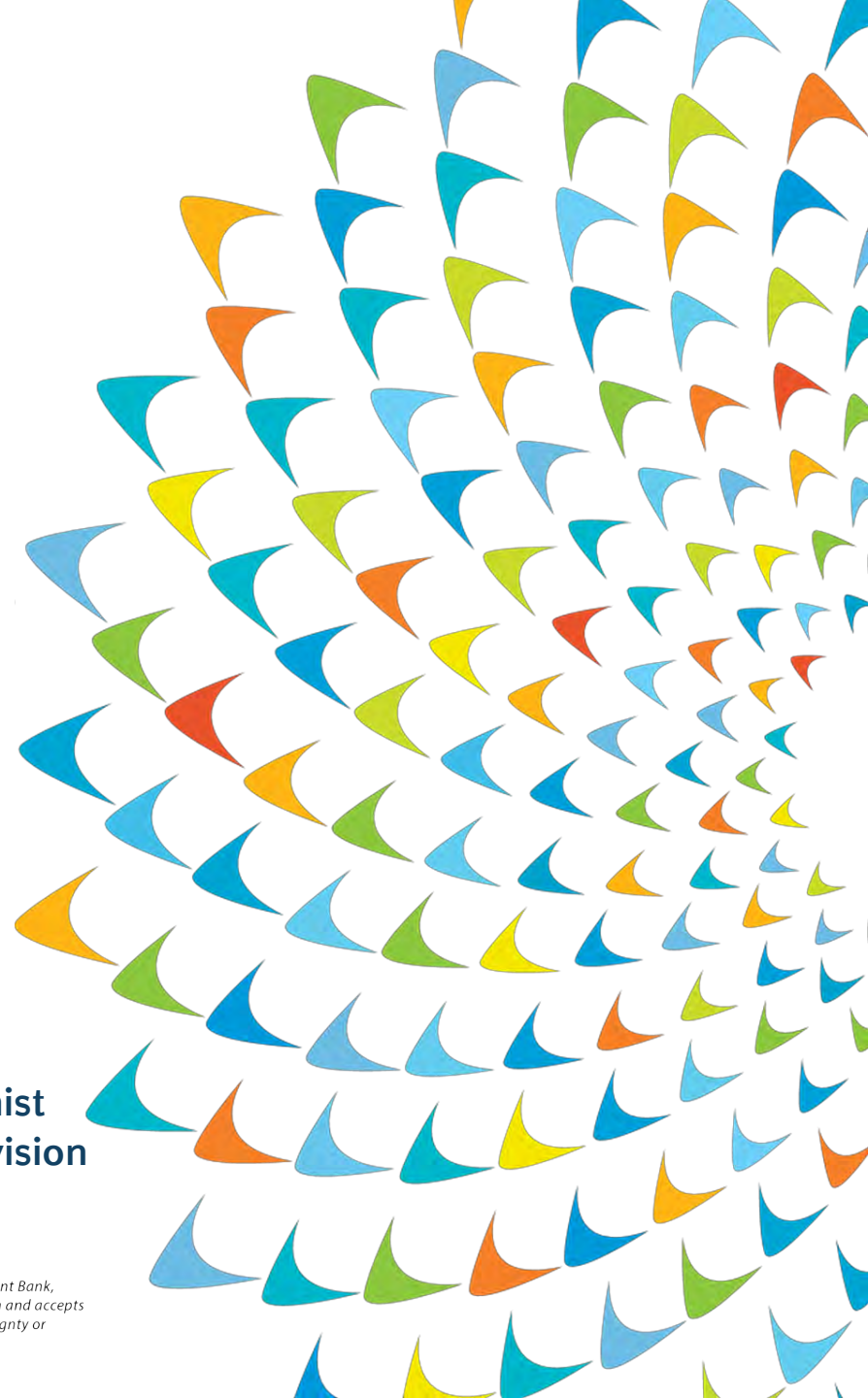


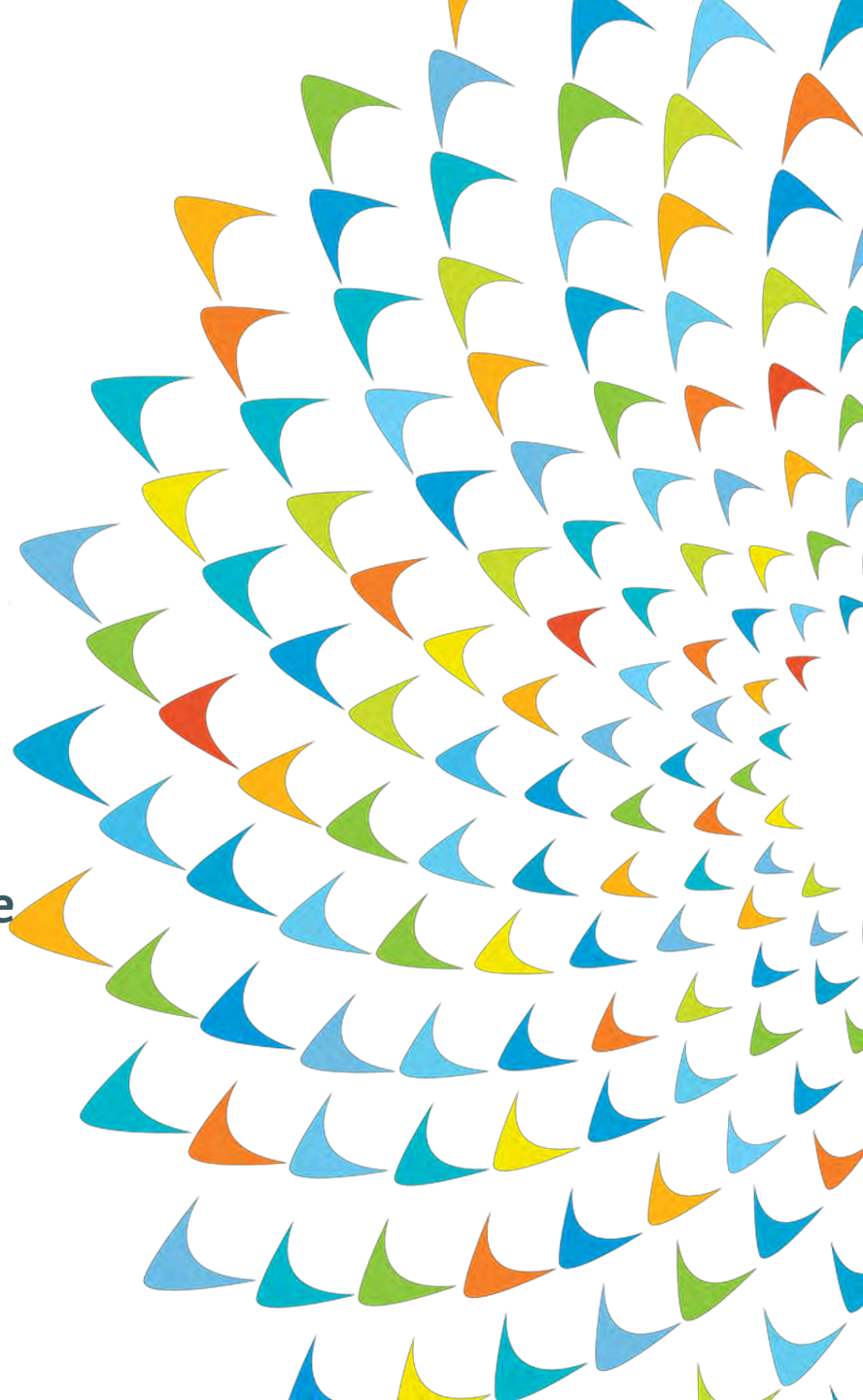
# ICT Applications in Community-based Watershed Management in the Philippines

## – Experience from Integrated Natural Resources and Environmental Management Project (INREMP) –

Takeshi Ueda  
Principal Natural Resources and Agriculture Economist  
Environment, Natural Resources and Agriculture Division  
Southeast Asia Department



1. INREMP Profile
2. ICT Application (1): GIS-based integrated project management information system
3. ICT Application (2): Geotagging
4. ICT Application (3): Drone
5. ICT Application (4): e-Commerce



# INREMP Profile

<b>Period</b>	2012 – 2021
<b>Financing (\$Million)</b>	ADB: 57.05, IFAD: 8.49, GEF: 2.50, Gov't: 14.53
<b>Objective</b>	<ul style="list-style-type: none"><li>- Address unsustainable watershed (WS) management in four priority river basins (RB)</li><li>- Benefit 200,000 households, about 70% of which are indigenous peoples, in the RB of 1.15 million hectares with diversified and increased incomes</li></ul>
<b>Components</b>	<ol style="list-style-type: none"><li>1. RB and WS management and investment plans established</li><li>2. Smallholder and institutional investments in conservation increased and URB productivity enhanced in the forestry, agriculture and rural sectors</li><li>3. RB and WS management capacity and related governance mechanisms strengthened</li></ol>
<b>Agencies</b>	<ul style="list-style-type: none"><li>• Dept of Environment and Natural Resources</li><li>• Dept of Trade and Industry</li><li>• Dept of Agriculture</li><li>• Local government units</li><li>• World Agroforestry Centre</li></ul>







# ICT Application (1): GIS-based integrated project management information system (iPMIS)

Use	Project management tool: capture, store, analyze, manage, and present all types of project data and information, including geographical data, various project activity information and implementation status, and procurements of goods, works, services.
Impact	Enabled comprehensive (i) planning to identify suitable sites for project interventions and (ii) monitoring of implementation.

**INTEGRATED PROJECT MANAGEMENT INFORMATION SYSTEM (IPMIS)**

which is presented below as system form 1, can be accessed at <https://inrempcmis.fasps.net/register>.

**Register User**

Full Name - *required*      Email Address - *required*

Password - *required*      Re-Type Password - *required*

Region - *all users except NPCO*      Province - *all users except NPCO & BPCO*

Watershed - *only users from CENRO, SUSIMO & WMPPO*

**NOTE:**  
 → For CENRO please select all required watersheds.  
 → For SUSIMO / WMPPO please select specific watershed only.

**Register**   **Reset**

System User Registration Form

**INREMP iPMIS**

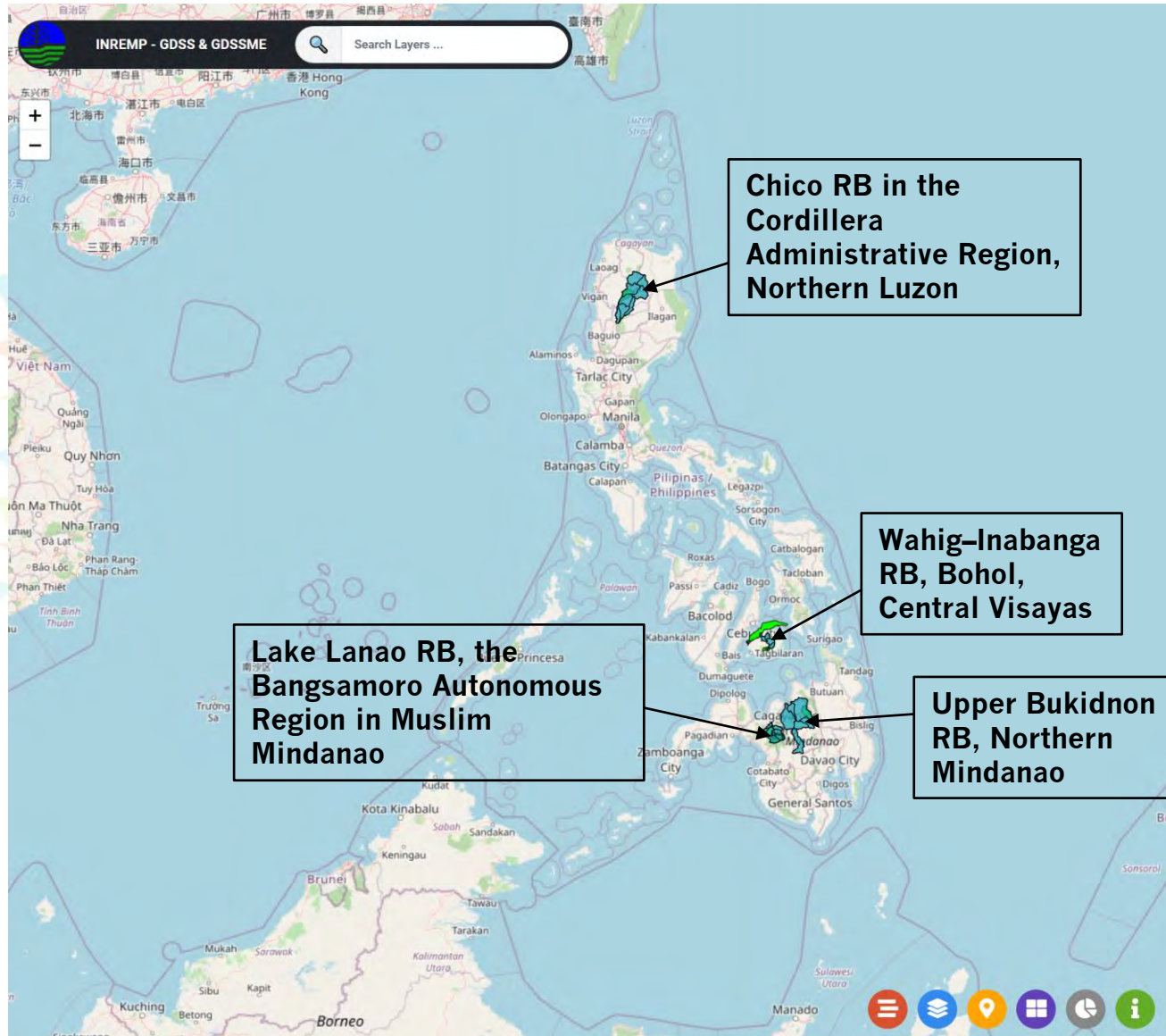
**Login Form**

Email

Password

**Sign in**

# ICT Application (1): GIS-based Integrated Project Management Information System



# ICT Application (1): GIS-based Integrated Project Management Information System

Sidebar – is a user interface element that displays a list of choices of system navigation menus. Use for navigation purposes.

IPMIS

- DASHBOARD
- PO LIST
- REGISTER PO
- PROJECT LIST
- NEW PROJECT
- PROCURED GOODS
- CONTRACTS
- ADD CONTRACT
- NEW PASSWORD
- SIGN OUT

## List of Contracts

Hi, Ma. Theresa Corazon D. Ladrera

SEARCH:

[CAR-KAL-PIN-BAL-ABFA-2016](#) [Saltan](#)  
 Region: Cordillera Administrative Region (CAR)  
 Province: Kalinga  
 Contractor: Ababa-an Farmers Association  
 Type: Natural Resources Management (NRM)  
 Duration: December 19, 2016 to December 19, 2019  
 Contract Cost: 3,403,464.15

Modality	Cost	Weighted Physical Progress			Area (Ha)		Time Elapsed	Period
		Target	Actual	Variance	Contracted	Planted		
Agroforestry	316,965	96.79%	96.42%	-0.36%	9	9	100.00%	Q4 2020
Assisted Natural Regeneration (ANR)	192,576	100%	100%	0%	7	7	100.00%	Q4 2020
Reforestation	162,745	100%	100%	0%	5	5	100.00%	Q4 2020

[GEOTAG PHOTOS](#) [99+](#)
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[UPLOAD BOQ](#)
[SPECIES](#)
[SOCIAL](#)
[ENVI](#)
[EDIT](#)

[REMARKS](#) | [FUNDSOURCE](#) | [PAYMENTS](#) | [DELETE CONTRACT](#)

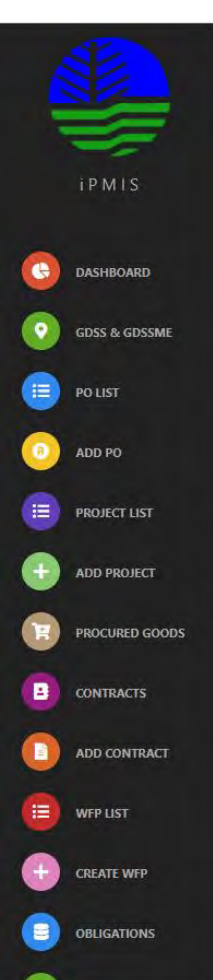
### Add New Contract / Partnership Agreement

- To add new contract, click the **ADD CONTRACT** menu from the sidebar. A Form as shown below will appear.

red outside ADB with appropriate permission.







# ICT Application (1): GIS-based Integrated Project Management Information System










**Geotag Albums**

Contract Code: **CAR-KAL-PIN-PIN-ABCDFA-2018**  
Contract Type: Natural Resources Management (NRM)  
Contractor: ABCD Farmers Association  
Contract Cost: **2,268,945.00**





**AGROFORESTRY - 2018**

 OCT 21, 2020	 OCT 21, 2020	 OCT 21, 2020	 OCT 21, 2020
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**COMMERCIAL TREE PLANTATION - 2018**

 SEP 08, 2021	 AUG 31, 2021	 JUN 05, 2020	 JAN 31, 2020
 OCT 26, 2018	 SEP 23, 2018	 SEP 06, 2018	

**POLYGONS / POLYLINES**

			
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**CAR-APA-CON-CON-AGFUDA-2018**



Activity: 3. Plantation Maintenance & Protection | Date: Sep 04, 2020

Latitude: 17.79371 | Longitude: 121.36804

For development purposes only

Google | Keyboard shortcuts | Imagery ©2022 CNES / Airbus, Maxar Technologies | Terms of Use

Nearby Photos (\*Max 15 Meters Distance\*)

 10.71M	 11.73M
---	---

Contract Polygons & Polylines

Target — Agroforestry

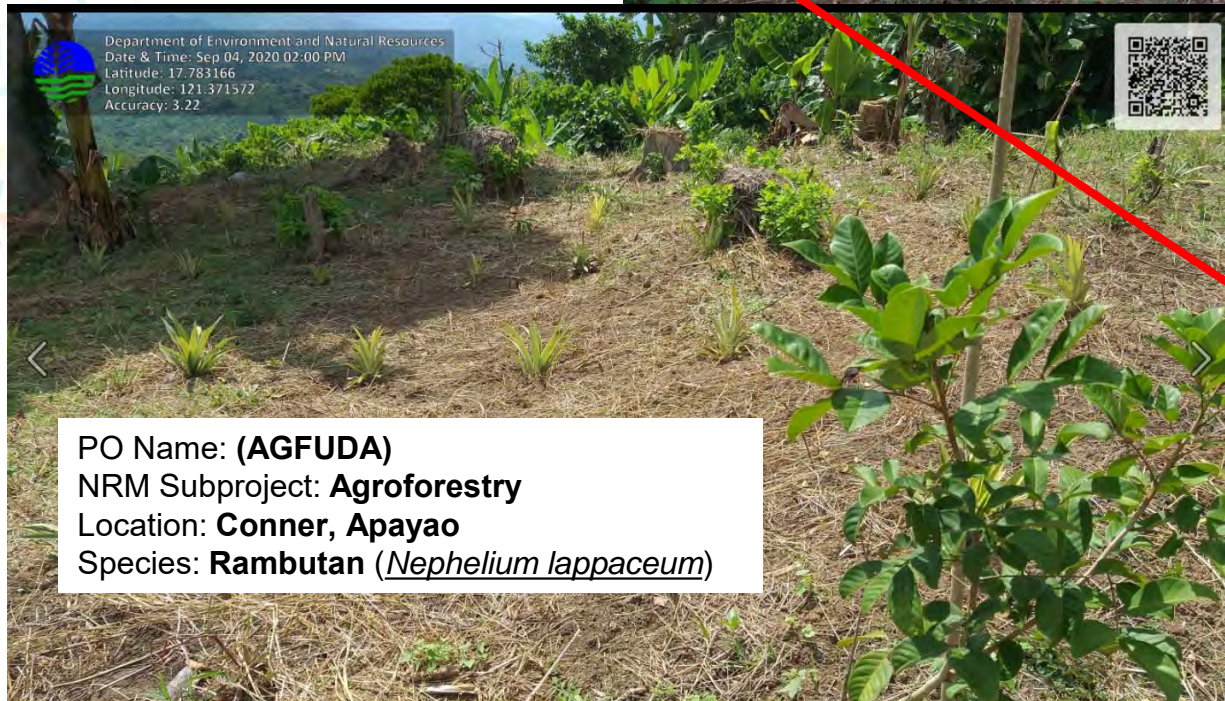
Actual — Agroforestry

PO Name: **Allangigan Group of Farmers for Upland Development Association (AGFUDA)**  
NRM Subproject: **Agroforestry**  
Location: **Conner, Apayao**  
Species: **Narra (*Pterocarpus indicus*)**



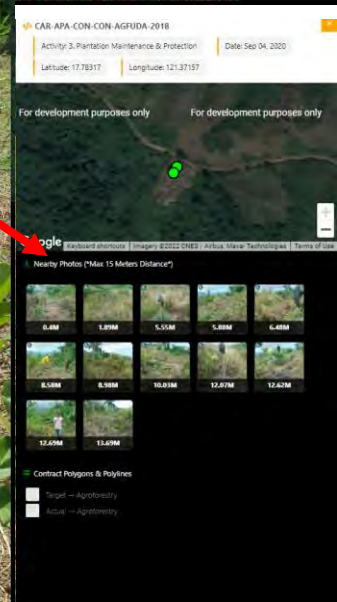
# ICT Application (1): GIS-based Integrated Project Management Information System

Distance of one (1) photo taken from the site from the other photos  
Nearby Photos (\*Max 15 Meters Distance\*)



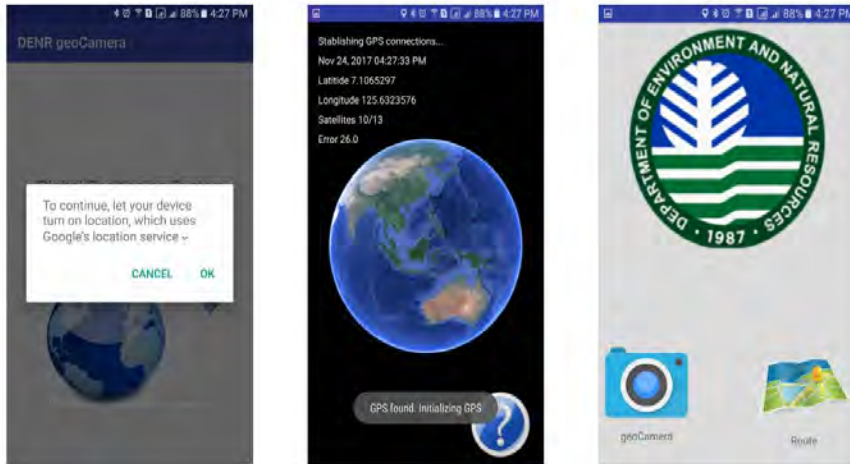
Department of Environment and Natural Resources  
Date & Time: Sep 04, 2020 02:00 PM  
Latitude: 17.783166  
Longitude: 121.371572  
Accuracy: 3.22

PO Name: **(AGFUDA)**  
NRM Subproject: **Agroforestry**  
Location: **Conner, Apayao**  
Species: **Rambutan (*Nephelium lappaceum*)**



# ICT Application (2): Geo-tagging

## Geotagging Android Camera App



## Encode the Contract Information or Generate a Unique ID



## Geo-tagging camera application- GeoCAM for mobile phones

Use	Field activity monitoring tool: Pictures of subject areas through QR code associated with specific coordinates and time
Impact	<ul style="list-style-type: none"> <li>- Local gov't and communities can inform the project management of their plantation and other activities visually.</li> <li>- Reduce the time of verification of field activities by the project management</li> <li>- Archive project information with pictures and videos.</li> </ul>



# ICT Application (2): Geo-tagging



PO: KUMARE  
LOCATION: Brgy. Remedios, Danao, Bohol, Phil.  
YEAR AWARDED: 2016 Awarded  
SPECIES PLANTED: Manguim stand with an average height of 4-5 meters

PO: LILFA  
LOCATION: Brgy. Lawis, Inabanga, Bohol, Phil.  
YEAR AWARDED: 2017 Awarded  
SPECIES PLANTED: Bakauan (3 year old) planted in a cluster





# ICT Application (2): Geo-tagging



Department of Environment and Natural Resources  
Date & Time: Feb 13, 2020, 11:16 AM  
Latitude: 8.406868  
Longitude: 125.011983  
Accuracy: 1.70

PO: GFCA  
LOCATION: Brgy. Guihian, Impasug-ong, Bukidnon  
LES SUBPROJECT: Abaca Fiber Production

PO: Ili Seedling Growers and Farmers Association  
LOCATION: Brgy. Ili, Conner, Apayao  
LES SUBPROJECT: Construction Of Greenhouse Facility For Commercial Nursery



DENR-ENR 61 P  
Date & Time: Feb 13, 2020, 12:31 PM  
Latitude: 8.407402  
Longitude: 124.2271876





# ICT Application (2): Geo-tagging



**Before**

Rice Milling Machine of Walo a Panoroganan Farmers Association located at Brgy. Salongabanding, Madalum, Lanao del Sur



Abaca Stripping Machine of Wato Balindong Producer Cooperative located at Brgy. Dado, Balindong, Lanao del Sur



Hand Tractor and Rice Thresher of Datu Mitmug Farmers Association located at Brgy. Gadongan, Lumba Bayabao, Lanao del Sur



**After**





# ICT Application (3): Drone



## Unmanned Aerial Vehicle (UAV) or Drone

Use	Tool to capture high-resolution digital images and videos for assessment, surveillance and mapping of large areas with limited accessibility due to rough terrains and security issues.
Impact	Enabled effective and efficient planning, monitoring, and evaluation of project implementation (i) at areas of difficult access and (ii) through overview of project areas.





# ICT Application (3): Drone



PO: Nambucayan Corn Farmers Association  
LOCATION: Nambucayan, Tabuk, Kalinga  
YEAR AWARDED: 2017  
SPECIES PLANTED: Banana, Citrus



PO: Ili Seedling Growers and Farmers Association  
LOCATION: Ili, Conner, Apayao  
YEAR AWARDED: 2017  
SPECIES PLANTED: Banana, Lansones



# ICT Application (3): Drone



PO: Pugaan Upland Growers Association (PUGA)  
LOCATION: Claveria Misamis Oriental  
YEAR AWARDED: 2017  
SPECIES PLANTED: Banana, Citrus

RI Subproject: Improvement and Rehabilitation of  
New Eden-Concepcion Access Road  
Location: Pangantukan, Bukidnon



# ICT Application (3): Drone



LOCATION: Brgy. Balbalasang, Balbalan, Kalinga



# ICT Application (3): Drone



Subproject Name:	Rehabilitation of Mallango-Sumadel-Belong-Man-ubal FMR		
Location	Mallango, Belong, Man-ubal, Sumadel 1, Sumadel 2, Tinglayan, Kalinga		
Latitude/Northing	17°18'30.31"	Longitude/Easting	121°09'03.52"
Cost	PhP36,708,070.62		
Completion Date	December 03, 2020		
Specifications	6.8 kilometers		
Beneficiary	411 households		



Subproject Name:	Rehabilitation of Ato-Engan-Lamagan-Atowan-an-Mobo FMR		
Location	Patay, Sagada, Mountain Province		
Latitude/Northing	17°08'51.48"	Longitude/Easting	121°04'15.70"
Cost	PhP32,334,820.05		
Completion Date	November 06, 2020		
Specifications	6.0 kilometers		
Beneficiary	426 households		



# ICT Applications (Geo-tagging vis-a-vis Drone shot)



**Legend**  
Reforestation



**PO Mt. Nebo Small Farmers Organization  
(MNSFO), Inc**

Scale: 1:600

Location

Sitio:  
Barangay: Mt. Nebo  
Municipality: City of Valencia  
Province: Bukidnon  
Year Contracted: 2015



**Eleno Jr. B. Torregosa**  
GIS Officer



Projection: Universal Transverse Mercator, (UTM) Zone 51N  
Datum: WGS1984

0 0.005 0.01 0.02 0.03

Kilometers



# ICT Application (4): e-Commerce

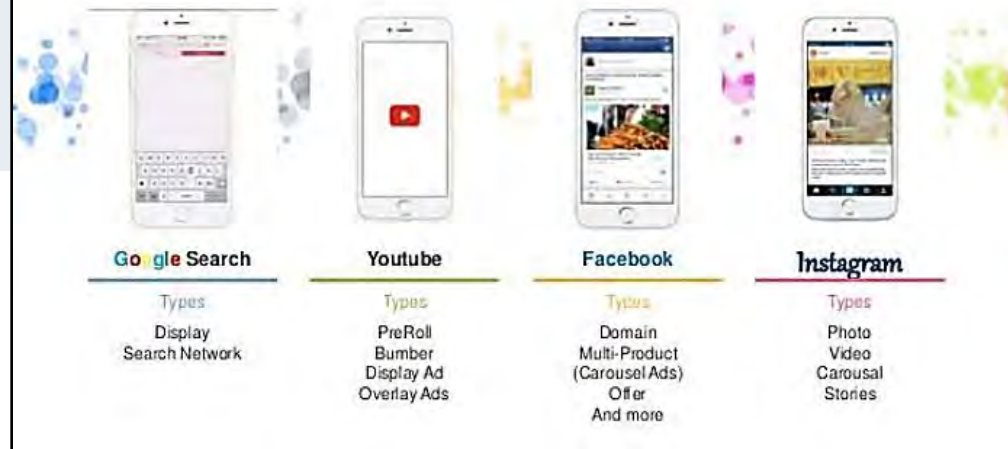
## Digital Marketing

- |     |  |
|-----|--|
| Use | <ul style="list-style-type: none"> <li>- Sales of goods and services online through internet or any other digital medium.</li> <li>- A platform where business entities can have digital presence and provide business solutions to customers</li> </ul> |
|-----|--|

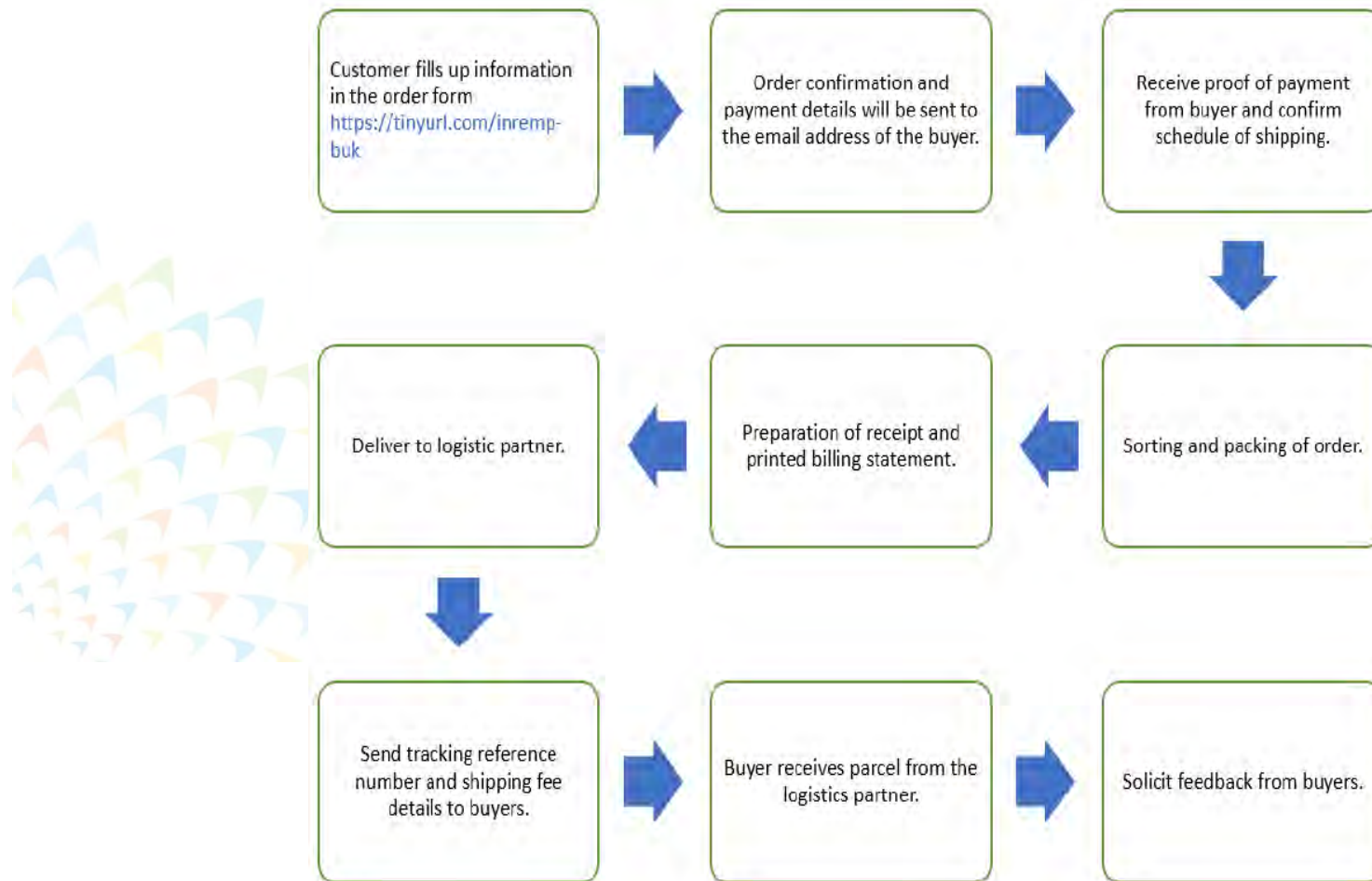
Impact	Enabled sales of goods and products from communities in upland areas
--------	--



## Platforms



# ICT Application (4): e-Commerce

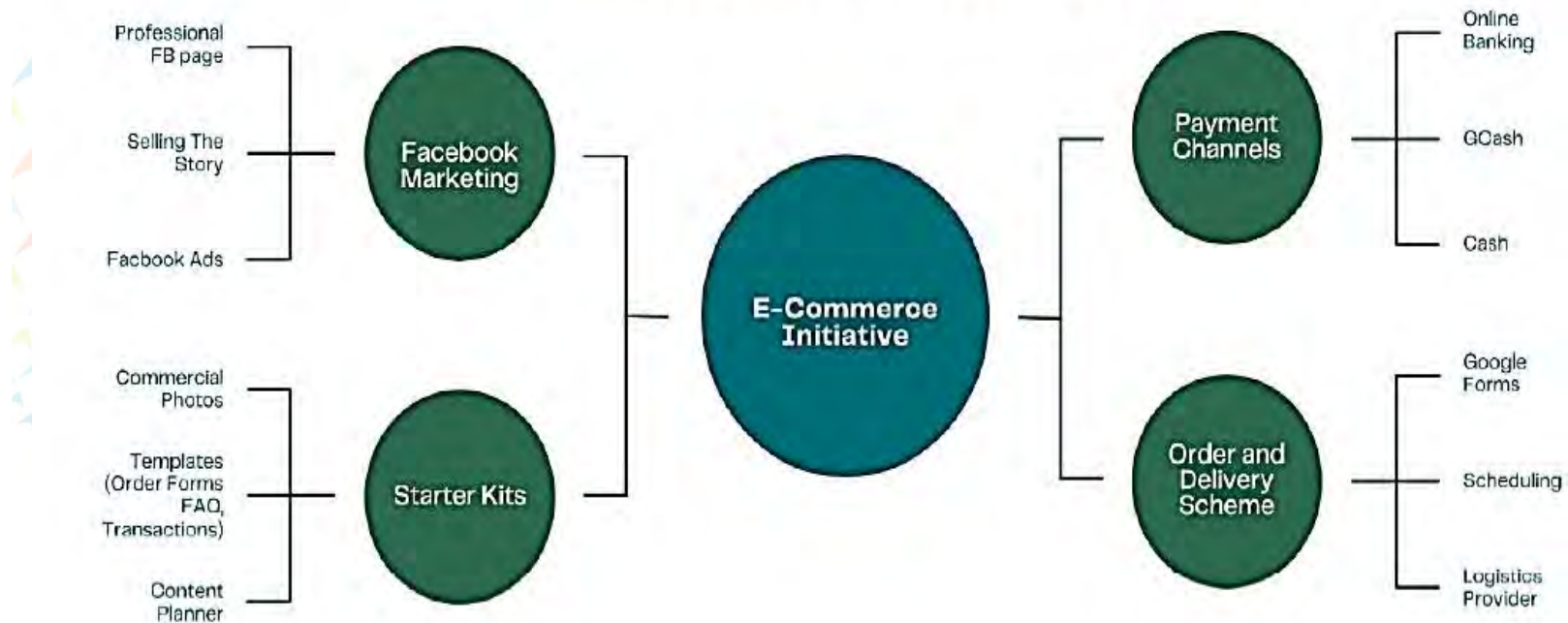


Process Flow of INREMP E-Commerce Initiative:  
Online Marketing and Selling of INREMP Bukidnon Products



# ICT Application (4): e-Commerce

## Mapping the BUK INREMP E-Commerce Initiative



# ICT Application (4): e-Commerce



Participants from MILALITTRA and ITMPC during the Online Marketing Seminar



# ICT Application (4): e-Commerce

*Enabling Livelihood, Preserving Nature*

**DTI Bukidnon - Livelihood Enhancement Support**  
@DTIBukidnonINREMP · Community

Home About Photos Community More

**Insights** See all  
Last 28 days: 10 Aug - 6 Sep

People reached	<b>286,898</b> +1803%
Post engagements	<b>4,210</b> +236%
Page likes	<b>77</b> +133%

**Create Post**

Photo/Video Get Messages Feeling/Activity

Create Live Event Offer Job

**PINNED POST**  
Thursday, 21 May 2020 at 11:22



**Thank you.**

**For information:  
[taueda@adb.org](mailto:taueda@adb.org)**

