

IAHR Conference Venice June 30, 2007
Short Course
on
Contaminated Sediment Management
by
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In most cases river pollution is associated with sediment contamination which causes many problems in water resources and sediment management. The course is dealing with engineering and environmental issues of contaminated sediments with emphasis on their potential hazard, mobilization risk and environmental impact. An interdisciplinary approach based on river hydraulics, sediment transport dynamics and pollutant chemistry is described and a basic concept for a risk based sediment management is presented based on: sediment toxicity, erosion probability and emission / immission relationship. An environmental impact assessment will be discussed on a river basin scale referring to areas of concern, fate and pathway of sediment bound contaminants as well as deposition of particulate contaminants in a river system. Experimental methods for cohesive sediment erosion tests and, in particular the numerical modelling of dissolved and particulate contaminant transport including erosion, sedimentation, mixing, sorption and degradation will be presented for predicting the emission-immission relationship. An engineering approach of a model based risk assessment addressing uncertainties of physical and chemical model parameters and their impact on contaminated sediment mobilization is presented. Finally, practical applications of contaminated sediment transport models for estimating the resuspension risk and transport behaviour of contaminants in rivers will be described and discussed.

Short course: Contaminated Sediment Management

9:00 - 10:00	River engineering and water resources aspects of contaminated sediments, risk based sediment management strategy
10:00 - 11:00	Water -sediment - pollutant interaction, substances and areas of concern, risk indicators
11:00 - 12:00	Environmental risk assessment, risk based sediment management on local and river basin scale
Break	
14.00 - 15.00	Contaminated sediment properties: erosion stability; physical, chemical & biological parameters related to sediment stability
15.00 - 16.00	Contaminant transport modelling, 1-d and 2-d flow & transport models, model calibration and parameter uncertainty assessment
16.00 - 17.00	Model applications, case studies: Impact of floods on the mobilization of contaminants in impounded rivers. Deposition and resuspension of contaminants in regulated waterways