

SOUTH VALLEY DEVELOPMENT

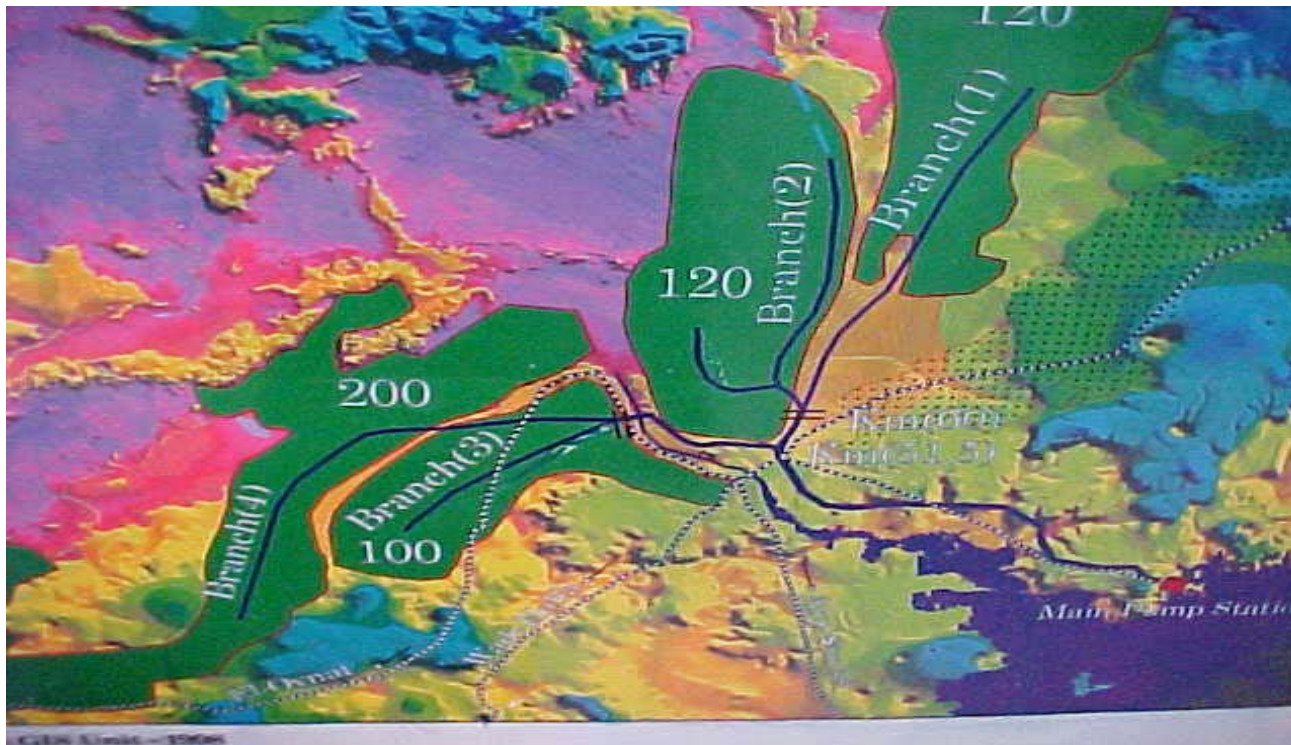
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Introduction

- South Valley Development Project initiated by Egypt's president in 1997
- Developed in Toshka, East Oweinat, and the New Governorate Oases
- Designed to ease population in the Nile Valley and to increase Egypt's economy and change approx. 740,000 acres of desert into habitable land allowing 6 million people to live there by 2017
- Also creating 10,000 + job opportunities

TECHNICAL DATA

- SHEIKH ZAYED CANAL
- 2 MAIN CANALS, 4 BRANCHES
- 310KM LONG
- 540,000 ACRES
- LIVING CAPACITY FOR +/- 3 MILLION PEOPLE



2 MAIN PROJECTS

- **TOSKA PROJECT**

540,000 acres, southern Egypt

- **OWEINAT PROJECT**

Underground Water Irrigation Project, **200,000** acres, southwestern Egypt

EXISTING LAND AT TOSKA PROJECT



EXISTING LAND AT EAST OWEINAT PROJECT



Toshka

- Sheikh Zayed Canal connected to Lake Nasser
- Water pumped through canal into the desert
- Large pumping station installed on the western shore of Lake Nasser



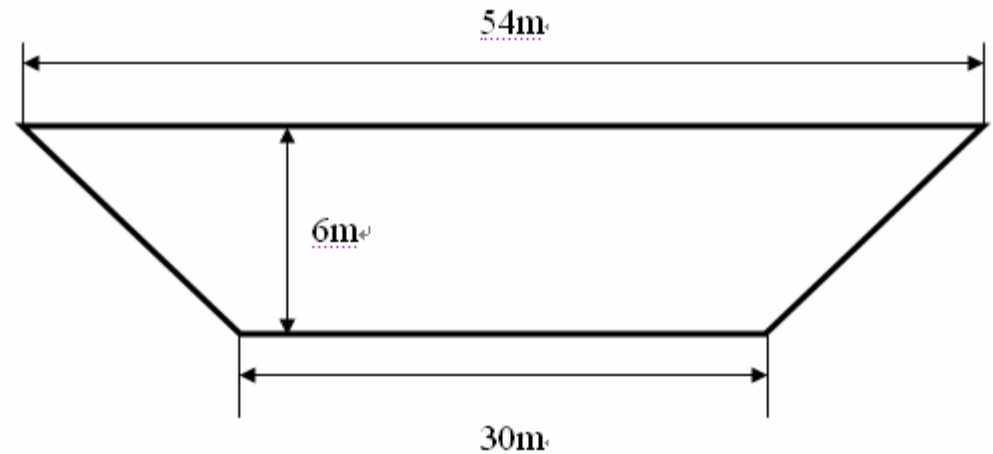
SHEIKH ZAYED CANAL

- 30 METERS WIDE AT BOTTOM
- 54 METERS WIDE AT SURFACE
- 6 METERS DEEP



A PART OF FINISHED CANAL

THE SECTION PLANE OF THE CANAL



MUBARAK PUMPING STATION

- BIGGEST PUMPING STATION
- 24 PUMPS
- 360 CUBIC METERS DISCHARGE PER SECOND
- ELECTRICITY SUPPLIED BY ASWAN HIGH DAM



Pumping Station



DESIGN

- Said to be one of the largest pumping stations in the world
- The specs of this pump have made it one of the 5 finalists for an Outstanding Civil Engineering Award presented by the American Society of Civil Engineers

OVERVIEW OF MUBARAK PUMP STATION CONSTRUCTION PROJECT

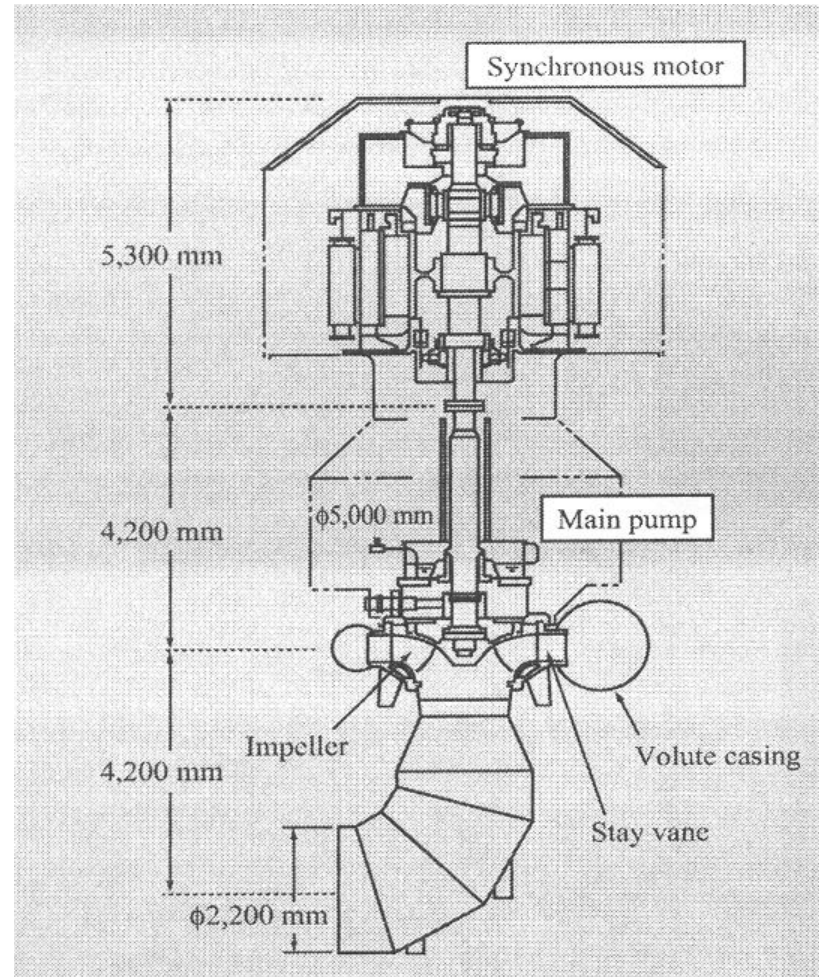


PUMP DESIGN

● MAIN PUMP

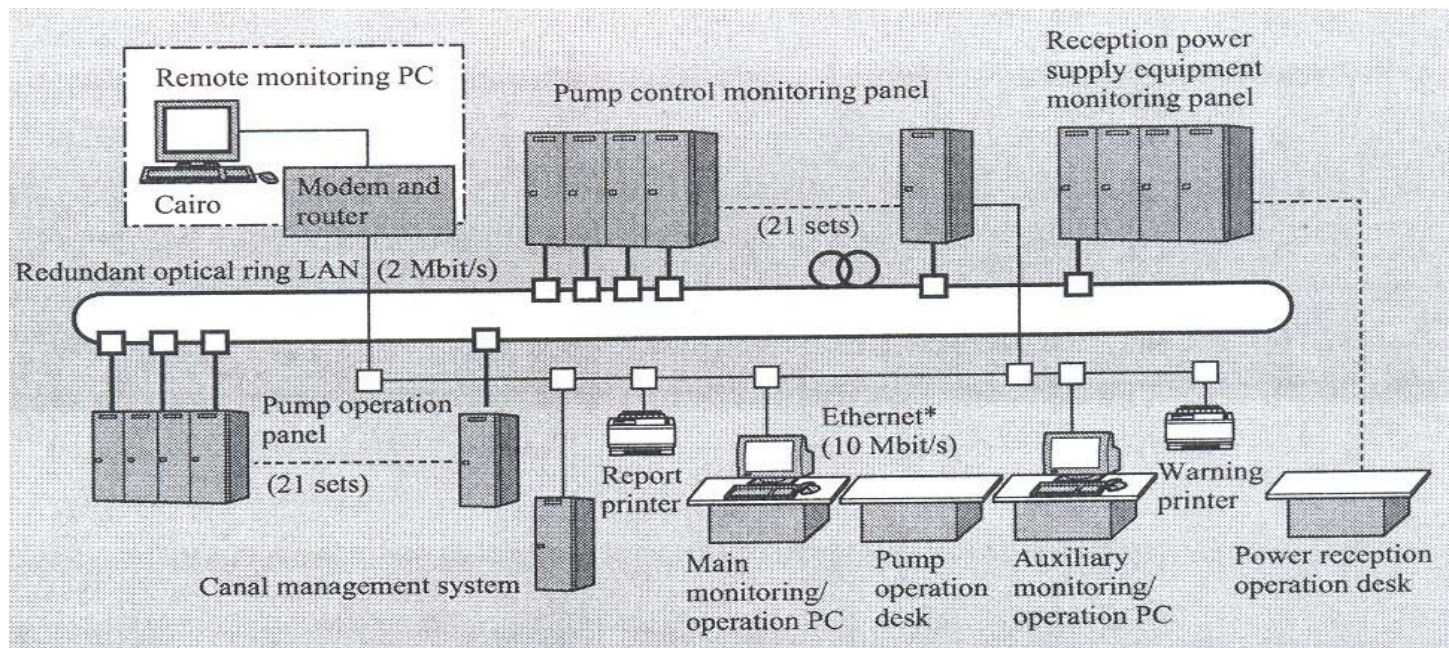
Model	Vertical shaft, centrifugal pump
Pump bore	2,400 -1, 800 (mm)
Discharge volume	16.7 m ³ /s
Speed	210 – 300 min ⁻¹
Drive motor	12,000-kW synchronous motor
Number of units	24

● SYNCHRONOUS MOTOR



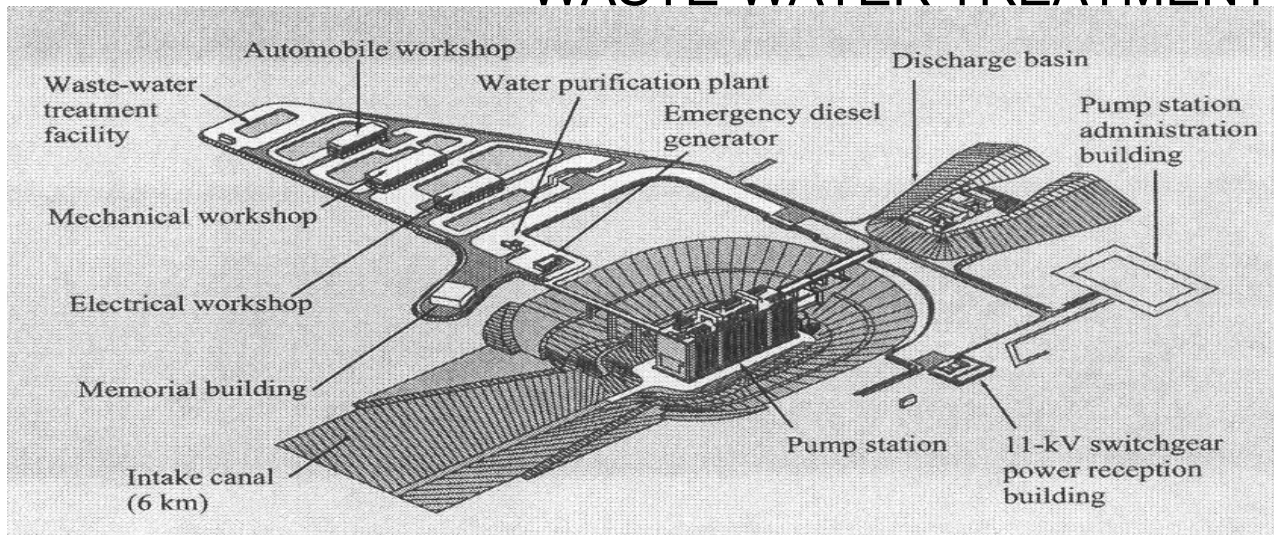
MONITORING SYSTEM CONFIGURATION

- PUMP OPERATION
- AUTOMATIC PUMP ORIENTATION
- INLET AND OUTLET WATER LEVEL
- FAILURE NOTIFICATION
- ENERGY MANAGEMENT



MAIN FACILITIES OF PUMP

- AUTO WORKSHOP
- WATER PURIFICATION PLANT
- EMERGENCY DIESEL GENERATOR
- DISCHARGE BASIN
- ADMIN BLDG
- POWER RECEPTION BLDG
- PUMP STATION
- INTAKE CANAL
- MEMORIAL BLDG
- ELECTRICAL WORKSHOP
- MECHANICAL WORKSHOP
- WASTE-WATER TREATMENT FACILITY



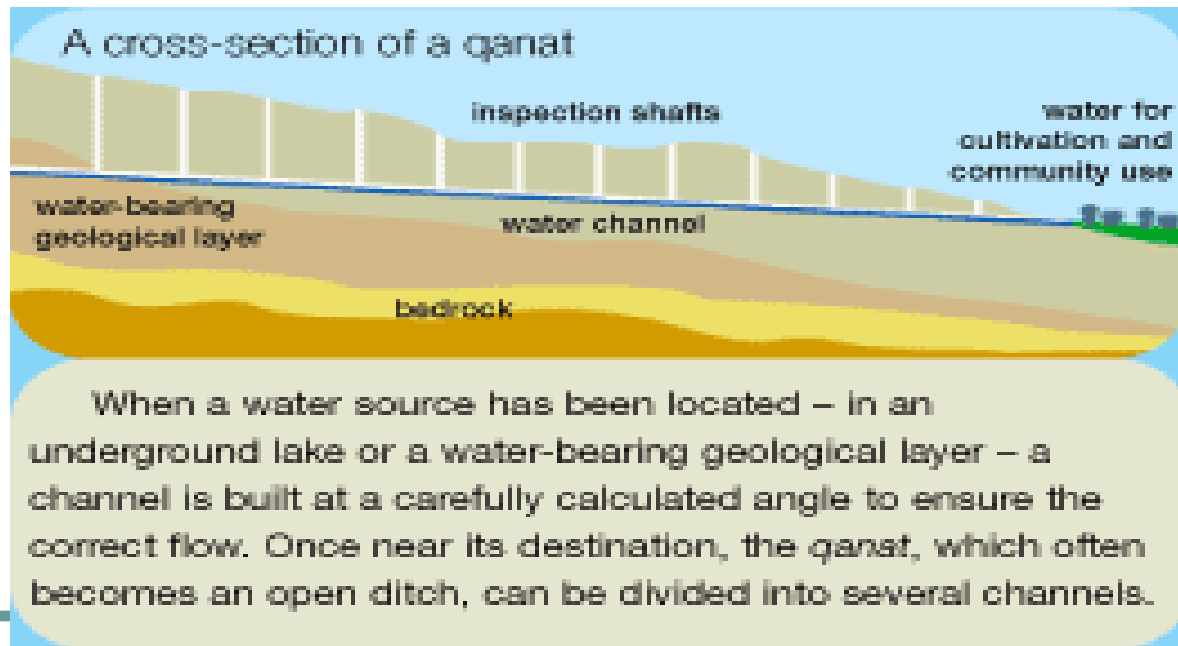
Mubarak Pumping Station

Alternative of piles around the base of pumping station:

- Concrete Pile
 - High Cost with high maintenance fee
 - Used by most of the pumping stations in North Afrika.
- Steel Mini-Pile
 - Lower cost and maintenance fee
 - Able to absorb the compression of station
 - Temperature range from 0 °C to 55 °C

East Oweinat Project

- Cultivate about 250, 000 arces
- By using Nubia Sandstone aquifer system, underground water pumping from southern of Western Desert of Egypt.



East Oweinat Project



- According to Chemical analysis, the underground water is:
 - From thermal characteristics.
 - Contains low salt content.
- Thus, it is suitable for irrigation purpose.

East Oweinat Project

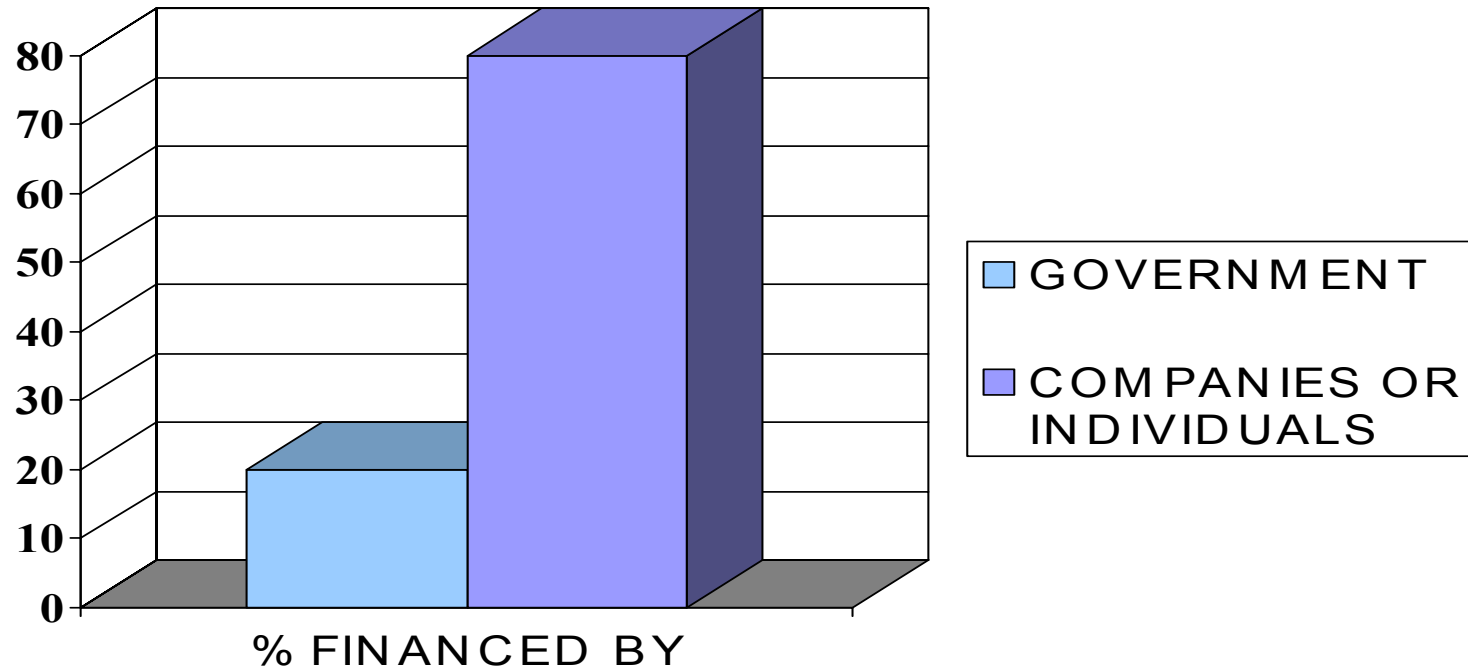
Alternative:

- Do nothing – leave a huge piece of sandy and dry land.
- Slowly develop by it own government – time consuming and slow efficiency.
- Develop with international companies – huge project, efficient and increase country turn overrate in short period.

Problem

- Dewatering the shallow aquifer in some areas (e.g. Kharga Oasis), and lowering of the water level to uneconomic lifting depths.

SOURCE OF INVESTMENT



- TOTAL \$90 BILLION
- MORE THAN 20% WILL COME FROM GOVERNMENT
- LESS THAN 80% WILL COME FROM COMPANIES OF SEA AND ABROAD

VARIOUS COSTS

- INVESTMENT TO TOSKA REGION – \$1.6 BILLION PROJECT
- A PUMPING STATION ESTIMATED AT \$436 MILLION
- INSTALLATION COST OF EAST OWEINAT - \$422 MILLION
- SHEIKH CANAL - \$1.6 BILLION
- INFRASTRUCTURE - \$550 MILLION

PROBLEMS OF IMPLEMENTING

- FOR THE LONG BUILDING PERIOD, THE INVESTING COMPANIES REQUIRED POWERFUL ABILITIES
- IN TERMS OF THE DETAILED BUDGETING AND PLOT, ANNUAL COST ASSESSMENT IS NECESSARY
- TAX OF INVESTORS WILL BE FREE. WIN-WIN SITUATION

SUMMARY

- 2 MAIN PROJECTS
 - TOSHKA– MUBARAK PUMPING STATION AND SHEIKH ZAYED CANAL
 - EAST OWEINAT PROJECT-SOLEY ABUNDANT UNDERGROUND WATER
 - OBJECTIVES FOR BOTH – TO DEVELOP AGRICULTURE-FOR-EXPORT, JOB OPPORTUNITIES, DIVERT INVESTMENT POOLS OUTSIDE OF OLD VALLEY TO NEW REGIONS
- MAIN PROJECTS