Generation of activity data at national level for Nigeria

General description

The approach taken for assessing the activity data (deforestation) over the reference period (2006-2016) is a stratified sampling approach. A change map based on the Global Forest Change product (Hansen et al. 2013), and taking into account the national definition of forests in Nigeria was first established. The change map was then used as a basis for stratification following the recommendations found in Olofsson et al. (2013,2014).

Each sample was carefully interpreted in terms of change using all available high resolution time series of satellite imagery publicly available for the reference period. The points were further intersected with the ecological zone map to breakdown the activity data by ecozone class.

Base change map

The layers from the version 1.4 of the Global Forest Change product (https://earthenginepartners.appspot.com/science-2013-global-forest/download\_v1.4.html) were combined into a forest change map.

The criteria corresponding to the national definition of forests are:

15% canopy cover

0.5 ha minimum mapping unit

The “treecover2000” layer from GFC was first filtered with a value of 15 to match the canopy cover threshold, to separate tree cover from non-tree cover. In addition, patches size of all tree cover pixels were calculated and any tree cover patch smaller than 6 pixels were excluded from the forest class and considered “trees outside forest”, while all tree cover patches with size 6 pixels and above were considered “forest”. This enabled to respect the MMU as the GFC product pixel size is 27.5m and 6 pixels is the minimum size that doesn’t underestimate the forest areas (27.5\*27.5\*6 = 0.45 ha).

The “lossyear” layer was also filtered for all values between 6 and 15 to only consider the loss occurring between 2006 and 2015. Similarly to the process applied to distinguish forest from non-forest, all tree cover losses with patch size smaller than 6 pixels was excluded from the “deforestation” class and considered as “degradation”.

These filtered layers were further combined into one single change map with the following classes:

1: Stable Non Forest

2: Stable Forest

3: Deforestation

4: Degradation

5: Trees outside forest

The combination was done through a decision tree that is illustrated below

The processing chain was implemented in the SEPAL cloud computing platform and is available at [https://github.com/koladekola/nigeria\_frel](https://github.com/nigeria_frel)