

भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन नदी विकास एवं गंगा संरक्षण विभाग
केंद्रीय जल आयोग
जल विज्ञान (मध्य) निदेशालय



Government
Ministry of
Department of Water Resources
Central Water Commission
Hydrology (Central) I

No: T-980119/22/2021-HYD(C)/
01/2022

Date:

CIRCULAR

Subject: 2nd Training on GIS using QGIS and Morphological Analysis

Central Water Commission has engaged M/s HaskoningDHV Consulting Pvt. Ltd in JV with SECON Pvt Ltd for carrying out the work of Consultancy Services of Physical based Mathematical Modelling for estimation of Sedimentation Rate and Transport in Seven River Basins, namely - i) Ramganga, ii) Barak, iii) Narmada, iv) Cauvery, v) Kuttidiapuzha, vi) Peechi, and vii) Mangalam, under National Hydrology Project.

Under the Capacity Building and Training component of the work, the 2nd training is being held in online mode (MS Teams) from 17th-21st January 2022 on "GIS using QGIS and Morphological Analysis". The details of scheduled sessions and link for joining the event are enclosed with this letter.

It is requested that all interested officers (CWC HQ & regional offices) may participate in the training with the consent of their controlling officer.

**Signed by Suyash Kamal
Sinha**

Date: 13-01-2022 10:35:48 (S K Sinha)

Reason: Approved
Director, Hydrology (C)
& Member Secretary (TARC)

To, (*through email only*)

1. Chief Engineer (HSO), CWC - Chairman, Technical Advisory & Review Committee (TARC)
2. Chief Engineer (P&D), CWC - Member (TARC)
3. Shri Sanjay Kumar Jain, NIH, Roorkee - Member (TARC)
4. Director, Morphology & Climate Change, CWC - Member (TARC)
5. Director, RDC-II, CWC - Member (TARC)
6. Director, WSRS, CWC- Member (TARC)
7. Director, Finance, CWC- Member (TARC)
8. Director, Remote Sensing, CWC - Member (TARC)
9. Director, Training/D&R/RM/WP&P Coordination, CWC - It is requested that the Training Notice may be widely circulated for online participation of

interested officers.

Copy to -(through email only)

1. Sr PPS/PPS to Chairman, CWC
2. PPS to Member (D&R/RM/WP&P), CWC
3. Director RDC-I, CWC
4. M/s HaskoningDHV Consulting Pvt. Ltd.

सातवाँ तल(दक्षिण), सेवा भवन
राम कृष्ण पुरम, नई दिल्ली -110066
दूरभाष: 011-2958-3525
ई मेल: hydcent@nic.in
जल संरक्षण - सुरक्षित भविष्य



7th Floor(South), Sewa
R.K. Puram, New Delhi
Tel: 011-2958-3525
E-mail: hydcent@nic.in
Conserve Water - :

To

The Director,

Hydrology Central HSO,
Central Water Commission,
7th Floor, Sewa Bhawan (South)
R.K. Puram, New Delhi -110 066
Tel. No. +91 (0) 1129583525
Email: hydcent@nic.in

Green Boulevard, Tower – B
Fourth floor, Plot No. B - 9A, Sector – 62
Noida 201301, India
+91 (0) 120 4016100 Telephone
+91 (0) 120 4260165 Fax
info.india@rhdhv.com E-mail
www.royalhaskoningdhv.com Internet

Noida, 7th January 2022

Our Ref.: HDC/WAT/2022/01/013

Subject: Consultancy Services of Physical based Mathematical Modelling for estimation of Sediment Rate and Sediment Transport in Seven (7) River Basins– reg. Training

Dear Sir,

With reference to the above and as per the requirement of the Contract, we will be conducting the second training on online mode from Mon 17th to Fri 21st January 2022 on the following topic:

Training #2 Task 4: GIS using QGIS and Morphological Analysis Theory and Practical

The session details are in the Annexure table and the training materials will be shared shortly. Participants to use the following meeting link to attend the training online through M S Teams meeting platform:

Join on your computer or mobile app

[Click here to join the meeting](#) (or)

https://teams.microsoft.com/join/19%3ameeting_MzQwZDE2YjctNzE4NS00YzA0LWFkNDktOWQ4OWE4ODM1OTI5%40thread.v2/0?context=%7b%22Tid%22%3a%2215f996bf-aad1-451c-8d17-9b95d025eafc%22%2c%22Oid%22%3a%225a718cbe-d9c3-4674-aa41-90b1d8f39e1d%22%7d

Join with a video conferencing device

241053888@t.plcm.vc

Video Conference ID: 123 685 532 8

[Alternate VTC instructions](#)

Or call in (audio only)

+91 22 6259 1173,,,215427705# India, Mumbai

Phone Conference ID: 215 427 705#

[Find a local number](#) | [Reset PIN](#)

We look forward for your kind cooperation and will be grateful if the officers and engineers of CWC can participate in this training.

Thanking you,

Yours sincerely,

For HaskoningDHV Consulting Pvt. Ltd.



Dr Iqbal Hassan

Team Leader - Sediment Studies of River Basin Project

Encl.: As above

Table 1: Training#2 – Session details

Day	Session	Topics
Mon 17 th Jan 2022	11AM to 1PM	<ul style="list-style-type: none"> • Introduction to Remote Sensing & GIS • Introduction to QGIS software • Open-source satellite imagery / DEM list used in 7 basins • Spatial data collected for thematic map generation for 7 basins • Installation & setting up of QGIS 3.16 software • Basics of QGIS 3.16 software - Menu & Tool bars, Panels, Python console • Exercise 1: Create basic data types in GIS and Familiarity with QGIS 3.16 Software Interface
	2PM to 5PM	<ul style="list-style-type: none"> • Identification of Projection system for raster and vector data • Assign and extract projection for raster and vector data • Raster Data Management Tools - Merge, Clip, Reproject, Slope, Hill shade, raster to vector conversion • Exercise 2: Merge DEM tiles, Clip and Re-project DEM • Exercise 3: Raster Data Management using Raster Tools
Tue 18 th Jan 2022	11AM to 1PM	<ul style="list-style-type: none"> • Vector Data Management - Buffer, Dissolve, Merge, split, Re-project • Topology rule setting - for Point, line, and polygons • Identification of Topological error • Exercise 4: Vector Data Management using Vector Tools & Topology
	2PM to 5PM	<ul style="list-style-type: none"> • Topology checker plugin installation • Map Composition • Exercise 5: Map composition using Layout Manager and exporting maps
Wed 19 th Jan 2022	11AM to 1PM	<ul style="list-style-type: none"> • Introduction to river morphology Part I: Sediment transport, Lane balance, short term and long term morphological changes • Flood Duration Curves and Flood Frequency Analysis theory • Determination of sediment transport balance
	2PM to 5PM	<ul style="list-style-type: none"> • Practical examples from the project basins: Sediment transport budget and morphological changes due to for example reduction of discharges caused by irrigation, riverbed cut-off • Installation of HEC-SSP and Practical application on flood frequency analysis and flood duration curves
Thu 20 th Jan 2022	11AM to 1PM	<ul style="list-style-type: none"> • Introduction to river morphology Part II: River planform: Meander, braided and link with hydrodynamics • Image processing and tools GEE and python (Centerlines, width, shifting)
	2PM to 5PM	<ul style="list-style-type: none"> • Practical application of tools: Installation of GEE, Python, and other morphological analysis tools • Practical application on meandering rivers in project basins (Barak, Ramganga, Narmada and Cauvery)

Fri 21 st Jan 2022	11AM to 1PM	<ul style="list-style-type: none">• Advanced image processing techniques for quantifying flow and morphological changes braided systems and in reservoirs• Development and application of tools - Examples in braided systems and reservoirs in our basins
	2PM to 5PM	<ul style="list-style-type: none">• Practical applications in our basins braided systems and reservoirs• Training evaluation and recommendations• Future applications of the tools in other basins