ANNOUNCEMENT

Regional Training Course on

Coastal Desalination Intake and Brine Disposal System- Planning, Design and Implementation

(Online)

27 -29 October 2021

11:00 am- 13:30 (Tehran Time +4:30 GMT) Every day

INTRODUCTION

Many large desalination plants, mostly coastal, have been constructed or are under construction in the region of the Persian Gulf, the Oman sea and even the Caspian Sea. The main environmental concerns are the operation of sea water intakes and the disposal of produced brine back into the marine environment. The effects are mostly related to high salinity of the brine that produced during the process as the byproduct. A proper disposal system is required to minimize the adverse impacts. Using marine outfalls for rapid dilution to reduce salinity down to the safe level is a common approch. In the workshop, some of the essential issues involved in the managment and the modeling of sea water deep intakes and brine discharge systems alonge the near field will be discussed.

HEADLINES

- Environmental Impact of coastal desalination plants
- Sea water intakes and the design standards
- Brine discharge in costal desalination plants
- Discharge modeling and water quality standards
- Integral models and numerical modeling
- Turbulent flow and CFD simulation

ORGANIZER

Regional Education and Research Centre on Oceanography for West Asia (RCOWA)

under the auspices of UNESCO

LECTURER

Dr. Ozeair Abessi,
Assistant Professor,
Babol Noshirvani University of Technology, Babol, Iran

Dr. Ozeair Abessi, Ph.D. is Assistant Professor of Water and Environmental Engineering at Babol Noshirvani University of Technology. Dr. Abessi's professional interests are in Environmental Fluid Mechanics and its application to the engineering design of marine outfalls for the disposal of wastewaters and desalination brine. During the last 15 years, he has been involved in some international research projects in USA, Canada, New Zealand, Brazil and Oman. Dr. Abessi has spent a sabbatical at UFPR, Brazil working with Dr. Tobias Bleninger on the fluid mechanics of inshore surface channel for brine discharges and also worked with Prof. Mark Davidson at University of Canterbury, New Zealand on the hydraulic of surface brine discharge in flowing waters. Dr. Abessi's last position was visiting research faculty at the Georgia Institute of Technology, USA, where he spent 3 years working with Prof. Philip Roberts on a project funded by United States Bureau of Reclamation (USBR) on the optimization of desalination brine diffuser. Dr. Abessi has lectured widely on outfall design and had an international talks and short courses at Sultan Qaboos University (*SQU*), Oman and Ottawa University, Canada. He is presently a member of the IAHR/IWA joint Committee on Marine Outfall Systems. Dr. Abessi published several articles on the brine outfall design and contributed to IWA 2016 report on Global Trends & Challenges in Water Science, Research and Management that published every 10 year on the future of Water Science researches. Dr. Abessi wrote a chapter for Elsevier on Sustainable Desalination Handbook (2018) about Brine Disposal Management, Planning and Design and recently wrote Iran's Guideline for Environmental Studies of Coastal Desalination plants.

LANGUAGE

English

AGENDA

Time (Teheran Time, +4:30 GMT)		Outline
27 October- **Day 1**	11:00-11:10	Opening
	11:10- 12:00	• **Environmental Impact of coastal desalination plants** ➢ Coastal deslination brine, Characteristics, Procedure and Environmental Impacts ➢ Coatsal eco-sensitive areas, Siting regulations and Environmental Impact Assessment studies
	12:00-12:30	***Break***
	12:30- 13:30	• **Sea water intakes** ➢ An intrudcution to Open and Sub-surface intakes, Deslaination most common sea water intake ➢ Design standards, Guidlines and Modeling procedure
28 October – **Day 2**	11:00- 12:00	• **Brine discharge in costal desalination plants** ➢ Marine outfall applications: capabilities and limitations ➢ Brine charactristics, Standards and disposal methods
	12:00-12:30	***Break***
	12:30- 13:30	• **Brine discharge modeling** ➢ Near field modeling, Physical Mixing process and Mixing Zone Analysis ➢ Mixing theory and equations
29 October- **Day 3**	11:00- 12:00	• **Integral models and numerical modeling** ➢ Modeling and simulation approaches, experimental results, Design Scheme and de facto standards ➢ CORMIX Expert system for outfall design and discharge assessment,
	12:00-12:30	***Break***
	12:30- 13:30	• **Turbulent flow and CFD simulation** ➢ Modeling of turbulent flow, RANS models.

		➢ Limitations and capabilitie of current models
	13:30- 13:40	Closing

REQUIREMENTS AND LOGISTICS

*** Professional engineers, graduate students and fellows engaged in the managment of coastal environment and the design and operation of disaliniation plants are eligible to participate in the cource.**

*** The course will be free of charge.**

*** A certificate of participation will be issued for the eligible participants who attend all online sessions.**

* The platform for holding the workshop-webinar will be the Skyroom. The link of the training course will be sent to the email of the eligible participants

REGISTRATION

For registration, please send the filled **"Registration form"**, and a **recommendation letter from your institute/university/professor** to the email: inioas@inio.ac.ir

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REGISTRATION FORM

Title (Ms./Mr./Prof. Dr.)	Full Name	Female/Male	Academic degree and Field of study	Institution/University	Country	Email
*	*	*	*	*	*	*

*** Registration Deadline: 16 October 2021**

***The link of the training course will be sent to the email of the eligible participants on 21 October.**