



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

Report on Visit to Beel Pakhimara and Polder 30 for Sample Collection

Conducted during: 24th to 26th May, 2017

Conducted by:

Nureza Hafiz
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Cooperated by:

Quazi Aseer Faisal
Syed Hasib Ali

General Information

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

Date of Visit: 24th to 26th May, 2017

Visited Places

- Khulna University, Tala Upazila (24th May)
- Beel Pakhimara, Sampling in Kobadak River (25th May)
- Polder 30 Batiaghata, Sampling in Rupsa River (26th May)

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Locally supervised by

Dr. Md. Atikul Islam

Professor, Khulna University, Khulna, Bangladesh.

Introduction

For the physical modeling of the 'Living Polders' study area, it is needed to collect water and soil quality data. The field visit was aimed to-

- (i) Understand the feasibility of the study area for sampling
- (ii) Understand the suitability of the equipments and
- (iii) Observe the condition and environment of the site to develop adequate sample collection strategy.

Description

Beel Pakhimara, Kobadak River: Beel Pakhimara is in Tala Upazila of Shatkhira district having an area of 6.53sq.km, and situated in Polder 6-8.

A link canal of 440m length is connected the Kobadak river with the Beel. The sampling location (22.6679849, 89.2614682) was 380m downstream of the River from the link canal cut point.

Primarily, to understand the sediment load in the river water near the beel, 23 samples were collected at 0.6 depth of water level in mid channel at approximately half hour interval from 10.15am to 08.45pm. At sampling location, the upper cross sectional length of the River is 45m, highest water level is 8.5m at around 12pm and lowest is 3.35m at around 8.45pm. The maximum velocity observed is 1.5mps at around 11.20am and minimum velocity is 0.1mps at around 3.30pm.

Polder 30, Rupsa River: Polder 30 is situated in Batiaghata upazila of Khulna District, consists of most of the Batiaghata Union and Gangarampur Union (Batiaghata Upazila) and with a very small fraction of Surkhali Union and Bhandarpara Union (Dumuria Upazila).

The sampling location (22.7257279, 89.5237339) in Rupsa River is beside the Phultola sluice gate near Batiaghata Bazar, having upper cross sectional length 550m approximately. The maximum velocity observed is 1.7mps at around 10.50am and minimum velocity is 0.1mps at around 3.55pm.

Some observations during sample collection

- i. Due to high velocity on both of the rivers, it was very difficult to stabilize the boat and the sampling rod. For the determination of water level, it was hard to stabilize the water gauge too.
- ii. Initially, the plan was to collect samples from 3 points along the cross-section of the river and from each point, three samples at 3 different depths (0.4, 0.6 & 0.8 of the channel depth) hourly to get vertical profile for the set of parameters for a full/half tidal cycle. But for the problems stated above we only had managed to collect one sample at the mid channel at 0.6 depths on a half hourly rate.

- iii. It was also time consuming for one group of people to move three points along the cross section of the river within one hour and stabilize the boat for next sampling.

Recommendation

- i. To get the cross section of a big river like Rupsa, it is better to have an eco-sounder.
- ii. To stabilize the boat and to perform the sampling procedure properly at three vertical depths, we need to readjust the sampling rod.
- iii. It will be better to work in three groups in three boats at three points to collect samples, simultaneously.
- iv. To get a full tidal cycle, it is recommended to stay at a very nearby place.

Concluding Remarks

As this was a reconnaissance visit, the findings will help us to perform more meticulously on our next visit.

All the samples collected from Kobadak River and Rupsa River was sent to Khulna University for laboratory testing.



Figure 1: Beel Pakhimara and marked Sampling Location (22.6679849, 89.2614682).

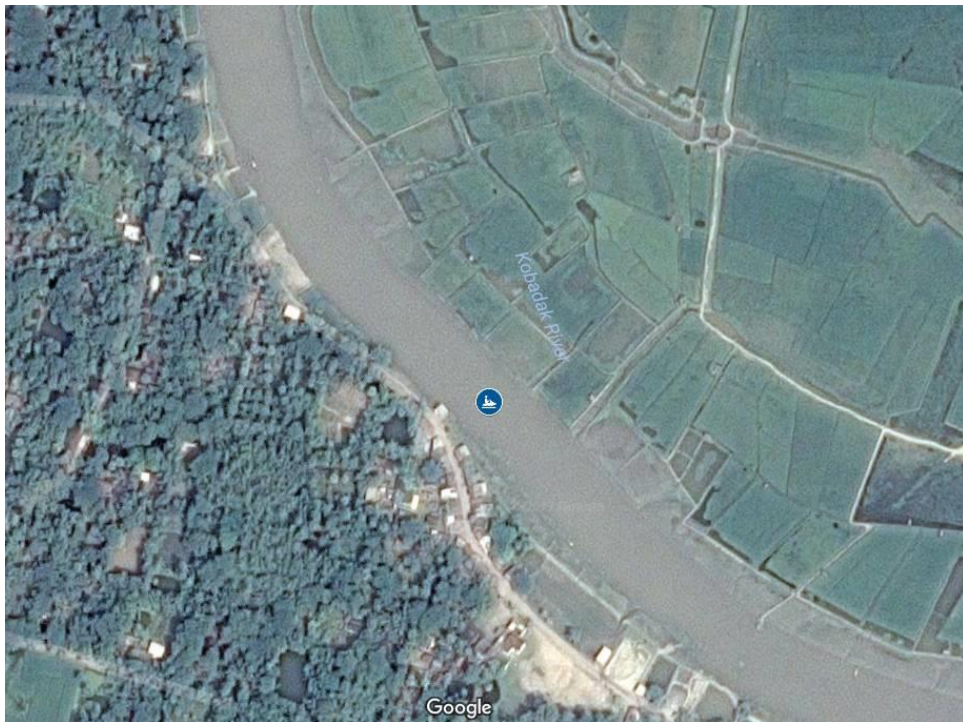


Figure 2: Sampling location in Beel Pakhimara (22.6679849, 89.2614682).

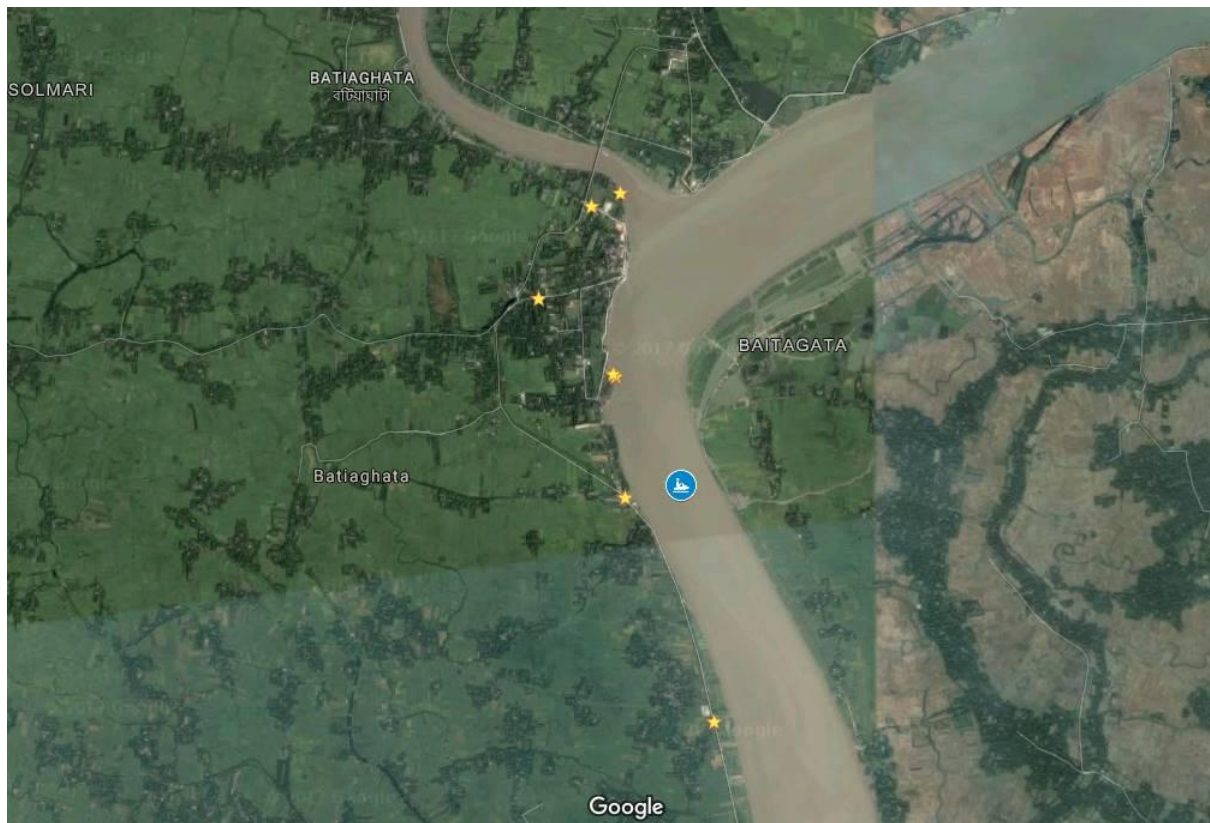


Figure 3: Sampling location in Rupsa River (22.7257279, 89.5237339).



Figure 4: Depth measurement by anchoring rope



Figure 5: Sediment sampler and it's sampling arrangement



Figure 6: Sediment sample collection by Sediment sampler



Figure 7: The inclination of the sampling rope during measurement due to high velocity



Figure 8: Velocity measurement by Current meter



Figure 9: Data entry from various meters (EC meter, pH meter, Multi meter etc.)

Table 1: Field visit schedule

Date	Time	Activities	Remarks
23 rd May, 2017	09.00pm	Departure to Khulna	
24 th May, 2017	07:00 – 08:00	Arrival in Khulna	
	08:00 – 10:00	Breakfast, way to Khulna University	
	10:00 – 03:00pm	Equipment calibration, accessories packing, lunch at KU	
	06:00 – 07:00pm	Moving to Tala upazila, Shatkhira	
	07:00pm	Check in at Uttaran training centre	
25 th May, 2017	05:00 – 05:30am	To Beel Pakhimara	
	05:30 – 10:30pm	Data collection, in situ tests (cross section, Discharge, turbidity, Salinity, sediment load) [will cover a full tidal cycle]	
	10:30 – 10:45pm	To Uttaran office	
26 th May, 2017	06:00 – 08:00am	To Polder 30, Batiaghata	
	08:30 – 08:00pm	Data collection, in situ tests (cross section, Discharge, turbidity, Salinity, sediment load) [will try cover at least a half tidal cycle]	
	08:30 – 09:30pm	Returning to Khulna	
	11.00pm	Returning to Dhaka	

Table 2: Contacts

Name	Designation	Place	Contact No.
Dilip Kumar Sana	Uttaran	Tala, Satkhira	01712860594
Milton	Uttaran	Tala, Satkhira	01722545561
Ms. Shadhona	Uttaran	Tala, Satkhira	01711831764
Aslam	Boatman	Batiaghata, Khulna	01862162571
Rajjak	Mahindra driver	Khulna Sadar	01928846329
Unknown	Van driver	Tala, Satkhira	01784255664
Amrito	Van driver	Tala, Satkhira	01758835165
Akash Biswas	Boatman	Tala, Satkhira	01770250760