

# **46<sup>TH</sup> GEPI-3 ANNUAL REGIONAL CONVENTION**

**Subic Bay Peninsular Hotel, Burgos Corner, Canal Road, Subic Bay Freeport  
Zone  
February 14-15, 2020**

# **Delineation of Potential Investment Areas (PIAs) within Production Forests**

# OUTLINE OF PRESENTATION

- I. Definition of Terms
- II. Legal Basis
- III. Importance
- IV. Outputs and Activities
- V. Sample Outputs/Deliverables
- VI. Universe Data of PIAs in Region III
- VII. Gallery of Activities

## Definition of Terms

### **Delineation**

- refers to the actual ground survey of the boundaries of production forests for investments and protected areas and their buffer and management zones using handheld Global Positioning System (GPS) or other applicable Surveying instruments/technologies with the intention to come up with a map of the area
- involves the conduct of site investigation, field reconnaissance and assessment on forest boundaries in the field

## **Definition of Terms (cont.)**

### **Demarcation**

-the establishment of the boundaries of a national park or legislated protected area by installing visible markers/monuments, buoys in case of marine areas, and known natural features/landmarks, among others, as a result of actual ground delineation using precise surveying instruments

## Definition of Terms (cont.)

### Production Forest

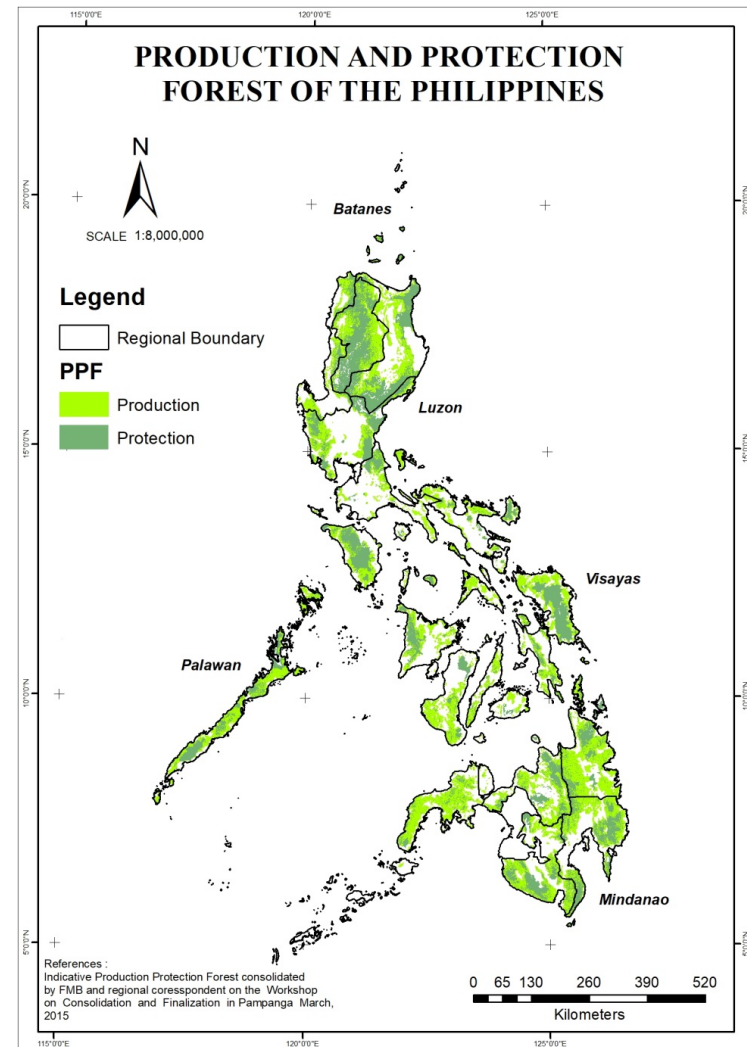
- forest lands that can be made available for timber and agro-forestry production, range lands for grazing, and other forest lands special uses such as ecotourism
  
- forest lands that are below 50% in slope and less than 1000 meters in elevation, this includes natural man-made forests

## Definition of Terms (cont.)

### Protection Forest

- areas that are above 50% in slope and more than 1000m in elevation. It includes the critical watersheds, mossy forest, strips of specified width bordering rivers, streams, shoreline and reservoir, and steep, rocky areas and other naturally unproductive lands.
- refers to identified portions of the land and water set aside by reason of their unique physical and biological significance, managed to enhance biological diversity and protected against human exploitation.

# Production and Protection Forest of the Philippines





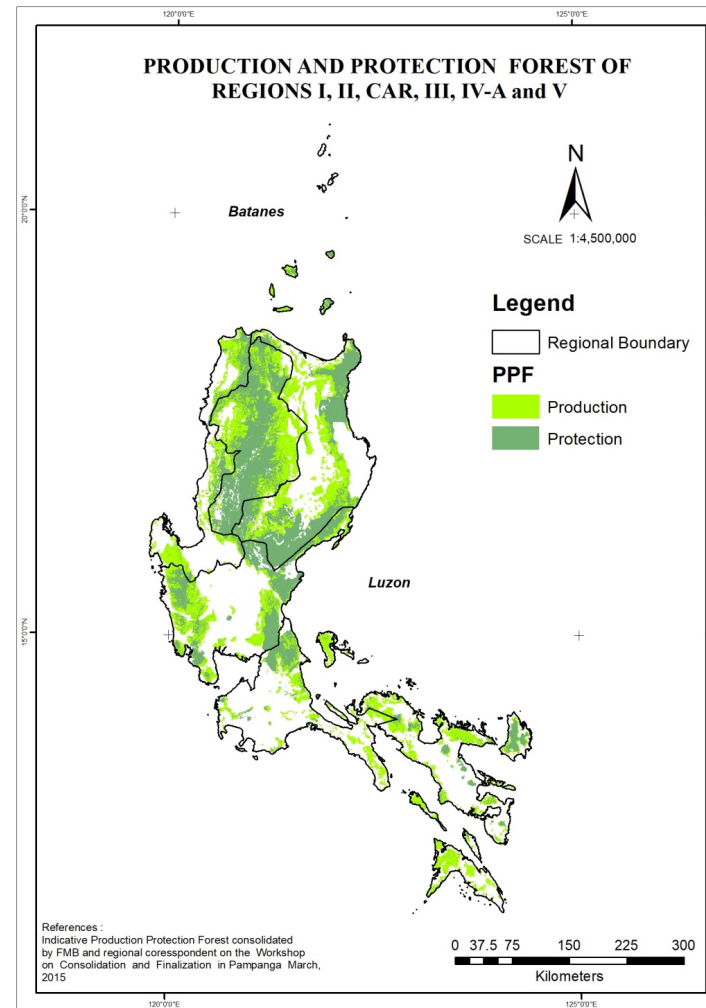


| Region - Province     | Production Forest   | Protection Forest   | Total                |
|-----------------------|---------------------|---------------------|----------------------|
| <b>National Total</b> | <b>7,329,858.44</b> | <b>6,924,296.72</b> | <b>14,254,155.16</b> |
| CAR                   | 503,489.34          | 1,003,414.56        | 1,506,903.89         |
| Region I              | 263,595.88          | 220,344.56          | 483,940.44           |
| Region II             | 551,382.05          | 810,380.04          | 1,361,762.09         |
| Region III            | 414,895.41          | 595,550.66          | 1,010,446.06         |
| Region IV-A           | 237,399.13          | 172,606.90          | 410,006.03           |
| Region IV-B           | 850,953.89          | 897,915.56          | 1,748,869.45         |
| Region V              | 376,604.07          | 160,442.57          | 537,046.64           |
| Region VI             | 361,005.91          | 311,090.56          | 672,096.47           |
| Region VII            | 350,914.77          | 137,243.74          | 488,158.50           |
| Region VIII           | 418,420.70          | 612,675.26          | 1,031,095.96         |
| Region IX             | 626,173.17          | 172,912.59          | 799,085.76           |
| Region X              | 424,613.25          | 372,599.37          | 797,212.62           |
| Region XI             | 535,065.62          | 550,681.14          | 1,085,746.76         |
| Region XII            | 559,655.89          | 490,408.03          | 1,050,063.93         |
| Region XIII           | 855,689.37          | 416,031.18          | 1,271,720.55         |

Table showing the area in Hectares of Production and Protection Forest of Region 1-13, CAR, not including ARMM and Legislated PAs

References: Forest Management Bureau

| Region - Province  | Production Forest (Ha) | Protection Forest (Ha) | Total               |
|--------------------|------------------------|------------------------|---------------------|
| <b>REGION I</b>    | <b>263,595.88</b>      | <b>220,344.56</b>      | <b>483,940.44</b>   |
| Ilocos Norte       | 91,896.58              | 100,084.21             | 191,980.79          |
| Ilocos Sur         | 48,292.75              | 69,741.54              | 118,034.29          |
| La Union           | 20,592.69              | 13,712.33              | 34,305.02           |
| Pangasinan         | 102,813.86             | 36,806.48              | 139,620.34          |
| <b>REGION II</b>   | <b>551,382.05</b>      | <b>810,380.04</b>      | <b>1,361,762.09</b> |
| Cagayan            | 207,445.49             | 302,054.75             | 509,500.24          |
| Isabela            | 231,040.08             | 81,219.04              | 312,259.12          |
| Nueva Vizcaya      | 84,239.10              | 221,731.04             | 305,970.14          |
| Quirino            | 28,657.38              | 205,375.21             | 234,032.59          |
| <b>CAR</b>         | <b>503,489.34</b>      | <b>1,003,414.56</b>    | <b>1,506,903.89</b> |
| Abra               | 130,442.33             | 161,715.40             | 292,157.73          |
| Apayao             | 122,547.48             | 243,566.86             | 366,114.35          |
| Benguet            | 10,205.84              | 203,280.73             | 213,486.57          |
| Ifugao             | 83,177.00              | 133,935.42             | 217,112.41          |
| Kalinga            | 97,691.47              | 117,718.05             | 215,409.52          |
| Mt. Province       | 59,425.22              | 143,198.09             | 202,623.31          |
| <b>REGION III</b>  | <b>414,895.41</b>      | <b>595,550.66</b>      | <b>1,010,446.06</b> |
| Aurora             | 56,265.03              | 191,522.40             | 247,787.43          |
| Bataan             | 24,214.78              | 35,273.69              | 59,488.47           |
| Bulacan            | 50,080.70              | 68,596.89              | 118,677.59          |
| Nueva Ecija        | 60,129.70              | 137,324.79             | 197,454.49          |
| Pampanga           | 34,452.58              | 15,072.33              | 49,524.92           |
| Tarlac             | 60,223.96              | 30,885.62              | 91,109.58           |
| Zambales           | 129,528.66             | 116,874.93             | 246,403.58          |
| <b>REGION IV-A</b> | <b>237,399.13</b>      | <b>172,606.90</b>      | <b>410,006.03</b>   |
| Batangas           | 19,964.33              | 12,313.92              | 32,278.25           |
| Cavite             | 4,473.35               | 5,649.26               | 10,122.61           |
| Laguna             | 20,166.40              | 5,233.88               | 25,400.28           |
| Quezon             | 180,691.36             | 107,079.15             | 287,770.51          |
| Rizal              | 12,103.69              | 42,330.69              | 54,434.38           |
| <b>REGION V</b>    | <b>376,604.07</b>      | <b>160,442.57</b>      | <b>537,046.64</b>   |
| Albay              | 20,864.21              | 16,573.22              | 37,437.43           |
| Camarines Norte    | 60,937.22              | 23,917.78              | 84,855.00           |
| Camarines Sur      | 121,480.96             | 39,407.85              | 160,888.81          |
| Catanduanes        | 14,167.86              | 55,351.41              | 69,519.27           |
| Masbate            | 132,613.48             | 13,624.79              | 146,238.27          |
| Sorsogon           | 26,540.34              | 11,567.52              | 38,107.86           |
| <b>SUB TOTAL</b>   | <b>2,347,365.88</b>    | <b>2,962,739.29</b>    | <b>5,310,105.17</b> |

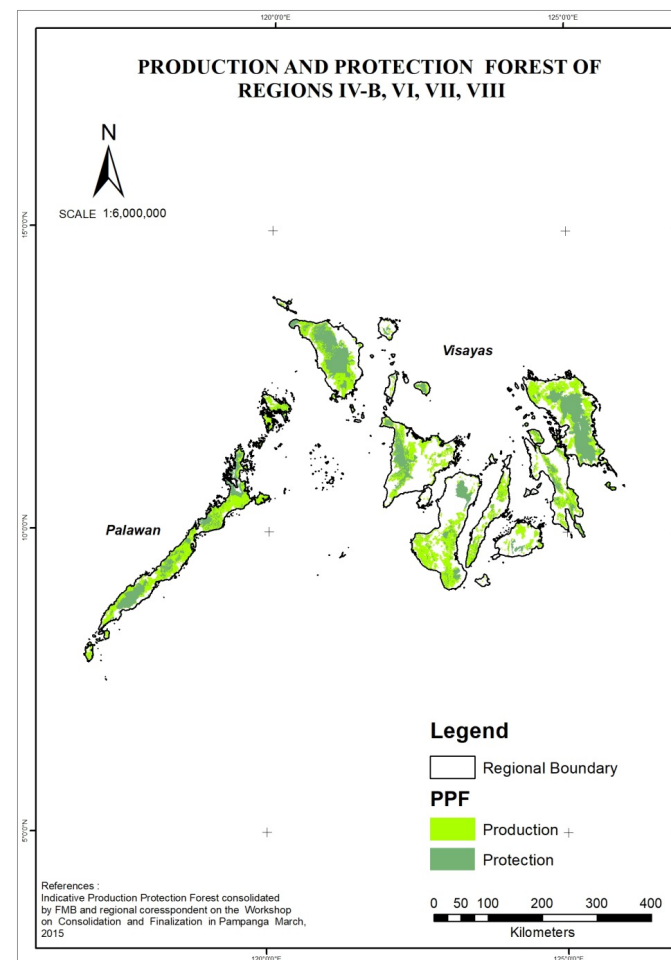


References: Forest Management Bureau

| Region - Province  | Production Forest (Ha) | Protection Forest (Ha) | Total               |
|--------------------|------------------------|------------------------|---------------------|
| <b>REGION IV-B</b> | <b>850,953.89</b>      | <b>897,915.56</b>      | <b>1,748,869.45</b> |
| Marinduque         | 5,266.18               | 13,147.19              | 18,413.37           |
| Mindoro Occidental | 158,302.41             | 339,427.90             | 497,730.31          |
| Mindoro Oriental   | 61,637.66              | 80,943.52              | 142,581.18          |
| Palawan            | 612,541.23             | 443,096.62             | 1,055,637.85        |
| Romblon            | 13,206.41              | 21,300.33              | 34,506.74           |
| <b>REGION VI</b>   | <b>361,005.91</b>      | <b>311,090.56</b>      | <b>672,096.47</b>   |
| Aklan              | 38,691.62              | 42,217.80              | 80,909.42           |
| Antique            | 39,699.55              | 90,444.18              | 130,143.73          |
| Capiz              | 76,367.59              | 34,366.11              | 110,733.70          |
| Guimaras           | 4,476.93               | 1,088.80               | 5,565.73            |
| Iloilo             | 69,740.61              | 42,340.07              | 112,080.68          |
| Negros Occidental  | 132,029.60             | 100,633.60             | 232,663.20          |
| <b>REGION VII</b>  | <b>350,914.77</b>      | <b>137,243.74</b>      | <b>488,158.50</b>   |
| Bohol              | 54,151.31              | 37,934.61              | 92,085.92           |
| Cebu               | 105,348.00             | 42,199.03              | 147,547.04          |
| Siquijor           | 1,037.91               | 140.70                 | 1,178.61            |
| Negros Oriental    | 190,377.55             | 56,969.39              | 247,346.94          |
| <b>REGION VIII</b> | <b>418,420.70</b>      | <b>612,675.26</b>      | <b>1,031,095.96</b> |
| Biliran            | 14,480.33              | 11,697.71              | 26,178.04           |
| Eastern Samar      | 72,090.41              | 211,560.79             | 283,651.20          |
| Leyte              | 85,612.63              | 76,178.81              | 161,791.44          |
| Northern Samar     | 116,265.40             | 51,275.81              | 167,541.21          |
| Samar              | 90,352.85              | 234,362.65             | 324,715.50          |
| Southern Leyte     | 39,619.09              | 27,599.48              | 67,218.56           |
| <b>SUB TOTAL</b>   | <b>1,981,295.27</b>    | <b>1,958,925.12</b>    | <b>3,940,220.39</b> |



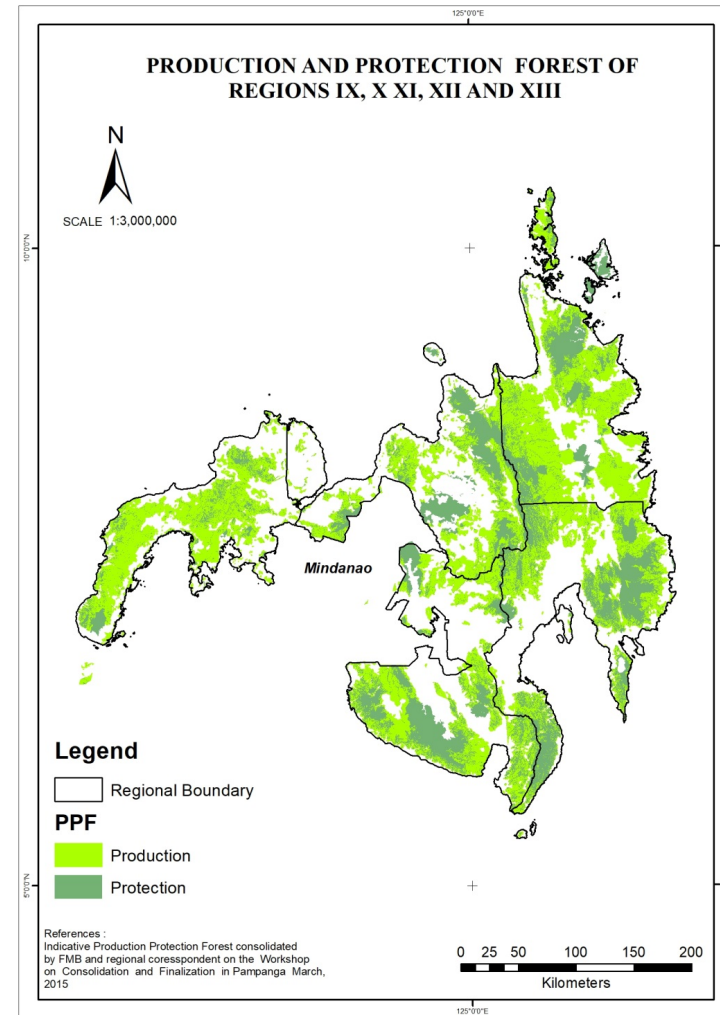
References: Forest Management Bureau





| Region - Province   | Production Forest (Ha) | Protection Forest (Ha) | Total               |
|---------------------|------------------------|------------------------|---------------------|
| <b>REGION IX</b>    | <b>626,173.17</b>      | <b>172,912.59</b>      | <b>799,085.76</b>   |
| Isabela City        | 5,970.53               | 556.94                 | 6,527.47            |
| Zamboanga City      | 47,625.45              | 33,119.15              | 80,744.60           |
| Zamboanga Del Norte | 299,248.07             | 72,899.55              | 372,147.61          |
| Zamboanga Del Sur   | 144,233.47             | 40,581.53              | 184,815.00          |
| Zamboanga Sibugay   | 129,095.65             | 25,755.42              | 154,851.06          |
| <b>REGION X</b>     | <b>424,613.25</b>      | <b>372,599.37</b>      | <b>797,212.62</b>   |
| Bukidnon            | 246,712.36             | 236,882.18             | 483,594.55          |
| Camiguin            | 410.69                 | 5,016.59               | 5,427.28            |
| Lanao Del Norte     | 85,717.11              | 44,591.42              | 130,308.53          |
| Misamis Occidental  | 11,078.49              | 3,833.51               | 14,912.00           |
| Misamis Oriental    | 80,694.59              | 82,275.67              | 162,970.26          |
| <b>REGION XI</b>    | <b>535,065.62</b>      | <b>550,681.14</b>      | <b>1,085,746.76</b> |
| Compostela Valley   | 147,293.51             | 117,386.93             | 264,680.44          |
| Davao Del Norte     | 74,777.93              | 61,165.56              | 135,943.48          |
| Davao Del Sur       | 144,160.45             | 172,221.55             | 316,381.99          |
| Davao Oriental      | 168,833.73             | 199,907.11             | 368,740.85          |
| <b>REGION XII</b>   | <b>559,655.89</b>      | <b>490,408.03</b>      | <b>1,050,063.93</b> |
| North Cotabato      | 149,404.93             | 86,316.38              | 235,721.31          |
| Sarangani           | 157,980.69             | 119,310.87             | 277,291.56          |
| South Cotabato      | 93,288.96              | 155,978.27             | 249,267.23          |
| Sultan Kudarat      | 158,981.32             | 128,802.51             | 287,783.83          |
| <b>REGION XIII</b>  | <b>855,689.37</b>      | <b>416,031.18</b>      | <b>1,271,720.55</b> |
| Agusan Del Norte    | 116,750.83             | 75,966.31              | 192,717.14          |
| Agusan Del Sur      | 392,726.22             | 174,569.84             | 567,296.07          |
| Dinagat Islands     | 45,983.46              | 16,641.31              | 62,624.78           |
| Surigao Del Norte   | 41,009.76              | 64,840.69              | 105,850.45          |
| Surigao Del Sur     | 259,219.09             | 84,013.02              | 343,232.11          |
| <b>SUB TOTAL</b>    | <b>3,001,197.30</b>    | <b>2,002,632.31</b>    | <b>5,003,829.61</b> |

References: Forest Management Bureau





# Importance

-the ground delineation of production forests determines the metes and bounds of forest lands suited for production purposes



## EXPECTED OUTPUTS

The boundary of production forest lands targeted for forestry investments shall be delineated on the ground using stakes (i.e. blue PVC tubes filled with concrete). For every one (1) kilometer, four (4) blue stakes at 250 meters interval shall be established as shown in Figure 1. All boundary corners shall also be marked with stakes.

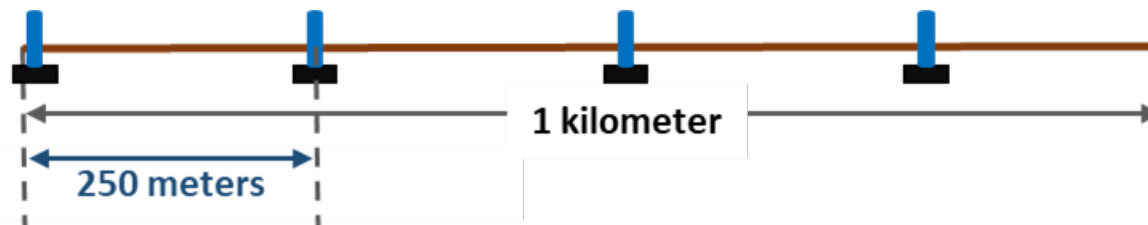
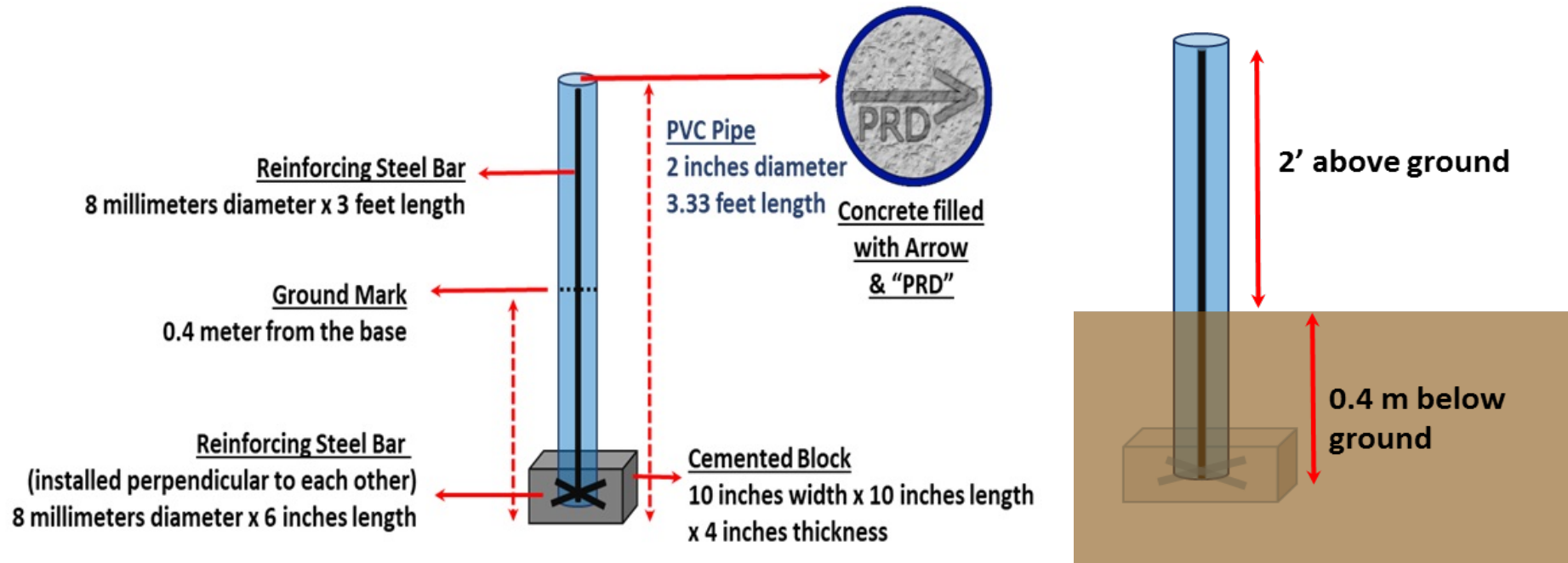


Figure 1. Layout of the Delineated Production Forest Line



# Fabrication of Stakes







Department of Environment and Natural Resources  
Date & Time: Oct 27, 2019 08:58 AM  
Latitude: 15.570080  
Longitude: 121.203913  
Accuracy: 2.10







Department of Environment and Natural Resources  
Date & Time: Oct 27, 2019 09:53 AM  
Latitude: 15.570048  
Longitude: 121.203868  
Accuracy: 4.00





## ACTIVITIES AND OUTPUTS OF PRODUCTION FOREST DELINEATION

| Activity         | Description   | Output/s   |
|------------------|---|--|
| Pre-planning     | Creation of delineation team and preparation of data requirements | <ul style="list-style-type: none"><li>• Special Order of delineation teams</li><li>• Updated shapefiles and data</li></ul> |
| Mapping Analysis | Data analysis through GIS overlay                                 | <ul style="list-style-type: none"><li>• Proposed map of production forests for investments</li></ul>                       |



| Activity                                 | Description   | Output/s  |
|--|---|---|
| Site Assessment<br>Ground<br>Delineation | Assessment of<br>proposed production<br>forests for investment<br>and installation of<br>stakes on the ground | <ul style="list-style-type: none"> <li>• Orientation of Stakeholders</li> <li>• Final production forests for investments</li> <li>• Installed concrete markers with marked waypoints and geotagged photos.</li> <li>• Duly accomplished “<i>Production Forest Field Delineation</i>” form.</li> </ul> |
| Report<br>Submission                     | Reports prepared,<br>approved and<br>submitted.   | <ul style="list-style-type: none"> <li>• “<i>Quarterly Progress Report</i>” approved by the Regional Director</li> <li>• “<i>Final Provincial Report</i>” approved by the Regional Director</li> </ul>  |



# Field Observation Form (Page 1)

| PRODUCTION FOREST DELINEATION FIELD OBSERVATION FORM |                           |                |                           |               |                           |
|--|---------------------------|----------------|---------------------------|---------------|---------------------------|
| Team No.   |                           | Region         |                           |               |                           |
| Delineation Date                                     |                           | Province       |                           |               |                           |
| Total Kilometers                                     |                           | CENRO          |                           |               |                           |
| Total Monuments                                      |                           | Municipality   |                           |               |                           |
| Area (Hectares)                                      |                           | Barangay       |                           |               |                           |
| Name   | Role                      | Office         | Position/<br>Designation  | Signature     |                           |
|  |                           |                |                           |               |                           |
|  |                           |                |                           |               |                           |
|  |                           |                |                           |               |                           |
|  |                           |                |                           |               |                           |
|  |                           |                |                           |               |                           |
|  |                           |                |                           |               |                           |
|  |                           |                |                           |               |                           |
|  |                           |                |                           |               |                           |
|  |                           |                |                           |               |                           |
| Land Cover   | Total No. of<br>Monuments | Land Cover     | Total No. of<br>Monuments | Land Cover    | Total No. of<br>Monuments |
| Closed Forest  |                           | Shrubs/Brush   |                           | Built-up Area |                           |
| Open Forest  |                           | Grassland      |                           | Open/Barren   |                           |
| Mangrove Forest                                      |                           | Perennial Crop |                           | Fishpond      |                           |
|  |                           | Annual Crop    |                           | Marshland     |                           |

**General Observations:**

ATTESTED BY: \_\_\_\_\_ Page \_\_\_\_ of \_\_\_\_

Team Leader



# Field Observation Form (Page 2)

| PRODUCTION FOREST DELINEATION FIELD OBSERVATION FORM |              |          |         |                    |         |
|--|--------------|----------|---------|--------------------|---------|
| Kilometer No.  | Monument No. | Northing | Easting | Existing Landcover | Remarks |
| KM 1   | M1           |          |         | Shrub              | Corner  |
| KM 1   | M2           |          |         | Shrub              |         |
| KM 1   | M3           |          |         | Shrub              | Corner  |
| KM 1   | M4           |          |         | Shrub              |         |
| KM 2   | M5           |          |         | Shrub              | Corner  |
| KM 2   | M6           |          |         | Grassland          |         |
| KM 2   | M7           |          |         | Grassland          |         |
| KM 2   | M8           |          |         | Grassland          | Corner  |
| KM 3   | M9           |          |         | Open/Barren        |         |

|  |  |  |                   |  |  |
|--|--|--|-------------------|--|--|
|  |  |  |                   |  |  |
|  |  |  |                   |  |  |
|  |  |  |                   |  |  |
| Notes:   |  |  |                   |  |  |
| Datum: WGS84; Projected Coordinate System: Universal Transverse Mercator 50N/51N/52N (whichever is applicable)   |  |  |                   |  |  |
| Use additional sheet if necessary.   |  |  |                   |  |  |
| Landcover Classes: Closed Forest , Open Forest, Mangrove Forest, Brush/Shrubs, Grassland, Perennial Crop, Annual Crop, Built-up Area, Open Barren, Fishpond, Inland Water, Marshland/Swampland |  |  |                   |  |  |
| ATTESTED BY: _____   |  |  | Page ____ of ____ |  |  |
|  |  |  | Team Leader       |  |  |





# Field Observation Form (Page 3)

| PRODUCTION FOREST DELINEATION FIELD OBSERVATION FORM  |  |
|---|--|
| Sketch Map  |  |
| <p>Sample sketch map</p> <p>Shrub</p> <p>Grassland</p> <p>Open/Barren</p> <p>Shrub</p> <p>Grassland</p> <p>KM1-M1</p> |  |

Notes:

Include other observations in the sketch map such as existing land cover. Use broken lines to show the boundaries between different land cover types

Label the first stake. Place an arrow pointing to the next stake.

ATTESTED BY:

\_\_\_\_\_ Team Leader

Page \_\_\_ of \_\_\_



## Universe Data of PIAs in Region III

| PROVINCE     | UNIVERSE (KM)  | ACCOMP. 2019 | BASELINE       |
|--------------|----------------|--------------|----------------|
| AURORA       | 480.32         | 0            | 480.32         |
| BATAAN       | 317.36         | 100          | 217.36         |
| BULACAN      | 211.09         | 150          | 61.09          |
| NUEVA ECIJA  | 316.49         | 272          | 44.49          |
| PAMPANGA     | 183.05         | 0            | 183.05         |
| TARLAC       | 556.16         | 450          | 106.16         |
| ZAMBALES     | 1119.16        | 528          | 591.16         |
| <b>TOTAL</b> | <b>3183.63</b> | <b>1500</b>  | <b>1683.63</b> |



Republic of the Philippines  
**DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES**  
 Region III, Diosdado Macapagal Government Center  
 Maimpis, City of San Fernando, Pampanga

REGIONAL SPECIAL ORDER  
 NO. 2019 - 256

19 AUG 2019

**SUBJECT: REORGANIZATION OF TEAMS TO CONDUCT GROUND  
 DELINEATION OF PRODUCTION FORESTS FOR INVESTMENTS**

In the interest of the service and in order to facilitate the conduct of ground delineation of Production Forests for Investments in the Region pursuant to Technical Bulletin No. 5-A (Guidelines in the Ground Delineation of Production Forests for Investments) included in the National Expenditure Program for FY 2019 and targets set under the Philippine Development Plan 2017-2022, Delineation Teams created under RSO No. 2019-110 dated 16 April 2019 are hereby reorganized, to wit:

Engr. Juan P. Fernandez, Jr. - Over-all Project Overseer  
 Engr. Edilbert S. Singian - Asst. Over-all Project Overseer/  
 Regional Focal Person for Delineation

**DELINEATION TEAMS**

**TEAM 1**

Rhony dela Cruz - Team Leader  
 Jebert Sabado - Member  
 Don Christian Puntilar - Member

**TEAM 2**

Romeo I. Lacson - Team Leader  
 Reynaldo Calma - Member  
 Hester Sumalet - Member  
 William M. Acosta - Member

**TEAM 3**

Leonides T. Cezar - Team Leader  
 Marvin Lorenzo. - Member  
 Jose B. Pasion - Member  
 Roberto Unay, Jr. - Member

**TEAM 4**

Emmanuel Penson, Jr - Team Leader  
 Jaime Cardinoza - Member  
 Robert Prado - Member  
 Benhur Lorenzo - Member

**TEAM 5**

Joel Galamgam - Team Leader  
 Jose Bacotod - Member  
 Christian Bryan I. del Rosario - Member  
 Mark Arcia - Member

**TEAM 6**

Joselito Locquiao - Team Leader  
 Carlito Mamaclay - Member  
 Wilfredo Fragata - Member  
 Jestonee Bitong - Member

**TEAM 7**

Erwin Aggalot - Team Leader  
 Rico Linsangan - Member  
 Glen Marc Salazar - Member  
 Dave Anuma - Member

**TEAM 8**

Fernando V. Reyes - Team Leader  
 Eric Manlogon - Member  
 Burt Delgado - Member  
 Gonzalo Rodriguez III - Member

**Team 9**

Mariano Simangan - Team Leader  
 Jason C. Sebarrin - Member  
 Jermuel Romera - Member  
 Helmer D. Plaza - Member

**TEAM 10**

Warren Bidaure - Team Leader  
 Rexson Victor - Member  
 Patrick John Luzuriaga - Member  
 Nico Castillo - Member

**GIS SUPPORT TEAM**

Arnold Dayrit - Head  
 Diosdado Morales - Member  
 Arel Jao B. Guina - Regional GIS Focal Person  
 James Patrick Laurden - GIS Focal Person-Tarlac  
 Rommel Santos - GIS Focal Person- Nueva Ecija  
 Robert Enterina - GIS Focal Person- Zambales

**FINANCE SUPPORT TEAM REGIONAL OFFICE**

Lourdes Valencia - Head  
 Kenneth David - Member  
 Delia Pangan - Member  
 Bernardo Manuel - Member

PENRO Tarlac - Teresita Cajucom  
 - Nimfa Bonifacio  
 PENRO Nueva Ecija - Dominique Tiueco  
 - Lerma Manuel  
 - Ernesto Esquerra  
 PENRO Zambales - Eden Joy Macana  
 - Maridol Roques

The Over-all Project Overseer and Regional Focal person shall supervise the actual implementation of the delineation activities and shall monitor the daily progress thereof and submit Quarterly Progress Report and review the Final Provincial Report submitted by the PENRO to be approved by RED.

The GIS Support Team shall assist in the preparation and cleansing of shapefiles of other potential investment areas including those graduated NGP Sites without existing tenurial instruments.

The Finance Team from the Regional Office shall monitor the overall financial utilization of the project and prepare weekly status thereof.

The Finance Team from the PENROs shall assist in the preparation of liquidation, payment of expenses and procurement of materials.

They shall see to it that the targets for the project shall be completely finished on or before November 30, 2019.

The re-organized teams shall submit weekly report to the Over-all Project Overseer thru the respective Chief, Technical Services Division of concerned PENROs for monitoring and records purposes.

All expenses to be incurred under this activity, e.g. hiring of laborers, procurement of materials (PVC pipes, cement, sand, reinforcing bars, etc.), geo-tagging devices, etc., shall be likewise charged to delineation funds at their respective offices.

They shall be entitled to travelling allowances (including Saturdays, Sundays and Holidays) chargeable against the activity's allotment subject, however, to usual accounting and auditing rules and regulations.




All other provisions stipulated under RSO No. 2019-110 shall remain in force.

This Order takes effect immediately and supersedes RSO No. 2019-110 as far as the Delineation Teams composition is concerned.

**ENGR. PAQUITO Z. MORENO, JR., CESO III**  
 Regional Executive Director

- Reorganized Delineation Teams RSO NO. 256 DATED 19 AUGUST 2019

## TEAM 1 (Tarlac)


|   |   |   |
|---|---|---|
|  |  |  |
| Rhony dela Cruz<br>Team Leader  | Jebert Sabado<br>Member   | Don Christian Puntilar<br>Member  |

## TEAM 2 (Tarlac)

|   |  |  |  |
|---|--|--|--|
|  |  |  |  |
| Romeo I. Lacson<br>Team Leader  | Reynaldo Calma<br>Member   | Hester Sumalet<br>Member   | William Acosta<br>Member   |

- Reorganized Delineation Teams RSO NO. 256 DATED 19 AUGUST 2019

### TEAM 3 (Tarlac)

|  |   |   |   |
|--|---|---|---|
|  |  |  |  |
| Leonides T. Cezar<br>Team Leader   | Marvin Lorenzo<br>Member  | Jose B. Pasion<br>Member  | Roberto Unay, Jr.<br>Member   |

### TEAM 4 (Tarlac)

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
| Emmanuel Penson, Jr.<br>Team Leader  | Jaime Cardinoza<br>Member  | Robert Prado<br>Member   | Benhur Lorenzo<br>Member   |

- Reorganized Delineation Teams RSO NO. 256 DATED 19 AUGUST 2019

## TEAM 5 (Nueva Ecija)



Joel Galamgam  
Team Leader



Jose Bacolod  
Member



Christian Bryan I. del Rosario  
Member



Mark Arcia  
Member

## 6 (Nueva Ecija)



Joselito Locquiao  
Team Leader



Carlito Mamaclay  
Member



Wilfredo Fragata  
Member



Jestonee Bitong  
Member

- Reorganized Delineation Teams RSO NO. 256 DATED 19 AUGUST 2019

## TEAM 7 (Nueva Ecija)

|  |   |   |   |
|--|---|---|---|
|  |  |  |  |
| Erwin Aggalot<br>Team Leader   | Rico Linsangan<br>Member  | Glen Marc Salazar<br>Member   | Dave Anuma<br>Member  |

## Team 8 (Zambales)

|  |  |   |  |
|--|--|---|--|
|  |  |  |  |
| Fernando V. Reyes<br>Team Leader   | Eric Manlogon<br>Member  | Burt Degollado<br>Member  | Gonzalo Rodriguez III<br>Member  |

- Reorganized Delineation Teams RSO NO 256 DATED 19 AUGUST 2019

## TEAM 9 (Zambales)







|  |   |   |   |
|--|---|---|---|
|  |  |  |  |
| Mariano Simangan<br>Team Leader (Zambales)   | Jason C. Sebarrotin<br>Member   | Jemuel Romera<br>Member   | Helmer D. Plaza<br>Member   |

## TEAM 10(Zambales)

|  |  |   |  |
|--|--|---|--|
|  |  |  |  |
| Warren Bidaure<br>Team Leader (Zambales)   | Rexson Victor<br>Member  | Patrick John Luzuriaga<br>Member  | Nico Castillo<br>Member  |

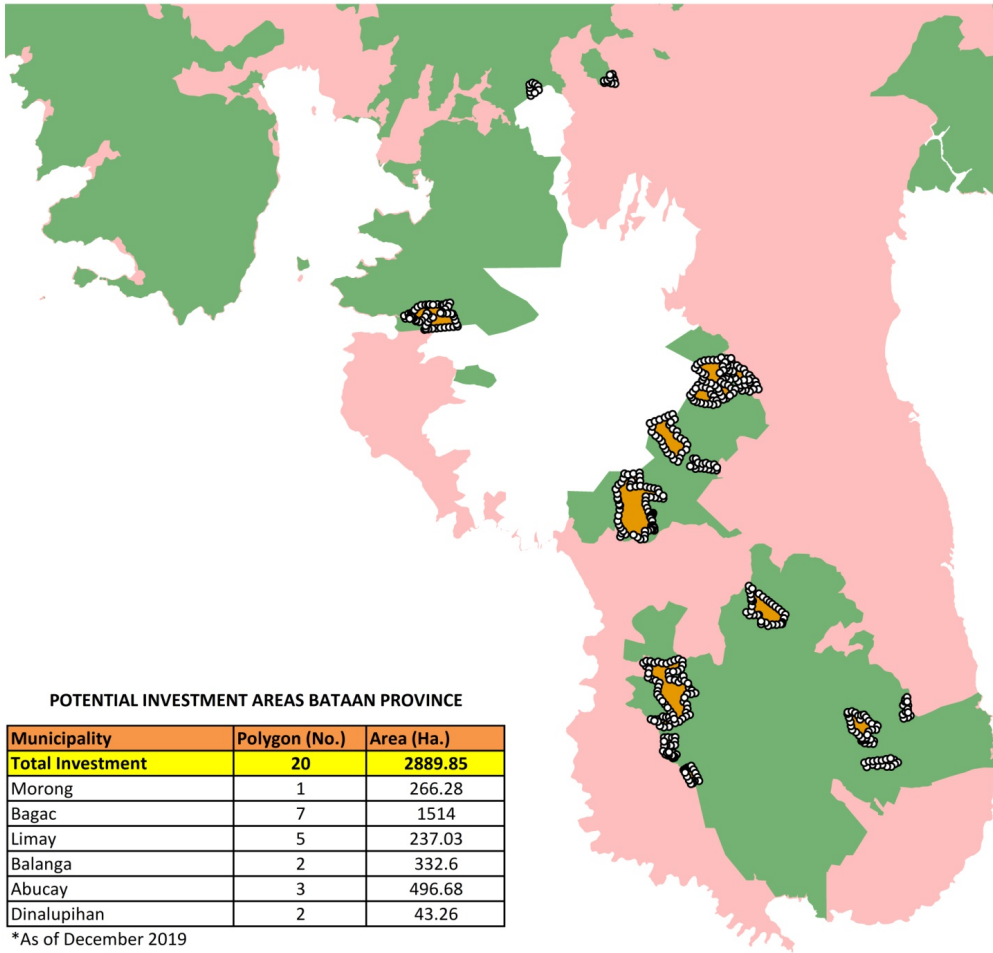


# GIS Support Team

|  |  |  |
|--|--|--|
|   |    |   |
| <p>Arnold Dayrit<br/>Head</p>  | <p>Diosdado Morales<br/>Member</p>   | <p>Arel Jao B. Guina<br/>GIS Focal Person - Regional</p>                             |
|  |  |  |
| <p>James Patrick Laurden<br/>GIS Focal Person - Tarlac</p>                         | <p>Rommel Santos<br/>GIS Focal Person - Nueva Ecija</p>                              | <p>Robert Enterina<br/>GIS Focal Person - Zambales</p>                               |

# **Delineated PIAs per Province**

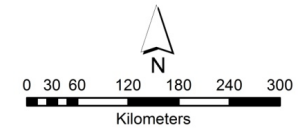
## POTENTIAL INVESTMENT AREA IN THE PROVINCE OF BATAAN



POTENTIAL INVESTMENT AREAS BATAAN PROVINCE

| Municipality            | Polygon (No.) | Area (Ha.)     |
|-------------------------|---------------|----------------|
| <b>Total Investment</b> | <b>20</b>     | <b>2889.85</b> |
| Morong                  | 1             | 266.28         |
| Bagac                   | 7             | 1514           |
| Limay                   | 5             | 237.03         |
| Balanga                 | 2             | 332.6          |
| Abucay                  | 3             | 496.68         |
| Dinalupihan             | 2             | 43.26          |

\*As of December 2019



1:300,000

Projected Coordinate System  
WGS 1984, UTM Zone 51N

### Legend

- Installed Monuments = 488
- Accomplished PIA Boundary = 110.22 km.
- Potential Investment Area = 2889.85 ha.
- Forestland
- Alienable and Disposable

Republic of the Philippines  
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
REGION III

### CERTIFICATION

This is to certify that this is true and correct map of the Potential Investment Areas in the Province of Bataan as described hereon.

This map was prepared based on the conduct of actual ground delineation, submitted maps, documents, accomplishment reports and other references available from this Office.

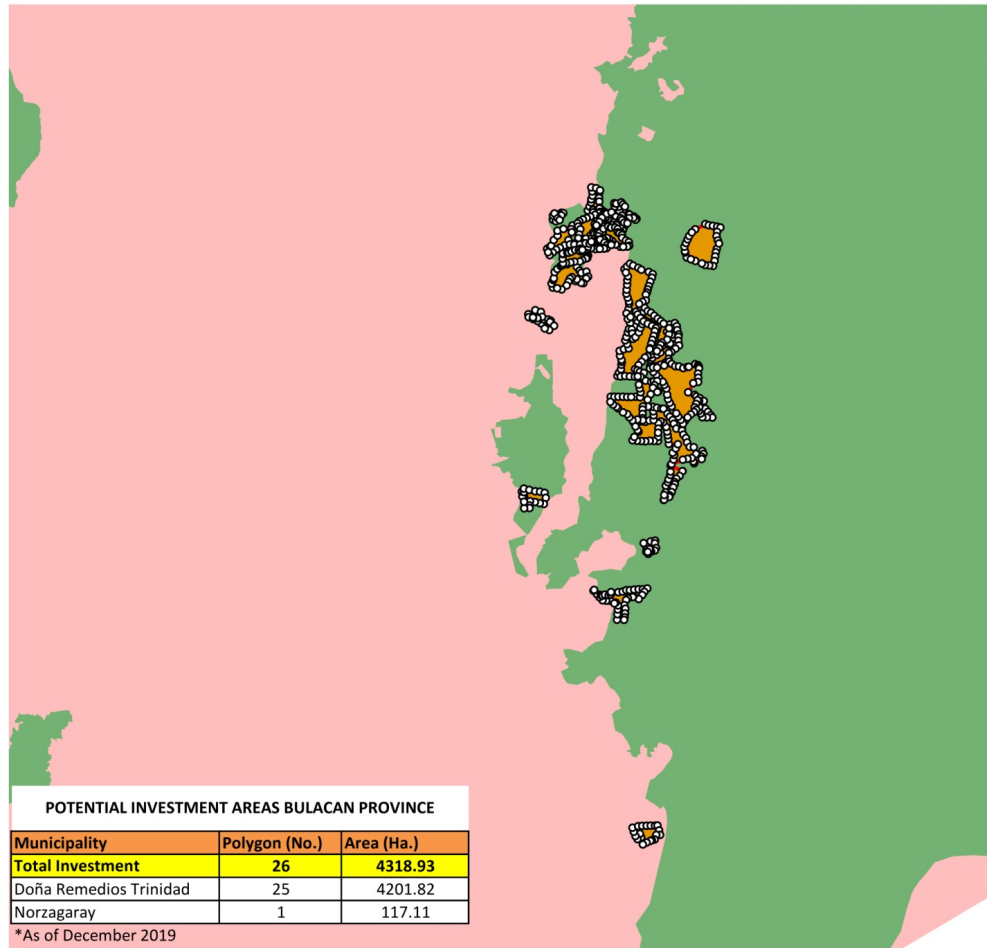
Prepared by:

Approved by:

EDILBERT S. SINGIAN  
Chief, Land Evaluation  
and Survey Section

ENGR. PAQUITO T. MORENO, JR., CESO III  
Regional Executive Director

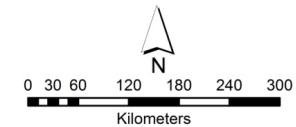
## POTENTIAL INVESTMENT AREA IN THE PROVINCE OF BULACAN



POTENTIAL INVESTMENT AREAS BULACAN PROVINCE

| Municipality            | Polygon (No.) | Area (Ha.)     |
|-------------------------|---------------|----------------|
| <b>Total Investment</b> | <b>26</b>     | <b>4318.93</b> |
| Doña Remedios Trinidad  | 25            | 4201.82        |
| Norzagaray              | 1             | 117.11         |

\*As of December 2019



1:300,000

Projected Coordinate System  
WGS 1984, UTM Zone 51N

### Legend

- Installed Monuments = 683
- Accomplished PIA Boundary = 168.12 km.
- Potential Investment Area = 4318.92 ha.
- Forestland
- Alienable and Disposable

Republic of the Philippines  
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
REGION III

### CERTIFICATION

This is to certify that this is true and correct map of the Potential Investment Areas in the Province of Bulacan as described hereon.

This map was prepared based on the conduct of actual ground delineation, submitted maps, documents, accomplishment reports and other references available from this Office.

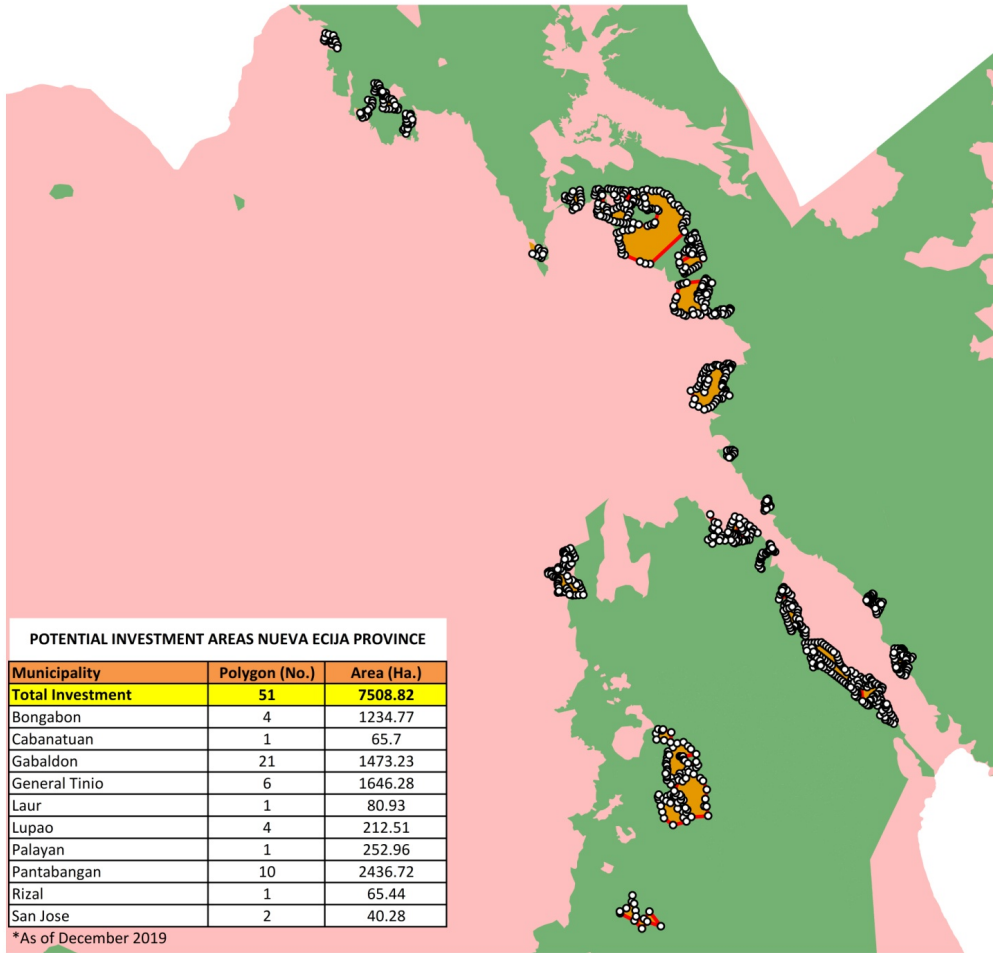
Prepared by:

Approved by:

EDILBERT S. SINGIAN  
Chief, Land Evaluation  
and Survey Section

ENGR. PAQUITO T. MORENO, JR., CESO III  
Regional Executive Director

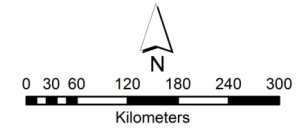
## POTENTIAL INVESTMENT AREA IN THE PROVINCE OF NUEVA ECIJA



POTENTIAL INVESTMENT AREAS NUEVA ECIJA PROVINCE

| Municipality            | Polygon (No.) | Area (Ha.)     |
|-------------------------|---------------|----------------|
| <b>Total Investment</b> | <b>51</b>     | <b>7508.82</b> |
| Bongabon                | 4             | 1234.77        |
| Cabanatuan              | 1             | 65.7           |
| Gabalton                | 21            | 1473.23        |
| General Tinio           | 6             | 1646.28        |
| Laur                    | 1             | 80.93          |
| Lupao                   | 4             | 212.51         |
| Palayan                 | 1             | 252.96         |
| Pantabangan             | 10            | 2436.72        |
| Rizal                   | 1             | 65.44          |
| San Jose                | 2             | 40.28          |

\*As of December 2019



1:400,000

Projected Coordinate System  
WGS 1984, UTM Zone 51N

### Legend

- Installed Monuments = 974
- Accomplished PIA Boundary = 285.84 km.
- Potential Investment Area = 7508.82 ha.
- Forestland
- Alienable and Disposable

Republic of the Philippines  
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
REGION III

### CERTIFICATION

This is to certify that this is true and correct map of the Potential Investment Areas in the Province of Nueva Ecija as described hereon.

This map was prepared based on the conduct of actual ground delineation, submitted maps, documents, accomplishment reports and other references available from this Office.

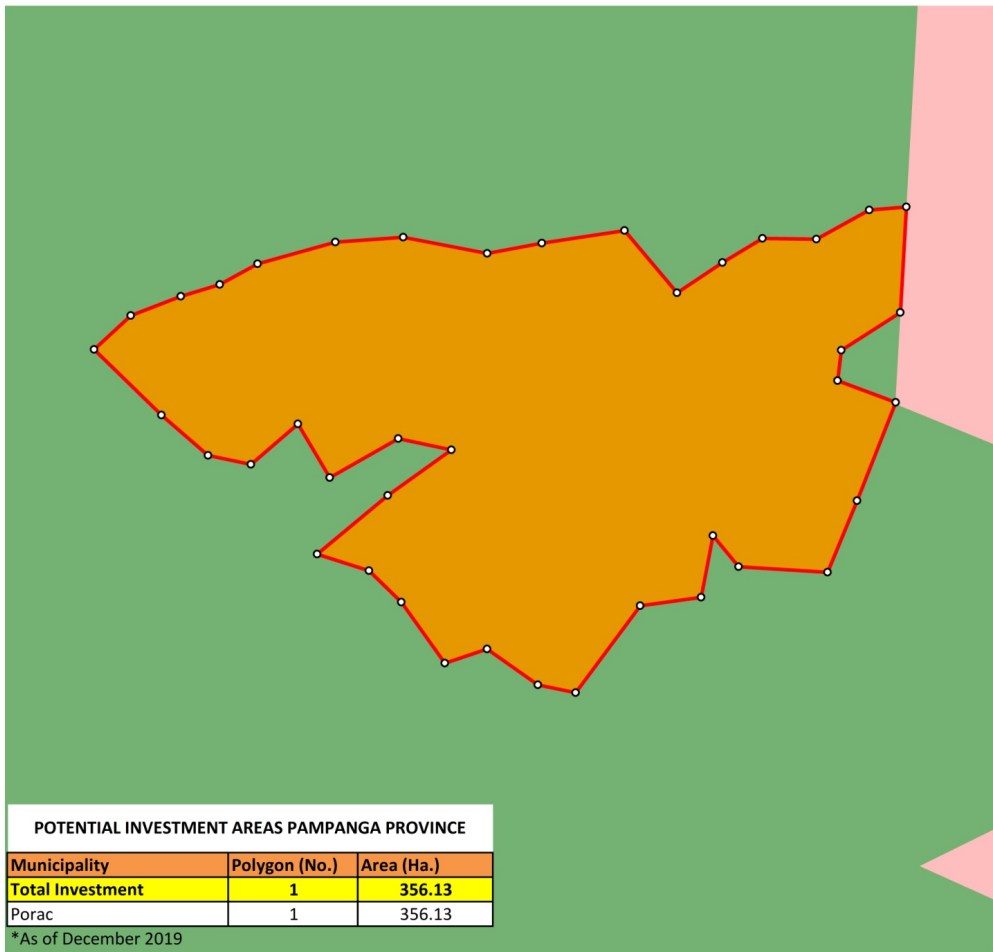
Prepared by:

Approved by:

EDILBERT S. SINGIAN  
Chief, Land Evaluation  
and Survey Section

ENGR. PAQUITO T. MORENO, JR., CESO III  
Regional Executive Director

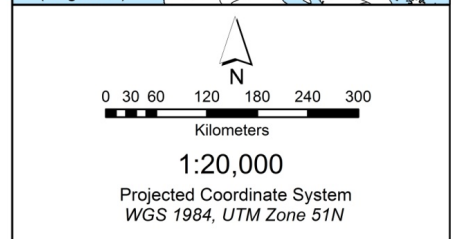
## POTENTIAL INVESTMENT AREA IN THE PROVINCE OF PAMPANGA



**POTENTIAL INVESTMENT AREAS PAMPANGA PROVINCE**

| Municipality            | Polygon (No.) | Area (Ha.)    |
|-------------------------|---------------|---------------|
| <b>Total Investment</b> | <b>1</b>      | <b>356.13</b> |
| Porac                   | 1             | 356.13        |

\*As of December 2019



- Legend**
- Installed Monuments = 41
  - Accomplished PIA Boundary = 10.51 km.
  - Potential Investment Area = 356.13 ha.
  - Forestland
  - Alienable and Disposable


**Republic of the Philippines**  
 DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
 REGION III

**CERTIFICATION**

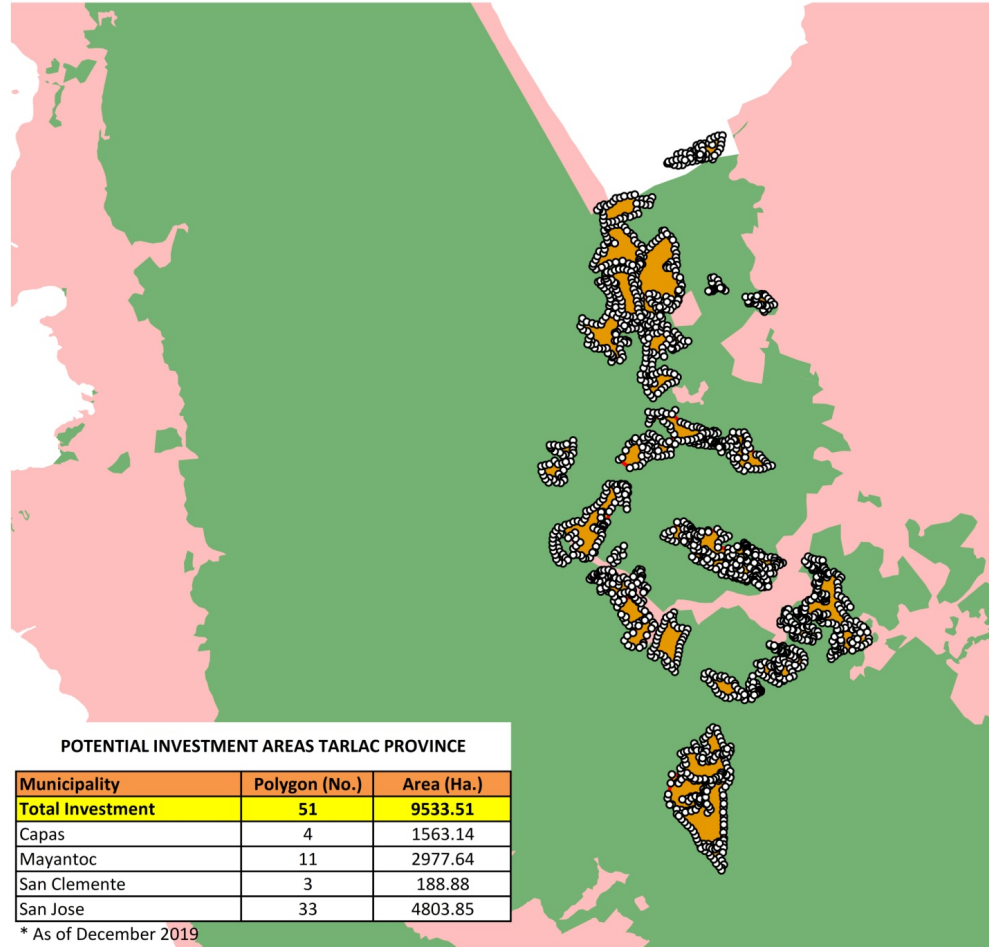
This is to certify that this is true and correct map of the Potential Investment Areas in the Province of Pampanga as described herein.

This map was prepared based on the conduct of actual ground delineation, submitted maps, documents, accomplishment reports and other references available from this Office.

**Prepared by:** EDILBERT S. SINGIAN  
 Chief, Land Evaluation and Survey Section

**Approved by:** ENGR. PAQUITO T. MORENO, JR., CESO III  
 Regional Executive Director

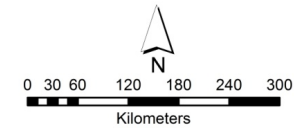
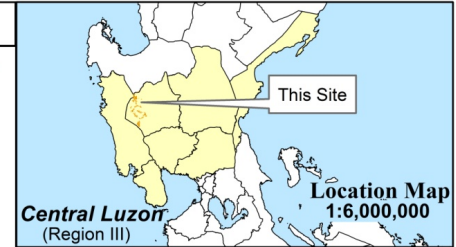
## POTENTIAL INVESTMENT AREA IN THE PROVINCE OF TARLAC



POTENTIAL INVESTMENT AREAS TARLAC PROVINCE

| Municipality            | Polygon (No.) | Area (Ha.)     |
|-------------------------|---------------|----------------|
| <b>Total Investment</b> | <b>51</b>     | <b>9533.51</b> |
| Capas                   | 4             | 1563.14        |
| Mayantoc                | 11            | 2977.64        |
| San Clemente            | 3             | 188.88         |
| San Jose                | 33            | 4803.85        |

\* As of December 2019



1:300,000

Projected Coordinate System  
WGS 1984, UTM Zone 51N

### Legend

- Installed Monuments = 1673
- Accomplished PIA Boundary = 400.44 km.
- Potential Investment Area = 9533.51 ha.
- Forestland
- Alienable and Disposable


**Republic of the Philippines**  
 DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
 REGION III

### CERTIFICATION

This is to certify that this is true and correct map of the Potential Investment Areas in the Province of Tarlac as described hereon.

This map was prepared based on the conduct of actual ground delineation, submitted maps, documents, accomplishment reports and other references available from this Office.

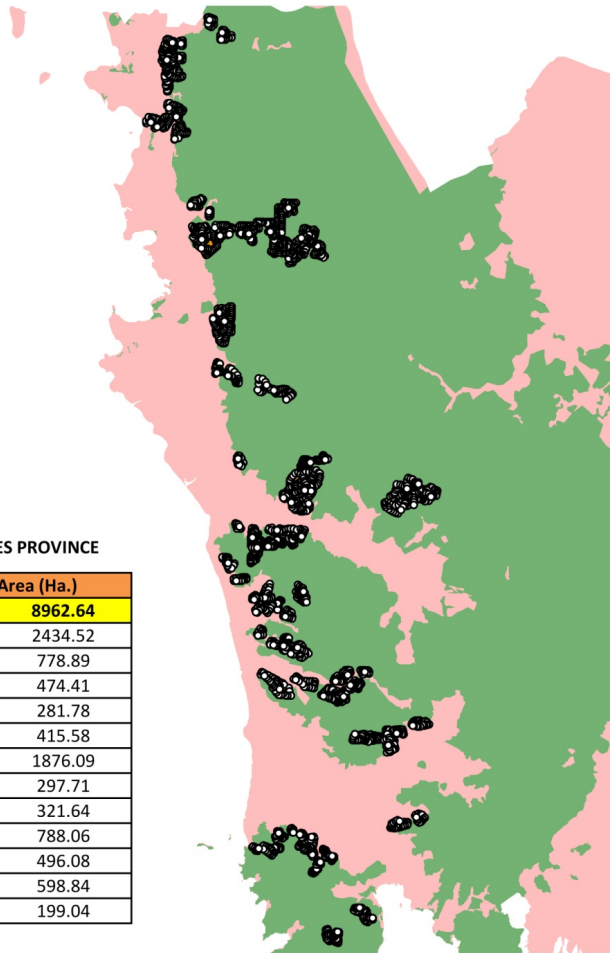
Prepared by:

Approved by:

EDILBERT S. SINGIAN  
Chief, Land Evaluation  
and Survey Section

ENGR. PAQUITO T. MORENO, JR., CESO III  
Regional Executive Director

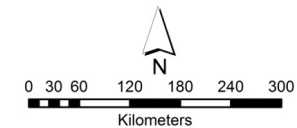
## POTENTIAL INVESTMENT AREA IN THE PROVINCE OF ZAMBALES



POTENTIAL INVESTMENT AREAS ZAMBALES PROVINCE

| Municipality            | Polygon (No.) | Area (Ha.)     |
|-------------------------|---------------|----------------|
| <b>Total Investment</b> | <b>152</b>    | <b>8962.64</b> |
| Botolan                 | 32            | 2434.52        |
| Cabangan                | 19            | 778.89         |
| Candelaria              | 7             | 474.41         |
| Castillejos             | 6             | 281.78         |
| Iba                     | 4             | 415.58         |
| Masinloc                | 30            | 1876.09        |
| Palauig                 | 5             | 297.71         |
| San Antonio             | 8             | 321.64         |
| San Felipe              | 15            | 788.06         |
| San Marcelino           | 9             | 496.08         |
| Santa Cruz              | 13            | 598.84         |
| Subic                   | 4             | 199.04         |

\* As of December 2019



1:600,000

Projected Coordinate System  
WGS 1984, UTM Zone 51N

### Legend

- Installed Monuments = 2351
- Accomplished PIA Boundary = 537.37 km.
- Potential Investment Area = 8962.64 ha.
- Forestland
- Alienable and Disposable



Republic of the Philippines  
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
REGION III

### CERTIFICATION

This is to certify that this is true and correct map of the Potential Investment Areas in the Province of Zambales as described hereon.

This map was prepared based on the conduct of actual ground delineation, submitted maps, documents, accomplishment reports and other references available from this Office.

Prepared by:

Approved by:

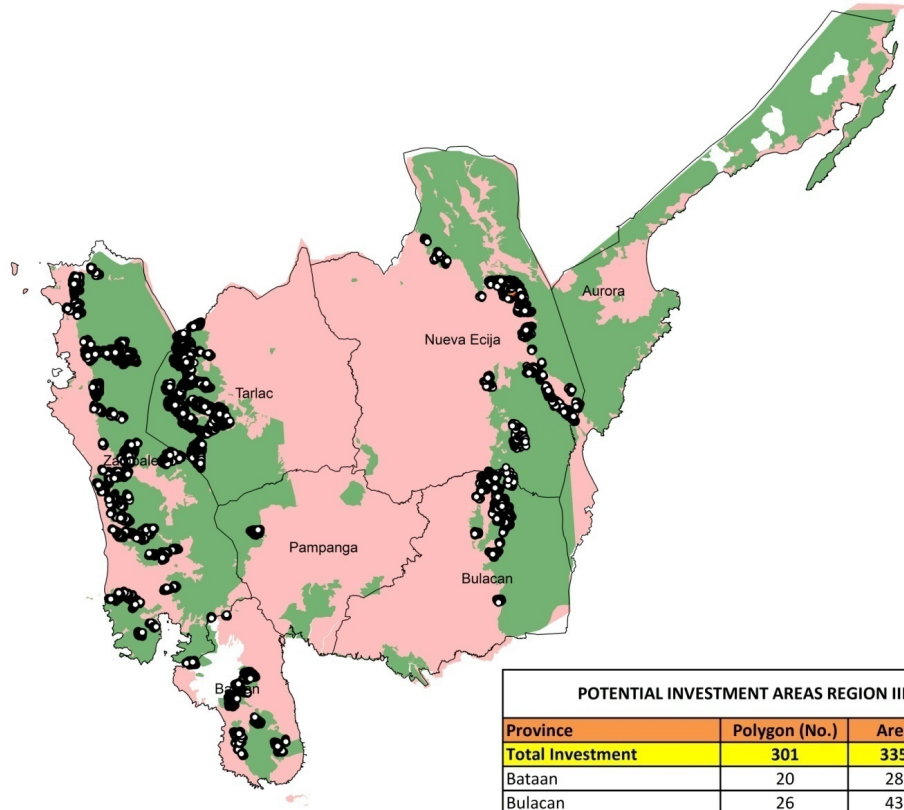
EDILBERT S. SINGIAN  
Chief, Land Evaluation  
and Survey Section

ENGR. PAQUITO T. MORENO, JR., CESO III  
Regional Executive Director



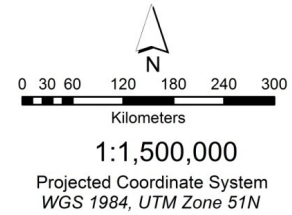
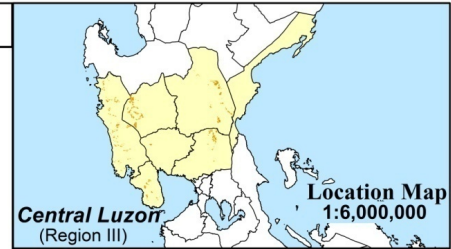
# **Delineated PIAs in Region 3**

## POTENTIAL INVESTMENT AREA IN REGION III



| POTENTIAL INVESTMENT AREAS REGION III |               |                 |
|---------------------------------------|---------------|-----------------|
| Province                              | Polygon (No.) | Area (Ha.)      |
| <b>Total Investment</b>               | <b>301</b>    | <b>33569.88</b> |
| Bataan                                | 20            | 2889.85         |
| Bulacan                               | 26            | 4318.92         |
| Pampanga                              | 1             | 356.14          |
| Nueva Ecija                           | 51            | 7508.82         |
| Tarlac                                | 51            | 9533.51         |
| Zambales                              | 152           | 8962.64         |

\*As of December 2019



### Legend

- Installed Monuments = 6210
- Accomplished PIA Boundary = 1512.51 km.
- Potential Investment Area = 33569.88 ha.
- Forestland
- Alienable and Disposable

Republic of the Philippines  
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
REGION III

### CERTIFICATION

This is to certify that this is true and correct map of the Potential Investment Areas in Region III as described hereon.

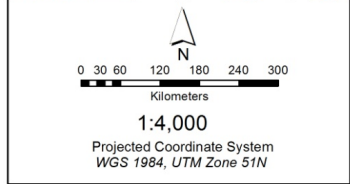
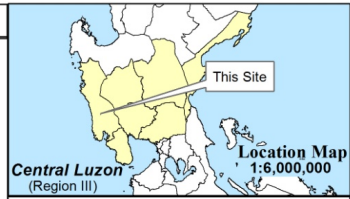
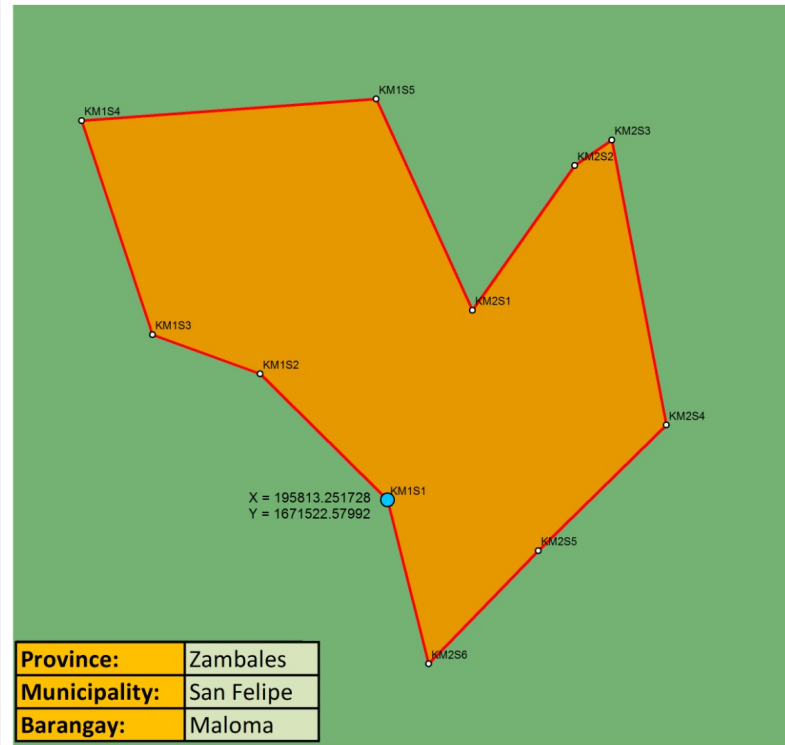
This map was prepared based on the conduct of actual ground delineation, submitted maps, documents, accomplishment reports and other references available from this Office.

**Prepared by:** EDILBERT S. SINGIAN  
Chief, Land Evaluation and Survey Section

**Approved by:** ENGR. PAQUITO T. MORENO, JR., CESO III  
Regional Executive Director

# **Sample Delineated PIA Polygon Overlaid on Google Earth**

**POTENTIAL INVESTMENT AREA - R3-2019-00104**



- Legend**
- Installed Monuments = 11
  - Accomplished PIA Boundary = 2.09 Km.
  - Potential Investment Area = 16.99 Ha.
  - Forestland
  - Alienable and Disposable

Republic of the Philippines  
 DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
 REGION III

**CERTIFICATION**

This is to certify that this is true and correct map of the Potential Investment Areas in the Province of Zambales as described herein.

This map was prepared based on the conduct of actual ground delineation, submitted maps, documents, accomplishment reports and other references available from this Office.

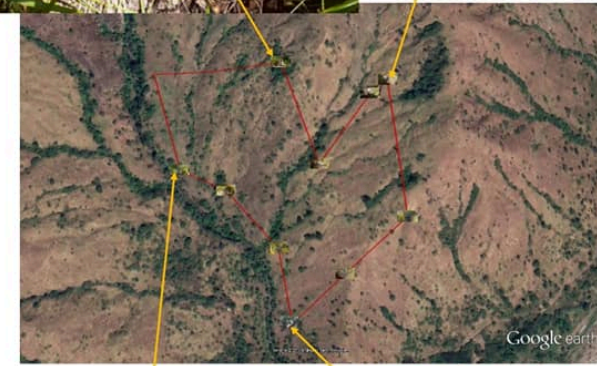
Prepared by: **EDILBERT S. SINGIAN**  
 Chief, Land Evaluation and Survey Section

Approved by: **ENGR. PAQUITO T. MORENO, JR., CESO III**  
 Regional Executive Director

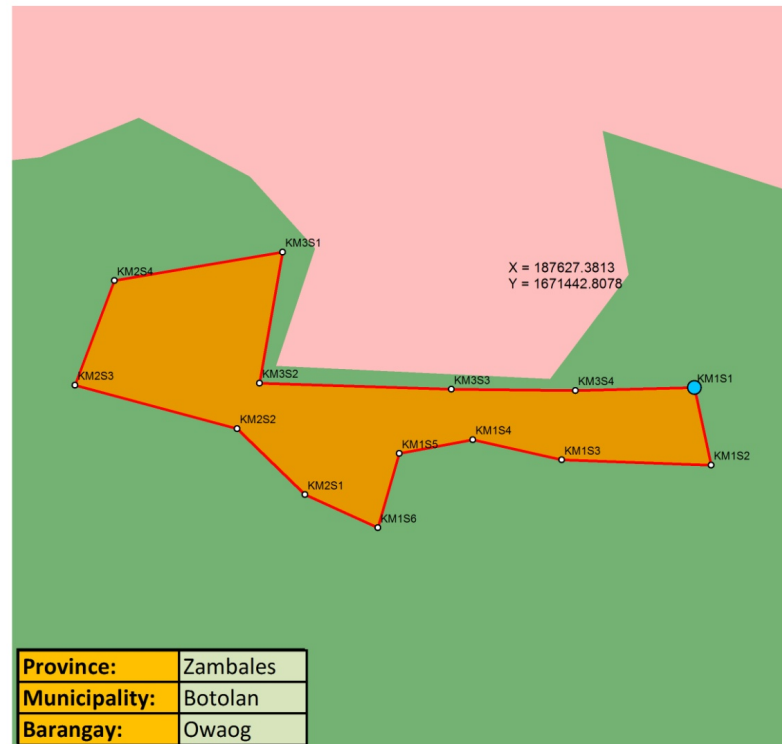
|                      |            |
|----------------------|------------|
| <b>Province:</b>     | Zambales   |
| <b>Municipality:</b> | San Felipe |
| <b>Barangay:</b>     | Maloma     |

Map showing the identified Production Forest for Potential Investment Area with PVC/Concrete poles in every 250 meters interval and its major corner with a total length of 2.09 km located at Brgy. Maloma, San Felipe, Zambales.

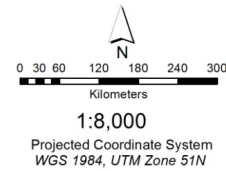
Control No. R3-2019-00104



**POTENTIAL INVESTMENT AREA - R3-2019-00124**



|                      |          |
|----------------------|----------|
| <b>Province:</b>     | Zambales |
| <b>Municipality:</b> | Botolan  |
| <b>Barangay:</b>     | Owaog    |



**Legend**

- Installed Monuments =14
- Accomplished PIA Boundary = 3.37 Km.
- Potential Investment Area = 24.83 Ha.
- Forestland
- Alienable and Disposable

Republic of the Philippines  
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
REGION III

**CERTIFICATION**

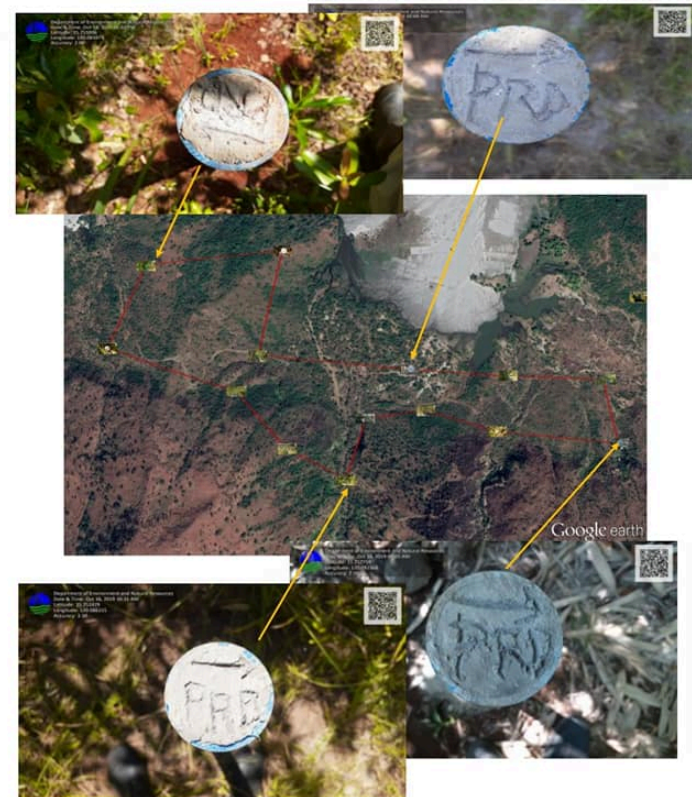
This is to certify that this is true and correct map of the Potential Investment Areas in the Province of Zambales as described hereon.

This map was prepared based on the conduct of actual ground delineation, submitted maps, documents, accomplishment reports and other references available from this Office.

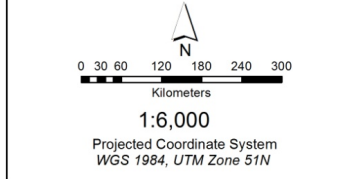
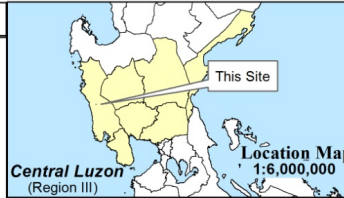
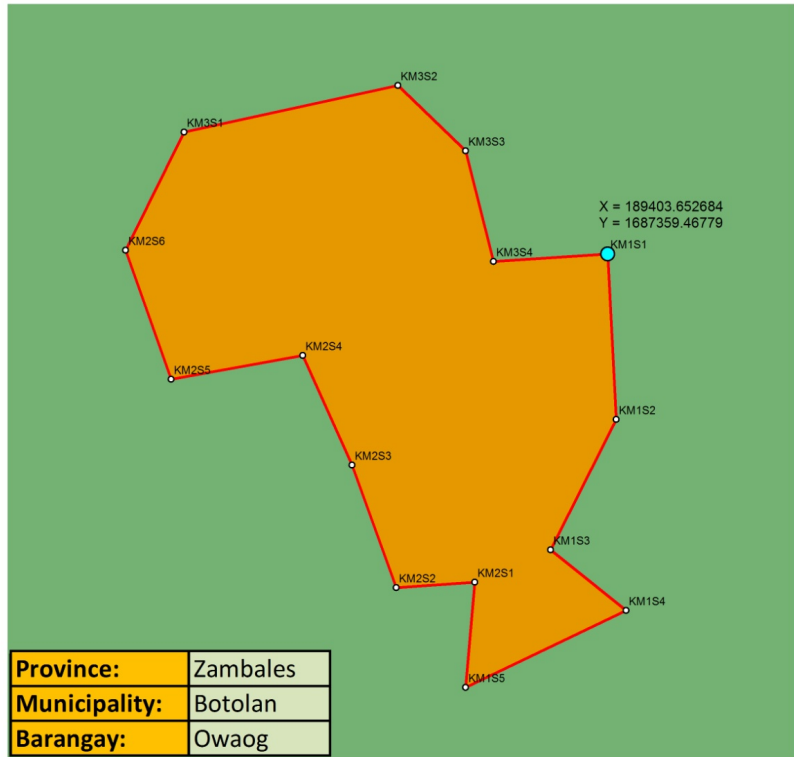
|   |   |
|---|---|
| <b>Prepared by:</b>   | <b>Approved by:</b>   |
| EDILBERT S. SINGIAN<br>Chief, Land Evaluation<br>and Survey Section | ENGR. PAQUITO T. MORENO, JR., CESO III<br>Regional Executive Director |

Map showing the identified Production Forest for Potential Investment Area with PVC/Concrete poles in every 250 meters interval and its major corner with a total length of 3.37 km located at Brgy. Owaog, Botolan, Zambales.

Control No. R3-2019-00108



**POTENTIAL INVESTMENT AREA - R3-2019-00109**



- Legend**
- Installed Monuments = 11
  - Accomplished PIA Boundary = 2.94 Km.
  - Potential Investment Area = 35.23 Ha.
  - Forestland
  - Alienable and Disposable

Republic of the Philippines  
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
REGION III

**CERTIFICATION**

This is to certify that this is true and correct map of the Potential Investment Areas in the Province of Zambales as described hereon.

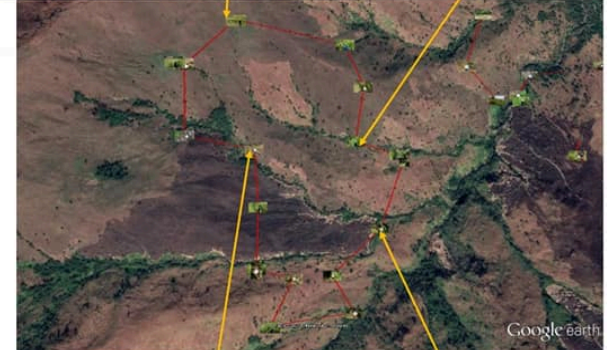
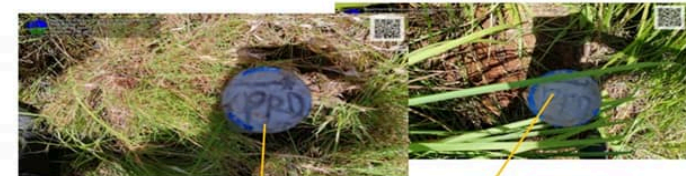
This map was prepared based on the conduct of actual ground delineation, submitted maps, documents, accomplishment reports and other references available from this Office.

**Prepared by:** EDILBERT S. SINGIAN  
Chief, Land Evaluation and Survey Section

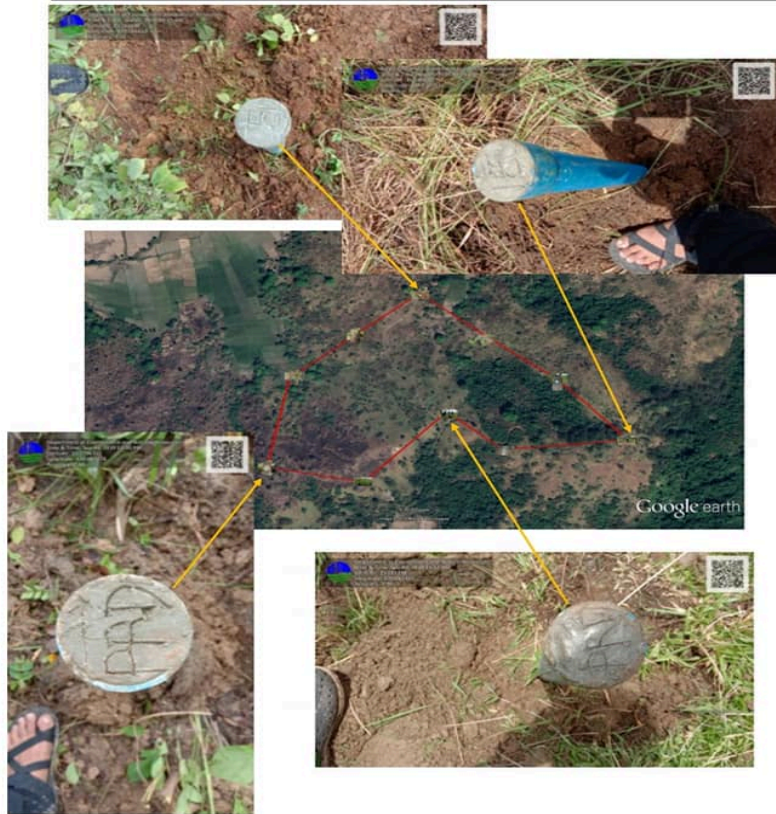
**Approved by:** ENGR. PAQUITO T. MORENO, JR., CESO III  
Regional Executive Director

Map showing the identified Production Forest for Potential Investment Area with PVC/Concrete poles in every 250 meters interval and its major corner with a total length of 2.94 km located at Brgy. Owaog, Botolan, Zambales.

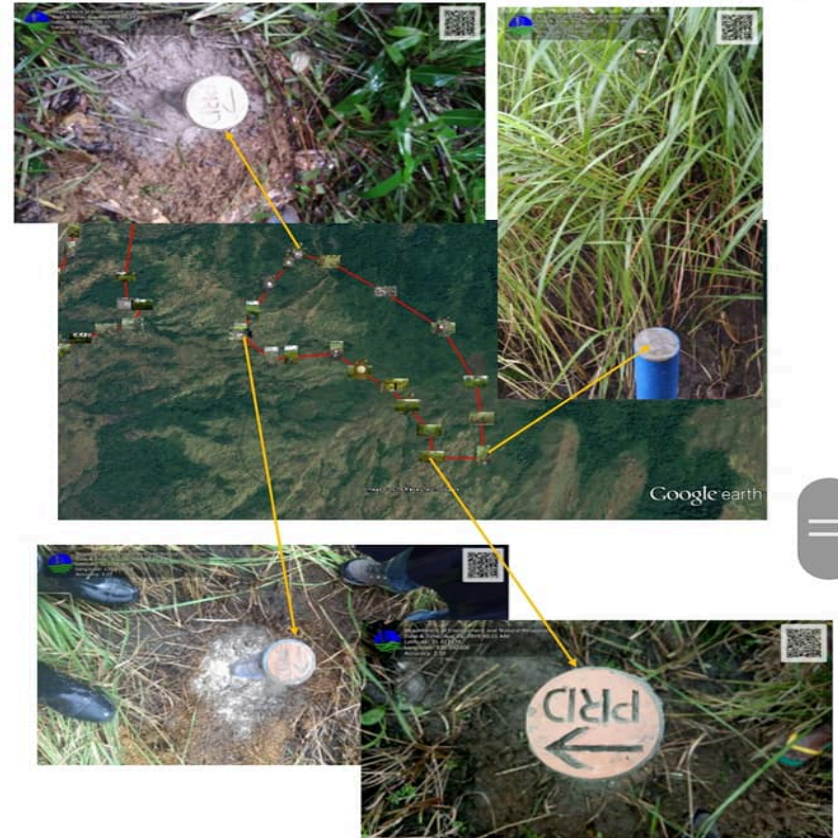
Control No. R3-2019-00109



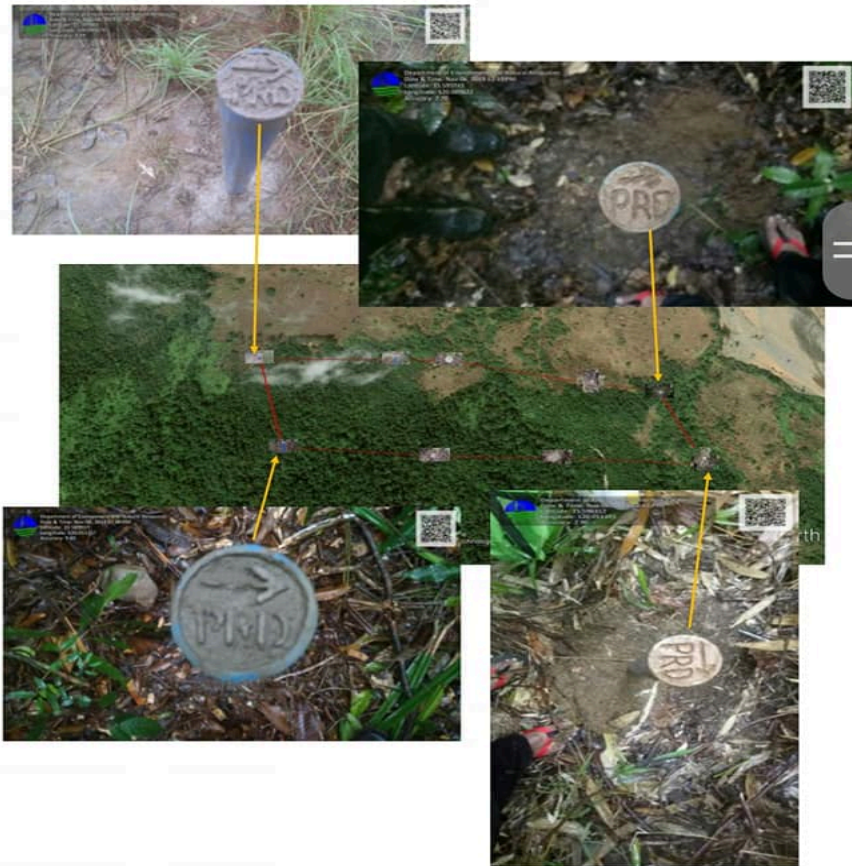
Map showing the identified Production Forest for Potential Investment Area with PVC/Concrete poles in every 250 meters interval and its major corner with a total length of 2.26 km located at Brgy. Cadmang, Cabangang, Zambales.



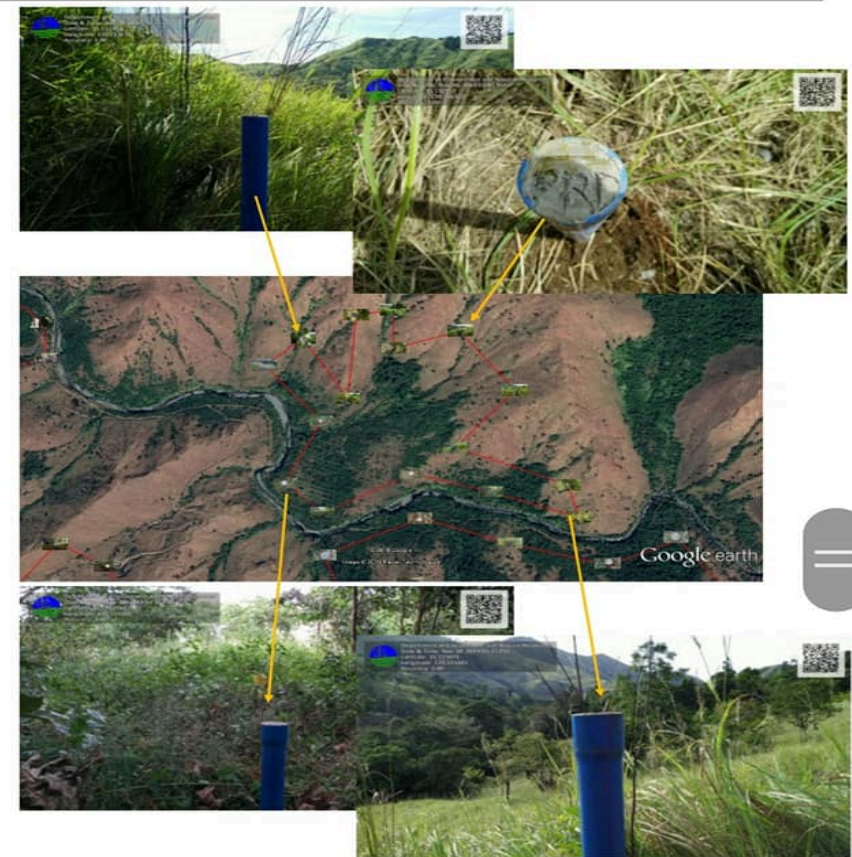
Map showing the identified Production Forest for Potential Investment Area with PVC/Concrete poles in every 250 meters interval and its major corner with a total length of 5 km located at So. Olpoy, Brgy. Amungan, Iba, Zambales.



Map showing the identified Production Forest for Potential Investment Area with PVC/Concrete poles in every 250 meters interval and its major corner with a total length of 13.26 km located at Brgy. Pinagrealan, Masinloc, Zambales.



Map showing the identified Production Forest for Potential Investment Area with PVC/Concrete poles in every 250 meters interval and its major corner with a total length of 3.92 km located at Brgy. New San Juan, Cabangan, Zambales.





## Challenges, Issues and Concerns

- extreme weather condition
- presence of insurgents in some areas
- remoteness of PIAs
- PIAs covered by CLOAs and existing tenurial instruments
- health and wellness of fieldmen
- hired laborers backing off

# **Delineation Teams in Action**

Photo showing the Hired Laborers/Haulers together with Forester Fernando V. Reyes (Team Leader) to complete the task re: conduct of Survey/Delineation of Production Forest for Potential Investment Areas within So. Olpoy, Brgy. Amungan, Iba, Zambales.



Photo showing the DENR-PENRO Composite Team for the Survey/Delineation of Production Forest for Potential Investment Areas located at So. Olpoy, Brgy. Amungan, Iba, Zambales



# TEAM TARLAC



# TEAM TARLAC



# TEAM TARLAC





# TEAM TARLAC





# TEAM TARLAC



# TEAM TARLAC



# TEAM TARLAC





# TEAM ZAMBALES





# TEAM ZAMBALES

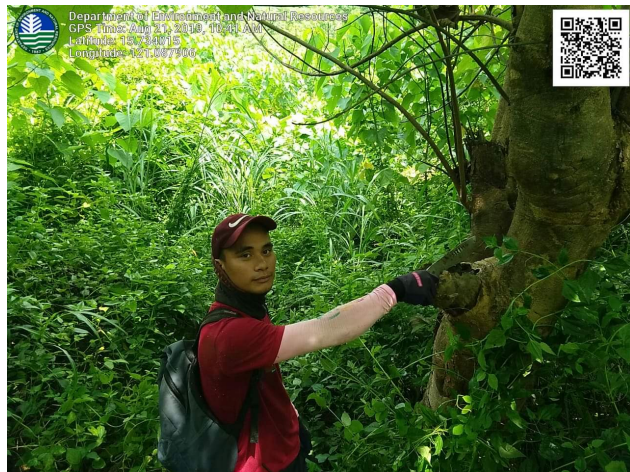


# TEAM NUEVA ECIJA

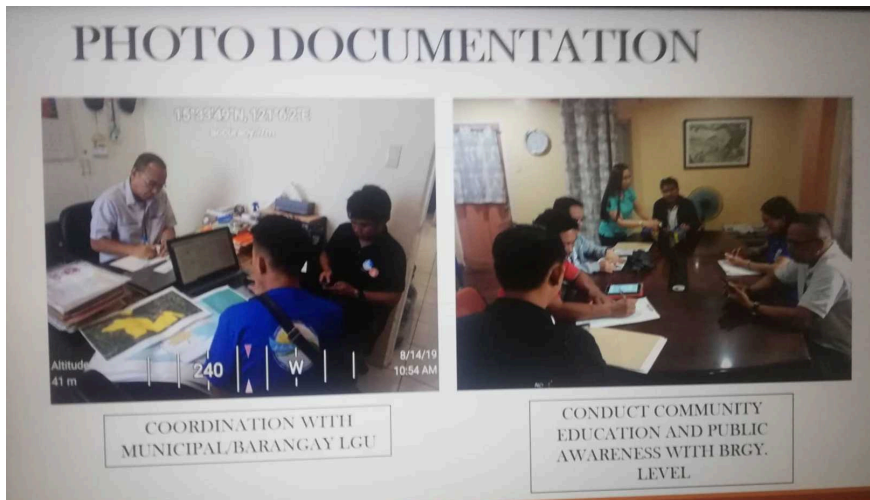




# TEAM NUEVA ECIJA



# TEAM NUEVA ECIJA





FABRICATION OF  
MONUMENT

**THANK YOU!**

**EDILBERT S. SINGIAN, MPA, CE, GE, JRGE, REA, REB**  
Chief, Land Evaluation & Surveys Section, DENR-3

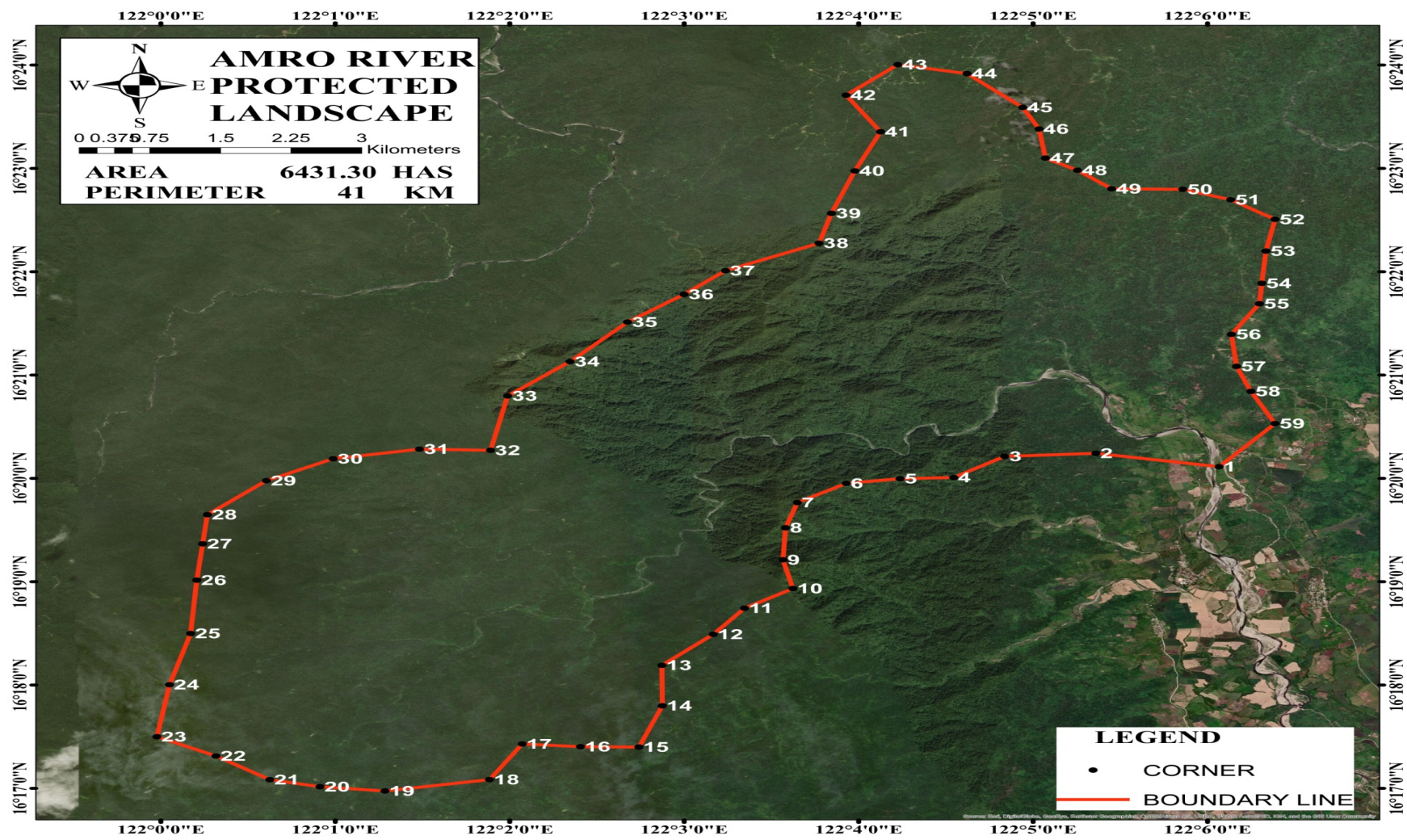
**Ground Demarcation of the  
Seven (7) Legislated PAs in Region III**

# Legal Bases

- **R.A. No. 7586** – National Integrated Protected Areas System (NIPAS) Act of 1992
- **R.A. No. 11038** – Expanded NIPAS Act of 2018
- **DAO 2008-26** – Revised Implementing Rules and Regulations (IRR) of the NIPAS Act
- **DAO 2009-09** – Standard Design and Specification of Signs, Buildings, Facilities and Other Infrastructures that may be Installed and/or Constructed within PAs
- **DAO 2015-10** – Guidelines on the Delineation and Demarcation of Boundaries of Protected Areas under the NIPAS Act of 1992
- **TB No. 2019-01** – Clarifying the Guidelines and Procedures in the Demarcation of Boundaries of Legislated Protected Areas under the NIPAS

## THE SEVEN LEGISLATED PAs (RA 11038)

| NAME  | LOCATION      | AREA<br>(HA)    | LENGTH (KM)       |                   | NO. OF<br>CORNERS  |                    |
|---|---------------|-----------------|-------------------|-------------------|--------------------|--------------------|
| 1. Amro River Protected Landscape                         | Aurora        | 6431.30         | 41                |                   | 59                 |                    |
| 2. Dinadiawan River Protected Landscape                   | Aurora        | 3366.54         | 32                |                   | 77                 |                    |
| 3. Simbahan Talagas Protected Landscape                   | Aurora        | 2284.30         | 21                |                   | 38                 |                    |
| 4. Talaytay Protected Landscape                           | Aurora        | 3598.31         | 28                |                   | 26                 |                    |
| <b>5. Bataan Natural Park</b>                             | <b>Bataan</b> | <b>20004.17</b> | <b>138</b>        |                   | <b>523</b>         |                    |
|   |               |                 | <b>BAT<br/>73</b> | <b>LES<br/>65</b> | <b>BAT<br/>273</b> | <b>LES<br/>250</b> |
| 6. Roosevelt Protected Landscape                          | Bataan        | 950.43          | 13                |                   | 72                 |                    |
| 7. Masinloc and Oyon Bay Protected Landscape and Seascape | Zambales      | 7558            | 50                |                   | 279                |                    |



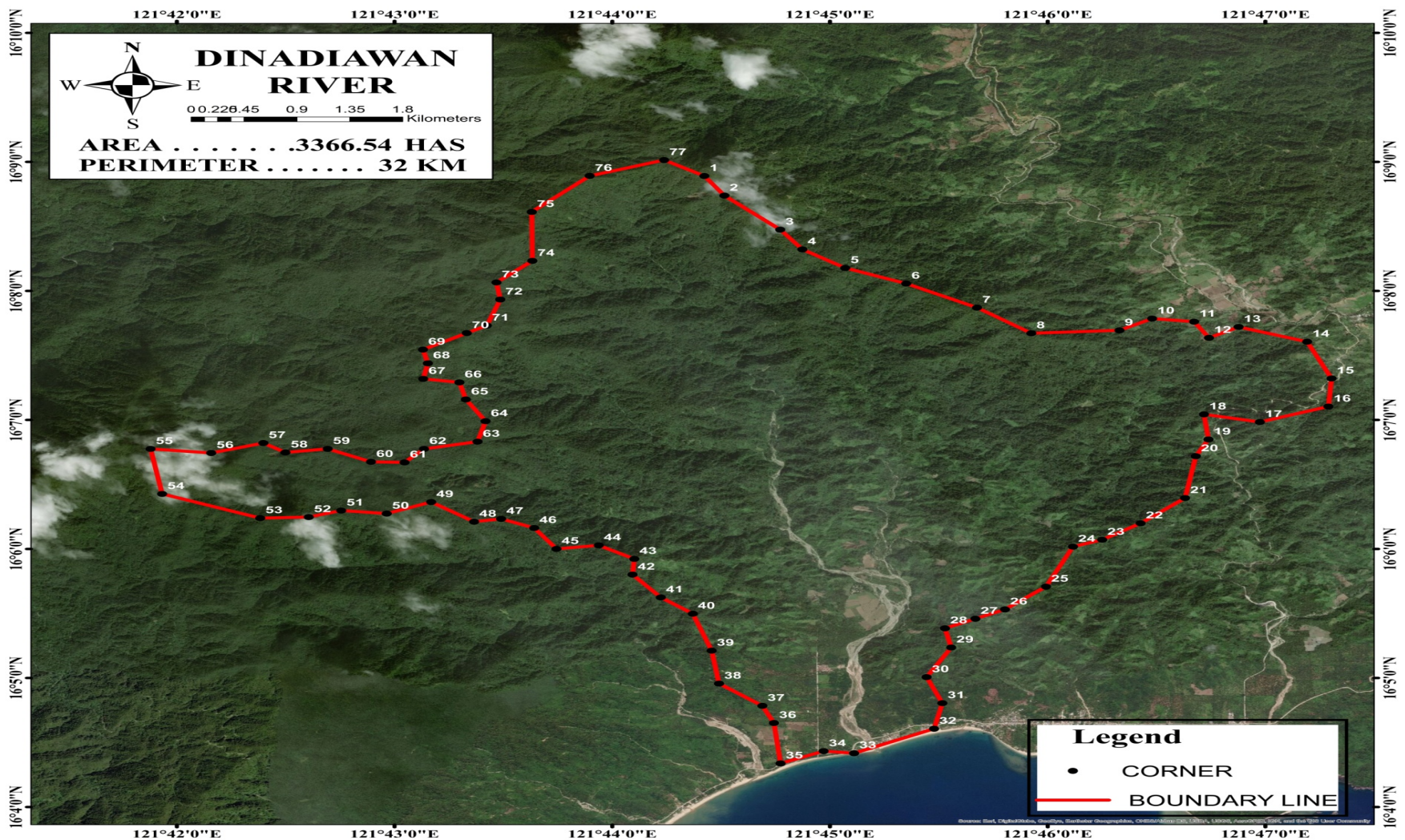




# DINADIAWAN RIVER

0.0 0.226.45 0.9 1.35 1.8 Kilometers

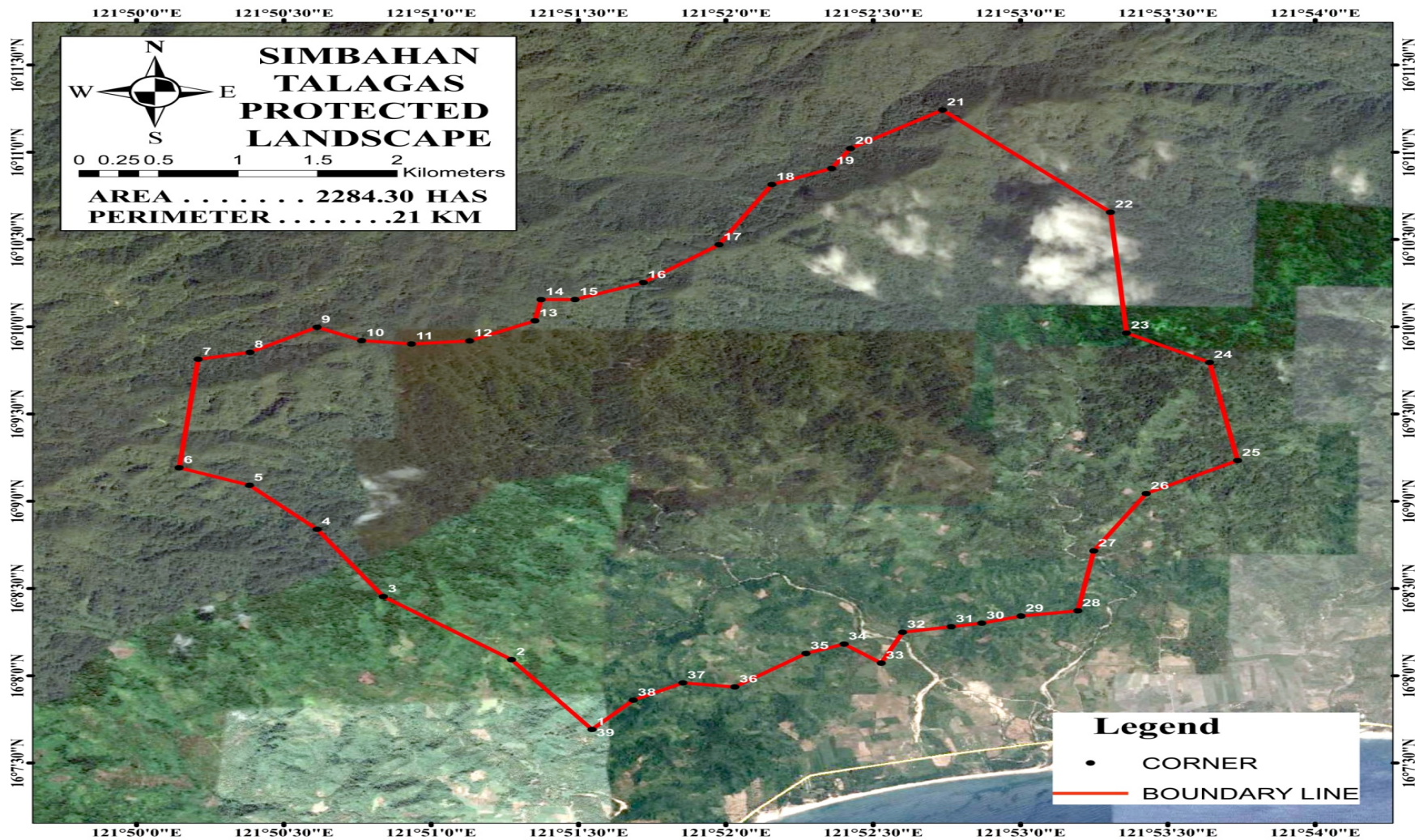
AREA . . . . . 3366.54 HAS  
PERIMETER . . . . . 32 KM

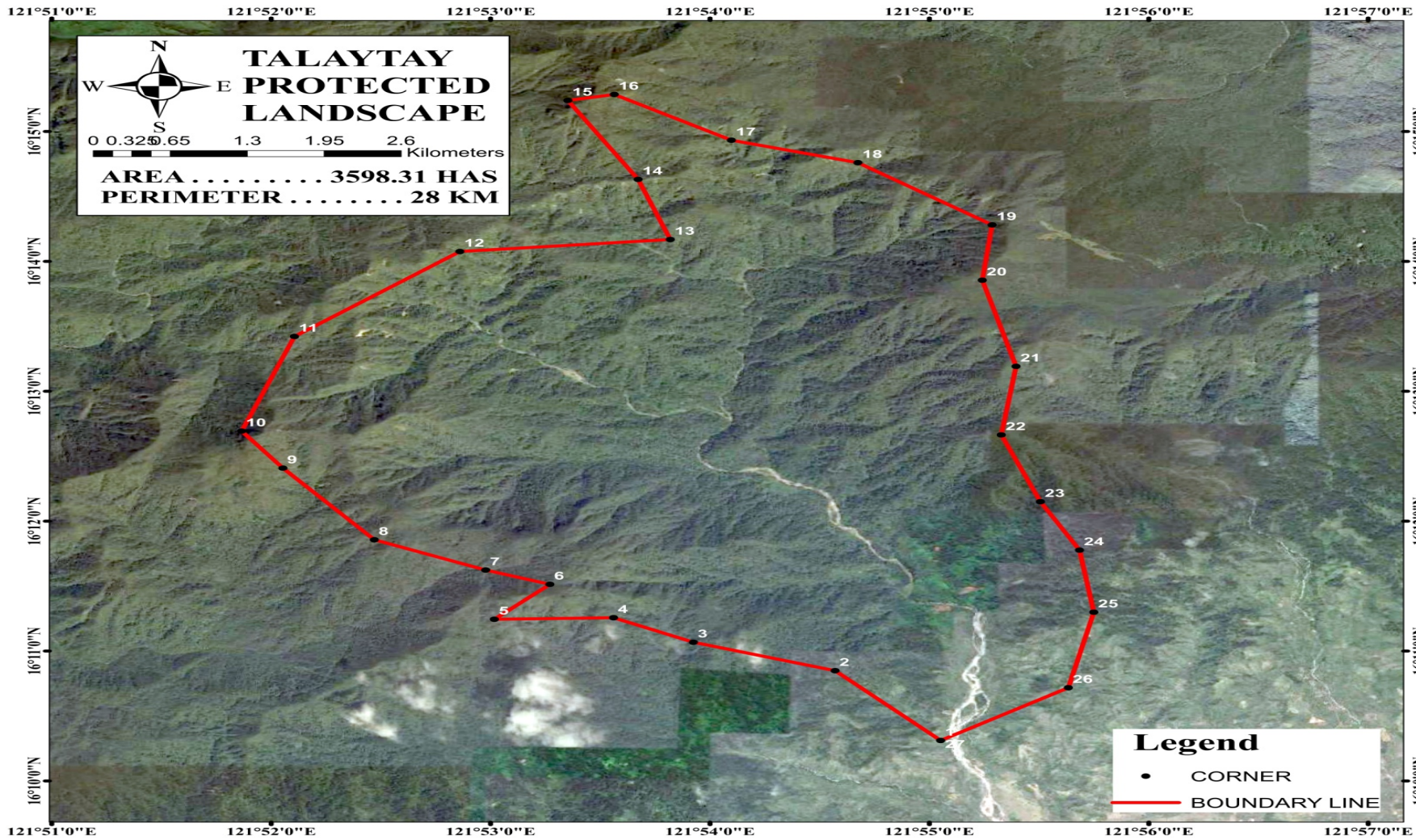


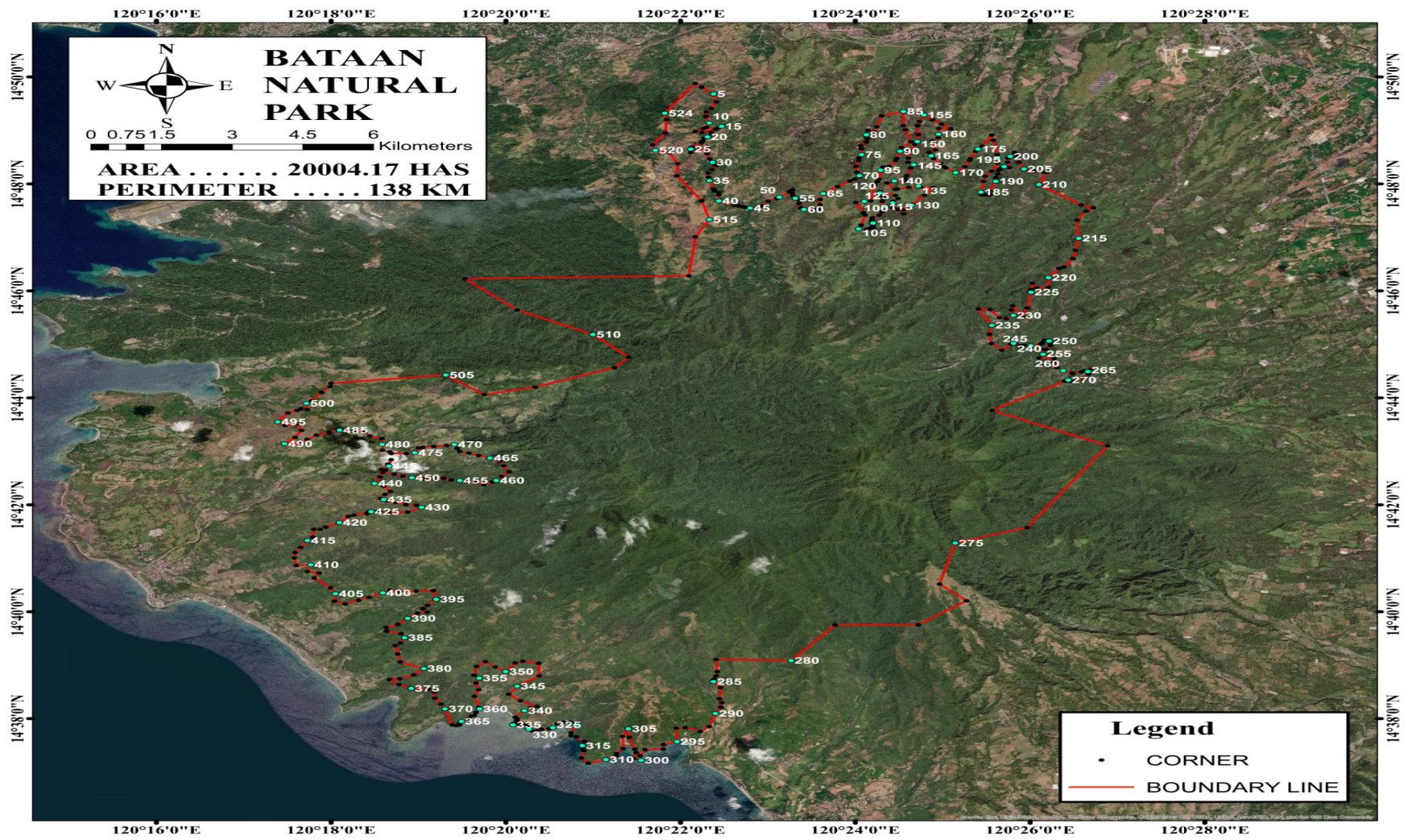
**Legend**

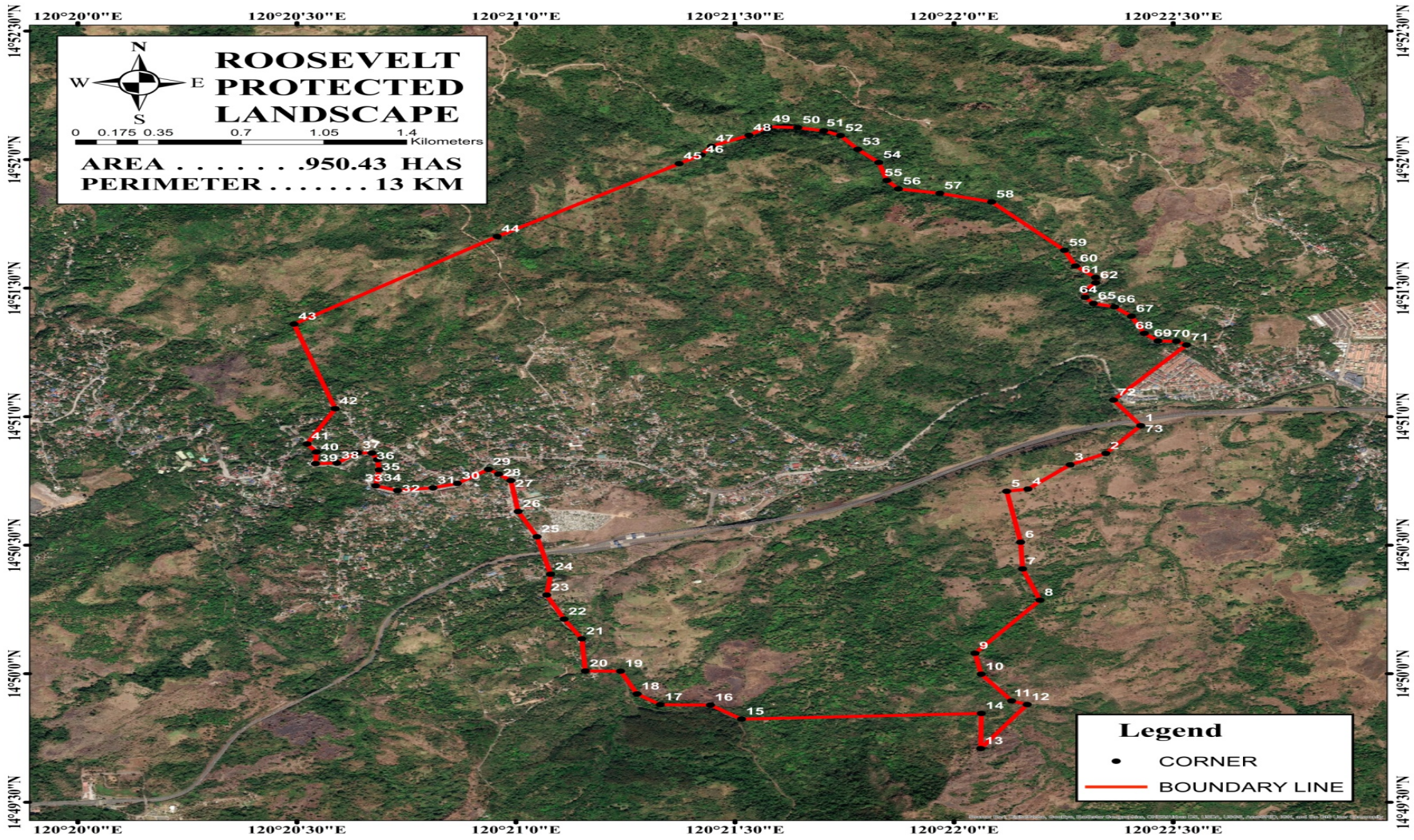
- CORNER
- BOUNDARY LINE

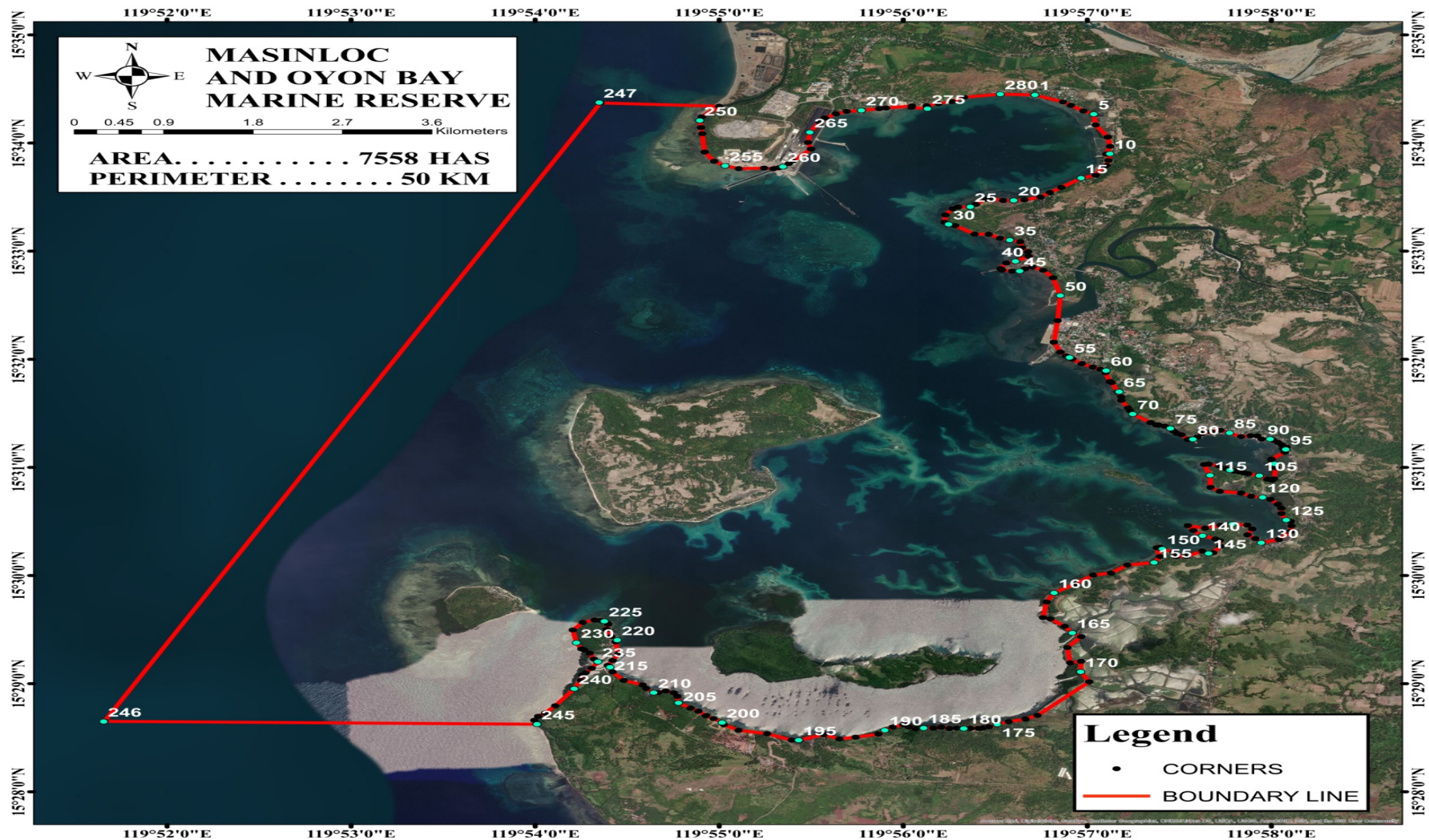












# **Demarcation Teams in Action**

Department of Environment and Natural Resources  
GPS Time: Jun 13, 2019 04:05 PM  
Latitude: 14.648847  
Longitude: 120.313985  
Accuracy: 1.40



Department of Environment and Natural Resources  
GPS Time: Jun 14, 2019 09:43 AM  
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Longitude: 120.315275



Department of Environment and Natural Resources  
GPS Time: Jun 14, 2019 09:54 AM  
Latitude: 14.645818  
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Department of Environment and Natural Resources  
Date & Time: Jun 26, 2019 01:46 PM  
Latitude: 14.624272  
Longitude: 120.300062  
Accuracy: 2.70



Department of Environment and Natural Resources  
Date & Time: Jun 26, 2019, 11:16 AM  
Latitude: 14.67924  
Longitude: 120.284668



Department of Environment and Natural Resources  
Date & Time: Jun 18, 2019, 8:33 AM  
Latitude: 14.693337  
Longitude: 120.319475



Department of Environment and Natural Resources  
Date & Time: Jun 26, 2019 01:46 PM  
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Longitude: 120.300017  
Accuracy: 2.20



Department of Environment and Natural Resources  
Date & Time: Jun 26, 2019 01:46 PM  
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Accuracy: 2.20



Department of Environment and Natural Resources  
Date & Time: Jun 10, 2019 12:21 PM  
Latitude: 14.662618  
Longitude: 120.317757  
Accuracy: 2.10











**THANK YOU!**

**EDILBERT S. SINGIAN, MPA, CE, GE, JRGE, REA, REB**  
Chief, Land Evaluation & Surveys Section, DENR-3