Machines and Labour

People and Politics
Cross Section and Profile

Aswan High Dam

- 175 m (variable)
- Head 67 m
- 108 m (fixed)
- Head 29 m
- Old Aswan Dam

Crane regulates intake gates
Gate open
Rock fill
Sand
Clay core
Solid rock
Transformers
Power line
Generator with turbine below
Spillway channel bypasses turbine
Tailrace

DRAWN BY J. E. BARRATT (R.G.S.)
Bm$^3 = $Billion Cubic metre

16 Bm$^3$

38 Bm$^3$

46 Bm$^3$

120 Bm$^3$
## Annual flow in Major Rivers

<table>
<thead>
<tr>
<th>River</th>
<th>Flow (km³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Nile (at Aswan)</td>
<td>84</td>
</tr>
<tr>
<td>St Lawrence</td>
<td>318</td>
</tr>
<tr>
<td>Mississippi</td>
<td>510</td>
</tr>
<tr>
<td>Yangtze</td>
<td>1006</td>
</tr>
<tr>
<td>Congo</td>
<td>1320</td>
</tr>
<tr>
<td>Amazon</td>
<td>6923</td>
</tr>
</tbody>
</table>

### Limited natural flow of water

- **Yangtze-China**: 1320 km³
- **Mississippi - USA**: 6923 km³
- **Nile**: 84 km³
HOW ASWAN HAS SAVED EGYPT

Max Storage Cap

4 years Flood

8 years Drought

Drought

Flood

Year

Contents in Million

A Dam in no where,
and a Reservoir in the middle of the desert
Perennial Irrigation

Flood

BEFORE

AFTER

Media Bias
Hydro Power - Clean Renewable Energy

Electricity without pollution
The Nile looking downstream from Aswan High Dam

Clean, Secured and Steady Water Supply for the entire nation
Old Life and new birth side by side
Monuments and world Heritage preserved for future generations

Abu-Simbel Complex
Philae Island Temple

Heritage restored to its glorious past

Before

1890
1906
1930’s-Hi water
1940’s Lo water

After

1998 Hi Flood
The oldest Hydraulic civilization
5000 years of irrigation practices
Modernization of the Irrigation system.
From the very old to the new to the modern.

Inundation
Border Check
Lined watercourses
Sprinkler
Quadruple the grain production to 19 M tons / year
Fisheries are recovering.

The Construction of the Aswan High Dam 1964-1965

- Total Catch
- Sardine Catch

Year:
- 1962
- 1964
- 1966
- 1968
- 1970
- 1972
- 1974
- 1976
- 1978
- 1980
- 1982
- 1984
- 1986
- 1988
- 1990
- 1992

Catch (thousands of tons):
- 0
- 5
- 10
- 15
- 20
- 25
- 30
- 35
- 40
Native Life Styles preserved

Clean, lean and efficient management at the control panel.
Dealing with the Least Expected effectively

TOSHKA and Desret Reclamation
اقصى منسوب (182.00)
السعة الحية (175.00)
السعة الميتة (147.00)
نهر النيل الخالد
خزان أسوان
الإطماء
النهار العالى
 قناة مفيض توشكا (1981)
موجز الأحداث

UIButton

 مدينة ناصر

 قناة مفيض توشكا

 منخفض توشكا
بدأت الوصلة بين منخفضي (1) و(2) في التآكل نظراً لطبيعتها الانهيارية وتتبع ذلك انتقال كميات أكبر من المياه إلى منخفض (2) حتى حدثت حالة السبات للمنسوب يوم 20/4/99 حيث كان:

- منسوب منخفض (1) 156.23 وسعته 9293 م³
- منسوب منخفض (2) 138.51 وسعته 3302 م³

في نفس الوقت كان قد تم حفر قناة بين منخفضي (1) و(3) ولكن التصرفات التي مرت بها كانت ضئيلة.
فيضان 1999/2000
ثم بدأ بعد ذلك منسوب منخفض (1) في التناقص حتى بلغ (00 153) يوم 30/6/2001 بينما استمر منسوب منخفض (2) في التزايد حتى بلغ (00 140.00) ومنسوب (4) حتى بلغ (00 137.00) تقريباً.
China: the leader for dam construction in Asia

Statistics on large dams built in Asia (562 dams) from 1998 to 2001

- China 63.3%
- India 12.3%
- Japan 12.6%
- Korea 6.9%
- Thailand 2.1%
- Vietnam 1.6%
- Laos 0.4%
- Rep. Iran 0.7%
Case of China: Dynamic actions in five years from 1998 to 2002

- Comparison between actions in China from 1998 – 2002 to the USBR actions in USA.

- Data from US report R 33 to ICOLD Congress Beijing Q77t

- USBR action produced 60% of the US nation’s vegetables and 25% of its fruits and nuts
In the next pictures we will see some of the poor quality rock found upstream. This is limestone perforated with many water passages.

The location selected for the new dam is ideal as it is founded on solid granite.

700 million tons of sedimentations per year pass through the river annually.
In the past 2,000 years, the Yangtze River has experienced 215 catastrophic floods.

In 1998 flooding in the area expected to be controlled by the dam resulted in 4,000 dead, 14 million left homeless and $24 billion in economic losses.

Over 360 million people live within the watershed of the Yangtze River.

Flood Control is a must for survival .. there is no other option.
More than 50 years of modeling, testing and simulation
Decades of internal and external panel reviews
Excellent conditions for dam site

Sluices to remove the silt from the reservoir are at work.
Hydro Power Generation equal to power from 59 coal-fired plants burning 50 Million tons per year.
The Concept and the Reality matched
Inspiring a new art
Inspiring a nation with 20% of world population
Top of the line technology applications

Efficient, timely and skillful execution
Preserve nature beauty

Save people lives and properties

Yichang

Gorges
Provide clean renewable energy to a thriving economy

saving the burning of 50 million tons of coal per year
SYNTHESIS: dams are nothing per se, just an important key: development is all!

- The demand of development is huge: now the developed world represents 1/7 of the pop; 5/7 are far below and living as in new « bantoustans », often destroyed by new external debts, pushed to new loans and bad deals, and 1/7 is just waiting for death.

- This is a new manifestation of past « apartheid »: as it was, it is unbearable, affecting human rights and dangerous for peace.

- Meeting the needs as soon as possible is the leading objective: all the techniques considered as alternatives to dams should be together pursued and not seen as substitutes.

- The dams are attacked through propaganda and are victims of systematic calumnies because they are sources of wealth and too efficient in world competition for power.

- The present trend of water storage increase with dam construction remains positive but too much concentrated in few countries, and globally too low.

If it is true, why are they ignoring the beautiful concepts of « virtual water », as virtual food, medicine and life?
Climatic Changes

- Largely Unknown factor
- Floods
- Drought
Global warming – change in temperature over time

- Eemian interglacial
- Present interglacial

Change in temperature (°C)

Thousands of years (B.P.)

Pleistocene
Holocene
The Blue Planet..keep it blue.. Wisely!
XII World Water Congress
New Delhi, India
November 22-25, 2005

Water for Sustainable Development: Towards Innovative Solutions

http://www.worldwatercongress.org
E-mail: president-2@iwra.net
SHUKRAN

MERCI

THANK YOU
WORLD WATER

FOR FUTURE GENERATIONS