



ansto

**soil
erosion
salination
& siltation**

EROSION

Use of caesium - 137 radiotracer technique

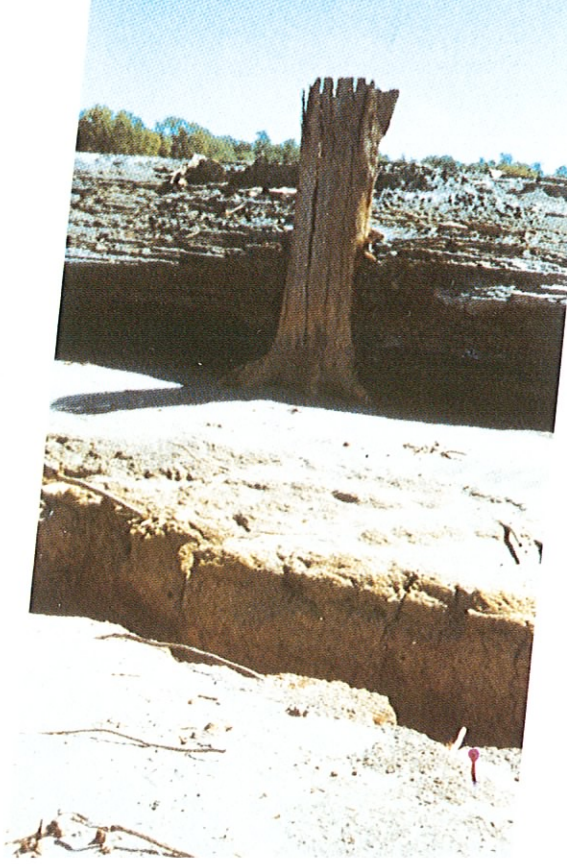
- Identification of sources of erosion and deposition
- Measurement of rates of erosion and deposition
- Correlation of erosion with loss of productivity of crops
- Analysis of erosion and sediment budgets for total systems in catchment areas



SALINATION

Use of isotope techniques in hydrology:

- Measurement of sources of chloride and age of water using chlorine-36 isotope (ages to 2M years).
- Measurement of age of water using carbon-14 isotope (ages to 50 000 years) and tritium-3 (short ages).
- Measurement of hydrogen/oxygen isotopes for interpretation of hydrology of study areas, including recharge areas, flowrates and connections between aquifers.
- Solute concentration and flow properties.

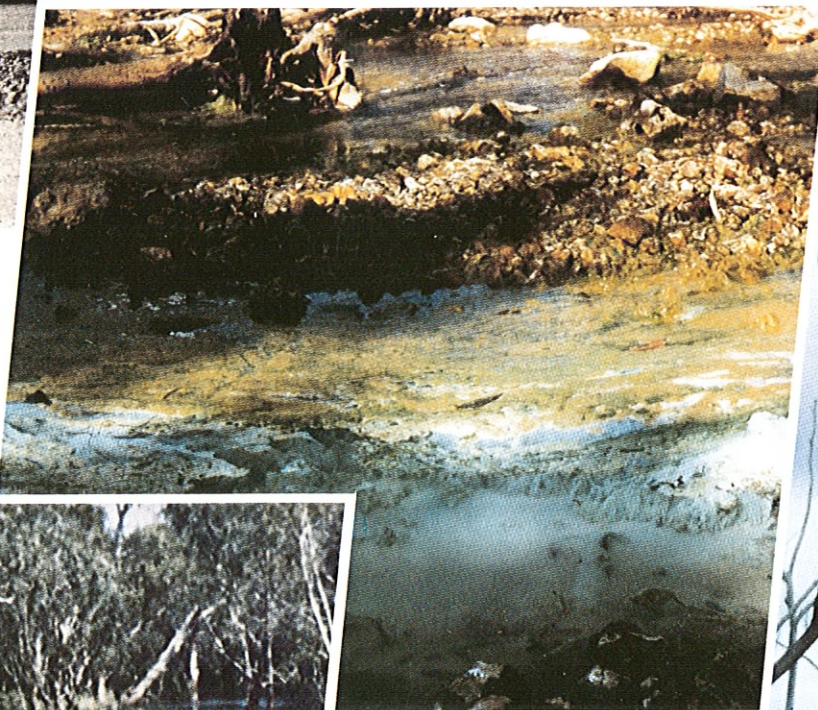
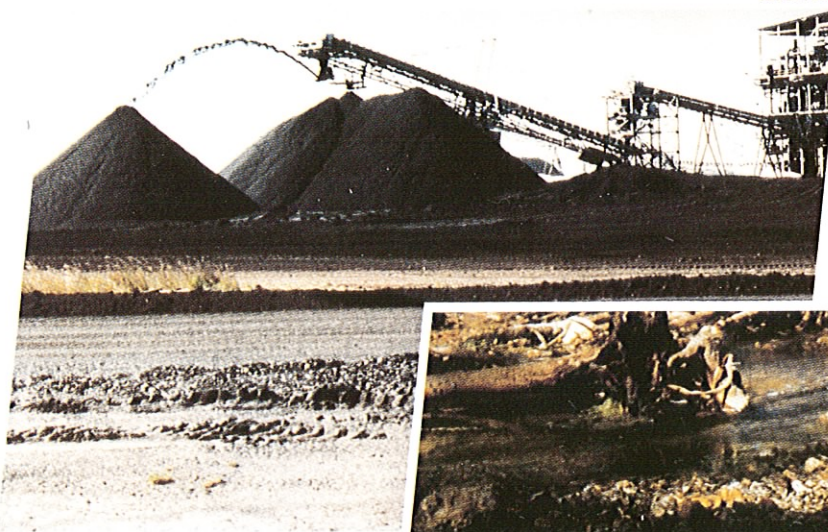


SILTATION

- Sand movement via radioactive tracers, in rivers, estuaries and coastal areas
- Sediment aging using natural and artificial radioactivity and a $^{226}\text{Ra} / ^{210}\text{Pb}, ^{137}\text{Cs}$.
- Measurement of sediment build-up in dams, rivers, estuaries and coastal areas
- Particle characterisation and fate
- Contamination of sediments with heavy metals

CONTAMINATION

- Site assessment
- Radioactivity
- Base metal mine sites
- Coal mine sites
- Airborne transport and fallout
- Waterborne transport and soil contamination
- Radionuclides and heavy metals in food chain
- Fundamental geochemical processes; fixation, transformation, sorption/desorption



Ansto PROGRAMS

ANSTO is one of Australia's largest contract research and development centres. Its clients include Government departments, international organisations and the private sector. ANSTO, through its collaborative research and development and joint ventures with major Australian companies, developed pilot plants for industrial and environmental processes, developed models for determining acid and heavy metal pollution, assessed industrial plant (especially for hazards), and provided specialist equipment design and computer modelling codes for environmental base line surveys.

ANSTO's extensive research and development into environmental science is complemented by the multidisciplinary staff and facilities available at Lucas Heights.

- in
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- APPLICATIONS OF NUCLEAR PHYSICS**
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- BIOMEDICINE AND HEALTH**
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