



# Sediment Problems and Sediment Management in Asian River Basins

Edited by Des E. Walling

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Sediment problems are assuming increasing importance in many Asian river basins and can represent a key impediment to sustainable development. Such problems include accelerated soil erosion, reservoir sedimentation and the wider impact of sediment on aquatic ecology, river morphology and water resource exploitation. They are further complicated by the impact of climate change and other components of global change in causing both increases and decreases in the sediment load of many rivers in recent years. In order to address these problems, sediment management must be seen as a central component of integrated river basin management. This volume, arising from a workshop organised jointly by the International Commission on Continental Erosion (ICCE) of IAHS, the UNESCO International Sediment Initiative (ISI) and the World Association for Sedimentation and Erosion Research (WASER), focuses on sediment problems in Asian river basins and the many difficulties involved in their effective management. The first section comprises overviews of the sediment problems experienced by individual countries or particular issues relating to the wider region; and the second documents case studies that deal with specific problems and their management. The overviews highlight the sediment problems faced by India and Iran, including soil erosion and reservoir sedimentation; recent changes in the sediment loads of the Hindu Kush-Himalayan rivers and their wider implications; the impact of human activity on the sediment loads of Asian rivers; and new challenges for erosion and sedimentation research in China linked to contemporary issues.

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Preface by Des E. Walling

## 1 Overview Papers

Sediment problems and sediment management in the Indian Sub-Himalayan region *Umesh C. Kothiyari*

An overview of sediment problems and management in Iran *Seyed Hamidreza Sadeghi*

The changing sediment loads of the Hindu Kush-Himalayan rivers: an overview *X. X. Lu, S. R. Zhang, J. C. Xu & J. Merz*

Human impact on the sediment loads of Asian rivers *Des E. Walling*

New challenges in erosion and sedimentation research: a Chinese perspective *Zhaoyin Wang, Lijian Qi, Guoan Yu & Cheng Liu*

## 2 Case Studies

Agricultural activity as cause of aggradation of small Siberian rivers *Valentin Golosov, Nadezda Ivanova & Svetlana Ruleva*

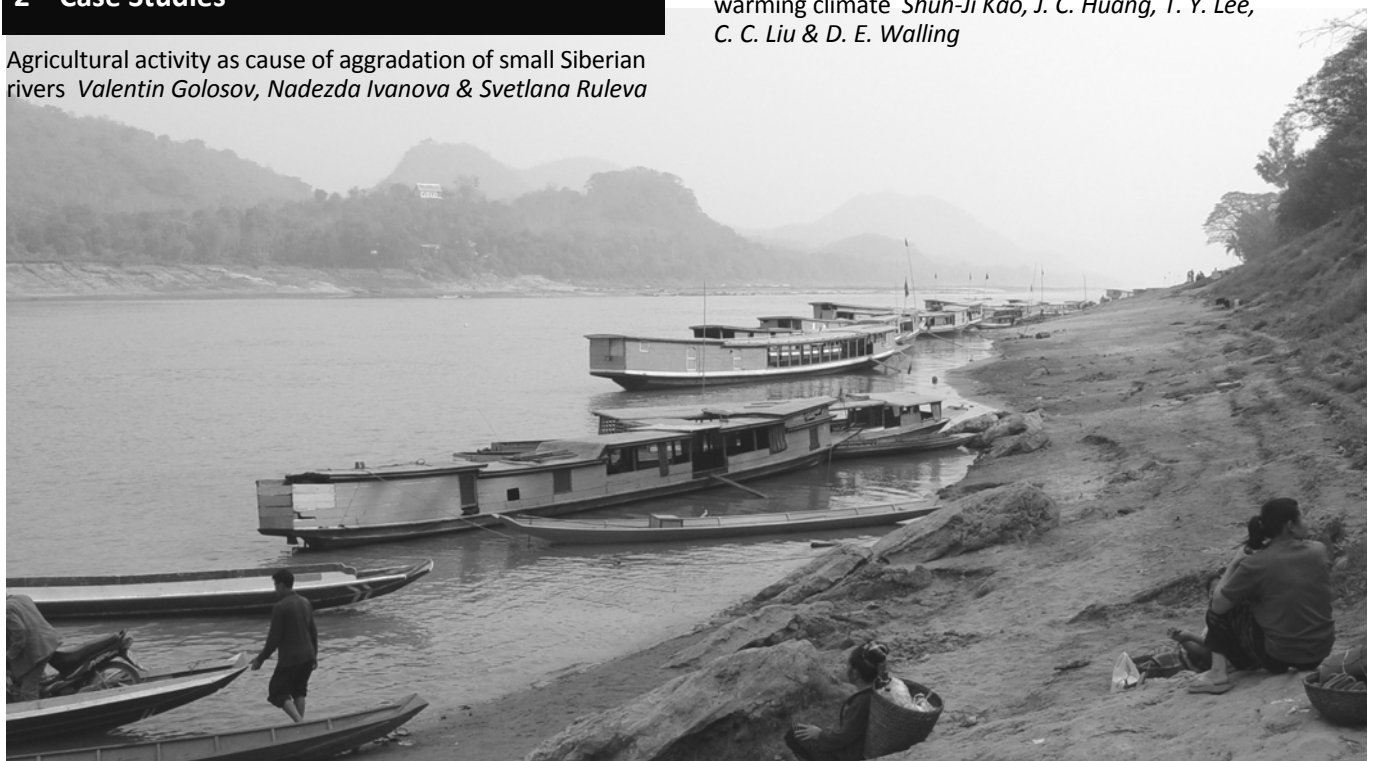
Natural erosion rates and sediment delivery ratios in the Hilly Sichuan Basin, southwest China, since the Mid-Pleistocene *Hongwei Zhu, Xinbao Zhang, Anbang Wen, Yunqi Zhang, Yangchun Wang, Yongqing Qi & Xiubin He*

Sediment load monitoring in the Mae Sa catchment in northern Thailand *Alan D. Ziegler, Lu Xi Xi & Chatchai Tantasarin*

River sediment monitoring for baseline and change characterisation: a new management tool for the Ramu River Communities in Papua New Guinea *Nick A. Chappell, Wlodek Tych, Phil Shearman, Barbara Lokes & John Chitoo*

Placing sediment budgets in the socio-economic context for management of sedimentation in Lake Inle, Myanmar *Takahisa Furuichi & Robert J. Wasson*

The changing rainfall-runoff dynamics and sediment response of small mountainous rivers in Taiwan under a warming climate *Shuh-Ji Kao, J. C. Huang, T. Y. Lee, C. C. Liu & D. E. Walling*



Spatially-distributed assessment of sediment yield and shallow landslide potential area in the upper Citarum River basin, Indonesia *Apip, Kaoru Takara & Yosuke Yamashiki*

Sediment yield investigations for controlling sedimentation in the catchment of the Sriramsagar reservoir, India  
*B. Venkateswara Rao, K. Srinivasa Reddy & P. Ravi Babu*

River sand mining and associated environmental problems in Sri Lanka *Ranjana U. K. Piyadasa*

Channel degradation in the Yangtze River after the impoundment of the Three Gorges Project *Y. T. Li & J. Y. Deng*

Assessment of reservoir sedimentation using remote sensing  
*Sharad K. Jain & Sanjay K. Jain*

Sedimentation of reservoirs in Uzbekistan: a case study of the Akdarya reservoir, Zerafshan River Basin  
*Shavkat Rakhmatullaev, Frédéric Huneau, Masharif Bakiev, Mikael Motelica-Heino & Philippe Le Coustumer*

Research on key technology for sediment management in large-scale reservoirs *Dongpo Sun, Mingquan Geng & Cheng Liu*

Sedimentation behind barrages and oblique river flow  
*Kapileswar Mishra & Dhruvajyoti Sen*

Sediment dispersal processes and management in coping with climate change in the Meghna Estuary, Bangladesh  
*Maminul Haque Sarker, Jakia Akter, Md Ruknul Ferdous & Fahmida Noor*



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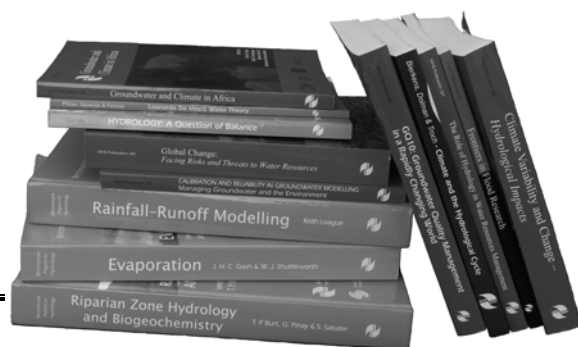
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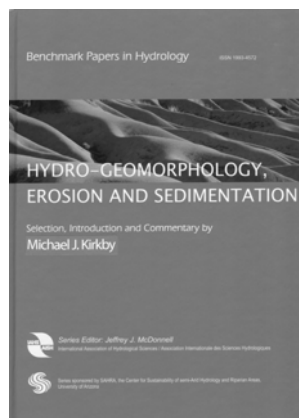
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