# Gathering of Geospatial Data using Applied Geotagging Tool (AGT) and Geographic Information System (GIS) in Support to the Rapid Appraisal of Emerging Benefits (RAEB) Activity for Completed Subproject

USERS' GUIDE

## Rationale

The Philippine Rural Development Project (PRDP) is adapting science-based tools such as Applied Geotagging and Geomapping in conducting digital mapping of its subproject from validation, planning, procurement, progress monitoring, completion, and until operations and maintenance as part of the instituted governance and transparency measures implemented by the Department of Agriculture.

In the conduct of the Rapid Appraisal of Emerging Benefits (RAEB) activity for the completed subproject, the above tools will also be utilized to ensure that the targeted respondents are within its Road Influence Area (RIA) for Farm-to-Market Road or within the identified location during the conduct of farmer's profiling for I-REAP Enterprise. Also, the geospatial data collected will support the integrity of the Household survey data collected during the RAEB activity.

In conducting the field validation and geospatial data collection using the Geomapping tools, the Geomapping and Governance Unit will assign a group of spatial enumerators that will be deployed in the subproject area and will utilize the Applied Geotagging Android Camera App developed by the PRDP.

Also, the assigned spatial enumerators will have to assign a team leader to consolidate and post-process (overall) the collected geospatial data (both geotagging and georeferenced) from the Household Survey, Key Informant Interview (KII) & Focus Group Discussion (FGD) activities.

For Farm-to-Market Roads, the PRDP is evaluating and assessing anticipated outcomes some of which are the increase in agricultural area, number of vehicles utilizing the road, and travel time consumed in utilizing the road. Aside from ensuring that the household respondents are within the Road

Influence Area (RIA), the geospatial enumerator is also tasked to geotagged and GPS-track the household of the respondent, commodity area (existing/expansion area) and either good/negative observation/s that can be documented during the activity.

Lastly, the maps that will be generated from the RAEB activity will be used to provide visuals of holistic and micro perspectives such as if respondent/s are utilizing the PRDP interventions from their household location, farm areas, and accessibility to market or enterprise intervention. Further, the secondary data with a geographical location that will be collected from the Key Informant Interview (KII) and Focus Group Discussion (FGD) will be generated to provide comparison mapping of data from the planning stage vis-à-vis after the subproject has been established for additional analysis.

**Methodology**

1. The GGU must prepare a mapping presentation & analysis in support to the identification of respondents to the M&E and Economics Unit, which is preferably **a month prior** to the conduct of the RAEB activity. The mapping presentation & analysis will include PCIP prioritization & eVSA ranking for provincial scale and overlay of Road Influence Area (RIA), Farm-to-Market-Road (FMR), IREAP Intervention, Certificate of Ancestral Domain Title (CADTs), commodity areas and barangay boundary for micro mapping scale. *Please refer attached Identification of the respondents*
2. The data collection/documentation using the Geotagging and Geomapping Tools must be done **2 weeks prior to the conduct of the RAEB** schedule to allocate more time in geospatial collection and if in case there is a need to replace respondent/s. This activity will be integrated with an **initial farmer profiling** interview of the respondents on basic socio & economic data, the questionnaire will be provided by the RAEB Team.
3. The GGU will assign and deploy the required number of geospatial enumerators that will be coming from the PPMIU, RPCO, PSO & NPCO depending on the topography and land area coverage of the subproject site. The team leader assigned to the geospatial enumerator will be responsible for collating & data processing geospatial data for presentation & analysis purposes.

4. The Applied Geotagging Tool (AGT) Application developed by the PRDP will be used by the designated Geospatial Enumerators in the conduct of geospatial data collection documentation during fieldwork and validation.
5. To collect and process georeferenced data on the Socio-Economic Parameters used in the formulation of the eVSA such as Production Area, Number of Farmers, Poverty Incidence, and Annual Production using the Geographic Information System (GIS) platform.

**Geospatial Data to Be Collected**

- Geotagged photo of the respondent's and household of the respondent/s
- Respondent's agricultural and commodity of the existing and expansion areas *or area converted to other land use.*
- *Geotagged photo of the IREAP interventions such as facilities, equipment, and production support.*
- Distance of the respondent household from the completed Farm-to-Market Road or established PRDP enterprise.
- GPS-track of travel time from the beginning to end of the Farm to Market Road
- Capture through geotagging either good/negative observations that can be documented or worth capturing during the fieldwork.
- Georeferenced data on the Socio-Economic Parameters used in the formulation of the eVSA such as Production Area, Number of Farmers, Poverty Incidence, and Annual Production from the Provincial Agriculturist (PA)/ Municipal Agriculturist (MA).

**Geospatial Data Processing**

- The geospatial enumerators will post-process the data that were collected in the field and use the following methodology & application:
    1. For the Geotagged Photos per household, the enumerator may use Picasa Desktop or Geosetter application to generate kmz files to plot and overlay to the Google Earth platform.
    2. Determine the location of per household respondent and provide the coordinates (latitude, longitude in decimal degrees setting) needed in the RAEB household survey questionnaire including the distance of household and farm to the PRDP subprojects.

3. Plot and overlay the geo-tracked data for the travel time recorded in traversing the FMR in the Google Earth platform.
4. Merge the data sets reflected in the Excel file respondent profiling questionnaire into the household geotagging output using Geographic Information System (QGIS) for databasing & further analysis.
5. The geospatial enumerators' team leader will be responsible for the consolidation of the processed geospatial data and will be responsible for the packaging of the presentation such as ppt, Prezi & interactive mapping.
6. The analysis and packaged map output (in ready presentation format) will be forwarded to the RAEB Team in advance prior to the RAEB Activity to provide the Team with the visual presentation. Also, the result of **the initial farmer profiling household survey** will be forwarded to the Economics Unit as an Excel file for easy processing & merging of data.

**Mapping Analysis**

The geospatial team will be responsible for the mapping analysis that will be generated during the mapping and post-processing activity. The analysis will be presented to the whole member of the RAEB Team for further analysis and comments. The analysis includes the following but is not limited to:

- The location of the respondent household or agricultural/commodity area is within the Road Influence Area for FMR or the geographical location of the targeted respondents for the enterprise. If a respondent is not within the RIA or targeted location, the geospatial team will provide an analysis to recommend a replacement for the respondent.
- Provide a micro view of household members capturing their household location, commodity/agricultural area (with polygon), and distance from the PRDP interventions. Also, capture the IREAP subproject interventions such as processing center, production support, equipment, warehouse, and others.
- Provide a holistic view in showcasing the connectivity and value chain of farm produce in utilizing the PRDP intervention/subproject.

- Provide assessment on travel time captured, using geo-tracks both at a normal speed recorded at 35-40 kph and at a higher speed recorded of 60 kph or higher speed recording.

**Challenges and Constraints**

From the previous RAEB activities conducted by the Project, the following are some of the challenges and constraints experienced by the geospatial enumerators:

*This experience was provided to help the team in the preparation for the next RAEB activity.*

- The subprojects of PRDP are covering more agricultural areas because of its lengthy road and provincial-scale coverage. The main concern during the fieldwork experience is the mobility and timing in the conduct of per-household geotagging and locating/tracking of respondents' agricultural areas. It is suggested to conduct planning, courtesy to LCE per barangay, vehicle assignment of enumerators, and information dissemination to respondents.
- Unavailability of internet connection to cache map satellite imagery in the assigned area. It is advisable to cache or download satellite imagery prior to the conduct of the ground data collection for presentation and post-processing purposes.
- The unavailability of respondents/residents in their respective households during data collection will limit capturing its agricultural/commodity areas.
- Unavailability of a local guide to locate the household of a particular respondent which resulted in not capturing its household and agricultural/commodity area due to limited time.
- Some residents are hesitant to share information or would not approve to geotag its household and agricultural/commodity area. Handling the scenario in a polite manner, introducing of self, providing a brief purpose of the activity, and wearing visual identification will help the geospatial enumerator to attain its documentation.