



LNS Coastal Engineering Series: Course No. 3
13 February 2025

**An Introduction to Coastal Sediment Transport:
Problems and Solutions**



INTRODUCTION

Sediment Transport is of fundamental importance to Coastal Engineering for shore protection, construction of facilities for ports and harbours, the maintenance dredging of navigation fairways, reclamation and beach nourishment.

This introductory course begins with the basic coastal hydrodynamics resulting in currents and waves, which drive the coastal sediment transport processes (morphodynamics). The coastal defence measures (both hard and soft ones) have to be accordingly designed, constructed and maintained. This is especially challenging in the Climate Change era with rising temperatures and sea levels, increasing storm surges and changing wave characteristics.

At river estuaries, coastal sediment processes driven by currents and waves interact with the fluvial sediment processes driven by river flows. Therefore, the downstream coastal hydrodynamics and morphodynamics have been taken into account in Sedimentation Studies of Deep Bay and the Shenzhen River, besides river flows and fluvial sediment transport inputs from upstream. Wastewater Treatment Plants and Stormwater Drainage Facilities located on Seafronts are also vulnerable to coastal erosion/accretion and inundation during typhoons.

COURSE OUTLINE

- (1) Nearshore hydrodynamics: Simple Wave Theory, Wave Transformation, Wind Waves, Wave Shoaling and Wave Breaking.
- (2) Coastal Processes: longshore and cross-shore sediment transport, erosion & accretion in the presence of coastal structures, rip currents.
- (3) Coastal Defences based on hard and soft measures: seawalls, breakwaters, beach nourishment, eco-shorelines; strategies against rising sea levels due to Climate Change.

WHO SHOULD ATTEND?

- Port Works Division Engineers in CEDD
- Project Engineers in CEDD managing reclamation projects.
- Drainage Engineers in DSD maintaining main drainage channels in the estuaries and tidal reaches and those managing River Sedimentation Studies.
- Drainage Engineers responsible for Building & Civil Maintenance of DSD facilities

PROGRAMME RUNDOWN

9:00 a.m. to 9:15 a.m.	Registration
9:15 a.m. to 9:30 a.m.	Opening
9:30 a.m. to 10:15 a.m.	Coastal Hydrodynamics
10:15 a.m. to 11:00 a.m.	Coastal Morphodynamics
11:00 a.m. to 12:15 p.m.	Coastal Defence Measures

SPEAKER

Professor Onyx WAI Wing Hong

Adjunct Professor, The Hong Kong Polytechnic University (PolyU)



Professor WAI graduated in 1991 with a PhD from the Ohio State University, USA, majoring in coastal engineering. His research interests are primarily concerned with the fate and transport of sediment particles in water bodies, with interdisciplinary scopes ranging from the prediction of beach erosion to the quantification of sediment-nutrient exchange rate in the water column. His research approach integrates field

investigations, laboratory experiments, and the development and application of high-performance numerical models. In the past ten years, Professor WAI has expanded his research focus to include urban eco-greening. His newly-involved projects investigate the suitability and sustainability of eco-roofs and eco-flood channels in urban areas. He has founded the first Ecohydraulics Research Laboratory in Hong Kong.

Professor WAI has served the PolyU's Department of Civil & Environmental Engineering as Chairman of Teaching and Learning Committee for over ten years. During 2012 to 2015, he was Chairman of the Hong Kong Chapter of the International Association of Hydro-environmental Engineering & Research (IAHR-HK). He is currently a member of the Advisory Panel on Coastal Engineering of the HKSAR's Civil Engineering and Development Department.

MODERATOR

Ir Professor CHAN Pak Keung

Adjunct Professor, University of Hong Kong



Ir Professor CHAN is an Honorary Fellow of the IAHR-HK, an Adjunct Professor of the University of Hong Kong and the former Professor of Practice (Infrastructure) of Hong Kong Polytechnic University. Being a former Assistant Director of the Drainage Services Department, he specialises in Flood Management & Wastewater Engineering.

Organizer**LNS LIMITED****Supporting Organisations**

CIWEM HK
HKIE-Civil Division
International Association for Hydro-Environment Engineering and Research - Hong Kong Chapter (IAHR-HK)

**Date**

13 February 2025

Time9:00 a.m.-9:15 a.m. Registration
9:15 a.m.-12:30 p.m.**Venue**Jasmine Room, Best Western Plus Hotel Hong Kong
308 Des Voeux Road West, Hong Kong
(MTR Exit B1, HKU Station)**Working Language**

English

RegistrationPlease send the registration form by email
to: event@lns.com.hk**Early bird****16 January 2025****Application Deadline**

30 January 2025

Payment Methods

Cheques should be made payable to

LNS Limited

Please send the cheque to the following address and indicate the name(s)
of the participant(s) in the letter:Room 1104, Crawford House,
70 Queen's Road Central, Central,
Hong Kong.**Enquiry**

Tel: 2376 4964

Email: event@lns.com.hk

Registration Form

An Introduction to Coastal Sediment Transport: Problems and Solutions

Surname	(Mr / Ms)	
First Name		
Organisation/Company		
Position		
Correspondence Address		
Date of Course	13 February 2025	
CPD	3 Hours	
A group registrations of 18, Course Fee per head (registered on or before 16 January 2025)	HK\$1,400	
Early Bird Course Fee per head (registered on or before 16 January 2025)	HK\$1,500	
Course Fee per head	HK\$1,600	
Email Address		Tel:
Payment:	Bank Name:	Cheque No.:
		Amount \$:
Personal Data	<p>Reply slip from Personal Data Subject</p> <p>Yes, I (Name)_____ agree to give consent to LNS to use my personal data above to receive email from LNS regarding this course and marketing information of future events e.g. conference, training course, seminars, forums and site visits.</p> <p>No, I (Name)_____ do not want to receive any direct marketing information of LNS' s training course and events.</p> <p>Date _____</p>	

Terms of Conditions

1. Registration is on a first-come, first-served basis.
2. All cheques shall be crossed and made payable to the Organizer "LNS Limited" to confirm registration and are subject to bank clearance.
3. The registrant shall not cancel the registration three days after the submission of the registration form and/or after the confirmation of the course. The course fee shall be made payable by the registrant.
4. There is no refund for cancellation of booking initiated by applicant. However, the registration may be transferred to another person from the same company or organisation at no extra charge by notifying the Organizer at least 3 days prior to the commencement of the course.
5. The Organizer reserves the right to cancel the courses should there be insufficient applicants or for other reasons. Course fee will then be refunded 100%.
6. All applicants will be informed well in advance should there be any change of course dates due to unforeseen circumstances.
7. Applicants will be notified by email to confirm successful registrations. An official receipt will be provided after receiving payment.
8. Applicants are expected to attend the course at the place and time notified by the Organizer.
9. Before the course commences, if Typhoon Signal No.8 or above/Black Rainstorm Warning is in force; or Typhoon Signal No. 8 or above will be hoisted within 2 hours, the course will be cancelled. The course will be held as scheduled if Typhoon Signal No.8 or above/Black Rainstorm Warning is lowered at or before 7:00 am. The afternoon session of the course will be held as scheduled if Typhoon Signal No. 8 or above/Black Rainstorm Warning is lowered at or before 12:00 p.m.