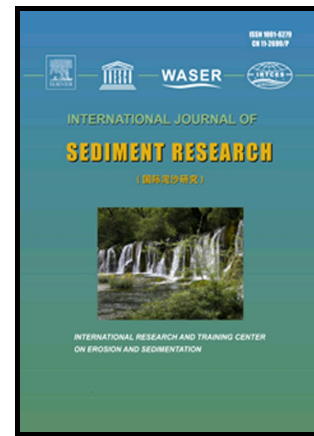


Author's Accepted Manuscript

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PII: S1001-6279(17)30032-X
DOI: <http://dx.doi.org/10.1016/j.ijsrc.2017.05.005>
Reference: IJSRC122

To appear in: *International Journal of Sediment Research*

Received date: 9 February 2017
Revised date: 28 April 2017
Accepted date: 11 May 2017

Cite this article as: Cheng Liu, Desmond E. Walling and Yun He, Review: The International Sediment Initiative Case Studies of sediment problems in river basins and their management, *International Journal of Sediment Research* <http://dx.doi.org/10.1016/j.ijsrc.2017.05.005>

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Review: The International Sediment Initiative Case Studies of sediment problems in river basins and their management

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Abstract

Management of sediment in river basins and waterways has been an important issue for water managers throughout history. The changing nature of sediment issues has meant that water managers today face many complex technical and environmental challenges in relation to sediment management. UNESCO's International Hydrological Programme (IHP) launched the International Sediment Initiative (ISI) in 2002. ISI aims to further advance sustainable sediment management on a global scale. This is achieved through the delivery of a decision support framework for sediment management that provides guidance on legislative and institutional solutions, applicable across a range of socio-economic and physiographic settings in the context of global change. ISI mobilizes international experience on sediment problems and their management through the compilation of a series of case studies representative of a broad range of physiographic and socio-economic conditions, which are made available as guidance for policy makers dealing with water and river basin management. Case studies prepared to date include the basins of the Nile, Mississippi, Rhine, Volga, Yellow, and Haihe and Liaohe rivers. Available in full from the ISI website, these detailed case studies are briefly introduced in this review articles.

Keywords: Sediment; River basin; International Sediment Initiative (ISI); Sediment management

1. Introduction

The sediment transported by rivers is an integral component of the erosion and denudation of the land surface of the earth by fluvial processes and the associated land-ocean transfer of material plays a key role in global geochemical cycling. These essentially natural processes have been greatly impacted by anthropogenic activity, resulting, for example, in accelerated erosion caused by changing land use and interruption of land-ocean transfer by storage of large quantities of sediment behind dams. Seen from a different perspective, the mobilization of sediment from river basins and the transport of sediment by rivers, both natural and influenced by human activity, causes many problems for mankind including depletion of global soil resources and siltation of waterways and infrastructure associated with water resources development, hydropower production, and flood control. Sediment control and management is increasingly seen as an important environmental challenge for the sustainable development of the earth's resources.

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