

- A reservoir is constructed for a number of purposes which may include:
 - Irrigation
 - Municipal and industrial water supply
 - Flood control
 - Hydropower
 - Recreation
 - Development of fish and wild life
 - Soil conservation



Figure 5: A masonry dam impounding surface water in Kenya

○ Reservoir Planning

- The most important characteristics of reservoir is its storage capacity, hence the amount of water that can be impounded depends on the flow regime of the river, topography of the area etc. Reservoir planning requires a number of studies which are required to provide baseline information about the area, the studies include: Engineering surveys- topography (contour map), Geologic investigations and Hydrologic studies.
- It is important to prepare **area-elevation** and **Storage-elevation curves** for the area. An area-elevation curve is constructed by planimentering the area enclosed by each contour within the reservoir site.

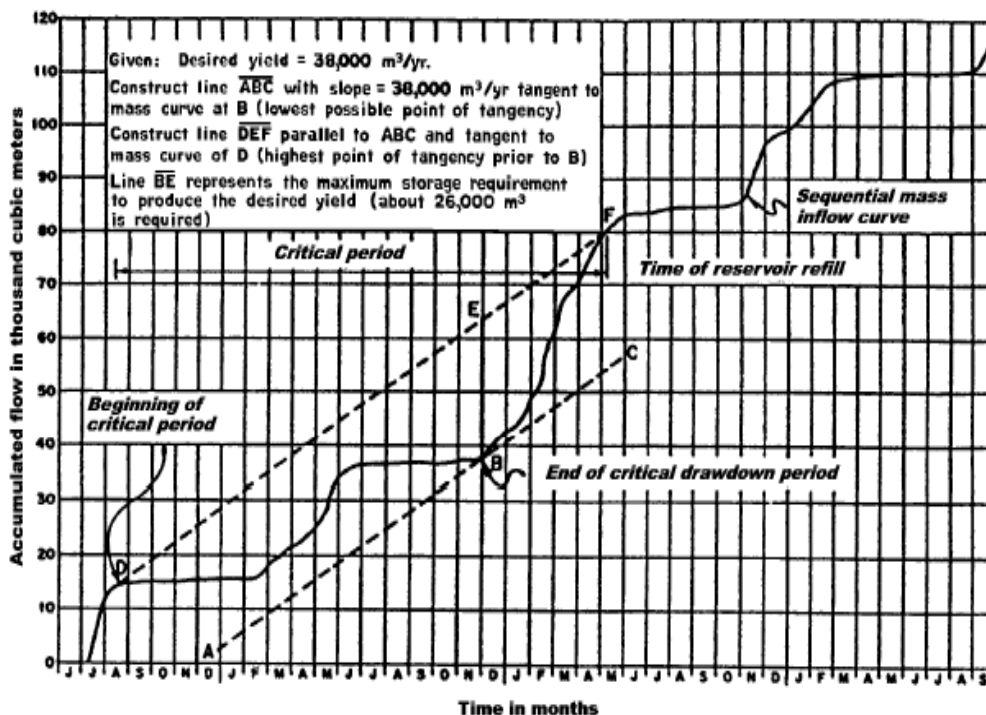


Figure 6: Mass curve of a River for estimating reservoir capacity

◉ Groundwater Development

- The first activity in groundwater resources development is the exploration of the groundwater in the area of concern. This type of investigation is required as a guide to choosing the appropriate location of the project, provide an estimate of available water that can be abstracted, provide advisory information on possible source of contamination to ground water etc.
- Abstraction of groundwater can be done through the construction of water wells. A water well is a hole usually vertical excavated in the ground for bringing groundwater to the surface. Wells also serve other purposes such as sub surface exploration and observation, artificial recharge, and disposal of waste water.

- ◉ Two methods of well construction are common: Cable tool percussion method and Rotary drilling method. A combination of the methods is also available known as Rotary percussion method. Each method has particular advantages, so experienced drillers endeavour to have equipment available for a diversity of drilling approaches. The construction procedure of a successful well depends on local conditions encountered during drilling.