\* <u>Nutrient stripping</u> of secondary effluents is coming into use as regulatory agencies respond to public concerns about the release of nitrogen and phosphorus into the environment. At Bendigo (Vic), installation of a 25 ML/d biological nitrogen reduction system is underway. The major tertiary plant at Canberra (Australian Capital Territory, population 270,000) has used high alkalinity (lime) for nutrient reduction for a number of years, and several new plants in other places are being equipped for this process.

## Sludge Handling and Disposal

Most treatment facilities in Australia dispose of sludge by lagooning, thickening, drying, and landfilling or surface spreading.

Large quantities of sludge are being stored at sewage treatment sites awaiting the development of economically viable uses, as is the case at Melbourne's South-Eastern Purification Plant (which produces 65,000 dry tonnes/year).

In Sydney, about 30% of the estimated 120 dry solid tonnes per day (dst/d) of sludge entering the large, coastal plants is captured. The remainder, about 84 dst/d, is discharged into the Tasman sea via in-shore outfalls.

Small amounts are used for landscaping, soil treatment and land reclamation, but the beneficial re-use of sludge in eastern Australia is minimal.

Research and development is underway in attempts to find useful ways to dispose of sludge. Numerous government bodies are conducting composting trials, while others are experimenting with a range of conversion technologies.

For example, supported by a commitment of A\$47m. from the NSW government, the Sydney Water Board issued in November 1989 a worldwide request for tenders for innovative turn-key disposal processes and has pledged to consider any and all ideas and technologies.

The principal result of this consciousness is a public commitment to ensure that future activities in the wastewater treatment and sludge handling areas are benign and that problems like those of Sydney are corrected in the future.

Technologies used in future will be those that reduce the actual or perceived adverse environmental impact the treatment and disposal of wastewater generate, and which increase the technical and economic feasibility of re-using effluent.