



GROUNDWATER POTENTIAL ZONE KANCHEEPURAM DISTRICT, TAMIL NADU WITH HELP OF REMOTESENSING AND GIS

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INTRODUCTION

- Groundwater is a critical resource for drinking, agriculture, and industry.
- Remote Sensing (RS) and Geographic Information Systems (GIS) play pivotal roles in assessing groundwater potential zones.

FACTORS INFLUENCING GROUNDWATER POTENTIAL



Geological factors: Rock type, structure, and lithology influence groundwater occurrence.



Topographical factors: Slope, aspect, and elevation affect groundwater recharge.



Land use/land cover: Vegetation and urbanization impact infiltration rates.

REMOTE SENSING DATA ACQUISTION



SATELLITE IMAGERY: OBTAINING MULTI-SPECTRAL DATA CAPTURING SURFACE CHARACTERISTICS.



AERIAL PHOTOGRAPHY: HIGH-RESOLUTION IMAGES FOR DETAILED LAND COVER ANALYSIS.



RADAR DATA: PENETRATES THROUGH VEGETATION TO ASSESS SUBSURFACE CONDITIONS.

PREPROCESSING OF REMOTESENSING DATA



IMAGE ENHANCEMENT: IMPROVING
IMAGE QUALITY FOR BETTER
INTERPRETATION.



IMAGE CLASSIFICATION: DISTINGUISHING
LAND COVER TYPES USING SUPERVISED OR
UNSUPERVISED METHODS.



DATA FUSION: INTEGRATING DIFFERENT
SENSOR DATA FOR A COMPREHENSIVE
ANALYSIS.

GIS ANALYSIS OF GROUNDWATER POTENTIAL



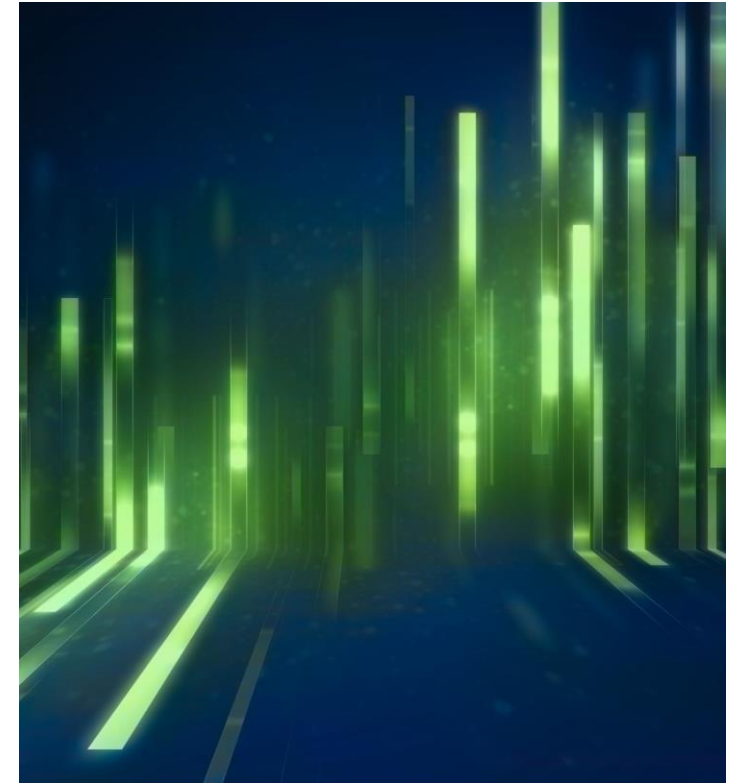
Data integration: Combining remote sensing data with existing GIS layers (geology, hydrology, etc.).



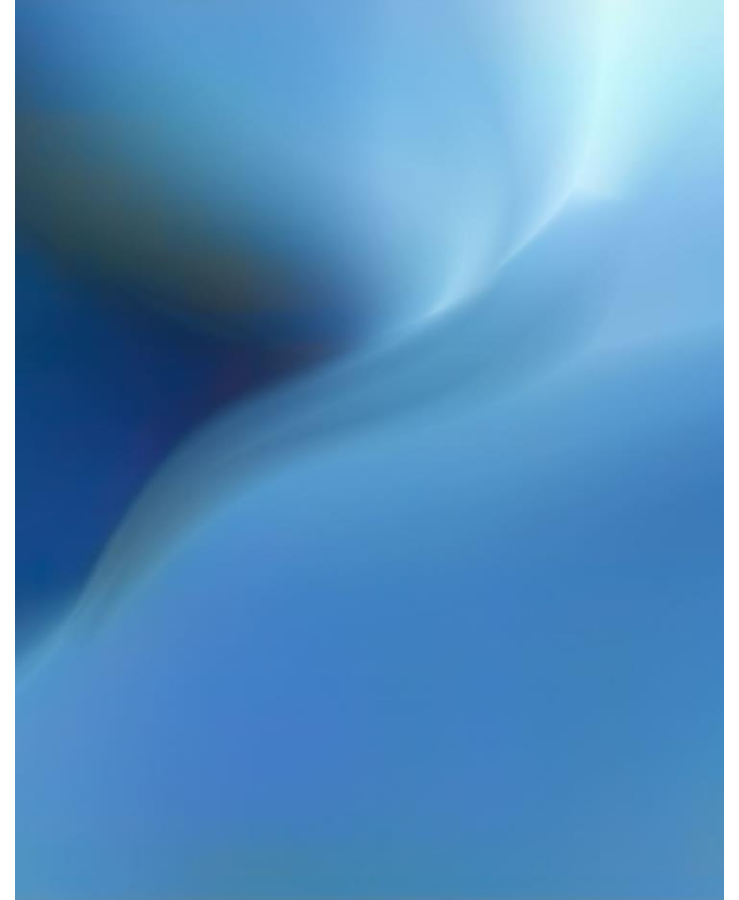
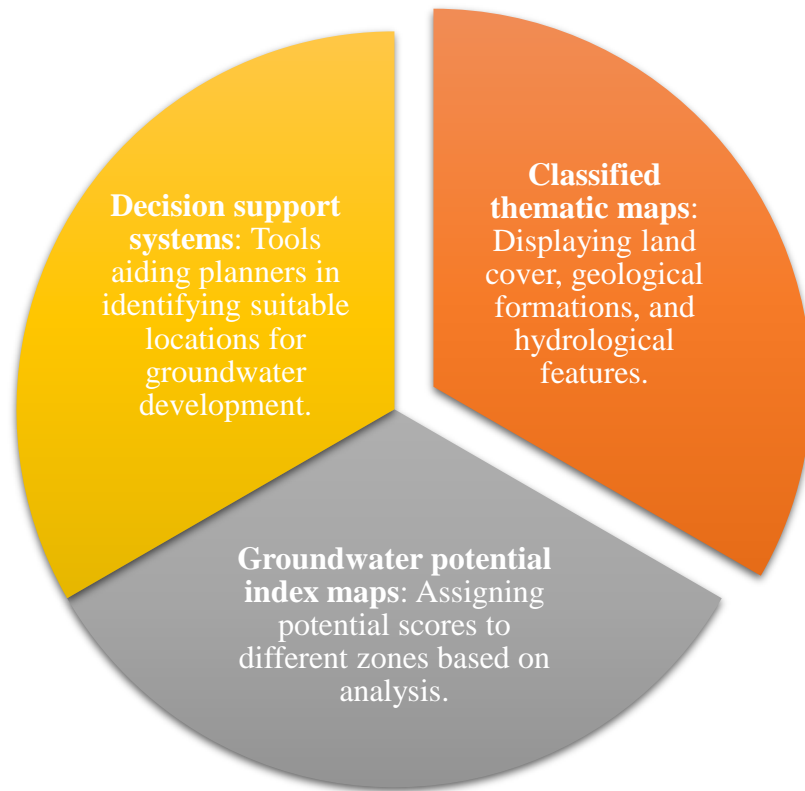
Weighted overlay analysis: Assigning weights to factors based on their influence on groundwater occurrence.



Spatial modeling: Predicting potential zones using statistical or machine learning algorithms.



GROUNDWATER POTENTIAL MAPPING



VALIDATION AND GROUND TRUTHING



Field surveys: Ground truthing to validate and refine the generated potential zones.



Hydrological data collection: Measuring water table depth, well yield, and aquifer characteristics.



CASE STUDY



- PALAR RIVER BASIN KANCHEEPURAM DISTRICT, TAMIL NADU, INDIA
- It lies between $12^{\circ} 14' 00''$ N to $13^{\circ} 02' 00''$ N latitude, $79^{\circ} 31' 30''$ E to $80^{\circ} 15' 30''$ E longitude.



CONCLUSION

- RS and GIS are invaluable tools in mapping groundwater potential zones.
- Integration of field data is crucial for accurate assessment.
- Continued research and monitoring are essential for sustainable groundwater management.



**Your time is limited, don't waste it
living someone else's life**

THANK YOU