Policy Area: Field Team Operations	**Subject:** HCV Assessments
Title of Policy: GIS and Data Management	**Number:**
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Approved by: APCS Project Manager	

1. Rationale or background to policy: To assist the field HCV assessment team on the ground some base information should be provided for them to get prepared and understand the overall situation in the field. This base information will likely be maps that show certain features near and surrounding APP and supplier concession in Riau, Jambi, West and East Kalimantan, then later, a significant amount of data will be produced as the results from field HCV assessment are obtained.

The objective of GIS and Data Management are to 1) support field teams with base information and field maps, 2) make sure data will be well collected in the field according to the standard format and requirement, 3) well documented and checked at the base camp, 4) transmitted to the Jakarta office on a consistent and regular basis, and 5) checked, organized, and integrated into the central GIS database, central documents (text, spread sheets, graphic, voice) database and central video/photo database. The last objective is to work with the other experts in analysing the data to produce tables and maps that identify HCV and areas of conflict existing in the field.

2. Policy Statement: Base information for the field team information and maps are generated using various different sources of information, including but not limited to: a) company information, b) public data (BPS, Badan Informasi Geospasial, etc.), c) data downloadable from the internet that may be relevant to the study (Landsat Image, Elevation Data, etc.) and d) information obtained from literature and publications. There will be a screening process and effort to ensure that all the data are up to date and present the most current/latest situation, especially spatial data from the company.
Information from the field assessors will pass through several layers of data control check to ensure quality and standard format requirements are met before it comes to the final database in Jakarta.

By implementing quality assurance during the whole process, the analysis process can be started at any given date right after the final data set is put into the central database.

3. Procedures: Prior to, during and post to HCV field assessments all teams shall ensure that the following occur:

A. Form(s)/Data Sheet(s)

Forms/data sheets developed by both ecology and sociology team will be checked by the central database management team and if it meets the standard will be approved to be used in the field for data collection.

Since during travel team members may pass through some important places such as Sub District office, village office, Sub Village settlements, various different land covers and probably a place where specific species had left some mark or even encounter with animals, all assessors are expected to be alert and responsible to take position/waypoint records and take notes to explain the place where:

- There is a Sub District, Village, and Sub Village office that occurs;
- A specific location with a name;
- A specific species encountered (tiger foot print, elephant dung, siamang call, etc.)
- A specific land dispute occurs;
- They are passing through a boundary between Province, District, Sub District, Village or Sub District; and
- General land cover is changing (grass, rubber plantation, oil palm plantation, secondary forest, etc.).

B. During field survey

During the field work, assessors will collect data according to the standard forms (ecology and social) and/or taking photos. All records will have information regarding where the location of the data was originally captured from (using GPS). This section only explains the procedure to record/use GPS equipment. The Standard Operating Procedures of filling data to the actual data sheet/form is explained separately under the protocol developed by each of the expert.

In using the GPS, assessors will:

- Turn GPS on from base camp, and make sure it receives enough satellite signal (coordinates have been displayed);
- Turn Track recording on;
- Put the GPS in the place that can easily receive Satellite signal; the dashboard of a car is such a good place;
- Make sure during travel the GPS is receiving satellite signals; in a car check regularly to make sure it keeps receiving signal;
- At the place where a position will be marked, check on the Satellite page on the GPS and make sure it reports EPE of less than 10 meter, the smaller the number the better;
- Mark waypoints, write down waypoint number in the notebook/data sheet, fill in all other necessary information in the notebook/data sheet; and
- In the case a more accurate reading is necessary; assessors could adopt the averaging function in the GPS. This will calculate numbers of positions and calculate the average to come out with a more accurate measurement. The rule is the longer the GPS calculates averaging, the better.

Guidelines on how and what to photograph during field survey will be explained under the Standard Operating Procedures developed by each of the experts.

C. Post Field Survey

1. *Procedure related to collecting field equipment GPS, Digital Camera, Data Sheet / Form and Photos*

   a) Collecting GPS

   The data sheets/forms will be submitted to the base camp Data Management Assistant on a weekly basis along with any data stored within each GPS. Base camp database manager will write down on the form [xxxx form] the date when the GPS is returned, who receive the equipment and check that the data sheet / form is also submitted.

   Once the GPS unit is received, the base camp database manager will perform a routine as follows:

   - Check GPS is working properly
   - If a rechargeable battery is used, take the battery out and recharge it.
   - Download the data to computer.
   - Manage all the downloaded data.
   - Leave a copy at the GPS, save data to specific directory for each GPS unit in the computer and back up to external drive.
   - For GPS unit that has camera, download all the photos and empty photos from GPS.
   - Clean the unit and store it for future use

   b) Completion of Data Sheet / Form

   Surveyor who is out in the field may not necessary have filled out all the columns on the data sheet / form yet. Once they have arrived in the base camp, they may need some time to fill any empty column, check what have been written down before the submit the data sheet / form to base camp database staff.

   As the surveyor is not taking note of the coordinate, instead only waypoint number, linking coordinate stored in the waypoint to Data Sheet / Form is needed and this will be the responsibility of base camp database manager. He / she will convert the GPS waypoint data into excel spread sheet and give the spread sheet back to surveyor (both social and ecology) to fill all the information they have collected into it.

   c) Collecting Digital Camera

   Base camp database manager will write down on the form [xxxx form] the date when the digital camera is returned, and who receive it. He or she will then perform a routine as follow:

   - Take a picture of GPS screen that shows time.
   - Download photos and empty the memory card.
   - Take out battery and recharge.
   - *Check camera condition, clean body if necessary, clean camera lenses if necessary and store it for future use*

iv) Completion of Photo description and location:

Before base camp database manager could send some selected photos to Central Database in Jakarta, a complete explanation of all photos stored in the database need to be filled. Once the photos downloaded and put into the database computer, base camp database manager will give time to the surveyor who took the photos to select photos (personal, bad, or irrelevant photos should be removed from the database) and fill the necessary information using the base camp database computer.

Using Google Picasa 3, an open source program, the "photographer" will evaluate photos, remove the irrelevant photos, then write down explanation for each of the photo and tag photos according to the subject (Fauna, Flora, Landscape, Livelihood, etc), tag photos according to the location (APP Concession XXX, Province XXX, District XXX, Sub District XXX, etc). The procedures to do these steps will be written in the training module.

Photos will then GeoTag using GeoSetter, another open source program. This process will implant the coordinate where the photos were taken into the exif of the photo. The procedures to do geo-tagging will be written in the training module.

Since the internet connection at the base camp may not be fast, only selected photos from the base camp database computer will be transmitted electronically. The rest of the photos will be integrated later by copying the files into removable drive. The procedures to do select and prepare the file for electronic transmittion will be written in the training module.

2. Ensuring quality of the data meet the standard

Once the data is transferred completely to the base camp database manager, he / she will ensure all the form are properly filled, descriptive or narrative data are clear and complete, check the description of the photos including the GPS coordinate. Any missing data should be question to the respective surveyor as soon as possible and filled.

Later he / she is going to get the approval from the team leader before it can be organized into the base camp database. Only the approved version data could be transmitted electronically to Central Database in Jakarta.

Once the data arrived in Jakarta, the database manager in Jakarta will first check the completeness, consistency and accuracy of the information received. If any question raise, the central database manager will question the base camp database manager to resolve the issue. If the data pass this check, it will be incorporated into the central database.

D. Data Management and HCV Analysis

Data to be used for the final HCV analysis will be managed in the Central Database in Jakarta. Management of the data will try to ensure its well organized and ready to be used to later facilitate the analysis process. Detail of the data management will be written on the training

module, while the method of HCV analysis will be developed separately base on the discussion with as much as possible experts.