ITTO Side Event (1)
SFM for REDD: from acronyms to implementation in the tropics

FOREST CANOPY DENSITY MAPPING FOR FOREST CLIMATE CHANGE MITIGATION, FLR AND SFM: PHILIPPINE EXPERIENCE*

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FCD TECHNOLOGY

- The project, PD 239/03 Rev.1 (F), was implemented in the Philippines (DENR CALABARZON Region) from 2004-2006 under the auspices of ITTO thru Governments of Japan and Republic of South Korea

- Forest Canopy Density (FCD) Mapper Ver2 software was developed by Dr. Atsushi Rikimaru of JOFCA for ITTO

- FCDM utilizes LANDSAT and ASTER images to generate forest canopy density maps showing the stratified forest cover

One of the basic objectives of FCD project is to enable policy-makers to access information on the status of forest conditions and formulate science-based decisions and actions.

Definition: Forest Canopy Density (FCD) refers to the proportion of an area in the field/ground that is covered by the crown of trees and is expressed in percentage of the total area.

SATELLITE IMAGES (LANDSAT ETM7) - RAW DATA

2002-Apr-03
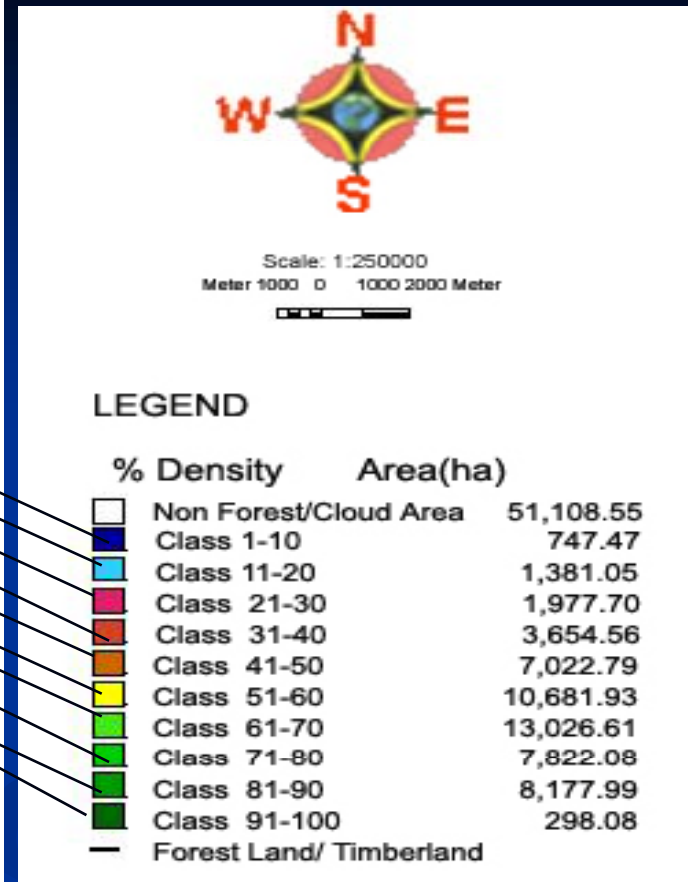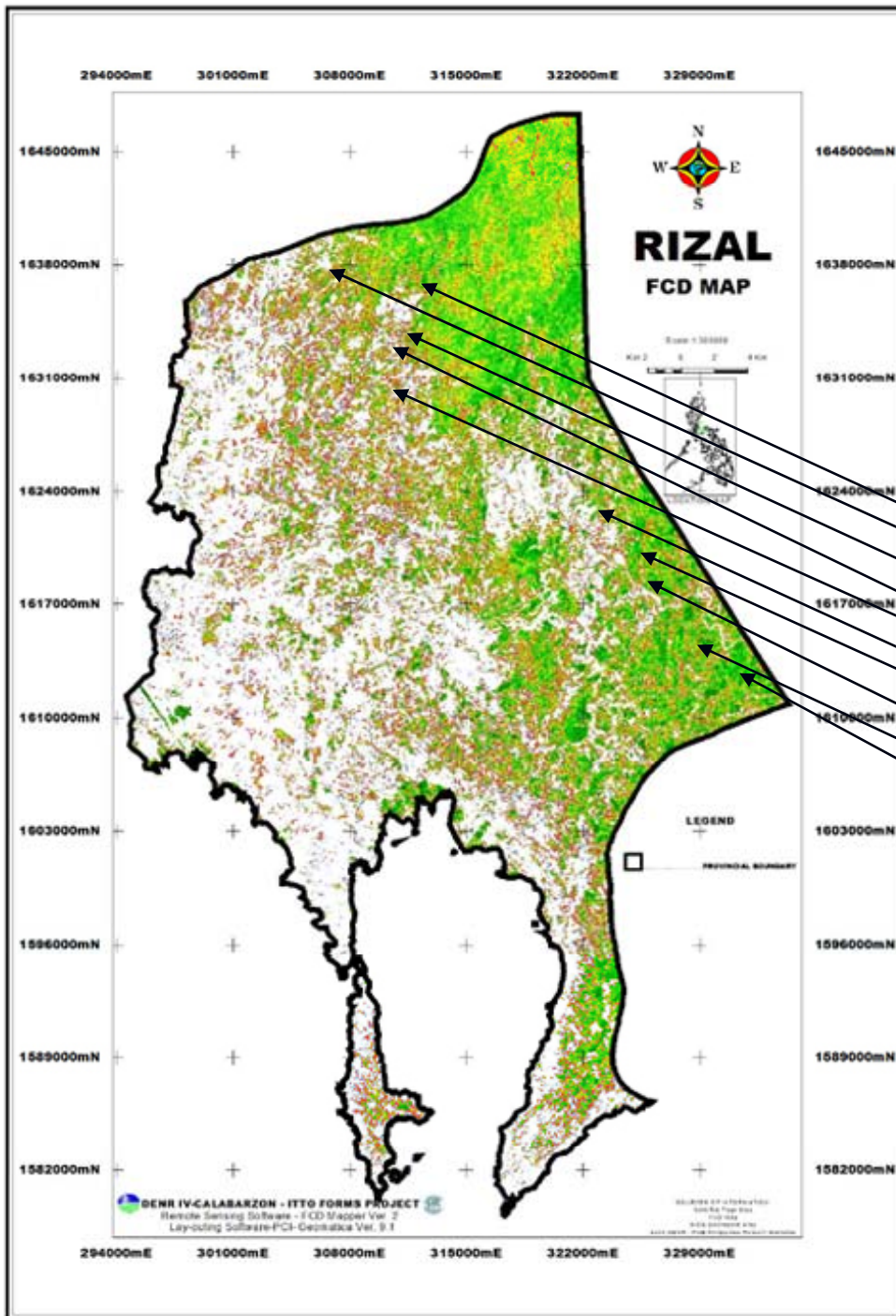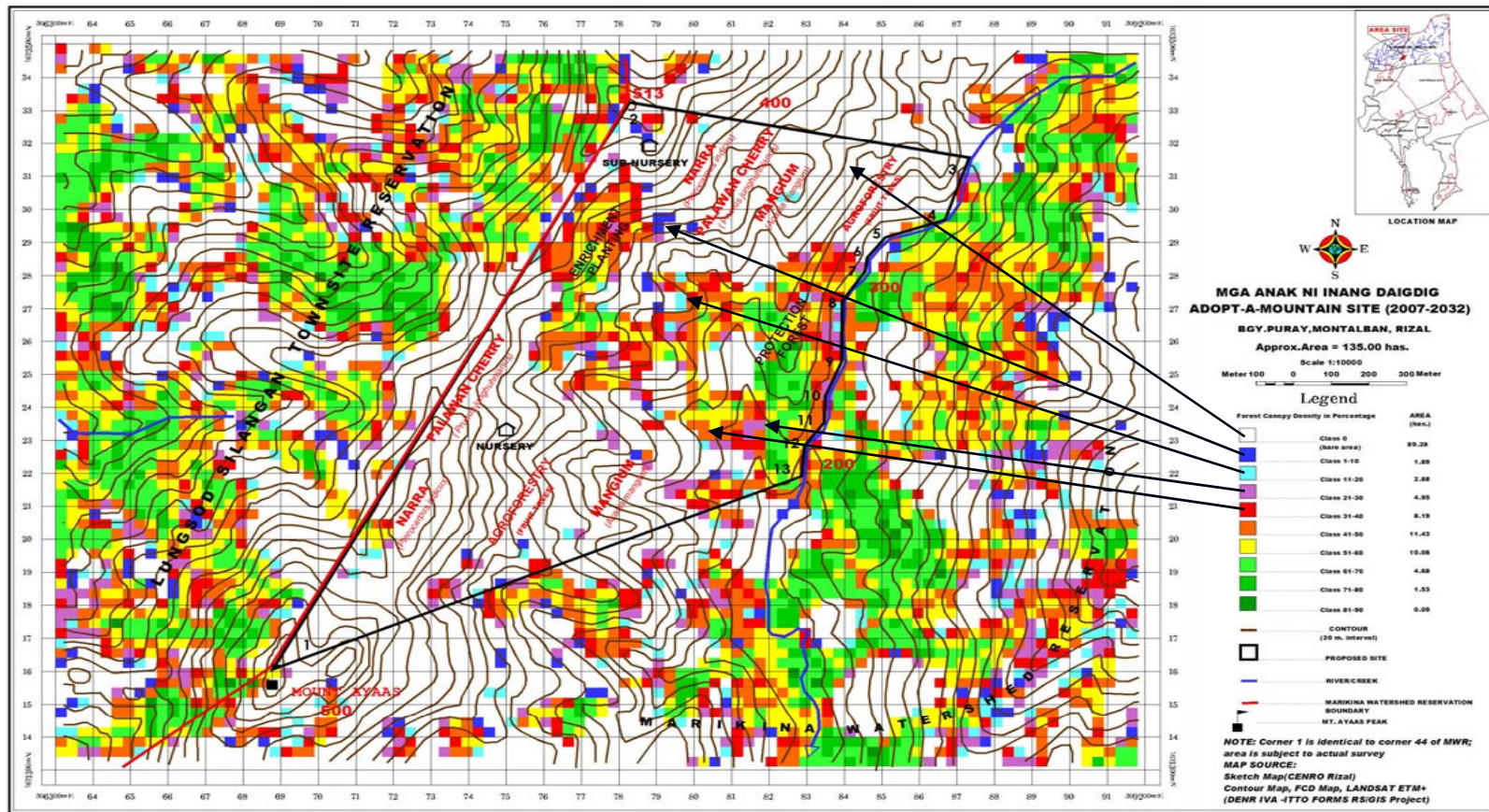**116-49**

2002-Mar-27
115-50

116-50

115-51

Forest Canopy Density Software used to generate digital stratified forest cover maps

RIZAL FCD MAP

LEGEND

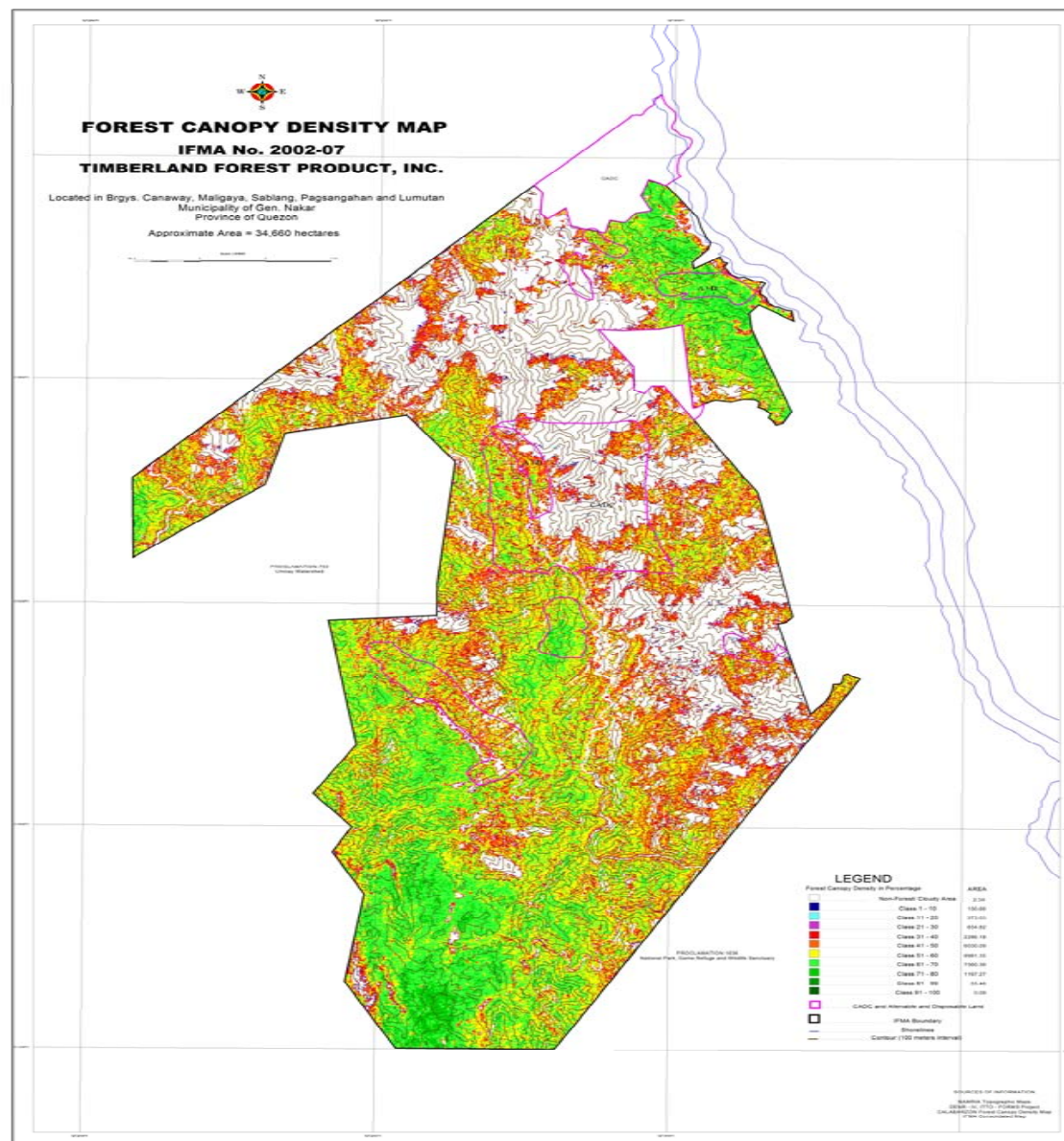| % Density	Area(ha)
Non Forest/Cloud Area	51,108.55
Class 1-10	747.47
Class 11-20	1,381.05
Class 21-30	1,977.70
Class 31-40	3,654.56
Class 41-50	7,022.79
Class 51-60	10,681.93
Class 61-70	13,026.61
Class 71-80	7,822.08
Class 81-90	8,177.99
Class 91-100	298.08
Forest Land/ Timberland	

Scale: 1:250000

Map showing the stratified forest cover in different canopy density classes (1-100%) using FCD software

Closer view of FCD map showing degraded areas (open/marginal sites w/ 1- 40% crown cover density) addressing climate change mitigation, REDD, CDM, SFM and FLR concerns
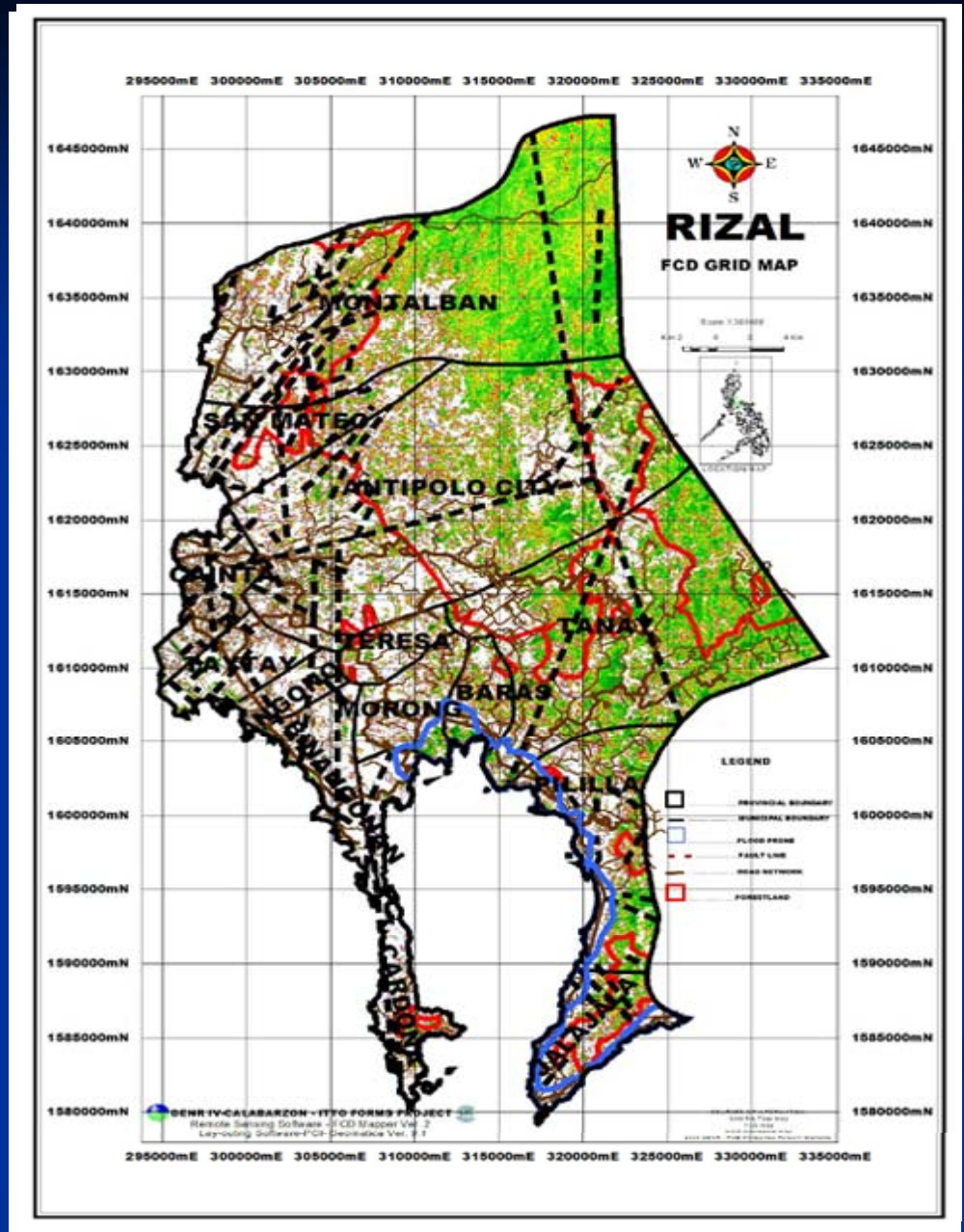
FCD Map of an Industrial Forest Management Agreement (IFMA) showing existing natural vegetation cover for SFM (e.g. harvesting, silvicultural treatments, reforestation, afforestation, NTFPs, protection, etc.) another feature of FCDM
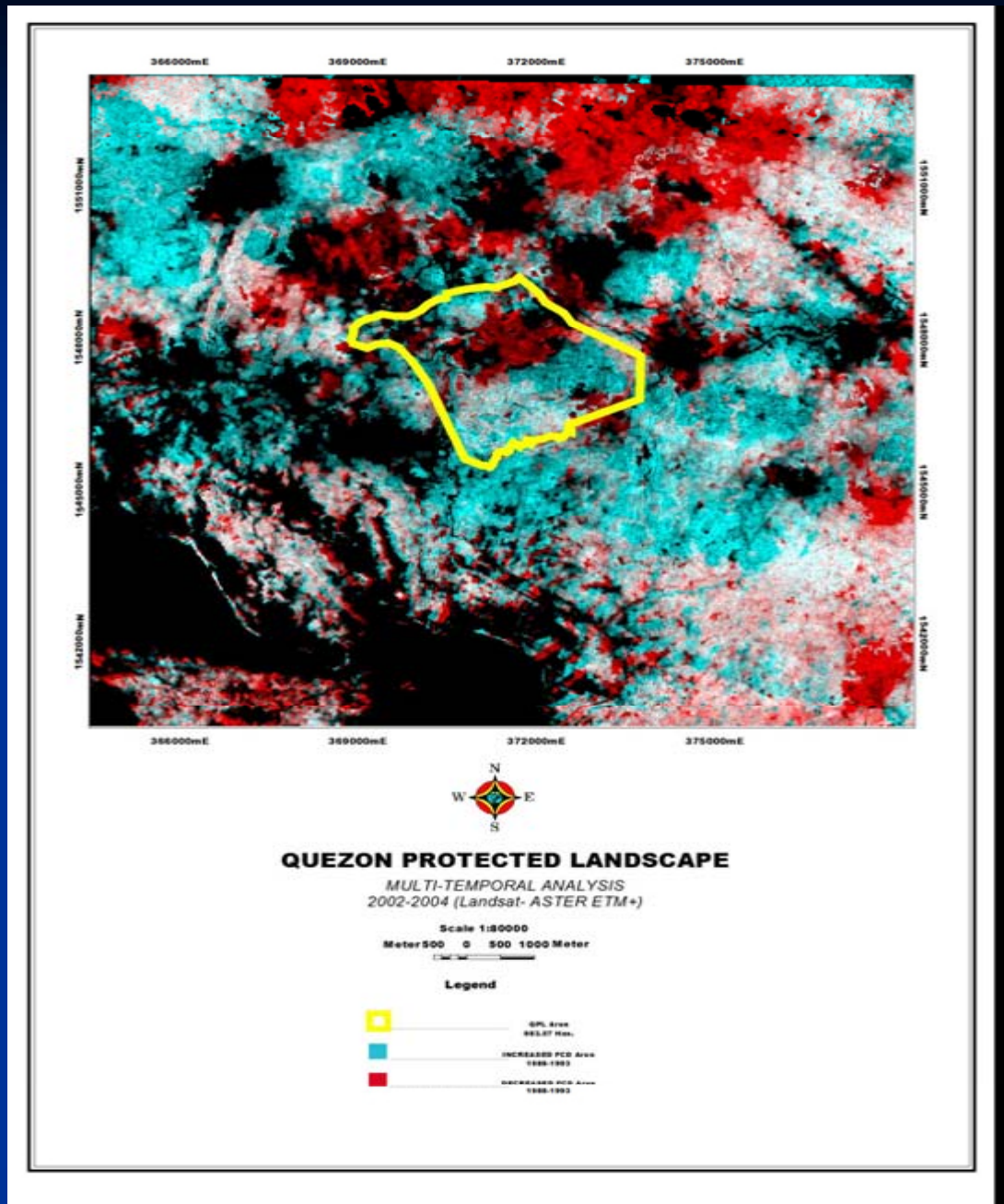
FCD Map superimposed with various themes (e.g. boundary, land classification, road networks, river system, fault line and grid lines) for decision making
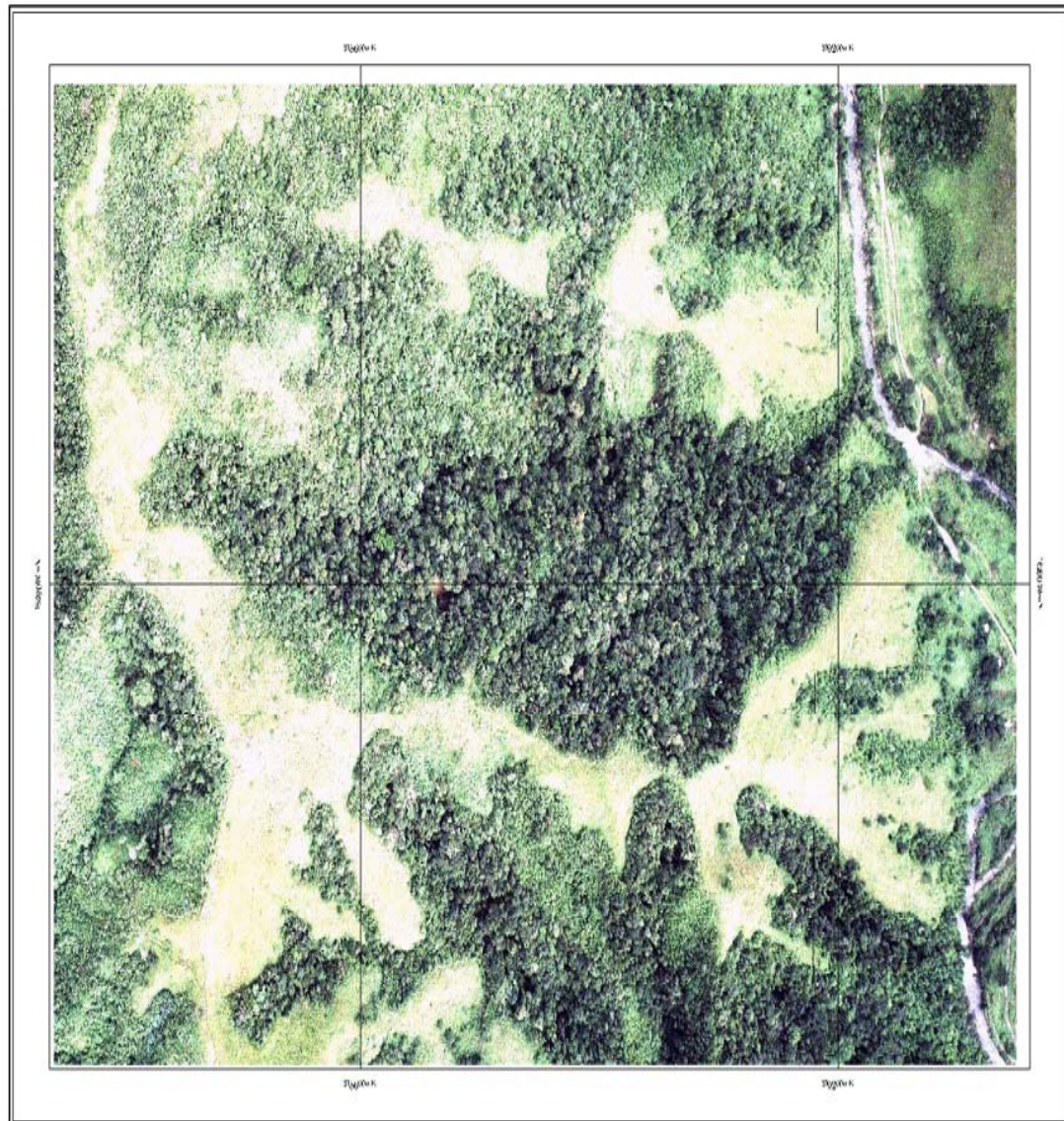
FCD data/output used to generate status of forest cover over time using different satellite data sets (or time series).

Results can be used as a tool for CDM activities , i.e. C-credit trading purposes over the same area

QUEZON PROTECTED LANDSCAPE

MULTI-TEMPORAL ANALYSIS
2002-2004 (Landsat- ASTER ETM+)
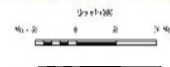
Scale 1:80000

Meter 500   0   500 1000 Meter

Legend

FCD Map superimposed with aerial photo showing positive correlation (map data is highly correlated with ground data), hence, cost-effective for SFM, FLR, REDD, CDM and Climate Change Mitigation activities
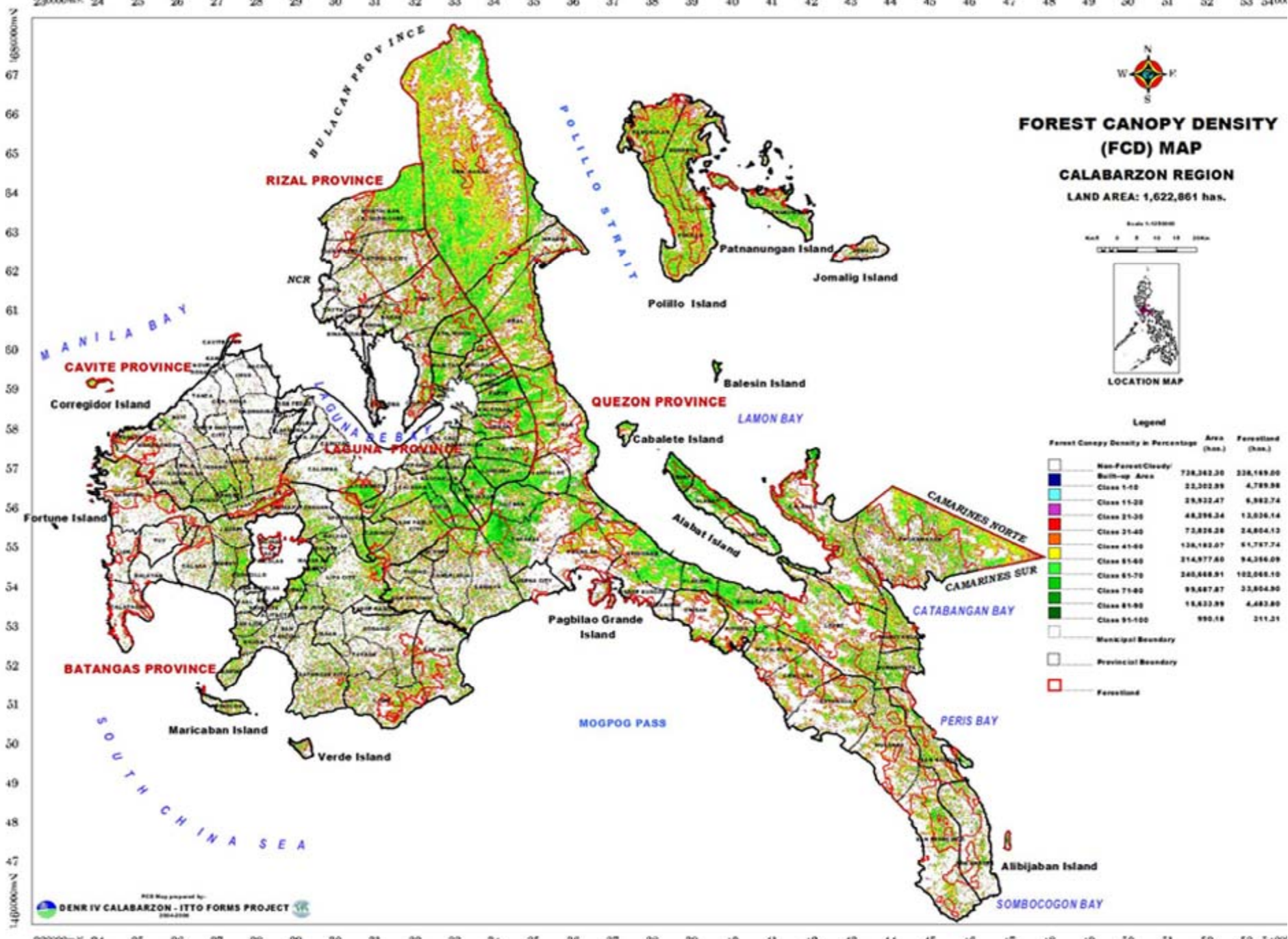

AERIAL PHOTOGRAPH

FOREST CANOPY DENSITY
(FCD) MAP

CALABARZON REGION

LAND AREA: 1,622,861 has.

Scale 1:125000

LOCATION MAP

BULACAN PROVINCE

RIZAL PROVINCE

NCR

MANILA BAY

CAVITE PROVINCE

Corregidor Island

POLILLO STRAIT

Patnanungan Island

Jomalig Island

Polillo Island

Balesin Island

QUEZON PROVINCE

LAMON BAY

Cabalete Island

LAGUNA PROVINCE

LAGUNA BAY

Fortune Island

Alabat Island

CAMARINES NORTE

CAMARINES SUR

CATABANGAN BAY

Pagbilao Grande Island

BATANGAS PROVINCE

Maricaban Island

Verde Island

SOUTH CHINA SEA

MOGPOG PASS

PERIS BAY

Alibijaban Island

SOMBOCOGON BAY

Legend

Forest Canopy Density in Percentage	Area (has.)	Forestland (has.)
Non-Forest/Cloudy/ Built-up Area	738,343.30	338,149.00
Class 1-10	22,302.99	4,789.98
Class 11-20	29,532.47	6,982.74
Class 21-30	48,396.34	13,836.14
Class 31-40	73,836.28	24,804.13
Class 41-50	126,182.07	51,767.74
Class 51-60	214,977.40	94,356.09
Class 61-70	240,668.91	102,065.10
Class 71-80	93,587.87	33,804.90
Class 81-90	18,633.99	4,683.80
Class 91-100	990.18	211.31

Municipal Boundary

Provincial Boundary

Forestland

FCD Map prepared by:
DENR IV CALABARZON - ITTO FORMS PROJECT
2004-2006

THE WAY FORWARD

Forest Canopy Density (FCD) technology has been tested to generate digital stratified forest cover maps and status of forest cover over time (time series) geared towards cost-effective operations for SFM, FLR, REDD, CDM and Climate Change Mitigation activities.

Thus, it is recommended to use FCD technology as a tool in identifying/delineating suitable areas for climate change mitigation, FLR, SFM, REDD and CDM concerns through a possible resolution between ITTO and UNFCCC.

THANK YOU