

# Nile & Ghana Dams

## Nile Dam (Aswan)

### Reasons for dam construction

- They wanted electricity for HEP
- Huge population needed more food which could be obtained by the use of irrigation
- Fast increasing population (2.7%) per year, needed industrialisation

### Before the dam

- + Sediment supplies and sustains the delta
- + Alluvium enriches surrounding flood plain
- + Annual floods kill Bilharzia carrying snails
- Drought limits crop yield
- Flooding saturates crops and destroys buildings

### After the dam

- + The reservoir supports a substantial fishing industry
- + Less flooding benefits socially & economically
- + Irrigation increases crop yield
- + HEP provides cheap, sustainable energy facilitating industrialisation
- Lack of nutrients in water in the delta affects the shrimp
- Bilharzia carrying snails survive and spread disease
- High water loss through evaporation from the reservoir
- Salinisation of the delta caused by lower peak Q

### Possible Subsequent solutions (non- official!)

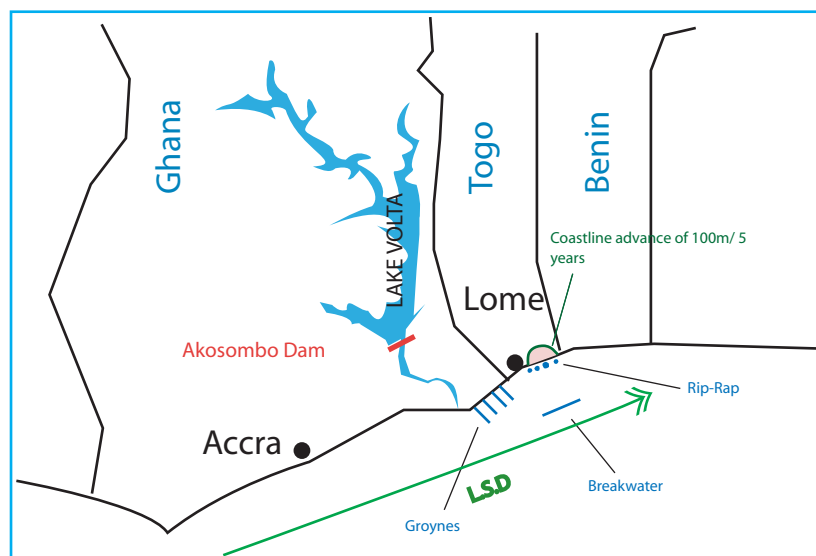
- Build up the delta manually through recharge from behind the dam
- Fertilisers for the soil
- Introduce shrimp colonies into the reservoir
- Place the salt from the delta onto the snails!



## River Volta, Ghana Dam (Akosombo)

### Reasons for dam construction

- They wanted electricity for HEP
- Huge population needed more food, could be obtained by the use of irrigation
- Fast increasing population (2.7% per year)



### Processes

- LSD carries sediment in a littoral cell along the shore of West Africa, through Ghana, Togo and Benin
- But the building of the dam starved the system of sediment.
- As a result Togo and Benin saw their beaches reduce in size greatly, causing a 100m/5 years erosion of the Togo coastline.

### Management

- To preserve their beaches, integral to their tourist industry, the Ghanaians introduced groynes to prevent LSD out of their country
- Togo were forced to construct a 1.3 km long break-water and invest in rip-rap to dissipate the sea's energy, which was being expended on a now unprotected, beach-less coastline
- Benin placed concrete walls around their oil wells for fear of flooding
- There is recharge at the beaches of Tropicana, Benin
- But much of the coastline remains unprotected, with the relocation of people necessary

### Conclusion

- This is an example of river management leading to the need for greater coastal management.
- The failure to consider the littoral cell into which the Volta contributed sediment has had catastrophic effects on the coastline of not only Ghana but neighbouring countries. Sediment knows no political boundaries.
- The political ramifications are therefore huge, but there is no legislation in place to control management of coasts that could prove harmful elsewhere. Ghana, more powerful than it's neighbours, is free to abuse the coastline.
- Donors including the EEC have pledged £25 million to help Togo save it's coastline. However, this will only accelerate erosion in neighbouring Benin, where coastal oil wells will be put at critical risk.