



# Precision Agriculture Technologies for Sugarcane Farming in Thailand

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# Outline

- Background and motivation
- Precision Agriculture
- Proposed project scope
- Initial findings
- Future plan

# Background and Motivation (I)

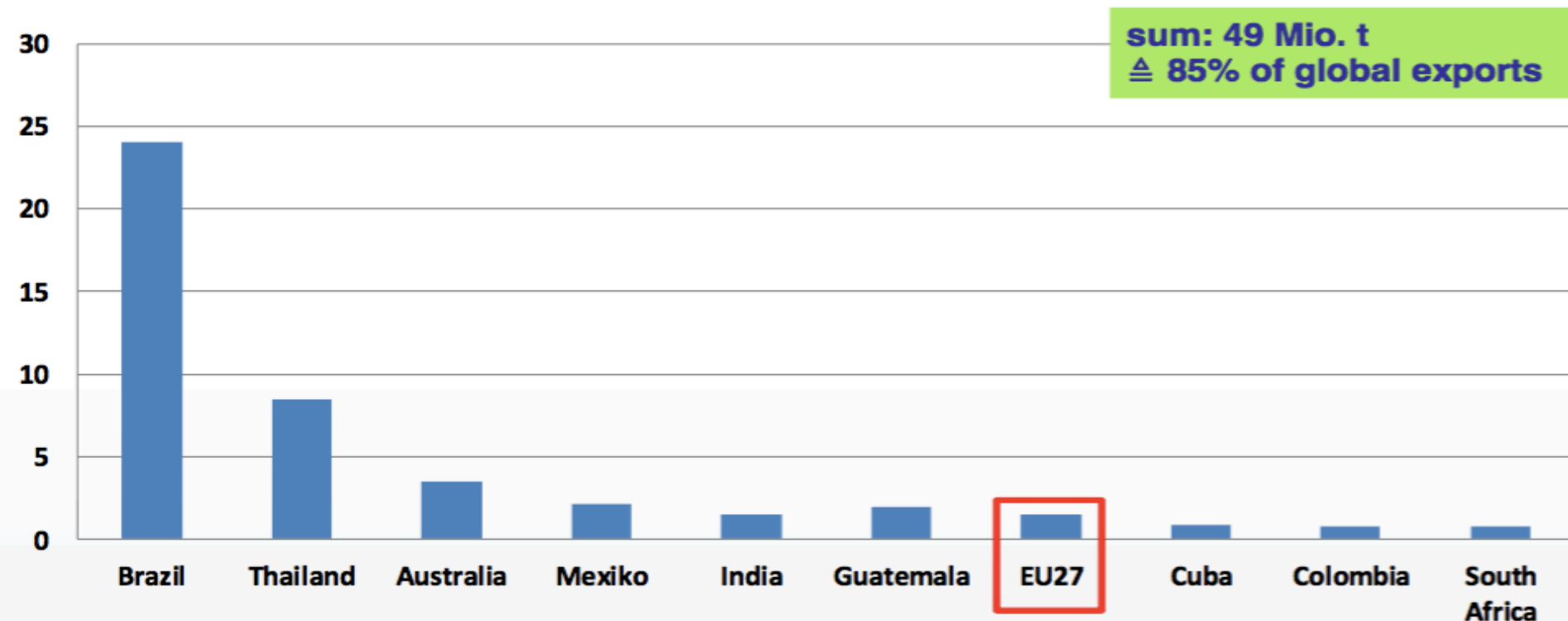


- Sugarcane is one of the major commercial crop in Thailand
- Thailand is one of the major exporters of sugarcane in the world

## Top 10 sugar exporters (2014/15)

(in Mio. t raw sugar equivalent)

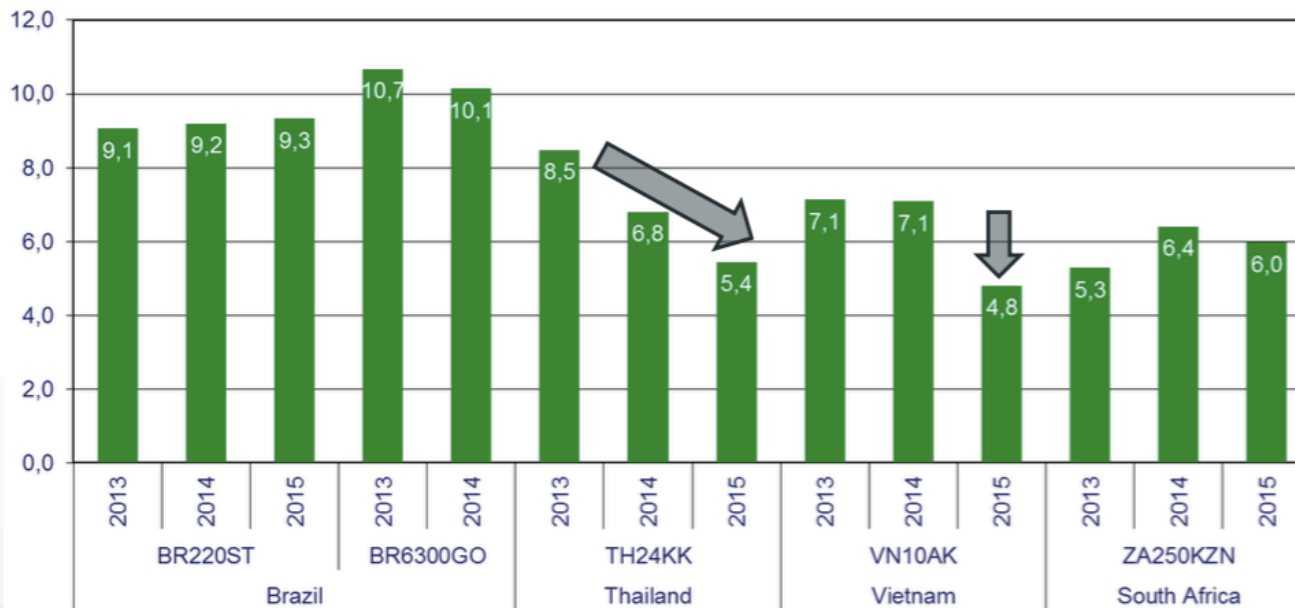
Ref: Weerathaworn & Balieiro, 2016



# Background and Motivation (II)

- Due to long growing season of sugarcane, many factors such as severe weather (drought/flood), weed, pest, disease infestation can result in tremendous in loss of productivities

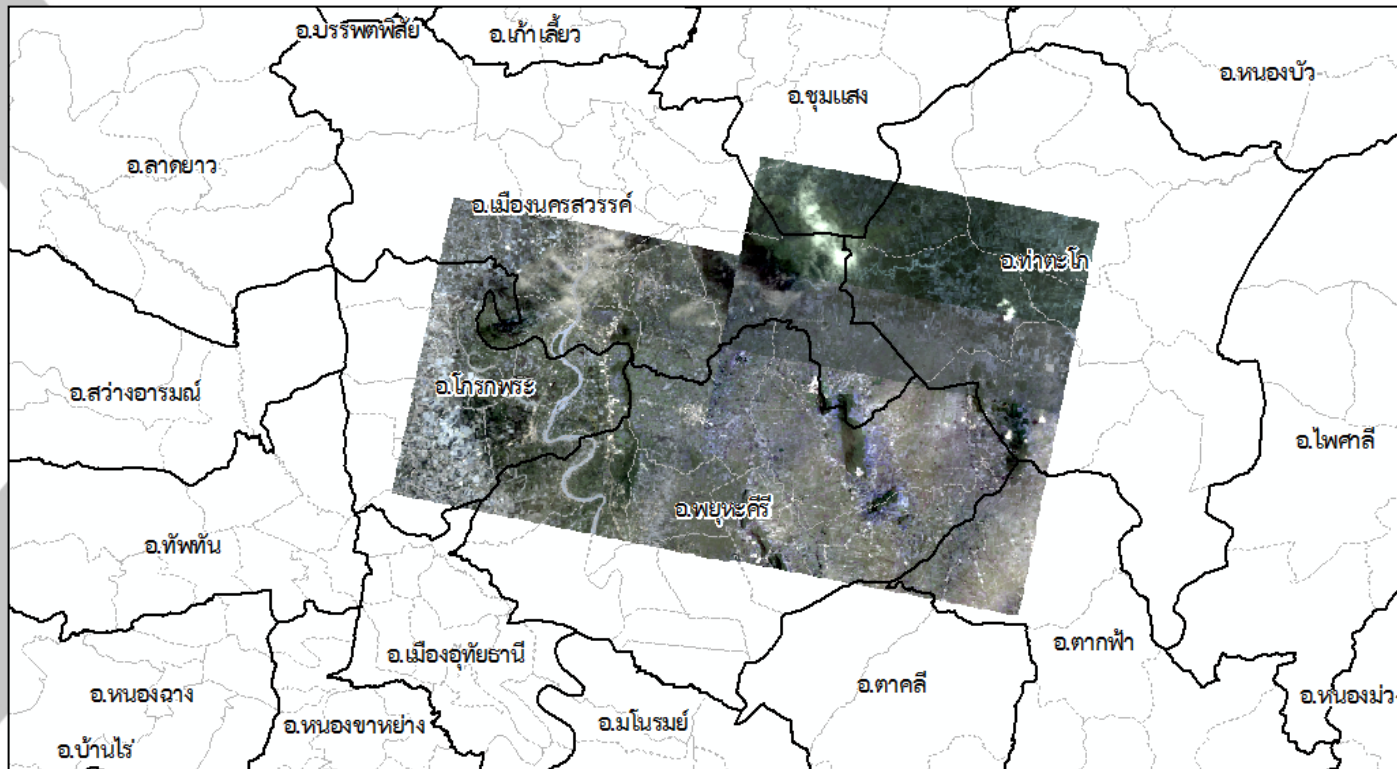
## Yields in t of recoverable sugar/ha



- Brazilian yielded at least 2 t/ha higher than the other countries (2015)
- 2015: Vietnam and Thailand facing serious weather problems

# Background and Motivation (III)

- Other than weather and weed/pest issues, large field nature of sugarcane makes it difficult to closely monitor the crop





# Precision Agriculture (PA)

- A farming management technique that addresses the variability of the land and resulting variability in yield to improve farm productivity and profitability
- To apply PA technologies appropriately and timely with good process management to the crop such as sugarcane would help optimize production efficiency, optimize crop quality, minimize environmental impacts, and minimize risk to the farmer.



# Proposed Project Scope

- To survey and investigate the PA technologies to use to monitor large field of sugarcane.
- By using satellite images, we propose image analytics solutions to identify the gap area that signifies crop damages.
- By using drone images, we propose image analytics solutions to detect weeds infestation in the field.
- Utilize data analytics to predict sugarcane yield and growth monitoring with production forecasting.



# Expected Collaborating Partners

- Thailand
  - Department of Agriculture
  - GISTDA (Geo-Informatics and Space Development Agency)
- Philippines
  - University of the Philippines, Diliman
  - DOST (Department of Science and Technology)
- Possible partners from Vietnam and Myanmar
- Japan (NICT, JAXA)