UNCONVENTIONAL WATER RESOURCES

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CLIMATE CHANGE IMPACTS ON WATER

- **MORE POWERFUL STORMS** → **MORE RUNOFF** → **MORE POLLUTION** → **LOWER QUALITY**
- **MORE EVAPORATION** → **LESS PRECIPITATION** → **DROUGHT** → **LESS QUANTITY**
- **HIGHER POPULATIONS** → **MORE DEMAND** → **LESS SUITABLE WATER** → **MORE UNCONVENTIONAL WATER RESOURCES**
TYPES OF UNCONVENTIONAL WATER RESOURCES

- FOSSIL AQUIFERS
- ATMOSPHERIC WATER
- WASTEWATER RECYCLING
- DESALINATION
- BULK WATER TRANSFERS
- ICE BERGS
- BALLAST WATER

□ UNU-INWEH PROJECT (MANZOOR QADIR)
FOSSIL AQUIFERS

• FRESHWATEREMPLACED THOUSANDSTOMILLIONSOF YEARSAGO
• NO RECHARGE IN CONTEMPORARY TIMES
• CAN BE CONFINED OR UNCONFINED
• CAN BE LAND-BASED OR OFFSHORE
LAND-BASED FOSSIL AQUIFERS

- DOMESTIC AND TRANSBOUNDARY
- LARGE VOLUMES
- MOSTLY PRISTINE FRESHWATER
- ALL HEAVILY UTILIZED
OFFSHORE AQUIFERS

- Domestic and transboundary
- Large volumes
- Fresh and slightly brackish water
- Some connected to coastal aquifers
- Not yet utilized
ATMOSPHERIC WATER

• FOG/RAINWATER HARVESTING (LOCAL)

• CLOUD SEEDING (LOCAL/REGIONAL)

• SOLAR GEOENGINEERING (GLOBAL)

• ONLY ONE TREATY (1979)
• UNCONVENTIONAL WATER RESOURCES WILL BE INCREASINGLY ATTRACTIVE

• WATER QUALITY MAY BECOME MORE IMPORTANT THAN QUANTITY

• FOSSIL AQUIFERS PROVIDE LONG-TERM WATER STORAGE

• GOVERNANCE GAP REMAINS FOR ATMOSPHERIC WATER

THANK YOU!!