

REPORT
On
Training Program on
Concept and Practice of Integrated Water Resources Management



DECEMBER 2018

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1. Introduction to IWRM Training

CEGIS has organized a Training of Trainers (ToT) course on **“Concept and Practice of Integrated Water Resources Management”** from 22 to 27 September 2018 in association with Bangladesh Water Partnership (BWP). The training program is comprised of two parts; the theoretical part and the practical field visit. The theoretical aspects of IWRM was covered in the first part with theoretical lectures on several concept, aspects, implications and applications prospects of IWRM. The field work was conducted in the Binnabaid Flood Control and Drainage and Irrigation Project at Narshingdi a suburban district of Dhaka.

The main purpose of the training program was to introduce the IWRM concept, its principle and to share application experience to district level as well as regional level water managers and experts, from different organizations so that they can utilize and allocate their knowledge and experience in their respective working area and can conduct similar training to others of his/her organization. The theoretical courses were conducted through full day program starting from 22nd to 26th September, with a half day lecture scheduled on 27th September (last day lecture) and followed by closing ceremony.

The inaugural session of the ToT course was held at CEGIS conference room on 22 September. The Vice President of Bangladesh Water Partnership, Mr. Hossain Shahid Mozaddad Faruque was kind enough to present as chief guest in the inaugural session and the session was chaired by the Executive Director of CEGIS, Engineer Md. Waji Ullah. Besides, the two Deputy Executive Directors of CEGIS, Dr. Maminul Haque Sarker, Deputy Executive Director (Development) and Mr Malik Fida A. Khan, Deputy Executive Director (Operations) were also present as guests at the event. Twenty Six (26) participants from different disciplines with diverse experiences, participated in the Training Program from Twenty Three (23) different organizations namely Bangladesh Water Development Board (BWDB), Department of Environment (DoE), Department of Agricultural Extension(DAE), Bangladesh Forest Department (BFD), Department of Livestock Services (DLS) Dhaka WASA, Bangladesh Water Partnership (BWP), Bangladesh Women and Water Network (BWWN), Department of Fisheries (DOF), Bangladesh Inland Water Transport Authority (BIWTA), Bangladesh Rice Research Institute (BRRI), Bangladesh Agricultural Research Institute (BARI), Bangladesh Agricultural Development Corporation (BADC), River Research Institute, Dhaka University, Local Government Engineering Department (LGED), Barind Multipurpose Development Authority (BMDA), Water Resources Planning Organization (WARPO), UTTARAN (NGO working in the larger aricultural sector), Bangladesh Centre for Advanced Studies (BCAS),

Water Aid – Bangladesh, and Center for Environmental and Geographic Information Services (CEGIS). Welcome speech at the inaugural session was delivered by Ms Farhana Ahmed, Senior Specialist of CEGIS and Research Co-ordinator of the IWRM Training. After this participants introduced themselves with their respective organizational involvement, name and designation. The Two Deputy Executive Directors, Mr Malik Fida A. Khan and Dr Maminul Haque Sarker delivered their speeches respectively. Then Vice President of Bangladesh Water Partnership, Hossain Shahid Mozaddad Faruque, delivered his speech as the chief guest of inaugural session. The Chairperson of the event, Engr. Md. Waji Ullah Executive Director, CEGIS finally delivered his speech.

Closing ceremony was also held at CEGIS premises on 27 September, 2018. Dr K. Azharul Haq, President, BWP was present as the chief guest of the closing session. After successful completion of the six day long training Program the participants were given certificates of completion along with necessary training materials.

2. Aim of the Training

The objectives of the TOT course on IWRM were to:

1. Introduce IWRM concepts and principles to the participants;
2. Help develop the capacity of the participants to apply the integrated and participatory approach to water resource management;
3. Help develop the knowledge and skills of the trainees to enable them to conduct the training course on IWRM in their respective organizations;;
4. Motivate and organize different groups of stakeholders to carry out their activities according to IWRM principles.

3. Training Approach and Methodology

IWRM is an integrative, novel approach. Its implementation involves changes in management and implementation of the usual or current systems. Changing management systems is a deliberate process which can be time consuming, and without an appropriate strategy and follow-through, might lead only to deteriorate the situation and loss of social, financial, and technological investments. Hence, to sensitize the participants on this issue, the training course was designed to follow participatory approach. The most important aspect of the course was that the participants drawn from different disciplines and from both public sector organizations and NGO

sector learned through hands-on experiences about the issues on IWRM which facilitated the learning process. Pro-active participation was another key element of the training program. Concepts, methods, and practical experiences on IWRM practices in Bangladesh were highlighted through various lecture sessions of the training program. Discussion based lectures on various topics of IWRM were also followed with the intention of making participation of participants effective and successful. In order to sensitize them about the practical implication of IWRM with a real on the ground scenario, a full day field trip was organized with due facilitation of concept, hand note, briefing and evaluation procedures. As mentioned earlier the field visit was conducted at Binna Baid FCD Project.

The training program has been arranged for the regional level water managers and professionals from different Government, Autonomous, NGOs, institutions etc. Resource persons drawn from expert pool of CEGIS, Various Former and Current Top Level Government Officials, BUET, BRAC University, Dhaka University and other organizations having national and international reputations.

4. Roles and Responsibility of CEGIS and BWP

CEGIS played the major role in steering and coordinating the entire training program while BWP was involved in overall monitoring and evaluation of the training program and financial support. CEGIS also contributed in kind through subsidized costs for their staff, use of logistical facilities like training facilities, transport etc.

5. Training Contents and Schedule

A total number of twenty eight lectures on different relevant topics related to IWRM have been presented in the 6 day long training program. The below tables show the detailed course schedule and contents.

Day One: 22 September, Saturday

Time	Day 01: Saturday	Date: 22 September, 2018	Venue: CEGIS, Dhaka	Key Presenter
08:30-09:00	Registration			
09:00-10:00	Opening Ceremony			
10:00-10:20	Refreshment			
10:20-11:20	Lecture 1: IWRM Training Objectives and its Introduction			Engr. Md. Waji Ullah Executive Director, CEGIS
11:20-12:20	Lecture 2: IWRM Concept, Demand Management and Water allocation principles			Dr. K. Azharul Haq President Bangladesh Water Partnership (BWP)
12:20-01:20	Lecture 3: River Morphology Change due to Natural and Anthropogenic Intervention			Dr. Maminul Haque Sarker Deputy Executive Director (Development) CEGIS
01:20-02:00	Lunch and prayer break			
02:00-3:00	Lecture 4: Climate Change Issues, concern and challenges for IWRM and Climate Modelling			Mr. Malik Fida Abdullah Khan Deputy Executive Director (Operation) CEGIS
03:00-04:00	Lecture 5: Environmental Issues and Concerns(e.g. pollution and concerns) in Water Resource Management Projects			Mr. Md. Shahajahan Former Additional Director General Department of Environment (DoE)
04:00-04:10	Coffee/Tea Break			
04:10-05:00	Lecture 6: IWRM Implication on Sustainable Ecosystem Functions and Its Balance			Mr. Mujibur Rahman Director General Department of Bangladesh Haor and Wetlands Development

Day Two: 23 September, Sunday

Time	Day 02: Sunday	Date: 23 September, 2018	Venue: CEGIS, Dhaka	Key Presenter
08:30-09:00	Reflection on the previous lectures			
09:00-10:00	Lecture 7: River Systems, its Function and Sediment Management			Dr. Maminul Haque Sarker Deputy Executive Director (Development) CEGIS
10:00-10:30	Coffee/Tea Break			
10:30-11:30	Lecture 8: Environmental Flow and its Importance in IWRM			Mr. Malik Fida Abdullah Khan Deputy Executive Director, CEGIS
11:30-12:30	Lecture 9: Ecosystem Base IWRM and Eco Hydrographs Model			Dr. Sultan Ahmed Director General, DoE
12:30-1:30	Lecture 10: Modelling Concept and Its Application in IWRM			Prof. Dr. M. A. Matin Water Resources Engineering Division, BUET
01:30-02:30	Lunch and prayer break			
02:30-03:30	Lecture 11: Water Resources Management Initiatives Towards IWRM			Mr. H S Mozaddad Faruque Ex- DG, BWDB and Vice President, BWP

Time	Day 02: Sunday	Date: 23 September, 2018	Venue: CEGIS, Dhaka	Key Presenter
03:30-04:00	Coffee/Tea Break			
04:00-05:00	Lecture 12: Social and Institutional Conflicts: Stakeholder Analysis for IWRM and Role Play			Dr. Shah Alam Khan Professor, IWFM, BUET

Day Three: 24 September, Monday

Time	Day 03: Monday	Date: 24 September, 2018	Venue: CEGIS, Dhaka	Key Presenter
08:30-09:00	Reflection on the lectures of the previous day			
09:00-10:00	Lecture 13: Ground Water Resources Management and IWRM			Dr. Md. Sabbir Mostafa Khan, Professor Department of Water Resources Engineering, BUET
10:00-10:30	Coffee/Tea Break and Discussion			
10:30-11:30	Lecture 14: Optimization technique and irrigation/Water management for long term planning process			Dr. Abul Fazal M. Saleh Professor, IWFM, BUET
11:30-12:30	Lecture 15: Water Supply and Security, Sanitation, Hygiene and Health in IWRM			Dr. K. Azharul Haq President Bangladesh Water Partnership (BWP)
12:30-01:30	Lecture 16: Importance of IWRM in Power and Energy Sector			Mr. Jalal Ahmed Choudhury Power Plant Expert (Electrical), CEGIS
01:30-02:30	Lunch and prayer break			
02:30-03:30	Lecture 17: Environmental and Social Impact Assessment within the IWRM mechanism			Mr. Mujibul Huq Environmental Advisor, CEGIS
03:30-04:00	Coffee/Tea Break and Discussion			
04:00-05:00	Lecture 18: Transboundary Water Resources and its Importance in IWRM of Bangladesh			Prof. Dr. Ainun Nishat Professor Emeritus BRAC University

Day four: 25 September, Tuesday

Time	Day 04: Tuesday	Date: 25 September, 2018	Venue: CEGIS, Dhaka	Key Presenter
08:30-09:00	Reflection on the lectures of the previous day and field plan brief			
09:00-10:00	Lecture 19: Marine Ecosystem Resource Management and the Concept of Blue Economy			Rear Admiral Md. Khorshed Alam Secretary (Unclos) Ministry of Foreign Affairs
10:00-10:30	Coffee/Tea Break and Discussion			
10:30-11:30	Lecture 20: Bangladesh Delta Plan 2100, An indicative approach towards IWRM			Mr Giausuddin Ahmed Chowdhury Former Deputy Team leader, Delta Plan 2100

11:30-12:30	Lecture 21: Urban drinking water availability with its quality under IWRM perspective	Dr. Tanvir Ahmed Associate Professor Department of Civil Engineering, BUET
12:30-01:30	Lecture 22: Fisheries Resource Management under IWRM	Dr. Md. Abdur Rob Mollah Professor, Dept. of Zoology, DU
01:30-02:30	Lunch and prayer break	
02:30-04:00	Lecture 23: GIS and RS Application in IWRM perspective	Mr. Mostafa Ali, Director GIS Division, CEGIS and Mr. Shahidul Islam Director, RS Division, CEGIS
04:00-04:15	Coffee/Tea Break and Discussion	
04:15-05:00	Lecture 24: Touch Table Display and its use in Haor Master Plan and Delta Plan	Mr. Md. Mostafizur Rahman, Senior Specialist, CEGIS

Day five: 26 September, Wednesday

Time	Day 05: Wednesday	Date: 26 September, 2018	Venue: CEGIS, Dhaka	Key Presenter
08:30-09:00	Reflection on the lectures of the previous day			
09:00-12:30	Field Visit: Field visit of Binna Baid FCD Project: Proposed for Climate Smart Agriculture and Water Management Project at Narsingdi.			Ms. Farhana Ahmed Senior Specialist, CEGIS
12:30-01:30	Lunch and prayer break			
01:30-05:00	Field Visit: Field visit of Binna Baid FCD Project: Proposed for Climate Smart Agriculture and Water Management Project at Narsingdi.			Ms. Farhana Ahmed Senior Specialist, CEGIS

Day six: 27 September, Thursday

Time	Day 06: Thursday	Date: 27 September, 2018	Venue: CEGIS, Dhaka	Key Presenter
08:30-08:45	Reflection on the lectures of the previous day			
08:45-09:45	Lecture 25: Strategy Formulation and Option Development for IWRM through People's Participation			Prof. Dr. M. A. Matin Water Resources Engineering Division, BUET
09:45-10:00	Coffee/Tea Break			
10:00-11:00	Lecture 26: Water and Environmental Governance: Water Resource Institutions, Environmental Rules, Law and Policy			Ms. Halima Neyamat Program Officer, FAO
11:00-12:00	Lecture 27: Ocean Economics and Security			Dr. A.K. Enamul Haque Chairperson & Professor, Dept. of Economics, East West University
12:00-01:30	Lecture 28: Sustainable Development Goal (SDG-6) and its implication towards IWRM			Engr. Md. Waji Ullah Executive Director, CEGIS
01:30-02:15	Lunch and prayer break			
02:15-03:00	Training Evaluation			
	Closing Ceremony			
	Feedback session by the participant attended the course			
	Closing address by the Chief Guest			
	Certificate distribution			

6. List of Resource Persons:

- Engr. Md Waji Ullah, Executive Director, CEGIS

- **Mr Mujibul Huq** Environmental Advisor, CEGIS
- **Dr Maminul Haque Sarker**, Deputy Executive Director (Development), CEGIS
- **Mr Malik Fida Abdullah Khan**, Deputy Executive Director (Operation), CEGIS
- **Dr K. Azharul Haque**, President, BWP
- **Mr. H S Mozaddad Faruque**, **Former** DG, BWDB and Vice President, BWP
- **Mr. Mujibur Rahman**, Director General, Department of Bangladesh Haor and Wetlands Development
- **Dr M. A. Matin**, Professor and Head, WRE, BUET
- **Abul Fazal M. Saleh**, Professor, IWFM, BUET
- **Dr. Shah Alam Khan**, Professor, IWFM, BUET
- **Dr. Tanvir Ahmed**, Associate Professor, Department of Civil Engineering, BUET
- **Dr. Md. Sabbir Mostafa Khan**, Professor, WRE Department, BUET
- **Dr. Ainun Nishat**, Professor Emeritus, BRAC University
- **Mr. Giausuddin Ahmed Chowdhury**, Ex Deputy Team leader, Delta Plan 2100
- **Mr. Jalal Ahmed Choudhury**, Power Plant Expert (Electrical), CEGIS
- **Mr. Mostafa Ali**, Director GIS Division, CEGIS
- **Mr. Md Mostafizur Rahman**, Senior Specialist, CEGIS
- **Rear Admiral Md. Khorshedul Alam**, Secretary (Unclos), Ministry of Foreign Affairs
- **Dr. Md. Abdur Rob Mollah**, Professor, Dept. of Zoology, Dhaka University
- **Mr. Md. Shahajahan**, **Former** Additional Director General & Director (Environmental Clearance) Department of Environment
- **Dr Sultan Ahmed**, Director (NRM) DoE, Dhaka
- **Dr. A.K. Enamul Haque**, Chairperson & Professor, Dept. of Economics, East West University
- **Ms Halima Neyamat**, National Consultant, FAO

7. List of Trainees

Sl.	Name and Address	Nominated
1	IWRM (O&M) Unit, Local Government Engineering Department (LGED)	Md. Shomser Ali Executive Engineer IWRM (O&M) Unit Local Government Engineering Department (LGED) LGED Bhaban, Agargaon, Sher-e-Bangla Nagar, Dhaka-1207, Bangladesh. cell:01711453679 Email:acbarman66@gmail.com
2	Department of Forest	Imran Ahmed Assistant Chief Conservator of Forest, Development Planning Unit Department of Forest Bana Bhaban, Agargaon, Dhaka cell: 01711445247, 01999000004 email: imranforest@gmail.com
3	Bangladesh Agricultural Research Institute (BARI)	Sk. Shamshul Alam Kamar Scientific officer cell:01724461414 Email:alamkamar91@gmail.com

4	Bangladesh Rice Research Institute (BRRI)	Dr. Debjit Roy Senior Scientific officer Irrigation and Water Management Division, BRRI cell:01718315126 Email: debjit.roy@gmail.com
5	Bangladesh Water Partnership (BWP)	Md. Moniruzzaman Executive Director Voice of South Bangladesh (VoSBD) 75(8), K Ali Road, Dashani Bagerhat-9300, Bangladesh. Contact no. 01749070845 Email: shahidul.vosb@gmail.com shahid_gd@yahoo.com
6	Department of Environment (DoE)	1. Mst. Papia Sultana Asst. Director, DoE Mob# 01798279232 email: papiadoe@gmail.com 2. Banani Das Senior Chemist, DoE Mob: 01716332483 email: banani_du@gmail.com
7	Dept. of Soil, Water and Env., DU	Dr. Md. Tanvir Ahmed Chowdhury Assistant Professor Soil, Water and Environment Cell:01912057535 Email: mta.chowdhury@du.ac.bd
8	Dept. of Fisheries	Dr. Raju Ahmed Asst. Director Dept. of Fisheries Cell:01793979520 email:rajuich75@yahoo.com
9	BIWTA	1. Abdur Rob Mandol Executive Engineer Dredging Department Bangladesh Inland Water Transport Authority (BIWTA) 141-143, Motijheel C/A Dhaka-1000, Bangladesh Cell:01716541636 Email: rob.biwta@gmail.com 2. A.K.M. Abdur Rahman Asst. Engineer(civil) BIWTA Mob: 01712121705 email: abdurrahmanbiwta@gmail.com
10	WARPO	Maimuna Qazi Scientific officer Cell:01925953260 Email: qazi7maimuna@gmail.com

11	BWDB	Robin Kumar Biswas Executive Engineer Office of the Chief Planning 01884415967 biswasrobin@gmail.com
12	WASA	Sazia Afreen Executive Engineer Cell:01716332483 Email:sazia0004@gmail.com
13	Water-Aid BD	Ranjan Kumar Ghose, Programme Officer- Cell-01755520157 Email:ranjankumarghose@wateraid.org
15	BCAS	Jebunnahar Ahmed Senior Programme Manager BCAS Cell:01713248375 Jebunnahar.ahmed@bcas.net
16	Barind Multipurpose Development Authority (BMDA)	Dr. M A Kashem cell:01718058987 Email: dmkasem@bmda.gov.bd
17	BWWN	Hasibun Nahar Khanam email: shila_hasibun@yahoo.com Cell: 01727130850 Phone: 9666328 (Res) E-mail: shila_hasibun@yahoo.com
18	RRI, Faridpur	Bikash Roy Scientific officer bikashduet60@gmail.com bikashduet60@gmail.com Cell:01724392978
19	BADC ,Dhaka	ABM Mahmud Hasan Khan Assistant Chief Engineer (Minor Irrigation Division) Bangladesh Agricultural Development Corporation (BADC) Krishi Bhaban 49-51, Dilkusha Commercial Area Dhaka-1000, Bangladesh phone:01716108353 email: mahmud_badc@yahoo.com
20	UTTARAN Satkhira Tala	A.B. M. Shafiqul Islam Cell: 01711351940. Chairperson of Paani Committee prin.shafi@gmail.com

21	CEGIS	<p>1. Alamgir Hossain Socio-economic and Institutional Division email: mhalamgir@cegisbd.com</p> <p>2. Md. Mutasim Billah Research Consultant Power, Energy and Mineral, Resources Division email: mutasim@cegisbd.com</p> <p>3. Md. Tanvir Ashraf Research Consultant River, Delta and Costal Morphology Division email: mtashraf@cegisbd.com</p>
22	DLS	<p>Dr. A B M Mustanur Rahman ULO(LR) Department of Livestock Services (DLS) Cell: 01711069508 email: kbdsohrab@gmail.com</p>
23	DAE	<p>Md. Rubaiyet-ur-Rahman Senior Agricultural Officer, DAE mob: 01718154150 email: rm_rubaiyet@yahoo.com</p>

8. Field Visit

Name of the Project: Binnabaid Flood Control and, Drainage Project

Date: 26 September, 2018

8.1 Back Ground of the Project:

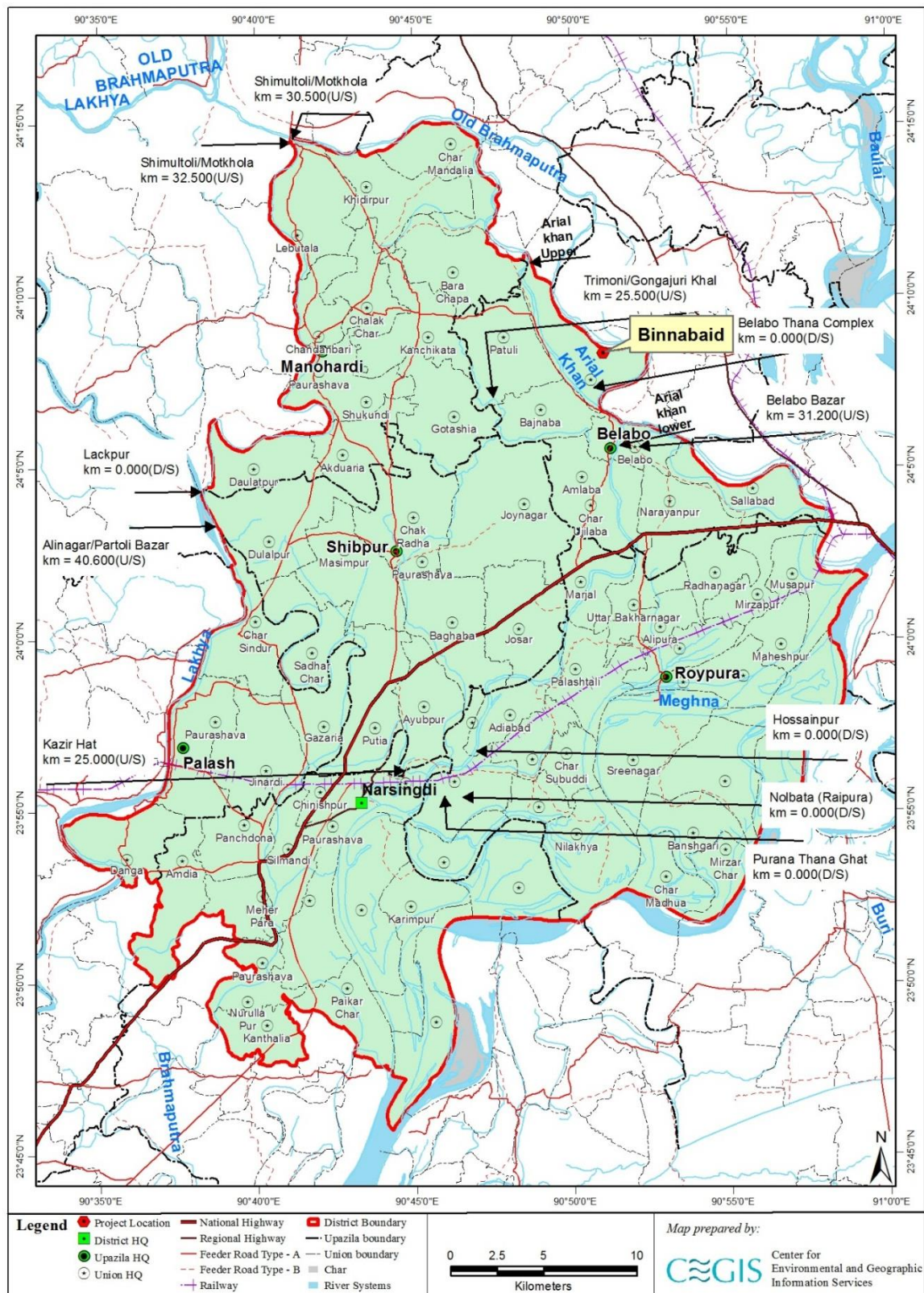
The Binnabaid Flood Control, Drainage and Irrigation is FCDI scheme of Bangladesh Water Development Board (BWDB). The project was completed in the year 1999. The Implementation Period is from 1998-2007.

8.2 Location of the Study Area

The project is located in the Belabo Upazila under Narsingdi District and part of Katiadi Upazila under Kishorganj District (Figure 1). It is about 80 km north-east of Dhaka City and bounded by the Brahmaputra River to the East side and the Arialkha River is to the west.. The scheme has a gross area of 3,500 ha of which 3,000 ha is cultivable. Irrigation is provided to an area of about 3,000 ha.

8.3 Objective of the Project

The main objectives of the project is to control flood, regulate drainage and provide irrigation. The other objectives were to reduce tidal water inundation and river erosion.



Map 8.1: Map of the project location



Picture 8.1: Photos of Field Visit

9. Feedback from the Trainees:

At the end of the training program the participants were asked to evaluate the program through a pre-supplied evaluation form.

The participants found the ToT course on IWRM to be very effective and useful. They perceived that this training program has helped them develop a more clear understanding of principles and concepts of IWRM. They observed that the course materials were very resourceful and covered a wide range of topics which are directly or indirectly related with the implementation and evaluation/assessment of different water resource management projects. They have shown keen interest to keep contact and establish good relation with CEGIS and BWP for any further work related to IWRM in future. **They further observed that this** was an excellent training program for the mid-level multi-disciplinary professionals and suggested to strengthen course by including newer concepts like adaptive delta managements. They also suggested that the 'field trip' may be converted into 'Field investigation' by increasing the duration, if possible.

10. Concluding Remarks:

Integrated Water Resources Management is now a days one of the growing concern for the people working in water as well as natural resources management. The joint initiative taken by the Bangladesh Water Partnership (BWP) and Centre for Environmental and Geographic Information Services (CEGIS) to organize such a Training for the Trainers is highly appreciated by the concern organizations nationwide. Many organization has sent no of participants to obtain training of IWRM each year at a roaster and found it a fruitful one. CEGIS has tried to involve the most relevant organizations who could participate at such a capacity development program and broadly use the concept with required application at their individual fields. So far this is a good initiative and this is desired to possibly enhance more and more with the upcoming issues in future taking it even to the regional level .

11. Some pictures of different events of the training program



Speech of Chief Guest at the Inaugural Ceremony



Participants at the Innaugural Ceremony



Participants and organizers with Chief Guest at the Closing Ceremony

Some pictures from different events of the training

