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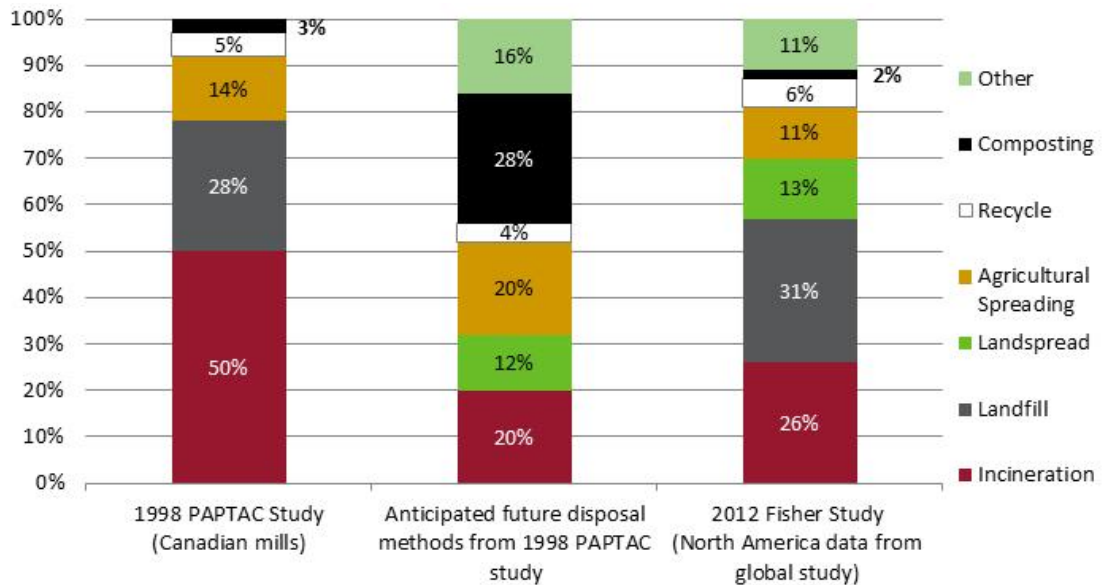
Pulp and Paper Mill Sludge Disposal Methods

All pulp and paper facilities that operate a wastewater treatment system will produce a combination of primary and secondary (biological) sludges, which must be managed. Significant costs are associated with dewatering these sludges in terms of chemicals (dewatering aids) and energy (electrical, heat, transport). Traditionally, the leading methods of disposal include landfilling, incineration and landspreading, and to a lesser degree recycling, agricultural use and composting.

The graphic below compares utilization percentages of disposal methods between studies conducted in 1998 by PAPTAC and 2012 by Fisher. While the datasets are not exactly the same, certain conclusions can be drawn:

- Sludge incineration has given way (50% to 26%) to alternate disposal methods due to the high costs associated with burning a product that is predominantly water (~75%). This is in line with the survey respondents predictions from 1998.
- The prediction that composting would grow and landfilling would be phased out has not come to pass and in fact landfilling is now the prevalent disposal method due to several factors:
 - lower total costs compared to other disposal options;
 - mill's use of onsite private landfills that have short transport distances and minimal operational costs; and
 - landspreading, agricultural use and composting problematic due to mill sludges that sometimes consists of non-organic materials (lime mud, chemical waste) and complicated certification requirements to ensure food and environmental safety.

Evolution of Sludge Disposal Methods



Sources: TAPPI, FisherSOLVE, PAPTAC, KSH Consulting

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