ESTIMATION OF RECENT SILTATION RATES IN KEKANADURA TANK, MATARA BY FALLOUT CAESIUM-137 METHOD

J.K. Dharmasiri*, C.J. Atuluwage** and G.T. Dharmasena***
*Radioisotope Centre, University of Colombo
**Atomic Energy Authority, Colombo 03
***Department of Irrigation, Colombo 07.

Caesium-137 first appeared in the global environment in 1954 (Cambray et al., 1977) due to fallout from nuclear weapons testing programmes. The fallout levels peaked in 1963 in the northern hemisphere and has been decreasing since then. In sediment profiles of reservoir bottoms, the depth at which the maximum Cs-137 content occurs has been assigned the datum year of 1963 (Ritchie, et al., 1973; Campbell and Ross, 1980). During the drought of early 1987, Kekanadura reservoir in Matara was sampled at two locations for its bottom sediments and analysed for the Cs-137 contents using high resolution Gamma spectrometry. The maximum Cs-137 contents were found at 12 cm below the present day surface of the sediments in both profiles. This amounts to an average sediment accumulation rate of 0.5cm/year since 1963. In one of the profiles Cs-137 disappears around 40cm, indicating the first appearence in 1954. This amounts to an average siltation rate of 1.2cm/year since 1954.

(The Atomic Energy Authority is acknowledged for the coordination of this project. The Department of Irrigation is thanked for field assistance).

References:

1. Cambray, R., Fisher, E.M.R., Brooks, W.L., Pearson, D.H.(1977) Radioactive fallout in air and rain: Results to the middle of 1971, AERE-R 6923 London; HMSO.
2. Ritchie, J.C., McHenry, R., Gill, A.C. (1973)Limonology ad Oceanography 18: 254.
3. Campbell, B.L., Ross, M., (1980) Proc. 16th Newscastle Conference of the Institute of Australian Geographers; 43.