



Ministry of Water Resources and Irrigation MWRI Government of Southern Sudan, Juba



Drilling of cost effective boreholes in Southern Sudan

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Presented by: Manhiem Bol Malek



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Highlights on Socio-economic Situation in Southern Sudan

- Years of conflict have destroyed infrastructure, livestock, property, lives, social and economic fabric
- Southern Sudan is just beginning to recover from over 50 years of intermittent civil war.
- Consequently , human development parameters in the south are much poorer than would be suggested by Sudan's overall ranking at 144 out of 177 in the UNDP human development index.
- The civil war resulted in the collapse of government services in the south
- Sanitation within South Sudan is rated at 6.2 % of households have access to latrines



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Highlights on Socio-economic Situation in Southern Sudan

- Personal and household hygiene is poor- as diarrhoeal diseases, guinea worm, skin diseases and trachoma are widely prevalent
- Gender imbalances reflect and perpetuate the poor development status of Southern Sudan.
- While women play the central role in the household tasks, they have little capacity or resources to properly undertake these tasks.
- WASH related diseases is No 2 Killer of SS Children, 43% Under 5 diarrhoea in two week.
- High Cost of Drilling : Delaying Progress on MDGs



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Highlights on Status of Boreholes

- Several boreholes drilled during OLS time on humanitarian response basis
- High number of returnees/refugees=strain
- The quantities and quality of water available to households are grossly insufficient. Close to 50% <15 l/p/d < emergency situations
- About 25- 30% of installed hand pumps are not working
- At least 50% of the communities have community based structures for water management, and where breakdown on hand pumps exist it is hard to repair them
- In some communities there is still lack of pump mechanics that can repair broken down boreholes on time
- Handling of water from collection point to the storage facility at household is improper, less than 30 % of households store drinking water in separate, lidded containers..



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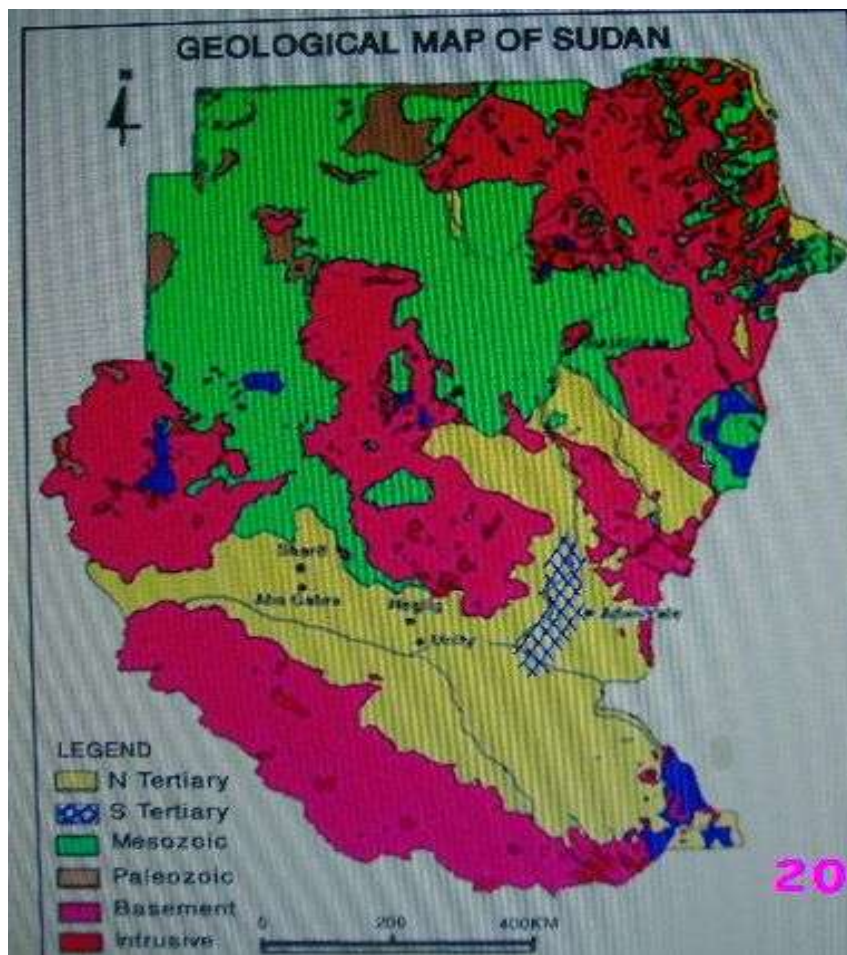


- **Geo-hydrology of southern Sudan**

- Southern Sudan, with an area of 640,000 km², can be subdivided into three distinct geo-hydrological areas:
 - Basement (Intrusive/Extrusive) Complex
 - Normal Tertiary, and
 - Saline



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Challenges for cost effective boreholes

- The structure of Southern Sudan geophysical set up
- Difficult accessibility to different locations of Southern Sudan
- Lack of hydro-geological data
- Poor roads infrastructure
- Lack of manufacturing institutions with Southern Sudan
- Tribal conflicts (fear and safety of drilling companies)



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Challenges for cost effective boreholes

- Low per-capita income among national water drilling Companies.
- Poor supervisory skills/capacities of stake-holders
- Lack of rural water supply act and strategy
- Procurement conditions/system



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- **Standardizing Bore Wells for cost effective boreholes in Southern Sudan**
 - Groundwater investigation is paramount
 - Johnson well screens shouldn't be used whenever necessary
 - Encourage manual drilling where feasible
 - Use of smaller rigs where deeper capacity bore-wells are not required
 - Choice of pumps require knowledge of hydro- geological data
 - Standard bore-wells diameter for future options/choices
 - Similar geological formations same wells



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- **Demerits of Standardizing Bore Wells in Southern Sudan**
 - Various formations require specific approach
 - Communities have varied lifestyle
 - Variations among safe water service providers
 - Infrastructure and terrain conditions



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- **Way forward for cost effective boreholes**
 - Support geophysical studies and water resources mapping to guide boreholes construction
 - Geophysical/hydrogeological surveys before drilling to be emphasized and conducted
 - Strengthen and build capacity for borehole drilling supervision
 - Encourage and build local private drilling capacity
 - Support and promote cheaper options like manual drilling where potential exists.
 - Focus on Village Level Operation and Management and support supply Chain etc)



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Thank You

