

# Regional Training for South Asia Water Studies (SAWAS) Fellows

on

## Interdisciplinary Research Methods



### Proceedings Report

December 18 – 22, 2014, Dhaka, Bangladesh

*In association with*



**SaciWATERS**



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## SUMMARY

As part of the South Asia Water Fellowships (SAWA), a training programme on Interdisciplinary Research Methods was organized in Dhaka, from 18 – 22<sup>nd</sup> December, 2014. The training programme was entitled “*Regional South Asia Water (SAWA) Fellows Training on Interdisciplinary Research Methods*”. The training programme was financially supported by International Development Research Centre (IDRC), Canada.

The objective of the programme was to acquaint the participants with the qualitative and quantitative research methods. The training programme targeted the twenty recipients of the IDRC- SAWA Fellowships from four institutions in four South Asian countries: Bangladesh (Institute of Water and Flood Management - Bangladesh University of Engineering and Technology), India (Centre for Water Resources -Anna University), Nepal (Nepal Engineering College) and Sri Lanka (Post Graduate Institute of Agriculture –University of Peradeniya). Five additional participants from the first batch of SAWAS Fellows also participated in the program from BUET.

The workshop content covered the overview of IWRM across South Asia, gender and water, qualitative and quantitative research methods; followed by field visit. The sessions were interactive in nature. Participants got the chance to apply classroom learning in the field, with field trip during the programme, one to Narayanganj- Narshinghdi Irrigation project in the peri urban area of Dhaka. Students conducted FGDs, key person interviews and household survey based on the topic assigned to each group. Overall, the participants were happy with the sessions and the field activity.

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# INTRODUCTION

## BACKGROUND – THE SAWA FELLOWSHIPS

South Asia's agricultural economies are vulnerable to extreme environmental events. Better management of water and other natural resources is fundamental to the development of the region. Climate variability and change, food insecurity, population growth and urbanization have intensified environmental disasters in the recent past. Poor land and water resource allocation, utilization and pollution have robbed the poor, particularly women, of livelihood and dignity. Such broad, yet closely linked issues can only be effectively tackled through a holistic interdisciplinary approach. The IDRC-SAWA fellowships seek to address these issues, by providing the opportunity to train a generation of water professionals to tackle water issues using multi-disciplinary approaches that are sensitive to women, the poor, environment and sustainability.

This project continues as part of an earlier project coordinated by SaciWATERs namely the Crossing Boundaries project. This project is funded by the International Development Research Centre (IDRC) and is implemented by SaciWATERs and its four partner institutions, namely.

- Institute of Water and Flood Management (IWFM) of the Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh
- Center for Water Resources (CWR), Anna University, Chennai, India
- Center for Post Graduate Studies, Nepal Engineering College (nec), Kathmandu, Nepal.
- Post Graduate Institute of Agriculture (PGIA), University of Peradeniya, Peradeniya, Sri Lanka

The objectives of the project are firstly; to create a new generation of interdisciplinary water professionals in South Asia trained to deal with issues of climate change adaptation, water and food security, in order to do this, this project has instituted the IDRC-SAWA fellowships. Secondly, the project aims to generate action-oriented research in the aforementioned fields through Master's degrees in Integrated Water Resource Management in Bangladesh, India, Nepal and Sri Lanka. Thirdly, it has been noted that women and girls are often the primary users, providers and managers of water in rural and urban households, thus being the most affected by planning and policy in water resources. It has often been seen that women's voices are not taken into consideration when forming policy. Additionally, it is seen that women are underrepresented in the field of water resources engineering and policy making. This project seeks to address this imbalance by awarding 80 percent of the fellowships to women; the rest of the fellowships will be awarded to men from lower socio-economic groups. Fourthly, it aims to share knowledge and ideas about water issues in the South Asian context, through meetings and exchanges between fellows. This is especially important as it fosters the spirit of regional and trans-boundary cooperation in the fellows, which would hopefully lead to larger regional cooperation in future. Such interdisciplinary, regional and trans-boundary co-operation is essential for IWRM approaches. Fifthly, the projects supports free access to the journal "South

Asian Water Studies” and encourages young water professionals to publish peer reviewed journal articles.

## **ORGANIZERS**

**Bangladesh University of Engineering and Technology (BUET)** is the oldest and leading university in Bangladesh in technology. The Institute of Flood Control and Drainage Research was established in 1974 in BUET, and renamed Institute of Water and Flood Management (IWFM) in 2002. IWFM is a premier institute for the advancement of knowledge and development of human resources in water and flood management. The Institute offers postgraduate degrees for professionals and fresh graduates in water resources development, with the objectives of training and enhancing the knowledge and skills of professionals in planning and management of land and water resources, and widening their perspectives on Integrated Water Resources Management (IWRM). Since IWRM is a multi-disciplinary process, requiring a holistic understanding of the system with a good blend of engineering, agricultural, socio-economic and environmental analyses, a multi-disciplinary course curriculum has been created. The multi-disciplinary programmes are aimed at engineers, planners, hydrologists, agriculturists, and physical and social scientists. Research activities of the institute focus on priority areas in water management, with major emphasis on water resources management in the floodplain environment, river and coastal hydraulics, wetland hydrology, hazard management, urban water management, irrigation and water management, environmental impact of water development, water resources policy, and climate change. A Climate Change Study Cell has been recently established at IWFM. IWFM will be collaborative institution in this project.

**SaciWATERS : the South Asia Consortium for Interdisciplinary Water Resources Studies**, is a policy research institute at Hyderabad, India and working on the issue of water resources education, capacity building, research and action in South Asia. It is committed to bringing about structural changes in the dominant water resources management paradigm in South Asia by focusing on transforming water resources knowledge systems through working with universities and academic institutions. The key ideas are in interdisciplinary approach to undertaking water resources issues from a pro-poor, gendered and human development perspective and emphasis on exchange, interaction and collaboration at South Asia level. SaciWATERS is active in three domains- Education, Research and Advocacy. [www.saciwaters.org](http://www.saciwaters.org)

## **SPONSORS**

**International Development Research Centre (IDRC)** is a Canadian Crown Corporation that initiates, encourages and supports research in developing countries in order to help find practical and sustainable solutions to social, economic and environmental problems that are being faced in these countries. Additionally, IDRC on the means for applying and adapting scientific, technical and other knowledge to the economic and social advancement of those regions. <http://www.idrc.ca>

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## **WORKSHOPS OBJECTIVES, PARTICIPANTS PROFILE AND EXPECTED OUTCOMES**

### **OBJECTIVES**

The main objective of this training programme was to build capacity of the SAWAS Fellows towards research methods used in social research. As the students of the partner institutes are trained, through their curriculum, in technical aspects of water resource management, this training aimed to orient them mainly to social inclusion in their decision making.

### **PARTICIPANTS PROFILE**

The participants for this training programme were those who were selected as fellows as part of the second batch of South Asia Water (SAWA) fellowships, through a competitive process from each of the four partner institutes. Five fellows each from Sri Lanka and Bangladesh and four fellows each from India and Nepal were in attendance, as well as an additional five people from the host institution, leading to a total of twenty three participants. All participants were pursuing post graduate level courses in IWRM. Most had a conventional civil engineering background and few were with Agriculture background. Introduction to the research methodology was important to them.

### **OUTCOMES EXPECTED**

It is expected that at the end of the sessions followed by the field work the fellows will have fundamentals know-how of the qualitative research approach. And will appreciate the importance of inclusion of social dimensions within the technical solutions they design as part of their assignments in future.

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## PROGRAMME DETAILS

### KEY RESOURCE PERSONS AND FACILITATORS.

- **Dr N.D.K Dayawansa:** Senior Lecturer in Agricultural Engineering at the University of Peradeniya, Peradeniya, Sri Lanka
- **Dr Carolin Arul,** Assistant Professor, Centre for Water Resources, Anna University, Chennai, India
- **Mr Robert Dongol :** Assistant Professor, Nepal Engineering College, Kathmandu, Nepal
- **Dr. Vishal Narain,** Associate Professor, Management Development Institute, Gurgaon, India
- **Dr Rezaur Rahman,** Professor, Institute of Water and Flood Management, Bangladesh University of Engineering and Technology. Dhaka, Bangladesh
- **Dr Hamidul Haq,** Professor, Institute of Water and Flood Management, Bangladesh University of Engineering and Technology. Dhaka, Bangladesh
- **Dr Surijit Bala,** Professor, Institute of Water and Flood Management, Bangladesh University of Engineering and Technology. Dhaka, Bangladesh
- **Dr Shahjahan Mondal,** Assistant Professor, Institute of Water and Flood Management, Bangladesh University of Engineering and Technology. Dhaka, Bangladesh
- **Dr Mashfiqus Salehin :** Professor, Institute of Water and Flood Management, Bangladesh University of Engineering and Technology. Dhaka, Bangladesh
- **Dr Anamika Barua ,** Executive Director, South Asia Consortium for Interdisciplinary Water Resources Studies (SaciWATERS). Hyderabad, India
- **Dr Manoj Jatav,** Research Fellow, SaciWATERS. Hyderabad, India
- **Mr Sumit Vij,** Research Fellow, SaciWATERS. Hyderabad, India
- **Ms Jyoti Nair,** Research Associate, SaciWATERS, Hyderabad, India.

### METHODS USED FOR FACILITATION

The workshop lasted for five days, with multiple sessions on each day. The following methods of facilitation were used.

**Interactive Sessions:** The sessions were interactive in nature. Each classroom session included class room lecture using power-point, followed by discussion of about 15 minutes. Participants were encouraged to take active part during the discussions.

**Group Exercises:** Participants were divided into different working groups with each country student in each group. For the field practicum, four groups were formed.

**Field Exposure:** A half day field visit was organized to provide exposure to participants on water irrigation project in Narayanganj- Narshingdi irrigation plant in Narayanganj.



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## CONTENT OF THE TRAINING SESSIONS

The programme was held for a total of five days, between 18-22 December, 2014, in Dhaka. Each day had multiple sessions; the programme agenda is provided in Annexure.

### DAY 1 : INAUGURAL SESSION

*Chief Guest: Prof Khaleda Ekram , Vice Chancellor, BUET, Special Guest : Dr Anamika Barua*



*Dr Shahjahan Mondal, (Assistant Professor, BUET):* Welcomed the dignitaries. He gave brief introduction to the training workshop.

*Dr Sultan Ahmed: (Former Doctoral SAWA Fellow)* was called upon to reflect his views on this SAWAS Fellowship program. He shared his experiences and how SAWAS Fellowship has helped him and other fellows in pursuing studies. Focused on

how SAWAS Fellowship gives exposure and helps understand the importance of inter disciplinary approach in water resource management.

*Dr Anamika Barua (Executive Director , SaciWATERs) :* Welcomed all to the workshop. She gave background of the IDRC SAWAS Fellowship. She pointed out that most of the interventions made are for the people to benefit, but most of the times these interventions have conflict with what people demand. Thus, the engineering institutes were chosen give the potential decision makers exposure to concepts of social science research. Water professionals need to be focused beyond technicalities. Gender focus within the fellowship is to encourage women to enter this field. She also encouraged the fellows to contribute to the SAWAS Journal.

*Dr Khaleda Ekram (Vice Chancellor, BUET):* Welcomed all the guests and expressed that she is happy to know of such initiative wherer SaciWATERs has joined hands with BUET to work on such a project to encourage students to take up work on Water resource management to meet the challenge of 21<sup>st</sup> century.

*Dr Tarekul Islam (Professor and Director – IWFM, BUET):* He noted that SAWAS training gives platform for capacity development of graduates in IWRM water security, food security, gender and climate change. The important component of the project is the Regional training as it provides opportunity for students to build network and build capacities. Thanked the VC to be able to attend the program

*Overview of the training program and programme details* of the coming five days was given by *Mr Sumit Vij, SaciWaters*. In this session all participants had an opportunity to introduce themselves to each other.

## **IWRM CONCEPTS AND PRINCIPLES: EXPERIENCES OF BANGLADESH BY PROF. REZAUR RAHMAN**

This presentation elaborated on the concepts and key issues of IWRM with a special focus on Bangladesh. Environmental and social effects of flood management were discussed. He noted that until quite some time Flood management was the considered key to IWRM in Bangladesh due to the recurrent flooding events, but this idea has changed with time.



## **GENDER IN IWRM (BANGLADESH) – DR SURIJIT BALA**

This presentation focused on the emphasis given in the National Water policy on participatory water management and role of women in the management. The focus was on integration of concept of gender equity into the water management policy and practice of irrigation, groundwater management, watershed management etc. Gender approach implemented under the IPSWAM project in Bangladesh was discussed.

## **OVERVIEW OF WATER RESOURCES MANAGEMENT IN INDIA – DR CAROLIN ARUL**

A brief overview of the status of water resources available in India was give, with the help of maps and climate related data. The presentation then looked into the causes of water related problems in India, such as the uneven distribution of water, pollution of freshwater resources, over extraction of groundwater etc. The efforts and challenges faced by the policy makers to address these issues, and what existing gaps were detailed. Additionally, problems such as flood and droughts, salinity, fluoride, ground water management, lack of drinking water resources, interstate and trans boundary water conflicts were elaborated on. The important aspect of climate change and its impacts in the Indian and Tamil Nadu contexts were discussed

## **OVERVIEW OF WATER RESOURCES MANAGEMENT IN NEPAL – MR ROBERT DONGOL**

The session discussed the current status of water resources management in Nepal. It was pointed out that Nepal was a water rich state in terms of availability of water resources, even if calculated on a per capita basis. An overview of the various plans and policies related to water instituted by the government of Nepal was given. The presentation pointed to electricity demand managed through hydropower. The presentation closed after mentioning a few initiatives in IWRM taken up in Nepal.

## DAY 2

The day began with a recap of the previous day's sessions by one student each from Bangladesh and India.

### OVERVIEW OF WATER RESOURCES MANAGEMENT IN SRI LANKA- DR N.D.K.

#### DAYAWANSA

The presentation gave an introduction into the climate and water balance of Sri Lanka, as well as a brief look into historical practices of water management therein. A historical overview of the evolution of water policy in the country was also presented. It mentioned the importance of minor irrigation systems such as small tank systems to water security in Sri Lanka. The presentation then mentioned the water allocation and distribution mechanism and policy at the central and local levels. The session ended after the issues faced in Sri Lanka in large scale water resource development were discussed.



### FOUNDATIONS OF RESEARCH AND DESIGNING RESEARCH : DR VISHAL NARAIN AND MR SUMIT VIJ

This session included the fundamentals of research and research design. This presentation gave an overview of research paradigm, essential steps of research design and ethics of research. Within the research paradigm students were given the basic know how of positivism, interpretivism. This also gave students introduction to how to conduct literature review and steps towards writing thesis.



Sumit Vij took a session on appreciative inquiry. The steps towards appreciative inquiry i.e. discovery, dream, design and delivery were discussed.

## **QUALITATIVE DATA ANALYSIS & WRITING: DR VISHAL NARAIN AND DR HAMIDUL HAQ**

In this session Dr Vishal Narain further elaborated the concepts of qualitative research. This presentation elaborated on the ethnographic methods. Principles of fieldwork such as methodological pragmatism, naturalization, socialization and researcher's personality were discussed. Steps in field work were elaborated upon along with the ways to deal with key informants. Need for sampling was introduced.

Students were introduced to the process of analysis of field notes and the steps involved in conversion of field notes to research article by Dr Narain and Sumit Vij.



Dr Hamidul Haq introduced the participants to the concepts of Participatory Research approach. The purpose of this session was to introduce the participants to tools and methods of participatory research as well as to highlight the importance of using participatory research methods. Mapping, diagramming and ranking tools were elaborated. Characteristics of focused group discussions, transect walk and resource and institutional mapping, were discussed with students participating in one such demonstration activity.

### **STATISTICAL SAMPLING:**

#### **DR M SHAHJAHAN MONDAL**

This session was aimed to introduce the basic concepts of sampling and introduce on how to select a sampling method. This session also involved problem solving exercises for the participants.



## **QUESTIONNAIRE DEVELOPMENT AND ADMINISTRATION: DR M SHAHJAHAN MONDAL**

This presentation was to build upon the concepts of social research through developing research questionnaire for field survey. The types of questionnaire, importance of relevance of questions to be asked, construction and administration of the questionnaire were discussed.

### **DAY 3**

#### **BRIEF OVERVIEW ON PROGRAMS OF IDRC : MR. ERIC SMITH**

Eric Smith gave the participants an overview of the programs on scholarships and fellowships under the aegis of IDRC.



#### **QUANTITATIVE DATA ANALYSIS : DR MANOJ JATAV AND DR. ANAMIKA BARUA**

This session gave the participants hands on training on the SPSS software. They were instructed on the fundamentals of using the software for statistical analysis. They were given demonstration on the data entry, data cleaning and data analysis using different statistical techniques such as central tendency, correlation etc.

#### **INTERDISCIPLINARY RESEARCH TOOLS/METHODS: BIO-PHYSICAL INVESTIGATION/ MEASUREMENTS : DR MASHEFIQUS SALEHIN**

This session gave the participants an overview of bio-physical measurements that are needed in order to accurately determine the sources, extent, dependability and quality of water resources for their utilization and control: supporting sustainable economic and social development whilst addressing the maintenance of environmental quality. The various primary and secondary sources for such data were also discussed, including free and reliable data sources that could be found online. The presentation ended with the statement An example of a water balance for a wetland was given along with the kind of data that was needed to estimate the water resource potential of the wetland.



## **INTRODUCTION OF FIELD STUDY SITES – DR SUJIT K BALA**

Narayanganj-Narshingdi (N-N) Irrigation Project is a flood control, drainage and irrigation project (FCDI). It had Phase-I (Area-A) & II (Area B) with gross area of 29,000 ha and 16,000 ha respectively. JICA carried out the feasibility study in 1978 and recommended for implementation. A demonstration unit (D/U) under Area-A of 1300 ha was completed in 1984 with grant from Japan through JICA and proved to be extremely benefitted for local people. So, Block-A<sub>1</sub> of Phase-I was completed in 1993 with an increase area of 3000 ha. The location map of the N-N project of Phase-I&II and D/U, A-1, A-2, A-3 and Area-B is shown in the next two slides. The purpose of the project was to protect homesteads and infrastructures from the monsoon floods of the Meghna and Lakhya Rivers and to promote high value and diversified agriculture, and to increase production of HYV monsoon rice.

### **Group work – SPQR**

In this session the participants were to form groups and prepare a research proposal based on the information gained in the previous session. This was done with the guidance of project faculty. Each group had to come up with a research question and identify qualitative and quantitative methods they would use in order to attempt to address the question.

## **DAY 4**

### **FIELD PRACTICUM – NARAYANGANJ- NARSHINGDI IRRIGATION SYSTEM**

Participants were split into four groups with different research questions that were to be answered. Participants then engaged members of the local community, the water users association, and other key informants in discussions and interviews with the help of the BUET students for translations. This exercise proved to be useful for the student as most had never experienced primary information collection.

## **DAY 5**

### **DATA ANALYSIS AND REPORT/PRESENTATION PREPARATION**

This session was the time given to participants in order to analyze the information collected through interviews and discussion during the previous day's field exercises. Students were expected to carry out analysis and present their findings on the same day.

### **Group Presentations**

This session completely involved presenting the results of the field exercises that were held. Participants were charged with making a presentation of their research findings and to describe the methodology they used in order to carry out the analysis.

- Group 1: Equity In Agricultural Benefit Sharing In The Area Of N-N Irrigation Project



- Group 2 : Assessment of Industrial impact on agricultural and Fisheries livelihood in the Narayanganj- Narshingdi Irrigation Project
- Group 3: Farmers' Participation In Narayanaganj-Narshingdi Irrigation Project
- Group 4 : Identifying the role of human interventions affecting the condition of embankment

After the presentations, each group was given feedback by Dr Salehin, Dr Anamika Barua and Dr Shahjahan Mondal, as to improvements and further steps. This exercise proved beneficial to the participants.

### **Closing ceremony**

The training programme thus drew to a close with the closing ceremony. Representatives from each partner institution, both students and faculty said a few words about the training programme. Dr Tarekul Islam and Dr Anamika Barua proposed the vote of thanks, after which certificates of participation were distributed to each participant.

# ANNEXURES

## ANNEXURE 1

### List of Student Participants

SL NO.	NAME		CURRENT E-MAIL ID
1	Hemalatha Murugesan	CWR, Anna University	hemalathamuruges@gmail.com
2	N.G.R.Saumyarathna	PGIA, Sri Lanka	ngrsaumyarathna@gmail.com
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21	Debanjali Saha	BUET, Dhaka	debanjalibuet@gmail.com
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23	Sumayyah Tehsin	BUET, Dhaka	sumayyah_tehsin@yahoo.com



## ANNEXURE 2

**PROGRAMME AGENDA**

<b>Day 1: December 18, 2014</b>		
<b>Session</b>	<b>Timing</b>	<b>Person Responsible/ Resource Person</b>
<b>Registration</b>	9:00 am - 9:30 am	BUET/ IWFM representatives
<b>Inauguration –Opening Remarks /About SAWA Fellowship Program/ Significance of SAWA</b>	9:30 am -- 11:00 am	Welcome: Coordinator, IWFM Chief Guest: VC, BUET Anamika Barua (SaciWATERS) Chair: Director, IWFM
<b>Tea Break 11:00 am –11:30 am</b>		
<b>Overview of the training program</b>	11:30 am –11:45 am	Anamika Barua
<b>IWRM: Experiences of Bangladesh</b>	11:45 am–1:00 pm	RezaurRahman
<b>Lunch 1:00 – 2:00 pm</b>		
<b>Gender in IWRM (Bangladesh)</b>	2:00 pm –3:15 pm	Sujit K. Bala
<b>Refreshment 3:15 pm -3:30pm</b>		
<b>Overview of Water Resource Management in India</b>	3:30 pm –4:15 pm	Carolin Arul
<b>Overview of Water Resource Management in Nepal</b>	4:15 pm –5:00 pm	Robert Dongol

<b>Day2: December 19, 2014</b>		
<b>Review of day 1</b>	9:00 am – 9:15 am	Sawa Fellows
<b>Overview of Water Resource Management in Sri Lanka</b>	9:15 am – 10:00 am	NDK Dayawasana
<b>Foundations of Research and Designing Research</b>	10:00 am –11:00 am	Vishal Narain& Sumit Vij
<b>Tea 11:00 am –11:30 am</b>		
<b>Qualitative Research: Methods and tools</b>	11:30 am –1:00 pm	Vishal Narain&HamidulHaq

<b>Lunch 1:00pm – 2:00 pm</b>		
<b>Qualitative data analysis &amp; writing</b>	2:00 pm – 3:00 pm	Vishal Narain & Sumit Vij
<b>Statistical Sampling</b>	3:00 pm – 3:45 pm	Shahjahan Mondal
<b>Refreshment 3:45 pm - 4:15 pm</b>		
<b>Questionnaire development and Administration</b>	4:15 pm – 5:00 pm	Shahjahan Mondal Confirmed
<b>Cultural Program</b>		

<b>Day 3: December 20, 2014</b>		
<b>Review of day 2</b>	9:00 am – 9:15 am	Sawa Fellows
<b>Quantitative data analysis</b> 1. Basics on statistics and probability 2. Data entry 3. Data cleaning/ placing 4. Data analysis (Descriptive statistics, Correlation, ANOVA, Regression)	9:15 am – 11:00 am	Anamika Barua and Manoj Jatav
<b>Tea 11:00 am – 11:30 am</b>		
<b>Bio-physical research tools</b>	11:30 am – 12:15 pm	Mashfiqus Salehin
<b>SPQR</b>	12:15 pm – 1:00 pm	Mashfiqus Salehin NDK Dayawansa
<b>Lunch 1:00 pm – 2:00 pm</b>		
Brief introduction on the field site	2:00 pm – 2:30 pm	Sujit K. Bala
<b>Preparation by students for the field work: Short Proposals</b> Including the presentations by the students	2:30 pm – 5:00 pm	Mashfiqus Salehin NDK Dayawansa

<b>Day 4: December 21, 2014</b>		
<b>Field work</b>	All day	
<b>Day 5: December 22, 2014</b>		
<b>Preparatory session for students</b>	9:00 am –1:00 pm	MashfiqusSalehin & NDK Dayawansa
<b>Lunch 1:00pm –2:00pm</b>		
<b>Presentation from the students</b> (30 minutes presentation followed by the discussion)	2:00 pm –4:00 pm	MashfiqusSalehin NDK Dayawansa Anamika Barua
<b>Closing and certificates</b>	4:00 pm -- 4:30 pm	Director, IWFM
<b>Site seeing 5:00 pm onward</b>		