

## 1D Numerical Modeling of Sedimentation and Desilting in Reservoirs

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Dam sites are limited, and good sites for dam constructions were already developed. Sedimentation is under progress in the built dams. It is known that the annual average rate of storage loss in worldwide dams is about 1% (Morris et al., 2007). Thus the issue of 21 century is to maintain the function of the dam without losing the storage, whereas the issue of 20 century was to construct dam. This study presents a numerical model that is capable of simulating sedimentation and desilting in reservoirs. The one-dimensional quasi-steady model is used for the flow and bed sediment conservation equation or Exner's equation is solved to update the bed elevation change due to sediment transport. It justifies the use of the quasi-steady flow model that the characteristic time of bed evolution is much longer than that of flow. Such formula as Ashida and Michiue's is used for bedload transport. The proposed numerical model is applied to laboratory experiments, namely for Soni et al.'s (1980) experiment for reservoir sedimentation and Lai and Shen's (1996) experiment for flushing sediment in reservoirs. The results indicate that the numerical model simulates successfully sedimentation and desiltation in reservoirs.

### References

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