



# ASSESSMENT OF DROUGHT IMPACT ON RICE PRODUCTION IN INDONESIA BY SATELLITE REMOTE SENSING AND DISSEMINATION WITH WEB-GIS

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In Indonesia, drought disasters have been occurring frequently in recent years as possibly as impact of climate change. Though drought is a gradual disaster, drought can have devastating effects on agriculture and water supplies, but monitoring and forecasts can allow people to take necessary action to avert the destruction. Effect on agriculture, specifically rice production in Asia can take large toll due to drought impact if appropriate and timely actions are not planned. In this regard, an early warning of onset of a drought would be very useful in the planning stage of agricultural development settings. To this point, agricultural monitoring techniques using appropriate tools to find out actual ground surface information in the relatively short time are very important. Further analysis on such data and information would be incorporated in the current agricultural development planning.

The objective of this prototype is the followings;

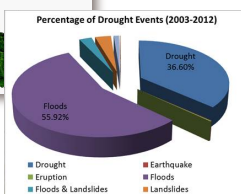
- 1) To assess the use of satellite data for monitoring the drought condition of rice field in a near real time
- 2) To validate the satellite based model on drought with ground observation data
- 3) To develop a system based on Web-GIS integrating satellite based system with existing crop calendar
- 4) To disseminate the drought information to decision makers (BPS, Local Gov, etc.) and the farmer through extension worker

## Study area and drought in Indonesia

Rice field for whole indonesia



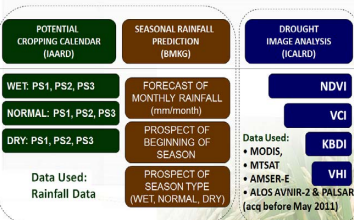
Field Survey for Validation: Subang and Karawang District, West Java, Klaten, Central Java, Pasuruan and Ngawi, East Java, South Sulawesi, and South Kalimantan



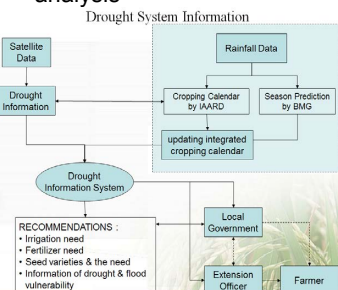
## Method for developing system / application

1) Data to be used in the system

INTEGRATION OF CROPPING PATTERNS, SEASONAL RAINFALL AND SATELLITE IMAGE ANALYSIS



2) Flow Chart of drought information systems and analysis



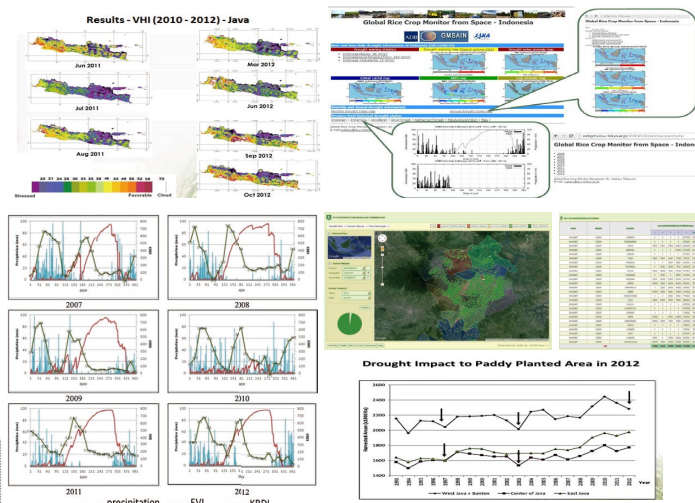
## In-situ / validation

- 1) Place acquired data :  
Subang-Indramayu (August 2012)  
Klaten, Central Java, (September 2013)  
South Sulawesi (September 2013)  
South Kalimantan (July 2013)  
Indramayu (October 2013)
- 2) Type of Parameter :  
Crop yield (at the municipal level) and drought



## Result

### Drought analysis and Web-GIS Development



## End user meeting

ICALRD, University of Tokyo, LAPAN, BB Padi, statistic agency, meteorology agency, local government, extension farmer, coordinator farmer.



## Conclusion

- Satellite data for monitoring the drought condition of rice field in a near real time already developed
- Satellite data model of drought validated using ground truth on the field.
- A Web based system already developed for dissemination of drought information to end users (such as decision maker, local government, farmer through extension officer)