

CAUSE OF TURBIDITY IN LUANGWA RIVER ~ CASE OF DRY SEASON ~

HISASHI HAYASHI, MWANANGOMBI CLIFFORD and DANFORD BANDA

Department of Civil Engineering and Construction,
School of Built Environment Copperbelt University, ZAMBIA,
SBE Copperbelt University, P.O.Box 21692, Kitwe, ZAMBIA
(Tel: +260-2-223098, Fax: +260-2-225086,
e-mail: hayashi@wine.ocn.ne.jp / bandad@cbu.ac.zm)

Abstract

The Luangwa River has unique water colour that flows in it in comparison to the other rivers, the water is turbid. In 1992 -1994 a study to investigate water quality in Zambian rivers established that the Luagwa river had the highest turbidity levels in both the dry and rainy season. High turbidity in Luangwa River causes a number of problems. One problem is that of sedimentation in the Cabora Bassa Reservoir. Another problem is poor outlook of the environment in South and North Luangwa National Park and the other problem is that villagers along the river who use the water suffer from ill-health.

In June 2005 field observations were undertaken from the upper area of the river to its confluence with the Zambezi. Measurements of turbidity, water temperature and water quality were done, and water and soil samples collected. Laboratory analyses were carried out to measure the suspended solids and organic matter. Sieve analyses of soil samples were also done.

The principal results of the observations are that turbidity levels are quite high even in the dry season, increasing from upper Luangwa to maximum at Mfuwe (South Luangwa Bridge) then gradually reducing towards the Zambezi River confluence. One of the causes of the turbidity in upper areas is the presence of silt and clay in the soil. Another cause of turbidity in middle reaches of the river is the presence of organic matter, as exhibited by ignition loss.

Keywords: Turbidity; Luangwa River; Silt and clay; Ignition loss