



Detecting Severity Level of Drought Hazard for the Central Dry Zone of Myanmar

Thiri Maung

GIS Lab, UCSY, Myanmar

thirimaung@ucsy.edu.mm

Thin Lei Lei Thein

GIS Lab, UCSY, Myanmar

tllthein@ucsy.edu.mm



Thiri Maung

University of Computer Studies (Yangon), Myanmar

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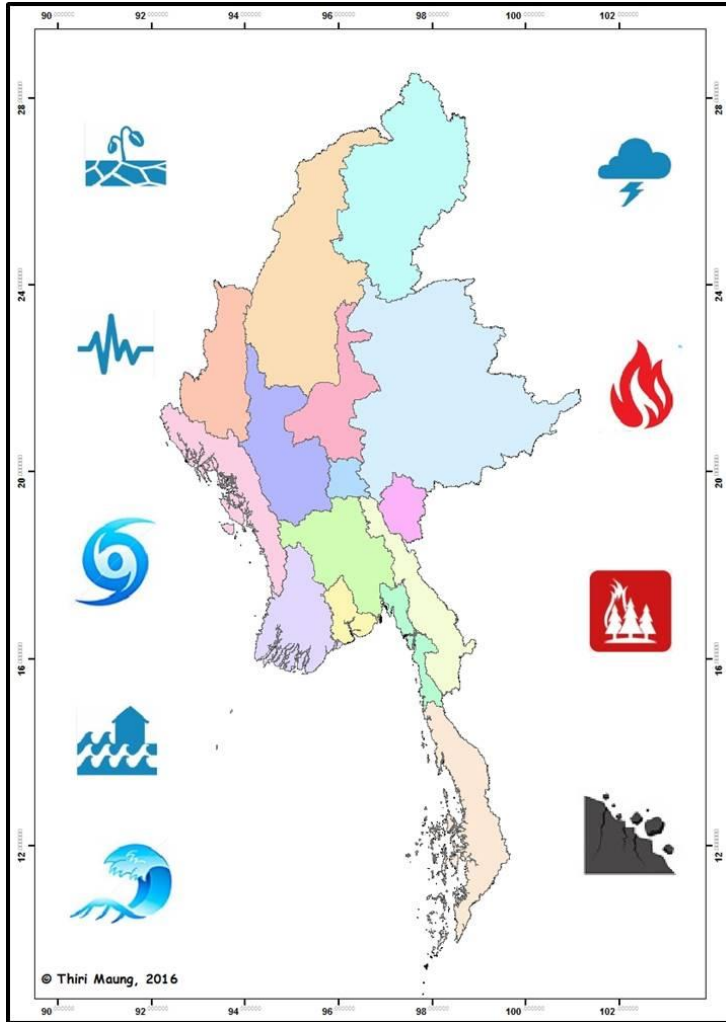


Presentation Outlines

- ✓ Disasters in Myanmar
- ✓ Drought Potential Area in Myanmar
- ✓ Study Area
- ✓ System Architecture for Detecting Severity of Drought
- ✓ Flow Diagram of Detecting Severity Level of Drought
- ✓ Occurrence Drought Condition by Landsat 8 NDVI
- ✓ Analyzing NDVI Values for detecting the frequency of drought
- ✓ Predicting Drought
- ✓ Result and Discussion
- ✓ Conclusion



Disasters in Myanmar



- Myanmar due to its geographical situation is exposed to multiple hazards.

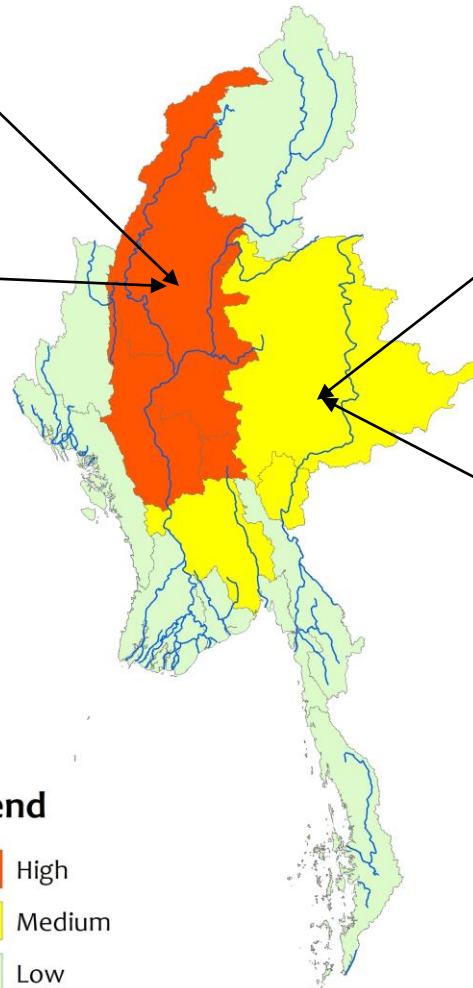


Drought Potential Area in Myanmar

Map of Levels of potential for Drought Hazard



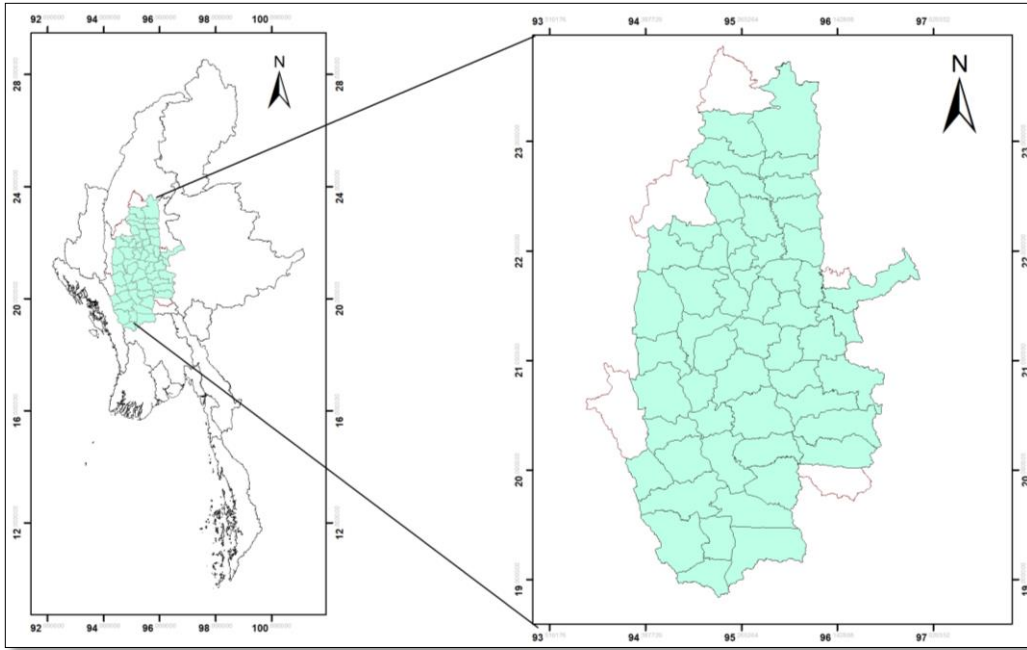
In 2018, Shwebo drought leaves farmers in trouble, kills plants



Inlay Lake in Shan State



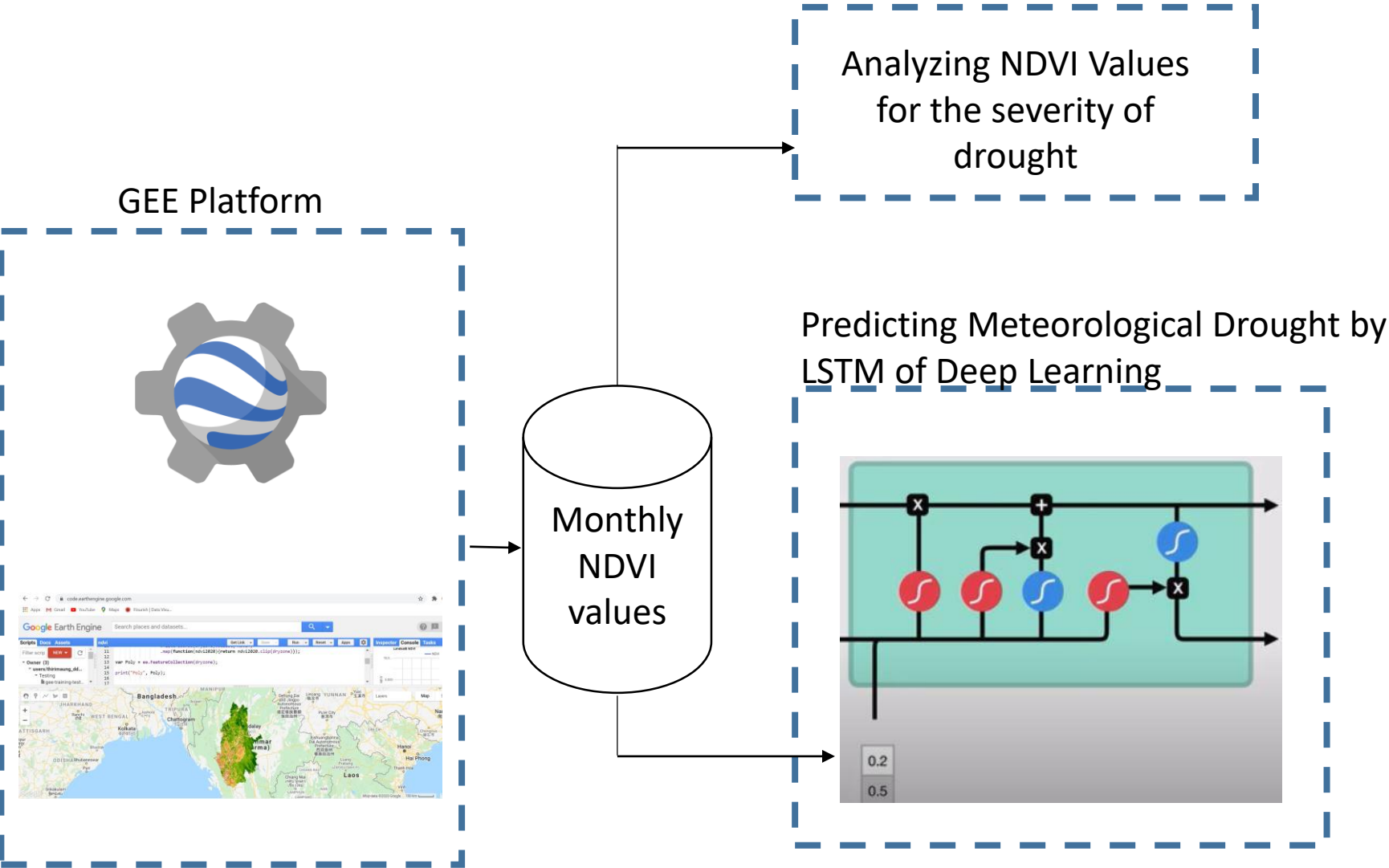
Study Area



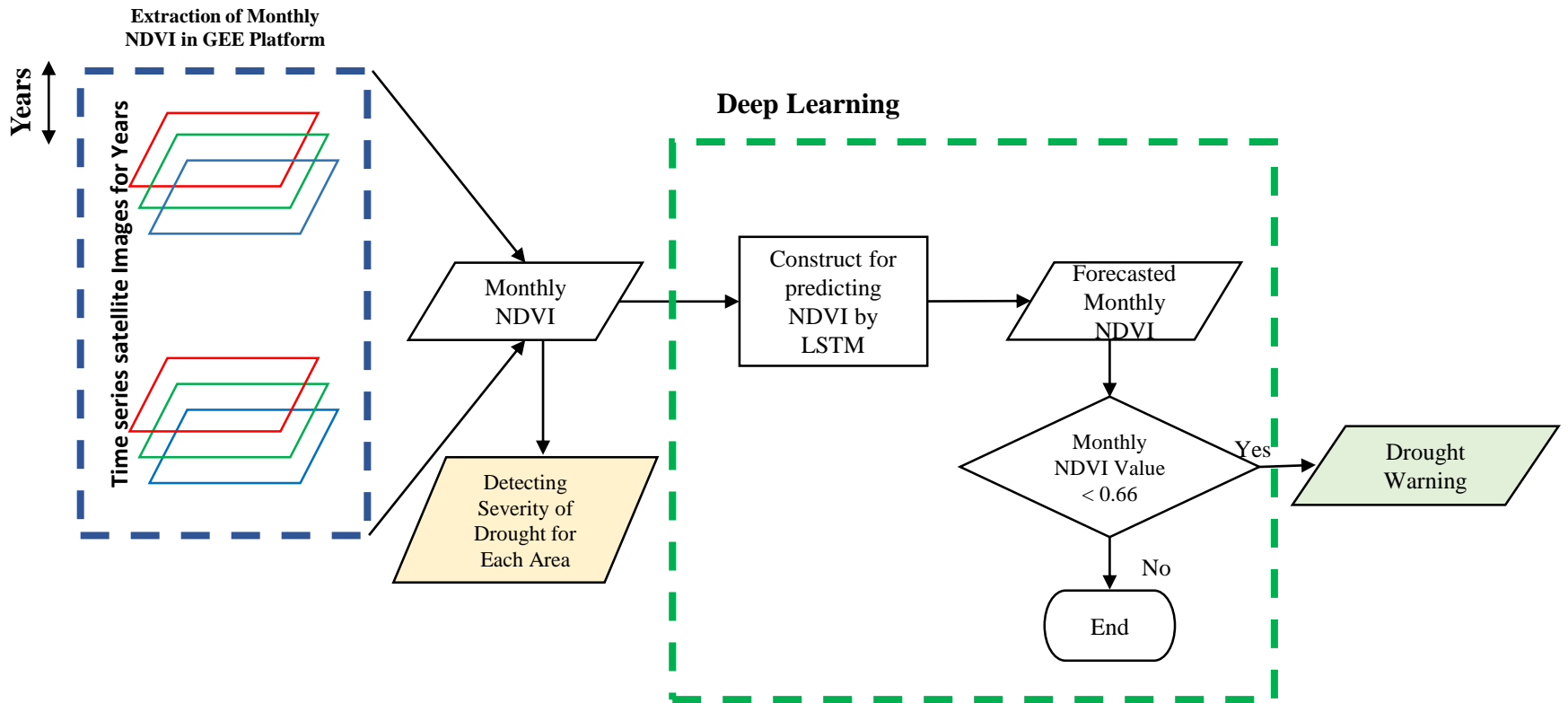
- Area of the Central Dry Zone Encompasses Nay Pyi Taw, the Lower Sagaing, Mandalay, and Magway Regions, where Annual Rainfall is Less than 1,000 mm and it is about 20% of the country.
- comprises 54 townships in 13 districts



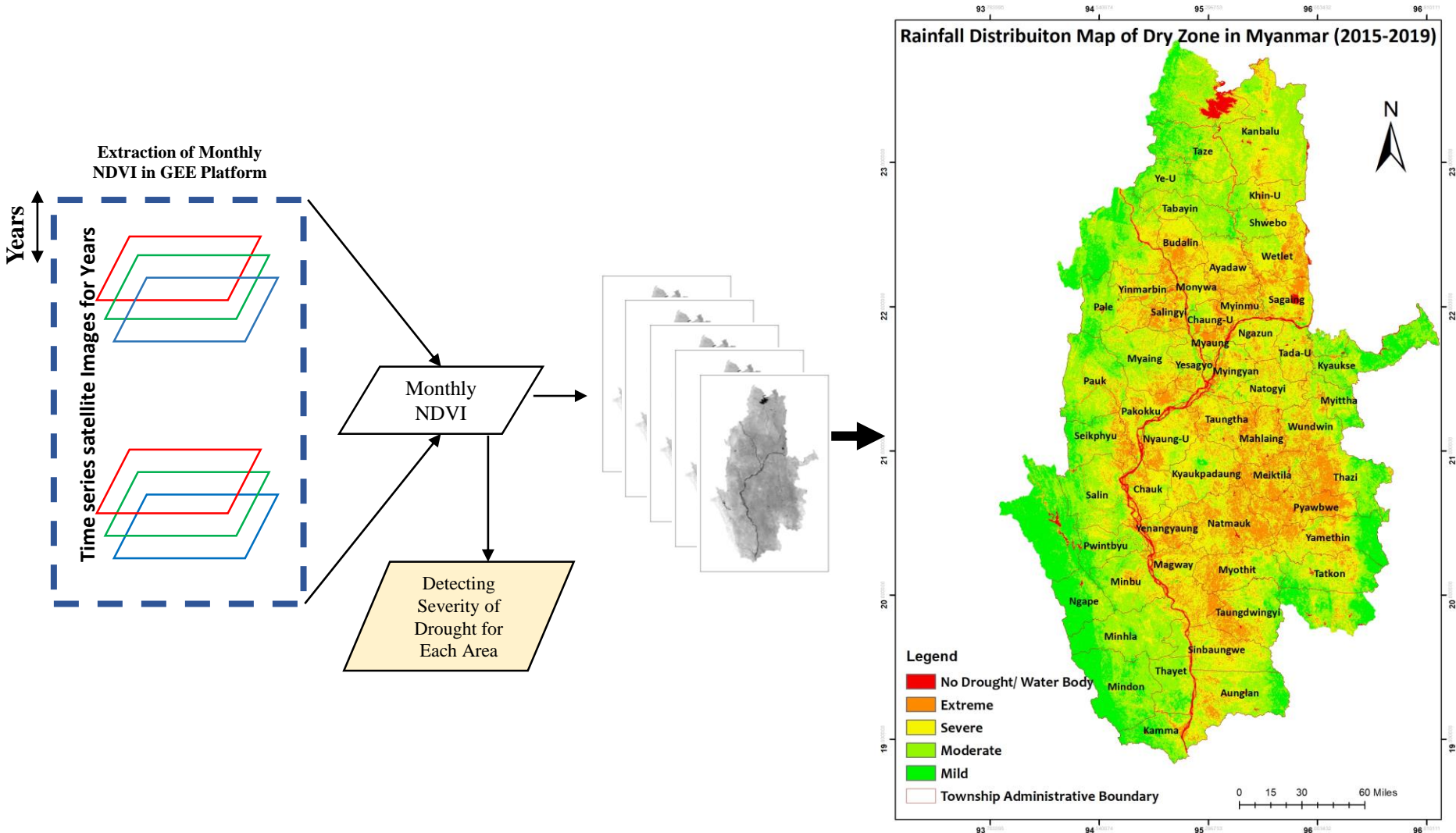
System Architecture for Detecting Severity of Drought



Flow Diagram of Detecting Severity Level of Drought



Occurrence Drought Condition by Landsat 8 NDVI



- Monthly NDVI extracted from Landsat 8 in GEE Platform



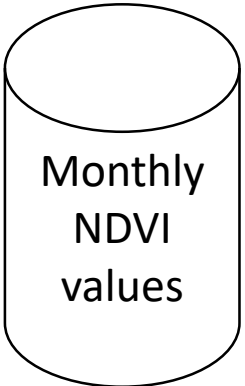
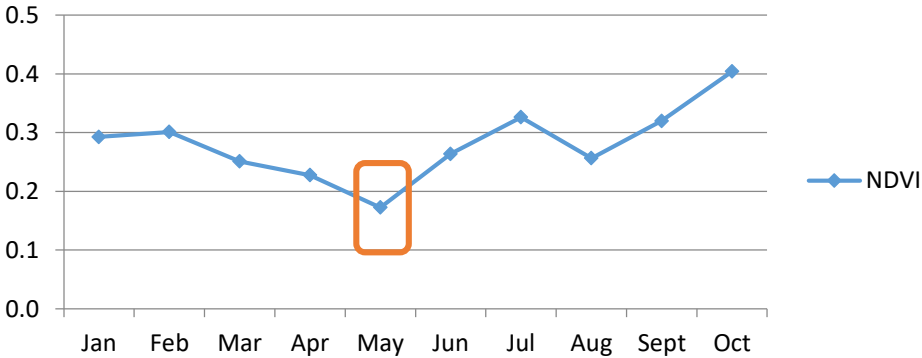
Analyzing NDVI Values for detecting frequency of drought

NDVI Values for five years for Each Townships in the Central Dry Zone

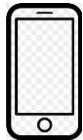
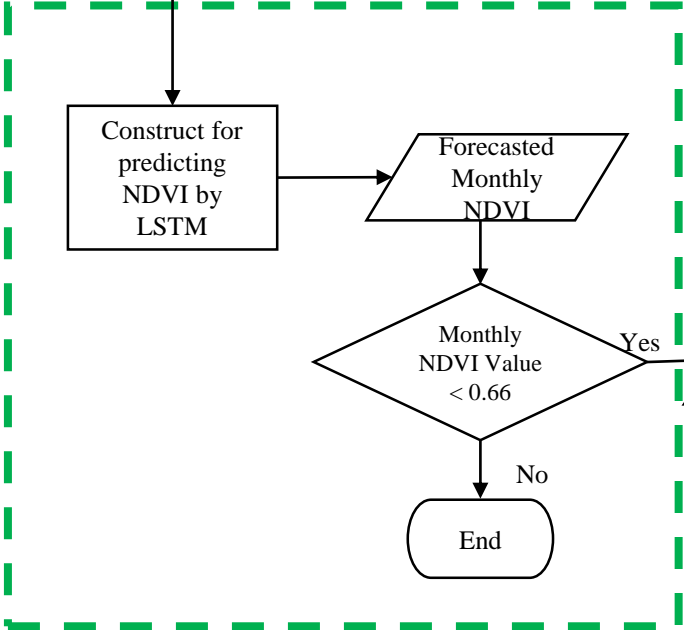


Predicting Drought

Forecasted NDVI values for 2020



Deep Learning



Result and Discussion

- Almost all the vegetation in the study area are facing hunger of water especially in the dry season (Mar, Apr, May)
- $NDVI < 0.3 \rightarrow 30\%$ of the study area
- $0.3 < NDVI < 0.6 \rightarrow 70\%$ of the study area
- Forecasted NDVI from LSTM

- NDVI ranges From -1 to +1

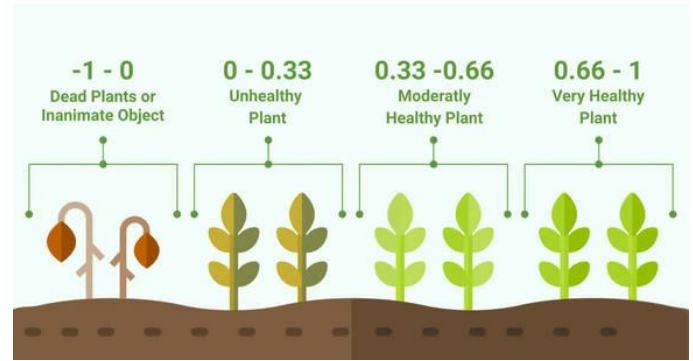
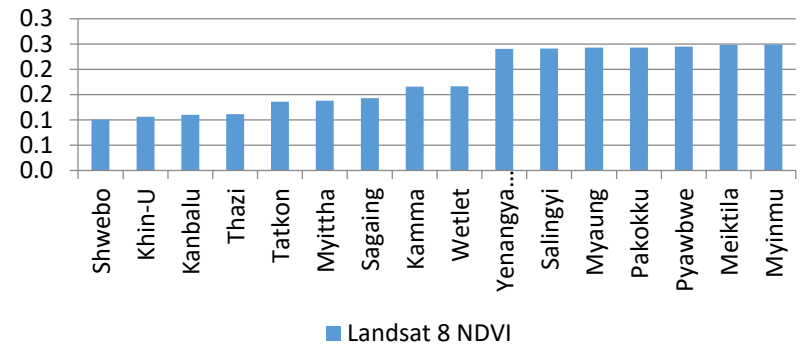


Image Courtesy: <https://eos.com>

NDVI in 2015



Conclusion

- Availability of NDVI values by Google Earth Engine Platform
- Occurrence meteorological drought in the past
- Identify the priority townships in the study area for the drought severity
- Expose the opportunity to monitor the drought in the future
- Advantages : - Drought Warning to the Farmers
 - Effective management for water resource utilization



Reference

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Thank you

