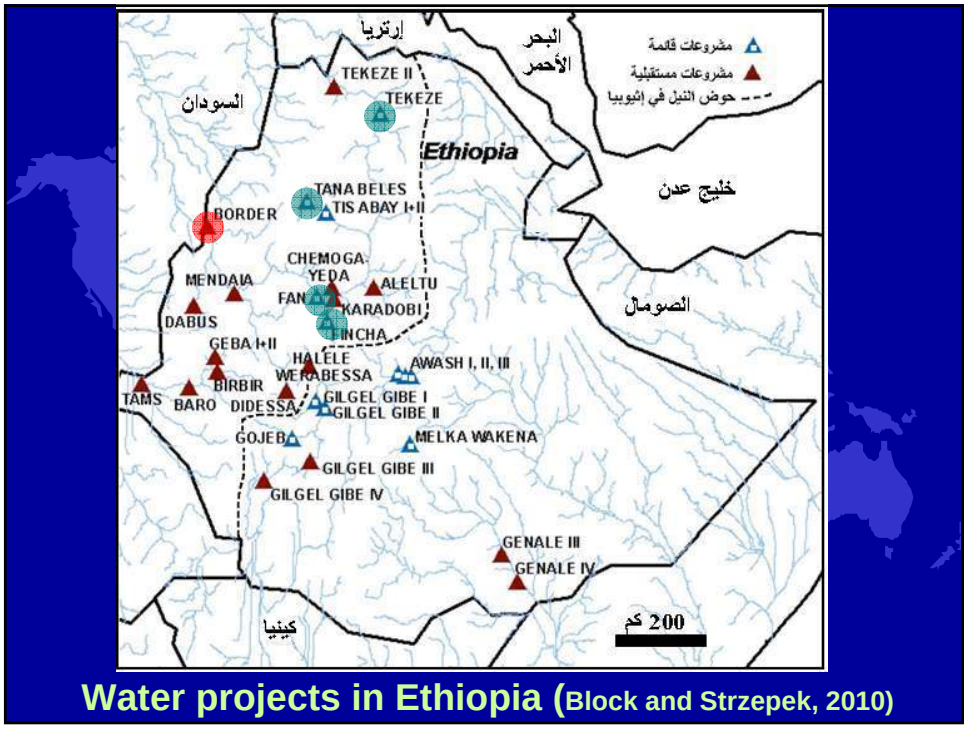
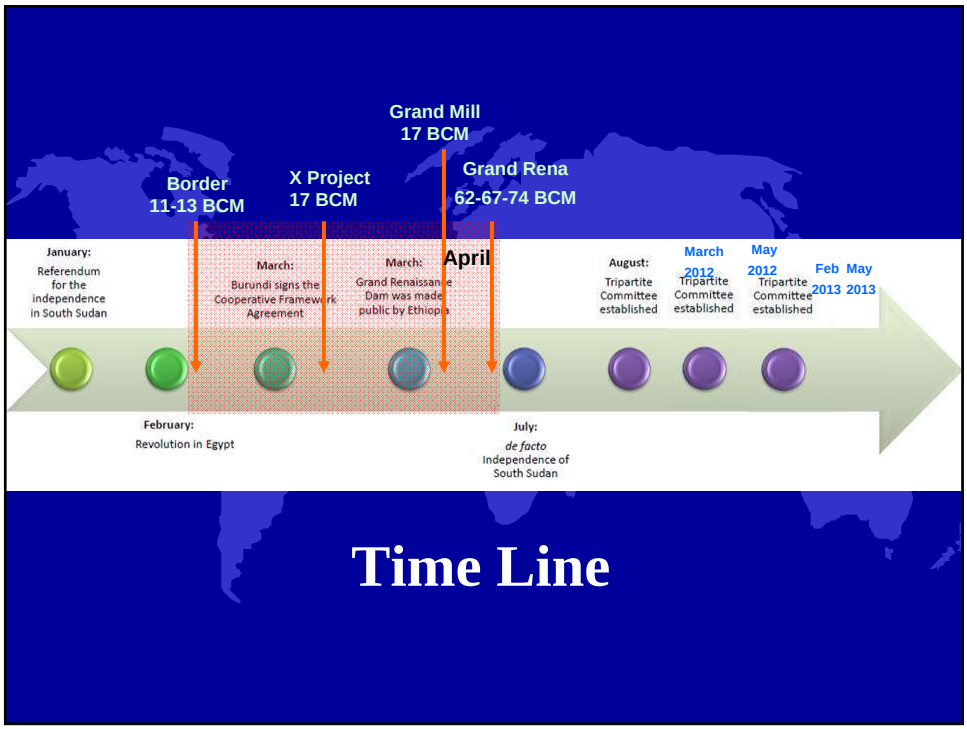
Ethiopian Renaissance Dam

Challenges

1	PPT. Spatial dist.
2	PPT. Temporal dist.
3	Evaporation
4	Topography
5	Rock Types
6	Erosion and Siltation
7	Tectonics
8	Landslides



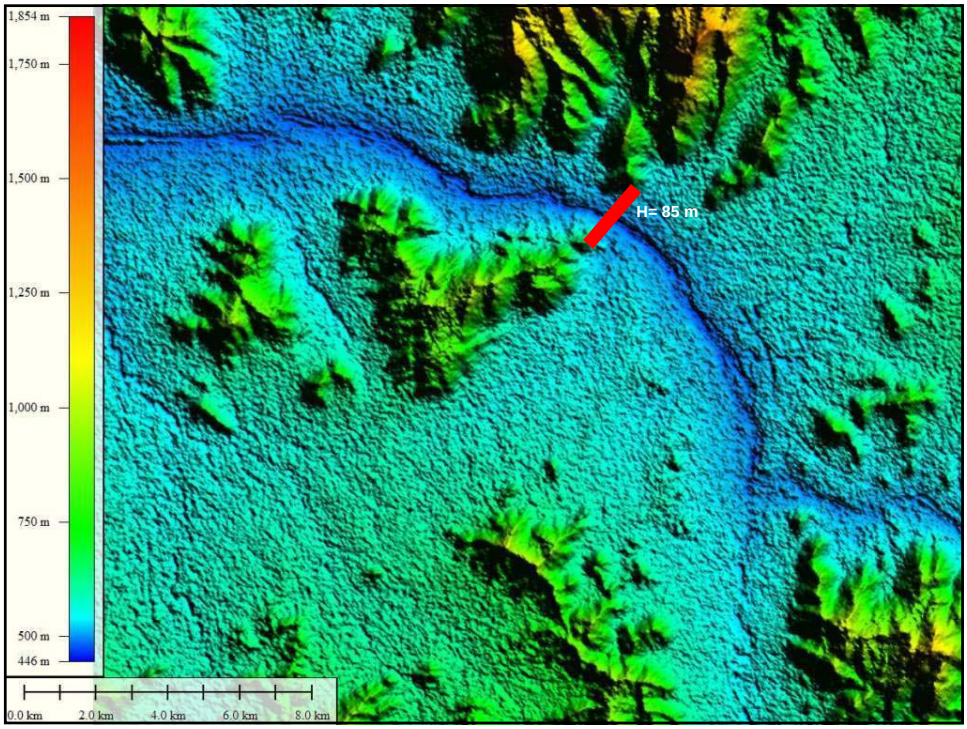
Water projects in Ethiopia (Block and Strzepek, 2010)



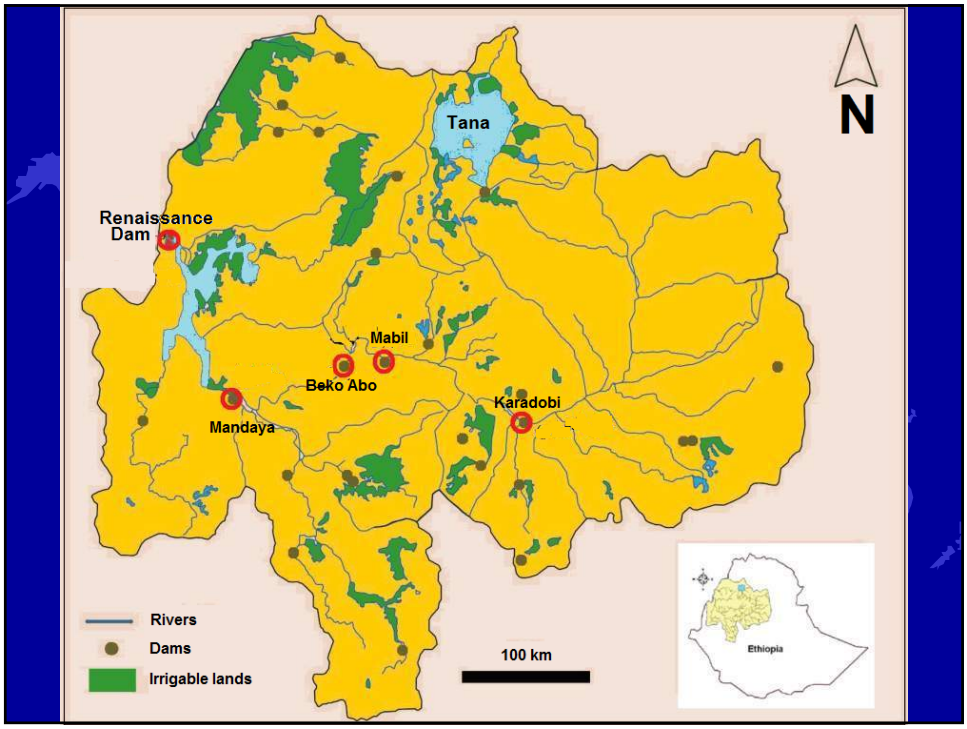
Time Line


FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
ETHIOPIAN ELECTRIC POWER CORPORATION
Millennium
Hydroelectric Project
5250 MW
Launching Ceremony - APRIL 2011

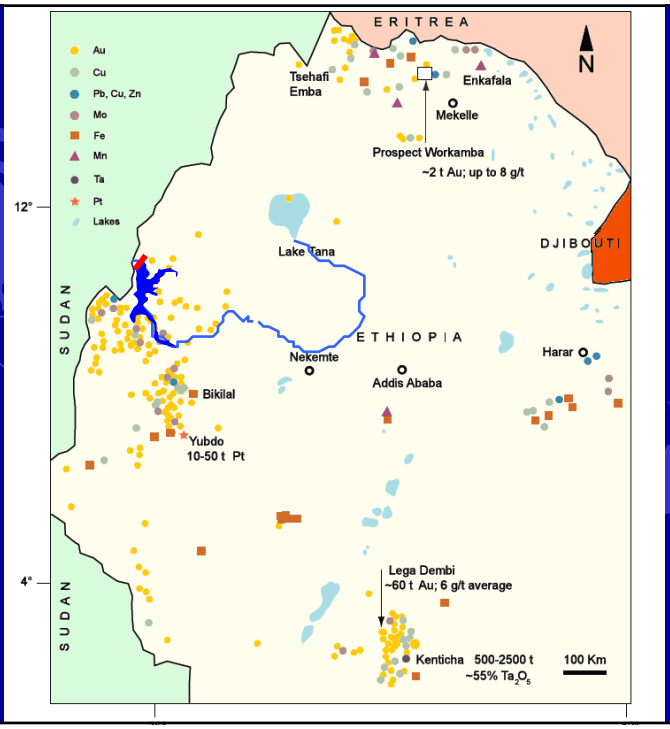

Renaissance Dam
EGYPT
THE SUDAN
SOUTH SUDAN
ETHIOPIA
ERITREA
DR CONGO
UGANDA
KENYA
RWANDA
BURUNDI
TANZANIA
Alexandria
Cairo
Suez
Aswan
Port Sudan
Khartoum
Asmara
El Obeid
Addis Ababa
Juba
Bangui
Mbandaka
Kampala
Lake Victoria
Nairobi
Kigali
Bujumbura
Kinshasa
Kigoma
Dodoma
Mombasa
Dar es Salaam
Mtwara
Kahemba
Ilhikapa
Lubumbashi
Red Sea
0
500 km
The NBI is not an authority on international boundaries


1,854 m
1,750 m
1,500 m
1,250 m
1,000 m
750 m
500 m
446 m
H= 85 m
0.0 km
2.0 km
4.0 km
6.0 km
8.0 km


March 2015

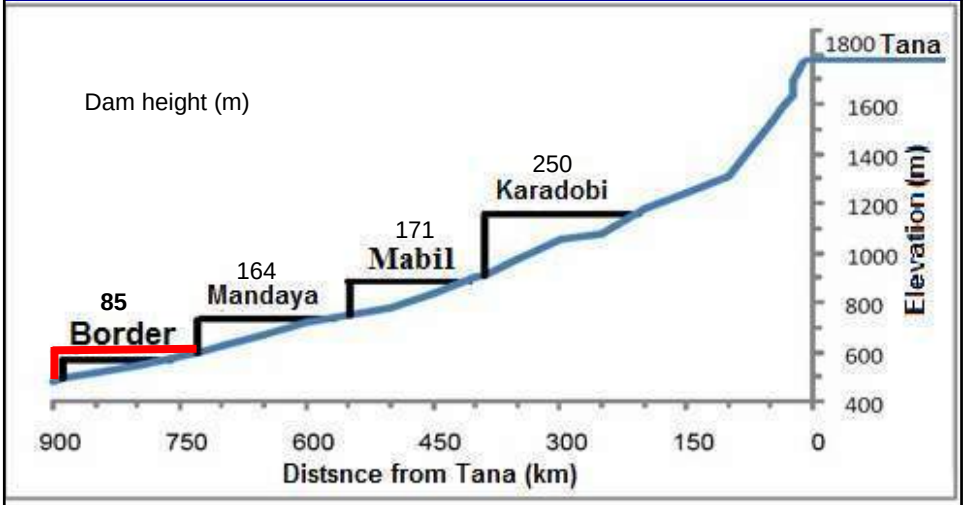

N
Tana
Renaissance Dam
Mabil
Beko Abo
Karadobi
Mandaya
Rivers
Dams
Irrigable lands
100 km
Ethiopia

Metallic Mineral Deposits



Traditional dim kerosene lamp producing health-hazardous smoke.

http://www.myclimate.org/carbon-offset-projects/international-projects/detail/mycproject/105.html



Blue Nile and Renaissance Dam

Advantages
Grand Renaissance Dam

1. Clean renewable energy production 6,000 MW.
2. Irrigation (250,000 Acres) in the dry season.
3. Navigation and tourism.
4. Sediment manage. and life span for Sudan-Egypt's dams.
5. Minimizing the evaporation.
6. Flood control.
7. Reducing water load at the High Dam Lake.
8. Water flow all year in Sudan.
9. Double the hydroelectric generation of dams in Sudan.

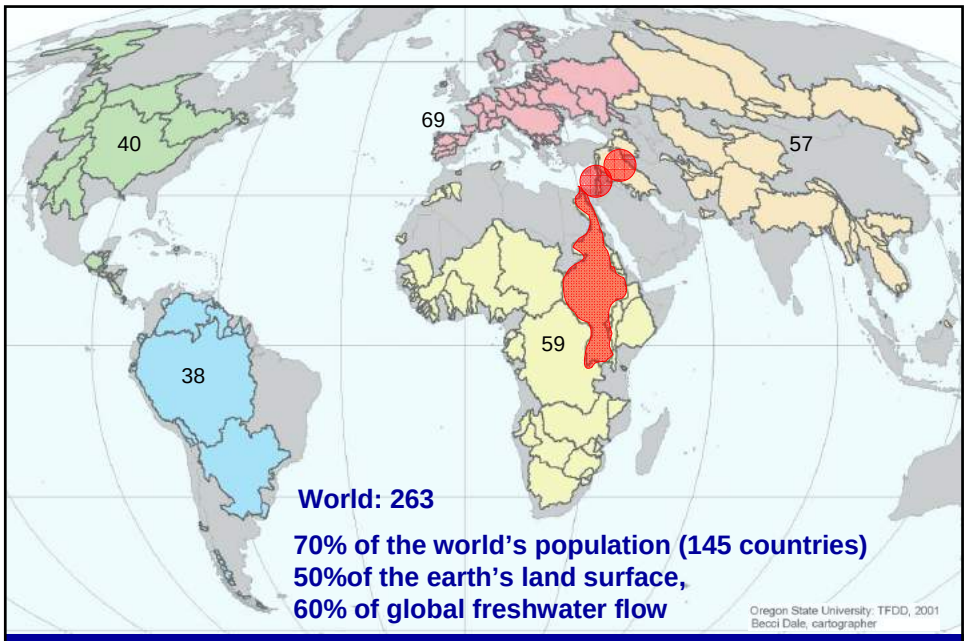
Disadvantages

1. High cost US $4.5 ➔ 8 billions.
2. Loss of agricultural (250,000 Acres), grazing and forest lands.
3. People displacement (30,000 capita).
4. Flooding of some mining areas (Au, Fe, Cu, Pt, building stones, ...
5. Short life span (60 years @ 250 Mm^3/yr sediments from 15 Bm^3.
6. Increasing of earthquake potential in the storage area.
7. increase the transmission of malaria.
8. Political conflicts with downstream countries.
9. Low efficiency of power generation (27%).
10. Loss of the dead storage (15-25 Bm^3) ➔8 Bm^3/yr for 3 yrs.
11. Loss of annual water (??? Bm^3).
12. Low power generation in the High Dam (25%).
13. Decreasing soil fertility in Sudan.
14. Partial control of Ethiopia to water flowing to Sudan & Egypt.
15. Dam safety at high risk (Tsunami-like flooding).

Challenges of Water Cooperation

Challenges to Cooperation

- Do we have enough water on the globe?
- So what is the problem? YES!
  - Poor distribution
  - Lack of access
  - Climate change
  - Overexploitation
  - Inefficient management and delivery systems
  - Lack/absence of data and information
  - Disputes over rights and ownership
  - Disparate interests: politics, power, self-sufficiency, economic development, security, environment
  - Disparate availability of resources and capabilities



International river basins.

Transboundary Freshwater Dispute Database project, Oregon State University, 2000. Data source: International River Basins, Wolf et al. (1999), updated 2001.

Water disputes

- **International Waters**

  International river is one which, on its journey between its source and the sea passes through the territory of two or more different states (transboundary).

- **Water disputes revolve around one or more of three issues:**

  1. Quantity
  2. Quality
  3. Timing
  4. Sediment load

General Principles of the International Water Law

- Obligation to Share Data
- Obligation to Resolve Disputes Peacefully
- Equitable and Reasonable Utilization and Participation
- Prevention of Significant Harm
- Obligation to Notify and Inform
- Cooperative Management

UN Convention on the Law of the Non-Navigational Uses of International Watercourses (1997), In force Aug. 2014.

The Nile Treaties & Agreements

1. Protocol between Britain and Italy (1891);
2. Treaty between Britain and Ethiopia (1902);
3. Britain and Congo [Modifying 1894 Agreement of Brussels] (1906);
4. Agreement between Britain, Italy and Ethiopia (1906);
5. Exchange of notes between Britain and Italy (1925);
6. Nile water agreement (1929);
7. Convention between Britain and Belgium (1934);
8. Exchange of memos Egypt & Britain (on behalf of Uganda) , 1949 – 1953;
9. **Egypt and the Sudan Nile Agreement (1959);**
10. Exchange of memoranda between Egypt and Uganda (1991);
11. Framework for General Cooperation , Egypt and Ethiopia in 1993;
12. Egypt and Uganda Agreement for controlling water hyacinth (1998);
13. Nile Basin Initiative (NBI) in 1999, and
14. Cooperative Framework Agreement of Nile Basin States (Entebbe) (2010)

1993 Agreement
Egypt - Ethiopia

- Both countries should not embark in any works on the Nile that could harm and affect other countries' share and benefits.
- Importance of both countries and safekeeping and protecting the Nile Water.
- Compliance with international laws.
- Consultation and cooperation between both countries for utilization of the Nile water to increase water flows and to reduce losses.