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Rivers in India carry annually more than a billion tonnes of sediment load and also many pollutants to various estuaries, reservoir and adjacent marine environment (Subramanian, 1979). The erosion changes the land surface, course of river and drainage pattern. Deposition of coarse sediments may reduce the flow capacity, reservoir storage and channel conveyance for irrigation. Excessive suspended sediments in reservoir water is detrimental to its overall quality and in several ways is bothersome and costly to the various users of that water. Suspended matter deposited in reservoir reduces their storage capacity and hence their ability to control flooding. As sedimentation progresses, the other uses of reservoir are increasingly impaired.

Sediments in suspension reduces water clarity and sunlight penetration, thereby affecting the biota. Information on distribution of sediment load at various season and time is prerequisite for better management of fisheries, as this would also identify source point of high suspended load. Such information would allow efficient management of reservoir and better estimates of its life time. Since high level of sediment input is due to high erosion rate, a study of such process could lead to identification of poor cultivation practices upstreams and other soil disturbances in the catchment (McCauley, 1977).
The presence of suspended sediment in water bodies cuts down the depth to which light and thermal energy penetrates. The turbidity level is a good indicator for fish and aquatic plant populations and also the growth of algae and the reduction of nutrient associated with pollutant loading. Turbidity variation may provide insights into the gross physical, chemical and biological process governing reservoirs. It is a good indicator of diurnal and seasonal variation of ecosystem such as plankton blooms, algae crop and bottom fauna.

Conventional methods for the measurement of suspended load and pollutants both insitu and laboratory are expensive relative to application of remote sensing techniques. Since suspended sediment is an important environmental parameter used in determining the water quality, efforts have been diverted towards the development of more rapid and economical methods for monitoring sediment and pollutant concentration in the Indian river waters.

It is apparent that a timely low cost method of providing information on suspended sediment distribution would be of value to reservoir operation. It would also be of value to users and benefactors of reservoir, the resident of catchment and command area.

Satellite borne sensors have the capabilities of providing repetitive, low cost multispectral coverage over wide
areas and have the potential to monitor the water resources. The use of remote sensing techniques for identification and quantification of suspended solid is a promising trend.

Many investigators have used remote sensing techniques for water quality monitoring. Landsat, Skylab, Ocean color scanner data have been used for mapping sediment distribution pattern in the reservoir and estuaries (Khorram et al., 1985 and Ritchie et al., 1988). Khorram et al., (1985) and Ritchie et al., (1987), suggested that shorter wavelength bands of visible region are very useful for the quantification of suspended sediment in reservoir. The shorter wavelength bands available in Landsat TM and in IRS-1A sensors. Hence IRS-1A, LISSI spectral data are selected in the present study. Before going into the details of the remote sensing techniques used in present work a review of our existing knowledge in the application of remote sensing techniques to reservoir studies is given in the next chapter.