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Principles of sedimentation and erosion engineering in rivers, estuaries and coastal seas including mathematical modelling package (toolkit on CD-ROM)

van Rijn, L.C. (2005). Principles of sedimentation and erosion engineering in rivers, estuaries and coastal seas including mathematical modelling package (toolkit on CD-ROM). Aqua Publications: [s.l.]. ISBN 90-800356-6-1. 1 loose-leaf book + 1 CD-ROM pp.

Available in [Waterbouwkundig Laboratorium](#): *Morfologie MORF 06* [221297] [Author](#)

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Abstract

This loose-leaf book (including modelling package) focusses on the solution of engineering problems related to sedimentation and erosion in rivers, estuaries and coastal seas. The problems considered are: sedimentation (sand and mud) in navigation channels; trenches, mining pits, harbours, river reservoirs, inlets and intakes and other structures; scour and erosion near seawalls, groynes, breakwaters and dams; resuspension from dump sites; dredging aspects; engineering approaches for coastal erosion (detached breakwaters, feeder berms, reef berms). The book (about 600 pages) and models will be regularly updated.

A detailed overview of mud and sand transport in rivers, estuaries and coastal seas is given. Many examples are presented and explained. The book is of interest to: coastal and harbour consultants, engineers, scientists and managers.

Various simple and detailed computer programmes are included to compute transport rates and sedimentation volumes.

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art technology, engineers in the Sedimentation and River Hydraulics Group often have to develop new technology, methods, and computer programs for solving erosion, sedimentation, and river hydraulic problems. All the authors of the Erosion and Sedimentation Manual are members of the Sedimentation and River Hydraulics Group. Sediment management alternatives include no action, sediment removal by river erosion and by mechanical means, and stabilization. Sedimentation and erosion patterns and rates in estuaries rely on the interaction of multiple conditions and so are generally complex. However, in a brief and simplified overview, when a system is in equilibrium, there is neither sedimentation nor erosion; when, at local conditions, the flow velocity is not strong enough, there will be accretion; and, if the flow velocity is too strong, there will be erosion. The following step of the stated method is comprised by the identification of the areas where sedimentation and erosion occur and also where a balance between both states takes place, using the different digital terrain modules obtained from bathymetry in different years. Engineering tools and databases on Sediment Transport and Morphology Most of the sediment problems can be solved by using simple models and spreadsheet-files. LVRS-Consultancy has developed a practical modelling package, which can be used by engineers to solve sediment problems as described in the book: Principles of Sedimentation and Erosion Engineering in Rivers, Estuaries and Coastal Seas; see website of publisher www.aquapublications.nl) Various simple engineering models and validation data sets are available to compute transport and sedimentation volumes: TRANSPOR 2004. Excel tool for computation of sedimentation and erosion in streamtubes and channels. SED-JET.