

1. Name of the programme: “Hands on Training on college students for analysis of Environmental parameters- Soil and water analysis with NERIWALM”

2. Date: 01/01/2019 to 05/01/2019

3. Organized by: “Career Counselling and Placement Cell”, B. N. College, Dhubri. (In collaboration with NERIWALM, Tezpur)

4. Numbers of participant: 04 (student)

5. Venue: NERIWALM, Tezpur

A brief report on the visit to NERIWALM
for
**“Hands on Training for college students for Analysis of
Environmental Parameter-Soil and water analysis”**

Submitted to
IQAC,
B. N. College
Dhubri, Assam



Submitted by
Dipangkar Borah
Assistant Professor
Department of Physics
B. N. College

About the host institute

The NERIWALM (North Eastern Regional Institute of Water and Land Management) is a registered society established on 23rd December, 1989 at Tezpur, Assam, India under the aegis of North Eastern Council (NEC), Shillong, Ministry of Development of North Eastern Region (DoNER), Government of India. A historic MoU was entered upon by the Ministry of Water Resources (MoWR), Government of India with the North Eastern Council and the Development of North Eastern Region ministry on 01 June, 2012 in New Delhi by which NERIWALM is taken over by the Ministry of Water Resources w.e.f. 1st April, 2012 as a capacity building institution in the field of water and land management for Irrigation and Agriculture development.

The Institute primarily provides capacity building support in all the area of natural resources management irrigation water management, in situ conservation of rain water, water harvesting, dry land farming, engineering and bio intervention for soil conservation and eco restoration, micro irrigation, organic farming, amelioration of ground water contamination etc.

About the training program

The program “Hands on Training for college students for Analysis of Environmental Parameter- Soil and water analysis” is basically the outcome of the MoU signed between Assam College Principal Council (ACPC) and MERIWALM. The program was aimed to ensure the both theoretical and practical aspect of water and land testing. Students were selected from various degree colleges of Assam so that the trained students can deliver their knowledge in their respective areas and make people aware of it.

Tenure of the program	: 5 days (From 01.01.19 to 05.01.19)
Venue of the program	: NERIWALM, Tezpur
Selected student from B. N. College	1. Subham Saha 2. Anaruzzaman Khan 3. Anupam Roy 4. Abdul Latif Ahmed
Teacher representative	: Dipangkar Borah

The training program was scheduled as following,

1st January, 2019

- Basics of soil and water science.
- Sampling of soil and water.
- Analysis of physical parameters – pH, Electrical Conductivity (EC), Soil Moisture and Soil Texture.

2nd January, 2019

- Analysis of hardness and organic Carbon analysis in soil.
- Analysis of available Nitrogen in soil.
- Reading of soil moisture.
- Soil texture.

3rd January, 2019

- Extraction and analysis of Nitrate in soil.
- Extraction and analysis of heavy metals and micronutrients.
- Soil texture.

4th January, 2019

- Extraction and analysis of Sodium and Potassium in Soil by Flame Photometer.
- Analysis of Phosphate and Sulphate in soil and water by UV-Visible Spectrophotometer.
- Soil Texture.

5th January, 2019

- Feedback from students about the institution and the course programme.
- Panel discussion on eco-restoration and analytical outputs.
- Certificate distribution.
- Site visit.

Brief description of the instrument covered under the training,

1. BOD Incubator

BOD Incubator (Bio-Oxygen Demand) are used to maintain temperature for test tissue culture growth, storage of bacterial cultures and incubation where high degree of constant temperature accuracy is required.



2. Hot Air Oven

Hot air ovens are electrical devices which use dry heat to sterilize. They were originally developed by Pasteur. Generally, they can be operated from 50 to 300 °C, using a thermostat to control the temperature. Their double walled insulation keeps the heat in and conserves energy.



3. Shaker Machine

A shaker is a piece of laboratory equipment used to mix, blend, or agitate substances in a tube or flask by shaking them. It is mainly used in the fields of chemistry and biology. A shaker contains an oscillating board that is used to place the flasks, beakers, or test tubes. Although the magnetic stirrer has lately come to replace the shaker.



4. Electrical Conductivity Meter

An electrical conductivity meter (EC meter) measures the electrical conductivity in a solution. It has multiple applications in research and engineering, with common usage in hydroponics, aquaculture, aquaponics, and freshwater systems to monitor the amount of nutrients, salts or impurities in the water.



5. Pocket pH Meter

A pH meter is a scientific instrument that measures the hydrogen-ion activity in water-based solutions, indicating its acidity or alkalinity expressed as pH. The pH meter measures the difference in electrical potential between a pH electrode and a reference electrode, and so the pH meter is sometimes referred to as a "potentiometric pH meter". The difference in electrical potential relates to the acidity or pH of the solution.

6. Nitrogen Analyzer

A Nitrogen Analyzer is a scientific instrument which can determine the elemental concentrations in a given sample. It is used to measure nitrogen. Sample sizes are most often just a few milligrams, but may differ depending on system. For some sample matrices larger mass is preferred due to sample heterogeneity.

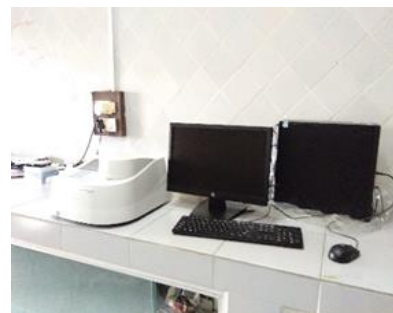


7. Atomic Absorption Spectrophotometer

Atomic absorption spectroscopy (AAS) is a spectroanalytical procedure for the quantitative determination of chemical elements using the absorption of optical radiation (light) by free atoms in the gaseous state. Atomic absorption spectroscopy is based on absorption of light by free metallic ions.

8. UV-Visible Spectrophotometer

Ultraviolet-visible spectroscopy (UV-Vis) refers to absorption spectroscopy or reflectance spectroscopy in the ultraviolet-visible spectral region. This means it uses light in the visible and adjacent ranges. The absorption or reflectance in the visible range directly affects the perceived color of the chemicals involved. In this region of the electromagnetic spectrum, atoms and molecules undergo electronic transitions.



9. Flame Photometer

A photoelectric flame photometer is a device used in inorganic chemical analysis to determine the concentration of certain metal ions, among them sodium, potassium, lithium, and calcium. Group 1 and Group 2 metals are quite sensitive to Flame Photometry due to their low excitation energies.



10. Ion-Selective Electrode

An ion-selective electrode (ISE), also known as a specific ion electrode (SIE), is a transducer (or sensor) that converts the activity of a specific ion dissolved in a solution into an electrical potential. The voltage is theoretically dependent on the logarithm of the ionic activity, according to the Nernst equation. Ion-selective electrodes are used in analytical chemistry and biochemical/biophysical research, where measurements of ionic concentration in an aqueous solution are required.



Few moments captured during the training period



Certificate after successful completion of the training



Certificate



This is to certify that

Anaruzzaman Khan

has successfully completed the Hands on Training for college students on Analysis of Environmental Parameters – Soil and Water Analysis from January 1 to 5, 2019 at Tezpur.

Organized by North Eastern Regional Institute of Water and Land Management, Tezpur, in collaboration with Assam College Principals' Council (ACPC).

January 5, 2019



**NORTH EASTERN REGIONAL INSTITUTE
OF WATER AND LAND MANAGEMENT**
An institute under the Ministry of Water Resources, River
Development and Ganga Rejuvenation, Govt. of India

Pankaj Barua
Director

*North Eastern Regional Institute
of Water and Land Management*

Certificate

This is to certify that

Shri Subham Saha

has successfully completed the Hands on Training for college students on Analysis of Environmental Parameters – Soil and Water Analysis from January 1 to 5, 2019 at Tezpur.

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A handwritten signature in blue ink, appearing to read 'Pankaj Barua', is written over a horizontal line.

Pankaj Barua
Director

*North Eastern Regional Institute
of Water and Land Management*

The Group

