COST COMPARISON

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The comparison of capital, operational and maintenance cost of conventional Activated Sludge Process (ASP), extended aeration, aerated lagoons, and UASB reactor is given by Arceivala [1995]. The capital cost of UASB process is reported to be in similar range with conventional ASP and the cost is less for facultative aerated lagoon. However, in terms of capitalized costs, (i.e., capital and operating costs) the UASB plant is the most economical, while the facultative aerated lagoon stands second. The UASB however, becomes substantially inexpensive than the facultative lagoon if land cost is taken in to account, since the land requirement of UASB reactor is lowest. UASB requires only 50% to 70% of the land required by the other processes.

In terms of power requirement UASB is the most inexpensive among the other options because power is only required for pumping and slight post treatment of UASB effluent to destroy anaerobicity, and to reduce some BOD. The biggest advantage in application of UASB process is if power failure occurs, the process does not suffer since it is already anaerobic in nature and little electrical equipments are involved. This is a great advantage in the country where regular power cut occurs. The benefit from power saving is so substantial that even if no gas recovery is done, the UASB becomes economical than other processes. For larger plants the UASB process proves to be further economical, by utilization of biogas for combustion or power generation.

The capital and operational cost for different alternatives for secondary treatment of sewage such as, Activated Sludge Process (ASP) plug flow and completely mixed, Trickling Filter (TF), Facultative Stabilization Pond (FSP), and UASB reactor followed by post treatment such as ASP, TF and down flow anaerobic filter (DAF) were presented by Ghangrekar *et al*, [2002]. Based on prevailing market rates for capital cost, and considering different land cost, the present worth for these alternatives was presented for secondary treatment of sewage for populations 5, 10, 15, 20 & 25 Lacs. The major cost of civil works was only considered, cost requirement for minor plumbing works, and pumping was neglected for all treatment alternatives. Based on the cost comparison it is reported that, UASB reactor followed by completely mixed ASP and UASB+DAF+SST+Aerator are among the economical options for secondary treatment of sewage. In situation of higher power cost (> Rs.5 per unit), the later option may become most economical. Thus, use of UASB reactor for sewage treatment is an attractive alternative, where there is a need for low cost and reliable method for wastewater treatment.