaced or procured to support PNGFA's field based activities with ICT items.
- Necessary cost estimated is approximately 450,000 kina(*). PNGFA has allocated half a million kina of PIP budget to cater for maintenance and replacement of necessary ICT items after the current project. Other donor partners such as FCPF also support the maintenance of exiting ICT items.

*:it is calculated based on items price when it was procured

Management of ICT Items (2)

Summary of Condition of Major ICT items(*1)

	Procured By Japan(*2)		Missing and Not working (beyond service life)		Need replacement or Procurement	
	HQ	Area and PO	HQ	Area and PO	HQ	Area and PO
Workstation	6	5	0(5)	2(3)	6	5
Desktop PC	2	-	0(2)	-	2	-
Laptop PC	16	19	6(5)	5(5)	8	7
GPS	13	31	2(5)	12(5)	5	11
A0/Scanner/Plotter	1	-		-	-	-
A3 Laser Color Printer	1	5	0(1)	3(2)	0	3
Drone	2	2	1			

*1 : Not including software such as ArcGIS.

*2 : including the Grant Aid program, the previous and current Project.

Value Profile of Major ICT Items

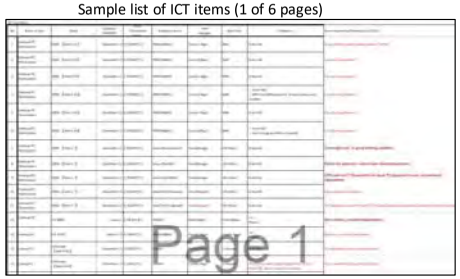
Working Condition
Items Worth Value
K950,000.00 (approx.)

GIS/RS Software
Item Worth Value
K250,000.00 (approx.)

Total Worth Value:K1,200,000.00
(As of July, 2019)

Need Replacement:
Items Worth Value
K450,000.00 (approx.)

Sample list of ICT items (1 of 6 pages)



Summary

- **Equipment Procurement**
  PNGFA need to utilize PIP Budget, recurrent budget or other donor partners support to procure obsolete ICT items and maintain service of items that are in working condition as reported.
- **Technical Back-up Expected from PNGFA**
  - Budget allocation from Public Investment Program is available this year to support JICA Project ICT items.
  - Trained officers to maintain and transfer skills to build capacity of relevant Regional and Provincial Officers
  - The Mapping and Inventory Branch and ICT Brach of PNGFA shall be responsible for management of the ICT items and monitor the usage of these items after the period of the JICA project.
  - PNGFA officers issued with these ICT items shall take full responsibility in ensuring that the items are in proper working conditions and report their status on a quarterly basis to the Manager – Mapping & Inventory and ICT Branch.
  - It is recommended for PNGFA to improve its record register of project procured ICT items and effectively monitor their usage and serviceability.

…THANK YOU…

6h Joint Coordinating Committee (JCC6)
2nd August 2019
Board Room, PNGFA HQ, POM, PNG

Manage Data and Information in FRIMS

Mr. Jehu Antiko
Cartographer, PNGFA

Presentation Outline

- Data Collection
- Data Management and Distribution
- Sustainability of PNG-FRIMS Database

Data Acquisition

Capacity Building:

- Drone trainings (Capacity building of PNGFA Officers)
  - **Field testing of Drone (Phantom 4 Pro) in West Sepik Province. (October 2018)**
  - **Field testing of Drones in Kupiano (Central Province). (February 2019)**
  - **Delivering of Drone to West New Britain Provincial Office. (April 2019)**
  - **Delivering of Drone to West Sepik Province. (April 2019)**

Data Collection/Creation:

- Forest Cover Map 2015
  - **Completion of PNG 2015 Forest cover map. Detection of changes in Agricultural landuse in 2012 and 2015.**
- Digitizing of Analogue Timber Concession and FCA Maps
  - **Cataloguing and Digitizing of Annual logging plans, Five year working plans and FCAs by project casual staff. (Currently Ongoing)**

Data Management and Distribution

LAN MAP

- **Development of Forest Information Browsing System (LAN Map)**

LAN Map Browser enables HQ staff to access information in FRIMS without GIS skill. It can overlay specific layers and measure distance or area etc.. It could improve the efficiency of desktop works such as evaluation/approval of FWP.

Evaluation /Approval of 5yrs FWP; Check
-Area to be logged in the next 5yrs.
-Permanent Roads and Log ponds constructed are in practical and logical order.
-Consistency of ALP with FYFWP on area to be logged.
-Area of set-up and buffer zone width etc..

http://pngfa-hq-srv3/FRIMS-LAN-Map/ (only inside PNGFA)

Sustainability of PNG-FRIMS Database

- Development of Technical Manuals:
  - Land Change Modeler Manual
  - Updating Forest Cover Manual
  - Drone Training Manuals and Safety Guidelines.
  - Accuracy Assessment Manuals/Guides
  - Hansen data preparation Manual
  - Deforestation and Forest Degradation Drivers Identification Guide.
- Data sharing between Directorates:
  - * Data sharing and Capacity Building agreement between Forest Policy and Planning Directorate, Project Allocations Directorate and Forest Development Directorate.*
- Data Utilization
  - -Utilizing of LAN MAP between PNGFA HQ Directorates.

Manage Data and Information in

POPOSED NEW JICA PROJECT

JICA TECHNICAL COOPERATION

JCC Meeting

2nd August, 2019

New JICA Project

Project title:

Capacity development Project for reducing carbon emission from forest degradation through commercial logging in PNG by improving monitoring system of forest logging operations

Overall Goal:

Forest in PNG is conserved, managed in a sustainable manner and at the same time promoted as an important mitigation and adaptation measure against climate change

Project Purpose

The situation of forest degradation is improved by enhancing stakeholders' ability in full enforcement of rule and procedure on logging operations, natural regeneration activities and promoting low carbon emission logging

Outline of the new JICA project request

Output:

1	PMCP and the LCoP well understood and applied by all stakeholders
2	Operational guidance and procedures for natural forest regeneration management developed and demonstrated.
3	Capacity and procedure of field carbon monitoring in logging operation is developed by establishing method and training program for carbon monitoring

Duration: Sep.2020- Sep.2023

-The request of the new JICA project was submitted to DNPM on 31st July. It will be submitted to Japan Embassy through Ministry Foreign Affairs of PNG in this month.
-After Japan Gov. internal consultation, the result of the application will be notified to PNG Gov.
-If the application is approved by Japan Gov. , the next project will start in 2020.

Thank you

2018 ICT for the Improvement of Government Capacity and Services:
IT Architect Course
(ICT TRAINING COURSE B)

July 17, 2018 to December 18, 2018

CONTENTS.

1. COURSE OBJECTIVES

1.1 (a) OVERALL GOAL And (b) COURSE OBJECTIVE.

- a.<Overall Goal>

  To be able to ensure reliability of the online service delivery and to improve efficiency of the work of the organization.

- b. <Course Objective>

  To be able to analyze business/ICT problems, constructing ICT solution requirements, and defining the structure of ICT systems.

1. COURSE OBJECTIVES

1.2 MODULE 1 OBJECTIVE.

- To understand a basic framework for e-Government promotion and for conducting analysis of the business planning and operation.

1.3 MODULE 2 OBJECTIVE.

- To gain fundamental business skills required for playing a leading role in e-Government initiatives.

1. COURSE OBJECTIVES

1.4 MODULE 3 OBJECTIVE.

- To gain skills of business requirement analysis, project management, and technical skills required for formulating an ICT solution proposal to address business problems.

1.5 MODULE 4 OBJECTIVE.

- To strengthen comprehensive skills in analyzing and identifying the business problems, developing ICT solutions, and formulating an ICT solution proposal.

2. SUBJECTS COMPOSITION

Subject Composition		Duration (Days)
Items	Content	
Module 1 (16 Days)	Introduction to e-Government	2
	Introduction to Enterprise Architecture (EA)	2
	Open Source Software (OSS) Implementation Basics	1
	Geographic Information System Basics for Public Services	2
	Introduction to Mobile Technologies	1
	Logical Thinking	2
	Business Requirement Analysis and Planning (Interviewing)	2
	Business Requirement Analysis and Planning (Requirement Definition)	4

2. SUBJECTS COMPOSITION

Subject Composition		Duration (Days)
Items	Content	
Module 2 (19 Days)	ICT for Development (Cloud/Big data/IoT etc.)	3
	Presentation skills	3
	Proposal Writing	3
	Problem-solving and Facilitation	3
	Observation Tour I	1
	Observation Tour II	6

2. SUBJECTS COMPOSITION

Subject Composition		Duration (Days)
Items	Content	
Module 3 (33 Days)	Security Basics	2
	Leadership Training (Negotiation)	2
	Leadership Training (Team Management)	2
	Project Management Basics	4
	Project Planning	4
	RFP Formulation and Contract Management	2
	Estimation Techniques	2
	System Infrastructure Requirement Analysis and Planning	2
	Website Interface Design	2
	Database Basics (MySQL)	2
	MySQL Database Design	3
	CMS Function and Application	3
	HTML	1
	JavaScript	2

2. SUBJECTS COMPOSITION

Subject Composition		Duration (Days)
Items	Content	
Module 4 (32 Days)	Workshop(IGCS-B)	25
	Action Plan	7
Miscellanious (6 Days)	Opening Ceremony / Course Orientation / Pre-test	1
	International Exchange Program with Local Communities	1
	Action Plan Counseling	3
	Course Evaluation / Closing Ceremony / Closing Party	1

3. SIGNICANT TOPICS COVERED.

- Logical Thinking
- Business Requirement Analysis and Planning
- Presentation skills
- Proposal Writing
- Problem-solving and Facilitation
- Leadership Training (Team Management)
- Project Management Basics
- Project Planning
- System Infrastructure Requirement Analysis and Planning

4. ACTION PLAN.

Enhancement Of Network Between Head Office And Regional Offices.

5. CONCLUSION.

- Training was very valuable and worthwhile.
- Learnt a lot from the lectures, exercises and observation tours.
- Gained new knowledge on Information Technology.
- Most subjects were relevant to PNGFA Business such as GIS, Website interface design, Introduction To e-Government & Enterprise Architecture And Leadership Training.
- Learnt a lot from Japanese Traditions and cultures.
- **Training should continue..**
- Target group – Diploma/Degree in ICT with work experience.

Thank you...

Arigato Gozaimas..

Papua New Guinea

South Sudan

Vanuatu

Samoa

Myanma

Enhancement of Network Between Head Office and Regional Offices

Date: 17th of December, 2018.
Organization: Papua New Guinea Forest Authority
Presenter: Mr. Thomas Matambuai

Agenda.

1. Background Of My Action Plan (a and b).
2. Problems (a and b).
3. Current Business And System Image (AsIs).
4. Solution (a, b and c).
5. Future Business And System Image (ToBe).
6. Effect Of The Action Plan.
7. Implementation Schedule.
8. Project Team Structure.
9. Cost For The Action Plan.
10. Risk For The Action Plan.
11. Conclusion.

1. Background of my action plan.

(a) Vision/Mission of my organization.

- To promote the management and wise utilization of the forest resources of Papua New Guinea as a sustainable renewable asset for the well-being of present and future generations.

(b) My role my organization.

1. Oversee and supervise the Communication and Technology Section activities.
2. Provide nationwide support for all radio, mobile and telephone communication systems.
3. Provide administration and technical support for email/internet and network systems.

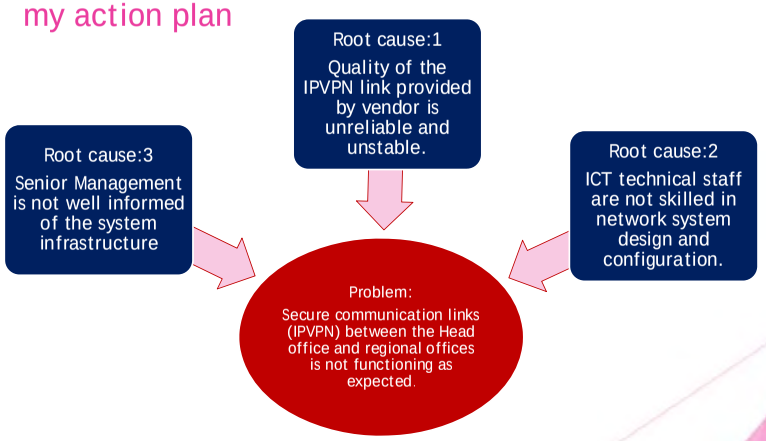
2. Problems.

(a)What are the problems in my workplace?

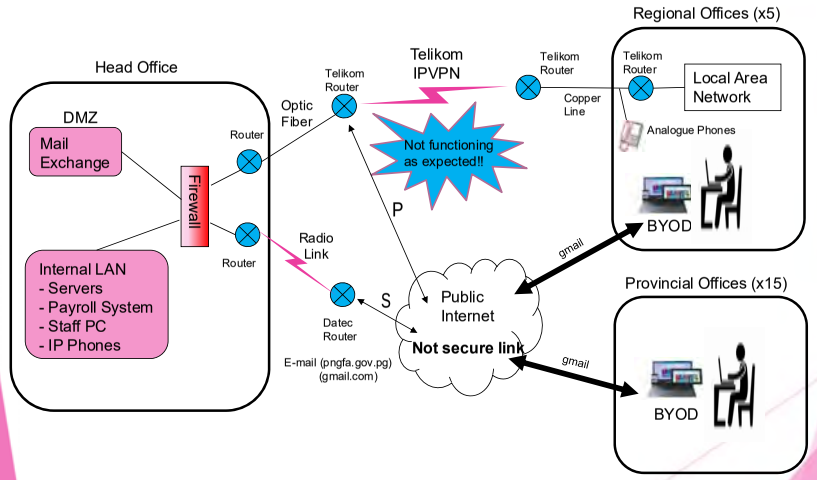
1. Secure communication links (VPN) between the Head office and regional offices is not functioning as expected.
2. Official Website is taking too long to construct and launch.
3. There is no knowledge database system developed yet for the organization to utilize.
4. Only staff at HQ are receiving their pay advises on time from the Payroll Section.

2. Problems.

(b)Analyzing causes of the problem which I will solve in my action plan



3. Current business & system image (AsIs).



4. Solution.

(a)Major actions

- Make presentation to senior management about the system infrastructure requirements and get approval.
- Acquire services of new vendor with quality communication service.
- Conduct training for users.
- ICT Technicians to attend networking course (6 months).

4. Solution.

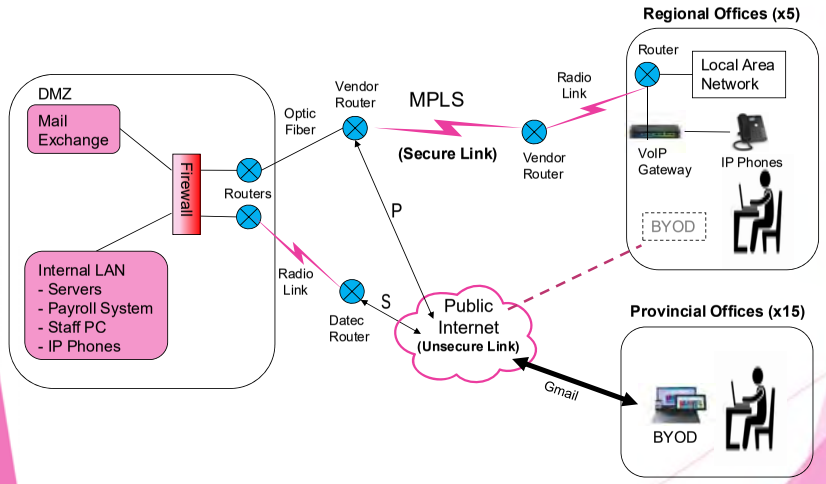
(b) Scope.

- PNG Forest Authority Organization (Regional Offices)

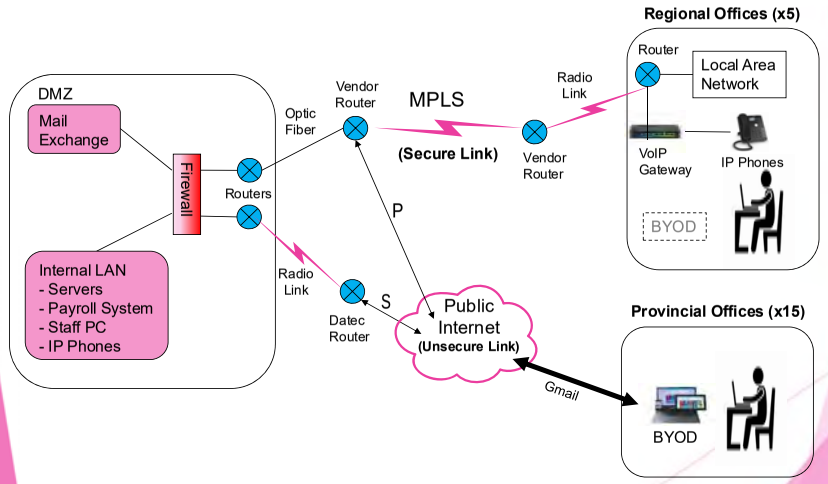
(c) Deliverables and when.

- A new vendor is contracted to establish secure links to the five regional offices by July 2019.

5. Future business & system image (ToBe).



5. Future business & system image (ToBe).



6. Effect Of The Action Plan.

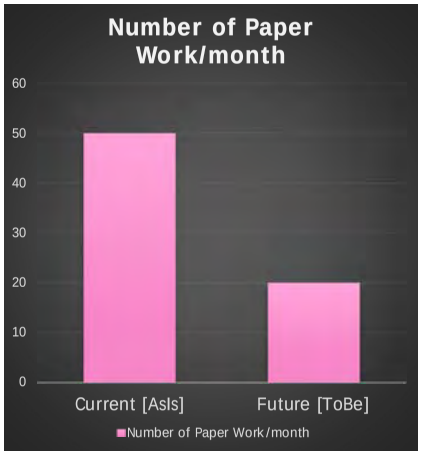
[Qualitative Effect]

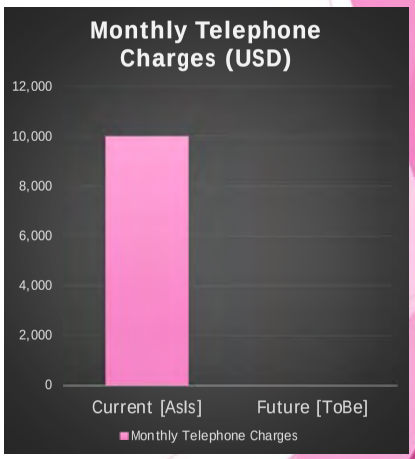
-Improve the quality and security of information sharing and data transfer.

-Satisfaction level on services provided to staff will be increased.

-Standard business email address for all regional staff.

[Quantitative Effect]





7. Implementation schedule.

Beginning of the fiscal year

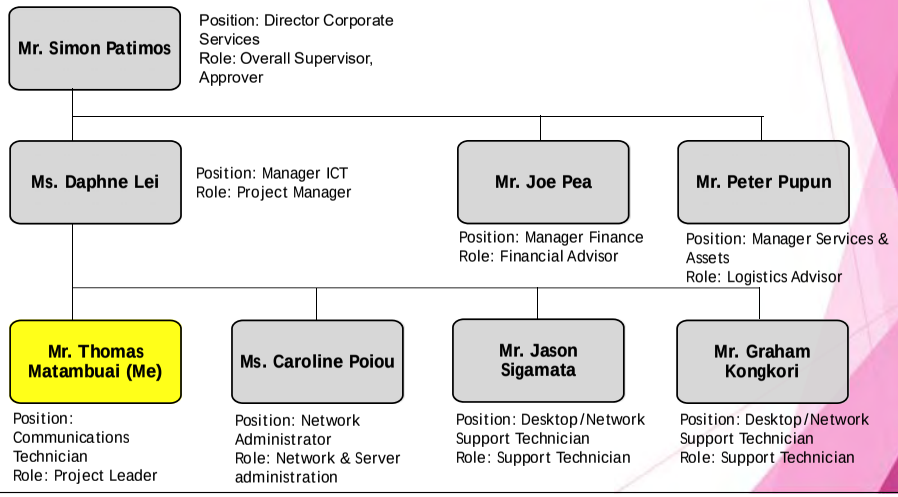
No.	Phase	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019
1	Submit proposal and get approval from management.							
2	Procurement of equipment							
3	Implement the enhancement of the network							
4	Training for Regional staff on how to use system							

7. Implementation schedule.

Beginning of the fiscal year

No.	Phase	Aug 2019	Sep 2019	Oct 2019	Nov 2019	Dec 2019	Jan 2020	Feb 2020	Mar 2029	Apr 2020	May 2020	Jun 2020
5	Operation phase											
6	Evaluation											
7	ICT Technicians to attend training											

8. Project Team Structure.



9. Cost For The Action Plan.

[Initial cost] (Feb. 2019 – Dec. 2019)

Item	Unit Cost (USD)	Volume	Cost (USD)
Refreshments for the seminar	$100	2 seminar	$200
Personnel cost for project implementation	$2,000	2 man-months	$4,000
Cost of hardware procurement	$2,000 $250	6 sites 75 new IP Phone incl. Licenses	$12,000 $18,750
Training for Regional Office staff	$500	5 sites	$2,500
Total Cost			**$37,450**

[Running cost]

Item	Unit Cost (USD)	Volume	Cost (USD)
Monthly Charges	$1,700	5 Offices x 12 months	$102,000
Maintenance cost	$500	12 months	$6,000
Total Cost			**$108,000**

10. Risk For The Action Plan.

Risk for implementation of the plan.

- Funding may be delayed by the Finance and Treasury Department.

Counter measure for the risk.

- Make an agreement with the vendor to supply items on credit purchase until funding is released.

11. Conclusion.

The impact of this action plan is that:

- an appropriate, reliable, secure and efficient ICT infrastructure for PNGFA is developed at the regional level thus paving the way forward to implementing the same infrastructure to the provincial offices nationwide.
- more qualified ICT Technicians to maintain and support the network infrastructure.

JICA Knowledge Co-creation Training Program, Tokyo Japan

Policy Planning Skills for Implementation of REDD+

Training Program no. J19-04343
Training Program duration: 2 weeks

Guduru Rome Aid Project Officer
PNG Forest Authority

Presentation content

- **Part 1. Brief Training Outline**
- 1. Program Schedules
- **Part 2. Expectation on the applied KCCP**
- 1. Achievement of Skills and knowledge
- 2. Importance of my previous vocational experience towards the training
- 3. Area of interest
- 4. Current issues/areas of problems encountered
- 5. Action plans to address these issues
- **Part 3. Cultural Exchange**

Part 1. Brief Training Outline

- 1. Briefing session
- Registration
- Training program orientation
- 2. Country report presentation
- 10 Countries (Cameroon, Peru, Nigeria, Botswana, Myanmar, Cambodia, PNG, DRC & Laos) presented their country reports on REDD+ implementation

Part 1. Brief Training Outline

- 3. Field visits to forest/vegetation of Japan
- Meiji shrine
- Mt. Takao National Park
- 4. Lectures and discussions
- Three (3) days of lecture
- 5. Formulation/presentation of action plans
- Action plans were based on our country situations in relation to REDD+ implementation.

Part 2. Expectation on the applied KCCP

❑ **2.1 The topics covered during the training relating to Policy and REDD+ Implementation include**

- International Negotiations on REDD+,
- Joint Crediting Mechanism (JCM) and REDD +,
- Requirements for REDD+ Implementation (MRV, NFMS, NFI & FREL (FRL)
- External Funds for REDD+ Implementation,
- Requirement for REDD+ Implementation : Safeguards
- Formulation of forest and Forestry Policy in Japan

Part 2. Expectation on the applied KCCP

❑ **2.2. Significant topics or lectures outstanding among the others.**

2.2.1 Joint Crediting Mechanism (JCM) and REDD+

- What is JCM?
  - JCM – bilateral mechanism between GOJ and partner countries to contribute to sustainable development through facilitating mitigation actions.

- Why JCM?
  - This is because it involves private sectors from Japan in promoting REDD+/SFM related activities.
  - Introduction of Japan technology to partner countries to enhance energy sector , transport, etc.
  - Private sectors of the partner countries can participate to build facilities, infrastructures, etc.)
  - Project can be done small on a case by case basis
  - Is replicable to other areas with similar problems/situations

JCM-REDD+

❑ Conditions for JCM-REDD+

- Coherence between the concept of JCM & Climate change policies in partner countries
- Attraction of private investment (Favourable conditions)
- Good progress on the REDD+ readiness activities such as FREL & NRS, etc.

Part 2. Expectation on the applied KCCP

❑ **Intentions for project proposal**

- Research on the JCM
- Collect data on the eligibility for assistance
- Formulate a project proposal
  (Renewable energy: wind, solar, waves, etc.)
- Financing (Donor, Local MP, Governor of the province & State)

Part 2. Expectation on the applied KCCP

- **3. Current Issues encountered in relation to REDD+ implementation in PNG**

- ❑ Financial constraints - NFI and REDD+ related programs are delayed due to financial constraints faced.
- ❑ Capacity issues – REDD+ implementation programs such as MRV, NFI, etc. are new to the country and require experts to train/build our capacity.
- ❑ Technology – REDD+ programs require new technology, hardware & software to successfully carry out the programs which will require training.
- ❑ Logistics – PNG comprises of rough country and rugged terrain and movement and implementation of the REDD+ program is very challenging in regards to logistics.
- ❑ Lack of awareness – General population of the country is not aware of the CC and its impact on our health, food production, water sources, rainfall, forest, etc.
- ❑ Very little collaborative approach

Part 2. Expectation on the applied KCCP

- **5. Action plans to address these issues**
- Policies and Measures

- ❑ Awareness on Climate Change (CC) & climate change impacts to the length & breath of the country
- ❑ Awareness &educate the population on what REDD+ is in relation to CC
- ❑ Mobilise stakeholders: (Government departments, provincial admins, district admins, LLGs, wards/communities)
- ❑ Draw out nationwide action plan on mitigation (reforestation/afforestation: to grow trees with support from government: finance, technical assistance, seeds/seedlings, etc.
- ❑ Review and strengthen policies on REDD+, REDD+/CC frameworks to be compatible with the changes taking place.
- ❑ Financing

Part 3. Cultural Exchange

- Unique Japanese culture
- Time management
- Industrious
- Respect for law
- Respect for their Emperor
- People are peaceful

Recommendation

- PNGFA to assess the need for the upgrading of officers based on the responsibilities officers perform so that it will enhance their capabilities and productivity.

END

Thank you

京都大学大学院 地球環境学堂・地球環境学舎・三才学林
KYOTO UNIVERSITY
Graduate School of Global Environment Studies

Evaluation of Logging Code of Practice in Papua New Guinea with views for natural forest restoration management

JAVEN Evera
Masters in Global Environmental Management

PRESENTATION - OUTLINE

1. INTRODUCTION
   - Overview/Purpose
   - Focus of Study
2. Lectures & Field Work in Japan
3. Research Thesis (Brief Presentation)
   - ✓ Logging Code of Practice (PNG, Fiji, S.I, Vanuatu – Asia Pacific LCOP)
   - ✓ Adoption and Implementation with PNGFA
4. Academic Results
5. Acknowledgement

1. INTRODUCTION
1.1 Overview/Purpose

- Impact of decisions and actions made by any forest owners regarding use of their forest resources, are many consequences mankind face today.
- Developing countries need desperate economic development aspirations; and have lesser concern for sustainable environment management.
- Commercial Logging activity - contribute to wealth of any country.

- The aim of this study is:
  To identify a feasible policy-driven forest development regulation for natural forest management in Papua New Guinea (PNG), to meet expectation of:
  - economic development aspiration,
  - resource owners benefits,
  - restock forest resource supply for future,
  - minimize appalling environment degradation,
  - help to address and support uprising climate actions.

INTRODUCTION
1.2 Focus of Study

- Evaluate present PNG Logging Code Of Practice (LCOP) and assess its efficiency to monitor and control natural forest industrial logging.
- Participate in Research and Internship training to identify sound natural forest management practice(s)
- Consider possible proposal for review of new policy guidelines for forest development regulations to achieve sustainable environmental management and promote mitigation effort climate action.

2. LECTURES & FIELD WORK IN JAPAN

- ✓ Entrance Exam and Acceptance by University
- ✓ 22 Courses/Subject including (Lectures/Field Work/ Industrial Training (internship programmes/Final Master Thesis)

- ✓ Industrial Training - Kinki Chugoku Regional Forest Office in Osaka and Okayama
  - Institute of Global Environment Strategies (IGES) Hayama/Tokyo for 2 months (Nov-Dec 2017)
  - COHHO International Programme by KU

3. RESEARCH THESIS - Brief

Title: Evaluation of Logging Code of Practice in Papua New Guinea with views for Natural Forest Restoration Management

- ✓ Research Supported by JICA/ PNGFA/ Kyoto University
- ✓ Research Site – Vailala Block 1 (TP:2-14) Project_Gulf Province
  - Master Thesis Submitted: Jan 18th , 2019
  - Thesis Defence Presentation: Jan 30th , 2019
  - Final Master Thesis Submission: Feb 15, 2019
  - Graduated March 25, 2019

RESEARCH THESIS Brief- Analysis and Discussion

3.1 Forest Set-up Harvest Output

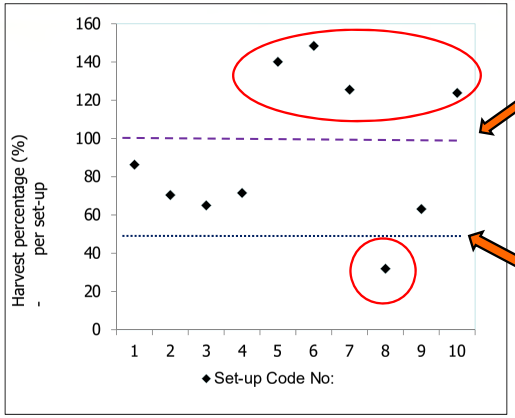


Fig. 1. Graph showing set-up harvest production output.

- 4/10 forests set-ups above 100 % out put
- 1/10 set-up is harvested very little below expected output.
- Remaining set-ups are satisfactorily logged.

RESEARCH THESIS - Analysis and Discussion

3.2 Results – Summary

The study indicated that;

- 40% of set-up harvesting is rated *'over-logging'* with harvest up to 148.4% per set-up harvest production.
- 10% of total set-ups are partially harvested as low as 37% forest volume per set-up harvest and officially closed. Such actions can always attract *re-entry* harvest and does not give ample time for vegetation to regenerate.
- Over-logging encourages massive forest floor clearance & degradation leading loss of biodiversity, ecological disturbances, **prolong recovery rate of natural regeneration**.
- Most set-ups have average stand density of 16m3/ha and is favourable for commercial logging. Malpractices are issues to be addressed

RESULT - Analysis and Discussion

3.3: Issues identified during field study

- Trees were not felled into canopy openings, causing damaged to other standing trees
- Many undersize logs (< 50cm d.b.h) were felled and exported
- Many new skids tracks were constructed during logging and initial approved tracks were not used thoroughly.
- Pushed soil deposits during skid track construction were not properly diverted away
- Forest floor and undergrowth vegetation were damaged or cleared to pull a single tree felled away from skid track, causing massive disturbance and degradation.
- No forest replanting programme was exercised by the developer as it was not stipulated in the Timber Permit
- Buffer Zone and Banned Species were also felled and exported

a). Forest floor clearance

b). Damaged standing trees

c) Mal logging practices

d). Excessive pushed soil

RESULT - Analysis and Discussion

3.4: Issues identified during field study

- Manpower shortage and logistical issues face by forest monitoring agents
  - Lack of strict monitoring of LCOP.
  - Set-ups were approved for harvesting and officially closed after harvesting on ad-hoc basis
- No reforestation activities
- Over 15m logs were skidded out causing damage to standing residuals
- Natural regeneration for logged-over forests are invaded by creepers and vines, and leads to high mortality rate for timber species.

e). Logged over forest invaded by creepers and vines

f). Logged-over forest (slow regeneration of vegetation)

g). New unapproved skid-tracks constructed during logging

GENERAL DISCUSSION – (Proposed Solution)

3.5: PNG Forestry Laws and Regulation

- PNG Logging Code of Practice (LCOP) is designed purposely to reduce adverse environmental impact of logging.

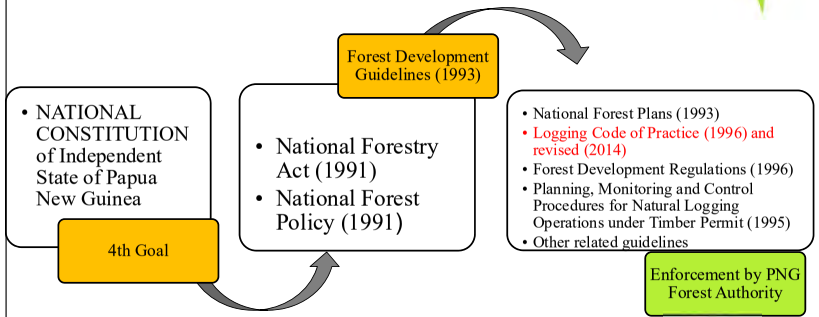


Fig. 2 Distribution of Forest Policy and its Development Regulations

GENERAL DISCUSSION

3.6 Field Application of PNG LCOP

Existing PNG LCOP (1996) ⇨ Revised PNG LCOP (2014)

Category 1	Logging Planning and Layout Key Standard No: 1 - 5	B: PLANNING Strategic Planning C: TIMBER HARVESTING D: ROAD CONSTRUCTION & MAINTENANCE E: LOG PONDS F: FELLING and SKIDDING - G: LOG LANDINGS Construction, -
Category 2:	Roading and Logging Operation Key Standard No: 6 - 18	H: NATURAL REFORESTATION (new inclusion) I: FOREST HEALTH (new inclusion)
Category 3:	Completion of Operations Key Standard No: 19 – 23	J: LOGGING CAMPS and WORKSHOPS - K: MONITORING (new inclusion)
Category 4:	Log Ponds Waste Management Key Standard No: 24	L: ENFORCEMENT PNGFA to enforce action, including; fines, prosecution, for serious breaches of this Code as prescribed under the Forestry Regulation and PMC procedures. (new inclusion)

Promote '*Replant to Restore*' initiative policy -driven programme

3.7 CONCLUSION -

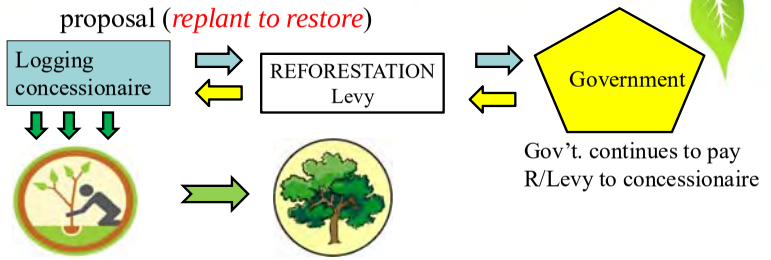
- Field data collection verified discrepancies involved in logging activities in set-up harvesting practices
  - ✓ over-logging of forest resources
  - ✓ re-entry and mal logging practices (incomplete log books, no specific control of set-up approval/harvest/closure/AAC
  - ✓ continuous forest degradation therefore natural regeneration is NOT

a solution to restore lost natural forest resource from logging.

- Adopt and promote '***Replant to Restore***' proposal as an initiative to restore lost natural forest resources extracted by industrial logging.

CONCLUSION

- Utilise Reforestation Levy to promote this proposal (*replant to restore*)



Concessionaires to do reforestation

- Restock forest resource supply for future
- Resource owner benefits
- Economic development aspiration
- Minimize appalling forest degradation
- Help and support climate action

Objectives this study

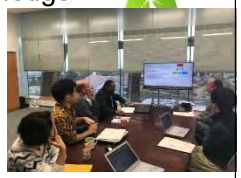
Indonesia Tree Planting Action

No	Year	Activities	Number of Planted Trees
1	2007	Indonesia's Simultaneous Planting Action (*Aksi Penanaman Serentak Indonesia*)	86,989,425
		Women Movement on Tree Planting and Maintenance (*Gerakan Perempuan Tanam dan Pelihara Pohon)*	15,594,654
2	2008	Indonesia's Tree Planting Day and National Tree Planting Month (*Hari Menanam Pohon Indonesia dan Bulan Menanam Nasional*)	108,947,048
		Women Movement on Tree Planting and Maintenance for Food Security (*Gerakan Perempuan Tanam dan Pelihara Ketahanan Pangan)*	5,383,121
3	2009	One Man One Tree (*Satu Orang Satu Pohon)*	251,621,859
4	2010	One Billion Indonesian Trees (*Gerakan Penanaman Satu Milyar Pohon)*	1,670,000,000

Source:
https://www.jifpro.or.jp/Activities/Information/Workshop/disclosure_Workshop/20th_Anniversary_P02_Indonesia_Yudi.pdf

CONTRIBUTION TO PNGFA

- Internship Training in Japan – Practical knowledge enhancement
- International connection with Institutions
- KU – advance knowledge and career development (policy analysis, policy brief documentation, research conduct and presentation, business/work etiquette, etc.
- Assist & contribute redesign Log Book/ to be more practical – control & reduce impact of logging
- Team Player to assist and support PNGFA Forest Development Plans



REFERENCES

- Babon, A. and Gowae, G.Y. (2013). The context of REDD+ in Papua New Guinea: Drivers, agents and institutions. *Occasional Paper 89*. Bogor Indonesia: CIFOR.
- JICA and PNGFA. (2017). Papua New Guinea Forest Base Map 2012. JICA/PNGFA Forestry Project 2014-2019. Fact Sheet No.2. Port Moresby. PNG Forest Authority.
- Lawson, S. (2014). *Illegal logging in Papua New Guinea*. (Energy, environment and Resources EER PP2014/04). London: Chatham House
- Ministry of Forests. (1991). *National Forest Policy*. pp.27-28. Independent State of Papua New Guinea. PNG Forest Authority.
- Mousseau, F. and Lau, P. (2016). *The great timber heist, the logging industry in Papua New Guinea.* US: Oakland Institute.
- PNGFA. (2015). PNG Forest Authority Corporate Plan 2016 – 2020. Port Moresby :PNG Forest Authority
- Shearman, P.L., J. Bryan, J. Ash, P. Hunnam, B. Mackey, and B. Lokes. (2008). The state of the forests of Papua New Guinea: Mapping the extent and condition of forest cover and measuring the drivers of forest change in the period 1972-2002. Port Moresby: University of Papua New Guinea.
- PNG Forest Authority. (2014). *Revised PNG Logging Code of Practice for Reduced Impact Logging in Natural Forests.* Port Moresby: PNG Forest Authority
- PNG Forest Authority. (1995). *Planning, Monitoring and Control Procedures for Natural Forest Logging Operations under Timber Permit,* Incorporating Key Standards for selection Logging in Papua New Guinea. Port Moresby: PNG Forest Authority.

4. Academic Performance

Academic Transcript

March 25, 2019

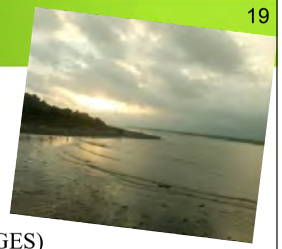
Name : JAVEN EVERA
Date of Birth : February 15, 1980
Period Attended : from April 1, 2017 to March 25, 2019
Major : Environmental Management
Degree Program : Master's program
Degree Received : Master of Global Environmental Studies, March 25, 2019
Grading system: A+=96-100, A=85-95, B=75-84, C=65-74, D=60-64, P=Pass

Year	Term	Subject	Grade	Credit
		( )		
2017	Fall	Internship Program I	A+	8
2018	Spring	Internship Program II	A+	2
2017	Spring	Seminar in Environmental Management A	A+	1
2017	Spring	Seminar in Environmental Management B	P	1
2017	Spring	Management of Global Resources and Ecosystems	A	2
2017	Spring	Environmental Ethics and Environmental Education	A	2
2017	Spring	Global Environmental Policy and Economics	A	2
2017	Spring	Global Environmental Engineering	B	2
2018	Fall	Regional Planning and Land Management	A+	1
2017	Spring	Landscape Ecology and Planning	A	1
2017	Spring	Migration and Displacement in Developing Nations	A	1
2017	Spring	Sustainable Rural Development	A	1
2017	Fall	Kyoto Style Environmental Education -Basic knowledge and practices	C	1
2018	Fall	Basic Exercise in Environmental Management	A	1
2018	Spring	Regeneration of Woodland in Countryside	A+	1
2017	Spring	Information Processing for Environmental Management	A	2
2018	Spring	Academic Writing Strategies	B	1
2018	Spring	Frontier of Sustainability Science	A	2
2017	Spring	Integrated Watershed and Coastal Management	A	2
2017	Spring	Marine Ecosystem and Biodiversity	B	1
2017	Spring	Theory and Practice of the CoHRD (Studies on Connectivity of Hills, Humans and Oceans)	A	1
2018	Fall	Master Thesis	P	

5 subjects – A+
11 subjects - A
3 subjects - B
1 subject - C
2 subjects – P

Total 22 subjects

5. ACKNOWLEDGEMENT



My special gratitude to;

- Professor Shibata (Thesis Supervisor)
- Associate Prof. Fukamachi
- Associate Prof. Liu
- Graduate School of Global Environmental Studies (GSGES)
- Internship Training Organizations
  - -Institute of Global Environment Studies (IGES), Hayama, Kanagawa Pref.
  - - Kinki Chugoku Regional Forest Office (Osaka)
  - Japanese International Cooperation Agency (JICA) - (Sponsorship under Pacific Leaders' Educational Assistance Development of a State Program)
  - PNG Forest Authority (employer)
  - PNGFA HR & Training Team
  - and all unique great friends for all encouragement and support

THANK YOU All

The 6th Joint Coordinating Committee Meeting of the JICA Technical Cooperation Project

Meeting Minutes

Date:	02 August 2019
Venue:	PNG Forest Authority Board Room
Start Time:	9:40am
Finish Time:	1:10pm
Chair:	Dr. Ruth Turia (Director for Forest Policy and Planning Directorate - FPPD)
Co-Chair:	Mr Takashi Toyama (Chief Representative, JICA PNG Office)
Meeting Agenda:	1. Output and Evaluation of the Project 2. Other Issues for Future 3. Reporting on Trainings in Japan

Attendance:

1	Takashi Toyama	Chief Representative – JICA
2	Mitsugu Yachidate	First Secretary – Embassy of Japan
3	Killian Sesega	Dept. of National Planning & Monitoring
4	Dorcas Hutu	Dept. of National Planning & Monitoring
5	Fiona Silo	Admin Officer – JICA
6	Ippei Shimizu	Project Formulation Advisor – JICA
7	Patrick La'a	Cartographer, Mapping Branch, FPPD – PNGFA
8	Michael Poesi	Food & Agriculture Organisation (FAO)-National Forest Inventory Project (NFI) – Project Coordinator
9	Joseph Kerowa	Timber Marketing – PNGFA
10	Kennewton Kennedy	Manager, Business Department – PNGFA
11	Geno Kini	Snr Technical Officer – PNGFA
12	Sarto Inaido	Snr Talent Management Officer – PNGFA
13	Margaret Tongo	Forest Plans Officer – PNGFA
14	Bernard Tonjeran	Recruitment Officer – PNGFA
15	Cosmos Numbaru	Performance Management Officer – PNGFA
16	Dr Ruth Turia	Director for Forest Policy & Planning – PNGFA
17	Jehu Antiko	Cartographer, Mapping Branch, FPPD – PNGFA
18	Dika Davai	GIS Technician – KKC-JICA
19	Everlyn Paul	GIS Technician – KKC-JICA
20	Aida Kai	GIS Officer – KKC-JICA
21	Perry Malan	Snr GIS/RS Officer, Mapping Branch, FPPD – PNGFA
22	Raphael Moini	Snr Employee Development Officer – PNGFA
23	Goodwill Amos	Manager REDD+ and Climate Change – PNGFA
24	Dambis Kaip	Manager Policy & Aid Coordination (FPPD) – PNGFA
25	Mirzohaydar Isoev	Chief Technical Advisor - UNDP
26	Leslie Ilias	Employee Dev. & OHS Officer – PNGFA
27	Lyall Umbo	Principle Management Officer, Field Services Directorate – PNGFA
28	Alois Jenkihau	Policy Officer (FPPD) – PNGFA
29	Andrew Aopo	Acting Director, Field Services Directorate – PNGFA
30	Thomas Matambuai	Communication Technician, ICT Branch – PNGFA
31	Samuel Gibson	Executive Officer (Office of MD) – PNGFA

32	Jason Sigamata	Desktop Network Technician ICT Branch – PNGFA
33	Yakop Pasul	Field Services – PNGFA
34	Javen Evera	Field Services – PNGFA
35	Emma Olmi	A/Admin Officer – JICA
36	Meta Baik	Field Services – PNGFA
37	Alfred Tony	Field Services – PNGFA
38	Henry Kaikaru	Field Services – PNGFA
39	Trinity Apupu	Field Services – PNGFA
40	Tsutomu Koyama	JICA-PNGFA
41	Masamichi Haraguchi	Food & Agriculture Organisation (FAO)
42	Daisuke Kadowaki	JICA-PNGFA

1. Opening remarks

1.1. Chair Dr. Ruth Turia welcomed all the participants of the 6th JCC meeting on behalf of PNGFA Managing Director who was not able to attend the meeting.

1.2. Co-Chair Mr Takashi Toyama, in his opening remarks highlighted JICA's key strategy on "sustainability system building". He further stressed that "sustainability" is key to fully utilize PNG-FRIMS through the necessary measures to be taken by the PNGFA such as securing the necessary funding, assigning permanent staff members and including FRIMS activities in the corporate plan of the PNGFA, to conserve and manage forests in PNG.

1.3. Mr. Mitsugu Yachidate (First Secretary, Embassy of Japan) congratulated both JICA and PNGFA team for the completion of the Project. He highlighted that one of the great achievements of the technical cooperation was the development of PNG-FRIMS which is a core system to manage forest resource information in PNG.

2. Agenda

2.1. Output and Evaluation of the Project

a) Process of the Project evaluation in Project Completion Report – Mr. Daisuke Kadowaki:

- Mr. Kadowaki made mention of all the processes taken, total inputs, and also acknowledged the technical team for the job carried out since the beginning of the project till its completion.
- The overview and main expected outputs of the project were featured in his presentation and as part of winding down the project – the project should be evaluated by the project team at its conclusion (formerly evaluated by Department of National Planning and Monitoring and JICA Headquarter).
- Major components of the evaluation process were presented to evaluate the project.

Questions/Comments: No further questions or comments were made.

b) Final Year Progress Report of the Project Activities – Ms Margaret Tongo presented on behalf of Mr Ledino Saega.

- Ms Tongo reported on the overall progress of the Project activities carried out in the final year.
- The presentation included the inputs involving the casual staff, equipment procurement, maintenance of equipment and the external trainings & study (in Japan) of five officers arranged by the JICA country office.
- Presented an update on activities and their achievements based on the completeness and understanding of officer for each of those activities. Main activities included

digitizing of logging maps, in-house trainings for the cartographers, field trainings for officers using drones and meetings to discuss the usage of PNG-FRIMS to assist REDD+ and reports on climate change.

- Overall, most activities reported have been completed (except digitizing which is still an on-going task) with manuals and guidelines produced to assist officers in future.
- The overview and achievements of each of the project expected output were presented based on the data collected and information extracted from the work carried out by the project team in the final phase.
- Apart from the other technical project work done, the documentations and publications of the project were also presented and published (Fact Sheets, Big Book, and mainstream media).

Questions/Comments:

i) Question by Mr Goodwill Amos
Based on the information provided in the fact sheets, was there anything done on contours?
Response by Dr R. Turia and Ms Tongo: More information to be found in Fact Sheet 5: Constraints.

c) The Evaluation of the project by the Project Team – Dr Ruth Turia

- As presented by Dr Turia the project was achieved based on:
  i) The outputs 1, 2 & 3,
  ii) The Project purpose, and
  iii) Overall goal.
- According to PNGFA the main evaluation criteria for the project were its Relevance, Effectiveness, Efficiency, Impact and Sustainability. The relevance, effectiveness and impact resulted as high while the efficiency and sustainability of the project resulted as relatively high based in its evaluation.
- One good additional outcome was of drone usage in the project which was recognized and queried by other government agencies to help assist and support with drone training. One request came in from Mainland Holdings Ltd in the previous week to conduct a drone survey in the Sepik River for crocodiles.
- A few limitations – one of them being the Public Finance Management Regularization Act (PFMRA) that was introduced early last year (2018) – which limited the project funding and slowed the progress of the project. However, this was addressed towards the end of 2018 in order for work to be undertaken.
- The progression and continuation of work in upgrading the system was highlighted during the presentation in which Dr Turia stressed that with the help of the additional casual staff, project tasks have been reached relatively on time and also requested if they be retained by PNGFA to further assist in upgrading the established PNG-FRIMS.
- In summary of the presentation, the outputs and project purpose were highlighted to have been achieved while the overall goal is yet to be fully achieved.

Questions/Comments:

- Question by Mr Ippei Shimizu – beyond the evaluation results most of the indicators are satisfactory for output 1. PNG-FRIMS is expanded and enhanced as presented. However, with the Decision Support System (DSS) in place how would you scale up

PNG-FRIMS to the online network for other regional and provincial officers to access?
Response by Dr R. Turia: JICA grant aid donated 5 PCs to regional offices with access to the forest base maps. The DSS project which was part of one of the Australian Government project with PNGFA provided 16 PCs to the other Provincial Offices and the Forest Base Map was installed in all PCs. The project team had also tried to synchronise DSS and PNG-FRIMS even though DSS is taking a while to be fully developed. However, with the distribution of the IT equipment to the regional and provincial offices, they are able to access the system even though not to full capacity of the fully developed system.

- Question by Mr Sarto Inaido – asked about who is the first point of contact to see to develop job description for the casual staff.
  Response by Dr Turia: Mr Perry Malan is the first point of contact to give the technicalities of the job descriptions.

d) Presentation of "the Big Book" – Dr R. Turia

- Contents of the book were presented included the Foreword done by the Forest Minister and the Preface done by the Managing Director for PNGFA.
- The Big Book authors had nine head authors (named on the book cover) and others who were also acknowledged in the Acknowledgement of the book.
- Some of the main contents highlighted in the big book are provincial profiles, provincial trees and other provincial forest resource information.
- Dr Turia made mention that the Big Book will be launched during the Forest Summit which is planned by the Minister for Forest that may be held next month.

Questions/Comments:

- Comment by Mirzohaydar Isoev (Chief Technical Advisor - UNDP) – there is a need for government stakeholders and agencies to strengthen interactions and partnership since it is seen as weak. Thus, the project at hand is one of the main key factors to addressing climate change and if other government stakeholders and agencies would be present to witness all the presentation then issues regarding climate change, land and other issues affecting the nation would be seen through one perspective and addressed well.

2.2. Other Issues for Future

a) Updating ICT Items – Mr Perry Malan

- Mr Malan mentioned that PNGFA was privileged to be provided Information and Communication Technology (ICT) equipment through the Japanese Grant Aid by JICA to start both phase 1 and 2 of the project. As crucial as they are for operationalizing the PNG-FRIMS and also expanding its usage to PNGFA's field based activities such as monitoring logging projects and management of plantations. In addition, the items procured require a budget for maintenance, replacements and procurement of consumable (maintenance costs).
- Mr Malan further stated that upon completion of the project, PNGFA will be responsible to cover any costs as part of the Government f PNG's contribution in the Project.
- The ICT items procured included scanners/plotters, laser color printer, workstations, desktop PC, laptop PC, GPS devices and the latest procurements were drones.

Additional equipment procured at the beginning of the project included vehicles (2 x 10 seater land cruisers).

- Each item purchased were acquitted and recorded by JICA Experts and reported by Mr Malan in which it totalled up to K1, 200,000.00 as of July 2019.

Questions/Comments:

- Question by Mr Ippei Shimizu – It is identified that there are 3 main elements in the project; they are, updating ICT, capacity development for technical staff & system, and data collection. Despite the challenges, how is data collected?
  Response by Mr Malan – Data is collected from all project sites, however, had less feedbacks coming in from all project sites. Fortunately, with the recent usage of GIS techniques, GPS and drones in the project sites data will be made available along with a standardized reporting format created by Mr Peter Lat and Mr Nishimura for all field officers to use for reporting. Thus, the quality of data output is as good as the data collected with the established system.

- Comment by Mr Michael Poesi – In support with comment from Mr Ippei, there has to be an internal coordination of uses in the field and technically additional functions to help enable the determination of their respective purposes for its use in the project.

b) Management of Data and Information in PNG-FRIMS – Mr Jehu Antiko

- Mr Antiko presented the outcome of the drone trainings and the collection and management of data in PNG-FRIMS. He highlighted the activities involved in capacity building of staff in regional and provincial offices. The trainings were conducted in the provinces stated below:
  - Field testing of Drone (Phantom 4 Pro) in West Sepik Province. (October 2018)
  - Field testing of Drones in Kupiano (Central Province). (February 2019)
  - Delivering of Drone to West New Britain Provincial Office. (April 2019)
  - Delivering of Drone to West Sepik Province. (April 2019)

- Mr Antiko stated the processes that were involved in Data Collection/Creation. They are the Forest Cover Map 2015 – Completion of PNG 2015 Forest cover map. Detection of changes in Agricultural landuse in 2012 and 2015; and Digitizing of Analogue Timber Concession and FCA Maps – Cataloguing and Digitizing of Annual logging plans, Five year working plans and FCAs by project casual staff. (Currently Ongoing).
- For the sustainability of the PNG-FRIMS database, he made mention of the technical manuals developed during the project, sharing of data between directorates – Forest Policy & Planning Directorate, Project Allocations Directorate & Forest Development Directorate, and the utilization of data.
- He also emphasized the necessity of the collaboration with other directorates to acquire original data which each directorate manages. For example, the Cartographers in Inventory and Mapping Branch are looking forward to conduct field based capacity building trainings in the use of GPS, GIS and Drones.

Questions/Comments:

Comment by Mr Dambis Kaip – With the project and the capacity built, we need to be able to accept change management, be in tuned with the trend and be able to progress in PNG and globally.

c) Next Project Application – Mr Dambis Kaip

- Mr Kaip presented on the next application of the project. He stated that with the successful completion of phase 1 and 2 of the project, JICA have allowed the continuation of the project to its 3rd phase with a proposal to it. Thus, the next project phase 3 is expected for another 3 year duration from September 2020 – September 2023 if approved by the Japanese Government.

Questions/Comments:
No further questions or comments were made.

2.3. Reporting on trainings in Japan
The training undergone by Mr Thomas Matambuai (ICT Branch), Mr Guduru Rome (Forest Policy and Planning) and Mr Javen Evera (Field Services) in Japan were presented. Each showed their course modules and gave feedback on the experiences whilst study. In addition, each presenter highlighted their action plans as per the practicality of the course and trainings each attended. Mr T. Matambuai had a duration of 5 months of studies in Okinawa, Mr Rome a week training in Tokyo and finally Mr Evera went on to completing his Masters in the duration of 2.5 years in Kyoto.
As a usual tradition, each presented acknowledged the opportunity given to attend studies to enhance their knowledge to contribute to the project at hand.

3. Closing Remarks
At the end of all presentation, Mr Takashi Toyama acknowledged all presenters and participants of the JCC meeting and congratulated the team for their tireless efforts in the completion of the project. He also congratulated the three participants in successfully completing their training and courses in Japan. He then dismissed everyone.

添付資料 44

技術移転計画・達成状況　最終報告書（2019 年 7 月）

Papua New Guinea
Forest Authority

Capacity Development Project for Operationalization of
PNG Forest Resource Information Management System
for Addressing Climate Change

Technology Transfer Plan & Achievement

Final Report

July 2019

Japan International Cooperation Agency

Kokusai Kogyo Co., Ltd.

Contents

1. Overall Concept for the Technology Transfer

This project intended to achieve purpose of that capacity of the PNGFA to continuously update forest information and to fully operationalize and utilize PNG-FRIMS (PNG Forest Resource Information Management System) for promoting sustainable forest management and for addressing climate change is enhanced. Activities to accomplish three outputs: (1) PNG-FRIMS is expanded and enhanced, (2) The national forest plan, provincial forest plans, forest management plans and their monitoring system are improved through steady operation of PNG-FRIMS, and (3) Forest information for addressing REDD+ is prepared, have been implemented. Also, technology transfer has been conducted thorough these activities to enhance the capacities of targeted PNGFA officers to update forest information and to operationalize and utilize PNG-FRIMS for sustainable forest management and climate change. Capacities intended to be enhanced are below.

- Capacity to update Forest Base Map
- Capacity to operate and utilize PNG-FRIMS for sustainable forest management
- Capacity to operate and utilize PNG-FIMS for climate change

(Understanding of PNG-FRIMS is essential for above three)

2. Overview of Technology Transfer Plan and Implementation

The technology transfer of the following fields has been conducted for PNGFA officers engaged in remote sensing/GIS, forest database, inventory, forest planning, REDD & Climate Change, etc. by means of various forms of training sessions including on-the job training (OJT), lecture, exercise, discussion, training workshop and training in Japan.

Fields: Remote Sensing/GIS Field
Forest Monitoring Field
Database and PNG-FRIMS Field
Biomass and Carbon Estimation Field
Forest Management Plan Field
REDD+ and FREL/FRL Field

The technology transfer in each field has been implemented in keeping with progress of project activities. With the purpose of developing the capacity of PNGFA officers engaged in remote sensing and forest GIS, two-week long training sessions in Japan were held inviting two officers specializing in remote sensing and GIS, and other two officers specializing in database in both the second and forth years (a total of eight participants). The main skills learned in the training were high technologies of Japan such as (1) advanced techniques for satellite imagery analysis, drone operation and analysis, and large datasets development in the remote sensing and GIS training sessions and (2) skills related to maintenance, utilization and application of PNG-FRIMS in the database training

sessions, respectively. These skills are necessary for contributing to update and operation of PNG-FRIMS in the future. Also, training workshops to utilize PNG-FRIMS in a series of the operations of forest management plans were implemented. The JICA experts also supported PNGFA officers to make presentations at COP 20 held in Lima in 2014 and COP 21 held in Paris in 2015 to promote project activities.

Technology transfer has been implemented for mainly PNGFA headquarter officers. Technical transfer for area and region officers has been implemented by headquarter officers with the support of JICA experts so that headquarter officers' practical skills have been enhanced.

Implementation schedule of the technology transfer is as follows:

		2014	2015	2016	2017	2018	2019
RS/GIS and Monitoring	OJT	■	■	■	■	■	■
	Training in Japan		▲		▲		
DB and PNG-FRIMS	OJT	■	■	■	■	■	■
	Training in Japan		▲		▲		
Biomass and Carbon	OJT	■	■	■	■	■	■
Forest Plan	Training		■	■	■	■	■
	Training WS			▲	▲	▲	
REDD+ and FREL/FRL	Training/OJT		▲■	▲■	■	■	■
	COP participation	■▲	■▲				

3. Implemented Program and Achievement for Each Field

3.1 Remote Sensing/GIS and Forest Monitoring Field

3.1.1 Concepts and Target of Capacity Development

In the field of remote sensing/GIS and forest monitoring, the Project intended to conduct the following activities: (1) to revise Forest Base Map ver. 1.0 created in precious project for addressing and resolving the issues revealed in the previous project and by the evaluation of accuracy assessment of the Forest Base Map ver 1.0, (2) to develop a time series (*circa* 1990, 2000 and 2005) of the forest cover map in pilot provinces which intended to be utilized for carbon verification procedure for REDD+ projects such as VCS etc., (3) to develop a forest cover map dated 2015 which could be a benchmark map for the forest sector in PNG, (4) to examine how to detect the change from Forest Base Map for monitoring logging activities, etc. and degradations of natural forest driven by logging activities and plantation development after clarifying definition of secondary forests, etc.

Image of basic design to grasp change in forest area

Based on this basic design, the JICA short-term expert team tried to study, process and analyze remote sensing data and related data. The Forest Base Map ver.1.0 was revised as the Forest Base Map ver.1.1. The past forest cover maps (2000, 2005 and revised 2011) of definitive pilot provinces, West New Britain (WNB) and West Sepik (WSP), was developed on the basis of the revised Forest Base Map. The forest cover map in 2015 was developed by updating the Forest Base Map ver.1.1 and was complemented by remote sensing data from LANDSAT 8, ALOS-2 launched in May 2014, etc.

To achieve these things, necessary techniques and knowledge have been transferred to PNGFA officers in charge of remote sensing/GIS thorough various training sessions. The technical transfer for all activities has been conducted mainly through OJT, and lectures and exercises are organized periodically as necessary. Also, a series of two-week long training sessions in Japan were conducted for two officers through lecture, exercise and OJT in both the second and forth years. It was expected that target officers would understand high technologies of Japan such as advanced knowledge and techniques for satellite imagery analysis, drone operation and analysis, and large datasets development.

3.1.2 Implemented Program and Achievement

Title	Participants	Contents	Time/ Duration	Method (Trainer)	Venue	Achievement status
Forest Base Map Modification	Perry Malan, Patrick La'a, Jehu Antiko, Stanley Pundutye	◆ Introduction and discussion of attribute errors along the coast line of Forest Base Map ver. 1.0 ◆ Modification of attributes of land cover code of the forest base map on the basis of the discussion	Sep and Nov 2014 (4 days)	Discussion, lecture, exercise and OJT (T. Koide)	PNGFA HQ	Remote Sensing/GIS and DB officers understood the condition and errors of Forest Base Map ver. 1.0 and modified the error.
GIS Analysis for Data Management	Perry Malan, Patrick La'a, Jehu Antiko, Stanley Pundutye	◆ Introduction and practice of GIS analysis for GIS data cleaning ◆ Introduction and practice of GIS analysis for accuracy assessment work of Forest Base Map ver. 1.0	6, 12 and 18 Nov 2014	Lecture, exercise and OJT (A. Ochi)	PNGFA HQ	Remote Sensing/GIS and DB officers learnt GIS data characteristic and topology, and learnt how to use GIS analysis tools associated GIS data cleaning and spatial join.
	Perry Malan, Jehu Antiko	◆ Introduction and practice of GIS analysis for GIS data cleaning ◆ Introduction of topology error check and modification	25 May, 28 July, 10, 15 August 2017	OJT (A. Ochi)	PNGFA HQ	Remote Sensing/GIS and DB officers enhanced their understanding of GIS data characteristics and GIS data cleaning. Data error check and data cleaning of past forest cover map in WSP were implemented by Mr Jehu Antiko and Mr Perry Malan.
Accuracy Assessment	Perry Malan, Patrick La'a, Jehu Antiko, Stanley Pundutye	◆ Introduction and discussion of technical methodology of accuracy assessment of the forest base map ◆ Practice of accuracy assessment work ◆ Discussion on the results of the accuracy assessment	24 and 25 Nov 2014, 5 Feb 2015	Lecture, discussion, exercise and OJT (A. Ochi)	PNGFA HQ	Remote Sensing/GIS and DB officers understood basic technical methodology of Excel as well as GIS for accuracy assessment and how to conduct accuracy assessment work.
Forest Base Map Modification (2)	Perry Malan, Patrick La'a, Jehu Antiko, Stanley Pundutye, Gewa Gamoga	◆ Introduction and discussion of the issues of Forest Base Map ver. 1.0 clarified in the previous project and the results of the accuracy assessment of Forest Base Map ver. 1.1	11 and 25 Nov 2014, 5 Feb 2015	Discussion (A. Ochi)	PNGFA HQ	Remote Sensing/GIS, DB, and RFEDD & Climate Change officers understood the condition of the Forest Base Map ver. 1.0 and 1.1 and how to handle them, and are making use of the Forest Base Map for their works.

Basic of Remote sensing imagery	Perry Malan, Patrick La'a, Jehu Antiko, Stanley Punduiye	◆ Introduction of LANDSAT 5, 7 and 8, ALOS and ALOS-2 satellite imagery which have been used or to be used for creating forest cover maps	5 Feb 2015	Lecture and exercise (A. Ochi)	PNGFA HQ	Remote Sensing/GIS and DB officers understood how to procure and contents of remote sensing imagery used for examining forest degradation.
Introduction of Forest Monitoring	Perry Malan, Patrick La'a, Jehu Antiko, Stanley Punduiye	◆ Discusstion on method to manage forest degradation in forest cover map and to develop its information	May 2015 (3 days) Aug 2015 (4 days)	Discussion, lecture and OJT (T. Koide)	PNGFA HQ	Remote Sensing/GIS and DB officers confirmed the situation of forest degradation in PNG and discussed how to add this information into the Forest Base Map.
GIS concept and introduction to ArcGIS	Jason Sigamata, Charles Pakure	◆ Introduction of GIS concept ◆ Introduction and practice of basic ArcGIS operation (data management, data view, map creation, data edit, basic analysis, etc.)	19 and 21 Aug 2015	Lecture and exercise (A. Ochi)	PNGFA HQ	IT officer and forest officer understood basic GIS concept and learnt basic ArcGIS operation in preparation for the training in Japan in September 2015.
RS/GIS training in Japan	Juhu Antiko, Charles Pakure	◆ Introduction of RS/GIS concept ◆ Introduction of surface analysis ◆ Introduction of how to obtain free RS data from website for forest monitoring ◆ Introduction of availability and limitation of RS/GIS technology for forest monitoring in PNG.	7 - 11 Sep 2015, 17 - 18 Sep 2015	Lecture and exercise (A. Ochi, T. Koide)	KKC (Tokyo)	The participants learnt basic idea to apply RS/GIS data for forest monitoring. Mr Jehu Antiko created the manual of downloading and processing Landsat Images by himself after the training.
RS/GIS training in Japan (SAR)	Juhu Antiko, Charles Pakure	◆ Introduction of SAR technology	14 - 16 Sep 2015	Lecture and exercise (M. Kamei, T Ito, R. Dan)	RESTEC (Tokyo)	The participants learnt the principle of SAR, how to obtain PALSAR-2 data and how to process SAR data. Mr Jeu Antiko created the manual of downloading and processing SAR by himself after the training.
Forest Base Map data provision	Perry Malan, Patrick La'a, Jehu Antiko	◆ Introduction and discussion about data provision of the Forest Base Map ◆ Preparation of the Forest Base Map data set for data provision (creation of	16 Feb, 25 and 27 May 2016	Lecture, discussion and OJT	PNGFA HQ	Remote Sensing/GIS and DB officers understood the effectiveness of the Forest Base Map data set for data provision and learnt how to convert to TIFF format with

		TIFF format data and metadata)		(A. Ochi)		colour map. The TIFF format data and metadata of the Forest Base Map for the whole country have been prepared by Mr Perry Malan and Mr Jehu Antiko.
Introduction of forest monitoring (2)	Perry Malan, Patrick La'a, Jehu Antiko	◆ Introduction of Hansen data provided annually ◆ Introduction of how to prepare Hansen data ◆ Introduction and OJT of how to arrange Hansen data for relational database of the Forest Base Map.	17 Feb, 30 and 31 May 2016	Lecture, discussion and OJT (A. Ochi)	PNGFA HQ	Remote Sensing/GIS and DB officers leant how to arrange Hansen data for relational database of the Forest Base Map. Hansen data provided in 2015 has been arranged for the relational database of the Forest Base Map for the whole country by Mr Perry Malan and Mr Jehu Antiko.
Development of forest cover map in the past	Perry Malan, Patrick La'a, Jehu Antiko	◆ Introduction and OJT of how to develop forest cover maps for the past	6 Jun, 31 Aug 2016, 27 Feb, 25 May 2017	Lecture, discussion and OJT (A. Ochi)	PNGFA HQ	Remote Sensing/GIS and DB officers examined and confirmed how to develop forest cover maps for the past. Past forest cover maps of West Sepik province have been created by Mr Jehu Antiko.
Development of data for PNG-FRIMS	Perry Malan, Patrick La'a, Jehu Antiko, Margaret Tongo, Rabbie Lalo	◆ Discussion about how to develop constraints data for PNG-FRIMS ◆ OJT of constraints data arrangement	6 Jun, 30 and 31 Aug, 22 Nov, 8 Dec 2016	Lecture, discussion and OJT (A. Ochi)	PNGFA HQ	Remote Sensing/GIS and DB officers and related officers confirmed condition of old constraints data and examined alternative data for them. Constraints data has been arranged by Mr Jehu Antiko, and PNG-FRIMS database has been updated by the data by Mr Patrick La'a.
Processing and acquisition of remote sensing data	Jehu Antiko	◆ Acquisition of annual Greenest Pixel (AGP) on Google Earth Engine (GEE)	5 Feb 2016	Lecture and OJT (T. Koide)	PNGFA HQ	A remote sensing/GIS and DB officer learnt how to create images with little cloud cover by processing satellite images obtained in a one-year period. AGP images have been acquired and organized by Mr Jehu Antiko.
Three-dimensiona	Perry Malan, Patrick	◆ Demonstration of ArcGIS Pro	12 Feb 2016	Lecture and	PNGFA HQ	Remote sensing/GIS, DB and forest planing

l mapping with the GIS technology	La'a, Jehu Antiko, Stanley Punduiye, Margaret Tongo			exercise (T. Koide)		officers learnt the 3D mapping function of ArcGIS Pro.
Intriduction of land change modelling analysis *	Perry Malan, Patrick La'a, Jehu Antiko	◆ Introduce an example of land change modelling analysis targeting West New Britain province for further discussion	17 Aug 2016	Lecture (T. Koide)	PNGFA HQ	Remote Sensing/GIS and DB officers discussed and confirmed a possible outcome from land change modelling analysis.
Forest monitoring: Development of deforestation and forest degradation and their drivers information into forest cover maps	Perry Malan, Jehu Antiko, Elizabeth Kaidong, Rabbie Lalo	◆ Discussion about how to develop deforestation and forest degradation and their drivers information into forest cover maps ◆ OJT of developing forest degradation information of Forest Base Map and past forest cover maps.	28 Aug 2015, 27 Feb, 25, 26, 29, 30 May, 9 Jun, 30, 31, 4 August July 2017	Discussion, lecture, exercise and OJT (A. Ochi, T. Koide)	PNGFA HQ	Remote sensing/GIS, DB, forest, REDD & Climate Change, forest officers confirmed the results of the discussions regarding definitions, data availability and sources, and human activities and their characteristics on deforestation and forest degradation. Remote sensing/GIS and DB officers learnt how to develop deforestation and degradation drivers into forest cover maps. Forest degradation drivers of the Forest Base Map and past forest cover maps have been developed by Mr Jehu Antiko and Mr Perry Malan.
Land change modelling analysis *	Perry Malan, Patrick La'a	◆ Trial analysis following handling manual of Land Change Modeller	17 Mar 2017	Exercise (T. Koide)	PNGFA HQ	Remote Sensing/GIS and DB officers understood how to use Land Change Modeller for analysis following the manual.
Development of forest cover map 2015	Jehu Antiko, Perry Malan	◆ Introduction and discussion about methodology of developing forest cover map 2015 ◆ OJT of developing forest cover map 2015	7 - 10 Aug 2017, 13 May 2018	Discussion, lecture, exercise and OJT (A. Ochi)	PNGFA HQ	Remote Sensing/GIS and DB officers learnt method of developing forest cover map 2015. Forest cover map 2015 has been developed by Mr Jehu Antiko and Mr Perry Malan. They also transferred the method of developing the maps to local staffs
	Jehu Antiko, Perry Malan	◆ OJT of developing forest cover map 2015 including topology check,	4 April 2018	Lecture, exercise and	PNGFA HQ	Remote Sensing/GIS and DB officers have developed forest cover map 2015 and

		creation of TIFF format data, etc.		OJT (A. Ochi)		implemented topology check and preparation of TIFF format data for the map as well.
Forest monitoring training in Japan	Jehu Antiko, Patrick La'a, Charles Pakure, Ms Agnes Sumareke	◆ Overview of forest resource monitoring ◆ Lecture and workshop of Collect Earth, SEPAL ◆ Lecture of Glad, JJ-Fast, UAV forest monitoring application ◆ Action plan discussion and presentation	5, 7-8, 15 Sep 2017	Lecture, exercise and discussion (M. Toda, Y. Yoshinaga, A. Ochi, M. Haraguchi, T. Koide)	KKC (Tokyo)	The participants learnt recent technologies (Collect Earth, SEPAL, Glad, JJ-Fast and UAV) in forest resource monitoring. The participants acquired advanced skills relating to data collection, processing and management for forest monitoring. The participants discussed possibility and challenges in utilizing the technologies for future forest resource monitoring in forest plan and management in PNGFA and created Action Plan, which derived successive actions and training in Forest Management Plan Field in PNGFA.
Forest monitoring training in Japan (JAXA tour of inspection)	Jehu Antiko, Patrick La'a, Charles Pakure, Agnes Sumareke	◆ Touring at Tsukuba Space Center ◆ Discussion with JAXA related to JJ-Fast	6 Sep 2017	Tour of inspection and discussion (M. Hayashi)	JAXA (Tsukuba)	The participants learnt JJ-Fast in forest resource monitoring. The participants discussed possibility and challenges in utilizing JJ-FAST for forest monitoring.
Forest monitoring training in Japan (drone)	Jehu Antiko, Patrick La'a, Charles Pakure, Agnes Sumareke	◆ Introduction to UAV and lecture of safety standard ◆ Lecture of flight simulator ◆ UAV inspection and maintenance training ◆ Practical training (basic) ◆ Practical training (advanced)	11-14 Sep 2017	Lecture and exercise (Y. Kamihara)	Nichii Gakkan Port Island Center (Hyogo)	The participants learnt overview and basic knowledge of UAV and acquired UAV operation. Their acquired knowledge and skills played an active role in successive training in Forest Management Plan Field in PNGFA.
Land change modelling analysis (2) *	Constin Bigol, Jehu Antiko, Patrick La'a, etc.	◆ Introduction to an example of analysis utilizing Land Change Modeler	22 Nov 2017	Lecture and discussion (T. Koide)	PNGFA HQ	The participants observed an example of analysis of Land Change Modeler utilizing data stored in the PNG-FRIMS.
Forest	Jehu Antiko, Perry	◆ Discussion of assessment of the	12 - 13 May	Discussion	PNGFA HQ	Remote Sensing/GIS and DB officers have

monitoring: Development of deforestation and forest degradation and their drivers information into forest cover maps (2)	Malan	drivers analysis by comparing the Forest Base Map with the Collect Earth Data	2018	and lecture		obtained an understanding of data features of the Forest Base Map and Collect Earth, and their drivers.
Land change modelling analysis (3) *	Perry Malan, Jehu Antiko, Patrick La'a	◆ Training on analysis utilizing Land Change Modeler	16 - 18 May, 23 - 24 May 2018	Lecture and OJT (T. Koide)	PNGFA HQ	Remote Sensing/GIS and DB officers have learnt the analysis of Land Change Modeler utilizing data stored in the PNG-FRIMS.
Accuracy Assessment (2) (follow-up)	Perry Malan, Patrick La'a, Jehu Antiko	◆ Fllow-up training of accuracy assessment in response to the officers' request	15 July	Lecture, exercise (A. Ochi)	PNGFA HQ	Remote Sensing/GIS and DB officers have deepened their understanding of accuracy assessmenthave and learnt how to create error matrix using GIS and Excel.
Land change modeling analysis (4) (follow-up) *	Perry Malan, Patrick La'a, Jehu Antiko	◆ Follow-up training of land change modeling analysis in response to the officers' request	16 July	Lecture, exercise (T. Koide)	PNGFA HQ	Remote Sensing/GIS and DB officers have learnt the analysis of Land Change Modeler utilizing data stored in the PNG-FRIMS.
Drivers analysis (follow-up)	Perry Malan	◆ Follow-up training of drivers analysis in response to the officer's request	19 July	Discussion (A.Ochi)	PNGFA HQ	The participant has deepened his understanding of drivers analysis and discussions done in the Project.

* These training sessions are also related to the training in Biomass and Carbon Estimation Field.

3.2 Database and PNG-FRIMS Field

3.2.1 Concepts and Target of Capacity Development

In this field, the Project intended to achieve the following targets: (1) to manage the database of PNG-FRIMS appropriately, (2) to update the database of PNG-FRIMS timely, (3) to utilize the database of PNG-FRIMS for several purposes, especially forest planning and REDD+.

To achieve these objectives, necessary techniques and knowledge have been transferred to PNGFA officers through various activities. For (1), the technical transfer was conducted mainly through lecture and OJT. It was expected that target officers understood how to set up and maintain the PNG-FRIMS applications (including FIMS and FIPS) and data sets. Also, two-week long training in Japan was conducted for two officers through lecture, exercise and OJT in both the second and forth years. It was expected that target officers acquired the knowledge of the mechanism of ArcGIS server. For (2), the technical transfer was conducted mainly through discussion and OJT. It was expected that efficient procedure for updating database was formed by PNGFA officers and JICA experts. Also, target officers intended to be able to design database structure and add new forest information into PNG-FRIMS. For (3), the technical transfer was conducted mainly through lecture, exercise and OJT. It was expected that PNGFA officers made reports for several purposes such as forest planning and REDD+ by utilizing PNG-FRIMS database. Also, target officers intended to be able to design new functions of PNG-FRIMS applications.

3.2.2 Implemented Program and Achievement

Title	Participants	Contents	Time/ Duration	Method (Trainer)	Venue	Achievement status
Forest database quality evaluation	Perry Malan, Patrick La'a, Jehu Antiko, Stanley Punduiye	◆ Introduction of methods for geographic information	Nov 2014 (3days)	Lecture and OJT (Y. Okada)	PNGFA HQ	GIS/Inventory officers understood the quality of geographic information.
Forest database quality evaluation (2)	Perry Malan, Patrick La'a, Jehu Antiko, Stanley Punduiye, Cedric Tumba, Margaret Tongo	◆ Review of the result of updating concession area database and discussion of the outstanding issues	Feb 2015 (2days)	Discussion and OJT (Y. Okada)	PNGFA HQ	Officers who treat information about concession area got a better understanding of the current situation of concession area database.
Updating forest information	Perry Malan, Patrick La'a, Jehu Antiko	◆ Lecture about the method of repair geometry	May 2015 (1day)	Lecture (Y. Okada)	PNGFA HQ	GIS/Inventory officers understood the way to update geographic information.
Updating forest information (2)	Perry Malan, Patrick La'a, Jehu Antiko, George Gunga	◆ Discussion about the procedure of data entry on harvesting history and logging plan to PNG-FRIMS ◆ Verification of the current situation on harvesting history database ◆ Updaing harvesting history and logging plan using softcopy provided by logging companies	Aug 2015 (5days)	Discussion and OJT (Y. Okada)	PNGFA HQ	Officers who treat annual logging plans submitted by logging companies acquired knowledge about the procedure for updating PNG-FRIMS database. Officers understood the role of web application among PNGFA as communication tool.
PNG-FRIMS installation	Jason Sigamata , Patrick La'a	◆ Lecture about the structure of PNG-FRIMS ◆ Installation of PNG-FRIMS	7 - 8 Sep 2015	Lecture (Y. Okada)	KKC (Tokyo)	The participants understood the basic structure of PNG-FRIMS and experienced the installation procedure.
Sharing forest information on the Web using ArcGIS Server	Jason Sigamata , Patrick La'a	◆ Lecture about the concept of data sharing on the Web using ArcGIS Server ◆ Exercise of publishing forest information on the Web by using ArcGIS Server	9 - 11 Sep 2015	Lecture and exercise (Y. Okada and ESRI Japan)	ESRI Japan (Tokyo)	The participants undestood the concept of data sharing and the technique of publishing map on the Web.
Design and	Jason Sigamata ,	◆ Discussion on current issues regarding	14 - 18 Sep	Lecture and	KKC	The participants experienced the process for

develop new web application for contributing to the efficiencies and advances of forest management	Patrick La'a	forest management in PNGFA ◆ Designe of solution for the issues ◆ Creating new web applications	2015	exercise (Y. Okada)	(Tokyo)	design and development of new application contributing to forest management.
Maintenance of the data server	Jason Sigamata	◆ Use of software (Acronis Backup) for the backup of the server system	1 Feb 2016	OJT (T. Koide)	PNGFA HQ	IT officer in charge of databases learnt how to back up the server and how to solve errors in the server system.
Maintenance of PNG-FRIMS	Jason Sigamata	◆ Transition and recovery of ArcGIS License Manager due to the failure of the workstation	5 Feb 2016	OJT (Y. Okada)	PNGFA HQ	ArcGIS License Manager became operational again.
Delivery of map via LAN Map	Patrick La'a	◆ Adding forest information into PNG-FRIMS by using softcopies of annual and 5year logging plan submitted from logging companies ◆ Launch web applications	15, 17-18 Feb 2016	OJT (Y. Okada)	PNGFA HQ	GIS and DB officer experienced the procedure of adding new forest information including harvesting history into PNG-FRIMS. Additionally, the participant understood the method of sharing forest information among relevant officers by using LAN Map.
	Patrick La'a	◆ Adding forest information into PNG-FRIMS by using softcopies of annual and 5year logging plan submitted from logging companies ◆ Launch web applications ◆ Basic operation procedure of the portal site	9-10 Jun, 30 Aug - 1 Sep 2016	OJT (Y. Okada)	PNGFA HQ	GIS and DB officer reviewed the procedure of updating forest information stored in PNG-FRIMS and the method of delivery based on softcopies submitted from logging companies. Additionally, the participants learnt how to use the basic functions of newly introduced portal site.
	Jehu Antiko	◆ Basic operation procedure of the portal site for LAN Map	6 Dec 2016	Lecture (Y. Okada)	PNGFA HQ	Remote sensing/GIS and DB officer understood the basic method of user access control to LAN Map.
Delivery of map via LAN Map (2)	Patrick La'a	◆ Discuss how to control the printing function running on LAN Map	16, 18-19 May 2017	Discussion and OJT	PNGFA HQ	GIS and DB officer considered risks to forest information leak via printing function

		◆ Adding forest information into PNG-FRIMS for plantation management and clan mapping to publish them on LAN Map		(Y. Okada)		running on LAN Map and decided an initial operation policy. Potential users for LAN Map are considering how to utilize PNG-FRIMS for their daily work.
Maintenance of the ArcGIS Desktop license	Jason Sigamata, Patrick La'a	◆ Recover of ArcGIS Desktop License Error	16 May 2017	OJT (Y. Okada)	PNGFA HQ, Area Office - Southern	GIS, DB and IT officers understood the procedure for recovering license error on ArcGIS Desktop. The ArcGIS Desktop in Southern region office was recovered.
Delivery of map via LAN Map (3)	Patrick La'a	◆ Procedure for user monitoring on LAN-MAP ◆ Examination of the way to deliver the Forest Base Map 2012 ◆ Setting the shared map on LAN-MAP ◆ Procedure for updating PNG-FRIMS to reflect harvesting histories	4, 10, 16 Aug 2017, 5-8 Dec 2017 (2 to 3 hours a day)	Discussion and OJT (Y. Okada)	PNGFA HQ	GIS and DB officer considered possible issues on PNG-FRIMS and confirmed measures in preparation for official start of operations.
Review of the result of AAC calculation *	Ms Margaret Tong	◆ Discuss the result of AAC calculation ◆ Grasp the system of AAC calculation	7 Dec 2017	Discussion (Y. Okada)	PNGFA HQ	Forest planning officer reviewed the result of AAC calculation. After that, the participant grasped the system of AAC calculation to verify the conformity with initial requirements for the function.
Installation and Operation verification of the updated FIMS	Patrick La'a	◆ Install the updated FIMS ◆ Import latest logged over areas to the updated FIMS ◆ Verify the forest volume calculated by the updated FIMS	3-9 April 2018	OJT (Y. Okada)	PNGFA HQ	GIS and DB officer promoted better understanding for the operation of new functions of the updated FIMS through the verification of operation.
Giving operating instruction for new functions of the updated FIMS	Perry Malan, Patrick La'a, Jehu Antiko	◆ Explain the whole structure of PNG-FRIMS ◆ Explain the new functions of the updated FIMS ◆ Discuss points to operate and maintain the updated FIMS	12-13 April 2018	Lecture and discussion (Y. Okada)	PNGFA HQ	Remote sensing/GIS and DB officers increased their understanding of the new functions of the updated FIMS and shared the common understanding about future tasks.

Verification of AAC calculated by the improved FIMS *	Perry Malan, Patrick La'a	◆ Review of AACs of each province and concession ◆ Compare AACs to the permitted cut managed by Project Branch, analyze issues between them	21, 28 Sep 2018	Lecture, discussion and OJT (Y. Okada)	PNGFA HQ	Remote sensing/GIS and DB officers confirmed existing issues about forest information stored in PNG-FRIMS. Also, future tasks for finding solutions were organized according to the results of verification.

* These training sessions are also related to the training in Biomass and Carbon Estimation Field.

3.3 Biomass and Carbon Estimation Field

3.3.1 Concepts and Target of Capacity Development

In this field, the Project intended to achieve the following targets: (1) to examine the method of reflecting ground sample plot information on estimation of forest biomass by analyzing the existing information (FIPS and FIMS) and the information from planned National Forest Inventory (NFI), (2) to identify necessary additional information from other sources than remote sensing data and ground sample plot information such as geology maps, climate data, ecological zone map, wildlife management area, agriculture, mining, information from other public and private sector, etc. which could be used for developong time series of forest cover maps, (3) to examine the methods for integrating a forest growth model into PNG-FRIMS taking account of the distribution of concession area and historical records of logging operations, (4) to examine the method for defining a new set of the forest management units in PNG-FRIMS in terms of timber volume and carbon storage in the forest by employing obtained information, etc.

To achieve these objectives, necessary techniques and knowledge have been transferred to PNGFA officers through various activities. For (1) and (2), the technical transfer was conducted mainly through discussion and OJT. For (3), methods for detecting forest degradation developed in the Remote Sensing field were employed and how to apply a regrowth model for the degraded forest was transferred through OJT. For (4), a concept of reorganization of the forest management units in PNG-FRIMS was formed through discussion with PNGFA staffs and shared among us. Lectures and exercises for the techniques mentioned above was organized periodically as necessary.

3.3.2 Implemented Program and Achievement

Title	Participants	Contents	Time/ Duration	Method (Trainer)	Venue	Achievement status
Forest resource information analysis	Perry Malan, Patrick La'a, Jehu Anriko, Stanley Pundiye	◆ Introduce and discuss how to analyze and utilize the ground data (PNGRIS, FIPS, NFI, etc.) for updating forest biomass information in PNG-FRIMS ◆ Modify biomass information of the forest base map on the basis of the discussion	Nov 2014 (1 day) Feb 2015 (1 day)	Discussion, lecture and exercise (T. Koide)	PNGFA HQ	Remote Sensing/GIS and DB officers confirmed how to update forest biomass information utilizing existing information related with timber volume in PNG-FRIMS.
Application of additional information into PNG-FRIMS	Perry Malan, Patrick La'a, Jehu Anriko, Stanley Pundiye	◆ Introduce and discuss how to identify useful information for estimating forest biomass other than remote sensing data and ground sample plot information	May 2015 (2 days) Aug 2015 (1 day)	Discussion, lecture, exercise and OJT (T. Koide)	PNGFA HQ	Remote Sensing/GIS and DB officers discussed and confirmed which kind of information other than remote sensing data can be useful for updating forest biomass information.
Development of FMU	Dambis Kaip, Constin Otto Bigol, Ms Margaret Tongo, Ledino Saega, Perry Malan, Gewa Gamoga, George Gunga, Jehu Anriko, John Orabi, Patrick La'a, Ms Elizabeth Kaidong, Charles Pakure, Stanley Pundiye, Samuel Gibson, Karokaro Mau, Jason Sigamata	◆ Explain development of Forest Monitoring Unit (FMU), which has been updated from Forest Mapping Unit and will be a part of forest management units ◆ Discuss the result of FMU development ◆ Introduce one of examples of way to utilize FMU for forest monitoring by means of Hansen data	20 Feb, 19, 29 May, 19 Aug 2015	Lecture and Discussion (A. Ochi)	PNGFA HQ	The participants understood how to develop Forest Monitoring Unit of the Forest Base Map ver. 1.1, which has been updated from Forest Mapping Unit of old vegetation, and confirmed how Forest Monitoring Unit could be used.
Land change modelling	Perry Malan, Patrick La'a	◆ Trial analysis following handling manual of Land Change Modeller	17 Mar 2017	Exercise (T. Koide)	PNGFA HQ	Remote Sensing/GIS and DB officers understood how to use Land Change

analysis *						Modeller for analysis following the manual.
Land change modelling analysis (2) *	Constin Bigol, Jehu Antiko, Patrick La'a, etc.	◆ Introduction to an example of analysis utilizing Land Change Modeler	22 Nov 2017	Lecture and discussion (T. Koide)	PNGFA HQ	The participants observed an example of analysis of Land Change Modeler utilizing data stored in the PNG-FRIMS.
Review of the result of AAC calculation **	Ms Margaret Tong	◆ Discuss the result of AAC calculation ◆ Grasp the system of AAC calculation	7 Dec 2017	Discussion (Y. Okada)	PNGFA HQ	Forest planning officer reviewed the result of AAC calculation. After that, the participant grasped the system of AAC calculation to verify the conformity with initial requirements for the function.
Land change modelling analysis (3) *	Perry Malan, Jehu Antiko, Patrick La'a	◆ Training on analysis utilizing Land Change Modeler	16 - 18 May, 23 - 24 May 2018	Lecture and OJT (T. Koide)	PNGFA HQ	Remote Sensing/GIS and DB officers have learnt the analysis of Land Change Modeler utilizing data stored in the PNG-FRIMS.
Verification of AAC calculated by the improved FIMS **	Perry Malan, Patrick La'a	◆ Review of AACs of each province and concession ◆ Compare AACs to the permitted cut managed by Project Branch, analyze issues between them	21, 28 Sep 2018	Lecture, discussion and OJT (Y. Okada)	PNGFA HQ	Remote sensing/GIS and DB officers confirmed existing issues about forest information stored in PNG-FRIMS. Also, future tasks for finding solutions were organized according to the results of verification.
Trial forest biomass and carbon stocks calculation	Perry Malan, Jehu Antiko	◆ Introduce a trial calculation of forest biomass and carbon stocks using forest areas of forest base map 2015.	11 Mar 2019	Lecture (A. Ochi)	PNGFA HQ	Remote sensing/GIS and DB officers confirmed one of applications of forest cover map; forest biomass and carbon stocks calculation.
Land change modeling analysis (4) (follow-up) *	Perry Malan, Patrick La'a, Jehu Antiko	◆ Follow-up training of land change modeling analysis in response to the officers' request	16 July	Lecture, exercise (T. Koide)	PNGFA HQ	Remote Sensing/GIS and DB officers have learnt the analysis of Land Change Modeler utilizing data stored in the PNG-FRIMS.

* These training sessions are also related to the training in Remote Sensing/GIS and Forest Monitoring Field.

** These training sessions are also related to the training in Database and PNG-FRIMS Field.

3.4 Forest Management Plan Field

3.4.1 Concepts and Target of Capacity Development

In the Project, a series of operations of forest management plans; evaluation, advice, approval (or preparation) and monitoring intended to be experimented by utilizing PNG-FRIMS in the pilot area(s). Forest management plan in PNG consists of the National Forest Plan, Provincial Forest Plans, 5 year Forest Working Plans, Annual Logging Plans, and Set-up plans. The use scene of PNG-FRIMS and its effectiveness on each level of management plan was examined. How to utilize PNG-FRIMS in a series of the operations of forest management plans was determined on the basis of the result of the examination.

Training workshops for the PNGFA officers and other collaborators was provided to disseminate the achievements in the pilot area(s) so that they could acquire practical skills required in the use of PNG-FRIMS for Forest management plans.

3.4.2 Implemented program and achievement

Title	Participants	Contents	Time/ Duration	Method (Trainer)	Venue	Achievement goal
GIS/GPS training for GIS officers in Area Office - Southern and WNB	Ori Renagi (Area Office - Southern), Peter Lat (Area Office - WNB)	◆ Install GIS data to the workstation ◆ Introduce data contents provided by PNGFA HQ ◆ Use new model GPS in combination with ArcGIS - Get location information with GPS - Import GPS data into ArcGIS ◆ Use ArcGIS - Scan and georeference Annual Logging Plan map to show it with other information in ArcGIS - Digitize the map to create a new data	31 Aug - 1 Sep 2015	Lecture and exercise (Patrick La'a, Jehu Antiko, observer: M. Nishimura)	PNGFA HQ	Officers of Area Office - Southern and WNB understood data contents provided by PNGFA HQ. Officers of Area Office - Southern and WNB understood how to install GIS data to the workstation. Officers of Area Office - Southern and WNB learnt how to use GPS, import GPS data into ArcGIS, georeference a scanned map, show multiple data in ArcGIS, and digitize to create a new data.
GIS training for GIS officers in Area Office - Momase, Highland and NGI	Kevin Turbarat (Area Office - Momase), Elizabeth M'Buleau (Area Office - NGI), Timothy Palpali (Area Office - Highland)	◆ Install GIS data to the workstation ◆ Introduce data contents provided by PNGFA HQ ◆ Use ArcGIS - Scan and georeference Annual Logging Plan map to show it with other information in ArcGIS - Digitize the map to create a new data - Measure area and length of the created data	22 Oct 2015	Lecture and exercise (Perry Malan, Patrick La'a, Jehu Antiko, observer: M. Nishimura)	PNGFA HQ	Officers of Area Office - Momase, Highland and NGI understood data contents provided by PNGFA HQ. Officers of Area Office - Momase, Highland and NGI learnt how to georeference a scanned map, show multiple data in ArcGIS, digitize to create a new data, and measure area and length of data.
PNG-FRIMS "LAN Map Browser" (LAN Map)	Margaret Tongo, Cedric Tumba, Charles Rawali, George Gunga, Charles Pakure, Beno Ningisere,	◆ Introduce concept, function and example use of LAN Map ◆ Trial use of LAN Map - Activate the browser and show	26 Feb, 2016	Lecture and exercise (Patrick La'a, Perry Malan,	PNGFA HQ	Officers of PNGFA HQ learned basic operation of LAN Map.

demonstration and training in Inventory and Mapping Branch	Tom Bukon, John Orabi, Ori Renagi	LAN Map - Measure distance and area - Confirm layer list - Confirm how to print		Jehu Antiko, observer: M. Nishimura)		
GPS/GIS training for officers in Area Office - WNB	Yakop Pasul, Douglas Wutt, Sylvester Tamalanga, Gerald Kukut, Vincent Galemo, Frank Bogen, Ms Rahab Ponoluh, Aruai Kispe, Leo Bakam, Hilton Dedevi, Gilberto Tom, John Garimuk, Joseph Makol, Paul K, Elok Nansiong	◆ Practice map reading ◆ Introduce GPS (Handle method/ Set up for functions) ◆ Practice GPS (Get points and tracks/ Take photos/ Area calculation) ◆ Practice ArcGIS desktop - Import points and tracks acquired by GPS into GIS	2 - 3 Mar, 2016	Lecture and exercise (Peter Lat, Clive Sewelu, observers: Jerry Kowin, M. Nishimura)	Area Office - West New Britain	Officers of Area Office - WNB learned map reading and basic operation of GPS and ArcGIS desktop.
GPS/GIS training for officers in Area Office (Milne Bay)	Noel Dibela, Samuel Aloysis, Aino Manidu, Mado Acaeli, Steven Palom, Ismael Dimoya	◆ Practice map reading ◆ Introduce GPS (Handle method/ Set up for functions) ◆ Practice GPS (Get points and tracks/ Take photos/ Navigation to certain points/ Area calculation)	14 - 16 Mar, 2016	Lecture and exercise (Ori Renagi, observer: M. Nishimura)	Milne Bay Provincial Forest Office	Officers of Milne Bay Area Office learnt map reading and basic operation of GPS.
JICA Project workshop for forest monitoring system	Yakop Pasul, Jason Sigamata, Jehu Antiko, Lyall Umbo, Norbert Tade, Samuel Aloysius, Peter Lat, Patrick La'a, Perry Malan, Ledino Saega, Hano Yatapya, Ori Renagi, John Orabi, Ms Reddy Victor, Alois Jenkihau, Francis	◆ Disseminate the current progress ◆ Examine effective use of tool, information and system to improve the monitoring system (1) Overall progress report and the objectives of the Workshop (2) Current status and issues for monitoring of logging operation (3) Introduction of new spatial information	3 Jun 2016	Workshop (presenter: M. Nishimura, Lyall Umbo, Reddy Victor, Yakop Pasul, Jehu Antiko, Patrick La'a, Or Renagi, Peter Lat,	PNGFA HQ	PNGFA officers understood current status and issues for monitoring of logging operation. "Example use" of PNG-FRIMS for monitoring system of logging operation according to PMCP (1995) and LCOP (2015) was examined and listed. "Further effective use" in addition to "Example use" above was also considered.

	Vilamur, Charles Pakure, Beno Ningisere, Margaret Tongo, Jerry Kowin, Charles Rawali, Karokaro Mau, Jim Menge, Goodwill Amos	(4) Demonstration of LAN Map (5) Achievement of the training (6) Presentation of example use of new spatial information (LAN Map) (7) Group discussion for better monitoring (8) Output of above group discussion		Charles Pakure, organizer: M. Nishimura, T. Watanabe)		
GIS training for officers in Area Office - WNB	Peter Lat, Yakop Pasul, Sylvester Tamalanga, Rahab Ponoluh, Poul Kaula, Clive Sewelu, Gilberto Tom, Joseph Makel, Frank Bogen, John Garimuk, Jerry Kowin	◆ Introduce ArcGIS Explorer operation - Import and view GIS data - Measure length and area, and get XY coordinate value - Add text - Import GPS data (points, tracks and photos) ◆ Exercise making monitoring reports - Attach maps and photos to monitoring report format	28 - 29 Jun, 2016	Lecture and exercise (M. Nishimura)	Area Office – West New Britain	Officers of Area office - WNB learnt basic operation of ArcGIS Explorer for making a monitoring report.
JICA Project Training for forest monitoring system in PNGFA Head Quarter	Joseph Badi, Charles Rawali, Dai Nohokau, Cedric Tumba, Inchu Yambutau, Lyall Umbo, George Gunga, Charles Pakure, Beno Ningisere, Leslie Vaira, Jessica Yambutau, Steven Kogen, Esther Beni, Mark Pilon, Karokaro Mau, Ivo Kusip, Tom Bukon, Gavis Visam, Ori Renagi, Hano Yatapya, Winnie Tindipa, Jason Sigamata	◆ Practice map reading ◆ Introduce GPS (Handle method/ Set up for functions) ◆ Practice GPS (Get points and tracks/ Take photos) ◆ Introduce ArcGIS Explorer operation (Import and view GIS data/ Measure length and area, and get XY coordinate value/ Add text/ Import GPS data (points, tracks and photos)) ◆ Exercise making monitoring reports	31 Oct - 2 Nov 2016	Lecture and exercise (Patrick La'a, Jehu Antiko, M. Nishimura)	PNGFA HQ	Officers of PNGFA Head quarter learnt map reading and basic operation of GPS, ArcGIS Explorer and LAN Map. Possible utilization of GPS, GIS and LAN Map in their normal work was considered.

		- Attach maps and photos to monitoring report format ◆ Introduce LAN Map (Activate the browser and show LAN Map/ Measure distance and area/ Confirm layer list/ Confirm how to print)				
JICA Project Training for forest monitoring system in Sandaun Provincial Forest Office	Jim Silu, Kalan Ramute, Mrs Jacklyn Paul, Steven Saki, Conrad Kilalang, Damien Doko, Philip Topaiman, Charles Tom	◆ Practice map reading ◆ Introduce GPS (Handle method/ Set up for functions) ◆ Practice GPS (Get points and tracks/ Take photos/ Area calculation) ◆ Introduce ArcGIS Explorer operation (Import and view GIS data/ Measure length and area, and get XY coordinate value/ Add text/ Import GPS data (points, tracks and photos)) ◆ Exercise making monitoring reports - Attach maps and photos to monitoring report format	15 - 17 Nov 2016	Lecture and exercise (Patrick La'a, M. Nishimura, observer: Constin Bigol)	Sandaun Provincial Forest Office	Officers of Sandaun Provincial Forest Office learnt map reading and basic operation of GPS and ArcGIS Explorer. Possible utilization of GPS, and GIS in their normal work was considered.
JICA Project Training for forest monitoring system in Area Office - Momase	Wape Pundiap, Maliso Minigi, Absalom Haiyo, Kevin Turbarat, Patricia Mulung, Mark Hanch Wenkang	◆ Practice map reading ◆ Introduce GPS (Handle method/ Set up for functions) ◆ Practice GPS (Get points and tracks/ Take photos/ Navigation to certain points/ Area calculation) ◆ Introduce ArcGIS Explorer	28 - 29 Nov 2016	Lecture and exercise (Jehu Antiko, M. Nishimura)	Area Office - Momase	Officers of Area Office – Momase learnt map reading and basic operation of GPS and ArcGIS Explorer. Possible utilization of GPS, and GIS in their normal work was considered.

		operation (Import and view GIS data/ Measure length and area, and get XY coordinate value/ Add text/ Import GPS data (points, tracks and photos)) ◆ Exercise making monitoring reports - Attach maps and photos to monitoring report format				
JICA Project Training for forest monitoring system in Area Office - NGI	Wan Ruin, Ms Eilzabeth M'Buleau, Niumai Norman, Darius Kalulu, Donald Tarere, Vesters Palo	◆ Practice map reading ◆ Introduce GPS Handle method/ Set up for functions) ◆ Practice GPS (Get points and tracks/ Take photos/ Navigation to certain points/ Area calculation) ◆ Introduce ArcGIS Explorer operation (Import and view GIS data/ Measure length and area, and get XY coordinate value/ Add text/ Import GPS data (points, tracks and photos)) ◆ Exercise making monitoring reports - Attach maps and photos to monitoring report format	5 - 6 Dec 2016	Lecture and exercise (M. Nishimura)	Area Office - NGI	Officers of Area Office - NGI learnt map reading and basic operation of GPS and ArcGIS Explorer. Possible utilization of GPS, and GIS in their normal work was considered.
JICA Project Training for forest monitoring system in Bulolo Plantation	Paul Tini, Arinaso Pilisi, Carl Tirkilang, Anton Teiva, Ismael Miti, David Bogen, Shanika Kaniku, Robert Zawin, Nelson Matamatam,	◆ Practice map reading ◆ Introduce GPS (Handle method/ Set up for functions) ◆ Practice GPS (Get points and tracks/ Take photos/	13 - 15 Mar 2017	Lecture and exercise (Jehu Antiko, M. Nishimura, observers: Peter Damba,	Bulolo Plantation	Officers of Bulolo Plantation learnt map reading and basic operation of GPS and ArcGIS Explorer. Possible utilization of GPS, and GIS in their normal work was considered.

	Steven K Anakime	Navigation to certain points/ Area calculation) ◆ Introduce ArcGIS Explorer operation (Import and view GIS data/ Measure length and area, and get XY coordinate value/ Add text/ Import GPS data (points, tracks and photos)) ◆ Exercise making monitoring reports - Attach maps and photos to monitoring report format		Hano Yatapya)		
JICA Project Training for forest monitoring system for Acquisition Branch, PNGFA	Joseph Badi, Charles Rawali, Dai Nohokau, Cedric Tumba, Inchu Yambutau, John Orabi	◆ Introduce GPS (Handle method/ Set up for functions) ◆ Practice GPS (Get points and tracks/ Take photos/ Navigation to certain points/ Area calculation) ◆ Introduce ArcGIS Explorer operation (Import and view GIS data/ Measure length and area, and get XY coordinate value/ Add text/ Import GPS data (points, tracks and photos)) ◆ Exercise making monitoring reports - Attach maps and photos to monitoring report format ◆ Practice LAN Map (Activate the browser and show LAN Map/ Measure distance and area/ Confirm layer list)	6 - 7 Apr 2017	Lecture and exercise (Patrick La'a, Mr Jehu Antiko, Masaya Nishimura)	PNGFA HQ	Officers of Project Branch learnt map reading and basic operation of GPS, ArcGIS Explorer and LAN Map. Possible utilization of GPS, GIS and LAN Map in their normal work was considered.

JICA Project Training for forest monitoring system in Area Office – WNB	Jerry Kowin, Clive Sewel, John Garimuk, Peter Lat, Gilbert Tom, Sylvester Tamalanga, Rahab Ponoluh, Paul Kaula, Gerald Kukut, Douglas Wutt	◆ Practice actual logging operation monitoring and make monitoring reports with GPS and ArcGIS Explorer in the field ◆ Check the monitoring reports made in the field	1 - 5 May 2017	Practice and lecture (Charles Pakure, Patrick La'a, M. Nishimura, D. Kadowaki)	Project Pilot area (Aria Vanu Blk2) and Kimbe	Officers of Area Office – WNB learnt how to make monitoring reports in the actual logging site and effective selection of spatial information depending on check items. Usefulness of monitoring reports and new reporting procedure were considered.
JICA Project Workshop for forest monitoring system	Tunou Sabuin, Dr Ruth Turia, Karokaro Mau, Fay Duega, Rabbie Lalo, Constin Bigol, Margaret Tongo, Perry Malan, Patrick La'a, Jehu Antiko, Joseph Badi, Charles Rawali, Cedric Tumba, Dambis Kaip, Goodwill Amos, Gewa Gamoga, Esther Beni, John Orabi, Jason Sigamata, Mark Betuels, Jim Menge, Inchu Yambutau, Peter Lat, Rahab Ponoluh, Steven Saki, David Bogen, Winnie Tindipa, Simon Peter, Rey Lambo, Joseph Manlisis, David Ling, Henry Huang, Desmond Lau, Masatake Harada, Margaret George, Daisuke Kadowaki, Masaya Nishimura, Ayako Ochi, Yasuyuki	◆ Present the progress of Project activities ◆ Exchange views on the Project activities (1) Overall progress report and the objectives of the Workshop (2) Introduction of newly available information and tool on LAN Map (3) Enhancement of monitoring system of forest management plans (4) Example of utilization of PNG-FRIMS other than monitoring of forest management plans (5) Improvement of National Forest Plan (6) Necessary information for revision of Forest Cover Map (7) Future plan for Project activities, including: importance of data exchange with developers; and security and integrity of logging data	1 Aug 2017	Workshop (presenter:M. Nishimura, Patrick La'a, John Orabi, Esther Beni, Peter Lat, Rahab Ponoluh, Steven Saki, Winnie Tindipa, David Bogen, Cedric Tumba, Margaret Tongo, Jehu Antiko, organizer: M. Nihimura, D. Kadowaki)	PNGFA HQ	Deeper understanding of the Project outline and the progress have been gained within relevant officers and stakeholders. Further possible utilization of PNG-FRIMS was discussed. Mutual better understanding between PNGFA and developers has been promoted.

	Okada, Dr Takahiro Koide, Everlyn P Mel					
JICA Project workshop for forest monitoring system using drones and GIS	Elizabeth Kaidong, Everlyn Paul, Patrick Laa, Jehu Antiko, Perry Malan, Rabbie Lalo	◆ Acquisition of data by automatic-flying-drone and analysis of data acquired with drones - Setting of automatic flight using GSpro and its notes - Analysis of data using Pix4D	14 -15 June 2018	Workshop (T. Koyama, H. Takahashi)	PNG HQ/ Kuriva	Participants understood the automatic flight setting and points to note and data acquisition using Pix4D for analysis and surveys. They also understood the data processing of photographs acquired for surveys, and creation of ortho images and terrain data.
	Everlyn Paul, Elizabeth Kaidong, Charles Pakure, Constin Bigol, Gewa Gamoga, Patrick Laa, Jehu Antiko, Beno Ningisere, John Orabi, Francis Vilamur, Perry Malan	◆ Discussion of the application of drones in forest monitoring - Group work on how to use a drone understanding its function	19 June 2018			Participants compiled concrete items to verify the use of drones.
	Everlyn Paul, Elizabeth Kaidong, Patrick Laa, Jehu Antiko	◆ Data acquisition by drones and data analysis - Data acquisition on actual site - Analyze actual data	20–22 June 2018			Participants understood the points to note at the time of acquiring the survey data at the plantation site aiming for its use in GIS.
JICA Project Training for forest monitoring system using drones in Provincial Office - WSP	Jimu Silu (PFO Sandaun), Kalan (Supervisor/ Amanab 1-4 FMA), Jackelyn (Acting Supervisor/ Amanab 5&6), Brenda (Monitoring Officer/ Amanab 5&6), Steven Saki (Supervisor/ Bewani FCA), Conrad (Monitoring Officer/ Bewani FCA), Erick tin	◆ Learn basic drone flying control - Basic manual handling	23-24, 27 October 2018	Lecture, exercise and discussion (Patrik La'a, Jehu Antiko, T. Koyama, H. Takahashi)	Sandoaun Provincial Forest Office - WSP	Participants understood the basic operation of a drone.
		◆ Capture aerial photo using drone in order to make up one whole set-up - Acquire photographs etc. by automatic flight using manual and GSpro - Analysis of drone data using Pix4D	24-25, October, 2018			Participants understood that creation of images and terrain data from drone data is possible.
		◆ Discuss drone use for field monitoring - Understand the functions of drones	26, October, 2018			Participants compiled concrete checklist items to verify the use of drones.

	won (Supervisor/ Vanimo TRP), Paul (Silviculture Officer)	and discuss how to use on a daily basis				
JICA Project Workshop for forest monitoring system using drones and GIS	FPPD: Samuel Gibson, Rabbie Lalo, Elizabeth Kaidong FSD: John Orabi FSD WSP: Jim Silu, Steven Saki, Jackeline Paul FSD WNB: Jerry Kowin, Peter Lat, Clive Sewelu FSD Southern: Mark Betuel, Ori Renagi FSD Goroka: Florence Plinduo FDD Bulolo: Ismael Miti FDD Kuriva: Aino Manidu PAD: Leslie Vaira	◆ Overview and drone safety management - Understanding features of drones and learning how to operate one safely	18 to 20 February 2019	Workshop (T. Koyama, H. Takahashi, Presenter: Dr Ruth Turia, Takashi Yamazaki (Executive Technical Advisor, JICA), Perry Malan, Jehu Antiko, H. Takahashi, T. Koyama)	PNGFA HQ/ Kupiano	Participants understood the overview of drones and points to be considered for safe operation.
		◆ Basic manipulation of drones - Basic operation practice	18 to 21 February 2019			Participants understood the basic operation of drones.
		◆ Automatic flight and processing ortho images - Acquisition of photograph data by automatic flight using GSpro - Analysis of drone data using Pix4D	20 to 22 Februar, 2019			Participants understood automatic flight for the purpose of creating ortho images and actually create an ortho image.
		◆ Practical use of drones - Experience in using at actual logging sites in Kupiano	24 to 27, Febrary, 2019			Participants understood the preparation and points to keep in mind when using a drone in the field.
JICA Project Training for forest monitoring system in Provincial Office - WSP	FSD WSP: Kallan Ramute, Steven Saki HQ: Margaret Tong, Jehu Antiko	◆ Practical use of drone - Automatic flight data acquisition and orthographic image creation in the Amanab area of West Sepik Province	20 to 24 May 2019	Lecture and exercise (H. Takahashi)	Provincial Forest Office - WSP	Participants understood how to use equipment in bad conditions like those at a logging campsite different from the training environment.

* Implementation of the training workshops were led by the long-term experts with supports of short-term experts.

3.5 REDD+ and FREL/FRL Field

3.5.1 Concepts and Target of Capacity Development

In the project, how to utilize PNG-FRIMS for implementing sustainable forest management and addressing climate change has been considered.

Training sessions were provided for improving the knowledge and technical levels of PNGFA and other collaborators on implementation of sustainable forest management, measurement and reporting of forest carbon emissions and removals, and development of reference emission level (REL) and reference level (RL). Also the Project supports PNGFA to disseminate PNG-FRIMS.

3.5.2 Implemented Program and Achievement

Title	Participants	Contents	Time/ Duration	Method (Trainer)	Venue	Achievement status
Preparation for presentation in COP20	Perry Malan, Gewa Gamoga	◆ Prepare for the presentations in COP20 side events - Indonesia Pavilion (RESTEC): Readiness MRV (Carbon & Degradation) - DRC side event (UN-REDD): Warsaw Fremework & Progress - Indonesia Pavilion (JICA): Asia Pacific Region: REDD+ Progress	Nov 2014	Discussion (M. Haraguchi)	PNGFA HQ	Mr Perry Malan and Mr Gewa Gamoga gained a better understanding of the project and REDD+ scheme and prepared the presentations.
COP20 participation and presentation	Mr Perry Malan, Mr Gewa Gamoga	◆ Participate in COP20 in Lima ◆ Make the presentations in COP20 side events	1 Dec - 12 Dec 2014	COP participation and presentation (M. Haraguchi)	Lima	The participants gained a better understanding of REDD+ scheme. The participants successfully made the presentations in COP20 side events.
International carbon offset frameworks	Mr Constin Otto Bigol, Ms Margaret Tongo, Mr Ledino Saega, Mr Samuel Gibson, Mr Perry Malan, Mr Patrick La'a, Mr Jehu Antiko, Mr Gewa Gamoga, Mr Karokaro Mau, Mr George Gunga, Mr Jason Sigamata, Ms Elizabeth Kaidong	◆ Introduce existing Carbon project methodologies in the Forestry sector: main methodologies and methodologies specifically useful in PNG ◆ Introduce data/parameters and methods used to assess forest degradation in projects ◆ Introduce the procedure to estimate forest carbon stock changes in large scale projects ◆ Explain relevant matters required for REDD+ in PNG-FRIMS	5 Jun 2015	Lecture (S. Salim)	PNGFA HQ	Interested PNGFA officers got a small overview of international carbon offset frameworks, but this was insufficient.
Preparation for	Mr Gewa Gamoga	◆ Prepare for a presentation in COP21	Nov 2015	Discussion (T.	PNGFA HQ	Mr Gewa Gamoga gained a better

presentation in COP21		side event - Japan Pavilion (JAXA & JICA): NFMS and Gap & Expecttion to Timely Ready-to-Use Satellite Data		Watanabe)		understanding of the project and REDD+ scheme and prepare a presentation.
COP21 participation and presentation	Mr Gewa Gamoga, Dr. Ruth Turia	◆ Participate in COP21 in Paris ◆ Make a presentation in COP21 side event	30 Nov - 11 Dec 2015	COP21 participation and presentation (T. Watanabe, M. Haraguchi, S. Salim)	Paris	The participants gained a better understanding of REDD+ scheme. The participants made a presentation in COP21 side event.
REDD+ concept & JICA-PNGFA Project	Mr Constin Otto Bigol, Ms Margaret Tongo, Mr Gewa Gamoga, Mr George Gunga, Mr Perry Malan, Mr Patrick La'a, Mr Jehu Antiko	◆ Review and discuss contribution of the JICA-PNGFA Project to REDD+ and possibility of REDD+ in PNGFA activities	Jun 2016 (1day)	Lecture and discussion (S. Salim, M. Haraguchi)	PNGFA HQ	It could be chance to consider availability of PNG-FRIMS in REDD+ and possibility of REDD+ in PNGFA activities though there are a few chances to discuss REDD+ in PNGFA.
Trial forest carbon emissions and removals calculation	Mr Perry Malan, Mr Jehu Antiko	◆ Introduce a trial calculation of carbon emissions and removals using forest cover maps 2000, 2005, 2011 and 2015 and Hansen lossyear data.	11 Mar 2019	Lecture (A. Ochi)	PNGFA HQ	Remote sensing/GIS and DB officers confirmed one of applications of forest cover maps; carbon emissions and removals.
Potential in PNG to estimate carbon emissions from forest degradation caused by logging based on field methods (by using PNG-FRIMS)	Ruth Turia (Dr), Dambis Kaip, Gewa Gamoga, Perry Malan, Rabie Lalo, Elizabeth Kaidong (Forest Planning & Policy Directorate) Andrew Aopo, Lyall Umbo, Kusip Ivo, John Orabi (Field	◆ Introduction and review of main methodologies to estimate emissions from forest degradation due to logging ◆ PNG potential to calculate emissions based on available information and practical case of use in the context of REDD+ (for the national FRL) ◆ Additional activities to examine the possible utilization of outcomes from developing the Volume method (volume	23 May 2019	Workshop: Presentation and discussion (presentor: S. Stephane, observers: M. Haraguchi, D. Kadowaki, T. Koyama, reporter:	PNGFA HQ	General knowledge in carbon methodologies in the Forestry sector was acquired. Main potentialities from daily activities in each PNGFA Direction were identified. Gaps for estimation of emissions were analyzed. Capacities and resources to increase PNGFA operationality for future needs in estimating carbon emissions specific to the logging

	Services Directorate) Magdalene Maihua, Guduru Romeo, Charles Pakure (Project Allocation directorate) Hitofumi Abe (Dr), Masamichi Haraguchi (FAO)	data, Emission values, Emission Factors) for general purpose of forest management		Everlyn Paul Mel)		sector were developed. Outputs of this workshop were summed up as a report "Potential in Papua New Guinea to estimate carbon emissions from forest degradation caused by logging based on field methods (by using FRIMS)".

* Implementation of the training workshops were led by the short-term experts with supports of long-term experts.

添付資料 45

研修生による第 1 回本邦研修成果プレゼンテーション

Capacity Development for Operationalization of PNG Forest Resource Information Management System for Addressing Climate Change

DB & RS/GIS training in Japan

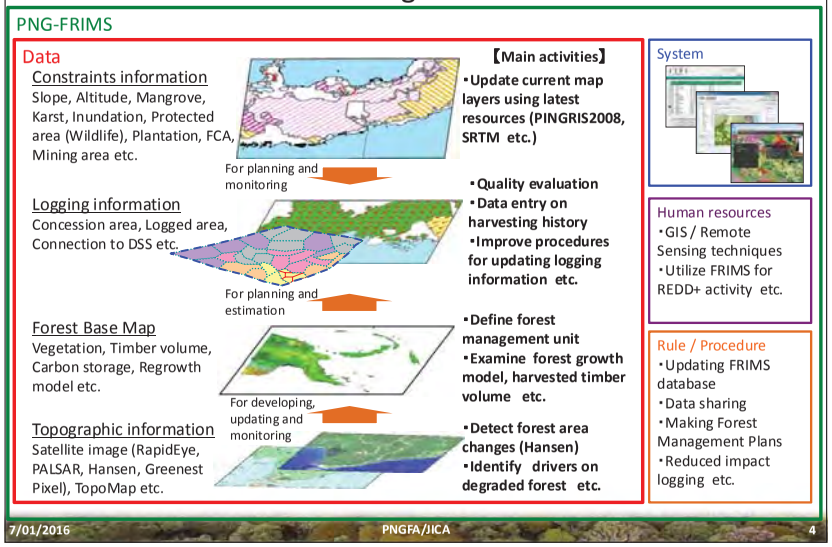
Jason Sigamata & Patrick Laa

Content

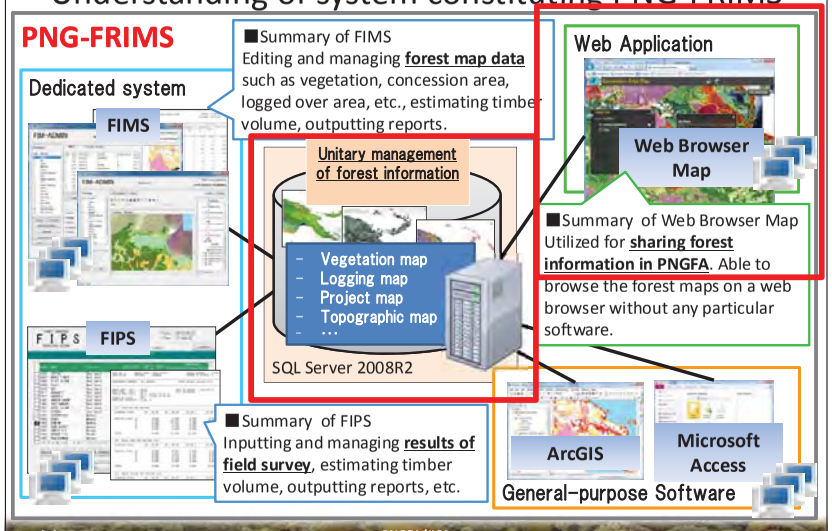
Training Objectives for DB

- Understanding the structure of PNG-FRIMS (including FIMS and FIPS) and learning the procedure of setup and maintenance.
- Understanding 'geodatabase' on the ArcGIS server with SQL server and learning the techniques for forest information sharing among PNGFA by using GIS.
- Preparing new functions for contributing to the efficiencies and advances of forest management by using the techniques learned.

Understanding of PNG-FRIMS



Understanding of system constituting PNG-FRIMS



PNG-FRIMS Installation Procedure

- Order of Installations:

1. ArcGIS for Desktop 10.2.2 Installation
2. ArcGIS for Server 10.2.2 Installation
3. SQL Server2008R2 Installation
4. FIMS Installation
5. FIPS Installation
6. ArcGIS Viewer for Flex Installation

PNG-FRIMS Installation Procedure

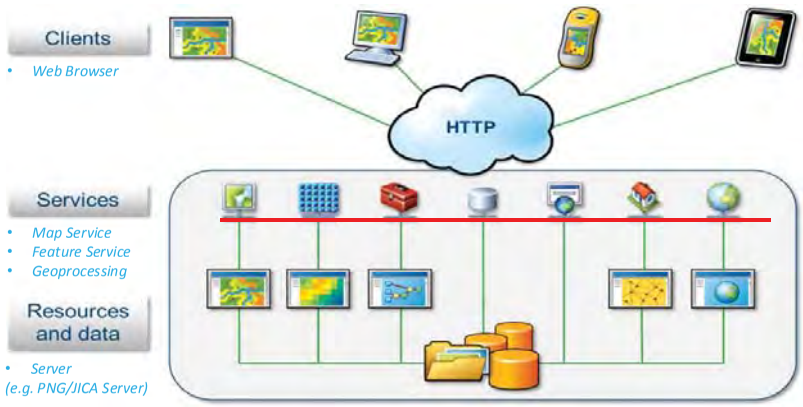
- Before this Training
  - No concept of system mechanism (how it functions)
  - Lacking installation knowledge of PNG-FRIMS
  - No administrator role for PNG-FRIMS (could not create environment)
  - End users of the System
- Achievement
  - Installation of PNG-FRIMS
  - Much better understanding of the system
  - Administrator knowledge

ESRI Training Outcome

- Understanding
  - ArcGIS Server
    - What is ArcGIS Server?
      - » Platform/software for sharing GIS materials, such as maps with your clients, whether offline or online.

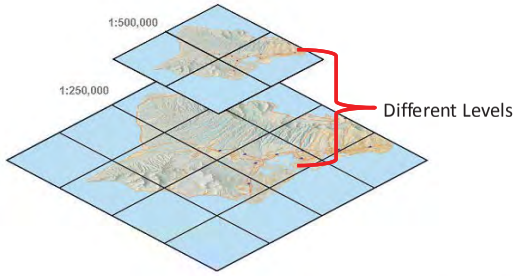
ESRI Training Outcome

- GIS service
  - What is GIS service? Author> Share> User



ESRI Training Outcome

- Caching Concept
  - Instructing the server to draw the entire map at several different scales and storing copies of the map images in the server.
    - Pre-generated images at different scales
    - Vital for performance of the Server



ESRI Training Outcome

- Geo-processing Service
  - What is Geo-processing?
    - Geo-processing is a analysis tool of ArcGIS
      - E.g. calculating tool for buffer zone or clipping AOI boundaries, etc…
    - Model Builder:

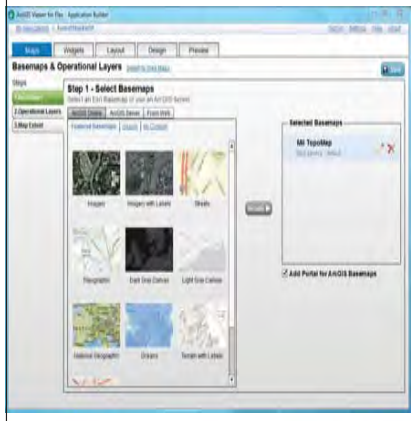
ESRI Training Outcome

- ArcGIS Viewer for FLEX
  - What is ArcGIS Viewer for FLEX?
    - The ArcGIS Viewer for Flex is a ready-to-deploy configurable client application built with the ArcGIS API for Flex. It is ESRI's solution for creating customized GIS-enabled Web mapping applications, without requiring programming.

Source: ArcGIS Resource Center

ESRI Training Outcome

- ArcGIS Application Builder



Creating new web applications using ESRI training outcome

- Ideas of new web application

Goal	Function	Objectives	Outcomes
To manage JOB Request for map	Submits job requests, approves the request and reports the progress via web browser map.	- To record all job requests onto the PNG-FRIMS. - To count and analyze all job requests	- This application will be helpful for managing job request history. - This application will make it possible to record number of map.
To estimate forest volume of AOI	Enter the AOI and estimates forest volume at AOI via web browser map.	- To estimate forest volume for project planning officer (who is not familiar with GIS)	- This application will make it possible to estimate forest volume of AOI easily and efficiently (No need to use FIMS). - In the future, this application will become available for estimating carbon stock as well.

Idea for Job request management

- Background of this application

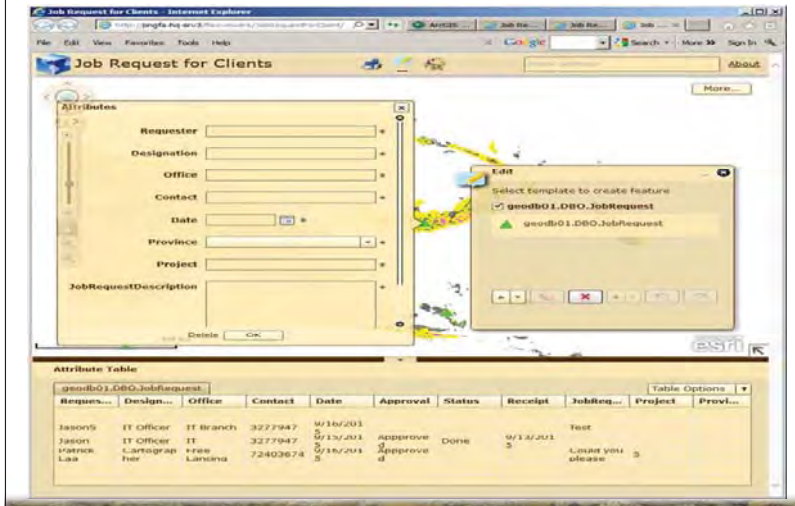
Step	Person	Work/ task	Issues	Way to improve the issues
1	External client or Internal client	Request Maps Printing	・requests by same clients	・Minimize multiple tasks by checking the history on the web browser
2	I&M Branch	Accept the requests	・Request does not go to manager for approval	・Share requests on the web browser
3	I&M manager/ supervisor	Approve the request	・Request does not go to manager for approval	・Share requests on the web browser
4	Cartographer team	If map request, making and printing maps	・Misplace of request forms	・Registers all requests to JICA Server using Web browser map
5	Admin assistant	Filing request forms	・Keeping record with hardcopy, occupy a lot of space ・Keeping track of maps printout (How many maps, for which province, for which project) ・Need to count hardcopy	・Registers all requests to JICA Server using Web browser map
6	Finance Branch	Issue the Receipt for purchasing publications		

Idea for Job request management

- Data specification and Privilege of access to the attributes

Layer	Attribute	Client(Admin assistant)	Manager/supervisor	Cartographer
Job request for maps	Requester	**Editable**	View	View
	Designation	**Editable**	View	View
	Office	**Editable**	View	View
	Contact	**Editable**	View	View
	Date	**Editable**	View	View
	Province	**Editable**	View	View
	Project	**Editable**	View	View
	JobRequestDescription	**Editable**	View	View
	geometry	**Editable**	View	View
	ApprovalStatus	View	**Editable**	View
	StatusOf JobRequest	View	View	**Editable**
	Receipt	View	View	**Editable**

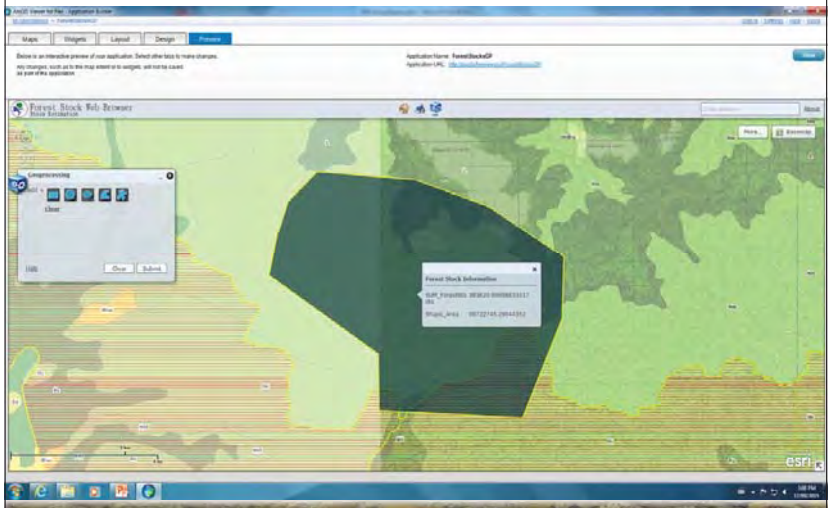
Job Request Web Browser Interface



Idea for estimating forest volume

Person	Work/ task	Issues	Way to improve the issues
Internal (Project allocation)	Provide and request Proposed and current boundaries	Current FIMS can calculate forest volume for entire concession but not AOI. They can not estimate the volume themselves. They rely on FIMS or Harvest volume from operational plan.	To provide the simple function for estimating volume through web browser map.

Forest Volume Web Browser Interface



Future Tasks

- Review Installation Procedures
- Make sure that the service is managed properly for PNGFA
- Understanding the Arc GIS Server Mechanism
- Updating Web Application Service
- Enhancing Web Application Functions

Remote Sensing/GIS Training

2015/09/06 to 2015/09/19

Presentation By:

Mr. Charles Pakure

(Project Officer – Southern)

Project Allocations Directorate

Projects Branch

Mr. Jehu Antiko

(Cartographer)

Forest Policy and Planning Directorate

Inventory and Mapping Branch

Papua New Guinea Forest Authority

Presentation Date: 30/09/2015

Presentation Outline

- Remote Sensing and GIS Training Review
- Application of Training in Forest Monitoring
  - Pilot Study Area: Aria Vanu/ East Ferguson
  - Proposed Workflow
    - •Data Acquisition
    - •Data Processing
    - •Data Analysis
    - Further Discussion and Analysis
- Capacity Development on Field Monitoring
- Issues
- Summary
- Acknowledgements

Remote Sensing and GIS Training Review

KKC

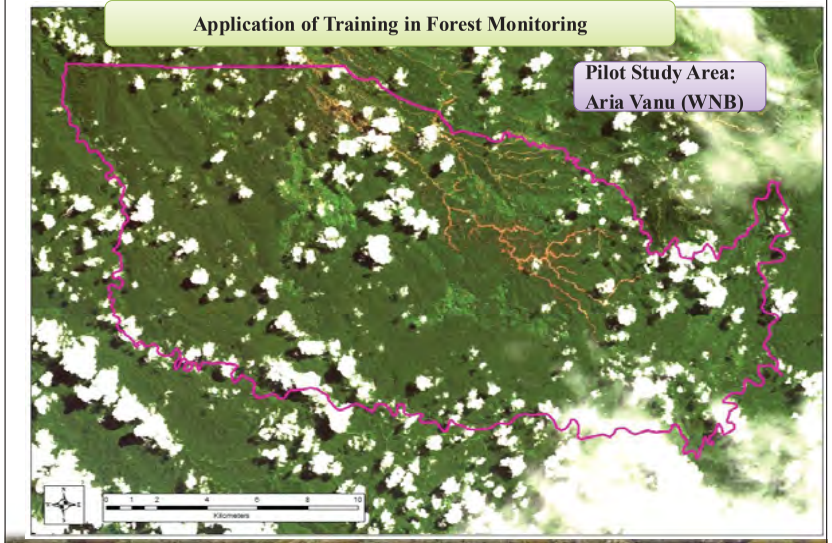
Lectures

- Basics of Remote Sensing

Lectures and Hands-on Training

- Landsat Analysis: - Acquiring Imagery
  - Creating various Colour Composites
- PALSAR Analysis
- Google Earth Engine Analysis
- Hansen Data
- Analysing Topographic Surfaces and Surface Hydrology

Application of Training in Forest Monitoring



Remote Sensing and GIS Training Review

RESTEC

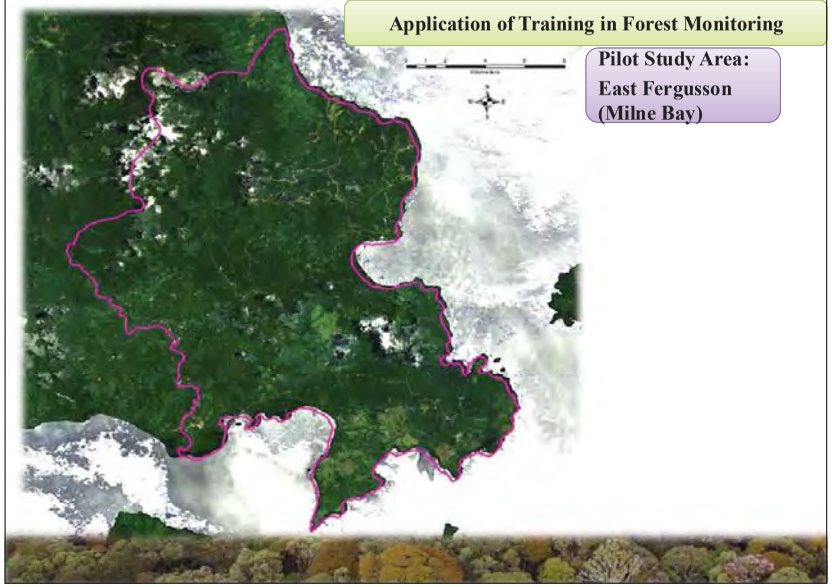
Lectures

- Introduction of RESTEC
- Detailed lectures on Remote Sensing and properties of electromagnetic waves.
- Detailed lectures on Optical and Radar Imagery and sensors: e.g. ALOS, ALOS2

Lectures and Hands-on Training

- Free Software: QGIS, SNAP, MultiSpec, Land Use/Cover Classifier (LUC).
- Processing Optical Imagery
- Processing Radar imagery.

Application of Training in Forest Monitoring



Application of Training in Forest Monitoring

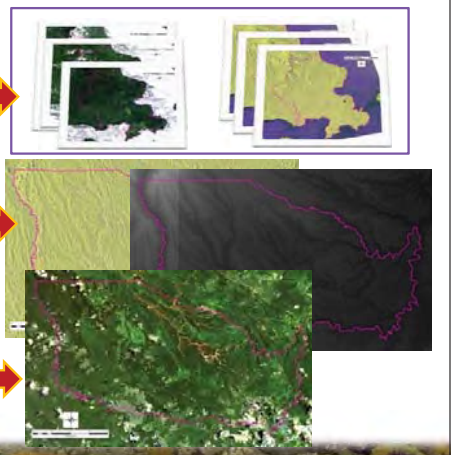
Proposed Workflow

1. Data Acquisition

Satellite Imagery
Historical Data and Current Data

Radar Images
ALOS2: PALSAR,
SRTM imagery (Radar)
(Free Data Download)

Optical Images
Landsat: Annual Greenest Pixel,
Optical Imagery.
(Free Data Download)
Using Google Earth Engine



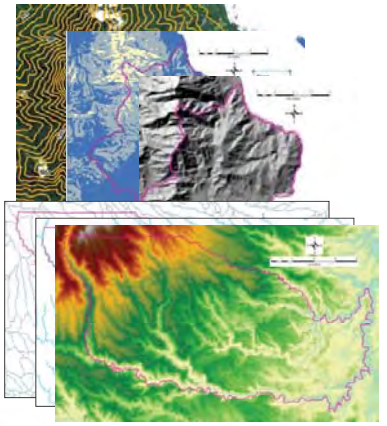
JICA REMOTE SENSING AND GIS TRAINING FOR FOREST MONITORING

Application of Training in Forest Monitoring

Proposed Workflow

Data Analysis

Radar Imagery:
- Creating Contours
- Creating Slope and Aspect
- Creating Hillshade and Terrain Surfaces
- Hydrology Analysis: Watershed, Stream Networks.
- Creating DEM from SRTM(Digital Elevation Model)



JICA REMOTE SENSING AND GIS TRAINING FOR FOREST MONITORING

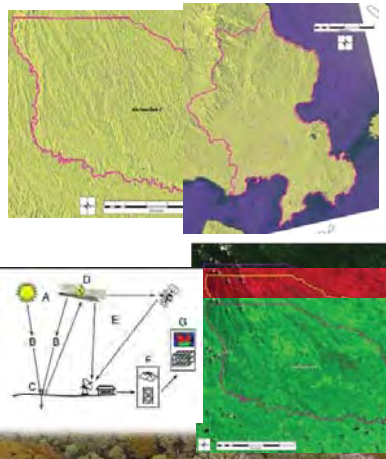
Application of Training in Forest Monitoring

Proposed Workflow

2. Data Processing

Radar Images
- Calibration/Correction of Imagery
- Cloud Free imagery

Optical Images
- Converting Digital Numbers to Reflectance.
- Creating Different Colour Composites



JICA REMOTE SENSING AND GIS TRAINING FOR FOREST MONITORING

Application of Training in Forest Monitoring

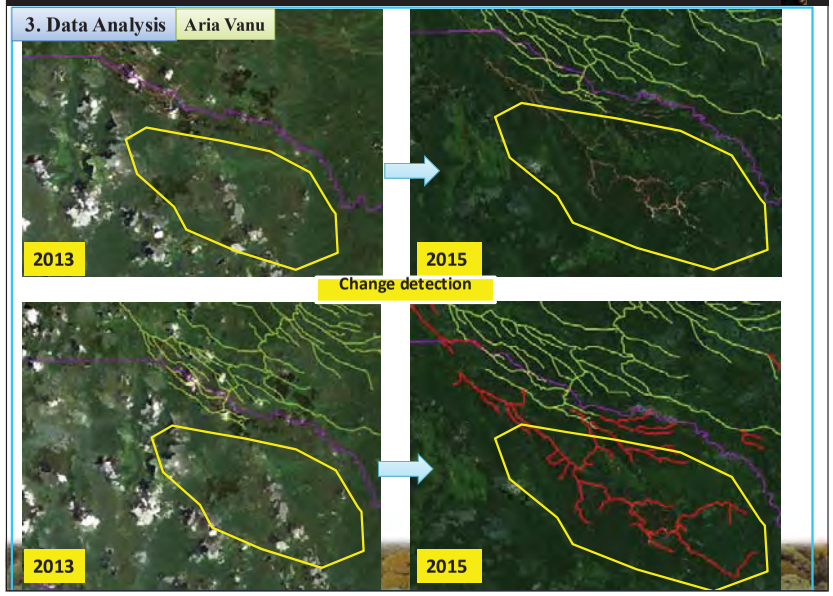
Proposed Workflow

3. Data Analysis

Optical Imagery:
- Digitize Possible Logging Roads
- Change Detection on Forest cover
- Overlaying different data layers.

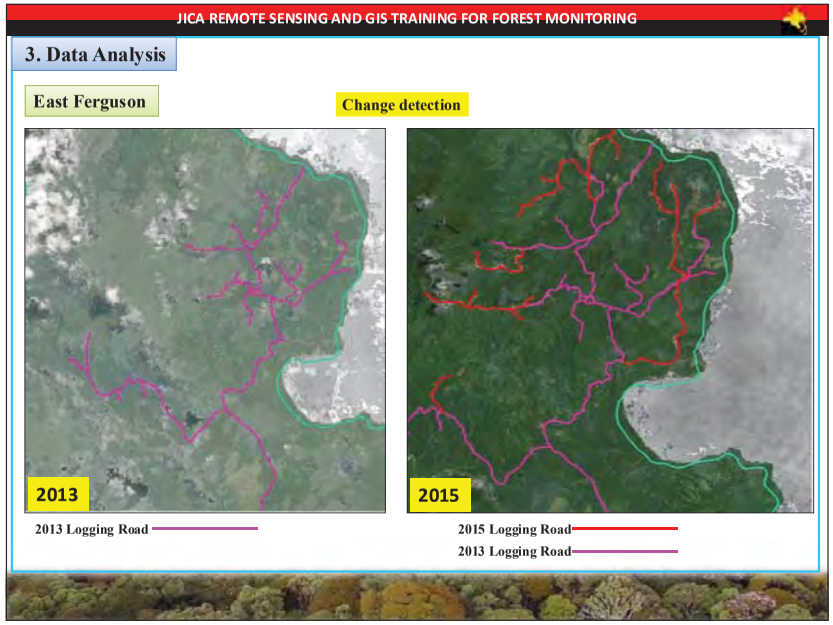
3. Data Analysis

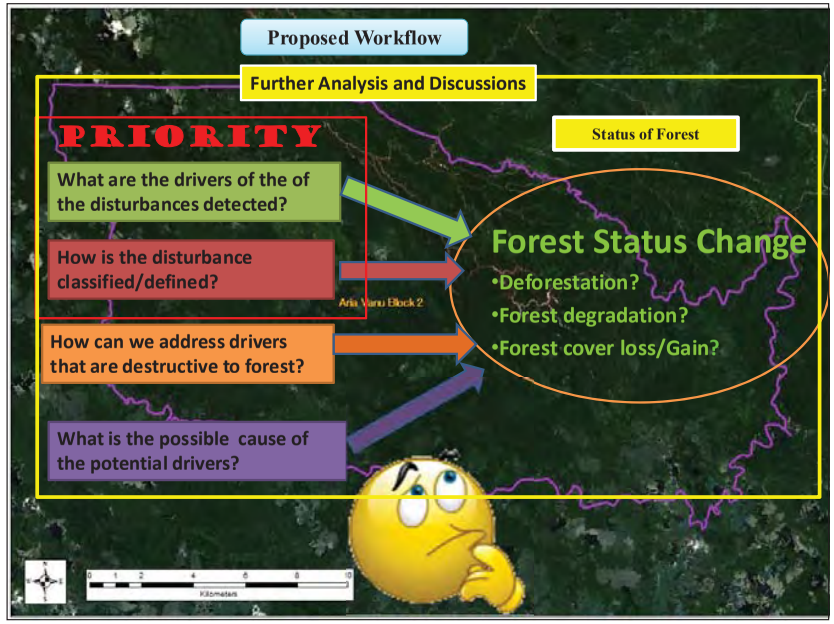
Aria Vanu

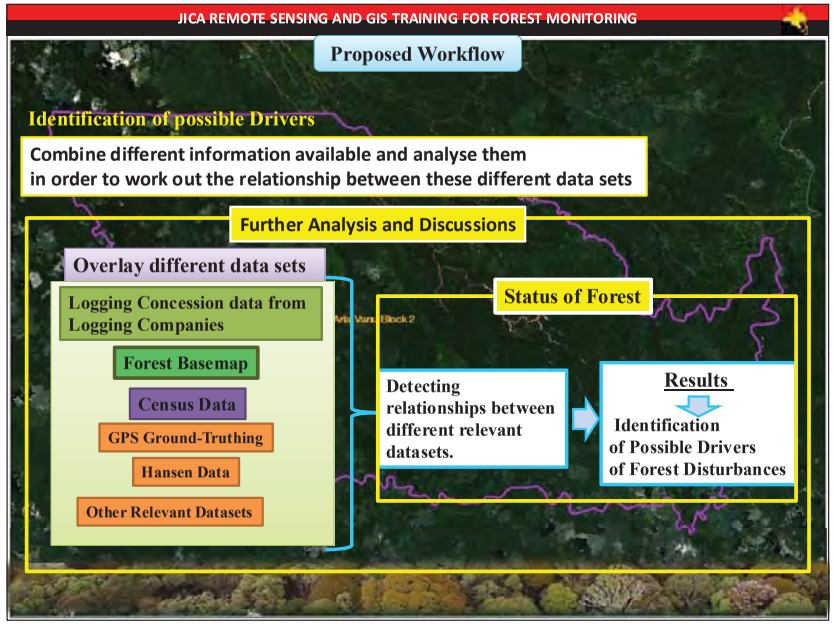


3. Data Analysis

East Ferguson

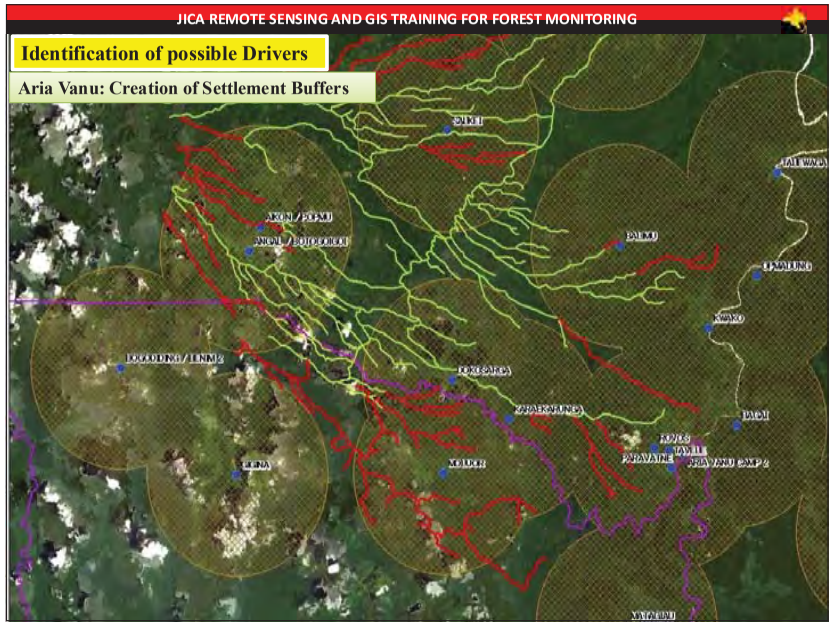






Identification of possible Drivers

Aria Vanu: Creation of Settlement Buffers



Capacity Development on Field Monitoring

Main Aim of Remote Sensing and GIS Processes /Analysis

- Monitoring of Timber Concession Area is Consistent and updated regularly.

→ Making sure that the PNG Logging Code of Practice is followed in the field

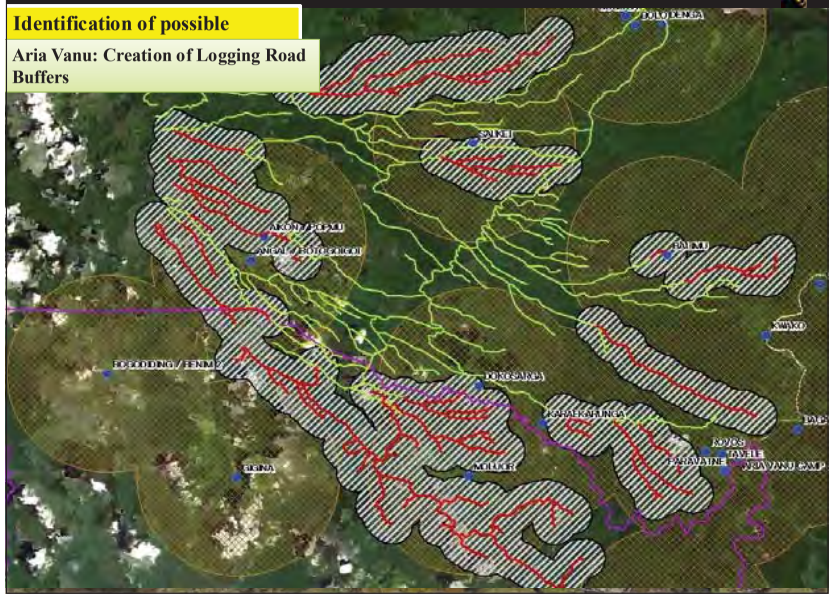
Field Based Capacity Development

Forest Monitoring is an on-going activity

PNGFA HQ	Field Officers
Reports Maps GPS Coordinates Estimation of forest disturbance drivers	Reports GPS Coordinates Confirmation of Disturbance Drivers Special requests

Identification of possible

Aria Vanu: Creation of Logging Road Buffers



Main Issues

- **Internet Issues:**
  - **Sometimes Internet Speed is too slow.**
  - **Internet Firewall:**
    Websites where free data and free Remote Sensing/GIS can be downloaded from is blocked.
- **Ability and Availability of PNGFA Officers to utilize Remote Sensing/GIS for Forest Monitoring activities.**

Summary

Remote Sensing/GIS cannot detect all the phenomena that affect forests.
Remote Sensing/ GIS techniques can:
- **set a base for Forest Monitoring work to build upon.**
- **minimise errors in Forest Monitoring work.**

Current Task:
- **Creating Remote Sensing Manuals.**
- **Creating GIS Manuals.**

Summary

PNGFA and other stake holders that are mandated to manage forest in a sustainable manner in partnership with International agencies must be prepared to utilize RS/GIS technologies.

Summary

Exposure

•An opportunity for me to get a start on more practical usage of Remote Sensing/GIS systems that is free of charge and available. e.g. Landsat

•Hands on Training with experts and finding solutions in applying these technologies which will improve the capacity of sustainable forest management in PNG especially I field situations.

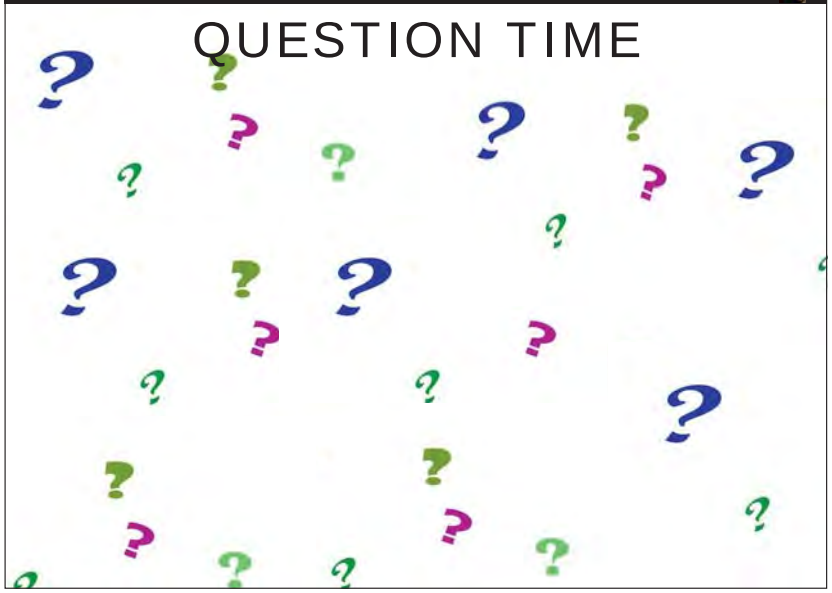
•Can continuously provide updated information on status of forest areas in both acquired and non-acquired forest areas in PNG.

•Can now provide a data base information that PNGFA can use for check and balance purposes in the evaluating and monitoring of Company's plans and operations.

•Field trails should be conducted so all PNGFA monitoring officers can be able to use and excess information in a more accurate and appropriate manner.

• Encouraging the daily and regular usage of RS/GS information by both field base and office staff so the full potential of RS/GS technologies can be recognized.

QUESTION TIME



Acknowledgments

THANK YOU VERY MUCH...

JICA
KOKUSAI KOGYO GROUP
RESTEC
Remote Sensing Technology Center of Ja
PAPUA NEW GUINEA FOREST AUTHORITY

JICA REMOTE SENSING AND GIS TRAINING FOR FOREST MONITORING

Presentation ENDS

添付資料 46

COP 参加

COP20

発表資料

参加報告

COP21

発表資料

参加報告

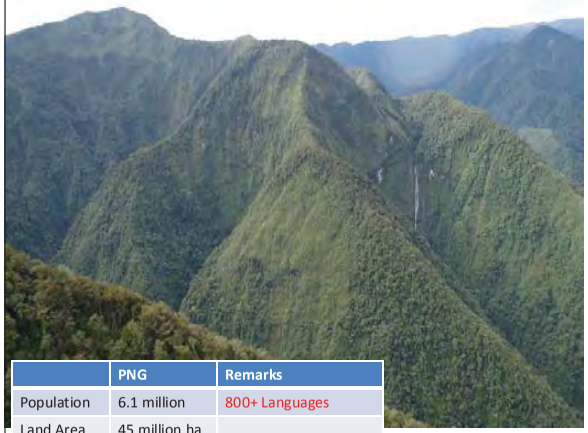
- Case Example -

Papua New Guinea
Forest Resource Information Management System for Forest Conservation and REDD+

December 1st, 2014
Masamichi HARAGUCHI
Kokusai Kogyo Co., Ltd. (KKC)

Contents

1.1 State of Forest in PNG

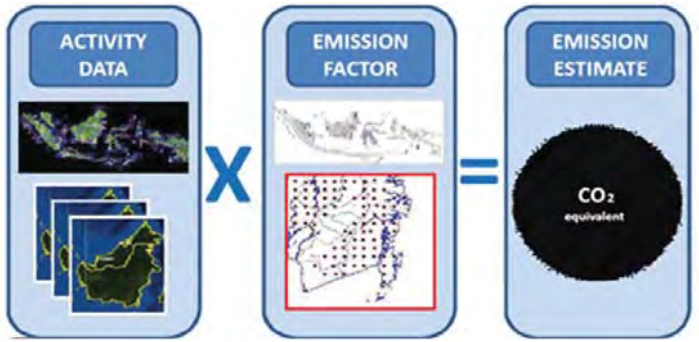


	PNG	Remarks
Population	6.1 million	800+ Languages
Land Area	45 million ha	
Forest Area 1990 2010	 32 million ha 29 million ha	 3 million ha decreased in 20 years (???)

Source:
UN-REDD National Programme Document,
FAO FRA 2010 National Report, etc.

1.2 REDD+ Requirement: MRV System

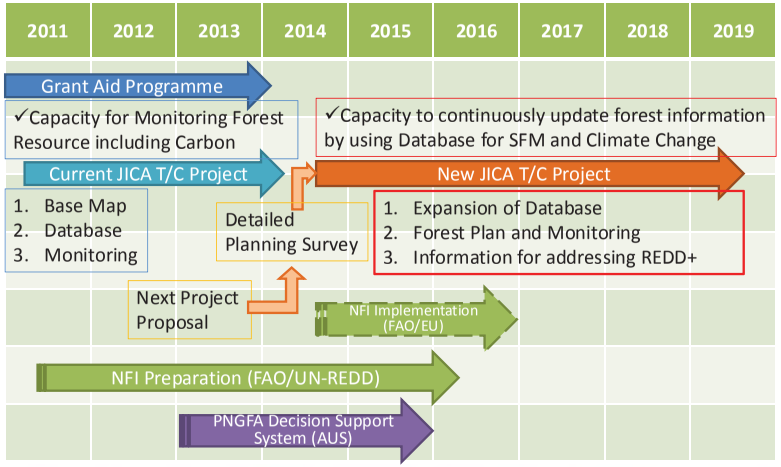
MRV (Measurement, Reporting and Verification) System



Source: Reference Emission Levels Indonesia - Ruandha Sugardiman, MRV Meeting Mexico

PNG was not ready for MRV in 2010

2.1 Forestry Cooperation Projects from 2011 to 2019 (National-level)



NFI: National Forest Inventory

2.2 Background and Progress of PNG Forest Monitoring

Situation in 2010

1. National-level Forest Basemap has not been updated since 1972 (since 1st PNGRIS)
2. FIMS (Forest Inventory and Mapping System) has not been updated since 1996
3. Existing forest related data is not sufficient for carbon estimation for REDD+ MRV

PNGFA/JICA
UN-REDD/FAO
coordinated by OCCD

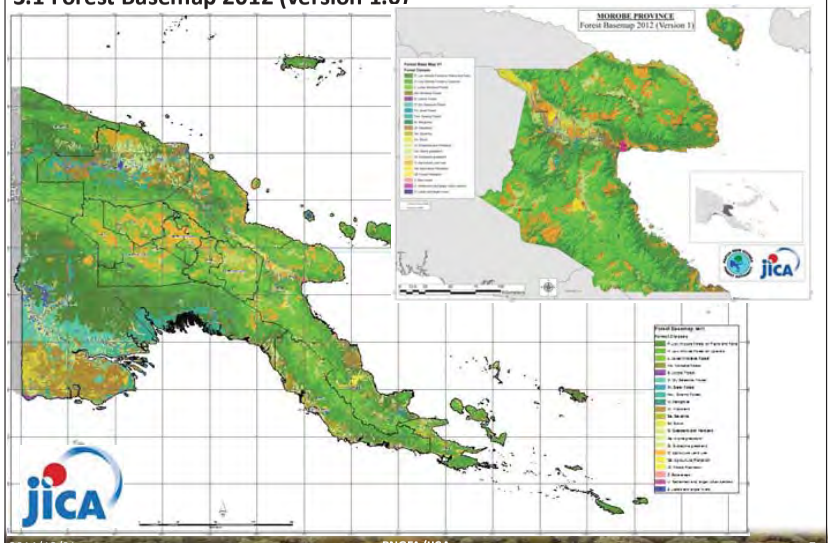
Challenges

- Vast forest area, but most are inaccessible to do forest survey for whole country
- Lack of funds to conduct full scale forest inventory
- 97% of PNG land is customary land
- Physical structure of land – mountainous, etc.

Situation in 2014

1. National-level Forest Basemap version1.0 was developed with support of JICA
2. Forest Resource Database was developed based on FIMS with support by JICA
3. National Forest Inventory 1st Phase (LULUCF assessment) was completed with support of UN-REDD/FAO and 2nd Phase (Inventory survey) is being prepared

3.1 Forest Basemap 2012 (version 1.0)

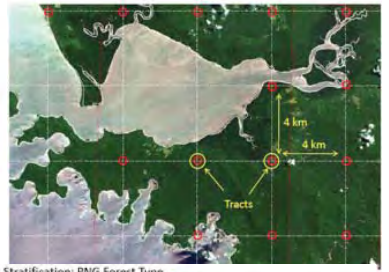


3.2 NFI 1st Assessment (by CollectEarth)

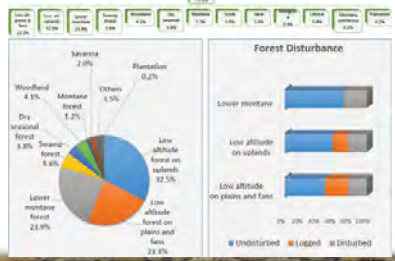
Phase 1
Based on RS data analysis and Collect Earth/Open Foris & Google Earth tool

Phase 2
Based on field plot clusters on a random restricted sampling design

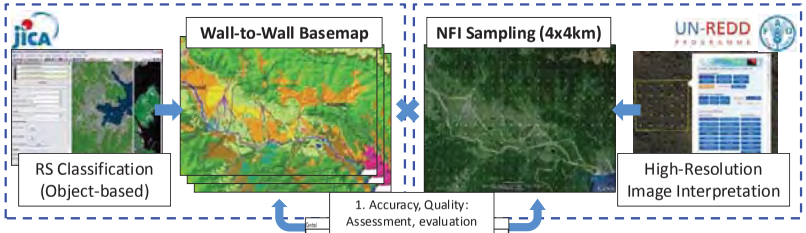
UN-REDD PROGRAMME



Stratification: PNG Forest Type



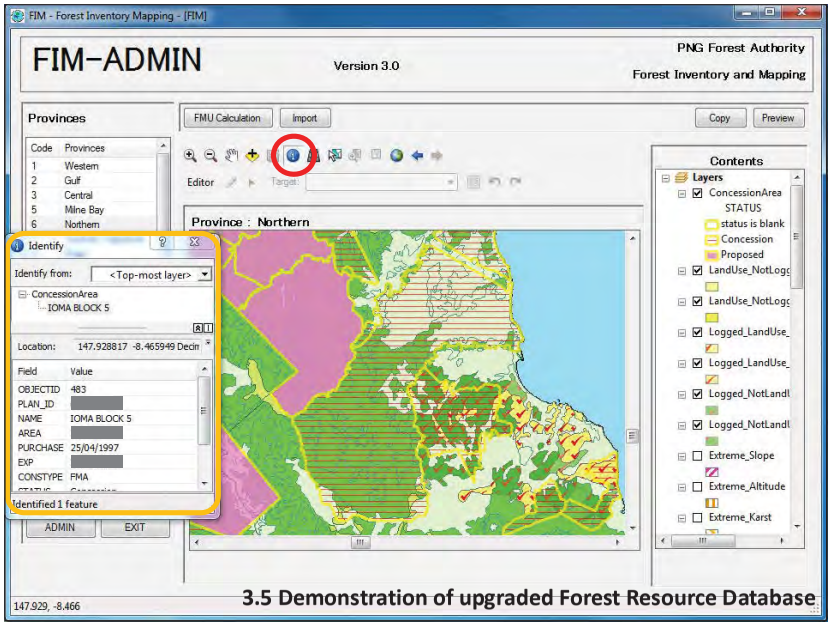
3.3 Coordinate Forest Basemap & NFI→ Develop consistent GHG Inventory



Forest Area (Change)
2. Extracting problems on classification & analyzing cause of the errors
4. Adjust classification criteria (unite/divide)

Averaged Carbon Stock
3. Stratification (supported by UN-REDD)
5. Selection of site for ground survey (supported by UN-REDD)

	Forest Basemap	NFI Sampling (CollectEarth)
Spatial Coverage	**Wall-to-wall by polygons** Segmentation < 1ha (100x100m)	**Sampling plots** 4x 4km (or 2x2km) 1ha unit with 25 check points
Satellite	Rapid Eye & ALOS/PALSAR (2010-2011)	LANDSAT & Google Earth (High Resolution)
Area Calculation	Geographical	Statistical
Boundary	Yes	No
Statistical Analysis	Limited	Ample



3.5 Demonstration of upgraded Forest Resource Database

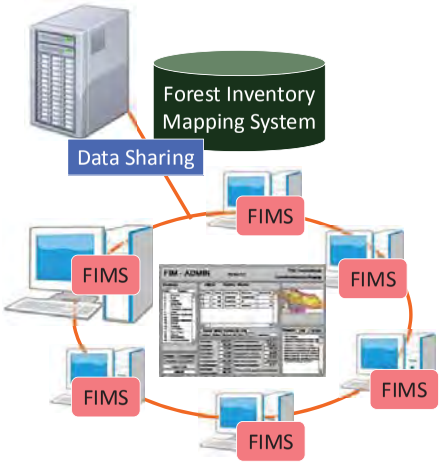
3.4 Upgrade Forest Resource Database (FIMS: Forest Inventory Mapping System)

[Server]

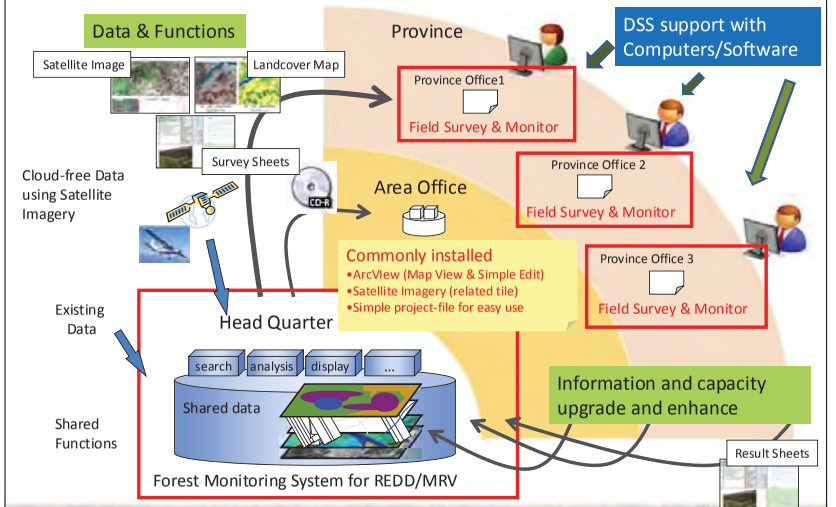
Uniform Management and Sharing of Data

[Client]

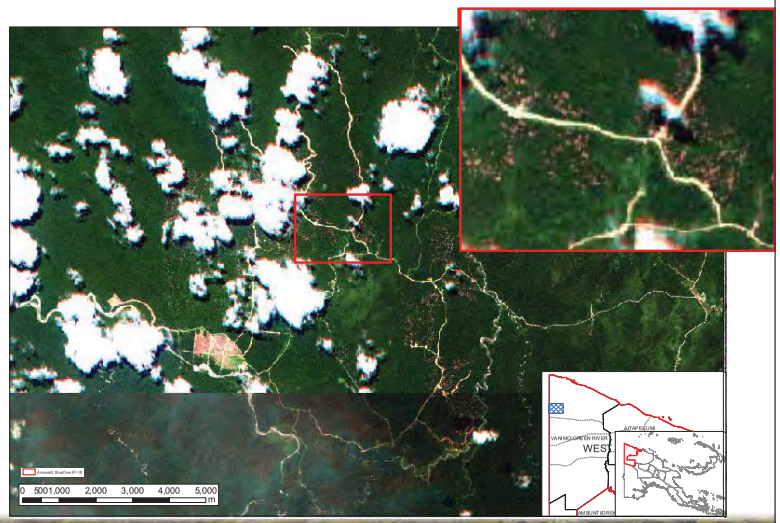
Data Browsing and Report Creation is possible from any PC in PNGFA



3.6 Demonstration of Forest Monitoring with Local Office

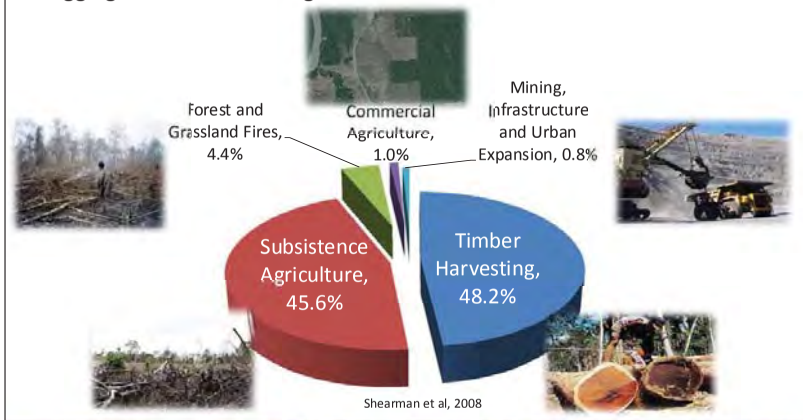


3.7 Forest Monitoring with Remote Sensing (Logging)



4.2 Drivers of Deforestation & Forest Degradation

- 1.41% of PNG's forest were being deforested or degraded per year.
- The major causes of deforestation and forest degradation in PNG have been logging and subsistence agriculture.



4.1 Forest Resource Information for Forest Conservation/REDD+

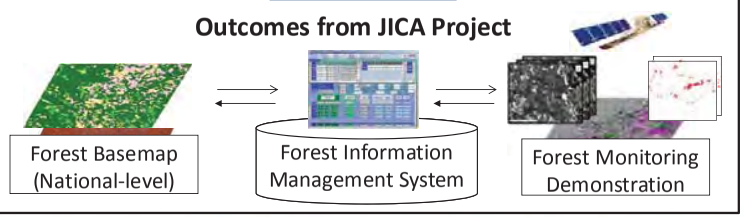
Basic Information to Plan/Implement REDD+ Project have been developed with Outcomes of JICA Project (as National-level)

Forest Conservation/REDD+ Project Planning

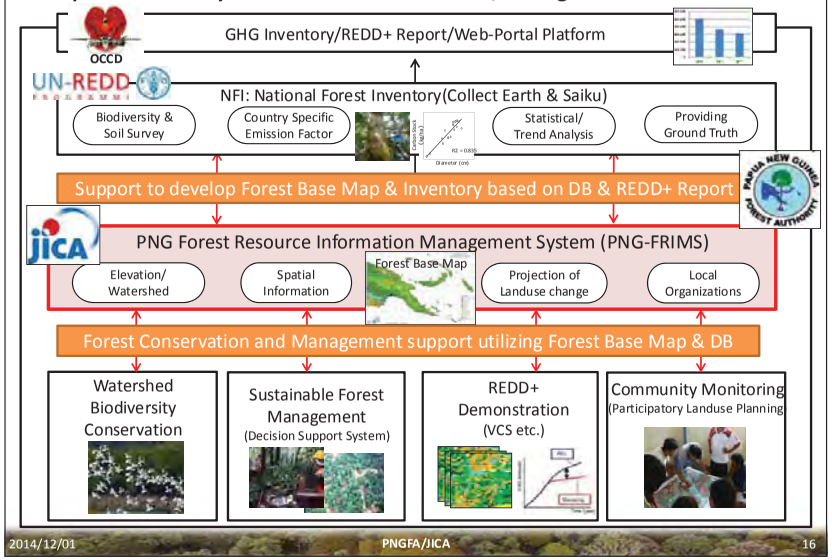
Planning Project Boundary & Area	Calculating Forest Biomass Carbon Stock	Analyzing Driver Deforestation & Degradation

Forest Info Base

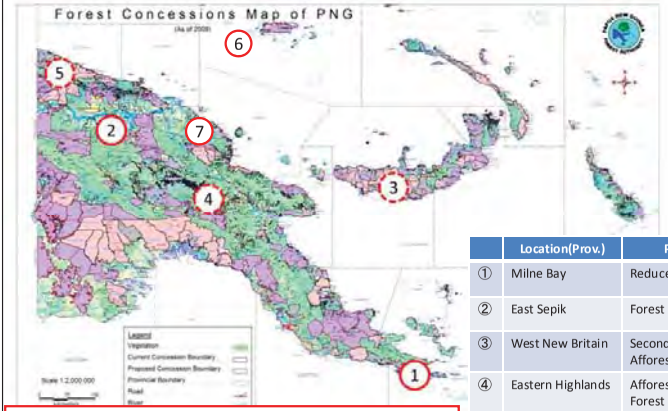
Outcomes from JICA Project



4.3 Implementation System of Forest Conservation/Management and REDD+



4.4 REDD+ Pilot Study in PNG



	Location(Prov.)	Proposed Activities
①	Milne Bay	Reduced Impact Logging
②	East Sepik	Forest Conversion
③	West New Britain	Secondary Forest Management Afforestation / Reforestation
④	Eastern Highlands	Afforestation Forest conservation
⑤	West Sepik	Afforestation / Reforestation Forest Conservation
⑥	Manus	Forest Conservation
⑦	Madang	Secondary Forest Management

① GIZ is developing PD for VCS (JICA collaboration)
② Private company got authorized by VCS & CCB
⑥ WCS is supporting, preparing PD for VCS
⑦ LEAF (TNC with Winrock) is supporting MRV

4.5 REDD+ Pilot Study: Milne Bay (Central Suau)


Oct 2010
- PNGFA consulted with the PFMC on NEC's decision
- PFMC's decision on site selection and REDD+ Initiative

Oct 2011
- PNGFA staff, MBPA and RLLG to inform the people on PFMC's decision and seek consent
- Climate Change and REDD awareness

Oct – Nov 2012
- Biomass Survey
- Feasibility Studies

Nov 2012
- PNGFA staff, OCCD, MBPA conducted 2nd field trip to;
  - Consent to secure the area under existing process (FMA)
  - Inform the resource owners on what transpired from the first meeting in 2011.
  - Inform the people of the amendment of the ILG process
  - Climate Change Awareness


April – Sep 2014
- ILG exercise
- Vulnerability & Adaptation Assessment
- GIZ Feasibility Study

Summary

1. PNG has vast and rich forest (also biodiversity) due to special natural/social condition
2. PNG has improved capacity of REDD+ MRV with collaboration of PNGFA and OCCD
3. PNG has achieved reliable basic information
   - Forest Basemap (ver.1.0) with support of JICA
   - NFI 1st Assessment with support of UN-REDD/FAO
4. PNG has started utilizing Forest Resource Information for Forest Conservation & REDD+
   - Good coordination with REDD+ stakeholders
   - Getting ready to implement REDD+ projects

Gracias!

Masamichi HARAGUCHI/Kokusai Kogyo Co., Ltd.(KKC)
masamichi_haraguchi@kk-grp.jp

Papua New Guinea
Readiness of MRV and possibility for REDD+/JCM
- Achievements & Challenges by Remote Sensing-

December 4th, 2014
Perry Malan
Papua New Guinea Forest Authority (PNGFA)
Masamichi HARAGUCHI
Kokusai Kogyo Co., Ltd (KKC), JAPAN

Contents

1.1 Overview of JICA/PNGFA Project

Issues: As-Is (Current)

1. National level Forest Basemap is not developed since 1972
2. Forest Inventory and Mapping System (FIMS) is not updated since 1996
3. Existing forest related data is not sufficient for carbon estimation

JICA/PNGFA Project

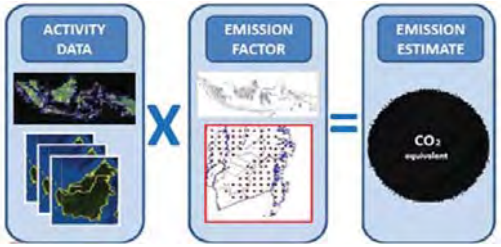
Challenges:
- Vast forest area, but most are inaccessible to do forest survey for whole country
- Lack of funds to conduct full scale forest inventory
- 97% of PNG land is customary land
- Physical structure of land – mountainous, etc.

To-Be (Goals)

1. National level Forest Resource Basemap is developed and utilized
2. National level Forest Resource Database is developed and utilized
3. Forest Monitoring System including Carbon stock is demonstrated

1.2 Requirement for REDD+ and SFM (Sustainable Forest Management)
MRV (Measurement, Reporting and Verification)

Source: Reference Emission Levels Indonesia - Ruandha Sugardiman, MRV Meeting Mexico



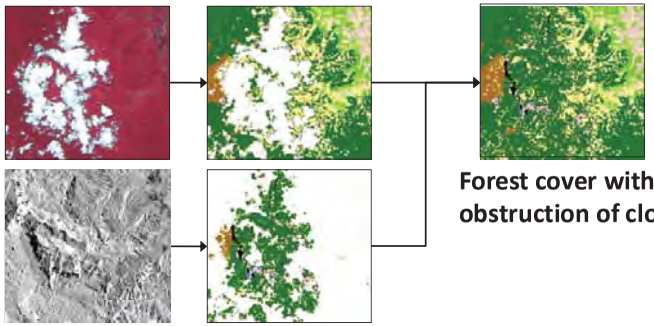
Remote Sensing Map — JICA — Completed in 2014

National Forest Inventory — FAO — UN-REDD PROGRAMME — Under Implementation

When they are not ready,
Step-wise approach is accepted

1.3 Key Remote Sensing Technology for Basemap Development in PNG

Optical satellite imagery (with clouds)

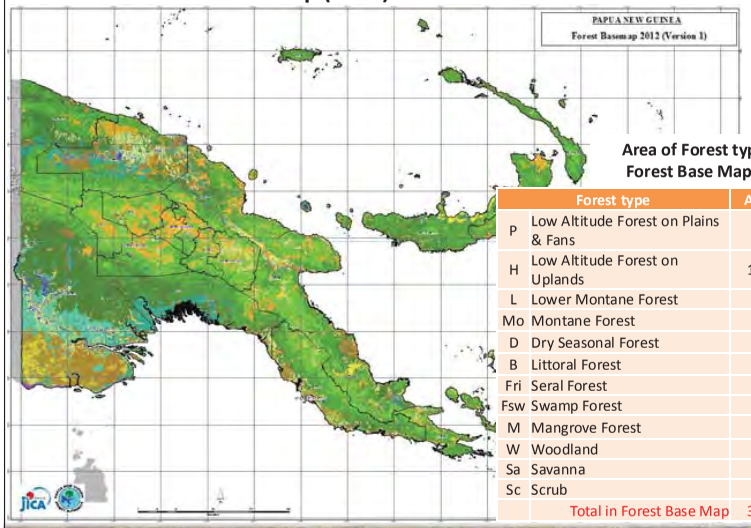


Forest cover without obstruction of clouds

Radar/SAR satellite imagery (penetrates clouds)

Different types of remote sensing data may be combined for best results (e.g. compensating for cloud cover over tropical rainforest)

2.1.1 Area of Forest Basemap (ver.1)



Area of Forest types of Forest Base Map 2012

	Forest type	Area (ha)
P	Low Altitude Forest on Plains & Fans	8,807,748
H	Low Altitude Forest on Uplands	12,404,244
L	Lower Montane Forest	8,221,846
Mo	Montane Forest	358,050
D	Dry Seasonal Forest	957,387
B	Littoral Forest	69,994
Fri	Seral Forest	158,783
Fsw	Swamp Forest	2,070,809
M	Mangrove Forest	524,582
W	Woodland	3,091,027
Sa	Savanna	651,825
Sc	Scrub	394,340
	Total in Forest Base Map	37,777,015

2.1.2 Calculation of Carbon Stock by using Forest Basemap

Area

Classification of Global Ecological Zone (FAO)

Translated and applied to

Area of Forest Base Map 2012

X

Biomass by carbon pool

IPCC 2006 Guidelines

Above Ground Biomass: Tier1 Default value
Below Ground Biomass: Tier1 Default value

Litter:
Dead wood:
Soil organic matter:
} Excluded for Tier 1 approach

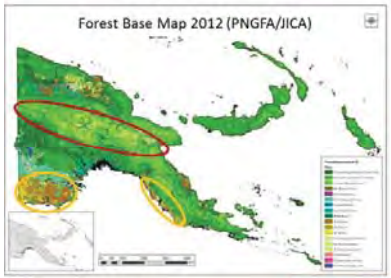
calculation

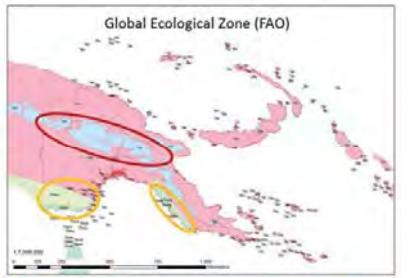
Total Forest Biomass in PNG

X 0.47 and 0.451 (IPCC default)

Total Forest Biomass Carbon Stock in PNG

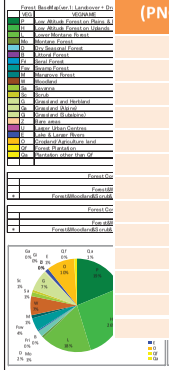
2.1.3 Considering Biomass（IPCC default）





		Forest Base Map 2012		Ecological Zone 2001	
	Lower rainfall area	D	Dry seasonal forest	TAwa	Tropical moist deciduous forest
		W	Woodland		
		Sa	Savanna	TAwb	Tropical dry forest
		Sc	Scrub		
	High altitude area	L	Lower montane forest	TM	Tropical mountain systems
		Mo	Montane forest		

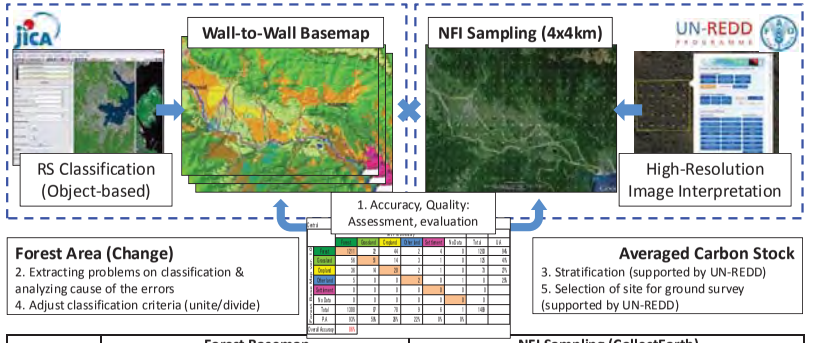
2.1.4 Calculation of Biomass/Carbon (National-level)



	Forest Base Map 2012 (PNGFA/JICA)	Total Living Biomass (Mt)	CF	Total forest biomass carbon (Mt)
P		3,619.98		1,701.39
H		5,098.14		2,396.13
Fri		65.26		30.67
Fsw		851.10		400.02
D		213.69		100.43
B		15.62	0.47	7.34
W		514.35		241.74
Sa		63.88		30.02
Sc		38.65		18.16
L		1,461.84		687.07
Mo		63.66		29.92
M		150.07	0.451	67.68
Total		12,156.25		5,710.59

The results with JICA support was used for FRA2015 report

2.2.2 Coordinate Forest Basemap & NFI→ Develop consistent GHG Inventory



Forest Area (Change)
2. Extracting problems on classification & analyzing cause of the errors
4. Adjust classification criteria (unite/divide)

Averaged Carbon Stock
3. Stratification (supported by UN-REDD)
5. Selection of site for ground survey (supported by UN-REDD)

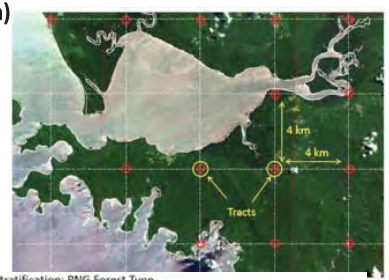
	Forest Basemap	NFI Sampling (CollectEarth)
Spatial Coverage	**Wall-to-wall by polygons** Segmentation < 1ha (100x100m)	**Sampling plots** 4x 4km (or 2x2km) 1ha unit with 25 check points
Satellite	Rapid Eye & ALOS/PALSAR (2010-2011)	LANDSAT & Google Earth (High Resolution)
Area Calculation	Geographical	Statistical
Boundary	Yes	No
Statistical Analysis	Limited	Ample

2.2.1 NFI 1st Assessment (by CollectEarth)

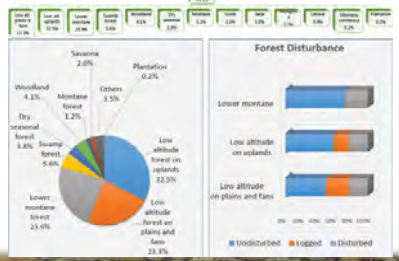
Phase 1
Based on RS data analysis and Collect Earth/Open Foris & Google Earth tool

Phase 2
Based on field plot clusters on a random restricted sampling design

UN-REDD PROGRAMME



Stratification: PNG Forest Type



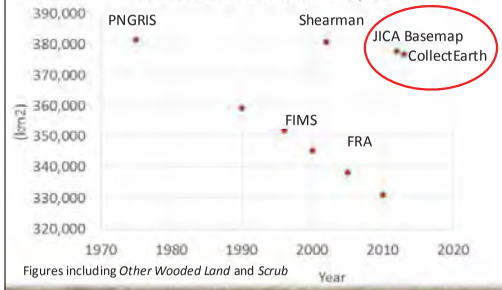
2.2.3 Comparing Results of Forest Basemap and CollectEarth&Saiku

(km²)

	1975	1996	2002	1990	2000	2005	2010	2012	2013
	PNGRIS	FIMS	Shearman	FRA	FRA	FRA	FRA	Base map	Collect Earth
Forest (excl. plantations)	336,670	306,980	329,862	314,600	300,500	293,450	**286,400**	377,777	**376,904***
Other wooded land	44,860	44,860		44,740	44,740	44,740	44,740	NA	NA
Scrub			50,793						

*plantations included

PNG forest area in various report

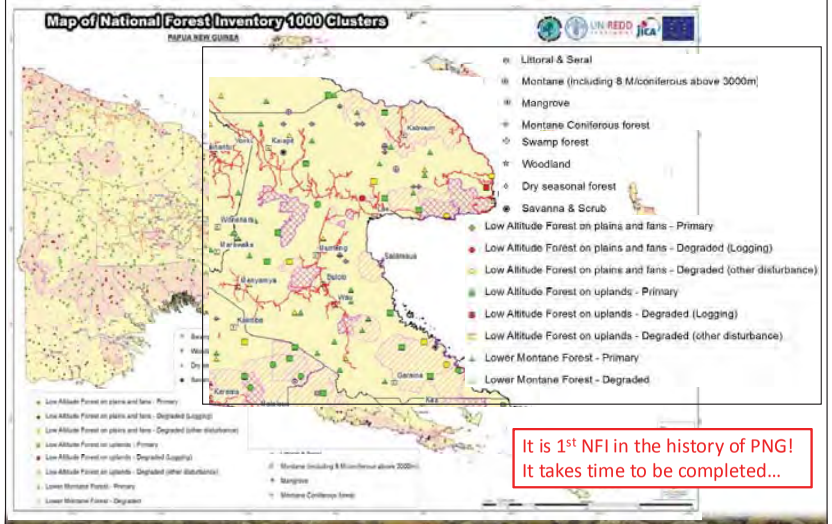


Figures including *Other Wooded Land* and *Scrub*

The 10% increase due to the difference in definition of forest and 8% due to un-appropriate previous estimate.

With Collect Earth, PNGFA now has the capacity to monitor the nation wide forest regularly.

2.2.4 National Forest Inventory Implementation Planning



It is 1st NFI in the history of PNG!
It takes time to be completed…

2.3.1 Requirement for REDD+ with Alternatives

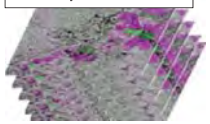
ACTIVITY DATA x **EMISSION FACTOR** = **CO2 Emission**

- ✓ Satellite Monitoring
- ✓ Area and area change

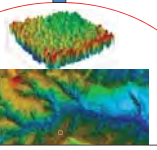
- ✓ Inventory Survey
- ✓ Information on carbon stocks associated with each land category

Optical Satellite

Radar/SAR Satellite



Ground Survey



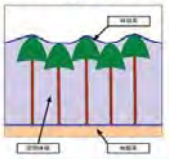
Airborne LiDAR/SAR

- It is difficult to implement field survey in for a large number of plots/area
- It is not easy to measure tree height accurately
- We would like some compensating method.

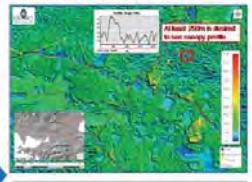
2.3.2 Carbon Stock Estimation by Canopy Volume from Airborne

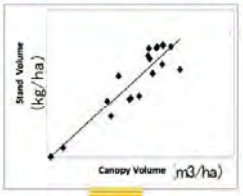
Airborne Survey (GeoSAR & LiDAR)

Canopy Volume



Correlation Analysis of Canopy Volume and Stand Volume





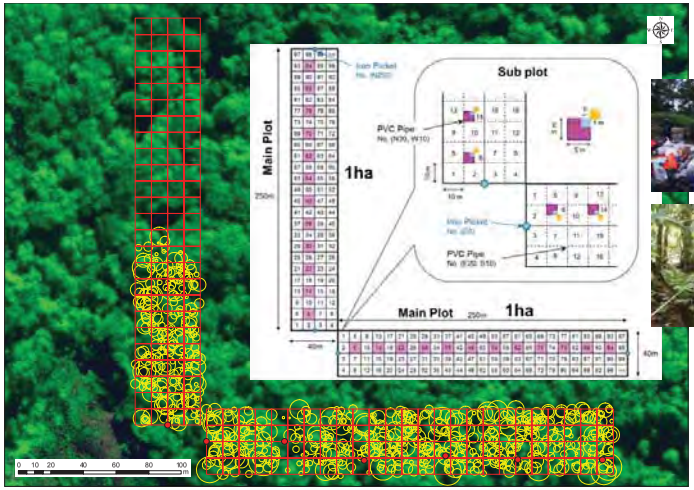
Carbon Stock Amount

Field Survey

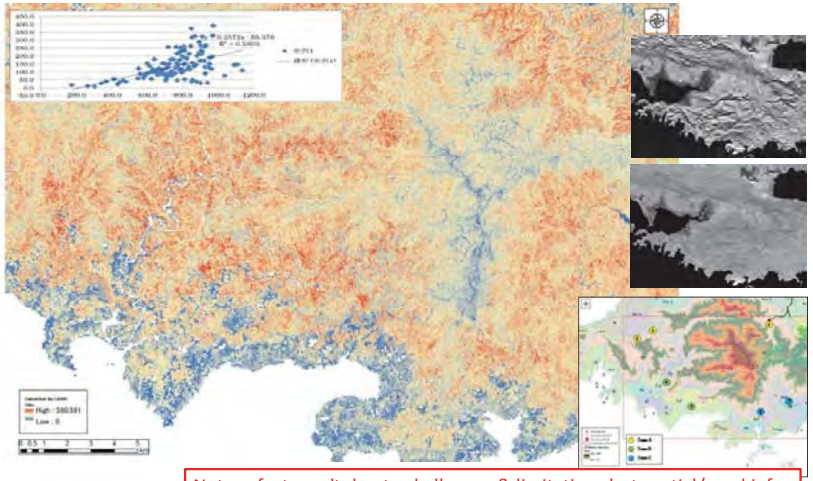
Stand Volume

- ✓ Tree Species
- ✓ Tree Height
- ✓ DBH
  - ➢ Allometric Model

2.3.3 Detail Biomass Survey for Canopy Volume Estimation

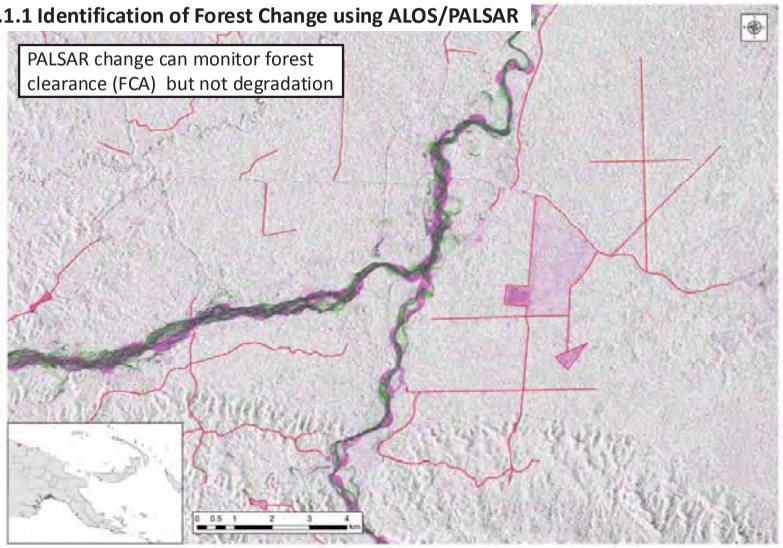


2.3.4 Estimated Carbon Stock by Airborne Canopy Volume

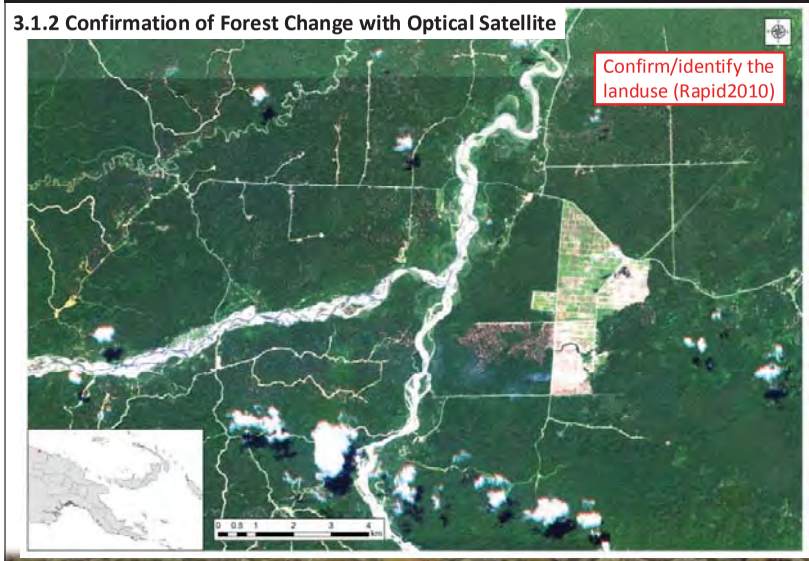


Not perfect result due to challenges & limitations but spatial/areal info

3.1.1 Identification of Forest Change using ALOS/PALSAR

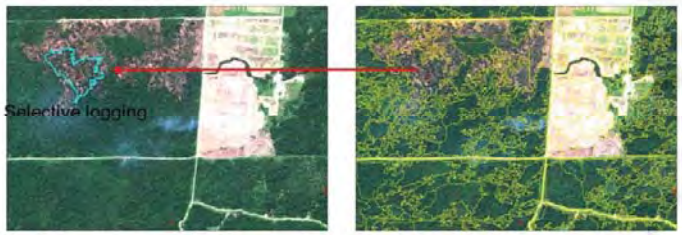


3.1.2 Confirmation of Forest Change with Optical Satellite

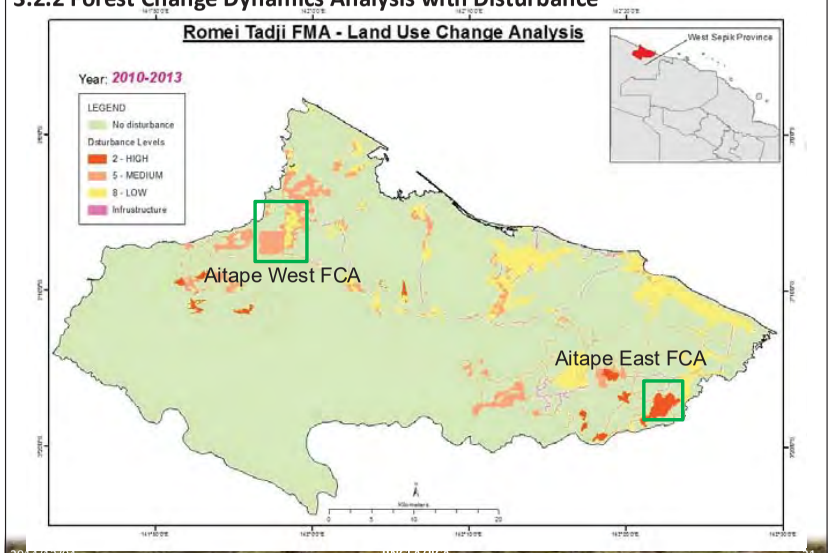


3.2.1 Detail Classification considered Forest Disturbance (Degradation)

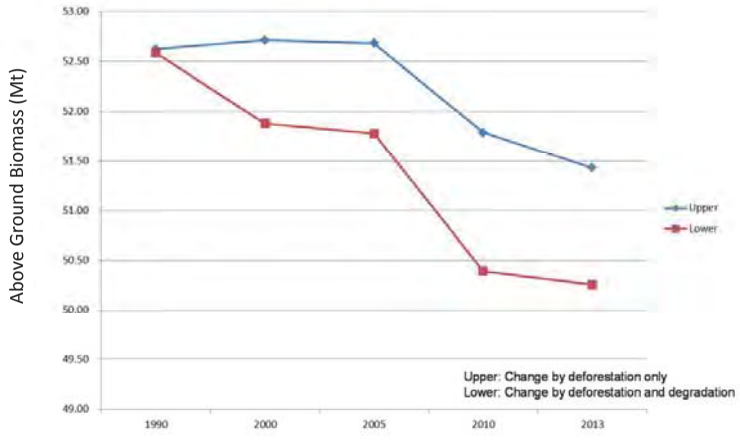
Level	Class	Land Use	Example
NA		Permanent Road, Town (existing infrastructure in Time 0)	Non-forest (G,E,U,Z)
2	High	Clear felling, Selective logging with	H2 or P2 (80% disturb)
5	Medium	Flooding, Plantation	H5 or P5 (50% disturb)
8	Low	Subsistence agriculture	H8 or P8 (20% disturb)
Intact Forest			No disturbance



3.2.2 Forest Change Dynamics Analysis with Disturbance



3.2.3 Historical Change of Forest Biomass (Degradation Considered)



PNG needs to consider not only LULUCF but disturbance (degradation)

Summary: Challenges & Expectation for Future

1. JICA/PNGFA Project support MRV System for REDD+ in PNG
2. Carbon Stock Estimation (Step-wise approach)
   1. Forest Basemap (JICA support) and IPCC default value (≒Tier1.5) was for FRA2015 reporting
   2. National Forest Inventory (UN-REDD/FAO) is under preparation/implementation, collaborating with JICA
   3. Airborne data analysis with detail ground survey was conducted and identify challenges and potentials
3. Forest Degradation Analysis (Feasibility Study)
   1. Identification of forest change using ALOS/PALSAR showed potentials and challenges for future implementation
   2. Interpretation by disturbance with segmentation showed potentials and challenges for future implementation
4. Challenges & Expectation for Future
   1. Carbon Stock Estimation
      - Airborne Data Analysis (with NFI data)
      - ALOS-2 Biomass Estimation (with NFI data)
   2. Forest Degradation Analysis
      - Time Series of Historical Analysis
      - Spectral Mixture Analysis (with NFI data)

Tenk yu Tru (Arigatou Gozaimashita)

Perry Malan/PNG Forest Authority (PNGFA)
pmalan@pngfa.go.pg
Masamichi HARAGUCHI/Kokusai Kogyo (KKC)
masamichi_haraguchi@kk-grp.jp

How to operationalize the Warsaw Framework for REDD+?

- side-event hosted by the Democratic Republic of Congo -

Brief Progress of

Papua New Guinea

December 6th, 2014
Rensie Panda
Office of Climate Change and Development (OCCD)
Gewa Gamoga
Papua New Guinea Forest Authority (PNGFA)

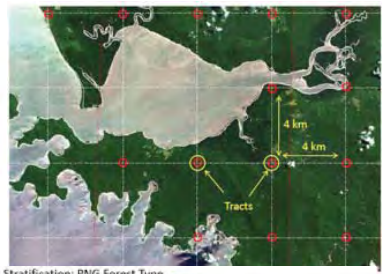
Points of Discussion

- How and when do countries plan to enter the Warsaw Framework (WFR)?
- Where do countries stand in their alignment with the WFR?
- How are they aligning other on-going initiatives (FCPF, REM etc.) with the requirements of the WFR?
- What have been the key challenges encountered and how to address them?
- How to align the GCF performance management framework with UNFCCC guidance?

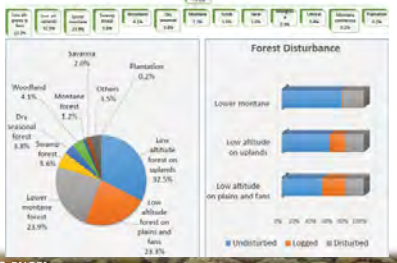
WFR (Warsaw Framework) and Progress of PNG

	Decision in WFR	Progress/Situation
9/CP.19	Work programme on results-based finance for the full implementation of REDD+ activities	
10/CP.19	Coordination of support for the implementation of REDD+ activities, including institutional arrangements	Multilateral(UN-REDD/FAO), bilateral (JICA, GIZ) support and other initiatives (WCS, LEAF) are well coordinated
11/CP.19	Modalities for national forest monitoring systems	Forest Basemap was developed (JICA) NFI pre-assessment using CollectEarth & Monitoring Web Portal (UN-REDD/FAO)
12/CP.19	Timing and the frequency of presentations of the summary of information on how all the REDD+ safeguards are being addressed and respected	Several workshops were held with support of UN-REDD/UNDP. PNGFA also has good experiences on awareness for landowners
13/CP.19	Guidelines and procedures for the technical assessment of forest reference emission levels and/or forest reference levels (FRELs/FRLs)	REL/RL workshop was held in Oct.2014 organized by UN-REDD/FAO, participants from JICA, WCS , LEAF etc.
14/CP.19	Modalities for measuring, reporting and verifying	NFI data can be analyzed and reported by Saiku for GHG inventory (UN-REDD/FAO) . Basemap & CollectEarth was cross checked
15/CP.19	Addressing the drivers of deforestation and forest degradation	Preliminary driver analysis (from 1999 to 2013) was conducted using CollectEarth & Saiku (UN-REDD/FAO)

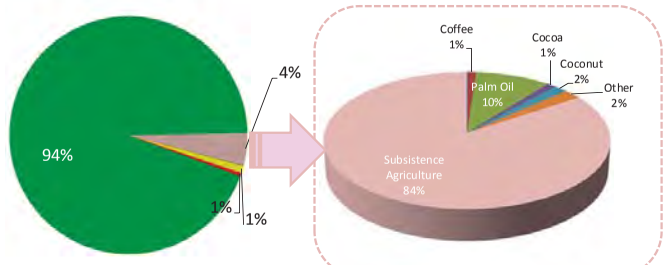
NFI 1st Assessment (by CollectEarth)



Stratification: PNG Forest Type



Forest Land Use Change



- Forest Land remaining Forest Land
- Forest Land becoming Crop Land
- Forest Land becoming Grass Land
- Forest Land becoming Settlement

➢About 6 % of forests was deforested over the past 20 years
➢Conversion to cropland causes 4% of deforestation and subsistence agriculture causes 84% of it.

Appendix

National Forest Monitoring Portal (demo only: under consultation)

WFW Modalities for NFMS and PNG

- Reiterates guidance in Decision 4/CP.15
  - NFMS should follow IPCC guidance and guidelines for estimating:
    - Forest-related GHG emissions and removals
    - Forest carbon stocks
    - Forest carbon stock changes
    - Forest area changes
- Data and information from NFMS should be:
  - Transparent
  - Consistent over time
  - Suitable for measuring, reporting and verifying
  - Should be consistent with guidance on MRV for NAMAs
- NFMS should:
  - Build on existing systems
  - Enable the assessment of different types of forest in a country, including natural forest, as defined by a country
  - Be flexible and allow for improvement
  - Reflect a phased approach to REDD+ implementation
- Acknowledges that NFMSs may provide relevant information for the provision of information on the REDD+ safeguards

WFW Modalities for MRV and PNG

- Recognizes need for capacity building for MRV
- Data and information for MRV should be transparent, consistent over time and consistent with forest reference levels
- Climate change mitigation results of REDD+ activities should be measured in tonnes of carbon dioxide equivalent per year
- Encourages countries to improve data and methodologies over time
- Data/results should be reported through Biennial Update Reports (BURs)
- To obtain payments for REDD+ results, countries should provide a technical annex in their BUR
  - Submission of technical annex is voluntary
- Two LULUCF experts (one from a developed/one from a developing country) will be part of the BUR review team
- Includes indications of how the experts will analyze the technical annex
  - E.g. checking for consistency, transparency, completeness, accuracy
- Includes indications of how expert teams will interact with countries
  - E.g. for clarifications
- MRV for market-based approaches may be subject to further modalities for verification – which may be developed by the COP

Background and Progress of PNG Forest Monitoring

Situation in 2010

1. National-level Forest Basemap has not been updated since 1972 (since 1st PNGRIS)
2. FIMS (Forest Inventory and Mapping System) has not been updated since 1996
3. Existing forest related data is not sufficient for carbon estimation for REDD+ MRV

PNGFA/JICA
UN-REDD/FAO
coordinated by OCCD

Challenges

- Vast forest area, but most are inaccessible to do forest survey for whole country
- Lack of funds to conduct full scale forest inventory
- 97% of PNG land is customary land
- Physical structure of land – mountainous, etc.

Situation in 2014

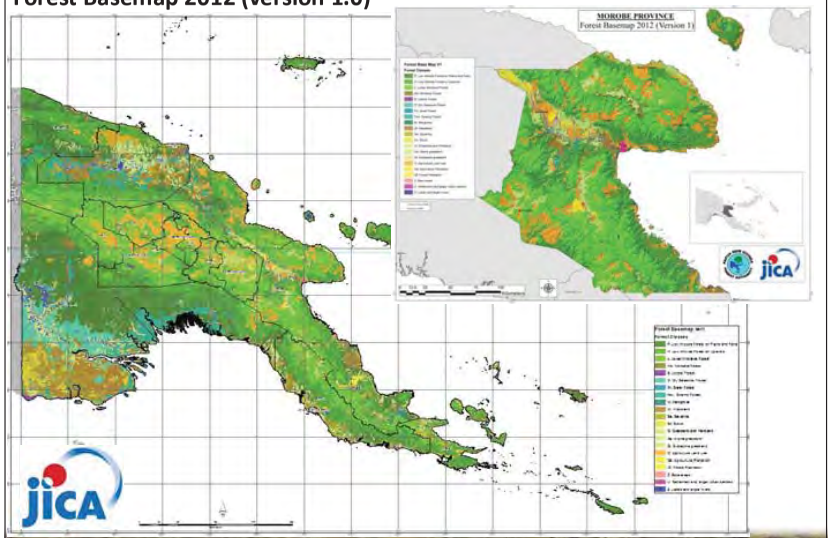
1. National-level Forest Basemap version1.0 was developed with support of JICA
2. Forest Resource Database was developed based on FIMS with support by JICA
3. National Forest Inventory 1st Phase (LULUCF assessment) was completed with support of UN-REDD/FAO and 2nd Phase (Inventory survey) is being prepared

State of Forest in PNG

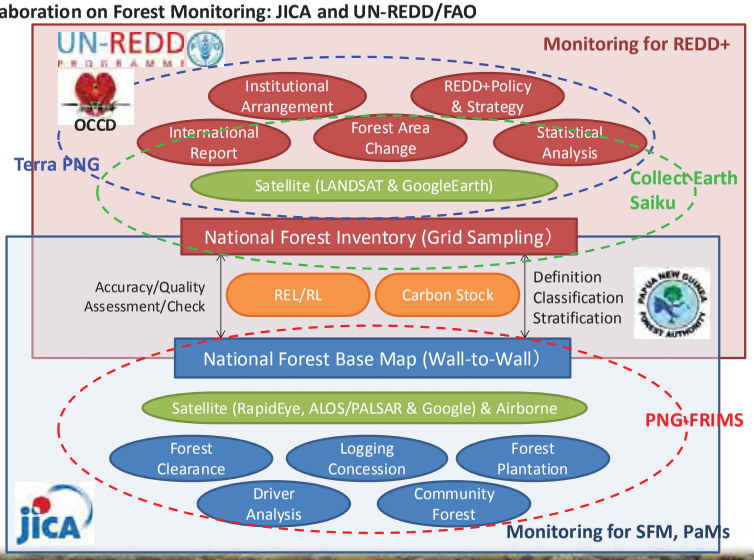
	PNG	Remarks
Population	6.1 million	800+ Languages
Land Area	45 million ha	

Source:
UN-REDD National Programme Document,
FAO FRA 2010 National Report, etc.

Forest Basemap 2012 (version 1.0)



Collaboration on Forest Monitoring: JICA and UN-REDD/FAO



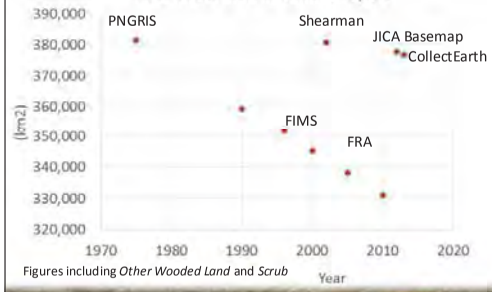
Comparing Results of Forest Basemap and CollectEarth&Saiku

(km^2)

	1975	1996	2002	1990	2000	2005	2010	2012	2013
	PNGRIS	FIMS	Shearman	FRA	FRA	FRA	FRA	Base map	Collect Earth
Forest (excl. plantations)	336,670	306,980	329,862	314,600	300,500	293,450	**286,400**	377,777	**376,904***
Other wooded land	44,860	44,860		44,740	44,740	44,740	44,740	NA	NA
Scrub			50,793						

*plantations included

PNG forest area in various report

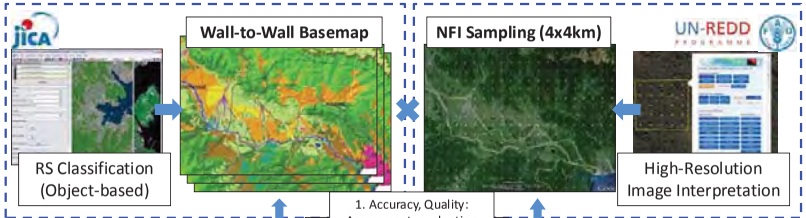


Figures including *Other Wooded Land* and *Scrub*

The 10% increase due to the difference in definition of forest and 8% due to un-appropriate previous estimate.

With Collect Earth, PNGFA now has the capacity to monitor the nation wide forest regularly.

Coordinate Forest Basemap & NFI→ Develop consistent GHG Inventory

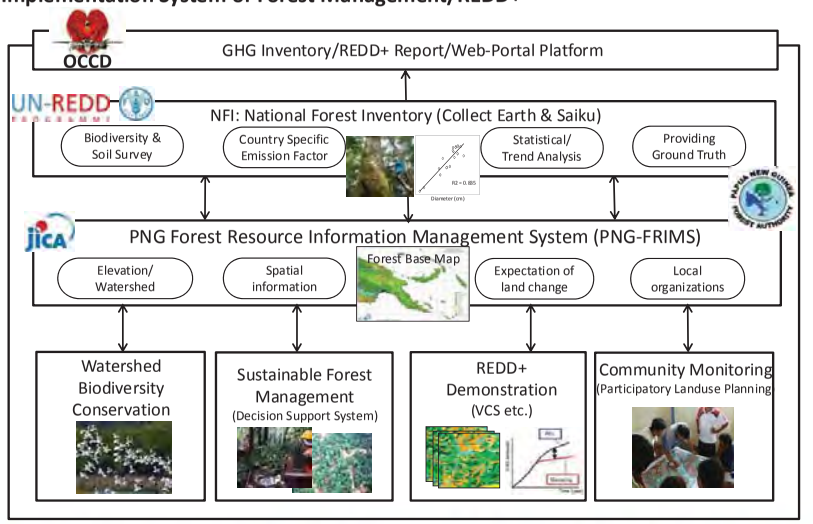


Forest Area (Change)
2. Extracting problems on classification & analyzing cause of the errors
4. Adjust classification criteria (unite/divide)

Averaged Carbon Stock
3. Stratification (supported by UN-REDD)
5. Selection of site for ground survey (supported by UN-REDD)

	Forest Basemap	NFI Sampling (CollectEarth)
Spatial Coverage	**Wall-to-wall by polygons** Segmentation < 1ha (100x100m)	**Sampling plots** 4x 4km (or 2x2km) 1ha unit with 25 check points
Satellite	Rapid Eye & ALOS/PALSAR (2010-2011)	LANDSAT & Google Earth (High Resolution)
Area Calculation	Geographical	Statistical
Boundary	Yes	No
Statistical Analysis	Limited	Ample

Implementation System of Forest Management/REDD+



FCPF (Forest Carbon Partnership Facility)

- PNG was accepted as a REDD country in March 2013
- Presently, the OCCD is discussing with UNDP (Delivery Partner) on activities to be financed with FCPF grant (USD3.8 million)
- It is envisioned that UNDP and the FCPF will sign the grant agreement before end of 2014
- It seems that no substantive disbursement or operations have not taken place.

Papua New Guinea (PNG)
JICA's Support for Forest Management/REDD+
- Case Example of Collaboration with Multilateral Cooperation -

December 8th, 2014
Gewa Gamoga
Papua New Guinea Forest Authority

Contents

1.1 State of Forest in PNG

	PNG	Remarks
Population	7 million	800+ Languages
Land Area	46 million ha	

Source:
UN-REDD National Programme Document,

1.2 Background and Progress of PNG Forest Monitoring

Situation in 2010

1. National-level Forest Basemap has not been updated since 1972 (since 1st PNGRIS)
2. FIMS (Forest Inventory and Mapping System) has not been updated since 1996
3. Existing forest related data is not sufficient for carbon estimation for REDD+ MRV

JICA-PNGFA & UN-REDD/FAO-PNGFA*

Challenges

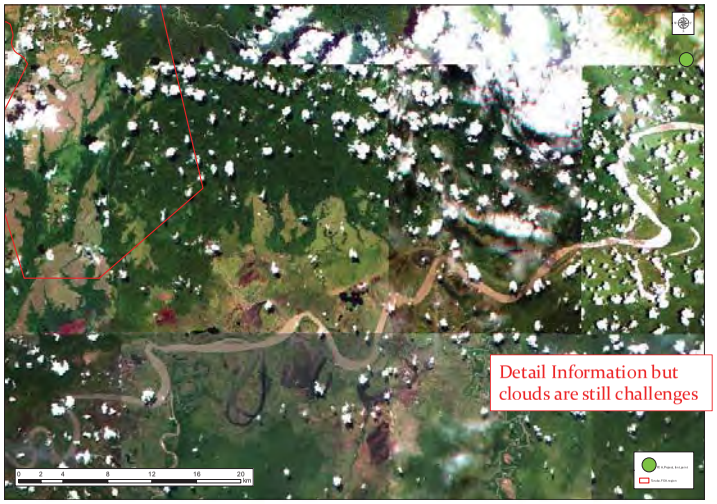
- Vast forest area, but most are inaccessible to do forest survey for whole country
- Lack of funds to conduct full scale forest inventory
- 97% of PNG land is customary land
- Physical structure of land – mountainous, etc.

Situation in 2014

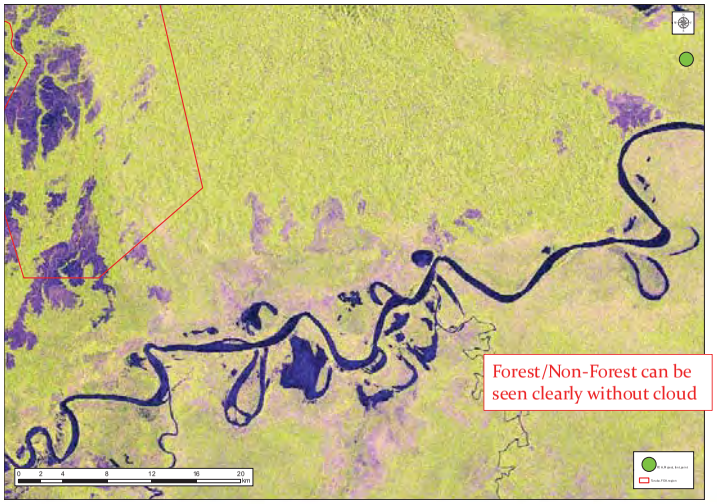
1. National-level Forest Basemap version1.0 was developed with support of JICA
2. Forest Resource Database was developed based on FIMS with support by JICA
3. National Forest Inventory 1st Phase (LULUCF assessment) was completed with support of UN-REDD/FAO and 2nd Phase (Inventory survey) is being prepared

*PNG Forest Authority

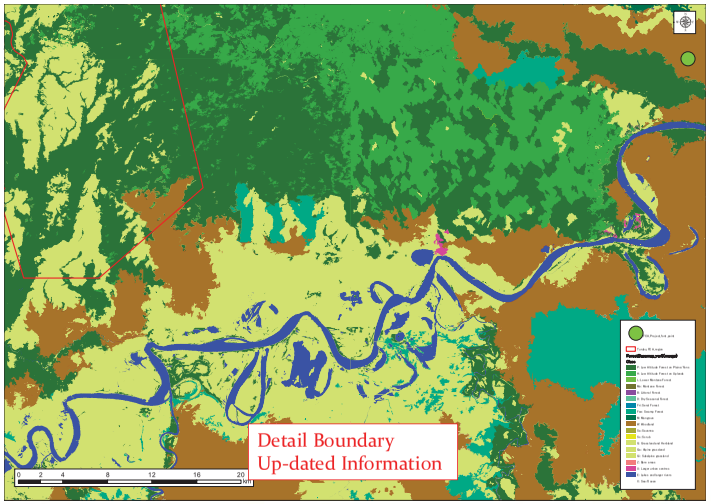
2.1.1 Optical Satellite (RapidEye x5 Constellation, 5 m MS)



2.1.2 SAR Satellite (ALOS/PALSAR: Dual Polarimetry 10m)



2.1.3 New Forest Base Map ver.1 2012 (Satellites Remote Sensing)



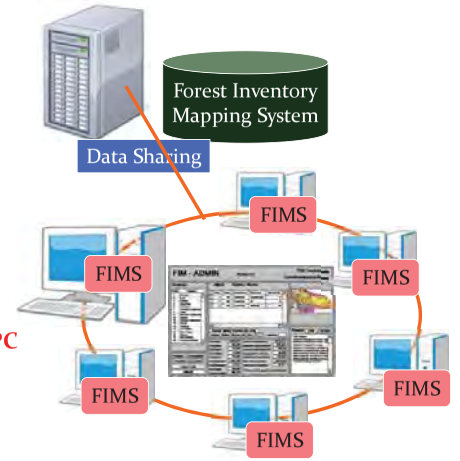
2.1.6 Upgrade Forest Resource Database (FIMS: Forest Inventory Mapping System)

[Server]

Uniform Management and Sharing of Data

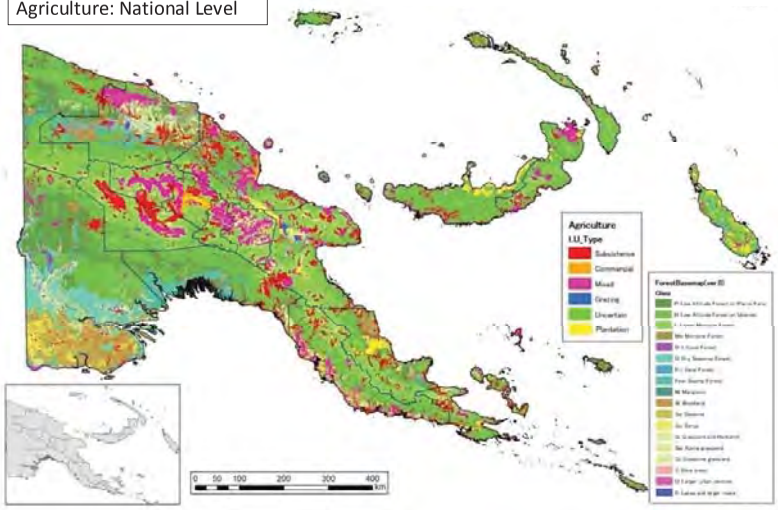
[Client]

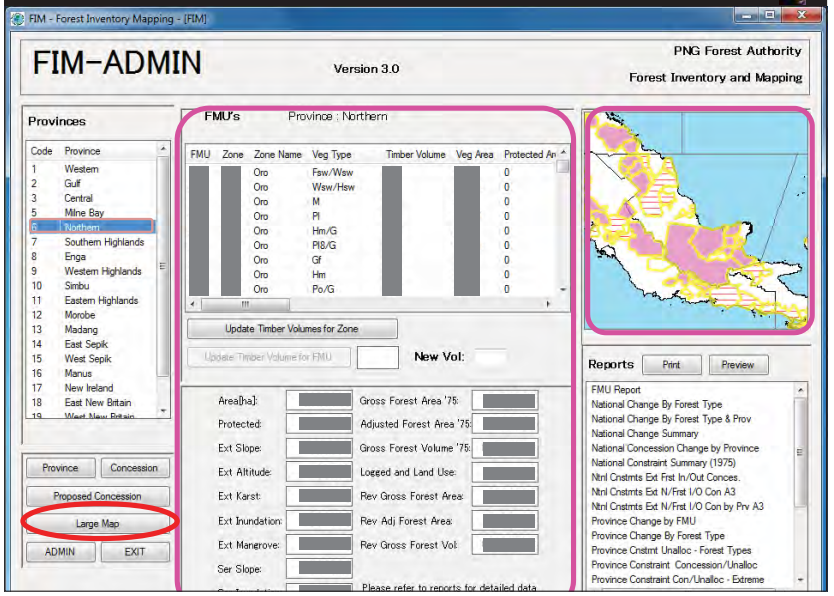
Now possible to BROWSE & CREATE REPORT from any PC in PNGFA

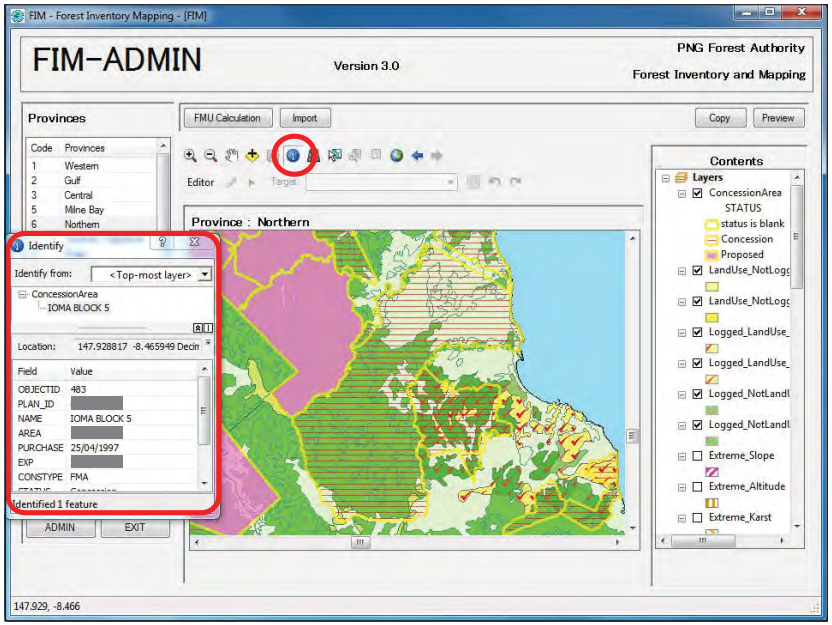


Forest Basemap (ver0) with Agriculture: National Level

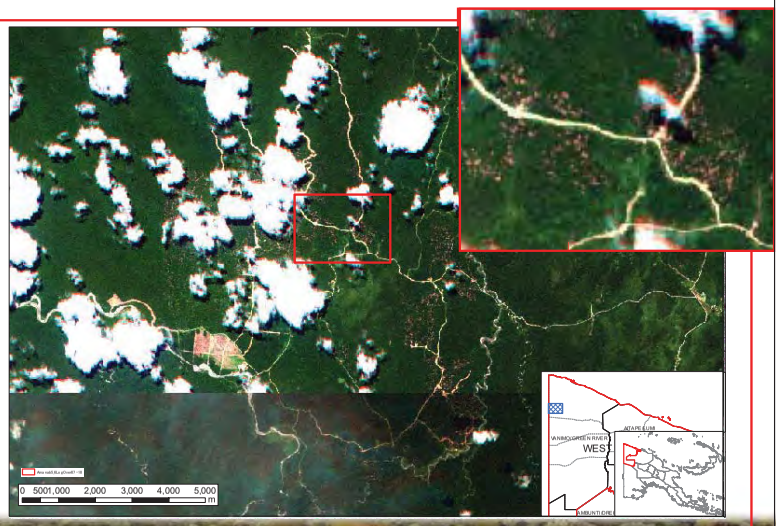
2.1.5 Forest Base Map Development (National)



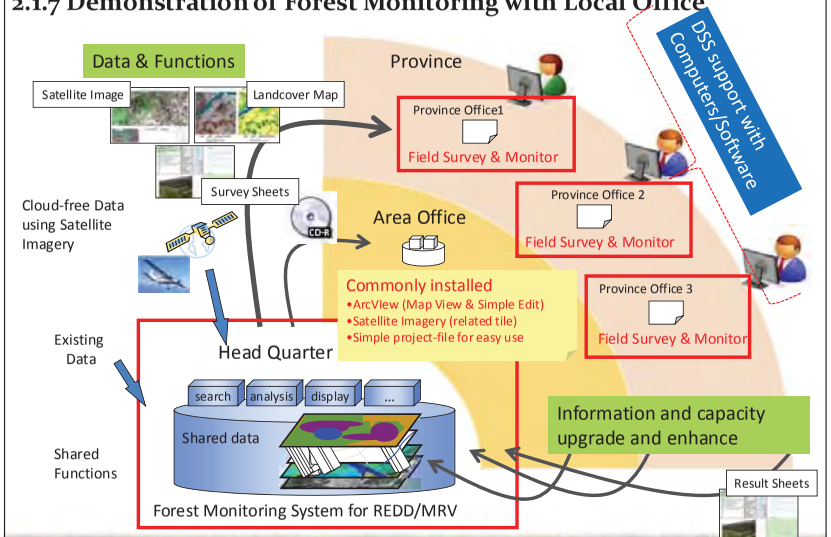




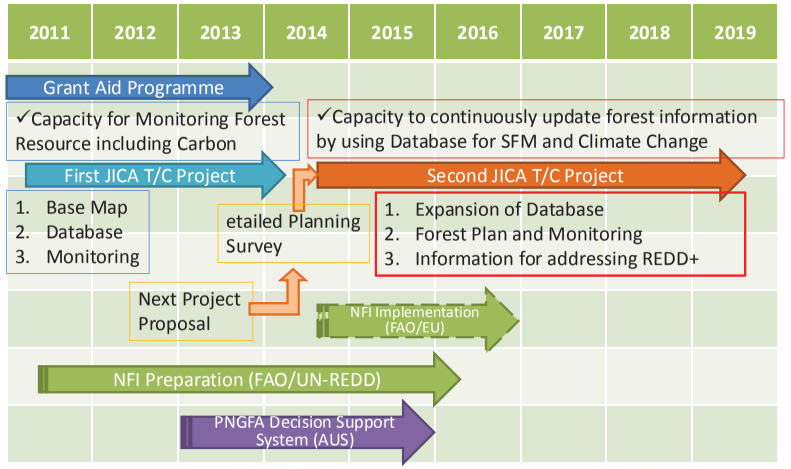
2.1.8 Forest Monitoring with Remote Sensing (Logging)



2.1.7 Demonstration of Forest Monitoring with Local Office

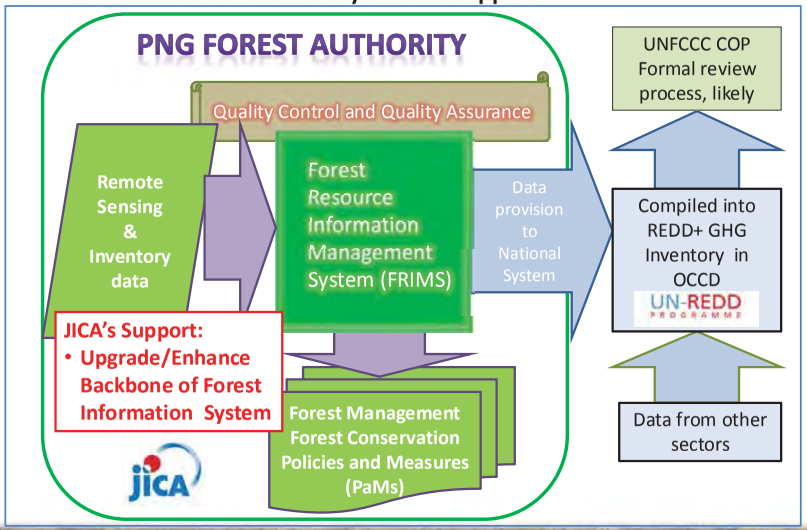


2.2.1 Forestry Cooperation Projects from 2011 to 2019 (National-level)

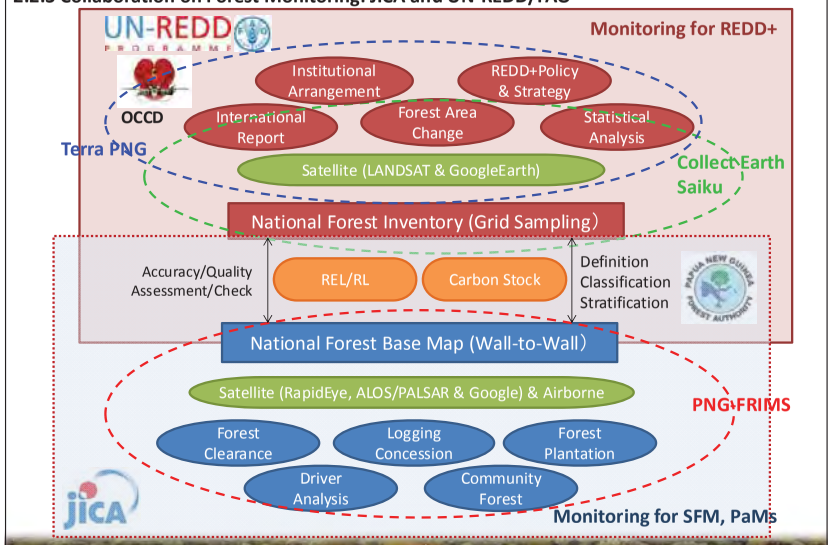


NFI: National Forest Inventory

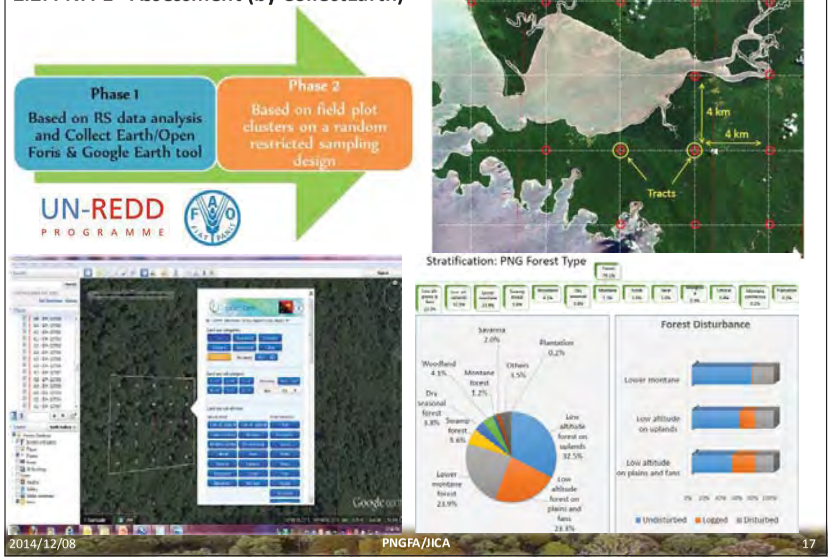
2.2.2 Role of PNG Forest Authority & JICA's Support



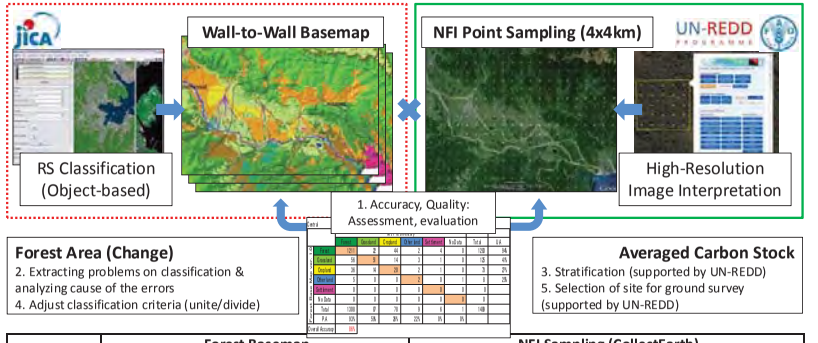
2.2.3 Collaboration on Forest Monitoring: JICA and UN-REDD/FAO



2.2.4 NFI 1st Assessment (by CollectEarth)



2.2.5 Coordinate Forest Basemap & NFI→ Develop consistent GHG Inventory



Forest Area (Change)
2. Extracting problems on classification & analyzing cause of the errors
4. Adjust classification criteria (unite/divide)

Averaged Carbon Stock
3. Stratification (supported by UN-REDD)
5. Selection of site for ground survey (supported by UN-REDD)

	Forest Basemap	NFI Sampling (CollectEarth)
Spatial Coverage	**Wall-to-wall by polygons** Segmentation < 1ha (100x100m)	**Sampling plots** 4x 4km (or 2x2km) 1ha unit with 25 check points
Satellite	Rapid Eye & ALOS/PALSAR (2010-2011)	LANDSAT & Google Earth (High Resolution)
Area Calculation	Geographical	Statistical
Boundary	Yes	No
Statistical Analysis	Limited	Ample

2.2.6 National Forest Monitoring Portal (demo only: under consultation)

2.3.1 Forest Resource Information for Forest Management/REDD+

Basic Information to Plan/Implement REDD+ Project have been developed with Outcomes of JICA Project (as National-level)

Forest Management/REDD+ Project Planning

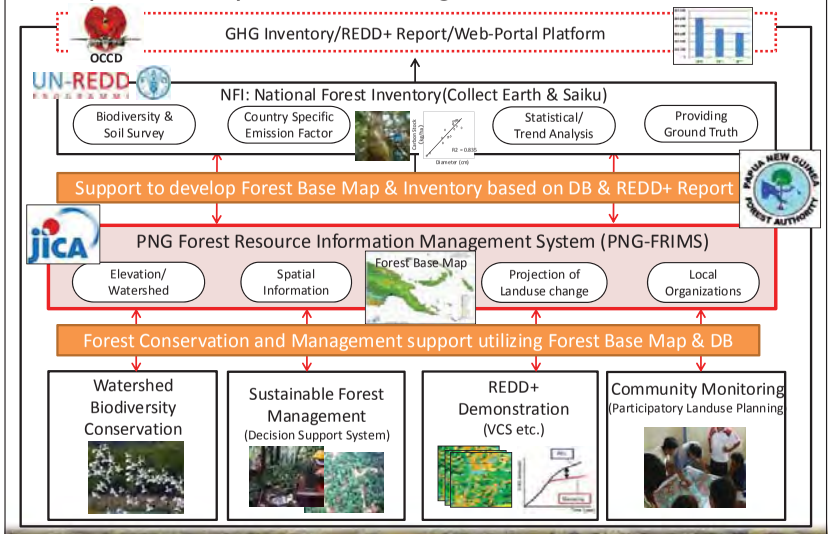
- Planning Project Boundary & Area
- Calculating Forest Biomass Carbon Stock
- Analyzing Driver Deforestation & Degradation

Forest Info Base

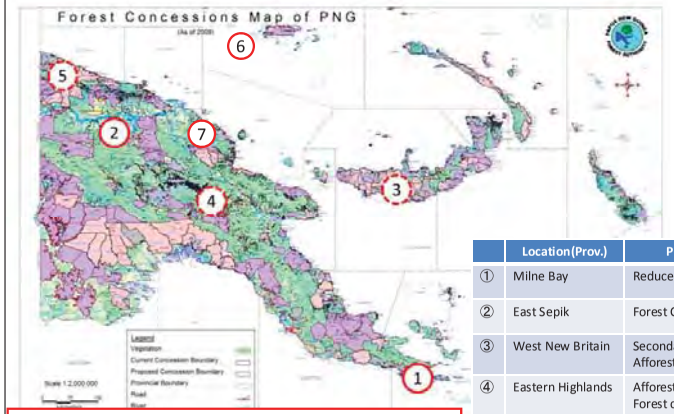
Outcomes from JICA Project

- Forest Basemap (National-level)
- Forest Information Management System
- Forest Monitoring Demonstration

2.3.2 Implementation System of Forest Management/REDD+



2.3.3 REDD+ Pilot Study in PNG



① GIZ is developing PD for VCS (JICA collaboration)
② Private company got authorized by VCS & CCB
⑥ WCS is supporting, preparing PD for VCS
⑦ LEAF (TNC with Winrock) is supporting MRV

	Location(Prov.)	Proposed Activities
①	Milne Bay	Reduced Impact Logging
②	East Sepik	Forest Conversion
③	West New Britain	Secondary Forest Management Afforestation / Reforestation
④	Eastern Highlands	Afforestation Forest conservation
⑤	West Sepik	Afforestation / Reforestation Forest Conservation
⑥	Manus	Forest Conservation
⑦	Madang	Secondary Forest Management

Summary & Way-forward

- JICA's Support for Forest Management/REDD+ in PNG
  - Forest Resource Information Management System has being developed and contribute to Forest Management and Monitoring with ALOS/PALSAR
  - Collaboration with UN-REDD/FAO (Multilateral Cooperation) is implementing REDD+ Monitoring & MRV (also good coordination with stakeholders)
  - Soft-Infrastructure (Forest Base Information) with Forest Management expand the possibility for Private Sector to develop REDD+ Project in PNG

Tenk yu Tru (Thank you)

Gewa Gamoga / PNG Forest Authority (PNGFA)
ggamoga@pngfa.go.pg

LIMA COP20|CMP10
UN Climate Change Conference 2014
Report

January 15th, 2014
Masamichi HARAGUCHI
Kokusai Kogyo Co. Ltd (KKC)

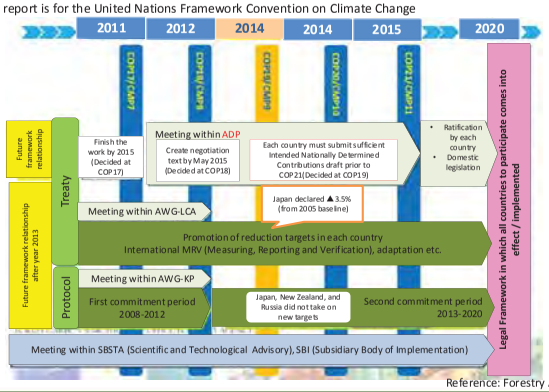
Content of Report

- Overview and brief history of COP
- Information about participants/pavilion
- How PNGFA & JICA project involved in COP
- Input on COP discussion/negotiation and technology
- Publicity of achievements at side events
- Trends in international reporting, Trends in technology
- Information about Japan's efforts and funds
- Outcome of COP20
- Summary and Future prospects

What is COP? What does it do?

- COP is an abbreviation for Conference Of Parties
  - It is a meeting where member states gather to discuss and review implementation of the Convention
    i.e. COP20 is The 20th session of the Conference of the Parties
  - The Conference of Parties for the Framework Convention on Climate Change (COP-FCCC) is famous. At the same time, there are conferences for Biodiversity (COP-CMD)and etc.

※ This report is for the United Nations Framework Convention on Climate Change



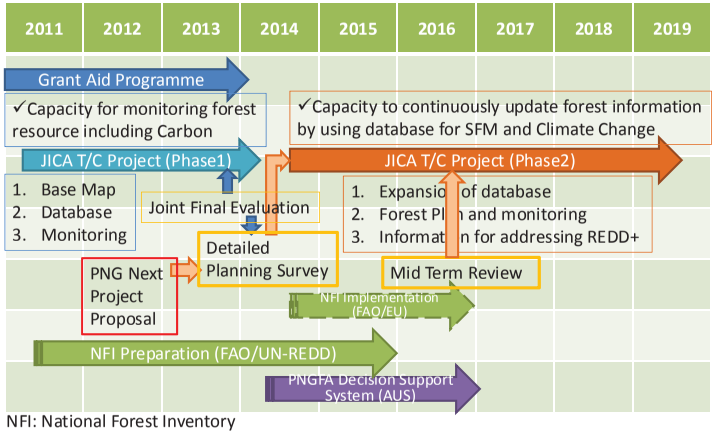
Reference: Forestry Agency Report

What kind of people participate? How to participate?

- Number of participants: 11,185 people (Secretariat report)
  - 6,291 Government officials, 245 UN officials, 197 officials from specialized agencies, 439 officials from intergovernmental organizations, 3,104 officials from NGO, 904 media officials
  - Case of Japanese officials: about 87 people (aggregated from the participant list)
    - Government Delegation: Ministry of Foreign Affairs (13), Ministry of Finance (1), Ministry of Education (1), Ministry of Agriculture, Forestry and Fisheries (5), Forestry Agency (6), METI (21), Ministry of Land, Infrastructure and Transport (7), Ministry of the Environment (20) , IGES (6), OECC (3), MURC(4)
    - JICA: few, not many(only 2 people from the Global Environment Department)
    - Other NGO: RESTEC (2 ～ 3), JSS (1)(as small booth exhibitors)
    - Private companies: Kanematsu (1), Sumitomo Forestry (1) (PF event announcement)
      ※In COP19 discussion of MRV was concluded for the time being, thus not many industrial officials
- Not everyone can participate(requires pre-registration)
  - Only few participants from basic administrative business and the private sectors (difficult to obtain the status)
  - Status of participants from PNGFA & JICA project
    - PNG government delegation (also is able to participate in the conference of political negotiation)
    - NGO cannot participate in all conferences(political negotiation is not allowed)

Country Pavilion (Side Event) & Delegation Office

History of PNG Forestry Sector Projects for COP



NFI: National Forest Inventory

New JICA Project: Proposal to participate in COP

Held Workshops

Information to Media

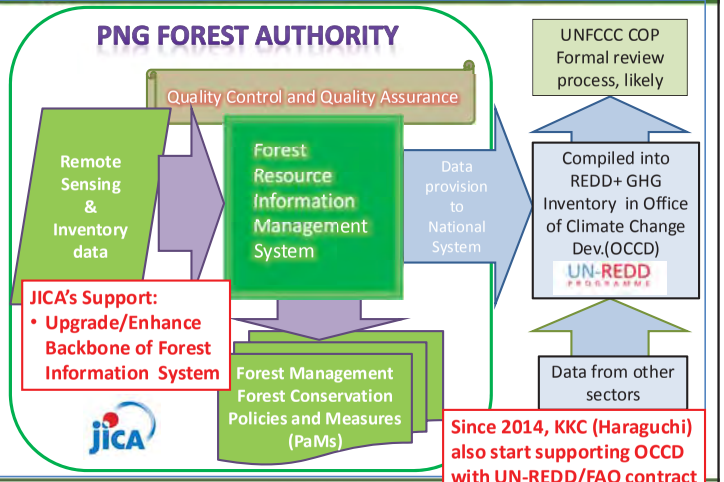
Dissemination and publicity of achievements in PNG

Dissemination and publicity of achievements in the international arena

Participated in International Conferences (COP20/21)

Event	Country／City	Time／Period	Purpose
COP 20	Peru／Lima	12/1～12/12, 2014	Supporting JICA's side events, Review cooperative events with UN-REDD/FAO, Role of PNG-FRIMS in biennial report
COP 21	France／Paris	11/30～12/11, 2015	

Relationship between Supporting JICA & UN-REDD and International Negotiation



What is debated? (Example 1)

Resolution from COP19 (previous conference): Warsaw Framework (WFR)
(example) Modalities for NFMS (National Forest Monitoring System)

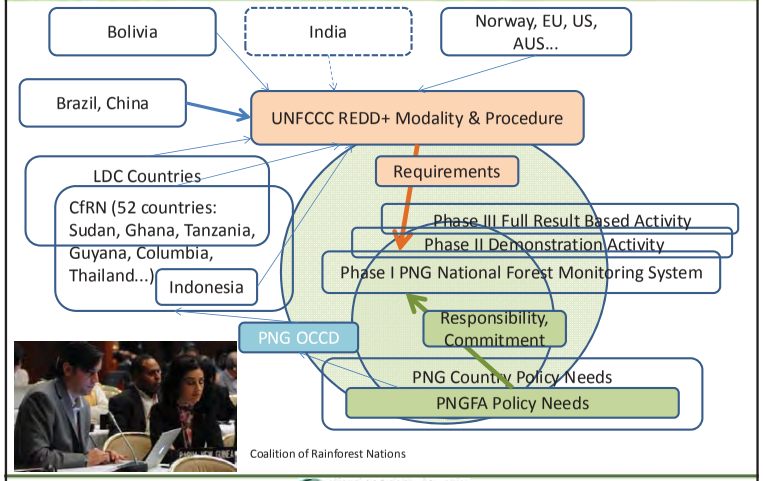
- Reiterates guidance in Decision 4/CP.15
  - NFMS should follow IPCC guidance and guidelines for estimating:
    - Forest-related GHG emissions and removals
    - Forest carbon stocks
    - Forest carbon stock changes
    - Forest area changes
- Data and information from NFMS should be:
  - Transparent
  - Consistent over time
  - Suitable for measuring, reporting and verifying
  - Should be consistent with guidance on MRV for NAMAs
- NFMS should:
  - Build on existing systems
  - Enable the assessment of different types of forest in a country, including natural forest, as defined by a country
  - Be flexible and allow for improvement
  - Reflect a phased approach to REDD+ implementation
- Acknowledges that NFMSs may provide relevant information for the provision of information on the REDD+ safeguards

What is debated? (Example 2)

Resolution from COP19 (previous conference): Warsaw Framework (WFR)
(Example) Modalities for MRV (Measurement, Reporting, Verification)

- Recognizes need for capacity building for MRV
- Data and information for MRV should be transparent, consistent over time and consistent with forest reference levels
- Climate change mitigation results of REDD+ activities should be measured in tonnes of carbon dioxide equivalent per year
- Encourages countries to improve data and methodologies over time
- Data/results should be reported through Biennial Update Reports (BURs)
- To obtain payments for REDD+ results, countries should provide a technical annex in their BUR
  - Submission of technical annex is voluntary
- Two LULUCF experts (one from a developed/one from a developing country) will be part of the BUR review team
- Includes indications of how the experts will analyze the technical annex
  - E.g. checking for consistency, transparency, completeness, accuracy
- Includes indications of how expert teams will interact with countries
  - E.g. for clarifications
- MRV for market-based approaches may be subject to further modalities for verification – which may be developed by the COP

PNG government delegation's REDD + Negotiations Scheme



Achievements of COP19 (Warsaw Framework) & Progress of PNG

	Decision in WFR	Progress/Situation
9/CP.19	Work programme on results-based finance for the full implementation of REDD+ activities	
10/CP.19	Coordination of support for the implementation of REDD+ activities, including institutional arrangements	Multilateral(UN-REDD/FAO), bilateral (JICA, GIZ) support and other initiatives (WCS, LEAF) are well coordinated
11/CP.19	Modalities for national forest monitoring systems	Forest Basemap was developed (JICA) NFI pre-assessment using CollectEarth & Monitoring Web Portal (UN-REDD/FAO)
12/CP.19	Timing and the frequency of presentations of the summary of information on how all the REDD+ safeguards are being addressed and respected	Several workshops were held with support of UN-REDD/UNDP. PNGFA also has good experiences on awareness for landowners
13/CP.19	Guidelines and procedures for the technical assessment of forest reference emission levels and/or forest reference levels (FRELs/FRLs)	REL/RL workshop was held in Oct.2014 organized by UN-REDD/FAO, participants from JICA, WCS , LEAF etc.
14/CP.19	Modalities for measuring, reporting and verifying	NFI data can be analyzed and reported by Saiku for GHG inventory (UN-REDD/FAO) . Basemap & CollectEarth was cross checked
15/CP.19	Addressing the drivers of deforestation and forest degradation	Preliminary driver analysis (from 1999 to 2013) was conducted using CollectEarth & Saiku (UN-REDD/FAO)

Publicity of achievements at COP20 Side Event (PNG)

①Dec.1st Climate Change Feria (JICA)
Monitoring for Forest Conservation

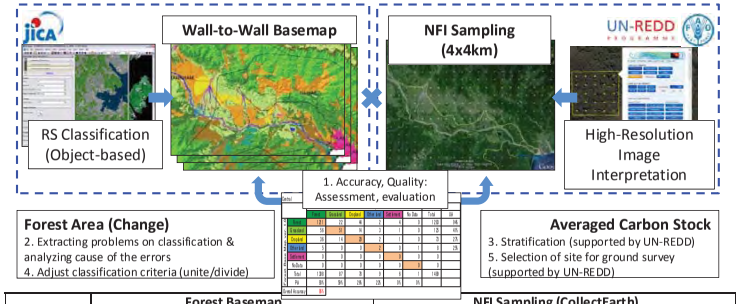
③Dec.6th DRC Side Event (UN-REDD)
Warsaw Framework & Progress

②Dec.4th Indonesia Pavilion (RESTEC)
Readiness MRV (Carbon&Degradation)

④Dec.8th Indonesia Pavilion (JICA)
Asia Pacific Region: REDD+ Progress

Side Event (PNG: Basemap & NFI collaboration)

Coordinate Forest Basemap & National Forest Inventory (NFI)



Forest Area (Change)
2. Extracting problems on classification & analyzing cause of the errors
4. Adjust classification criteria (unite/divide)

Averaged Carbon Stock
3. Stratification (supported by UN-REDD)
5. Selection of site for ground survey (supported by UN-REDD)

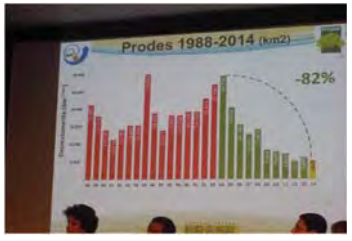
	Forest Basemap	NFI Sampling (CollectEarth)
Spatial Coverage	**Wall-to-wall by polygons** Segmentation < 1ha (100x100m)	**Sampling plots** 4x 4km (or 2x2km) 1ha unit with 25 check points
Satellite	Rapid Eye & ALOS/PALSAR (2010-2011)	LANDSAT & Google Earth (High Resolution)
Area Calculation	Geographical	Statistical
Boundary	Yes	No
Statistical Analysis	Limited	Ample

Side Event (PNG: Monitoring Web Portal)

National Forest Monitoring Portal (demo only: under consultation)

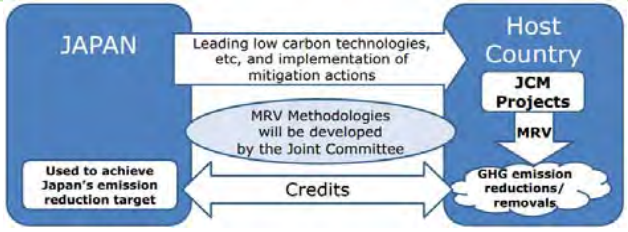
Trend in International Reporting：Submission of RELs/RLs

- Following Brazil from last year, Colombia, Guyana, Indonesia, Malaysia submitted RELs/RLs
- Brazil held a side event on monitoring and RELs. It was very successful that it had people standing to listen.
- Movement to submit RELs/RLs at next year's SBSTA in June and COP in December is expected to accelerate (also request for support)



Trend in Technology: BigData/Grid Computing

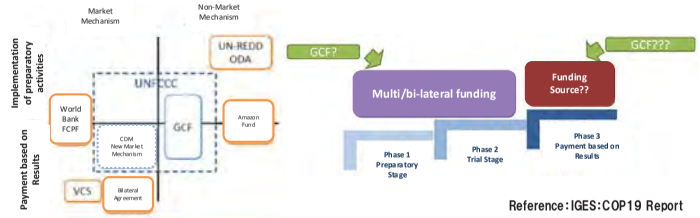
Trend in Japan: JCM (Joint Crediting Mechanism)



- **Implemented several events to report JCM related project (OECC/GEC)**
- **JCM Partners Roundtable (12/10/2014): Representatives from12 partner countries participated**
  ① Mongolia (1/8/2013) ② Bangladesh (3/19 /2013) ③ Ethiopia (5/27/2013) ④ Kenya (6/12/2013) ⑤ Maldives (6/29/2013) ⑥ Vietnam (7/2/2013) ⑦ Laos (8/7/2013) ⑧ Indonesia (8/30/2013) ⑨ Costa Rica (12/9/2013) ⑩ Palau (1/13/2014) ⑪ Cambodia (5/21/2014) ⑫ Mexico (7/25/2014)
- **Possibility of Papua New Guinea**
  ✓ There is information that in response to Prime Minister Abe's visit in July 2014 (record of input at the summit), Papua New Guinea is now going under review of it.

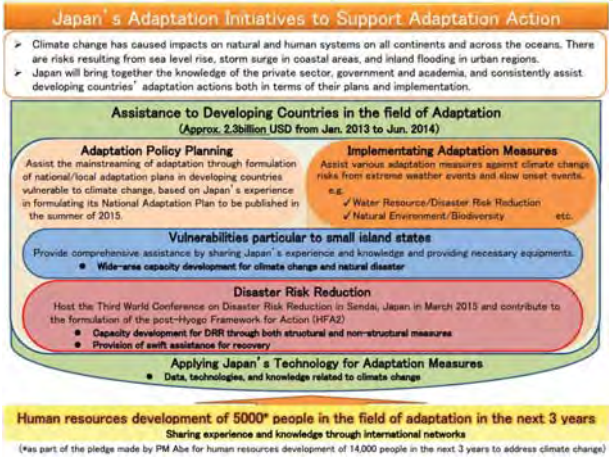
GCF: Green Climate Fund

- It was established within the Cancun Agreement in 2010, to fund the United Nations Framework Convention on Climate Change. It did not have any money for a while. In Warsaw meeting (COP19)the operating rules were determined, and finally money started rolling in.
- Prior to COP20, developed countries such as Japan, USA, EU as leading donors, total of $9.3 billion contributions were expressed by 21 countries
  – USA ($3billion), Japan (up to about $1.5 billion), United Kingdom ($1.1 billion), Germany ($1 billion), France ($1billion)
  – In order to support adaptive capacity of developing countries, Japan is actively disseminating information about their "Adaptation Initiative," which support vulnerable countries and field of adaptive capabilities emphasized by developing countries
- During COP20, Peru and Colombia pledged to contribute. The total fund exceeded $10 billion. GCF with Brazil and Mexico made a flow which developing countries can represent and participate in a common discussion.



Reference:IGES:COP19 Report

Japan's Adaptation Initiatives



Reference:Ministry of Foreign Affairs of Japan Web

Summary of COP20 Results (1)

1. Overall result
   - A) With regard to the post 2020 framework, previous decisions required that the information that Parties will provide when putting forward their INDCs to the Secretariat well in advance of the COP21 in 2015 be identified at the COP20; and that elements for a draft negotiating text of the new framework be considered in COP20 with a view to making available a negotiating text before May 2015.
   - B) At this conference it was decided that INDCs will be communicated toward achieving the objective of the Convention as set out in its Article 2 (to stabilize greenhouse gas concentrations in the atmosphere) and the content will represent a progression beyond current undertakings; that Parties will consider communicating their undertakings in adaptation planning or consider including an adaptation component in their INDCs; and that the information to be included in INDCs, may include the reference point (a base year etc.) , time frames and/or periods, scope, coverage etc. In addition, it was decided that the Secretariat will publish on the UNFCCC website the INDCs as communicated by Parties, and prepare by November 1, 2015 a synthesis report on the aggregate effect of the INDCs communicated by Parties. Furthermore, with regard to enhancing ambition in the pre-2020 period, it was decided that Technical Expert Meetings (TEMs) will continue in order to continue the technical examination of opportunities with high mitigation potential.
   - C) Where the elements for a draft negotiating text are concerned, the discussion was based on a non-paper presented by the Co-Chairs providing an overview of each party's arguments on the respective elements of mitigation, adaptation, finance, technology development and transfer, transparency of action and support, and capacity- building mentioned in the COP17 decisions. The "Elements for a draft negotiating text" updating the non-paper was annexed to the above-mentioned COP decision, and it was decided that further discussion of this will be carried out in the future.

Reference：Ministry of Foreign Affairs of Japan Web

Summary of COP20 Results (2)

2. There was a difference of views over the issue of climate finance, including a request by developing Parties that developed Parties further articulate the path towards the goal of mobilizing 100 billion U.S. dollars by 2020, but as a result of negotiations, a COP decision was adopted to enhance information on the support that developed Parties list in the biennial submissions, and to welcome with appreciation the contributions (10.2 billion U.S. dollars) toward the initial mobilization of the Green Climate Fund
3. The first Multilateral Assessment (MA) of the progress made by developed country Parties in implementation towards the achievement of emission reduction targets in 2020 was held. 17 Parties, including the EU and the U.S., made presentations, and questions and answers took place within a constructive atmosphere
4. On market mechanisms, views were exchanged on, among other issues, the prevention of double-counting at the Subsidiary Body sessions, and it was decided that the discussions would continue at the Subsidiary Body sessions in June next year.
5. With regard to technology development and transfer, a decision on the joint annual report of the Technology Executive Committee (TEC) and the Climate Technology and Center Network (CTCN) was adopted that, among other things, welcomed the progress in both entities' activities.
6. Concerning loss and damage associated with climate change impacts, an agreement was reached on the initial two-year work plan as well as the composition of and procedures for the Executive Committee of the 'Warsaw International Mechanism for Loss and Damage' that the COP established at COP19 in 2013.
7. With regard to reducing emissions from deforestation and forest degradation in developing countries (REDD +), it was decided to establish the "Lima Information Hub for REDD +" on the web platform on the UNFCCC website for publishing information based on the "Warsaw Framework for REDD +" that was agreed upon at COP19.
8. COP21 will be held in Paris, France. Additionally, Morocco expressed its interest in relation to hosting COP22.

Reference：Ministry of Foreign Affairs of Japan Web

Conclusion and Future Prospects

- By participating in COP20 as PNG's government representative, PNG & JICA project have gained experience of connecting the political negotiations and technological achievements. PNG will strive to improve our correspondence toward the next SBSTA and COP21
- PNG took a strong presence in side events and etc. In addition to JICA's events, supported UN-REDD/FAO related events, and promoted outcome of PNG
- REDD+ related support has been bringing together prominent technologies from foreign countries (especially from North America, i.e. GEE, etc). Both PNG need to ensure not to miss this dynamism.
- Like Green Climate Fund (GCF)and Japan's JCM, funding mechanisms to support the developing countries are being prepared. PNG and JICA will likely to have opportunities in formulation and implementation of different projects.
- Adaptation Initiatives related to field of adaptive capabilities (including disaster prevention) has a great potential. By taking advantage of having experiences in the field of mitigation (including REDD+), should take this chance to as a comprehensive climate change measure
- It is required to organize about the possibility and approaches on how PNG can be involved in Green Climate Fund (i.e. creating documentation for fund request, considering application of private fund)

Green Climate Fund: presentation, country potential and roadmap

* Papua New Guinea *

KOKUSAI KOGYO CO., LTD.

Kokusai Kogyo Co. Ltd., Overseas department, Natural Environment division, Jan 2015

Table of content

Structure and functioning

N.B: Information provided here are interpreted from GCF COP 20 side event and further related events. For official terms, please refer the GCF website (see Preparation of proposals).

Objectives: GCF aims to function as an actual investment fund for the Climate sector: As sustainable fund based on investment returns with long term / large size Climate objectives

Secretariat: 2014, less process/more access, light structure (70 staff), total pledge: 10 billions USD

Target/calendar:

- ✓ By end 2015: a few sample projects accreditation.
- ✓ From 2016: regular application process.
- ✓ By 2020: total pledge targeted of 100 billions USD

Contributors: developed and some developing countries; main contributors: USA, Japan, UK, France, Germany; 4-years commitment country contributions mainly as grant

Fund release: under grant, loan or other financial support forms. Types of arrangement possible: Ex-post payments (results-based), specific Fund-Project agreements, Payment for large objectives,…

Scope: Followings can be supported:

- ✓ International, national, sub-national entities and actions
- ✓ Public or private entities
- ✓ Projects, programs, or even global strategies (a part of national action plans)

Supported activities

1) Mitigation (50% of the allocations)

All sectors including possible levers of emission mitigation are in the GCF scope. No restriction (like in CDM or others). Main sectors: Energy, Transport, Industry, Forestry, Agriculture

REDD+ activities (reduction of deforestation and degradation; sustainable forest management, forest conservation and carbon stock enhancement) are specific targets of the GCF. In particular, GCF aims at supporting result-based land mitigation actions. *N.B: decisions are still pending concerning ex-ante payments and Forest degradation activities (difficult to MRV)*

REDD+ phases: GCF can support developing forest countries in the three REDD+ phases:

- Phase I: GCF contribution possible if strict additionallity is shown
- Phase II: (i) show feasibility of the mechanism and (ii) foster co-funding (UN, bilateral)
- Phase III: (i) show implement-ability and (ii) foster Private Sector and other external co-funding. Ideally, ex-post payments based on performance; may be open for upfront payments

2) Adaptation (50% of the allocations)

Budget allocation: 50% of the Adaptation budget for SIDS and LDC countries (list in References)

Objective: help countries in building their resilience to Climate Change and managing disaster risks; also to address issues in the poorest countries which are recognized (COP 20) as the most affected in the past and threatened in the future by Climate Change

Example: agro-ecology, soil-plant-animal-human interactions, disaster risks prevention

Example of GCF projects

Three speakers invited by GCF to the GCF side event at COP 20 (Lima):

+ Marshall Islands
General communication on the importance of Adaptation and disaster risk management for the country.

+ Ethiopia
- *Mitigation options* and project proposals: already identified and well advanced. Sectors: transport, green power (hydro, solar and geothermal). Ex,.: Mega dam; large scale/investment sought
- *Capacity to absorb Funds:* experience in managing the EDF (European Development Fund): 800 MUSD) for transport, rural development, social services, trade and environmental conservation
- *National plans*: ambitious Clean Energy strategy formulated; Country sensitive to Gender issue

+ Senegal
- *Adaptation and Mitigation project proposals* already formulated (bank of project concept notes available) => Need support to build large proposals. Priority to Adaptation: agriculture dependent on rainfall and 700km of coasts under erosion threaten
- *Capacity to absorb Funds:* national structures competent. Experience in managing the Adaptation Fund (Nov 2010) for "protecting coastline from the harmful effects of sea level rise (floods, erosion, salinization of coastal fields and degradation of mangrove forests)"
- *National strategies*: national Climate Fund created with 90% from public resources and 10% from the Senegalese Private Sector.

WS assessment for Papua New Guinea (tentative)

	Strengths	Weaknesses
Specific context relevant to GCF	- PNG belongs to SIDS - Indigenous People issue important - 3rd world tropical forest, biodiversity High spot	No
Trusted GCF partners	- Experience of managing large funds (UN-REDD; FCPF); - Existing institutions relating REDD+ and thus being able to propose a NDA: Climate Change, Forest, Environment, Foreign Affairs, Plan...	• PNG did not communicate a NDA/focal point yet • Already 83 countries submitted NDA http://www.gcfund.org/fileadmin/00_customer/documents/Readiness/2015_5-_NDA_and_Focal_Point_nominations_for_the_Green_Climate_Fund.pdf
Ada. And Mit. Options	- Adaptation potential high: face issues due to sea level rise, drought and soil salinization - Mitigation potential high: face marine and terrestrial industry pollution and deforestation	• Few inter-sector project ideas • Few Inter-province ideas
Development strategies/plans	REDD+ mechanism advanced: monitoring system, NFI, safeguards, pilot projects, ...	? (existence and advancement of NAMA, NAP, etc.)
Private Sector involvement potential	- Industrial activity very high in the country: wood, mining, hydrocarbon energy, etc. - Many developed countries involved (under compliance or voluntary Climate efforts)	Few PS involvement until now

Criteria of selection

+ Contexts relevant with GCF: developing countries; emphasis on Climate vulnerable: LDC, SIDS

+ Existing trusted partners
- A focal point or a National Designated Authority (NDA) needed. Fiduciary management is a big challenge expressed by GCF donors
- Trusted technical partners: relevant or recognized international and national NGOs / others

+ Identification of Adaptation and Mitigation options advanced and scientifically based
- A/M Options relevant with the geographic and human context
- Precision on scale and sector; Other important considerations: gender, indigenous people, etc.

+ Existing sustainable development (including CC) long term strategies and institutions
- National plans: existing development plan documents especially in Environmental sectors
- International frameworks: NAMA, NAPA, REDD+, CBD, World Heritage, etc.
- REDD+: Readiness and Warsaw Framework advancements (National strategy, safeguards, forest monitoring, FREL, legal framework), performance indicators, REDD+ Investment plans (Forest Investment Program, Bio Carbon Fund ER-PIN)

  => *Justification of the current phase: efforts done and additional needs*

+ Private sector involvement potential
GCF has a PS Facility and advisory group. Involvement rules not yet decided. PS expected for:
- Direct contribution to the Fund to fill the 90 bUSD remaining (10 billion to 100 billion)
- Co-funding to projects/programs
- Technology transfer and capacity building
- Increase commercial exchanges and businesses in North-South and South-South cooperation

Opportunities for Papua New Guinea (tentative)

What the Green Climate Fund can bring or enable to the country?

- Contribute to the expansion of national action plans for CC Adaptation and Mitigation
- Enhance capacity of national bodies in preparing and implementing national Climate plans
- Contribute to develop and support the involvement of private industrial companies to allow the realization of large scale projects (thanks to private co-funding)
- Multiply technology transfers / business exchanges between PNG and international companies
- Facilitate the augmentation of the participation of already implied recognized partners: technical (national and international NGOs and other types of organization) and financial (co-funding from multi- and bi-lateral cooperation agencies) partners
- Support the development of projects and programs suited with national orientations, targets and the PS
- Examples amongst many of Adaptation and Mitigation options for PNG:
  - A: Prevention of risks due to sea level rise for vulnerable high biodiversity marine ecosystems (reefs and mangroves), peoples and economies; Agro-ecology promotion in zones sensitive to soil degradation (uplands and inter-tidal zones), etc.
  - M: Reduction of impacts from logging, small agriculture and mines; Urban planning to reduce emissions and pollution from cities; Industry facilities energy switching to green power and energy efficiency, etc.

  Annex: one example of project idea based on a mixed Adaptation-Mitigation approach
- Logistic and technical support in the GCF accreditation process

Next steps: Promote strengths and manage weaknesses

Specific context: identify extra specific country features to emphasis to suit GCF philosophy, objectives and selection criteria

Trusted GCF partners
- Identify institutions/persons could be relevant as NDA or focal point
- Promote past experiences of management of large development funds
- Follow the procedure to communicate information and NDA application to GCF

Identification of A and M options
- Debate in REDD+ and Climate Technical Working Groups
- Report existence and results of relevant studies: Mitigation levers assessment; Deforestation drivers study; Agriculture/climate statistics; Study on the Resilience potential and factors affecting this potential in specific regions of the country.
- Debate in provinces about sought mitigation/adaptation actions (decentralization)

Sustainable development strategies/plans
- Report existing national development plans, general political decisions involving long term Climate strategies
- Report existing NAPs and NAMAs and their results if projects have been realized
- Describe the REDD+ mechanism evolution, accomplishments and needs for each phase I to III

Private sector involvement
- Report industrial sector activities and contribution to Climate Change (reference to the Green House Gases inventory and Study of mitigation levers)
- Report possible private companies with a strong social and environmental responsibility and propose donations or investments

Next steps: presentation of proposals

1) GCF information
- Read the Introduction to the accreditation process and accreditation application
http://www.gcfund.org/fileadmin/00_customer/documents/Accreditation/GCF_Accreditation_Introduction_November_2014_final.pdf
- Get informed of the Governing instruments for the GCF
http://www.gcfund.org/fileadmin/00_customer/documents/pdf/GCF-governing_instrument-120521-block-LY.pdf
- Get informed of Standards. Fund's accreditation criteria include fiduciary standards and Environmental and Social safeguards
http://www.gcfund.org/fileadmin/00_customer/documents/Accreditation/GCF_Initial_Fiduciary_Principles_and_Standards_20140619.pdf
http://www.gcfund.org/fileadmin/00_customer/documents/Accreditation/GCF_Interim_Environmental_and_Social_Safeguards_20140619.pdf

2) Registration to the GCF country database
Contact (send an email) to the GCF with an official letter signed by a duly authorized official of the entity with the names and email addresses of persons to whom the Secretariat is permitted to release OAS account information
accreditation@gcfund.org

3) Submission of a Focal point or NDA
Fill and send the "Template letter of nomination for the application of accreditation from the NDA/focal point": http://www.gcfund.org/accreditation.html

4) Application of a project proposal
Submit the application electronic documents via the Online Accreditation System OAS (username and password per country)
https://accreditation.gcfund.org/_layouts/15/GCFLOGIN/Default.aspx?ReturnUrl=%2f_layouts%2f15%2fAuthenticate.aspx%3fSource%3d%252F&Source=%2F

Annex: A-M mixed project idea

Process

Both importance of Adaptation and Mitigation are almost equivalent in few contexts such as in PNG
⇒ Propose a mixed project with two types of activity: adaptation and mitigation. For instance, do it by inspiring from regional mix approaches of Reef-to-rainforest can exist in province programs (Madang, Manus, etc.):

Activities

- one Adaptation part dealing with harmful **consequences of Climate Change**. Ex.: Climate issues affecting marine ecosystems: biodiversity and environment degradation according to sea level / temperature variations
- one Mitigation part dealing with the **causes of Climate Change**. Ex.: emissions due to Forest degradation caused by wood extraction activities.

Advantages of the A-M coupled approach:

- Include both types of activity sponsored by GCF
- Deal with the whole process of Climate Change by tackling one source of the problem and one downstream effects of CC, both significant in PNG
- Include the private sector: providers of spatial information technology for marine studies and the wood industry for forest degradation management
- Suited to existing Climate / Environment national plans and contributing to the implementation of such plans and their influence in the country
- Generate a large amount of credits (from Mitigation) whilst providing an important quantity and quality of connected benefits.

System for Monitoring Tropical Rainforest
-Initiative for Improving Forest Governance- JICA & JAXA
1st December 2015
Japan Pavilion Side Event, UNFCCC COP21, Paris

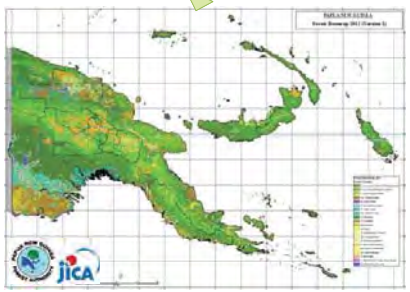
PNG NFMS Status and Gap & Expectation to Timely Ready-to-Use Satellite Data

Gewa Gamoga, Mr
JICA/ PNG Forest Authority Project

Manager- REDD & Climate Change,
Forest Policy & Planning Directorate
Papua New Guinea Forest Authority (PNGFA)

Contents

Papua New Guinea Forest Base-map 2012



The Island of New Guinea is said to embrace the third largest mass of undisturbed tropical rainforests following Amazon and the Congo Basin with vast bio-diversity.

1. Current State of Forest in PNG

Land Area	46.2 million ha	
Forest	**37.3** million ha	- Forest cover 80%. Dominantly natural forest. - 40% of forest subject to human activities. - PNG has reported 38.2 million as at 1975 to FAO FRAs.
Population	**7.3** million	Grown at 3.1% per year since 2000.

Source: (1) PNGFA/ JICA Forest Base-map 2012, (2) PNGFA/ UN-REDD/FAO Collect Earth Analysis 2013, (3) FAO FRAs, and (4) 2011 PNG Census.

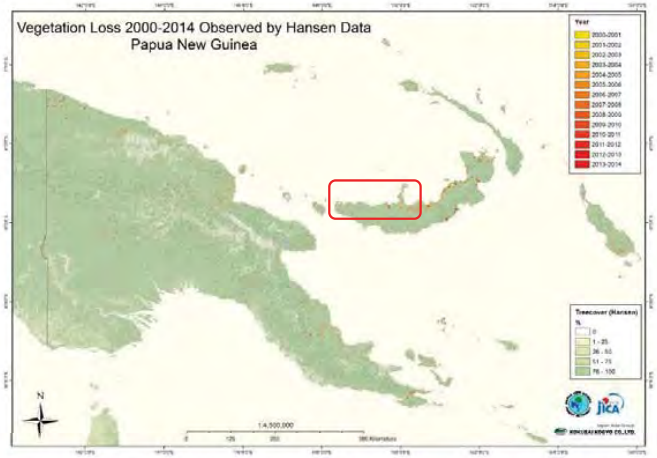
- 'Degradation of forest' is occurring
  - ✓ to be watched by National Forest Monitoring System on logging operation, shifting cultivation, fire and others.
- Total of 75 Special Agriculture & Business Leases Licenses
  - ✓ 1 goes, 30 to be cancelled, 11 to be suspended, 33 to be further scrutinized.

Source: http://lands.gov.pg/News/News%20Articles/Sir_Manasupe_Commends_SABL_TaskForce.html

- Potential of large scale land clearance (including Deforestation) still exists. => PNG is on fringe of High Forest Countries.

1. Current State of Forest in PNG (2)

Forest disturbance observed by Hansen-Loss Data



Status of REDD+ NFMS development

Main components for REDD+ National Forest Monitoring System

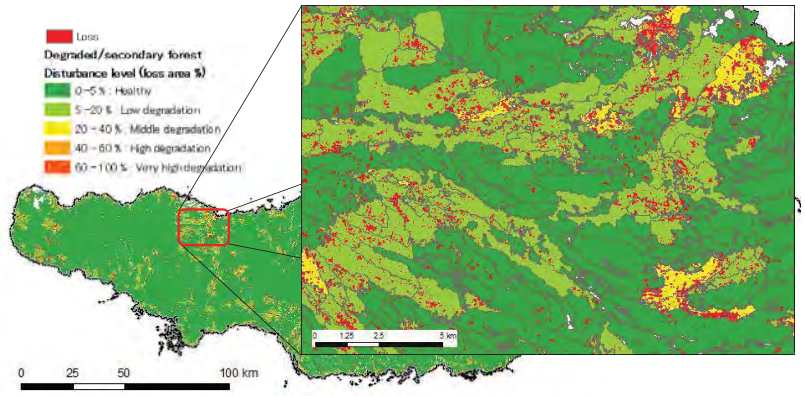
	PNG FRIMS	Collect Earth	Terra-PNG
Developed and Operated by	**JICA/ PNGFA** (Forest Resource Information Management System)	**UN-REDD/FAO/ PNGFA**	**Gov. Brazil, FAO/ OCCD/ PNGFA**
Features and Focus	Main GIS Database for PNGFA to manage forest resource & timber harvesting operations	• Point based sampling • 25,279 tracts (points) over PNG	• Wall – Wall mapping • Automated polygon delineation
Incorporate data from	RS, Logging companies, licensing, field officers, etc.	RS through Google Earth Engine	RS (Remote Sensing)
Data processed by	In-house	Flexible to feed any layers	In-house
Update Trigger	Annual Logging Plan	Flexible, mostly 'Annual' Greenest Pixel	Flexible, mostly 'Annual' Greenest Pixel
Status	Base-map 2012 done. Detailed upgrading in two pilot provinces on-going.	2013 analysis done. Historical change to 1990 on-going.	Preliminary work with simple forest class on-going.

Extracts from these and other components will be made publicly accessible from a REDD+ Web Portal site operated by OOCD (PNG Office of Climate Change and Development), soon.

JICA Capacity Development Project for Operationalization of PNG-FRIMS Addressing Climate Change

1. Current State of Forest in PNG (2)

Forest disturbance observed by Hansen-Loss Data



JICA Capacity Development Project for Operationalization of PNG-FRIMS Addressing Climate Change

3. Gap and expectation

Needs for timely and ready-to-use satellite data

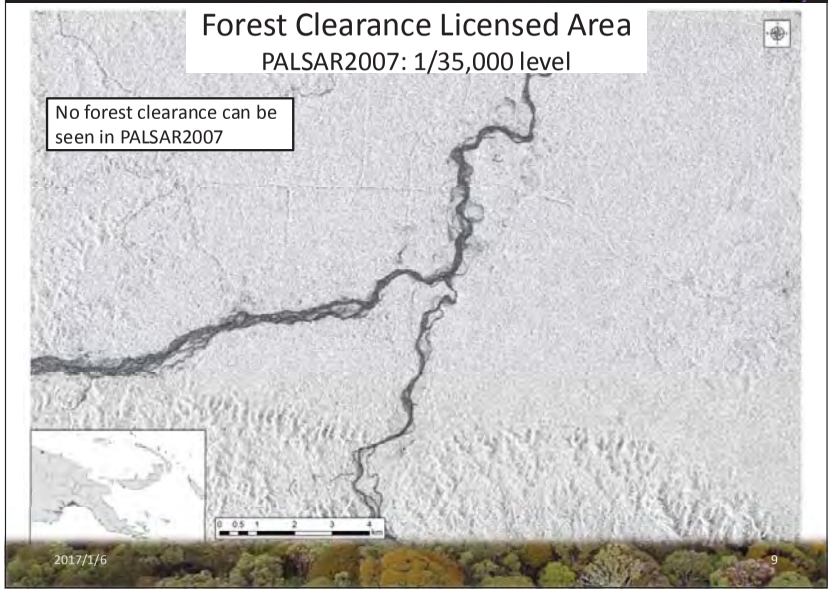
- **Despite the availability of processed data..**
  - **Institutional and human capacities in PNG are largely stretched already**
- **Newly Developed System update**
  - **Constraints by by an yearly update cycle of input-data**
  - **In-coming new RS data are heavily relying on optical sensor (i.e. 'Annual' Greenest Pixel from LANDSAT)**
- **Remote/Rural areas**
  - **87 % of the population are located**
  - **Forest faces various pressures (agriculture, logging) to meet local needs**

Under these circumstances

- **there is a GAP between current efforts made and needs necessary for securing the interest of local communities**
- **This gap should be filled with objectively verifiable (sound-science based) data**
  - **readily useable at a national level,**
  - **more frequent than annual update, and**
  - **not affected by cloud-prone climate.**

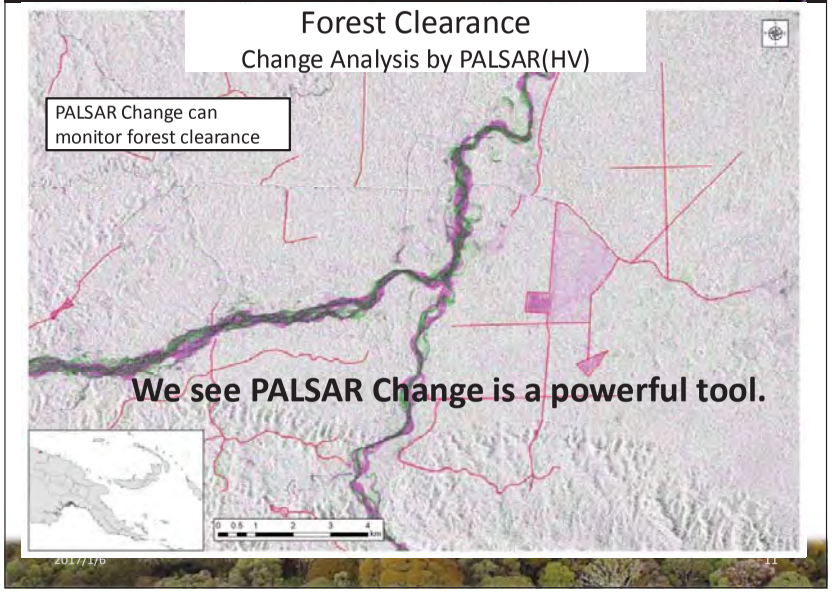
Forest Clearance Licensed Area

PALSAR2007: 1/35,000 level



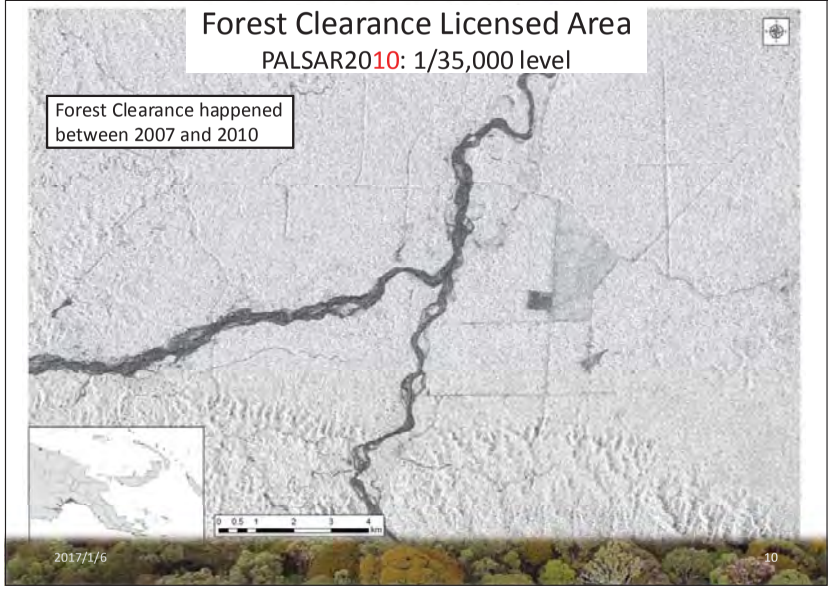
Forest Clearance

Change Analysis by PALSAR(HV)



Forest Clearance Licensed Area

PALSAR2010: 1/35,000 level



4. Conclusion

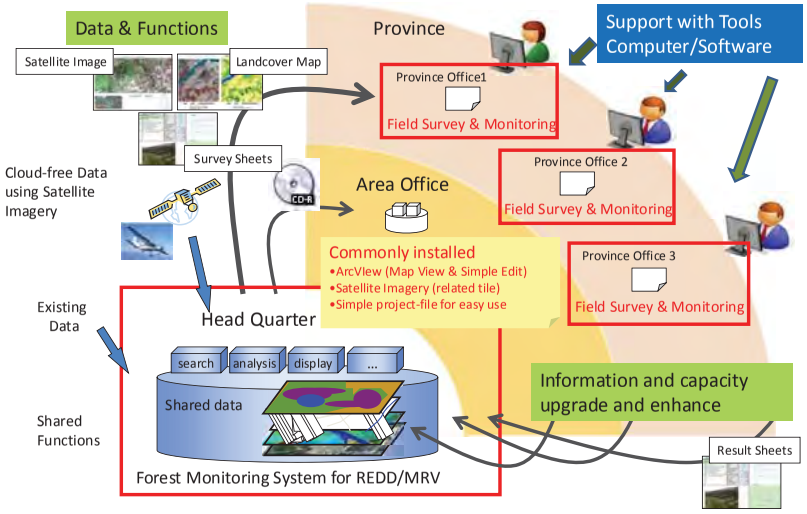
1. The collaborative initiative proposed by JAXA and JICA is welcome.

2. The timely provision/ update of the processed, thus ready to use, and cloud free data from ALOS-2 is to fill the gap of the PNG National Forest Monitoring System.
   Imageries product that are:
   - ✓ Provided more frequently than annual,
   - ✓ Ready-to-use: Processed for slope adjustment, ortho-angle-rectification, and difference analysis between two points of time

3. The data will be likely incorporated and used by all three components of NFMS
   PNG-FRIMS of PNGFA
   Collect Earth analysis in PNGFA
   Terra-PNG of OCCD

4. The output extract must be fed to the **PNG REDD+ Web Portal Site** and potentially **PNG REDD+ Safeguard Information System** (not yet emerged) as well.

Annex: Monitoring with Local Office (PNGFA)



Japan International Cooperation Agency

Mission FULL Report

UNFCCC COP21/CMP11 in Paris, France 2015
Nov 30 - Dec 11

JICA / Papua New Guinea Forest Authority project

Stephane Salim, JICA short-term expert
Kokusai Kogyo, Overseas Department, Natural Environment division

Table of contents

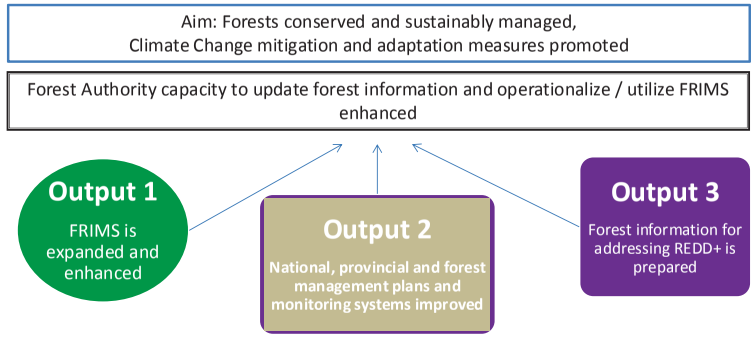
Introduction

1) **JICA/PNG-FA project background**
2) **Objectives of the project team in COP 21**
3) **COP 21 venue**
4) **Calendar**
5) **Participation of the project team to COP 21**

Project background

Title: JICA-PNG Forest Authority Capacity Development Project for Operationalization of PNG Forest Resource Information Management System (FRIMS) for addressing Climate Change and REDD+

Period: 5 years. 2014 – 2019



Objectives of the project team in COP 21

Project Team

Counterpart officers: Dr Ruth Turia, Mr Gewa Gamoga (PNG Forest Authority officers attending COP 21)
JICA experts: Tatsuya Watanabe (Project coordinator), Haraguchi & Stephane (experts attending COP 21)
Nishimura, Ochi, Okada, Koide (input from country)

COP 21 Activities

Watanabe	*Haraguchi, Stephane*		*Stephane, Haraguchi*
Support PNG Forest Authority in negotiations	Technical advise on negotiating points	Project communication and knowledge sharing	Reporting interest topics presented during COP 21 side-events

Examples (past or planned) of country experiences, Funds and technical solutions

Forests and REDD+

Papua New Guinea and the Pacific region

COP 21 Venue

Calendar: week 1

Team presentation

COP 21 SIDE EVENTS	mon 30	tue 1	wed 2	thu 3	fri 4	sat 5
11h30-13h	Plenary. Opening **leaders** event La Seine	IETA pavi. Area 3, room Paris. Winrock, Terra global **REDD+ as INDC** strategy	WFO **Farmers** Day: Partnerships to improve agricultural resilience and productivity R3	GCP Safeguarding REDD+ and related land use through effective participation and community monitoring R1		**CJP Loss and damage** - who should pay? R1
13h15-14h45	GEF **Adaptation** – Experiences, Lessons and Looking Ahead R2*	UNFCCC The **Adaptation** Committee - Overview of the first three years of work R2	**GCF** Deploying Resources of the Green Climate Fund: "What makes a good Project" R10	UNFCCC **REDD-plus web platform** and the Lima Information Hub on REDD-plus results-based payments R1	AFB **Adaptation Fund: Direct** Access Experiences R3	UCRP The Role of the **Oceans** Beyond 2020: Implications for Adaptation R4
15h-16h30	AFNU **REDD+** at the interface of biodiversity, climate change and human rights R4	Japan pavi. JICA JAXA **System for monitoring** of tropical rainforest - initiative for improvement of forest governance	EU pavi. **SPREP/Finland** Building a resilient Pacific through effective weather climate and early warning systems	**CIFOR** Forests, landscapes, climate & sustainable development - The evidence we need for the future we want R1	EII Fostering Bottom-Up, Jurisdictional Low-Emission Development R8	UMCP Assessing readiness for **private sector** engagement R4
16h45-18h15	CGGF China's Forestry Actions & Creative Risk Management Methods for Climate Change R3	**ITTO/Myanmar REDD+** within INDCs: Governance lessons learnt from community forest management R4	ICRAF Farmers Day: **Agroecology** as a viable solution for climate resilience and a sustainable food system R3	**ESA-RESTEC** Supporting National Forest Monitoring with Earth Observation R1	FFI-FSC Experiences from REDD+ piloting & existing **forest certification** used to inform national REDD+ action R8	LPFN, UNEP, FAO, UNCCD Investing in integrated **landscapes** to achieve the SDGs. R252A.
18h30-20h		EU pavi. EC, CHE potential of nature / people in the implementation of **REDD+ and its safeguards**	CIAT **Colombia's Climate Strategies**: mitigation, adaptation, Amazon Vision and linkages with agriculture R3	Japan pavi. IGES Introducing **JCM** methodo, Learning from Experiences in Asia and the Pacifi		FAO **REDD+ Forest Reference Emission Levels**: Progress and challenges in developing countries R252A

Calendar: week 2

Team presentation

COP 21 SIDE EVENTS	sun 6	mon 7	tue 8	wed 9	thu 10	fri 11
11h30-13h	**USAID, CIFOR, IUCN.** Strengthening land and resource rights through REDD+: Policy and practice successes. R 253	Nordic pavi. Swe Uni of Agri Science **LULUCF** and REDD+ forest potential in the climate policy framewor			IRD-CIRAD-INRA **Carbon sequestration and Agriculture** R8	Japan pavi, GEC **JCM: Achievement,** recent progress of project implementations R3
13h15-14h45	**Black Bridge luncheon side event:** Financing geospatial information needs for REDD+ MRV: sharing experiences	**Vietnam** pavi. Vietnam gov Lessons on MRV and Ref **Emission levels** for REDD+		UN Levering co-benefits: the role of markets and trade R12		**Brazil post-2020** Climate Change Policy: challenges and opportunities. R1
15h-16h30		**Vietnam** pavi. Vietnam gov Lessons on **readiness** for REDD+ implementation	**SNV Deforestation-free Agriculture:** Converting pledges into action R2	IUCN-TNC-CI Planet at the Crossroads: Advancing Nature Based Solutions R3		
16h45-18h15	**CIFOR, GCF. Taking stock of REDD+:** Past, present and future. Amphitheater Bleu	ICO The Importance of Addressing **Oceans** and Coasts in an Ambitious Agreement R2	GEF Innovations in Climate Finance R10	**SPREP** Building a resilient Pacific through effective weather climate and early warning systems R1	FENAMAD MRV-Indigenous (Monitoring, Reporting and Verification) and Fullness of life plans R8	
18h30-20h		NIES, IGES East Asia Low Carbon Growth Dialogue R4	UN-REDD Looking Forward: REDD+ and the **UN-REDD Programme post-2015** R3	**GCF** Mobilising Resources at Scale for the Green Climate Fund: "Looking Beyond Paris" R10	FDN Guatemala´s Climate Change Agenda and experiences on REDD+ R1	

Participation of the project team

+ Event: Japan pavilion. Dec 1. JICA JAXA. COP 21 venue. System for monitoring of tropical rainforest - initiative for improvement of forest governance

Mr Gamoga presentation: **"Papua New Guinea National Forest Monitoring System Status and Gap & Expectation to Timely Ready-to-Use Satellite Data"**

+ Event: Black Bridge luncheon side event. Dec 6. Global Landscape Forum. Financing geospatial information needs for REDD+ MRV: sharing experiences.

Mr Haraguchi presentation: **"JICA Initiatives and Expectation for High Resolution Constellation Satellites from experiences of PNG, Lao and Peru"**

See annex for link to full presentations

Some information picked up during COP 21 side-events that can be useful for the JICA PNGFA project and for Forestry/REDD+ projects in general

1) **Information on Forest countries:** Indonesia, Vietnam, Congo, Brazil, Mexico, Ethiopia, Grenada, Congo DR, Colombia, Myanmar
2) **Information on Climate Funds:** REDD+ (Europe, CAFI, GCF, UN-REDD), Adaptation, Other (JCM, SPREP)
3) **Other REDD+ information:** challenges, next phase, web information, Forest numbers, Remote Sensing
4) **Information on Agriculture**: 4/1000 initiative, sustainable agribusinesses, Agroforestry
5) **Information on Oceans**

Info Forest Countries

Indonesia

Forest Reference Emission Level FREL

- Forest definition: formal (0,25ha, 5m, 30% cover) and practical
- Scale: national level including peat lands & mineral soils, primary & secondary forests
- Emissions from Deforestation, Degradation and Peat decomposition (1.6% of emissions)
- Pools: Above Ground Biomass & Soil Carbon (for peat lands)
- Period: 1990-2012: data available & reflect national circumstances (deforestation since long time)
- 23 land cover classes including 7 forest classes: 6 natural and 1 tree plantation

Policies

- Currently working on Nat Strat – Ref Level – NFMS – MRV – Safeguards Info System - Finance
- National Strategy 5 Pillars:
  - Institution process
  - Legal framework
  - Strategic programmes: sustainable landscape management; sustainable use of natural resources in economic; Enabling and sector activities
  - Work paradigm and culture change: awareness, pilot provinces
  - Public participation: involve stakeholders
- 50 demonstration activities, 30 in Borneo
- Transition program with Norway: to move to phase II and III

Opportunity: Use Indonesia reference for Forest classes and for considering Peats in the FREL in PNG

Info Forest Countries

Vietnam (Full presentations in Annex. Here some additional comments)

Reference Level

- Forest Reference Emission Level draft issued. Expected submission in early 2016
- MARD (Min of Agriculture & Rural Development) tasks: FREL, Nat. Forest Inventory map, NFIS
- MONRE (Min. of Nat. Res. And Env.) tasks: UNFCCC focal point, GHGi, National land uses inventory
- National circumstances: Forest area decrease : 1945-1995 then increase because of national programs of plantation (661 & 327), 3 million ha expected.

Forest Monitoring System

- Methods for National Forest Inventory: LANDSAT, SPOT, ground => Forest & wood stocks maps

Congo Brazzaville

REDD+ pilot project 'Reduced impact of exploitation techniques + Improve sedentary agricultural techniques'. Contact in Annex to get presentation documents.

Opportunity:

- Learn about Low impact logging techniques and Carbon methodologies
- Learn on FREL preparation and Remote Sensing technologies
- South-south cooperation with Vietnam and the MARD

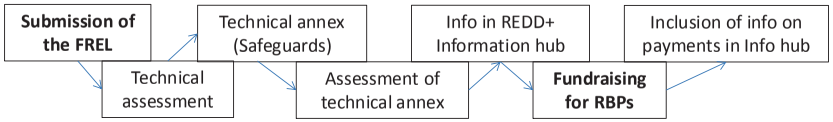
Info Forest Countries

Brazil

National Strategy submitted during COP 21. Summary in Annex (full version in English not yet)

Results-Based Payments: Amazon fund since 2009 providing Result Based Payments. Now GCF application for another RBP programme.

Challenges (future works):
- Improve detection of Forest Degradation and Fires
- Monitor deforestation below 6,25 ha
- Improve carbon map
- Reference Level for other biomes, pools (dead wood), gases and activities (+ of REDD+)



Opportunity:
- Exchange on technical issues: monitor Deforestation < 6ha, monitor Degradation and Fires
- Consider Green Climate Fund application to boost RBP (maybe early in Papua New Guinea)

Info Forest Countries

Mexico

Reference Level submitted and approved. See Annex
Next version of the FREL intends to include Fire, Degradation & Soil Organic Carbon
National strategy in process

Ethiopia

Forest Monitoring System: advancing; Forest area of 30%
Reference Level will be submitted soon
Investments in Forestry strong increase expected
- High Forestry potential to be included in policies 2015-30 to reach zero net emissions
- Past success in deforestation decrease (policies for Highlands and participatory programs)
- New programme of planting (3 Mha) but this risks to allow industrial emissions

Grenada

Adaptation in Small Island Developing States: coastal Ecosystems Based Adaptation (EBA)
Resilience = Infrastructure + Forest management: community/planning -> clean river

Opportunity:
- Consider agri-deforestation policies in Highlands in Papua New Guinea
- Exchange with Mexico on technical issues: monitor Fires and Degradation
- Consider EBA concepts to design Forestry-based Adaptation projects in Papua New Guinea

Info Forest Countries

Congo, DR
- Deforestation / Degradation drivers: direct (Agri, Wood energy, illegal family logging) and underlying (Poverty, Demography, Governance)
- Phase I: National REDD+ Fund, Benefit Sharing system, grievance system, FLEGT, FREL submit in 2016
- Implementation phase: ER-PIN, Forest Investment Program, 2016-20 National REDD+ Investment plan

Colombia

REDD+ pillars
- Improve forest governance and institutions
- Sustainable sector development: land use planning, Public Private Partnership
- Agri-environmental policies: sustainable agriculture (Cocoa, Rubber, NTFP)
- Self-governance: Indigenous People, participative approach
- Enabling activities: MRV, Registry, etc.

Next: REL submission, Transparency, Green growth development strategy, Safeguards/Co-benefits

Myanmar

Local communities involved in REDD+ roadmap 2013, REDD+ strategy, NFMS, MRV, Land use planning, Socio-environmental standards developed, Community forestry (30y tenure guarantee, product tax free)

Opportunity:
- Consider DRC DD drivers study and implementation programmes to apply in Papua New Guinea

Info REDD+ Funds

European Union Funds

Various Funds to combat tropical deforestation:
- Cooperation activities: EU REDD Facility and EU contribution to the UN-REDD programme
- Internal activities: support New York framework on Forests; offset EU Carbon footprint inside EU and outside (improve supply chain of woods and other commodities from tropical forest countries)

Join Statement on REDD+. See references in Annex
- United Kingdom, Germany & Norway; 2014 pledge of 5 billion USD over 5 next years (2015-20)
- Includes: Forest Carbon Partnership Facility, Bio Carbon Fund, Forest Investment Programme, UN-REDD, bilateral (including REDD Early Movers programme)
- Focus: implementation of REDD+; Private sector involvement; Deforestation-free supply chains inc. development of policies on Palm oil, soy, beef and timber in Europe and tropical countries

CAFI

Central African Forest Initiative: 350 million USD. From Norway and Germany managed by UNDP.
Aim: integrate REDD+ in Development objectives so that savannahs and other lands are also included.

Opportunity:
- EU Joint Statement to support Deforestation-free agribusiness initiatives in Papua New Guinea
- REM programme to develop the implementation Phase in Papua New Guinea

Info REDD+ Funds

(Lessons learnt from 1st year)

Green Climate Fund 1/2

Institutions
- National Designated Authority: a central institution (> 80 Countries have already an NDA)
- Accredited entities: public/private, national/international organizations (60 under consideration)

Readiness process
- Small grant for readiness (30 million USD): 29 asked / 13 approved. See Readiness grant form in Annex.
- 50 % of readiness support for Least Developed Countries (LDC), Small Island Developing States (SIDS) and African States
- After Readiness, Project preparation facility grant (will be available from 2016)
- Proposal (38 proposals so far). See Full funding proposal template in Annex.

Good project points
- Priority areas: Mitigation and/or Adaptation; Energy, Transport, Forestry, etc.
- Key criteria:
  - ✓ Climate impact: mitigation (ER amount), Adaptation (how many people)
  - ✓ Paradigm shift: effect go beyond the project & easily replicable
  - ✓ Sustainable development: jobs, economy, etc.
  - ✓ Priority for the country: selected theme is found in INDC, strategy plan, etc.
  - ✓ Why GCF money *vs.* other funds (additionality)
  - ✓ Efficiency and effectiveness: why expected to be successful

Info REDD+ Funds

(Examples of projects)

Green Climate Fund 2/2

North amazon Peru (first Project approved by GCF)

- *Objective*: Combine conservation of natural resources + Adaptation + Mitigation + Economic benefits (integrate most vulnerable people and most vulnerable & rich ecosystems)
- *Activities*: in swamp forests no cutting of Agahe sp. (Palm) when fruits collected avoiding forest and soil destruction + Improve market access and processing + Fishing rules in a big lake connected to Amazon + Utilization of solar panel

Ethiopia: Readiness funds got. Project to be developed is well included in national strategy: 'Zero net emission by 2025 ambition'; Ecosystem Resilience; Green economy

Maldives*:* March 2015 project concept note submitted in line with NAPA and other strategy documents

DRC signed Readiness grant agreement during COP 21 with the GCF (300 000 USD).

Opportunity:
- PNG Office of Climate Change and Development -> National Designated Authority submission -> GCF Secretariat
- PNG Forest Authority -> Proposal for Readiness -> OCCD -> GCF Secretariat
- Proposal for Readiness should mention: PNGFA needs to elaborate a project idea to propose to GCF (institutional and technical capacities, money for preparation studies, trainings, etc.)

Info REDD+ Funds

UN-REDD

2008-15 period: 64 countries received UN-REDD support for Readiness programs

Relative progress against the Warsaw Framework for REDD+ (all UNREDD countries)

NFMS National Forest Monitoring System > **REL** Reference Emission Level > **NS** National Strategy > **SIS** Safeguards Info System

Shares in REDD+ Funds
- Funds for Readiness: FIP, Biocarbon Fund, FCPF Readiness Fund, UNREDD phase I and II
- Funds for Implementation / Results-Based Payments: REM, Biocarbon Fund, FCPF Carbon Fund
- All steps : GCF

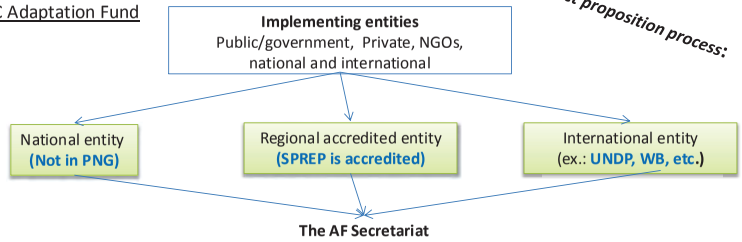
From 2016 more focus on:
- National level
- Support Governments
- Develop Multi-stakeholders dialogue
- Green community Zero Deforestation supply chains such as for Palm oil, Soy, Beef
- Actual GHG reduction
- Social & gender issues including Indigenous People and Local Communities
- Safeguards for set up functioning high standards

Opportunity: PNG Forest Authority is supported by UN-REDD and FCPF so far

Info Adaptation Funds

Project proposition process:

The UNFCCC Adaptation Fund



Project approval process
- Short when through an already accredited entity; Budget: 0.8 to 10 million USD; co-funding welcome
- Criteria: Agriculture (inc. Agroforestry)/Farmers/Local communities; Not national capacity building

Readiness process: workshops (in Pacific in 2016). Special Readiness for SIDS.

Small grants programme objectives
- Fund as part of coherent (existing) national program
- Speed up Adaptation politics
- Mainstream Adaptation into development interventions
- Unlock cross-sector responses to CC (ex.: Forest-Agriculture)
- Increase Adaptation capacities at national and local levels. See AF contacts in Annex

Info Adaptation Funds

Examples of project:

The UNFCCC Adaptation Fund

- Tanzania. Forum CC Tanzania & AF NGOs network (international). Aim: reduce vulnerability of livelihoods. AF helps enhancing the NGO national programme effectiveness
- South Africa. SANBI. Building resilience through Climate Smart Agriculture in catchment area. Impact on institutional level, policy design and local level. Address CC impacts in infrastructure and Mangroves
- Costa Rica. NGOs. Climate Change causes production fall in Honey bee farms. AF helps looking for farms in a different area by providing micro-credits to reduce costs or risks so related to income
- Rwanda. Min. of Natural Resources. Reduce flooding and Climate driven erosion by providing integrated sustainable land and water management and support Climate Change resilient agriculture
- Mauritius. UNDP. Fishermen restore mangroves; protect community; shoreline vegetation storm surges brought by Climate Change; beach erosion.

Opportunity:
- Technical preparation: build an Adaptation project concept note integrating Forestry
- Process: PNG-FA Adaptation staff (Elisabeth) and OCCD Adaptation team submit an idea to SPREP to submit to the Adaptation Fund Board Secretariat

Info Other Funds

Joint Crediting Mechanism

Objectives

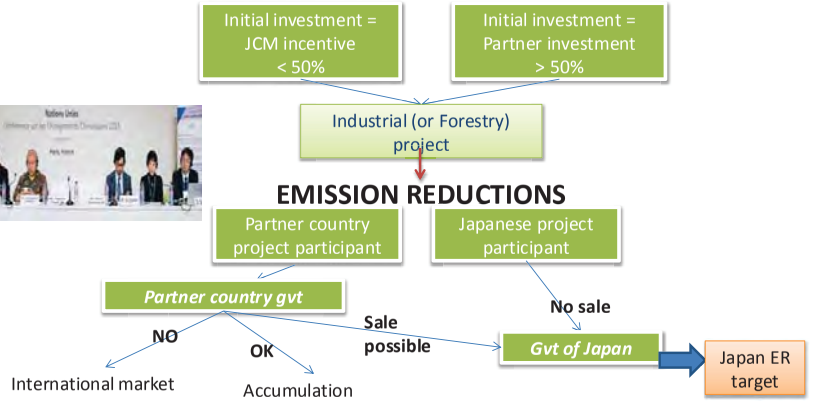
- Disseminate advanced low carbon technologies to developing countries not possessing yet
- Quantify ER achieved by MRV
- Use part of the reductions for fulfilling Japan's ER targets:
  - ✓ INDC (Jul 2015): 26% for 2013 – 2030
  - ✓ Kyoto Protocol target: 3.8% for 2005 – 2020

Country process 15 Bi-lateral agreements → Joint Committee → Rules and guidelines → 19 Methodo: Energy efficiency → 7 projects

7 REDD+ feasibility studies:

Country	Year	Entity	Title
Cambodia	2014	CI Japan	REDD+ in Prey Long Area and Seima Area
Indonesia	2015	Kanematsu	REDD+ project in Boalemo District
Indonesia	2014	Mitsubishi	Improvement of REDD+ Implementation using IC Technology
Indonesia	2013	Mitsubishi	Improvement of REDD+ implementation using IC
Lao PDR	2015	Waseda	REDD+ project in Luang Prabang Prov through controlling S&B
Lao PDR	2014	MUFJ R&C	REDD+ in Luang Prabang Province
Vietnam	2013	Sumitomo	REDD+ with livelihood dvpt and biomass-based power generation

Crediting system (as understood from IGES, 2014; Official schemes from GEC website, Annex)



Opportunity:
- Proposal of a Feasibility study for a REDD+ project in Papua New Guinea
- See collaboration possibility from Min. of Environment funds with JICA current and future activities

Info Other Funds

SPREP

Side event on resilience and early warning to tsunami with International Partners in Pacific
Government of Finland: Finnish meteorological institute; World Meteorological Organization; UNESCAP

Special acknowledgment have been expressed to Japan:
PCCC (Pacific Climate Change Centre) supported by Japan, survey finished and construction will finish in 2016. It would be a good network, point of reference, coordinating all strategies in Pacific. See Annex.

International supportive initiatives & frameworks:
- Post 2015 SDG
- Sendai framework on DRR
- UNFFCCCC cop 21
- SIDS Samoa pathway
- Blue Economy

NEFCO (Nordic Environment Finance Corporation)

Mapping burning patterns and invest in no-burn alternatives. For North Europe but tropical countries also. Carbon Fund to invest in CDM projects. Norwegian Carbon fund contract 4 sub-Saharan projects. Annex.

Opportunity:
- Consider CDM / Carbon project opportunities in PNG through Norwegian fund, especially in Forestry
- Support from NEFCO for mapping Fires and invest in alternatives (agriculture, logging, etc.)

Other REDD+ info

REDD+ challenges

Finance
- REDD+ finance not commensurate with actions and not focused on RBP
- REDD+ money: Mainly bilateral aid so far (japan, usa, Norway)
- Donors try to avoid forestry because many human right issues
- Shift more to funding results through REDD+ window in GCF, market based, Forest international facility between donors and beneficiary countries

Process
- REDD+ Heavy: Regulating mechanisms are more flexible. Ex.: Brazil FSC, RSPO, national/provincial policies and national Carbon market (ex.: Natura in Brazil buy credits)

Implementation
- Legitimacy: REDD+ finances sometimes public policies that have to be financed nationally
- Efficiency: few efficient on the ground or not better than other reducing deforestation means
- Credibility: measures often held by North NGOs and industrials

Benefit sharing
- Management by a national institution in Madagascar: > 50% of benefits for local communities
- Assess each location interests before distributing benefits (new goods, services not money)

Other REDD+ info

REDD+ next phase

Past success: total deforestation rates declined in 2010-15 compared to 2005-10 (Brazil contribution)

New phase needs to integrate Development goals:
- Biodiversity
- Local Communities
- Sustainable production (in developing countries) AND consumption (from developed countries)
- More info from satellite
- Private sector involvement

REDD+ Web information

- **REDD+ Web platform** compile SESA, R-PP, etc. Shared by 40 countries (not PNG, not Japan)
- **Lima REDD+ Information Hub**: REDD+ activity results and corresponding payments: country name, ER, FREL, Cancun safeguards, NS, NFMS, payments for each result (only Brazil so far)

Opportunity:
- Integrate development goals to any new Forestry concept notes
- PNG and Forest Authority shares activities relating REDD+ in the Web platform and Information hub
- Japan reports activities and studies funded by Japan in the REDD+ web platform (like other REDD+ donors do)

Other REDD+ info

Forests numbers

- Global forests = 4 billion ha of forests; 1 billion ha of tropical forests; permanent forest estate 55%
- Tropical deforestation: cut and terrace; cut and planting
- Forest importance: 1.6 billion of persons dependent on forest (medicine, fuel, food, etc.)
- LULUCF contributes to 25% of ER recorded in INDCs
- Agriculture (all forms) causes 80-90% of tropical deforestation (Martin Herold, Uni of Wagenningen)

Remote Sensing

European Space Agency initiative
Objective: securing long term continuity of Air observations
initiatives based on Sentinel 1 and 2: possible to detect logging activities (Bolivia, Vietnam) and Fires (Borneo)
invitation from ESA to a workshop in 2016 Feb on Sentinel potential. See Annex for the initiative website.

Remark: Global forest watch => Drain peat forest is more prone to fire

Opportunity:
- Participate to the ESA workshop on Sentinel potential
- Develop partnership directly with ESA or through GFA (German consulting firm) to improve knowledge on detection of logging and fire

Info Agriculture

Initiative 4 per 1000: supported by GCF in 7 countries inc. Vietnam and Colombia from 2016

Dissemination of practices bringing high C stocks in agro-ecosystems
- Agro-ecology (cover crops, conservation tillage) and Agroforestry
- Climate Smart Agriculture (CSA) and the new "Evergreen agriculture": trees into annual crop systems to carbonize soils/landscapes; Intensification to diminish slash-burn (ex.: Coffee, Cloves)

Agriculture potential => 80% of INDC include Agriculture, 100 countries state it as priority
- Mitigation: C sequestration in soils
- Adaptation: flood and drought management
- Food security

Agriculture in Climate text: C sequestrated in soils not accounted in GHGi. Soil carbon maps needed,
Need a mechanism to compensate loss of yields for farmers using new CSA techniques. Summary:

Levers	Reduce emissions	Absorb Carbon	In Climate texts
FOSSIL FUELS	Yes	No	Yes from beginning
FORESTS	Yes	Yes	Yes recently
AGRICULTURE	Possible	Yes	In discussion
OCEANS	No	Yes	Want to start discussion

Opportunity
- Propose Papua New Guinea as 4/1000 initiative country to increase data on C soil and DD drivers

Info Agriculture

Sustainable agribusinesses

Examples

- Sustainable Shrimp culture in Vietnam mangroves (Certification to reduce deforestation). Annex
- Cacao sustainable production (intensification shift from Corn slash and burn) and commercialization (premium commodities sold to expensive Chocolate company in Japan). JCM pilot project. Annex
- Soy moratorium in Brazil:
  - 1980-2005: Soy production in Amazon increased to feed chickens for fast food in Europe
  - 2005: Moratorium of no trade (no export) of soy produced in areas deforested after 2006
  - After 2006: Deforestation reduced -> Forest code changed -> No need no more the moratorium
  - Maybe leakage to Cerrado (but less forested lands so better than production in Amazon)
  - Voluntary deforestation-free supply chains should be extended (national & cattle, Palm)

Generalities

- Companies implied in zero deforestation are increasing. Governments increasingly support them
- Supply chain is not only producers and buyers but also wholesalers like supermarket chains
- No central compilation of commitments from companies, governments, etc.
- One NGO (representing the sector of Bioenergy) search for partners and active NGOs in PNG to help to reduce deforestation from commodities by developing local community benefits

Opportunity

- Build on SNV initiatives and studies to work with Palm sector in Papua New Guinea
- Promote Deforestation-free agriculture and mines through Moratorium
- Lead the NGO interested in working on Benefit sharing

Info Agriculture

Agroforestry

Agroforestry potential: Mitigation (reducing emissions from DD) and Adaptation by trees in:

- Watersheds
- Coastal zones
- Dry lands

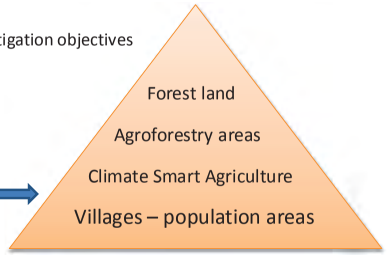
Trends in the relation between Climate Change and the LULUCF sector:

- Increase of adaptation benefits
- Increase of Bottom-up approaches
- Preservation of Biodiversity for both Adaptation and Mitigation objectives

Solutions from Agroforestry

- C capture and sequestration (= REDD+ Conservation)
- Reforestation (= C stocks enhancement)
- Ecosystem restoration (= sustainable management)

Mosaic landscape restoration →



Opportunity

- Promote role of PNG Forest Authority and Forestry (Mosaic) approach in country Adaptation proposals

Info Oceans

Oceans already in texts:

- SDG 14: conserve and sustainably use the oceans, seas, and marine resources for sustainable dvt
- UNFCCC Art 4.1.d: conservation of coastal, oceans, etc.

Declaration 'Because the Ocean': Nov 30 2015 (COP opening) by the Foundation Albert II of Monaco, signed by 22 countries (at the end of COP) including some Pacific countries urges to:

- Recognize the importance of Oceans in mitigation
- A special report from IPCC on Ocean and Climate. Declaration in Annex.

IUCN world commission on Protected Areas. Contacts in Annex.

- Objectives:
  - Increase Role of Marine Protected Areas in Climate Change Mitigation and Adaptation
  - Preservation of littoral ecosystems
- Activities: Knowledge rising; Planning; Management; Finance (Blue carbon); Capacity building (blue tools website based) is very important because only 20% of MPA are well managed; Governance (landscape and seascape); Communication; Alliance; Mainstream MPAs to UN conventions.

Opportunity

- Benefits for OCCD and PNG to sign the 'Declaration on Oceans': general interests for PNG + develop relations with the Monaco Foundation which is otherwise financing Biodiversity and REDD+ projects
- Develop relationship with the IUCN World Commission on Protected Areas from the JICA-PNGFA project but also the JICA-CEPA Biodiversity project

Compilation of opportunities for Papua New Guinea

1) **Key messages heard at COP 21**
2) **Collaboration with REDD+ countries**
3) **REDD+ funds**
4) **Adaptation funds**
5) **Other financial support**
6) **Agriculture opportunities**

Key messages heard at COP 21

Recommendations for enhancing Climate Change mitigation give emphasis to:

- Adaptation benefits from Mitigation (ex.: Forestry) policies
- Co-benefits for biodiversity and Ecosystemic services
- Involvement of Local communities and vulnerable groups (Young, Women, Indigenous)
- Jobs, local and national economy
- Deforestation free commercial agriculture (efforts from producers and buyers)
- Food security as priority
- Small scale farming techniques respecting Watersheds, Soils and Ecosystems
- Actions (project/programme), bottom led, and Real effects on Emission reduction
- Results Based Payments systems
- Monitoring Remote Sensing tools
- Monitoring efforts to better understand Fires, Forest degradation and deforestation 1-5ha

(1) Technical solutions developed by REDD+ Countries → Develop cooperative programmes to exchange on same technical issues in different contexts/regions

REDD+ Country experiences shared during COP 21	*Relevancy in Papua New Guinea*	*Opportunities for Papua New Guinea*

Forest Reference Emission Level development process

• Peats included in accounted Ecosystems (Indonesia)	• Peat lands represent a significant area under future threat	• Consider peats in Reference Level and Conservation
• Forest classes: adequate number and type of Forest classes (Indonesia, Brazil, Vietnam)	• Several Forest monitoring system use different classes	• Agree on definitional issues (on-going)

Works on Monitoring issues

• Deforestation < 6ha (Brazil)	• Small scale deforestation from agriculture is a main driver	Disseminate monitoring techniques For monitoring:
• Degradation (Brazil, Mexico)	• Logging is a main driver	• Small scale deforestation
• Fires (Indonesia, Brazil)	• Many human and El Nino induced Fires + detection issues	• Degradation • Fires

REDD+ Country experiences exchanged in COP 21	*Importance in Papua New Guinea*	*Opportunities for Papua New Guinea*

Policies development

• Highlands agriculture anti-deforestation regulation (Ethiopia)	• Main deforestation in Highlands provinces	• Regulate agriculture in PNG Highlands
• Low impact logging (Congo Rep)	• Low impact logging few spread out	• Disseminate Low impact logging
• Local communities involvement (Myanmar)	• Indigenous people groups numerous	• Include Indigenous people in Forest policies

Funds and advanced REDD+ programming

• Green Climate Fund application to finance Result Based Payments (Brazil)	• Needs to increase implementation and Results-based actions	• Develop Results Based Payments programmes
• Ecosystem based Adaptation concepts for Adaptation or Mix funds	• Needs to develop Adaptation capacities and actions	• Develop Adaptation programmes

(2) Climate Funds → Develop institutional arrangement and technical application to increase financial support in PNG

General information on the Funds	*Opportunities for Papua New Guinea*

European Union funds

• EU Joint Statement: Pledge of 5 billion USD over 5 next years (2015-20). United Kingdom, Germany, Norway	• Support Deforestation-free agribusiness initiatives in PNG
• REDD+ Early Movers: Norway for Results Based Payments	• Support development of the implementation Phase in PNG

Green Climate Fund

- Small grant for readiness (30 million USD): 13 approved /29 applicant countries
- 50 % of readiness support for Least Developed Countries, Small Island Developing States and African States

PNG Office of Climate Change and Development → **Nat. Designated Authority application** → GCF Secretariat

PNG Forest Authority → **Proposal for Readiness** → OCCD → GCF Secretariat

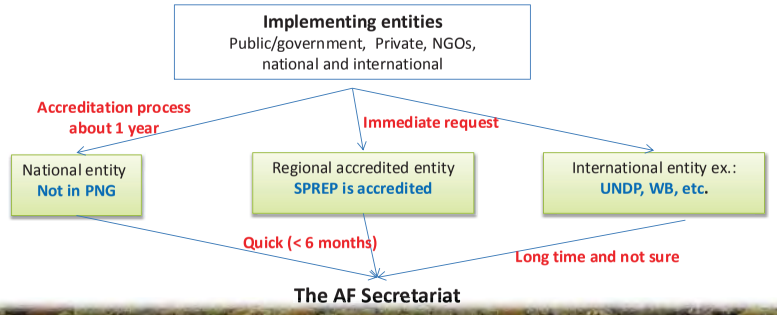
Proposal should include details of PNG-FA needs to elaborate a project: institutional and technical capacities, money for preparation studies, trainings, etc.

The UNFCCC Adaptation Fund

General information

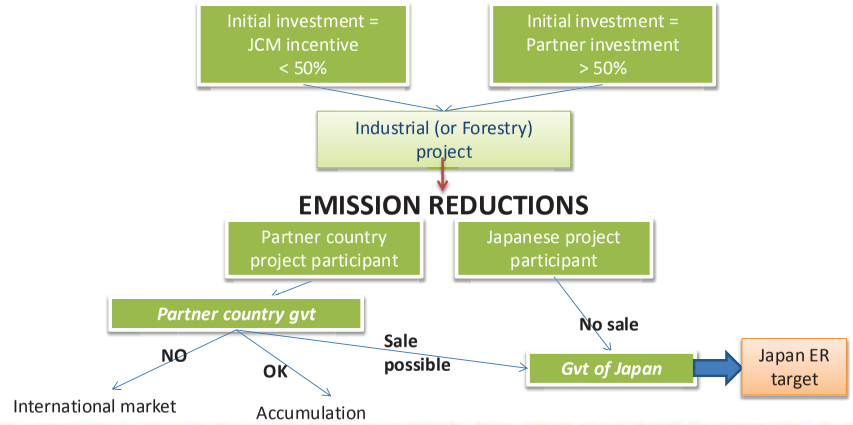
- UNFCCC Fund from CDM back incentives
- Budget: 0.8 to 10 million USD. Co-funding welcome
- Criteria: Agriculture (Agroforestry) / Farmers / Local communities. Not national capacity building

Opportunity for Papua New Guinea



Joint Crediting Mechanism (JCM)

- Proposal of a Feasibility study for a REDD+ project in Papua New Guinea
- See collaboration possibility from Min. of Environment funds with JICA current and future activities



(3) Info on Agriculture → **Extend Research cooperation to develop technical & financial support in PNG**

Agriculture in UNFCCC

Mitigation Levers	Reduce emissions	Absorb Carbon	In Climate texts
FOSSIL FUELS	Yes	No	Yes from beginning
FORESTS	Yes	Yes	Yes recently
AGRICULTURE	Possible	Yes	In discussion
OCEANS	No	Yes	Want to start discussion

Sustainable cropping systems

Dissemination of practices bringing high C stocks
- Agro-ecology; Agroforestry
- Climate Smart Agriculture; Evergreen agriculture

→ Propose PNG as 4/1000 initiative country to increase data on C soil and Deforestation drivers

Forest Mosaic approach: Forest land; Agroforestry area; Climate Smart crops; Villages – population areas → Promote role of PNG Forest Authority and Forestry (Mosaic) approach in country Adaptation proposals

Deforestation-free commercial agriculture

SNV programmes and studies, Brazil policies (Soy moratorium) → Promote Deforestation-free agriculture/mines policies in PNG

Annex

- COP 21 Dropbox link: https://www.dropbox.com/sh/p29g6hxxjpqvuq0/AAC53OC75dlfVTaDpClYKDnIa?dl=0
- JICA/PNG-Forest Authority project team presentations in COP 21: COP 21 Dropbox link
- Indonesia FREL and Policies, contact person: Ms Nurma Sripatin nurmasripatin@gmail.com
- Vietnam NFMS, FREL and policies: COP 21 Dropbox link
- Low impact logging techniques developed in Congo project: bouzgege@yahoo.fr
- Brazil National Strategy summary in English (not yet the full version in English): COP 21 Dropbox link
- Contact of the main staff in Brazil for REDD+: Leticia.guimaraes@mma.gov.br
- Mexico FREL submission: http://redd.unfccc.int/submissions.html?country=mex
- EU REDD+ Joint Statement: https://www.gov.uk/government/news/joint-statement-on-redd
- Green Climate Fund Readiness fund and Full proposal: www.gcfund.org
- Adaptation Fund Board Secretariat: : www.adaptation-fund.org
- Contact of the Communications officer: Matthew Pueschel: mpueschel@adaptation-fund.org
- JCM information on the GEC website: http://gec.jp/jcm/about/index.html
- Contact Pacific Climate Change Centre: https://www.sprep.org/climate-change/new-pacific-climate-change-centre-to-be-hosted-at-sprep
- Norwegian Carbon Fund: http://nefco.org/news/nefco_norwegian_carbon_funds_contract_four_sub_saharan_african_projects_0
- ESA Sentinel initiative website: https://scihub.copernicus.eu/
- SNV REDD+ Energy Agriculture Programme REAP: COP 21 Dropbox link
- Gorontaro project. Kanematsu, JCM. http://gec.jp/jcm/projects/15redd_ina_01.html
- Declaration on Ocean. COP 21 Dropbox link
- ALL COP 21 REPORTS: COP 21 Dropbox link
- Paris Agreement: http://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf