

# **Water Demand in Iraq The Contribution of the Mosul Dam**

**Panel 2:**

**Developing Iraq's Infrastructure Requirements: Electricity, Water  
Supply and Transportation**

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*PASSION for  
PROGRESS*



CONSTRUCTION



EQUIPMENT



RESOURCES



## Severe Water shortage affect farmers in 2018

<https://water.fanack.com/iraq/water-resources-in-iraq> / <https://www.dw.com/en/> / [kurdistan24.net](http://kurdistan24.net)

# Water Supply

Source: Ministry of Water Resources Iraq 2010

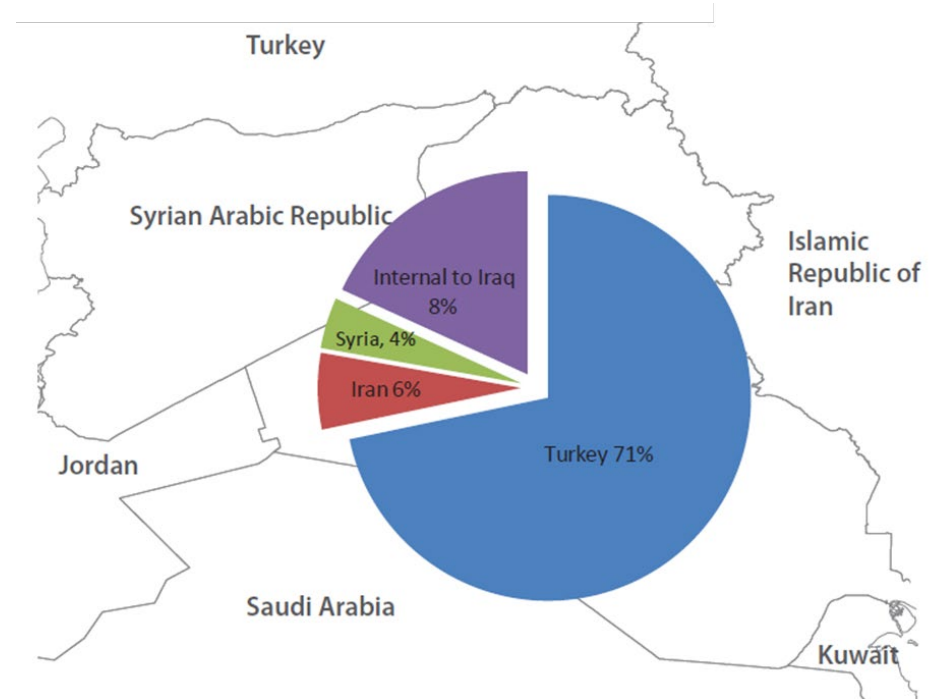


## Average Discharge of Water to Iraq (billion m<sup>3</sup>)

	2009	2025 (est.)
Tigris	49.20	9.16
Euphrates	19.34	8.45

Source: Ministry of Water Resources Iraq 2010

## Water Supply by Country



# Water Resources in Iraq



<https://water.fanack.com/iraq/water-infrastructure-in-iraq/>



Map 6. Reservoir management systems.[1]

## Dams on the Tigris

[https://en.wikipedia.org/wiki/List\\_of\\_dams\\_and\\_reservoirs\\_in\\_Iraq](https://en.wikipedia.org/wiki/List_of_dams_and_reservoirs_in_Iraq)

### Reservoir capacity total

- Mosul Dam, Tigris
  - Total capacity: 11,100,000,000 m<sup>3</sup>
- Samarra Dam, Tigris
  - Total capacity: 150,000,000 m<sup>3</sup>
- Badush Dam (**incomplete**), Tigris
  - Total capacity: 10,000,000,000 m<sup>3</sup>

Total 10 dams listed being in operation, plus 3 under construction.

# The Mosul Dam – Purpose of the Dam



- Irrigation / River augmentation / Flood control / Power generation



# The Mosul Dam – Data



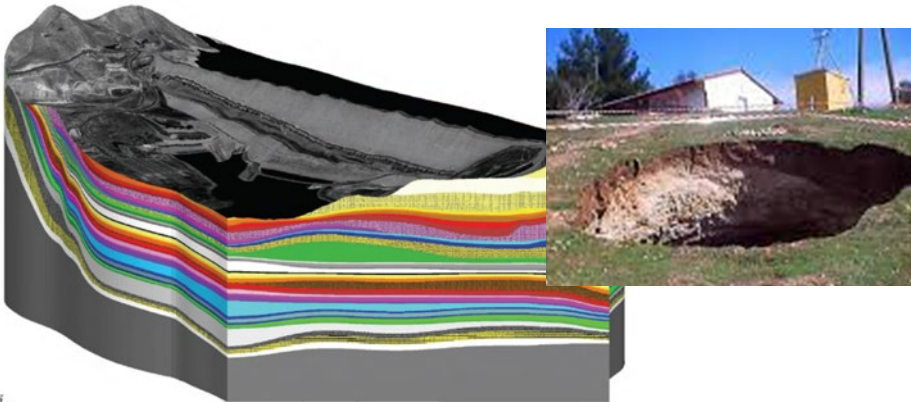
## Location of the Dam



## Data of the Dam

- **Construction period: 1981 to 1985**
- **Embankment dam with clay core**
- **Dam height: max. 113 m**
- **Dam length without saddle dam: approx. 2 km**

## Local Geology



## Existing Problem in the Subsoil

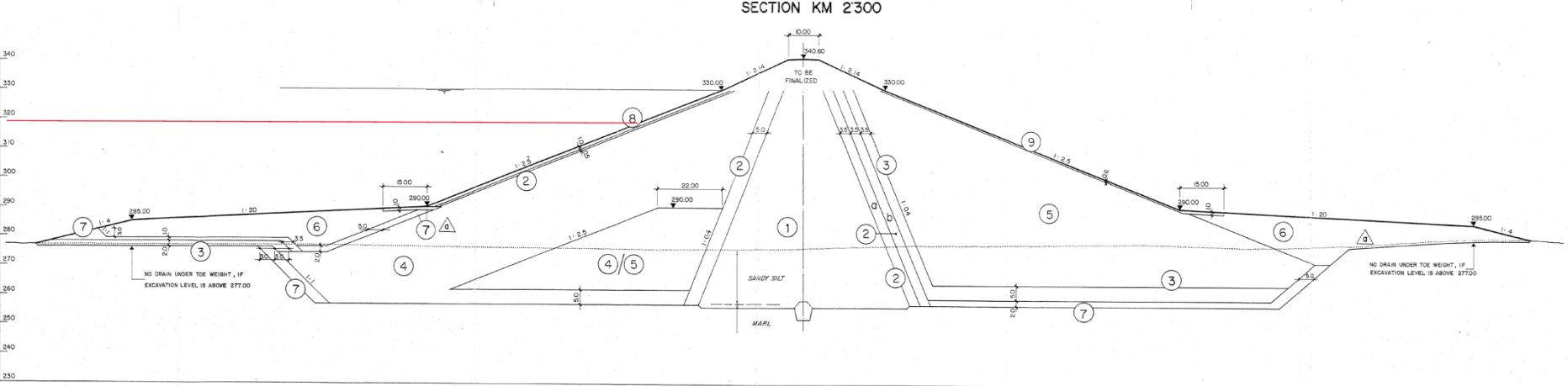
- Alternating layers of soluble limestone and extremely soluble anhydrite
- The anhydrite is transformed into easily soluble gypsum when in contact with water – increasing the volume up to 60%.

(Geological model from various subsoil data – USACE)



# The Mosul Dam

## Layout and typical Cross Section

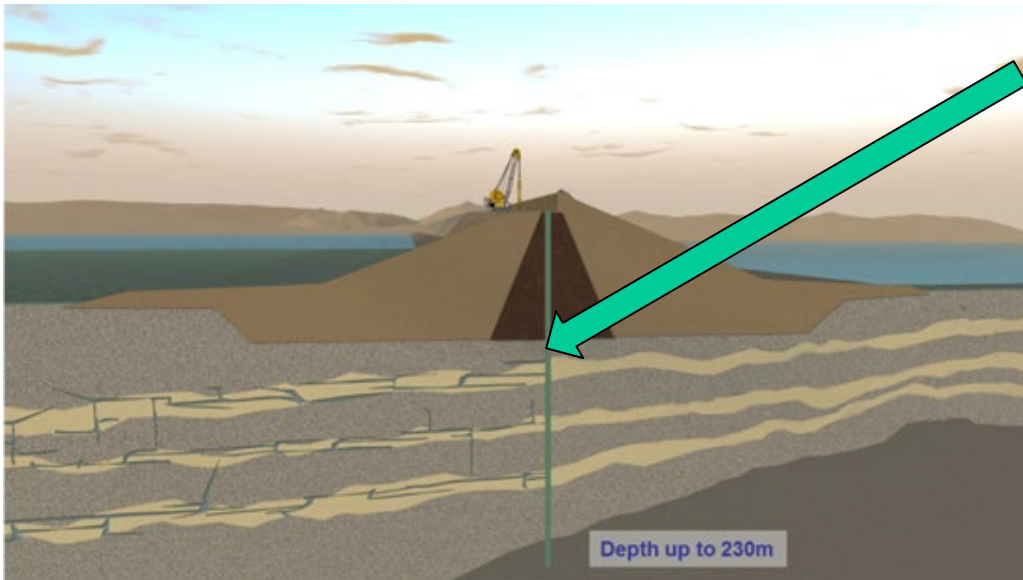


# The Mosul Dam

## Layout and typical Cross Section

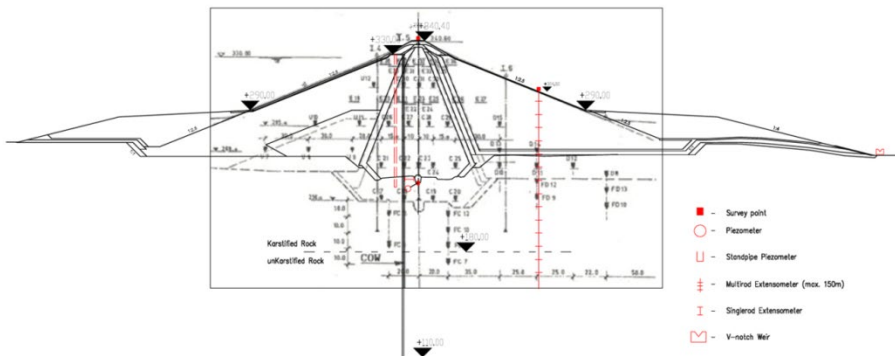


### Typical Cross Section



Permanent rehabilitation of the dam by means of a concrete wall

- Wall depth to dense limestone below the anhydrite layers: approx. 100 to approx. 230 m
- Wall length, depending on protection requirements for appurtenant dam structures and buildings in the dam area.



## Conclusion

- **Reduced discharge of water into Iraq and increased demand of water requires increase of water storage.**
- **A fully functional Mosul Dam and a completed Badush Dam** could considerably increase storage capacity along the Tigris River.
- **More storage capacity provides for:**

## Benefits for the country

- **Preservation of groundwater level** – important for agriculture in the region (e.g. cereals).
- **Ensures water supply for the region and the settlements along the Tigris** (also against the background of the new dams in the upper reaches of the Tigris (i.e. Ilisu Turkey)).
- **Fresh water for the ecosystem of the marshes** (marshland) in the area of Kut / Basra – prevent the increased penetration of saline groundwater from the Gulf.

# Thank You for Attention

## Questions?

