Living Polders: Dynamic Polder Management for Sustainable Livelihoods, Applied to Bangladesh

Field Visit to Beel Pakhimara and Laboratory Analysis: Water Sample Collection, Soil and Water Sample Analysis (Ninth Field Visit)

Conducted during: 5th – 15th July, 2018

Institute of Water and Flood management (IWFM)
Bangladesh University of Engineering and Technology (BUET)

General Information

Project Name: Living Polders: Dynamic Polder Management for Sustainable Livelihoods, Applied to Bangladesh

Date of Visit: 5th – 15th July, 2018

Visited Places

- Khulna University and Tala Upazila in Shatkhira (5th July)
- Kobadak River, Neap Tide Sampling, Shatkhira (6th July)
- Khulna University Laboratory (8-11th July)
- Tala Upazila in Shatkhira (12th July)
- Kobadak River, Spring Tide Sampling, Shatkhira (13th July)
- Khulna University (14-15th July)

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Introduction

To understand the sediment loads in the Bangladesh delta, it is important to understand the variation of the sediment loads at the different points of the delta in different season of the year. In this field visit we have collected pre-monsoon season samples.

This field visit was aimed

(i) to collect water samples during spring and neap tide from Kobadak River,
(ii) to train and mobilize KU students for regional sampling,
(iii) to do laboratory analysis of the collected soil and water sample in Khulna University.

Description

Water Sample Collection in Kobadak River (July 6th and 13th)

Neap and Spring tide samples were collected on 6th and 13th July, respectively, for 15 hours in each tidal cycle at one hour interval from 8.00 AM to 10.00 PM. To find out the vertical distribution of the sediment along in the river samples were collected at varied depth, 0.2, 0.6 and 0.8 of water height from water surface. Sampling location for spring is 22.667840, 89.261784 and for neap is 22.667924, 89.261562 in the Kobadak river.

In both cycles, 268 water samples were collected. All the necessary set ups and reconnaissance were done before the sampling day.

Regional Sampling Team formulation, training and mobilization (8th to 10th and 15th July)

After the discussion with Professor Dr. Dilip Datta on 7th July, four student team were formulated. A hand on training was organized on 10th July at Khulna University, where they have learnt to use samplers and sampling techniques for specified scenarios; and location for each team were selected.

Samples for the regional sampling were collected on 13th (spring) and 20th (neap) of July.

After the Spring tide sample collection on 13th July, a view exchange session were held again to share the field experiences and discuss the challenges they have faced during sampling. They were also informed about possible solutions and to do in those situations.

Laboratory analysis (8th to 11th July)

From 8th to 11th July, in 'Soil, Water and Air Research Lab' with the help of Ms. Marjina Akter, 90 water samples were analyzed, for Turbidity, Total Dissolved Solid, Temperature and Salinity. Later those were prepared for Suspended Solid Concentration. The soil samples were left to dry in open air.

Discussion

Though month of July, which is usually monsoon (June to October) in Bangladesh, due to the late start of monsoon rainfall we have considered the season as pre-monsoon.

On the 5th of July at around 1.00 pm Bangladesh Time, the cross dam on the Kobadak River was breach due to high water level and flow velocity, according to local people. It was constructed on 9 April (which was previously planned to construct at 19 March). Due to the construction the Tidal prism has changed significantly.

Concluding Remarks

All the events have gone as planned. The samples collected from Kobadak River and Beel were sent to Khulna University for laboratory analysis. Images of the field visit were uploaded to the archive link: https://tinyurl.com/9thvisitLP

Photos

Image 1: Flow velocity measurement at Kobadak River

Image 2: Sediment deposition measurement inside the beel.

Image 3: Cross dam breaching on 5th of July in Kobadak River

Image 4: Water Sample analysis in Khulna University

Image 5: A glimpse of the training program

Image 6: Khulna University team members for sampling and coordination

Annex

Field Visit Plan

Date	Descriptions	Remarks
4th July, Wednesday	Leaving for Khulna	
5th July, Thursday	Arriving Khulna , collecting equipment, To Tala	
6th July, Friday	Neap tide sampling	
7th July, Saturday	To Khulna University	
8th July, Sunday	Discussion with Prof. Datta and Lab analysis of Water samples	
9th July, Monday	Lab analysis of Water samples	
10th July, Tuesday	Training program for regional sample collection and Lab analysis of Water samples	
11th July, Wednesday	Lab analysis of Water samples	
12th July, Thursday	To Tala	
13th July, Friday	Spring tide sampling	
14th July, Saturday	To Khulna	
15th July, Sunday	Discussion with students about regional sampling and to Dhaka	

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