INSTALLATION REPORT – BANGLADESH

(HKH-HYCOS PROJECT - PHASE II)

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A REPORT

ON

INSTALLATION OF HYDROLOGICAL AND METEOROLOGICAL STATIONS

IN

BANGLADESH

(HKH HYCOS PROJECT – PHASE II)

Submitted by:

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Submitted to:

HKH-HYCOS Steering Committee
ICIMOD,
Khumaltar, Nepal

Date of Submission: 2nd August 2014

Acronyms

APN	Access Point Name
DCP	Data Collection Platform
BWDB	Bangladesh Water Development Board
GSM	Global System for Mobile
HKH- HYCOS	Hindu Kush Himalayan - Hydrological Cycle Observation System
ICIMOD	International Centre for Integrated Mountain Development
Rev	Revision
RLS	Radar Level Sensor
RTS	Real Time Solutions Pvt. Ltd.
SDI	Serial Data Interface
SIM	Subscriber Identity Module

Balah

Station Type:	Hydrological Station
Installation Date:	6th July, 2014

Geographic Information:

Latitude:	24° 5' 1.73"N
Longitude:	91° 35' 42.9"E
Altitude:	16 m

Device Information:

Device ID:	8306
Hardware Version:	Firmware Version:
Datalogger: Rev 6	Datalogger: Rev 6.5
Communication Module: Rev 7	Communication Module: Rev 6.1

GSM SIM used:

Banglalink (Modem 1):	01973245102
Gramen Phone (Modem 2):	01777756135

Sensors used:

i) Radar Level Sensor
ii) Tipping Bucket

Contact Person:

Ratan (01715633036)

Installation Details:

The radar level sensor was mounted on a metal structure with pulley system, which is used to move the sensor back and forth. The sensor was mounted at the height of about 7 meters from water surface. The DCP box was sheltered on a metal housing and mounted on the same metal structure. The solar panel was also mounted on the same metal structure with an inclination of around 30°.

The tipping bucket was installed about 30 meters away from the DCP location and was properly fenced.

The network of both the Banglalink and Gramen Phone were good. Banglalink SIM was used for modem 1 and set as high priority whereas Gramen phone was used for modem 2.

Modem Settings		
Parameters	**Modem 1**	**Modem 2**
APN	BLWEB	GPINTERNET
Username	BLWEB	GPINTERNET
Password	BLWEB	GPINTERNET
Priority	High	Medium

Offset Calculation for Waterlevel:

Staff Gauge Reading (x) = 20.242
Initial Sensor Reading (y) = 7.153
Offset = x + y
= 20.242 + 7.153
= 27.361

People Involved:

Saroj Dhoj Joshi and Uday BC (RTS)
Alamgir Hossain and Akram (BWDB)

List of Equipment

SN	Model No	Description	Serial No
1	OTT RLS	**Radar Level Sensor**	329648
2	TB3	**Tipping Bucket Rain Gauge**	2013-130
3	CC2SDI12	Contact closure to SDI-12 Converter	6-1-201003-34
		Data Collection Platform Including:	
4		Protection Housing	103136677
5	RTDL-11	Data Logger	1-6-201312-192
6	M2MGGI-11	Communication Unit	2-7-201312-186
7		Iridium Modem	S/N: J02HOK, IMEI: J02HOK 300234061412840
		GSM Antenna	
9		Iridium Antenna + Cable	302937
10		Charge controller	13J14087
11		**Solar Panel**	NF09605C004837
12		**Battery**	
13		**Earthing Kit**	

Figure 1: Metal Structure for Mounting Radar Level Sensor

Figure 2: Metal Housing for DCP Box

Figure 3: Radar Level Sensor

Figure 4: Fencing for Tipping Bucket

Figure 5: Tipping Bucket

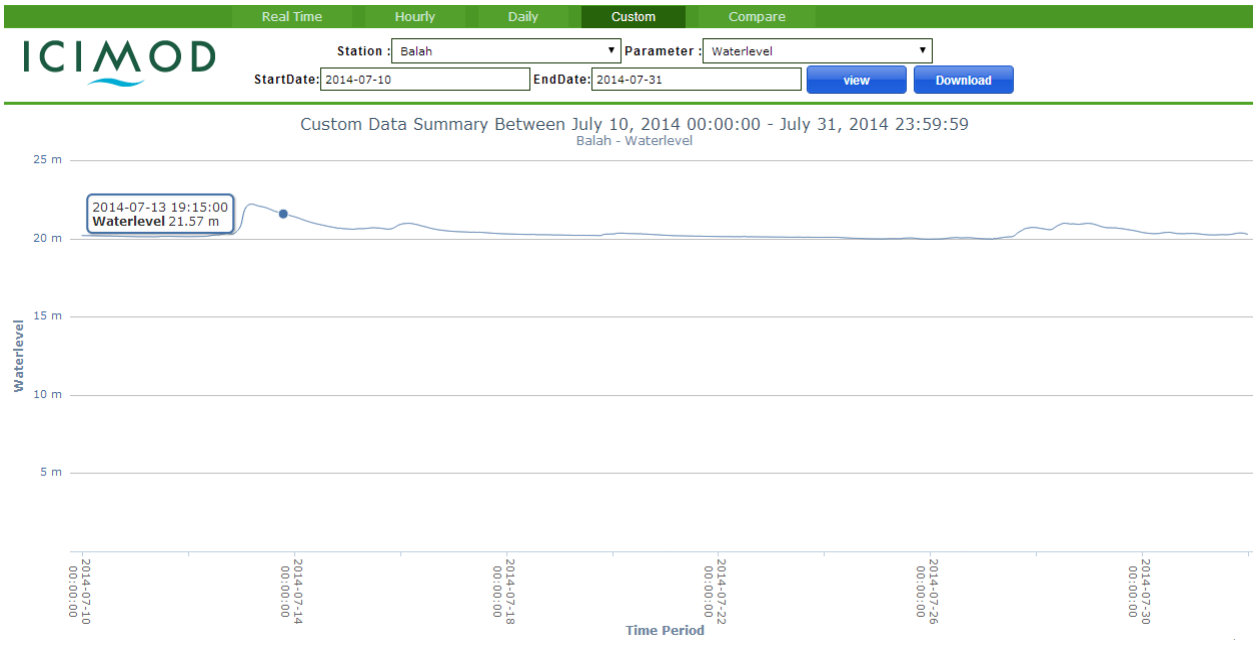

Figure 6: Graph showing water level at Balah during the month of July

Source: http://hkhhycos.icimod.org/bull3/index.php/wscada/report_report

Zakigunj

Station Type:	Hydrological Station
Installation Date:	7th July, 2014
River:	Kushiara

Geographic Information:

Latitude:	24° 52' 25.08"N
Longitude:	92° 21' 48.5"E
Altitude:	9 m

Device Information:

Device ID:	8309
Hardware Version:	Firmware Version:
Datalogger: Rev 6	Datalogger: Rev 6.5
Communication Module: Rev 7	Communication Module: Rev 6.1

GSM SIM used:

Banglalink (Modem 1):	01973245101
Gramen Phone (Modem 2):	01777756134

Sensors used:

i) Radar Level Sensor
ii) Tipping Bucket

Contact Person:

Hamid Zukigon (01735466900)

Installation Details:

The radar level sensor was mounted on a metal structure with pulley mechanism. The tipping bucket was mounted on the roof of the gauge house which was about 100m away from the radar location. The solar panel was mounted on a pole fixed on the roof of the gauge house.
GSM SIM of Banglalink was used for modem 1 and that of Gramen Phone was used for modem 2. Modem 1 was set as high priority for data transmission.

Modem Settings		
Parameters	**Modem 1**	**Modem 2**
APN	BLWEB	GPINTERNET
Username	BLWEB	GPINTERNET
Password	BLWEB	GPINTERNET
Priority	High	Medium

Offset Calculation for Water Level:
Staff gauge reading (x) = 12.68
Initial sensor reading (y) = 5.84

Offset = x + y
= 12.68 + 5.84
= 18.52

People Involved:

Saroj Dhoj Joshi and Uday BC (RTS)
Alamgir Hossain and Akram (BWDB)

List of Equipment

SN	Model No	Description	Serial No
1	OTT RLS	**Radar Level Sensor**	329650
2	TB3	**Tipping Bucket Rain Gauge**	2013-133
3	CC2SDI12	Contact closure to SDI-12 Converter	6-1-201003-35
		Data Collection Platform Including:	
4		Protection Housing	103136678
5	RTDL-11	Data Logger	1-6-201312-227
6	M2MGGI-11	Communication Unit	2-7-201312-171
7		Iridium Modem	S/N:J02H32, IMEI:300234061410820
		GSM Antenna	
9		Iridium Antenna + Cable	302945
10		Charge controller	13 E24037
11		**Solar Panel with accessories**	NF090620C005237
12		**Battery**	
13		**Earthing Kit**	

Figure 7: Tipping Bucket and Solar Panel on the roof of gauge house

Figure 8: Metal Structure for Radar Level Sensor

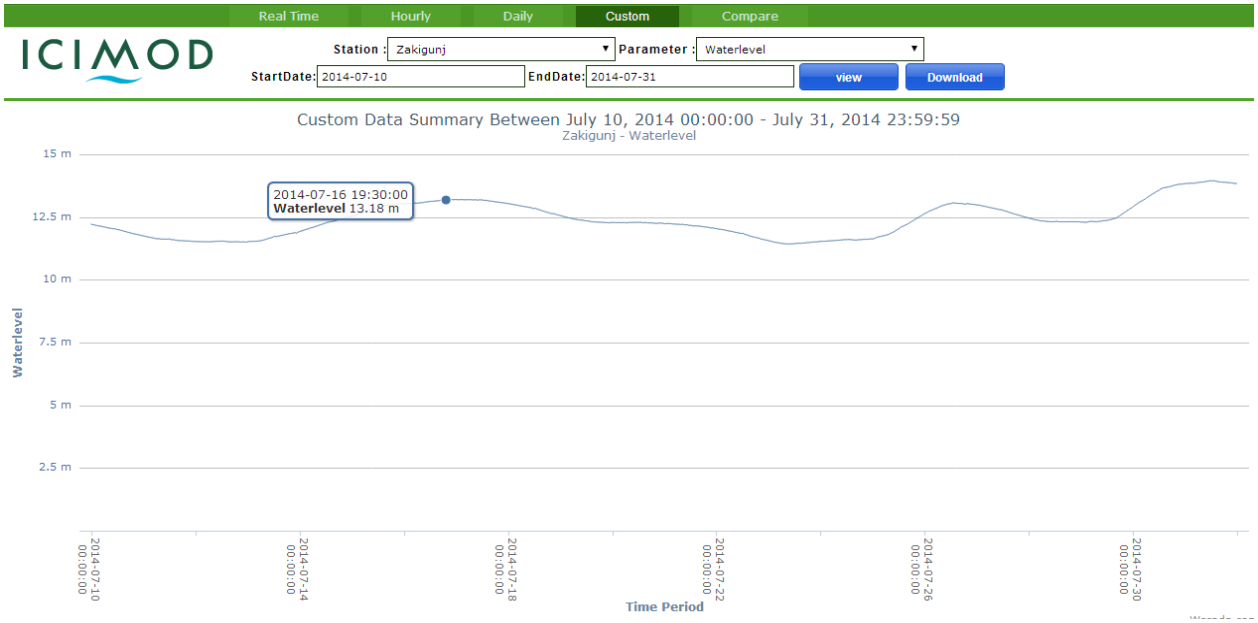

Figure 9: Graph showing water level at Zakigunj during the month of July

Source: http://hkhhycos.icimod.org/bull3/index.php/wscada/report_report

Sunamgunj

Station Type:	Hydrological Station
Installation Date:	9th July, 2014
River:	Surma

Geographic Information:

Latitude:	27°26'30.2"N
Longitude:	91°34'56.4"E
Altitude:	854 m

Device Information:

Device ID:	8308
Hardware Version:	Firmware Version:
Datalogger: Rev 6	Datalogger: Rev 6.5
Communication Module: Rev 7	Communication Module: Rev 6.1

GSM SIM used:

Banglalink (Modem 1):	01973245103
Gramen Phone (Modem 2):	01777756132

Sensors used:

i) Radar Level Sensor
ii) Tipping Bucket

Contact Person:

Syeddilsadmir (01813345312)
Sadikoramad (01729132371)

Installation Details:

The radar level sensor was mounted on a 6 m long metal structure with pulley mechanism; constructed on a metal pole. The DCP box with all the components – datalogger, communication module, power unit was wall mounted inside the gauge house which was about 60 meters away from the radar location. The tipping bucket was installed 15 m away from the gauge house.
The solar panel was roof mounted on top of the gauge house, inclined at an angle of 30°.
GSM SIM of Banglalink was used for modem 1 and that of Gramen Phone was used for modem 2.

Modem Settings		
Parameters	**Modem 1**	**Modem 2**
APN	BLWEB	GPINTERNET
Username	BLWEB	GPINTERNET
Password	BLWEB	GPINTERNET
Priority	High	Medium

Offset Calculation for Water Level:
Staff gauge reading (x) = 8.78
Initial Sensor reading (y) = 2.82
Offset = x + y
= 8.78 + 2.82
= 11.6

People Involved:

Saroj Dhoj Joshi and Uday BC (RTS)
Alamgir Hossain and Akram (BWDB)

List of Equipment

SN	Model No	Description	Serial No
1	OTT RLS	**Radar Level Sensor**	329647
2	TB3	**Tipping Bucket Rain Gauge**	2013-132
3	CC2SDI12	Contact closure to SDI-12 Converter	6-1-201003-39
		Data Collection Platform Including:	
4		Protection Housing	103137152
5	RTDL-11	Data Logger	1-6-201312-216
6	M2MGGI-11	Communication Unit	2-7-201312-181
7		Iridium Modem	S/N: J02HOJ, IMEI:300234061415830
		GSM Antenna	
9		Iridium Antenna + Cable	302942
10		Charge controller	13 E24038
11		**Solar Panel**	NF090620C005252
12		**Battery**	
13		**Earthing Kit**	

Figure 10: Metal Structure for mounting radar level sensor

Figure 11: DCP Box wall mounted inside the gauge house and the tipping bucket

Figure 12: Solar Panel roof mounted on top of gauge house

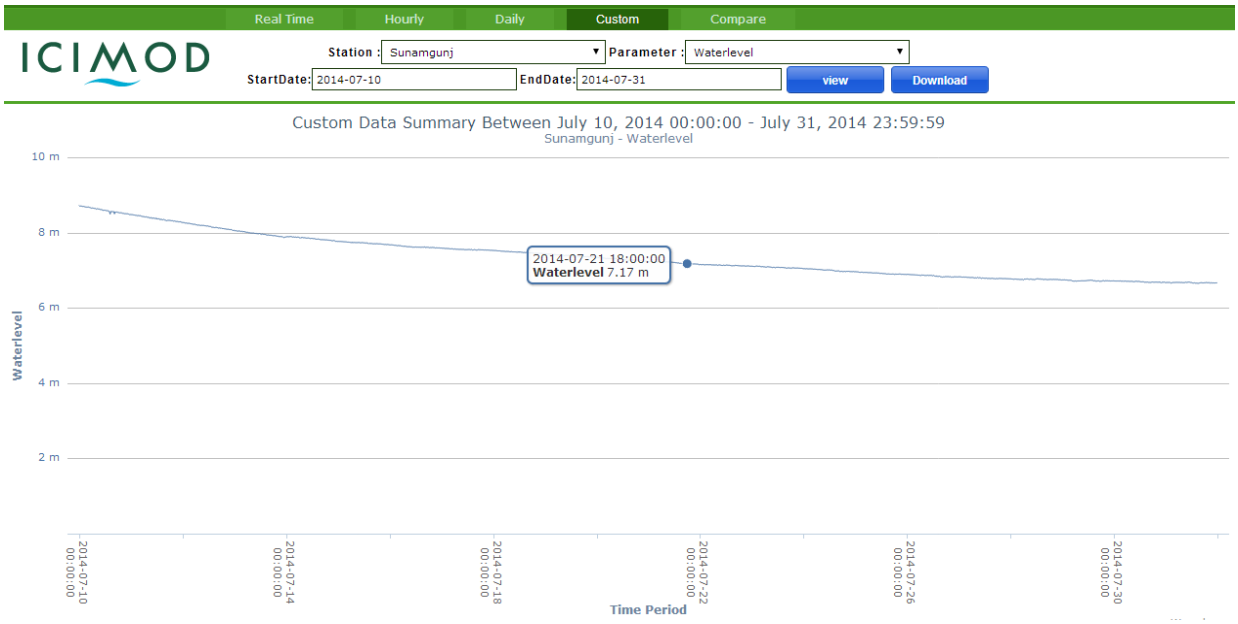

Figure 13: Graph showing water level at Sunamgunj during the month of July

Source: http://hkhhycos.icimod.org/bull3/index.php/wscada/report_report

Chatlaghat

Station Type: Hydrological Station
Installation Date: 11th July, 2014
River: Sarigeowain

Geographic Information:

Latitude: 24° 21' 46"N
Longitude: 91° 57' 39"E
Altitude: 20 m

Device Information:

Device ID: 8307
Hardware Version:
Datalogger: Rev 6
Communication Module: Rev 7
Firmware Version:
Datalogger: Rev 6.5
Communication Module: Rev 6.1

GSM SIM used:

Gramen Phone: 01777756130
Banglalink: 01973245109

Sensors used:

i) Radar Level Sensor
ii) Tipping Bucket

Contact Person:

NA

Installation Details:

The radar sensor was installed on a bridge. The DCP box with all the components – datalogger, communication module, power unit was wall mounted inside the gauge house which was about 100 m away from radar location. The tipping bucket and the solar panel were installed on the roof of the gauge house.
GSM SIM of Banglalink was used for modem 1 and that of Gramen Phone was used for modem 2.

Modem Settings		
Parameters	**Modem 1**	**Modem 2**
APN	BLWEB	GPINTERNET
Username	BLWEB	GPINTERNET
Password	BLWEB	GPINTERNET
Priority	High	Medium

Offset Setting for Water level:
Staff gauge reading (x) = 21.259
Initial sensor reading (y) = 7.142

Offset = x + y
= 21.259 + 7.142
= 28.401

People Involved:

Saroj Dhoj Joshi and Uday BC (RTS)
Alamgir Hossain and Akram (BWDB)

List of Equipment

SN	Model No	Description	Serial No
1	OTT RLS	**Radar Level Sensor**	308301
2	TB3	**Tipping Bucket Rain Gauge**	2013-131
3	CC2SDI12	Contact closure to SDI-12 Converter	6-1-201003-47
		Data Collection Platform Including:	
4		Protection Housing	103137137
5	RTDL-11	Data Logger	1-6-201312-184
6	M2MGGI-11	Communication Unit	2-7-201312-185
7		Iridium Modem	S/N: J02HIM, IMEI:300234061416800
		GSM Antenna	
9		Iridium Antenna + Cable	302940
10		Charge controller	13 E24040
11		**Solar Panel**	NF090508C003985
12		**Battery**	
13		**Earthing Kit**	

Figure 14: Radar Level Sensor mounted on a bridge

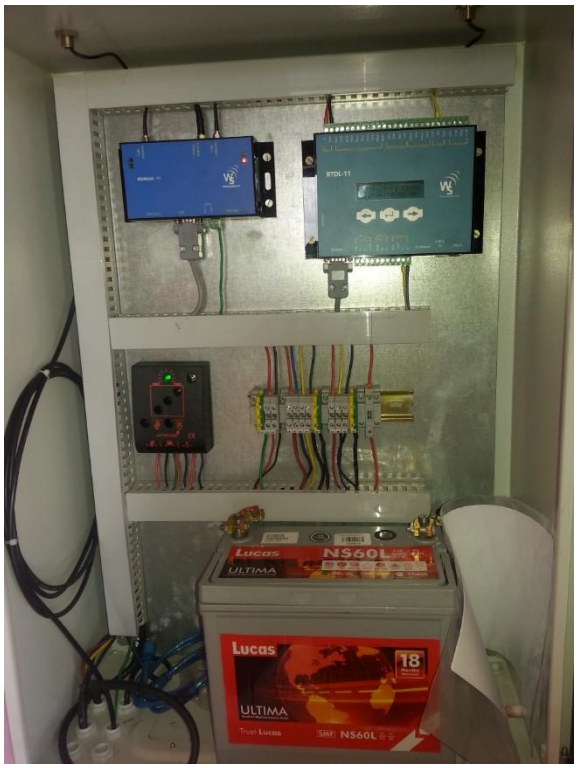

Figure 15: DCP box with datalogger, communication module and power unit

Figure 16: Tipping Bucket and Solar panel roof mounted on top of gauge house

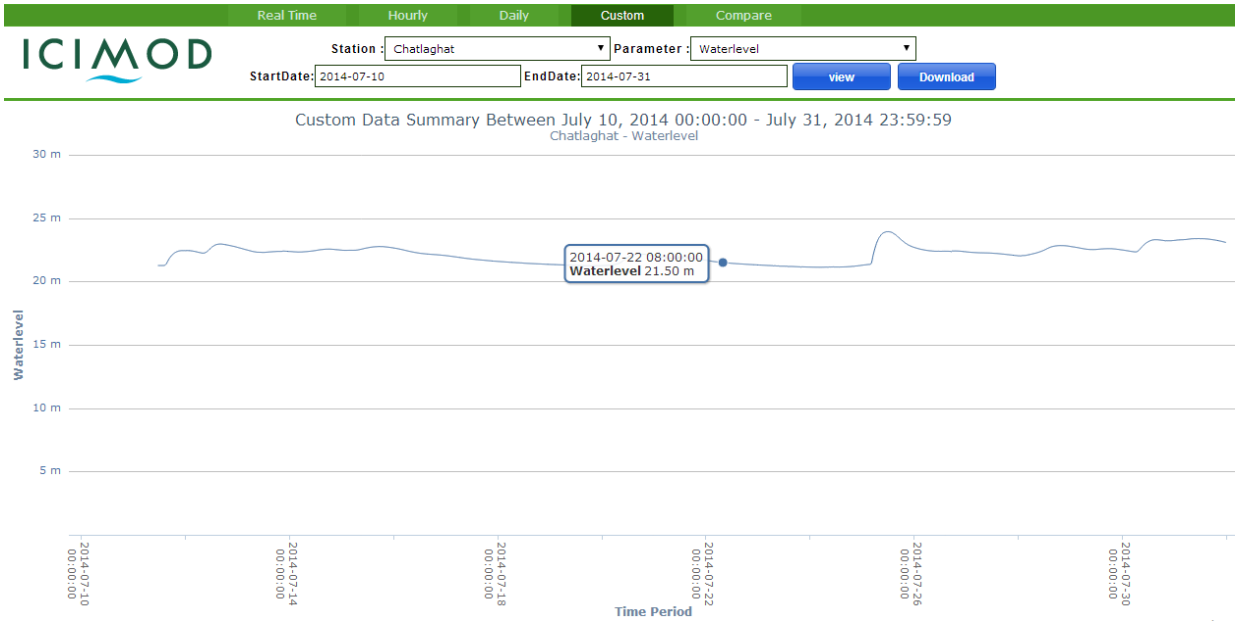

Figure 17: Graph showing water level at Chatlaghat during the month of July

Source: http://hkhhycos.icimod.org/bull3/index.php/wscada/report_report