ASSESSING THE POTENTIAL OF ARTIFICIAL GROUNDWATER RECHARGE: CASE STUDY OF PALLA ROAD WELLFIELDS, BOTSWANA

Presented by Ms. Gontle Thuto Rankgomo, MSc Candidate

Supervisor: Prof. John Gathenya

IWRA Groundwater Online Conference

28-30 October 2020

OUTLINE

- Facts on Groundwater
- Objectives
- Methodology
- Results
- Conclusion

Facts on groundwater

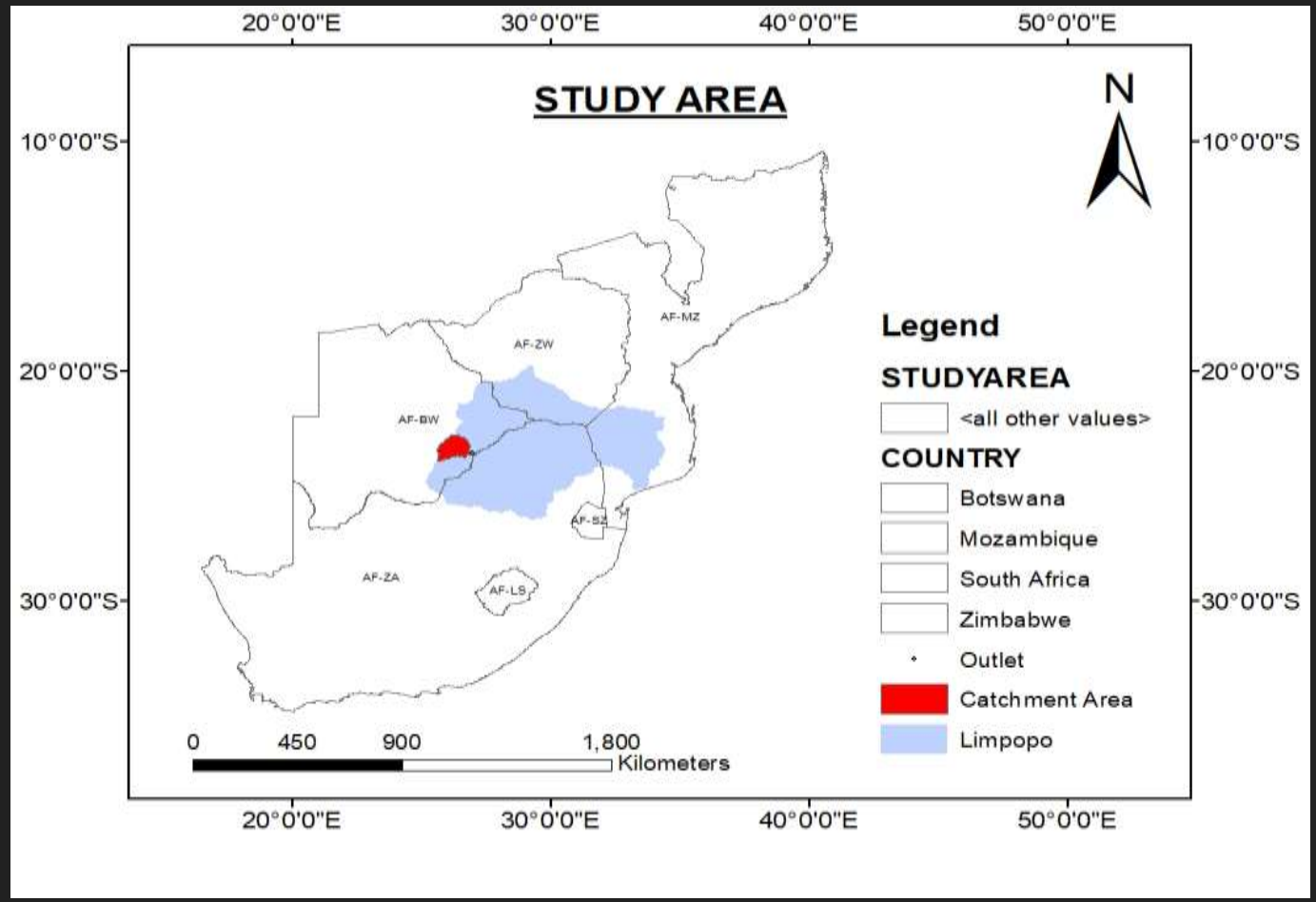
- 2.5 billion people worldwide depend on groundwater solely for their basic human needs. (UNESCO 2012).
- Groundwater accounts to about 30% of the total freshwater resources.
- Groundwater resources are limited and they are declining in terms of quality and quantity due to contamination and climate change impacts.

Objectives

- To identify and assess potential areas suitable for managed aquifer recharge, for storage in the Palla Road wellfields.
- To evaluate managed aquifer recharge potential based on the hydrological characteristics of Palla Road wellfields.

METHODOLOGY

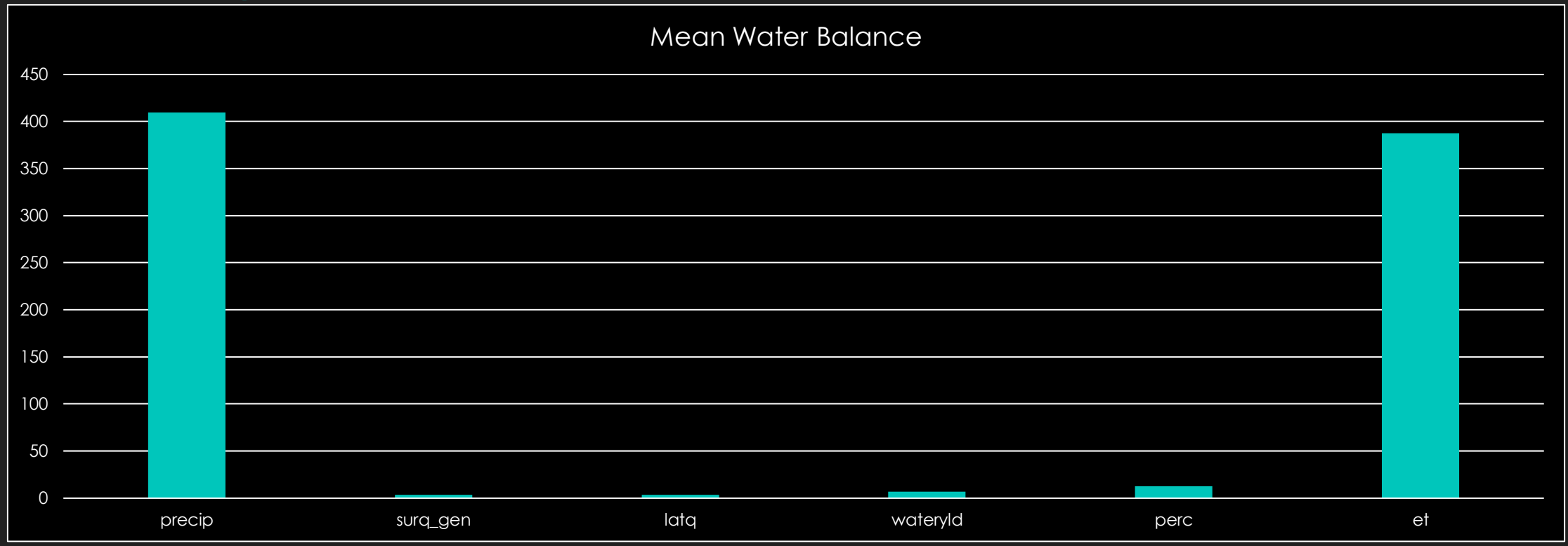
- Study Area



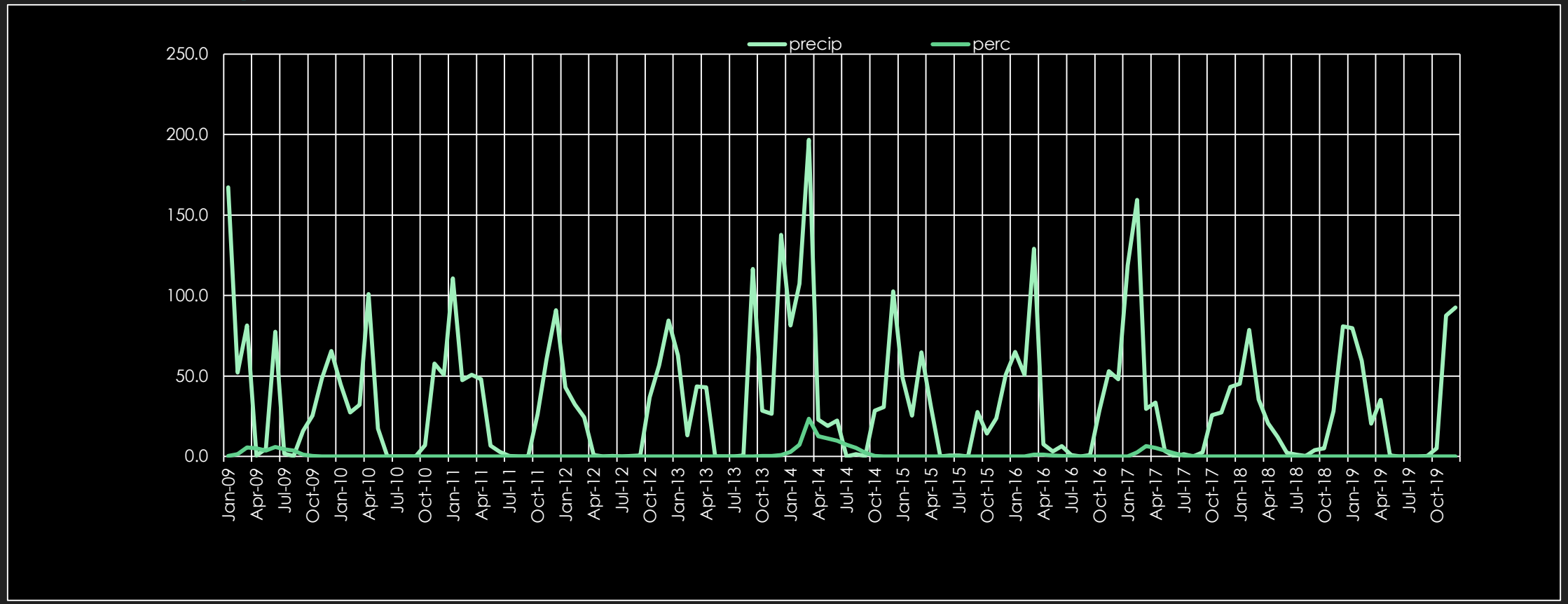
Methodology cont.

- This research was carried out based on spatial observations using dual models; the soil water balance and QSWAT + models, to identify and assess the potential areas suitable for managed aquifer recharge in Palla Road wellfields.
- From the year 2008 - 2019

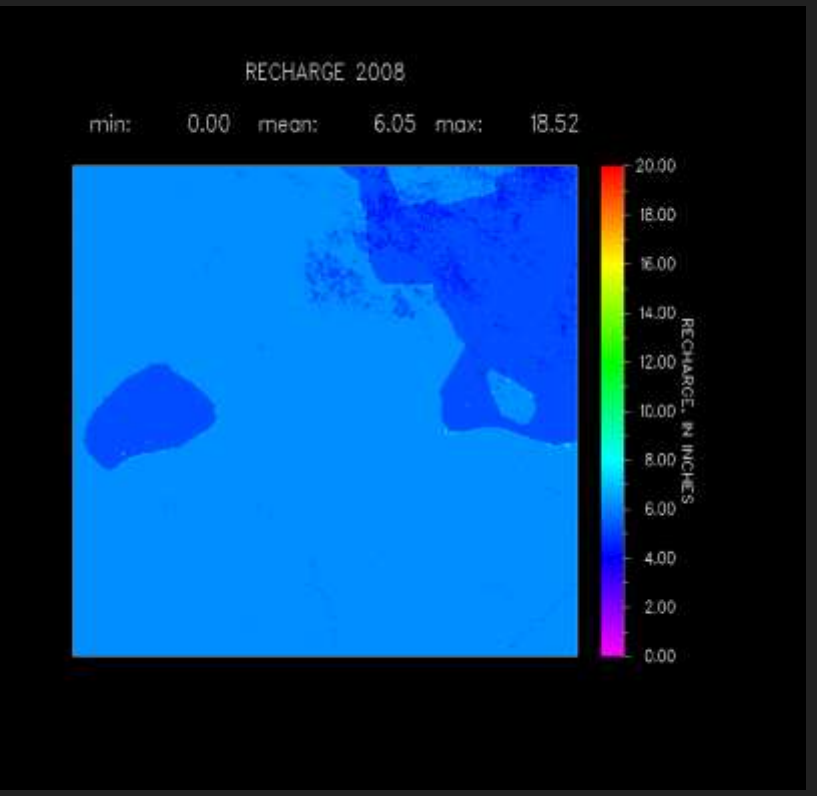
RESULTS

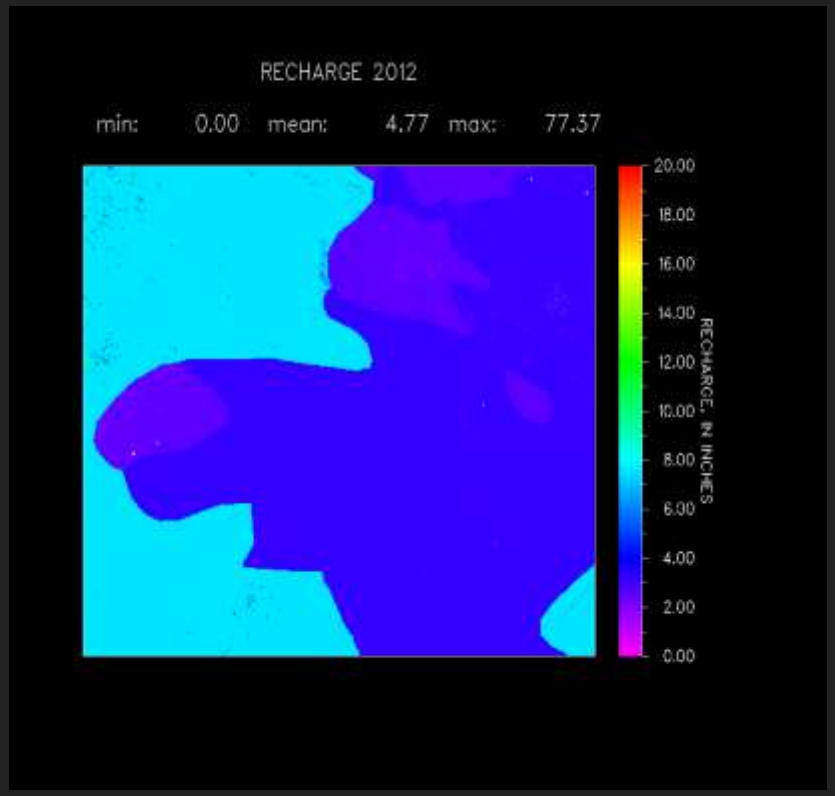

Mean Water Balance
450
400
350
300
250
200
150
100
50
0
precip
surq_gen
latq
wateryld
perc
et

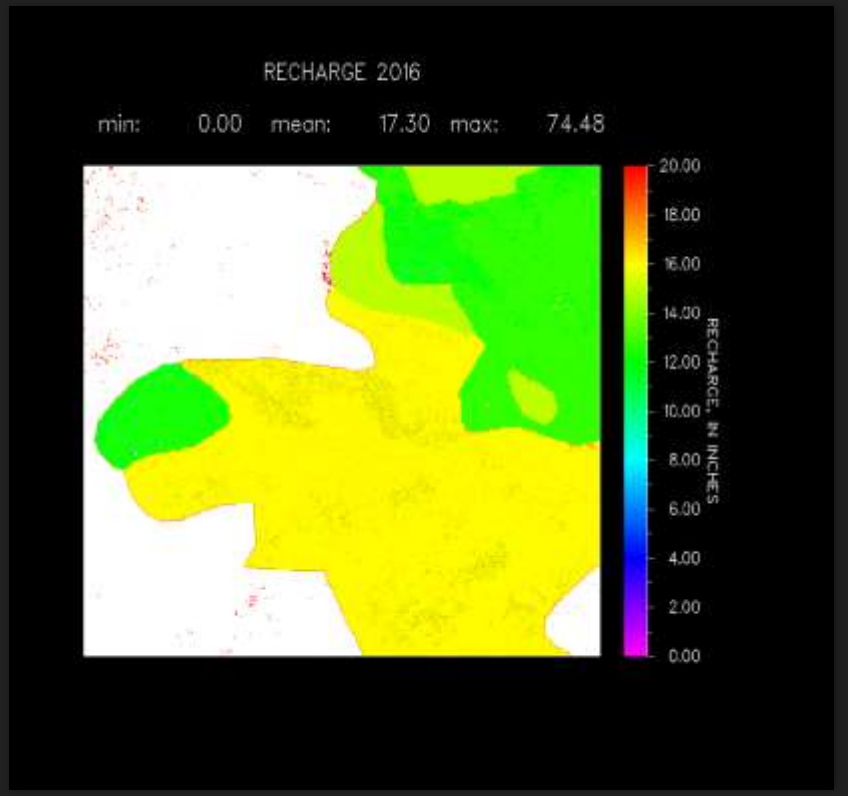
RESULTS cont.



RESULTS cont.







CONCLUSION

“Aquifer depletion is a largely invisible threat but that does not make it any less real” - Lester R. Brown

THANK YOU FOR YOUR ATTENTION!!!

Questions