# WEB MAPPING AND WEB APPLICATION OF OIL PALM RESOURCE INFORMATION SYSTEM

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Geospatial technology which integrates remote sensing, geographical information system (GIS) and geolocation has been used for various application for oil palm plantation management. The technology improves the process of data acquisition, plantation mapping, soil profiling, database development, planning and decision making. Interdisciplinary data and information from agronomic data, breeding, smallholding, pest and diseases, crop physiology and many others can be integrated with geospatial technology.

Previously, geospatial data was acquired, processed and stored for desktop application only. Maps were generated based on specific and individual context. Combination of good dataset offers powerful and meaningful information from the geospatial analytics at different scales. The integration process generates bigger visualisation and engagement of the data. Vector, tabular, raster imagery, photos and many others can be attributed for each geolocation. Map presentation helps to discover unique pattern of the data. Visualisation of map interactively in the web will improve the connections between geospatial data and industry player.

However, among the major problems in oil palm plantation is the lack of digital and spatial data for reference. It affects the process of decision-making, inconsistent evaluation and often crucial when involves in information sharing. Previously, most of the spatial data was stored in standalone database and could be accessed within the infrastructure in the organisation only. Nevertheless, through the result of the rapid changes in information and computer technology, information can be gathered and accessed beyond the premise infrastructure.

## THE TECHNOLOGY

Initially, Oil Palm Resource Information System (OPRIS) was established as GIS database to cater the needs of data inventory for oil palm research. It was constructed from existing maps, satellite imageries and later, new data was generated from the established data. The spatial data model defines the rules according to which way data were to be structured. The basic information defined by the spatial data model included:

i. Spatial data type
ii. Feature classification codes and coding standards
iii. Unique identification number
iv. Spatial location number
v. User defined attributes
vi. Spatial relationship (topology)

Combination of data helps analyst to perform geospatial analytics to ease decision making. Good data will contribute good interpretation of the data. Therefore, geospatial analytics provides tools and methods for solving problems at all scales. For instance, integration of the soil and agro climatic layers produced oil palm land suitability area classes and site yield potential (SYP).

At present, OPRIS has been upgraded into a cloud based geospatial platform. It allows multiple dataset to be viewed, stored and arranged according to the spatial data model from a cloud web based. Users may upload their dataset and overlaid with the current data in OPRIS. OPRIS uses ArcGIS Online platform for cloud service. ArcGIS Online was designed to function as a complete stand-alone Software as a Service (SaaS) application for web mapping, web application and geographic information management. It was scaleable and fully integrated with ArcGIS software deployed on-premises. ArcGIS Online maps and services could be used in any client, including desktop, mobile, and web applications. For MPOB, a geospatial homepage consisted of OPRIS data displayed in web maps and web apps were developed on the ArcGIS Online platform as in *Figure 1*. Users may upload their data into the web maps and web apps using available format for viewing and printing.

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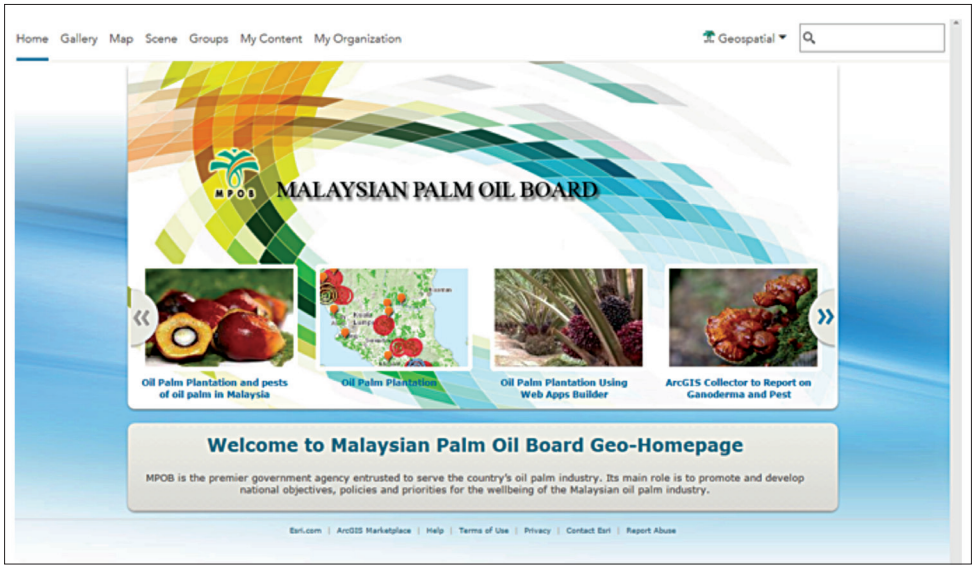


*Figure 1. OPRIS in the Cloud Web Based.*

## NOVELTY

- Multiple geospatial dataset in OPRIS has been developed and stored interactively in a cloud web based.
- Web mapping and web application can be accessed for data engagement by plantations and smallholders.
- Enable data upload for visualisation on spatial patterns, maps and data attributes

## BENEFITS

Establishment of the OPRIS will help the industry to have better overview on geospatial data arrangement, better time management in data collection and accurate analysis on spatial data interpolation. OPRIS will facilitate as a geospatial spatial reference platform for fast and reliable information for the oil palm industry.

## ECONOMIC ANALYSIS

Redundancy work on developing new geospatial platform as a reference can be avoided. But new data can be added from time to time to improve the capacity and applications. It also reduce cost and reduce time for desktop study and reference data searching for preliminary analysis on specific site selection for oil palm planting.

## CONCLUSION

OPRIS in the cloud web based embarks on geospatial data platform to facilitate the oil palm research and applications.

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