

**APPLICATION OF TRACER TECHNIQUES TO INVESTIGATE WATER  
LEAK:**

**A CASE STUDY FROM NORTONBRIDGE RESERVOIR**

**JEEVAN JAYAKODY AND JAGATH GUNATILAKA**

*Department of Geology, Faculty of Science, University of Peradeniya*

The Nortonbridge reservoir was constructed across the 'Kehelgamu Oya' in 1953. Recently, a critical leakage problem was encountered where water emerged out from two nearby springs approximately 50 m downstream of the dam on the right bank of the Kehelgamu Oya. This is not only an economical loss to the project but also a threat to the safety of the abutments, dam and appurtenant structures.

Field investigations supported by tracer analysis were used to identify ingress location along the 'Agra Oya.' Subsequent detailed geological mapping carried out in this area could specify four possible ingress locations. Application of tracers such as uranine and odium chloride as well as turbid water indicates that the ingress areas are not within the reservoir but along the Agra Oya, about 450 m upstream from the Nortonbridge dam. Major causative factor for the leakage is relatively high intensity of open joints, which extend from Agra Oya to downstream areas to the Kehelgamu Oya. We suggest construction of an impervious blanket by temporarily diversion of Agra Oya as a remedial measure to seal off the joints.