



Capacity Development on Forest Resource Monitoring for Addressing Climate Change in PNG, JICA/PNGFA
&
Grant Aid Programme of the Government of Japan supported by JICS, KKC Co. Ltd. and Toyota Tsusho Co. Ltd.



Development of PNG Forest Resource Information and Monitoring System

The Challenges of Vast Forest Land and Inaccessibility

**- Combined Approach of
Ground-Based Survey and Remote Sensing -**

28th November 2012

COP18/UNFCCC - Side Event Organized by FFPRI, Japan

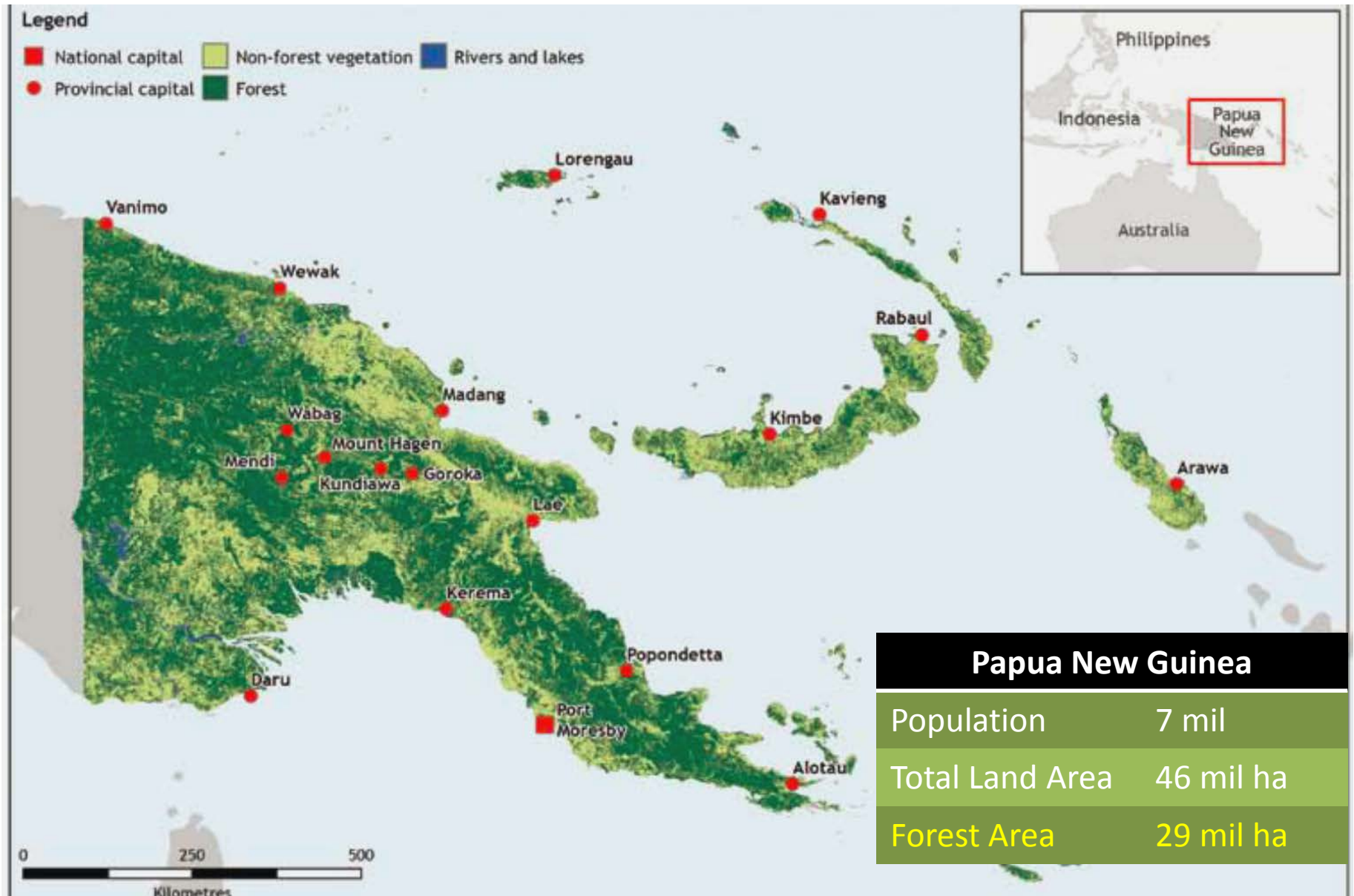
Gewa Gamoga, Constin Otto Bigol

JICA/PNG Forest Authority Project

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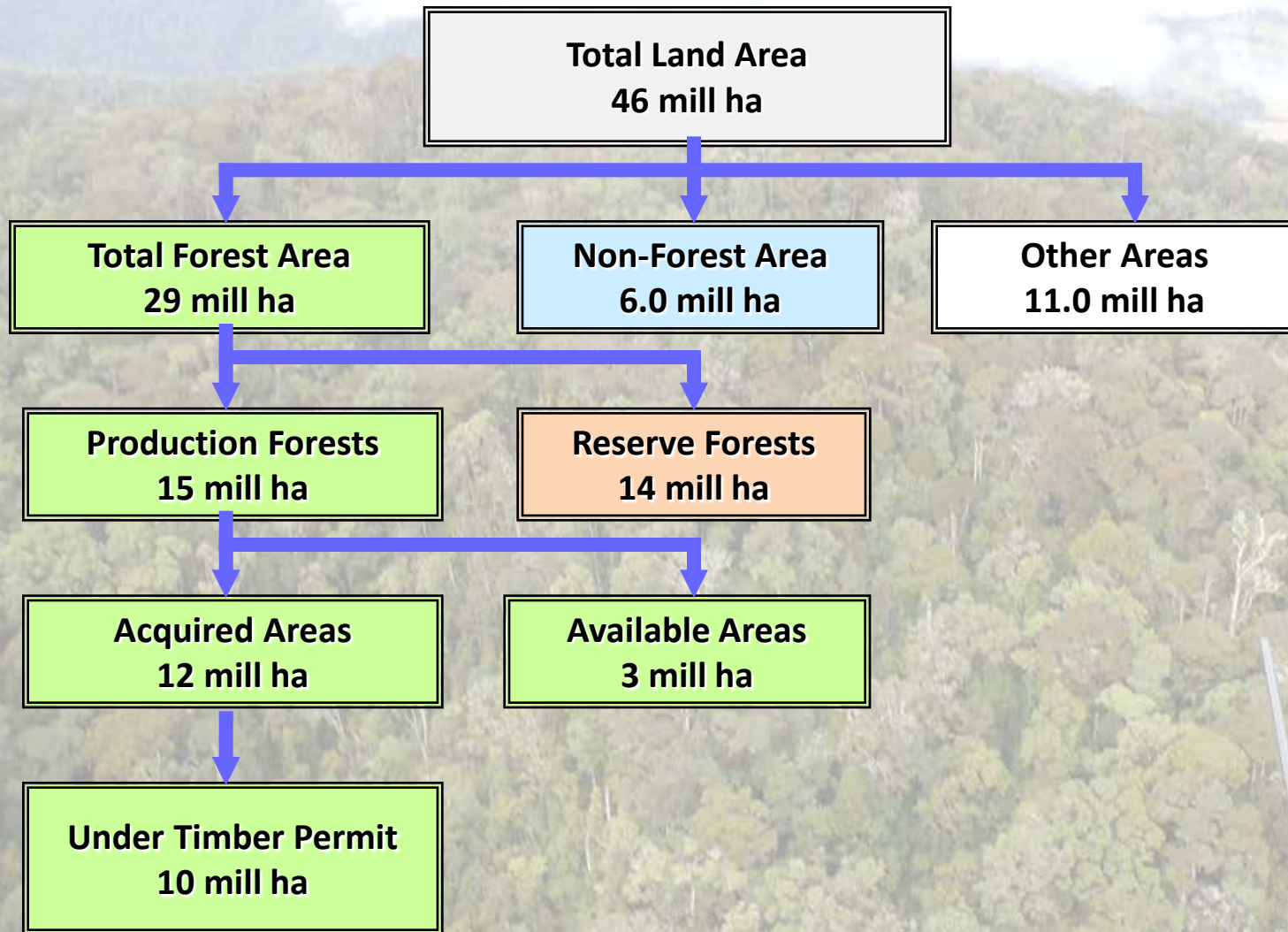
1. State of the Forest of Papua New Guinea
2. Commitment and Requirements
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4. What to be done by 2014
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6. GoPNG Policy Objectives to be met by Forest Monitoring System

1. State of the Forest of Papua New Guinea (1)



(source: PNGFA, CIFOR Snapshot of REDD+ in Papua New Guinea)

1. State of the Forest of Papua New Guinea (2)



2. Commitment and Requirements

- Approx. **95% of total PNG GHG emission** comes from LULUCF sector **relevant to REDD+**
- Consistent **commitment of PNG** on REDD+
- **PNGFA** (Forest Authority) is mandated to manage forest in PNG
- **JICA/PNGFA Technical Cooperation Project**
April 2011 – March 2014 (3 years)
- UNFCCC/IPCC GL compliant **MRV** required
 - **Transparency** (QC, QA, verifiable)
 - **Accuracy** (quantified uncertainty)
 - **Comprehensiveness** (coverage)
 - **Consistency** (time series)
 - **Comparability** (following guidance & guidelines)

3. 'As is' Situation and Challenges

As-Is (Current)

1. National level forest basemap is not developed since 1972
2. Forest GIS (FIMS: Forest Inventory and Mapping System) is not updated since 1996
3. Existing forest related data is not sufficient for carbon estimation

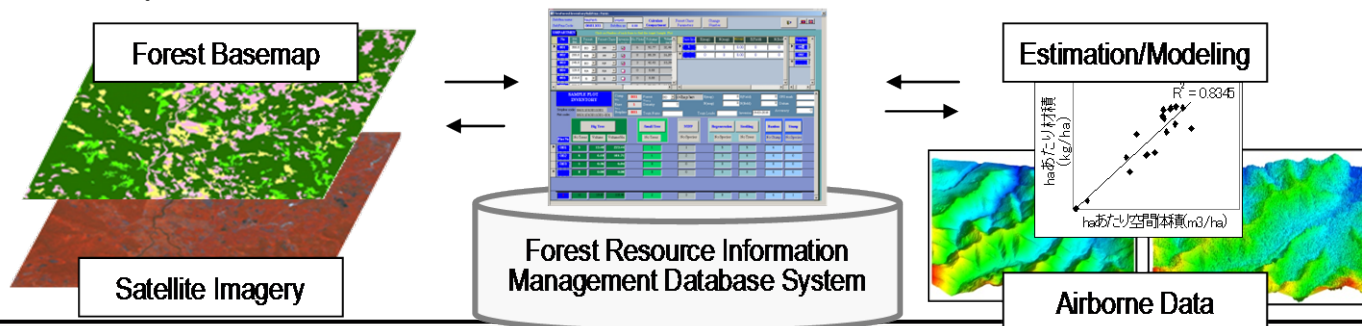


Problem

- Vast forest area, but no access road to do forest survey for whole country
- 97% of PNG land is customary land

To-Be (Goals)

1. National level forest resource **basemap** is developed and utilized
2. National level forest resource **GIS/Database** is developed and utilized
3. Biomass/**Carbon stock** is estimated

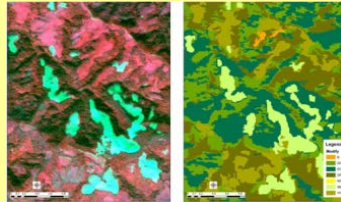


4. What to be done by 2014 (1)

High Frequency
Optical Satellite
(RapidEye)

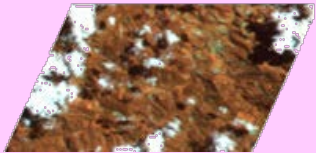


Benchmark MAP

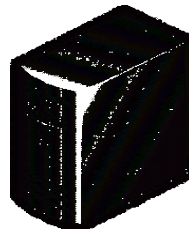
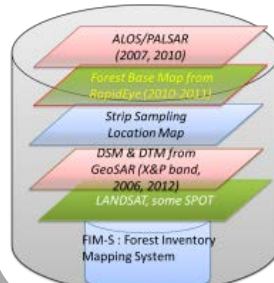


Forest BaseMap

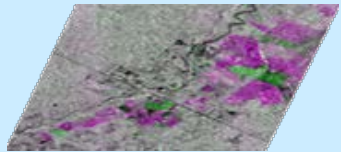
Historical Satellite
(LANDSAT/SPOT)



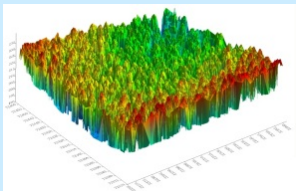
National Forest Resource
Information
Management Database



Multi-Temporal SAR
(PALSAR)



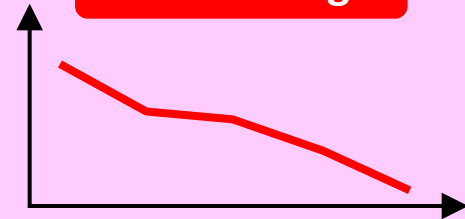
Airborne Data



Field Data

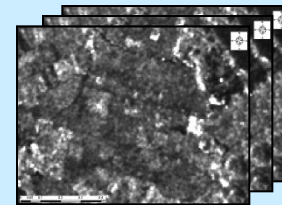


REL setting

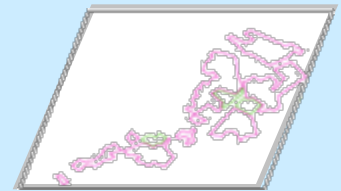


Monitoring for MRV

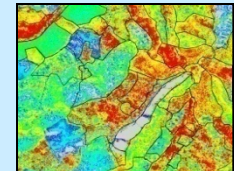
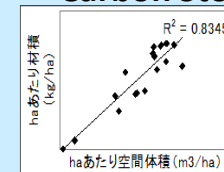
Temporal Monitoring



Change Detection

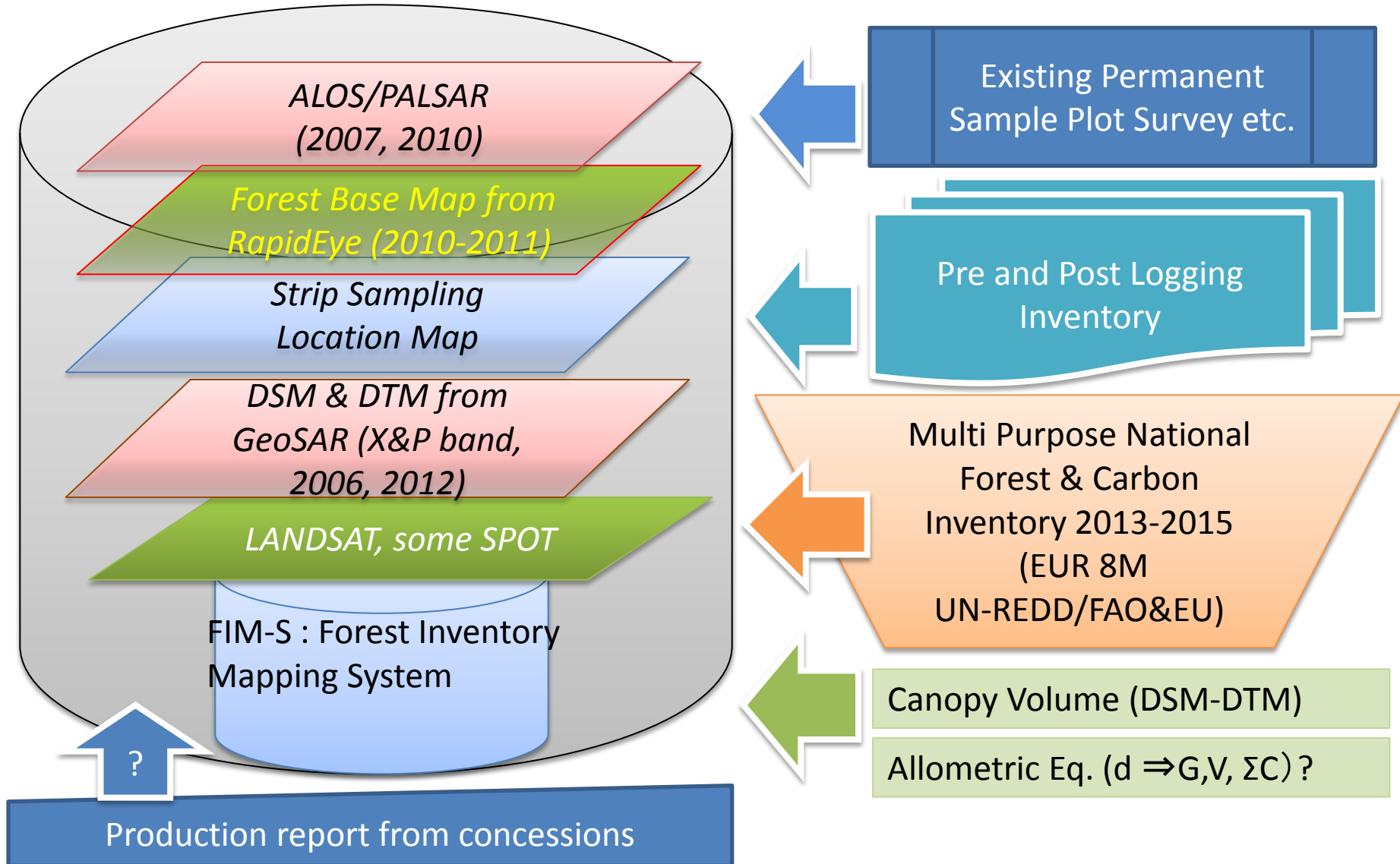


Carbon Stock Estimation



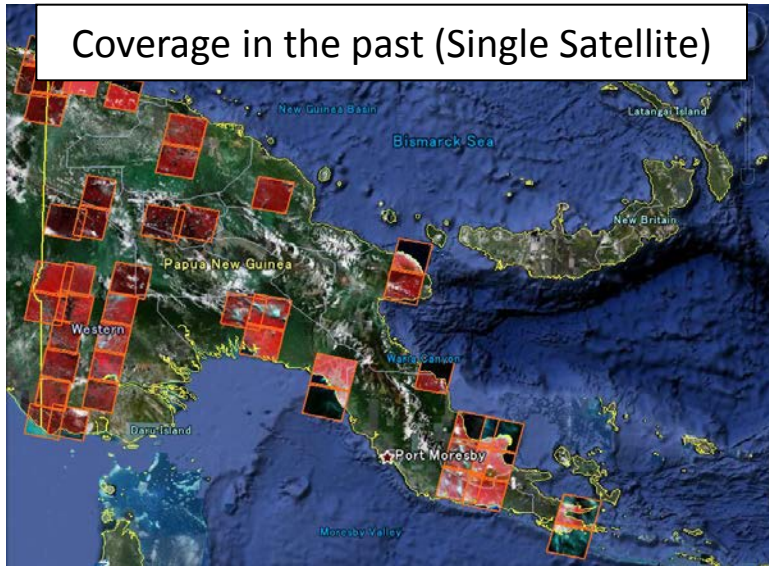
4. What to be done by 2014 (2)

National Forest Resource Information Management Database

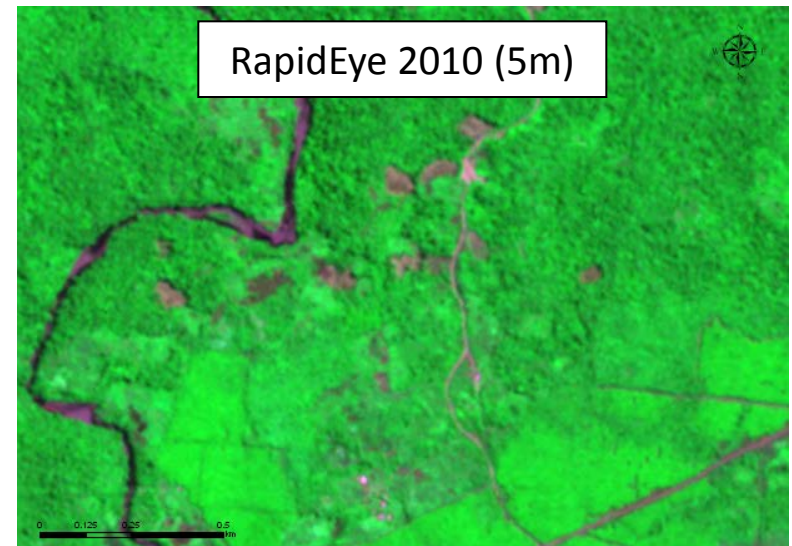
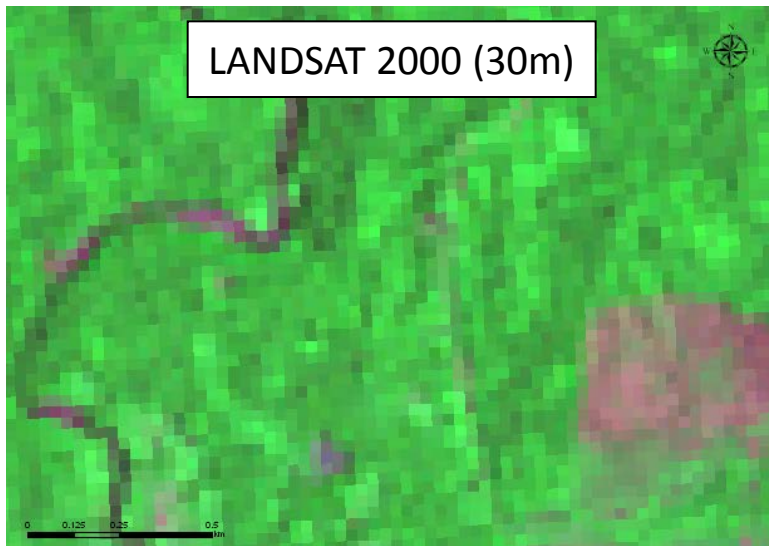
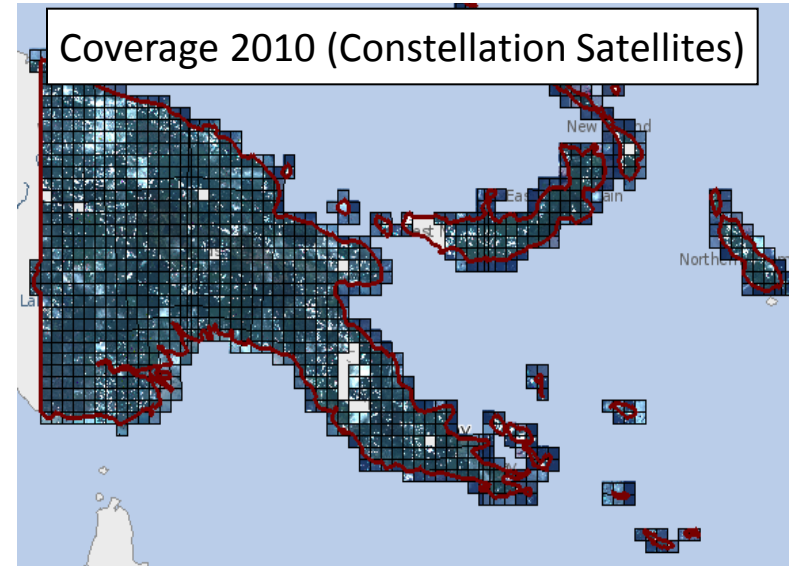


5. Works undertaken currently (1)

Previous Available Satellite Imagery



Newly Aquired Satellite Imagery

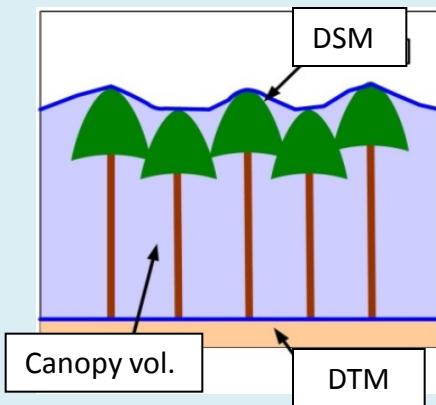


5. Works undertaken currently (2)

Canopy Volume

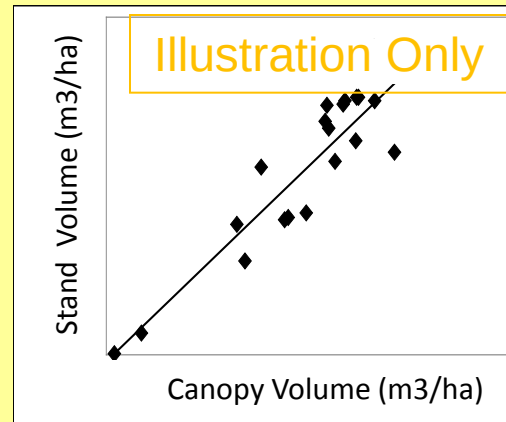
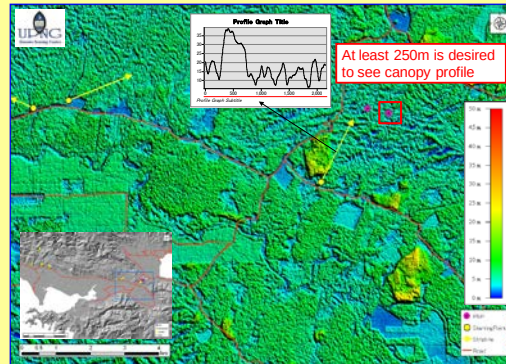


Airborne Survey Data
(GeoSAR & LiDAR)



$$\text{DSM} - \text{DTM} = \text{Canopy Vol.}$$

Correlation Analysis between Canopy Vol. and Stand Vol.



Carbon Stock Amount

Stand Volume



Field Survey



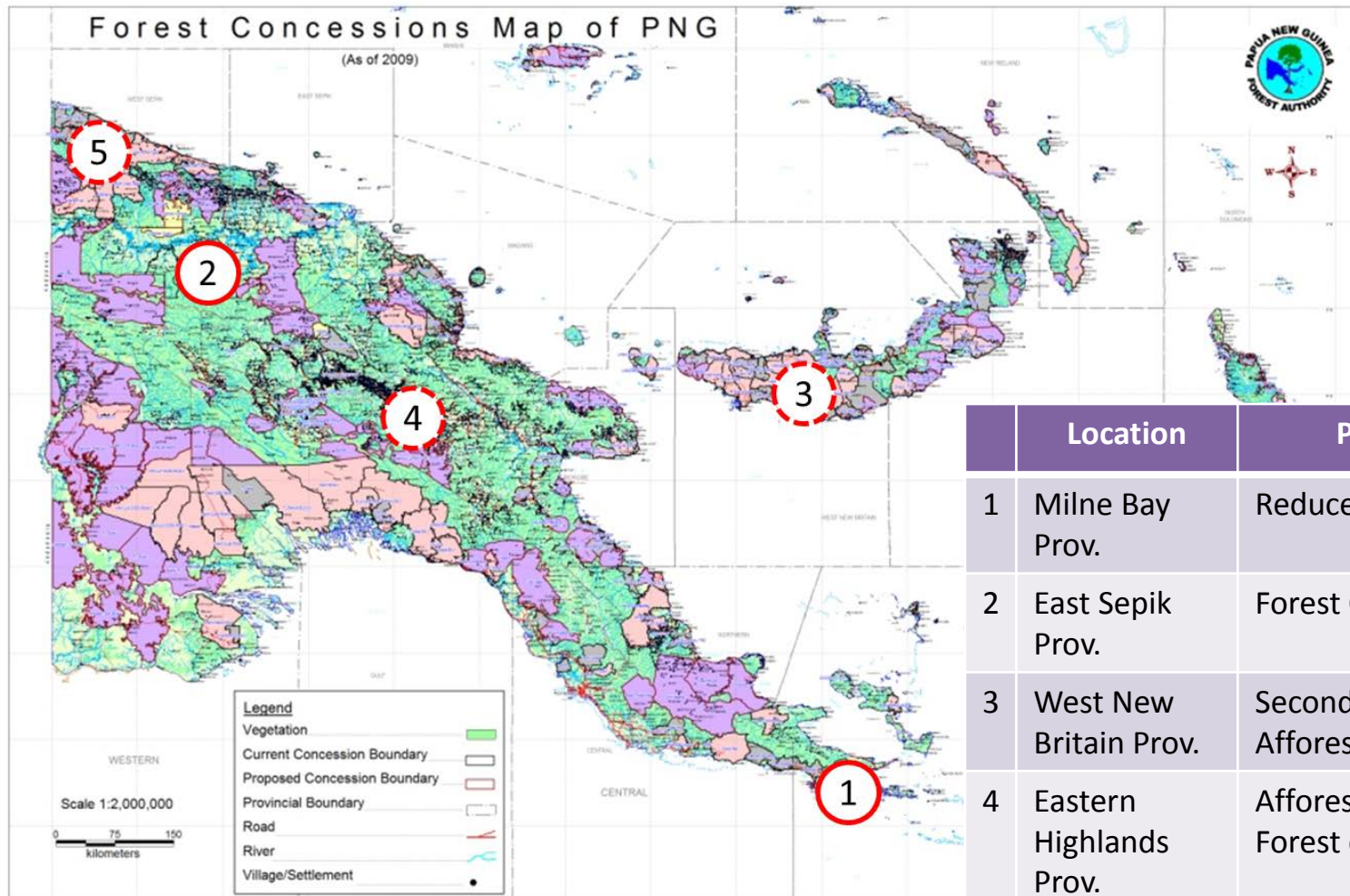
L shape plot design in consideration of GeoSAR

5. Works undertaken currently (3)



5. Works undertaken currently (4)

Forestry Concessions and Proposed REDD+ Pilots in PNG



	Location	Proposed Activities
1	Milne Bay Prov.	Reduced Impact Logging
2	East Sepik Prov.	Forest Conversion
3	West New Britain Prov.	Secondary Forest Management Afforestation / Reforestation
4	Eastern Highlands Prov.	Afforestation Forest conservation
5	West Sepik Prov.	Afforestation / Reforestation Forest Conservation

6. GoPNG Policy Objectives to be met by Forest Monitoring System

- Responsible contribution to PNG REDD+ MRV system
- Vital information for promoting Sustainable Forest Management (to meet needs of people and communities) including
 - improved forest governance
 - conservation of biodiversity in forest
 - land and water conservation



Thank you for
your attention!

