



# INDONESIA BASELINE APPLICATION

Case Study

**Forests** 2020



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## Forests 2020

Forests 2020 is a £14.2 million investment from the UK Space Agency to help protect and restore up to 300 million hectares of tropical forests across six partner countries – Indonesia, Mexico, Colombia, Brazil, Kenya and Ghana. Using Ecometrica's digital infrastructure – the Mapping Platform – data from satellites, drones and fieldwork can be overlaid into interactive maps providing information and actionable reports on how forest is changing, which areas are at risk of forest loss, and which areas might be most suitable for restoration.

### Indonesia Baseline Application: Case Study

This study showcases a Mapping Platform application created by Bogor Agricultural University (IPB), in Indonesia, which illustrates the development of forest monitoring methods during Forests 2020. The application presents data which spans Indonesia – including the provinces of Riau, Jambi, South Sumatera, West Java and Central Kalimantan.

### Drone Imagery in Kalimantan

Four sites in the Central Kalimantan region have been detailed with georeferenced drone imagery collected by IPB. These high resolution, birds-eye view images provide supplementary information about forest cover and help users visualise what is happening on the ground. For example, drone images of forested areas (including intact forests, forest edges and degraded forests) have been uploaded for the Sabangau National Park, which could be re-surveyed annually to detect deforestation (Figure 1). To view the images in Sabangau National Park in the Mapping Platform, simply use the following links, and select the 'Description' button in the pop-up window: [intact forest](#), [degraded forest](#), [northern forest edge](#) and [southern forest edge](#).

### Display Series for Land cover of Indonesia

This application also features nine land cover maps which cover the whole of Indonesia and can be viewed as a time-series (Figure 2). The Ministry of Environment and Forestry (MoEF) developed these maps by digitizing polygons using photo interpretation from Landsat images based on a minimum area coverage of 40 hectares.

Next, using thematic baseline forestry and forestry-aquatic area maps, polygons were defined as primary (undisturbed by human activity) and secondary (disturbed by human activity) land cover types. Following this, they classified satellite data into 23 land cover types, which are sufficient to represent land uses in Indonesia. The time-series of land cover maps enables the user to observe land cover change through time, identify which regions are changing rapidly and examine trends in land use alteration. To view the time series on the Mapping Platform, follow the brief instructions below:

1. [Click here](#) to access the app, then select 'Indonesia Landcover Change 2000-2016 (source MoEF)' from within the Display Group drop-down menu.
2. Press the 'Play' button on the window which will appear at the bottom of the screen. Try zooming to different regions to look for areas of change – the area around Jakarta, for example, has seen dramatic change since 2000.
3. Use the tools within the window to adjust the playback speed and to examine maps for



individual years.

## Reporting on Land Cover Change

In addition to the land cover time series, users can generate results and reports detailing land cover change from 2000-2016 for pre-defined areas of interest, or for areas drawn by the user themselves. In the Mapping Platform report, land cover results are displayed as a pie chart showing the area (in hectares) and percent coverage of each land use class contained within the region that is being examined. This data is also summarised in a simple table (Figure 3). As users scroll down the report, the same statistics are available for every land cover map, enabling viewers to compare and identify trends in land use through time. Users can then download these results to share and present as a report (pdf) or to perform further analysis (csv). To view the results on the Mapping Platform for a small demo area within Central Kalimantan, simply [click here](#), and select 'Results' from the pop-up window.

## Looking Forward

Currently, IPB are working on queries of deforestation data to add to their Mapping Platform application. The next 12 months of the project will see a refinement of these monitoring products, and scaling up into national institutions.

Figure 1 - Intact forest cover in Sabangau National Park, Central Kalimantan.

Figure 2 - Screenshot of the time series land cover change map from 2000-2016 for Indonesia.

Figure 3 - Screenshot of results generated in the Mapping Platform for a small demonstration area within Central Kalimantan, calculated from the 2016 land cover map.

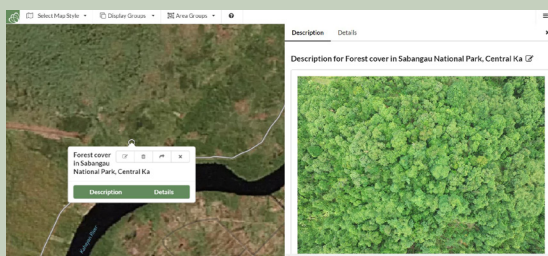


Figure 1

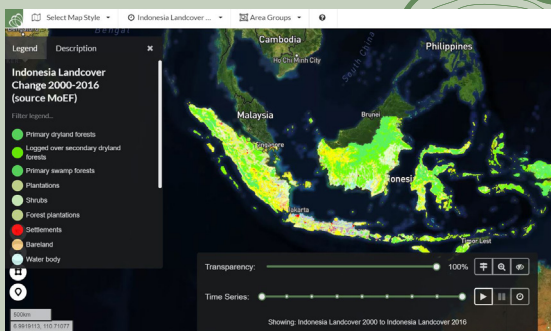


Figure 2

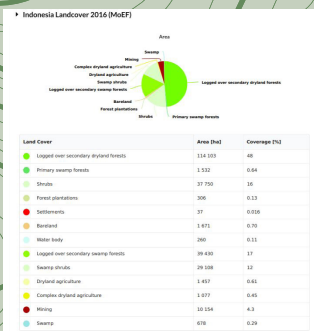


Figure 3