SEApeat
Sustainable Management of Peatland Forests in Southeast Asia

European Union

Progress Report
Sustainable Management of Peatland Forests in Southeast Asia (SEApeat)
CY 2013 January – November
for the Philippines

3rd Project Coordination Meeting
19 December 2013
Kuala Lumpur, Malaysia

EXPECTED OUTPUT/ACTIVITIES

I. Pilot Testing of BMP and Incentives at Pilot Sites

1. Unified Ordinance for the protection of the Caimpugan Peat Dome
2. Production of Handbook of Flora of Caimpugan
3. Preparation of IEC materials on peatlands
4. Preparation of Business Plan for the ecotourism in Agusan Peatlands and Leyte Sab-a and Training of Ecoguides
5. Provision of support for the continuation of Guided Demo Farms within Agusan Marsh and Sorjan Farming in Leyte Sab-a
6. Provision of research support for students conducting thesis in peatland
7. Installation of piezometers (water level monitoring device)
8. Purchase of (1) motorcycle for the PASu of Agusan Marsh to ensure better coordination and linkaging activities for the Project

EXPECTED OUTPUT/ACTIVITIES

II. Additional Peatlands Assessment and Technical Reports and Maps Prepared and Disseminated

III. Attendance to International Meetings and Workshops on Peatlands

IV. Project Management

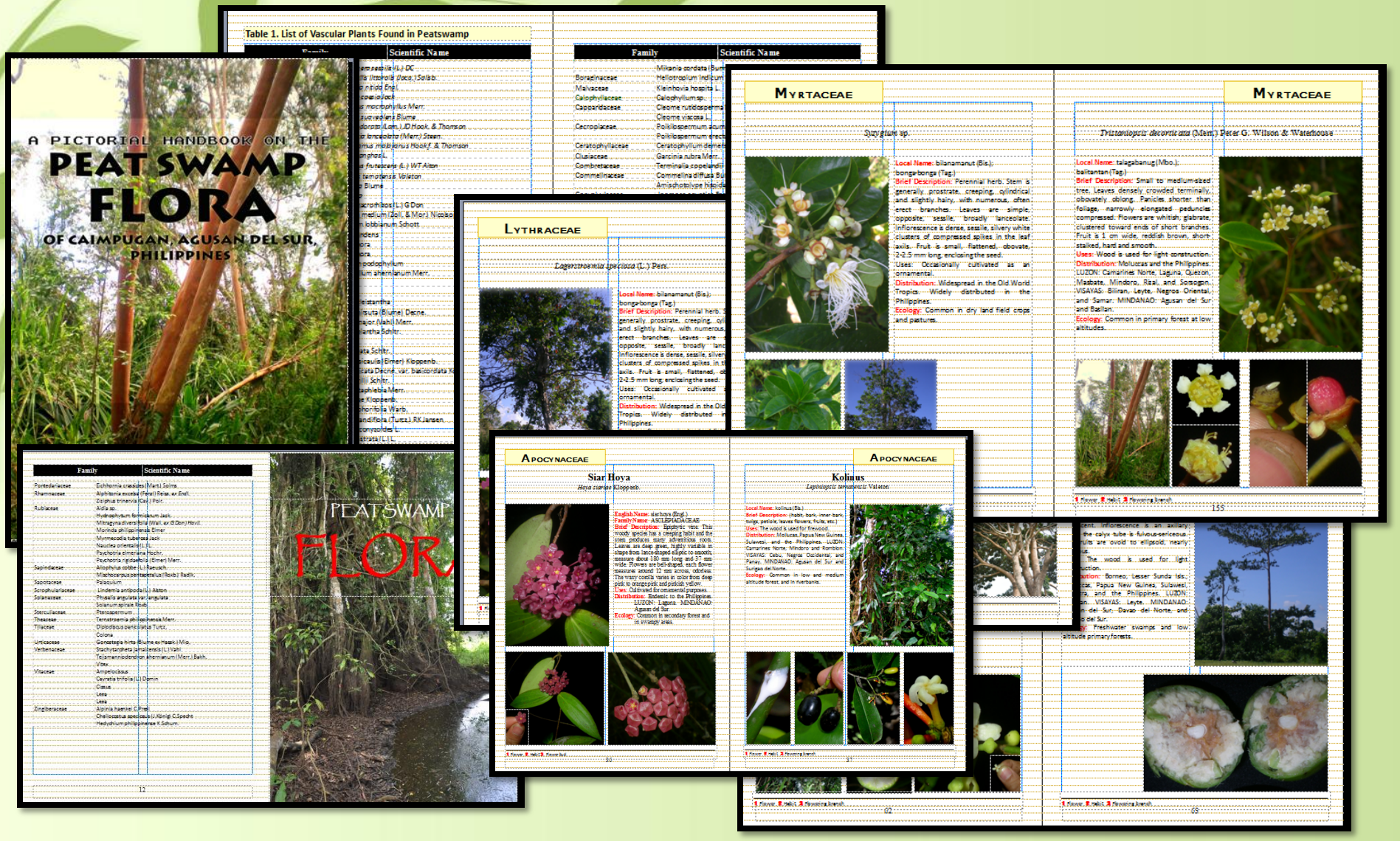
I. Pilot Testing on BMP and Incentives at Pilot Sites

1.Unified Ordinance for the Protection of Caimpugan Peat Dome

Initial consultation with the local government units in barangay, municipal and provincial level for the drafting of Unified Ordinance last July 1-2, 2013

2. Production of Handbook of Flora of Caimpugan

- 3 field botanical documentation were conducted by the National Museum of the Philippines
- 228 species documented



Layout of the handbook was drafted by Dr. Edwin Tadiosa and Mr. Danilo Tandang

PEATLAND FLORA OF CAIMPUGAN, SAN FRANCISCO, AGUSAN DEL SUR

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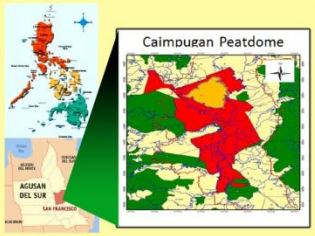
ABSTRACT

Peatland is an ecosystem that is characterized by the accumulation of organic matter called "peat" derived from dead organic matter under high water saturation conditions. The Protected Areas and Wildlife Bureau and the Global Environment Center 2005 Assessment Report suggest that Philippine peatland have high biodiversity values. Given the high endemism in the country, our peatland may contain still undescribed plant species. However, threats to the peatland such as illegal cutting, kaingin making, and agricultural expansion have been observed. Because of this, there is a need to preserve and protect the remaining biodiversity of the peatland. This paper attempts to document and determine the species occurring in the peat swamp forest of Caimpugan for conservation.

Field collections, photo-documentation, and general inventory of plants were made through alpha taxonomy method. The plants were classified and described according to its diagnostic morphological character. Taxonomic description and photographs have been prepared to identify the species, genera and families of plants. Results of the study revealed that there are more than 211 plant species in all study sites. The study sites covering 12 hectares which include pygmy forest, intermediate, and tall forest. Of these, 182 are flowering plants (40 are endemic), 26 are ferns, and three are mosses. Eight of the identified species are threatened based on DENR Administrative Order No. 2007-01. Taxonomic characters of each species such as habit, leaf arrangement, and other important characteristics and features were observed and used to identify the plants. The most represented families are Orchidaceae, Polypodiaceae, Asclepiadaceae, Rubiaceae, and Araceae. The peatland is also a home to many endemic species such as *Ardisia squamulosa* Presl., *Buchanania nitida* Engl., *Calamus multinervis* Becc., *Dillenia philippinensis* Rolfe, *Garcinia rubra* Merr., *Hoya bilobata* Schltr., *Hoya merrillii* Schltr., *Hoya pentaphlebia* Merr., *Semecarpus macrophyllus* Merr., *Teijsmanniodendron ahernianum* (Merr.) Bakh.,and *Tristianopsis decorticata* (Merr.) Peter G. Wils. & Waterh.

The Caimpugan peatland showed high species richness than other wetland ecosystems in the Philippines. Thus, the area should be protected and conserved.



Diplodiscus paniculatus Turcz. | *Dillenia philippinensis* Rolfe var. *philippinensis* | *Friesodielsia lanceolata* (Merr.) Steenis | *Hedychium philippinense* K. Schum. | *Hoya crassicaulis* Schltr. | *Hoya merrillii* Schltr. | *Hoya pentaphlebia* Merr. | *Hoya siariae* Kloppenb.

INTRODUCTION

Agusan marsh is considered one of the most ecologically significant wetland areas in the Philippines, holding nearly 15 percent of the nation's fresh water resources. It is found in the middle of the Agusan River Basin, the largest river basin in the country that spans more than half of the Eastern Mindanao Biodiversity Conservation Corridor, the third Biodiversity corridor established in the country.

The peat swamp forest within the Agusan Marsh and Wildlife Sanctuary (AMWS) is a distinct and unique forest type considered as among the least botanized of Philippine terrestrial habitat types. Apart from general descriptions by Davies (1993, 2005), there is little information available on the general floristics and forest structure of peat swamps in the Philippines (Fernando, 2002).

Various studies had been undertaken to document the flora of the Agusan Marsh. Majority of the studies undertaken presented only a checklist of the species recorded and there is no publication on the specific flora of Caimpugan. The Conservation International (Ferreras, 2008) on their part, collected and documented a total of 192 species of vascular plants from the different transects they laid out. Among the 192 plant species, 16 species were identified as endemic to the country. Eleven threatened species were also encountered in the area. These include *Hoya crassicaulis, Dillenia philippinensis, Vatica odorata ssp. mindanensis*, among others.

The survey and inventory of all plants in Caimpugan resulted for the discovery of two new genera records of plant species found in the area, namely *Thoracostachyum* and *Lepironia*. The Caimpugan has a unique habitat wherein unique plant species might thrive and grows as well. Alarming human activity of indiscriminate small scale logging and shifting cultivation may cause the species vulnerable to these activities. Some species may become critically endangered and may extinct. However, as early as now thru this study, plant species were documented.

Table 1. Some of the Endemic Plant Species Found at Caimpugan Peatland.

Scientific/ Botanical Name	Common/Local Name	Family Name
Baccaurea philippinensis (Merr.) Merr.	makaasim	PHYLLANTHACEAE
Calamus multinervis Becc.	balala	ARECACEAE
Dillenia philippinensis Rolfe	katmon	DILLENIACEAE
Elaeocarpus surigaensis Merr.	yagaw-yagaw	ELAEOCARPACEAE
Hedychium philippinense K.Schum.	tagbak	ZINGIBERACEAE
Hoya merrillii Schltr.	sabilak	ASCLEPIADACEAE
Kania urdanetensis (Elmer) Peter G. Wilson	sambolawan	MYRTACEAE
Lepiniopsis ternatensis Valeton	kolinus	APOCYNACEAE
Morinda philippinensis Elmer	kamaliwan	RUBIACEAE
Semecarpus macrophyllus Merr.	anagas	ANACARDIACEAE
Teijsmanniodendron ahernianum (Merr.) Bakh.	dangula	LAMIACEAE
Ternstroemia philippinensis Merr.	barangoy	THEACEAE

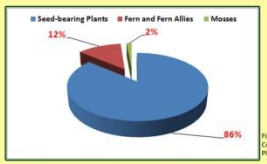


Figure 1. Percentage Composition of Plant Species (n=211)

METHODOLOGY

Three field surveys were conducted on November 23 to December 17, 2012; March 16 to April 1, 2013; and June 27 to July 20, 2013. Field collections, photo-documentation, and general inventory of plants were made through alpha taxonomy method. The plants were classified and described according to its diagnostic morphological character. Taxonomic description and photographs have been prepared to identify the species, genera and families of plants. Voucher specimens were collected, dried, and mounted and were deposited at the Philippine National Herbarium, National Museum, Manila.


1. Reconnaisance Survey


2a. Collection of plants


2b. Collection of plants


3. Photography


4. Pre-identification and pressing of collected plants prior to transport at the PNH


4b. Preservation of collected specimens


5. Packaging


6. Drying


7. Mounting, labelling, identification and Accessioning


8. Distribution

RESULTS AND DISCUSSION

Results of the study revealed that there are more than 211 plant species in all study sites. The study sites covering 12 hectares which include different vegetation zones such as pygmy forest, intermediate, and tall forest. Of these, 182 are flowering plants, 26 are ferns, and three are mosses (Fig. 1). Eight of the identified species are threatened based on DENR Administrative Order No. 2007-01. Taxonomic characters of each species such as habit, leaf arrangement, and other important characteristics and features were observed and used to identify the plants. The most represented families are Orchidaceae, Polypodiaceae, Asclepiadaceae, Rubiaceae, and Araceae. The peatland is also a home to many endemic species such as *Ardisia squamulosa* Presl., *Buchanania nitida* Engl., *Calamus multinervis* Becc., *Dillenia philippinensis* Rolfe, *Garcinia rubra* Merr., *Hoya bilobata* Schltr., *Hoya merrillii* Schltr., *Hoya pentaphlebia* Merr., *Semecarpus macrophyllus* Merr., *Teijsmanniodendron ahernianum* (Merr.) Bakh., and *Tristianopsis decorticata* (Merr.) Peter G. Wils. & Waterh.(Table 1).

The most conspicuous and distinctive tree in this area is a species of *Tristianopsis decorticata* with its bright reddish-orange and scrolled outer bark. Other species such as *Calophyllum* and *Syzygium* appear to be the most common trees in the Caimpugan peatland having stilt roots and buttresses that help provide stability in the waterlogged substrate. The forest floor is dominated by the spiny-leaved sedge *Lepironia articulata* growing up to 2 m tall. It is interesting to note that *Lepironia articulata*, was reported in India particularly in coastal belt of Alappuzha District in Kerala, Madagascar, Malaysia, Australia, and Sri Lanka, and was found growing also in Caimpugan Peatland.

A total of 199 native and indigenous species were documented, 40 of these species are endemic. Twelve species were documented as exotic (Fig. 2). This shows the diversity of plants and a potential area to explore more important species. Thus, conservation and protection of the area and these native plant species are of great importance. A thorough floristic survey is needed as the area is suspected to be a host to potential species which are important to science.

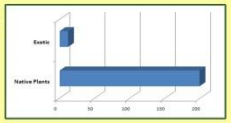


Figure 2. Percentage Composition of Native, Indigenous, and the Exotic Plants growing in the Peatland (n=211)

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Poster presented at the 2nd International Symposium of Philippine Native Plants Conservation Society November 15-16, 2013 Pampanga Agricultural College, Magalang, Pampanga, Philippines

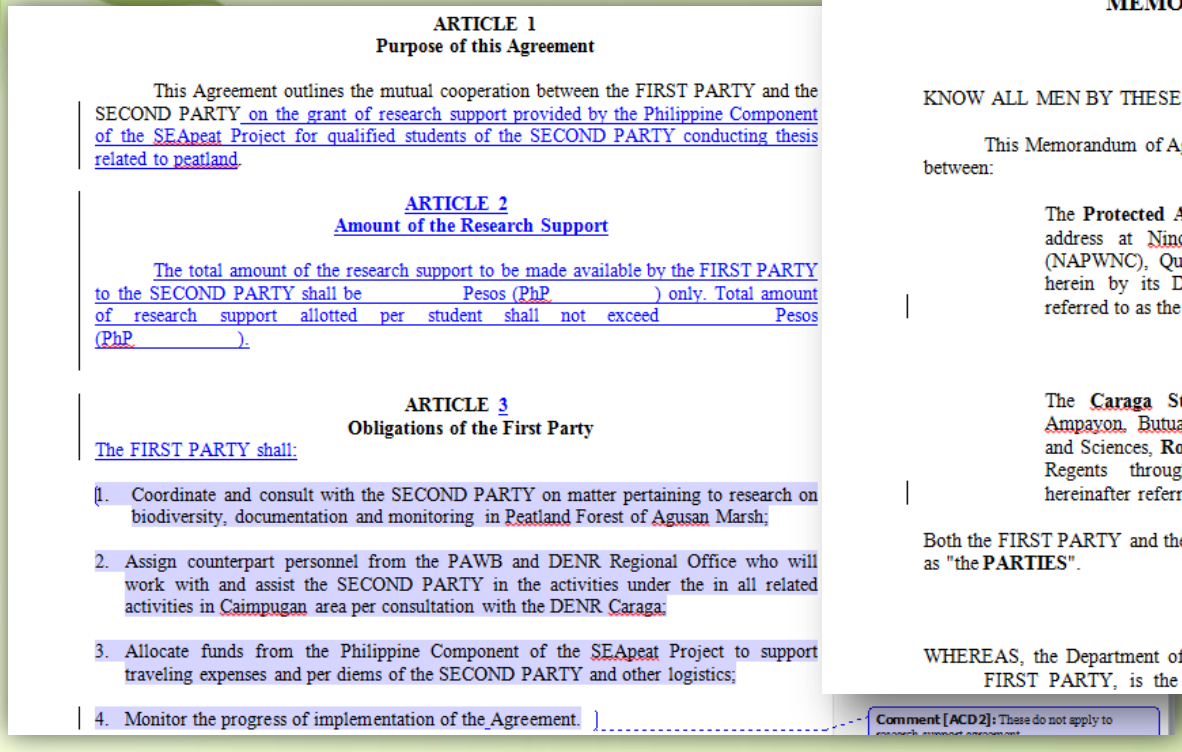
- Presentation during the 2nd International Symposium of Philippine Native Plants Conservation Society last 15-16 November 2013
- There is a proposal to publish the data of peatland flora of Caimpugan in refereed journal based in Brazil.

3. Preparation for Ecotourism Plan

- Consultation for community based ecotourism was conducted by the NTFP last 8-10 May 2013 in Agusan Marsh Pilot Site

4. Provision of Research Support for Students Conducting Thesis in Peatland

- Memorandum of Agreement with the Caraga State University was drafted and consulted with the legal adviser



ARTICLE 1
Purpose of this Agreement

This Agreement outlines the mutual cooperation between the FIRST PARTY and the SECOND PARTY on the grant of research support provided by the Philippine Component of the SEApeat Project for qualified students of the SECOND PARTY conducting thesis related to peatland.

ARTICLE 2
Amount of the Research Support

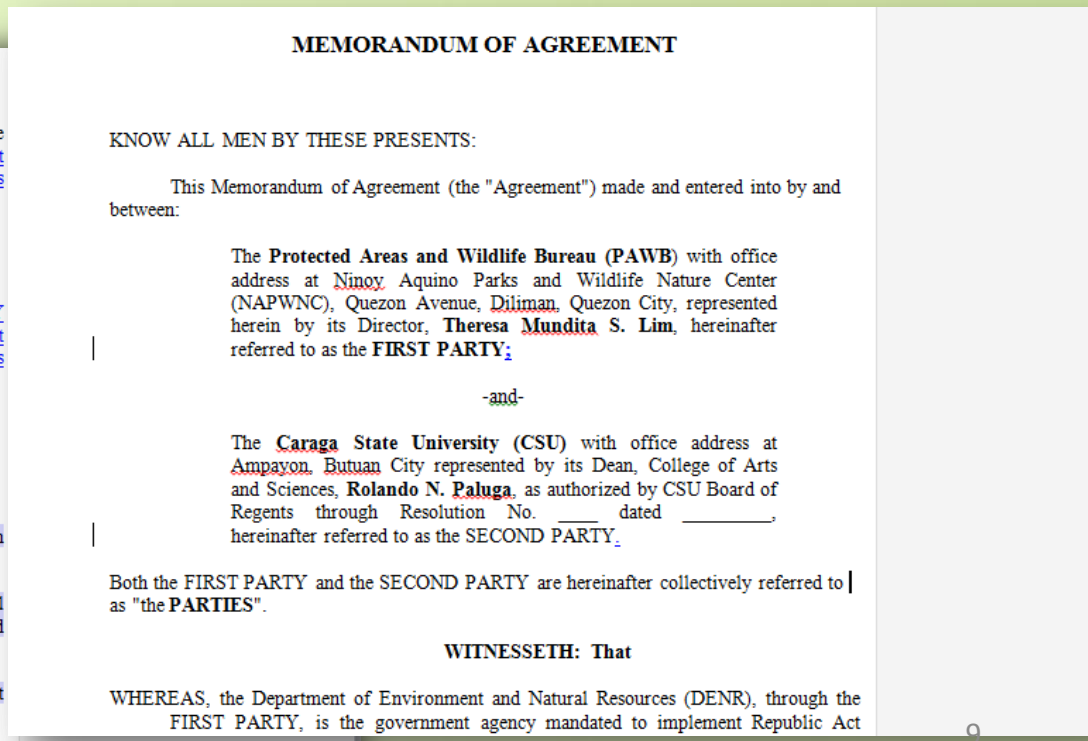
The total amount of the research support to be made available by the FIRST PARTY to the SECOND PARTY shall be Pesos (PhP) only. Total amount of research support allotted per student shall not exceed Pesos (PhP).

ARTICLE 3
Obligations of the First Party

The FIRST PARTY shall:

1. Coordinate and consult with the SECOND PARTY on matter pertaining to research on biodiversity, documentation and monitoring in Peatland Forest of Agusan Marsh;
2. Assign counterpart personnel from the PAWB and DENR Regional Office who will work with and assist the SECOND PARTY in the activities under the in all related activities in Caimpugan area per consultation with the DENR Caraga;
3. Allocate funds from the Philippine Component of the SEApeat Project to support traveling expenses and per diems of the SECOND PARTY and other logistics;
4. Monitor the progress of implementation of the Agreement.)

Comment [ACD2]: These do not apply to



MEMORANDUM OF AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

This Memorandum of Agreement (the "Agreement") made and entered into by and between:

The **Protected Areas and Wildlife Bureau (PAWB)** with office address at Ninoy Aquino Parks and Wildlife Nature Center (NAPWNC), Quezon Avenue, Diliman, Quezon City, represented herein by its Director, **Theresa Mundita S. Lim**, hereinafter referred to as the **FIRST PARTY**;

-and-

The **Caraga State University (CSU)** with office address at Ampayon, Butuan City represented by its Dean, College of Arts and Sciences, **Rolando N. Paluga**, as authorized by CSU Board of Regents through Resolution No. ____ dated _____, hereinafter referred to as the SECOND PARTY.

Both the FIRST PARTY and the SECOND PARTY are hereinafter collectively referred to as "the **PARTIES**".

WITNESSETH: That

WHEREAS, the Department of Environment and Natural Resources (DENR), through the FIRST PARTY, is the government agency mandated to implement Republic Act

5. Provision of Support for the Continuation of Demo Farm in Pilot Sites

<u>Leyte Sab-a Pilot Site</u>

- Training Proposal for the Peatland Communities in Leyte Sab-a entitled, “Fundamentals of Organic Agriculture Thru: Natural Farming System for Peatlands”
- Proposed by Dr. Paulino Cabahit of DA-ATI
- Agreed during the Leyte Technical Working Group meeting last 5 July 2013

5. Provision of Support for the Continuation of Demo Farm in Pilot Sites

Agusan Marsh Pilot Site

- Monitoring of demo farm in Agusan Marsh conducted by Dr. Wilfredo Sanidad, NTWG member
- Consultation with the peatland communities on how to improve the demo farm productivity was facilitated by Dr. Wilfredo Sanidad last 1-5 October 2013

Lecture and Consultation with the Community

Dr. Sanidad lecture on Soils

Demo on how to use the Soil Test Kit

Field visit to San Teodoro demo farm to observe crop with nutrient deficiencies

II. Additional Peatland Assessment

- conducted last 14-18 May with the assistance of Bureau of Soils and Water Management
- Peat depth assessment was conducted in Lalaguna Marsh in Lopez, Quezon and Naujan Lake in Victoria, Oriental Mindoro.
- Additional confirmed peatland site was assessed also in Mindoro.

Peat Soil Sample in Lopez, Quezon

Brgy. Mahayod-hayod

Soil sampling at Barangay Bambanin, Victoria, Oriental Mindoro

Swampy areas of Naujan Lake National Park, a Ramsar Site

- The newly assessed peatland is situated between Barangay Minas, Sablayan, Occidental Mindoro and Villa Cervesa, Victoria, Oriental Mindoro.
- The team had an opportunity also to go back in Lobo, Batangas and Calauan, Laguna to confirm whether the site is peatland or not. It was assessed that both sites were not peatland.

Soil sampling at Barangay Minas, Sablayan, Occidental Mindoro/ Villa Cervesa, Victoria, Oriental Mindoro

Soil Sampling in Calauan, Laguna

Soil Sampling in Lobo, Batangas

III. Attendance to International Meetings and Workshop on Peatlands

- Peer Learning on Best Management Practices on Peatland for Community last 17-19 June 2013 Banjarmasin, Indonesia

Dr. Paulino Cabahit
(DA-ATI of Leyte Sab-a Pilot Site)

Rodolfo Cerbo
(representative of Brgy. New Visayas Agusan Marsh Pilot Site)

- Attendance to Planning Meeting to Prepare for Phase 2 of the APFP/SEApeat last 8-10 September, Kuala Lumpur, Malaysia by Mr. Jaime Ubanos of DENR Caraga and Focal Person of Agusan Marsh Pilot Site.

- ASEAN Workshop on Enhancement of the Fire Danger Rating System last 28 October – 1 November 2013, Kuala Lumpur, Malaysia attended by Cinsp. Dennis Molo of Bureau of Fire Protection and Ms. Analiza Solis of Philippine Atmospheric, Geophysical, and Astronomical Services Administration

IV. Project Management

- National Project Implementation Committee meeting conducted last 2 October 2013
- ROM by Egbert Topper last 3-5 October 2013
- Funds has been downloaded to Leyte Sab-a and Agusan Marsh for the implementation of the project
- Procurement of PASu Miranda's motorcycle to be used in monitoring in Agusan Marsh Pilot Site

Result Oriented
Monitoring by
Mr. Egger Topper
3-5 October 2013

Thank You!