# A tale of two groundwaters

## Opposing trajectories of resource development in an era of rapid change

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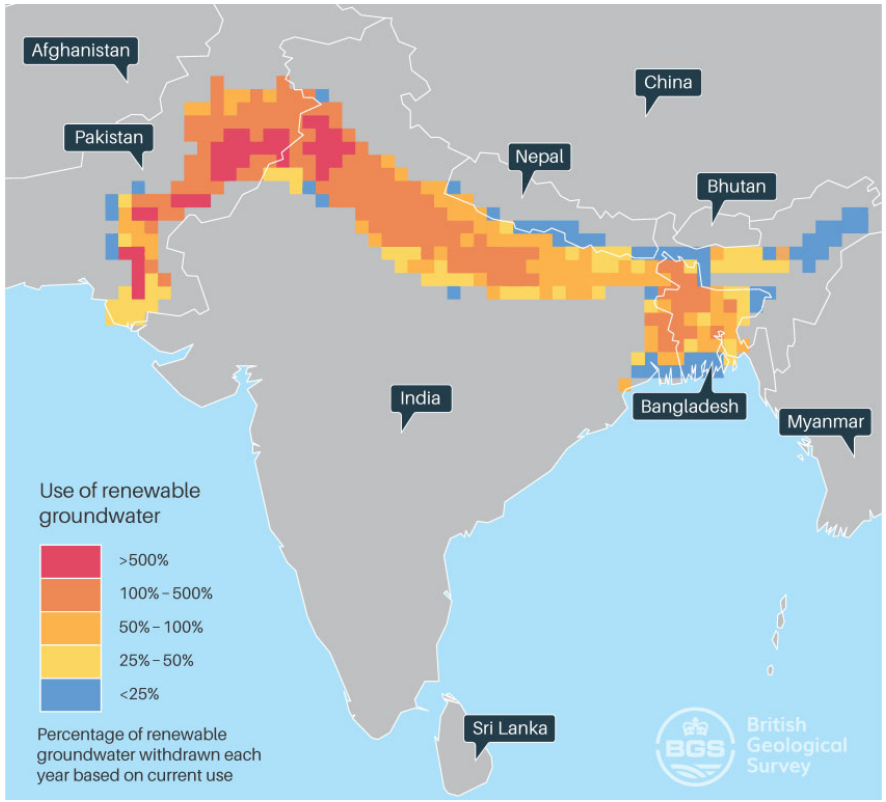
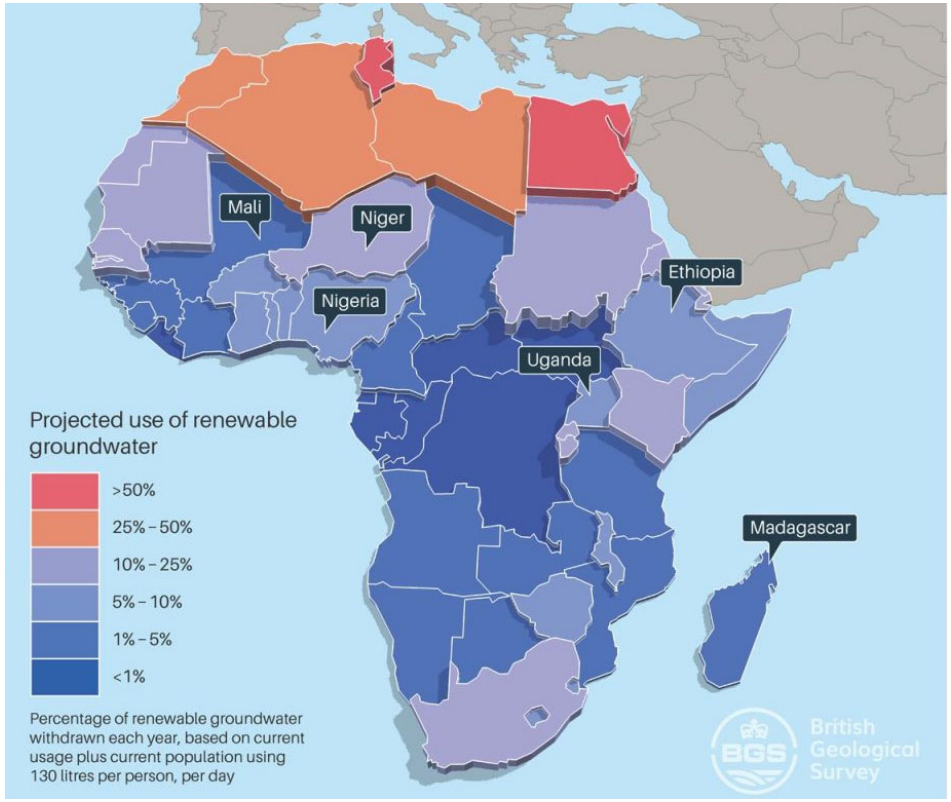
A TALE OF TWO GROUNDWATERS

# Chapter 1: Over *and* under-development



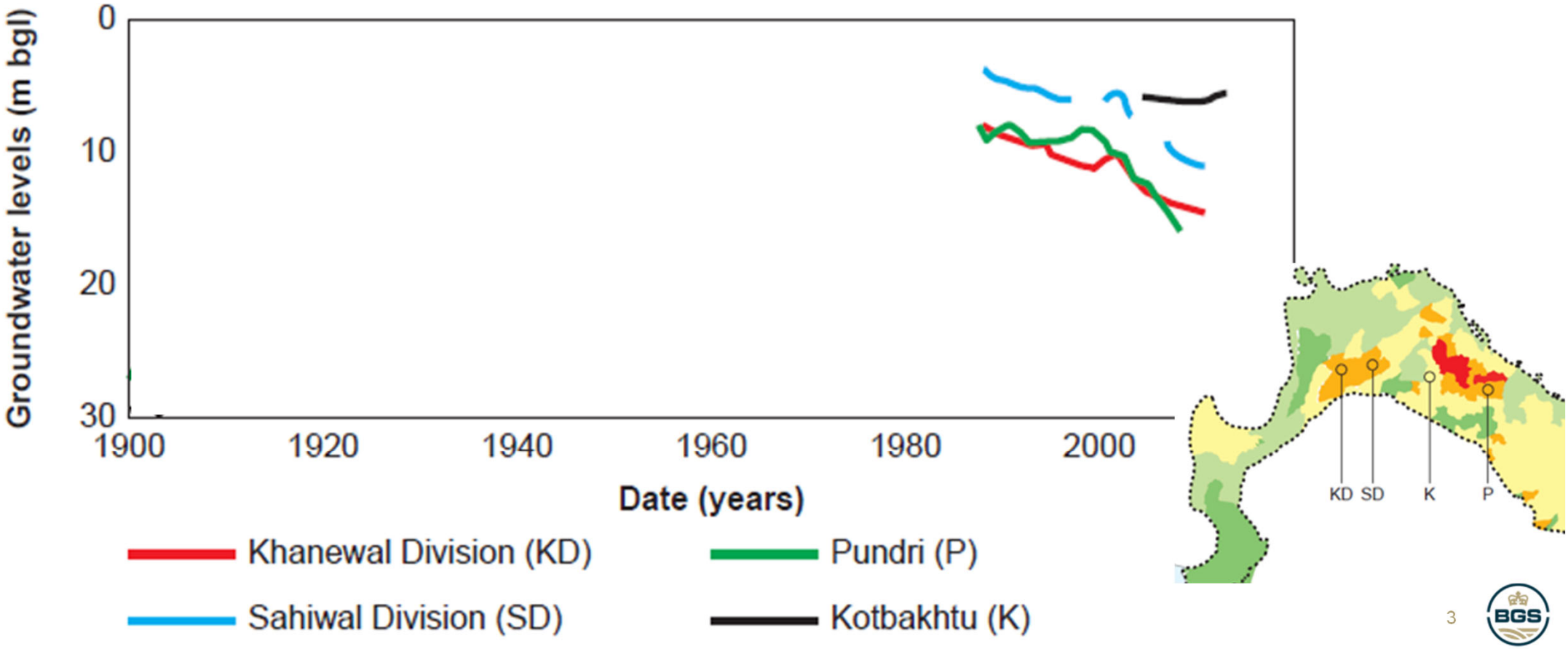

Groundwater is over-exploited and under threat




Groundwater is underutilised offering great potential

# Chapter 2: The long-term perspective

MACDONALD, A. M., et al. 2016. Groundwater quality and depletion in the Indo-Gangetic Basin mapped from in situ observations. *Nature Geoscience, 9,* ***762 - 766.***



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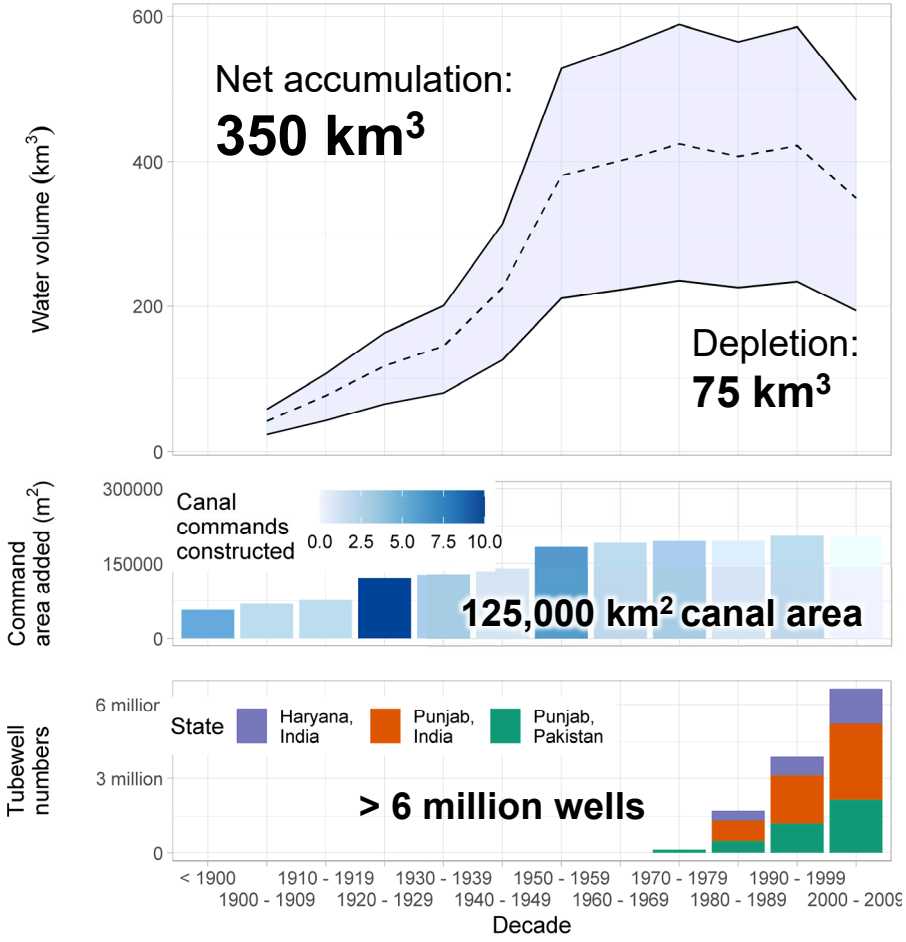
# Chapter 2: The long-term perspective

MACALLISTER, D. J., et al. 2022. A century of groundwater accumulation in Pakistan and northwest India. *Nature Geoscience, 15, **390-396.***



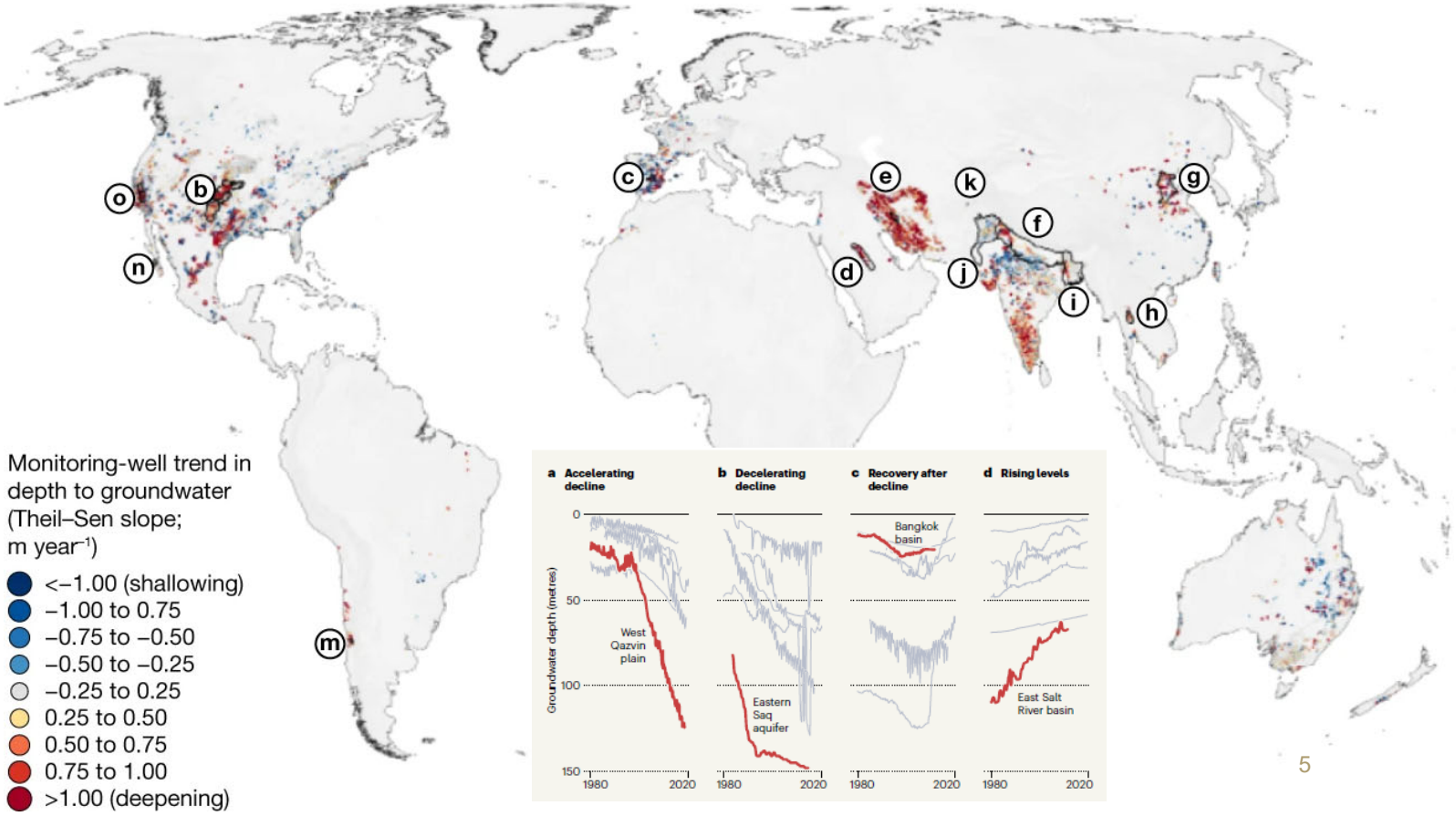

Groundwater accumulation in Pakistan and north-west India

Long history of large-scale water resources developments with unintended consequences

# Chapter 3: Inadequate data

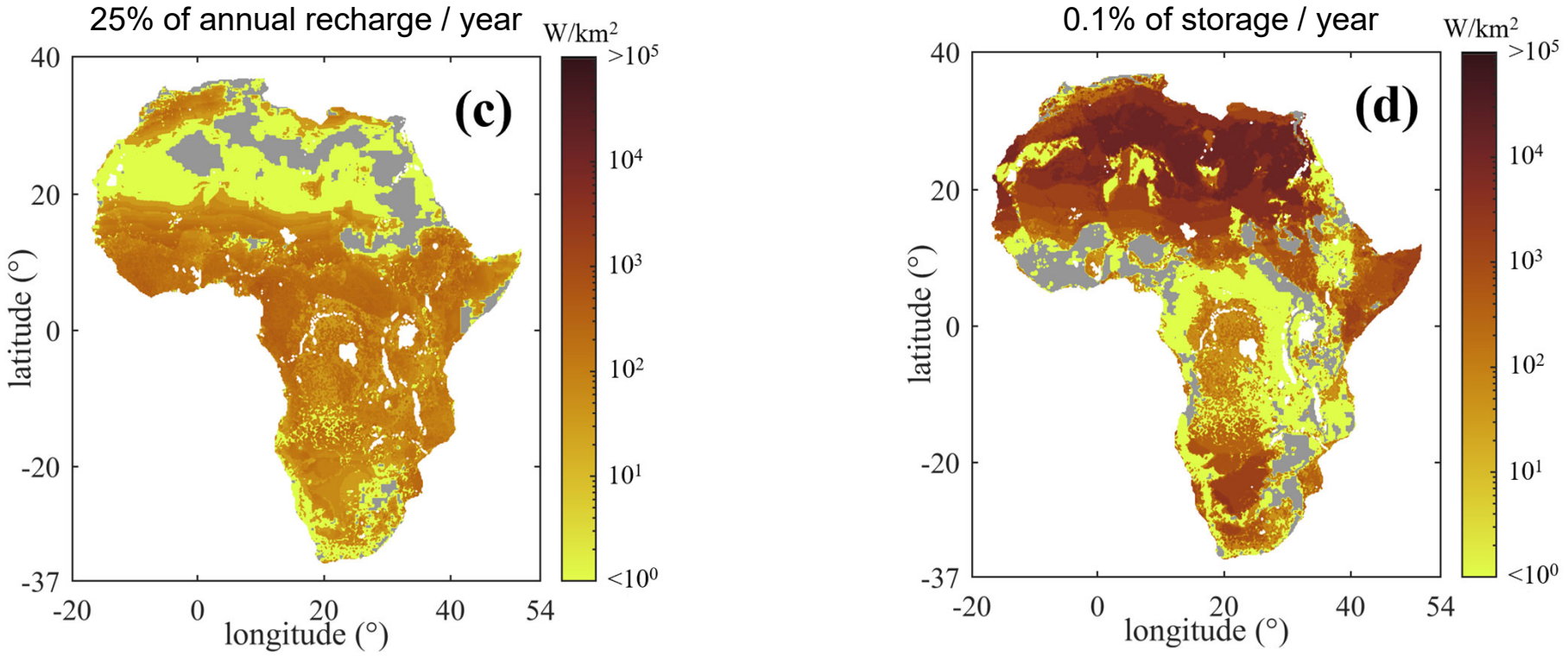
JASECHKO, S., SEYBOLD, H., et al.. 2024. Rapid groundwater decline and some cases of recovery in aquifers globally. *Nature, 625*, ***715-721.***

- 40 countries, 75% of withdrawal but…
- …in other 25% - data needed to improve our understanding of GW resources.
- Management can reverse or slow depletion, but data needed for decision making.



# Epilogue: A different perspective

ZUFFINETTI, G., et al. 2024. A method for estimating maximum safe installable power for groundwater extraction with application to Africa. *Science of the Total Environment. Under review.*




Estimates of the maximum remaining installable power for groundwater development in Africa.