

**Sedimentation Problems in Massanjore Reservoir of Mayurakshi River System, West Bengal**

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**ABSTRACT**

During the last four decades India has constructed several major/medium river valley projects involving construction of dams and creation of reservoirs for flood controls, irrigation and hydropower. As the above storages are subjected to silting, Sedimentation of reservoirs is in fact a matter of vital concern to all water resources development projects. The surveys conducted in some of the reservoirs have indicated that siltation not only occurs in the dead storage but also encroaches in the live storages zone which impairs the intended benefits from the reservoir. The decrease in storage capacity impairs the functioning of the reservoir for which it has been designed.

This problem of sedimentation starts with the impounding of water in the reservoir. When the sediment laden flood water enters the reservoir the velocity of the inflow currents is reduced. Consequently nearly all the coarser particles, including sand, gravel and boulders are deposited in or near the tail end of the impoundment. The silt and clay particles remain in suspension longer and are carried forward into the water body where deposition takes place.

The following factors are responsible for reservoir sedimentation (Rao et al,1990):

- a. Physical and hydrological characteristics of the catchment.
- b. Trap efficiency of reservoir & method of reservoir operation.
- c. Intensity of erosion in the catchment.
- d. Landuse pattern in catchment.
- e. Quality, quantity and concentration of the sediment brought down by the river.
- f. Growth of vegetation at the head of the reservoir.

Presently the reservoir surveys have been carried out using conventional methods. Most common conventional techniques for sedimentation quantification are (a).direct measurement .of sediment deposition by hydrographic surveys and (b) indirect measurement of sediment concentration by inflow - outflow method. Both these methods are laborious, time consuming and costly and have their own limitations. The successful management of large reservoirs is

possible if cheap ,efficient and accurate means for determining the instantaneous suspended sediments in large water bodies are available. Remote sensing methods can be effectively used to assess sedimentation in reservoirs. Remote sensing of reflected solar radiation can provide timely and repeated information concerning suspended sediment flow patterns in reservoirs.

For the evaluation of sedimentation problems of Massanjore reservoir of Mayurakshi basin, remote sensing has been used in the present study. The present study provides the status of sedimentation problems in the reservoir and a clear-cut picture of the previous studies carried out in the reservoir. In the report an attempt is also made to identify and study the extent of sediment deposition and their location in the Massanjore reservoir using pre- and post-monsoon data of Indian Remote Sensing Satellite(LISS II) for the year 1989.

