

Deforestation Hotspot Analysis Methodology

This assignment is to support feasibility assessment for the Green Climate Fund project to identify and select the target district and to identify deforestation and forest degradation risk in the selected target district

Task 1: Analysis of district level deforestation and forest degradation hot spot

Dataset

- Forest Type Maps (FTM) 2015
- Hansen tree cover loss 2017
- Canopy Disturbance Delta NBR 2017
- Administrative Boundary
- 3 Forest Categories Boundary

Methodology

- Extract the land use class from FTM and stratify the land use class as follow
 - EG = Evergreen
 - MD, DD, CF and MCB = Current Forest
 - P = Plantation
 - B, RV = Potential Forest
 - UC, RP, OA and AP = Agriculture Land
 - The rest of the classes = Other Land
- Calculate area for each stratum
- Calculate area of tree cover loss and canopy disturbance

Task 2: Analysis of selected districts deforestation and forest degradation base on 3 forest categories

- Calculate area for each stratum inside 3 forest categories and ADB project sites
- Calculate area of tree cover loss and canopy disturbance inside 3 forest categories and ADB project sites

Task 3: Analysis of probability of deforestation and deforestation risk

Dataset

- FTM 2010 and 2015
- Road
- Village Location
- Digital Elevation Model (DEM)

Methodology

- Identify the UC (Shifting Cultivation) by extracting the UC from Forest Type Map (FTM) 2015
- Overlaying UC with FTM 2010 to roughly predicting the LU classes which UC occurred in 2015 FTM as a result we can identify that UC are mostly occurred in these stratified LU classes:
 - High Probability in Current Forest (Score 1)
 - Medium Probability in Potential Forest (Score 2)
 - Low Probability in Evergreen Forest (Score 3)
 - Low Probability in Agriculture Land (Score 3)
 - Low Probability in Forest Planation (Score 3)
 - Low Probability in Other Land (Score 3)

- Prepare the Ruggedness Data (Elevation)
Using DEM to Calculate Focal Statistic to analyze the ruggedness of the selected district. The lower the ruggedness the higher the probability
 - High (3)
 - Medium (2)
 - Low (1)

- Prepare the Distance to Road Data
Using the road network to calculate distance to road with the maximum range of 6 kilometers and divide it into 3 score. The closer the road the higher probability
 - 0 - 2000 meters High (3)
 - 2000 - 4000 m Medium (2)
 - 4000 - 6000 m Low (1)

- Prepare the deforestation and forest degradation risk map
Using the LU, Ruggedness and Distance to Road calculate a Weighted Sum to produce the risk maps. The weight for each data is as follow
 - FTM (0.4)
 - Distance to Road (0.4)
 - Ruggedness (0.2)

- Deliverables