GEOSPATIAL INFORMATION FOR A SMARTER LIFE AND ENVIRONMENTAL RESILIENCE

FIG Young Surveyors Network Asia & the Pacific THIRD REGIONAL MEETING | HANOI 2019 21-22 APRIL

PIONEERING USE OF UNMANNED AERIAL SYSTEM FOR LAND SURVEYS IN THE PHILIPPINES

Engr. Rhea Lyn Dealca
Foundation for Economic Freedom

OMIDYAR NETWORK

The Asia Foundation

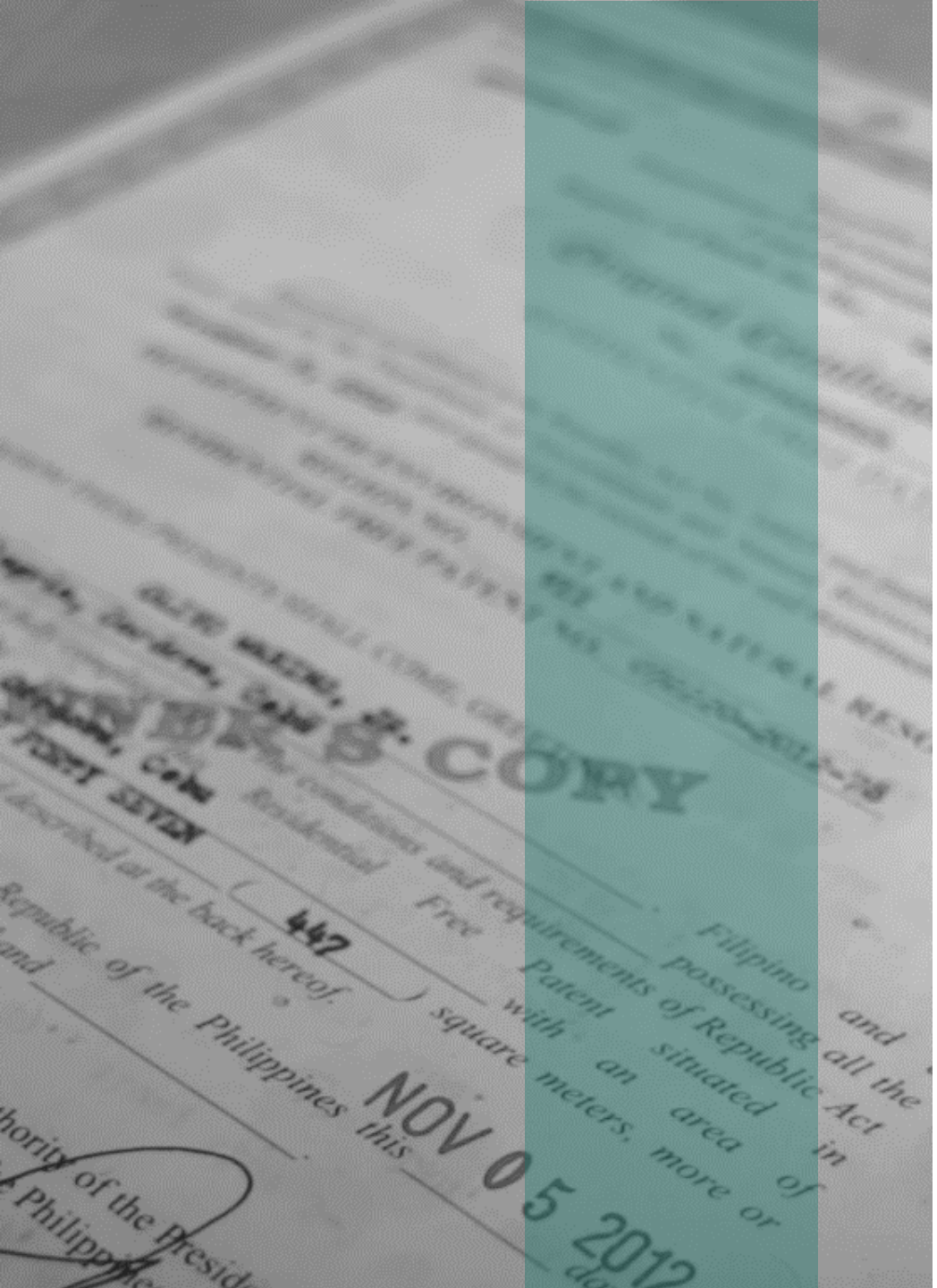
FEF

BACKGROUND

Approximately **6-8 million** untitled land parcels

Constricted land market hinders poverty reduction and economic development

Land tenure security is one of the major challenges in the Philippines



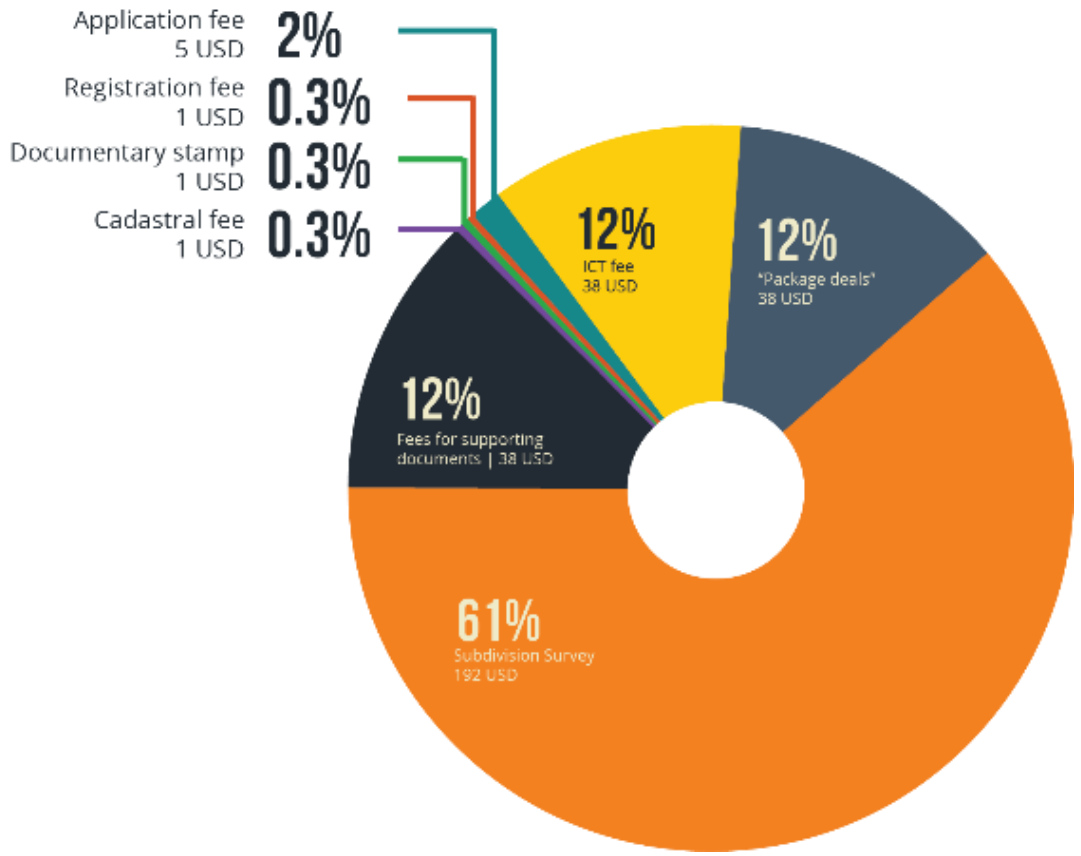
BENEFITS OF SECURED LAND TENURE

- Increases social inclusion
- Improves prospects of peace
- Increases economic opportunities
- Improves governance
- Promote environmental protection and resilience

Total cost of land titling application
In the Philippines: **314 USD**

Subdivision survey constitutes
61% of the total cost of land titling application

It discourages land owners from applying for titles



TECHNOLOGY FOR PROPERTY RIGHTS

OMIDYAR NETWORK

The Asia Foundation

FEF

A project of the **Foundation for Economic Freedom**, supported by **The Asia Foundation** and **Omidyar Network,** which started in 2016, that promotes policies, partnerships and technologies to facilitate land titling.

Drone-supported Survey

Introduces drones as alternative surveying technique

Aims to show that surveys using UAVs can meet government accuracy standards and that it is cost effective and time-efficient

Philippines is one of the **pioneers in Asia** to use drone for land surveying and land titling

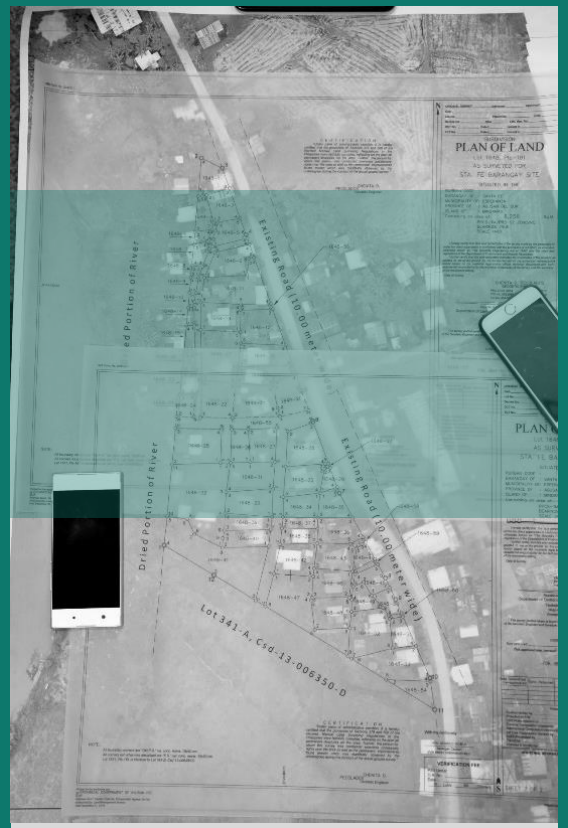
Study and Policy Development

Pilot study

2016 – Cordova Cebu

Research study with DENR-LMB and UPDGE

2017 – Norzagaray, Bulacan



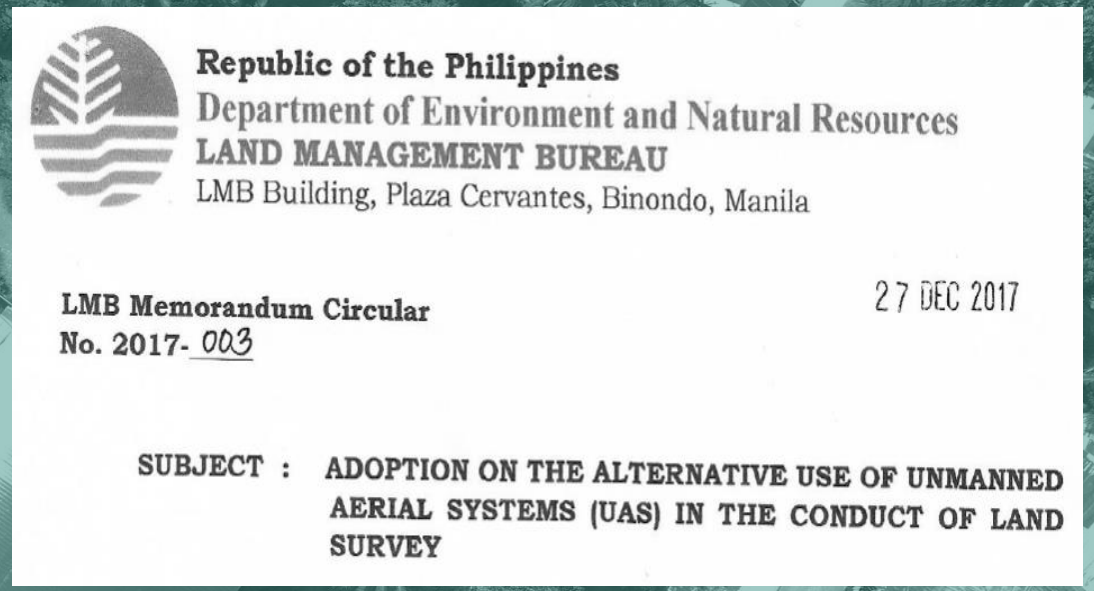
Policy development and discussions

2017 after study was completed

Partners

Department of Environment and Natural Resources – Land Management Bureau

University of the Philippines – Department of Geodetic Engineering

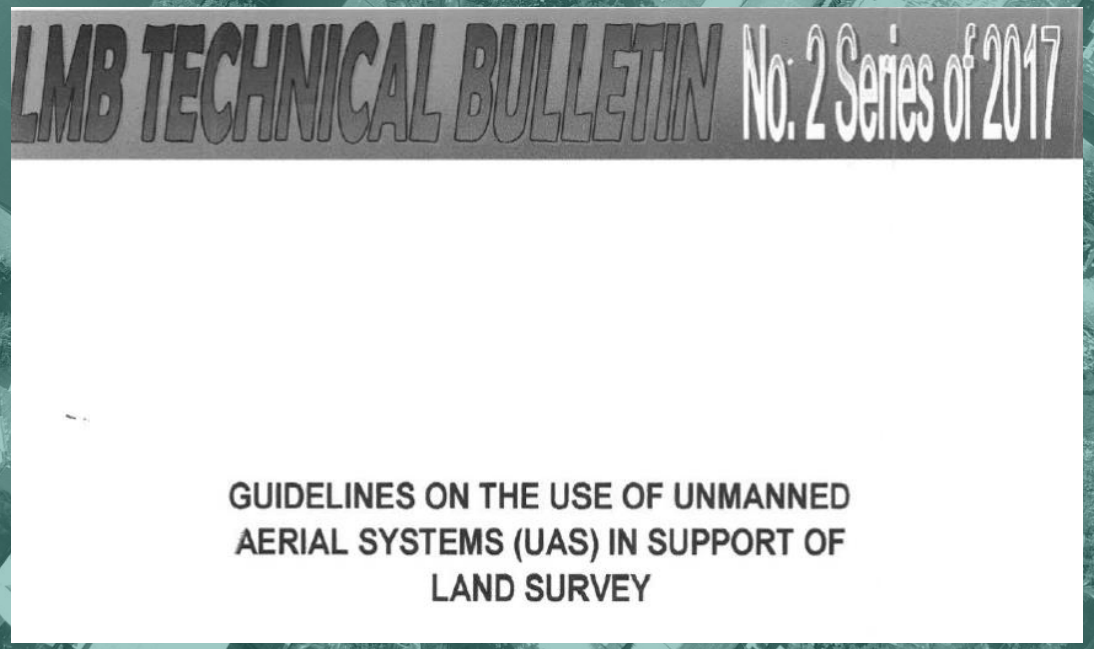


Republic of the Philippines
Department of Environment and Natural Resources
LAND MANAGEMENT BUREAU
LMB Building, Plaza Cervantes, Binondo, Manila

LMB Memorandum Circular
No. 2017- 003

27 DEC 2017

SUBJECT : ADOPTION ON THE ALTERNATIVE USE OF UNMANNED AERIAL SYSTEMS (UAS) IN THE CONDUCT OF LAND SURVEY



LMB TECHNICAL BULLETIN No. 2 Series of 2017

GUIDELINES ON THE USE OF UNMANNED AERIAL SYSTEMS (UAS) IN SUPPORT OF LAND SURVEY

Policy Issuance and Implementation

DENR-LMB issued **Land Management Circular No. 2017-003** and **Technical Bulletin No. 2 series of 2017** on December 2017.

It opened up opportunities for the Geodetic Engineering community to learn about the new drone technology and its application in supporting land surveys.

1st Drone-supported Land S

November 2018 | Brgy. Sta. Fe, Agusan del Sur

Checking of pre-established mojons and placing markers on top

Preliminary aeriall image acquisition to check visibility of markers.

Processing of images of preliminary flight.

Establishment of witness points for non-visible mojons

Sketching on orthophoto to note lot boundaries of subject lots.

Check resulting image for visibility of markers

Establishment of Ground Control Points

Aerial image acquisition

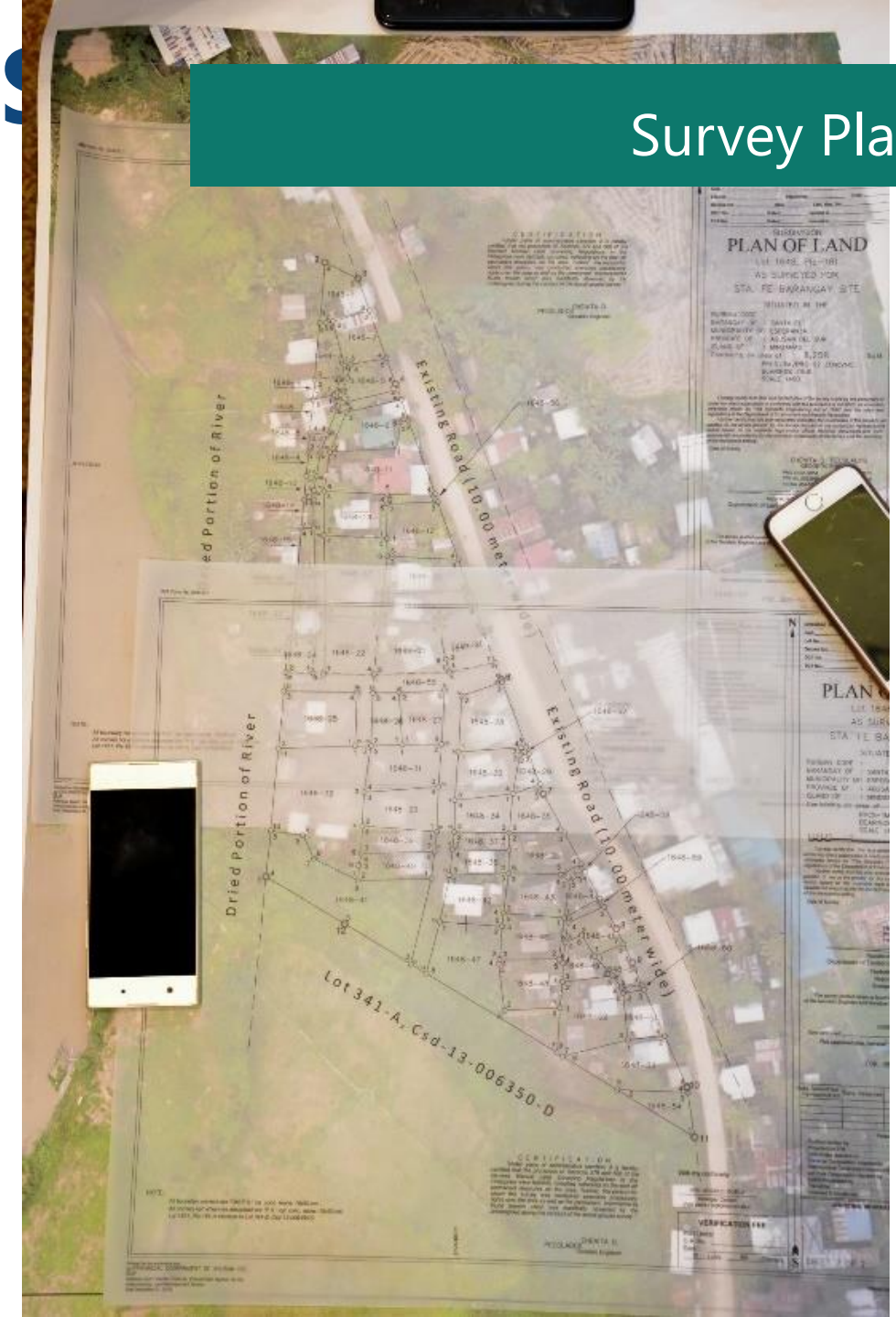
Image Processing

Accuracy Assessment

Parcel Digitization

Survey Return Preparation

Survey Plan



Capacity-building & Training

To provide comprehensive training material to numerous government professionals, academic institutions, various organizations, and private practitioners who can fully increase awareness and understanding of the value of drone-assisted surveying.

Next steps

Approval of the survey plan

Survey plan is now in the final verification stage in DENR Caraga Region Surveys and Mapping Division

Roll out of the Standard Training Module

Test-run of the Standard Training Module on Drone-supported surveys have been conducted in February 26 to March 1, 2019 in Quezon City

Polishing... Standard Training Module for Roll-out in Luzon, Visayas and Mindanao with 3 academic institutions offering Geodetic Engineering course as hosts

MARAMING SALAMAT!