

**ROW Foundation/SOA Environmental Training Workshop and Site Visit, Bhubaneswar,
February 11-12, 2020**

Location: Sikshya O Anusandhan University, Bhubaneswar, Odisha

This 1 ½ -day workshop by the Rivers of the World (ROW) Foundation (USA) in collaboration with the Siksha O Anusandhan (SOA) University, Bhubaneswar, Odisha, will include a comprehensive training in water and waste management area. It will include medical waste management, wetland treatment systems, stream restorations and waste to energy topics. It should provide ideas and incentives for the new and upcoming professionals to begin these hands on practice for protecting the environment and make the local town/community a keystone model for renewable energy and green environment. The Workshop will be followed by a nearby Site visit/water testing of local river/stream on February 12th, Wednesday.

The experts from US, and India, will travel to Bhubaneswar to provide the training. The SOA University along with local organizations/NGOs and community leaders/organizations will provide the local hospitalities, facilities and related support for the training.

For the **final program and registration** information please visit <https://rowfoundation.org>, or write to rowfoundation@gmail.com. You can also contact Dr./Prof. Anup Samantaray at dean.ibcs@soa.ac.in

Tentative Agenda

Day 1 (February 11, Tuesday, 2020) (10:00 AM – 5:30 PM)

- 4. Introduction & Scope (1.0 hr)**
 - a. Opening Remarks (Local – VC/Dr. Mallick/Dr. Samantaray SOA)
 - b. Introduction (Local - TBA)
 - c. Overview of the training (Subijoy Dutta, Bill Roper(from remote) and Matt Perry)
– Brief Summary

- 5. Water Treatment Systems – (1hr. 30 min)**
 - a. Drinking Water -Subijoy Dutta, P.E.
 - b. Wastewater Treatment - Dr. Prakasam Tata
 - c. Wetland Treatment Systems – Dr. Matthew C. Perry

- 6. Municipal Solid Waste – WTE Management (30 minutes)**
 - a. MSW - Options for treating/Disposal of MSW - Subijoy Dutta
 - b. Landfill closure/cover systems and Site selection - Subijoy Dutta

- **Lunch (1 – 2 PM)**

- **Water Resources Management and WQ Improvement (1 hr.)**
 - a. Stream and River restorations – Matthew C. Perry
 - b. Water Quality/Quantity Management and Monitoring – Subijoy Dutta

- **Current Odisha Water/River Activities (30 minutes)**
 - a. Flood damages and impacts in 2019 – Dr. Anup Samantaray
 - b. Interaction with Local NGOs – Dr. Samantaray/others
- **Renewable and Waste to Energy Options (1 hr.)**
 - a. Waste to Energy plants - Subijoy Dutta
 - b. Renewable Energy Options – Solar/Wind
- **Industrial, Municipal and Medical Waste – Block Level Management - (1 hr.)**
 - a. Block Level rural education and awareness – Dr. Kamal Taori
 - b. Industrial/Municipal Waste management - Subijoy Dutta
 - c. Medical Waste Management – Subijoy Dutta

Day 2 (February 12, Wednesday, 2020)

(9:30 AM – 5:30 PM)

- **Review of Day 1 (15 minutes) (Roper, Dutta, & Tata)**
- **Water Treatment Technology Operations and Remote Sensing (1 hr.)**
 - a. Wastewater treatment plant – Operations/Operator’s perspective (Dr. Tata)
 - b. Remote Sensing Technologies [Bill Roper (non-attending) and Subijoy Dutta]
- **Climate Change (30 Minutes)**
 - a. Global Climate Change (Dutta)
 - b. Use of Environmental Indicators to Monitor Issues (Roper/Dutta)
- **Testing & Evaluation (1hr. 30 minutes)**
- **Lunch (1 – 2 PM)**
- **Award of Certificates to 2019 participants (30 minutes)**
- **Valediction 2:30 PM**

Site Visits

(2:30 – 3:30 PM) – Tentative Visit to a nearby stream and show/demonstrate Water testing using digital TDS meter. Field Visit to Local Lakes and Rivers to follow with NGOs and Others.

Proposed Course

This course should provide answers to many of the above items for the participants. This should have a direct benefit in their knowledge and understanding of environmental problems, issues, and possible remedies. The participants will have an evaluation at the end of the training to confirm their learning and comprehension of the specific subject area of their interest. Upon successful completion of the two-day program, the participant should have a clear understanding of the following –

A. General -

- Appropriate scientific rules and methods adopted to solve problems.
- The logic and reasoning used to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.
- Technical sentences and paragraphs in professional documents.
- Verbal communication to convey information effectively
- Active listening with full attention to what other people are saying, taking time to understand the points made.
- Raise questions at right time, and not interrupting at inappropriate times.
- Basics of - water treatment systems, Municipal Solid Waste management, Alternative Energy, Path to human wellbeing and environmental education/awareness.

B. Technical (Water and Environment)

- Drinking Water Treatment technologies –
 - Natural Filtration, Riverbank Filtration, Sand Filters, Membrane Filtration, Solar Distillation, Solar pasteurization
- Wastewater Treatment technologies -
 - Standard clarifier, degradation, sludge removal system; a few other alternatives, and installations in India
 - Other innovative treatment systems – Deep Pond system, Wetland-based treatment systems, and upcoming technologies and future developments
 - Wastewater treatment plants – operations issues and operator training needs.
- Storm water management alternatives – current practices

- Water Quality Testing and Monitoring – Tools and Techniques
- Municipal Waste Management –
 - Door to Door Collection, segregation at source, composting, waste to energy alternatives, and possible funding sources/agencies.
- Renewable and waste to Energy
 - Waste to Energy – evolving technologies towards safe conversion of waste to energy
 - Solar, Wind, and other alternatives
- Hazardous Waste Management –
 - Serious health impacts of hazardous wastes, need for proper management, systematic, safe handling and collection of household hazardous waste
 - Environmental treatment technologies for remediating hazardous wastes
- Medical Waste Management –
 - Identification and Categorization of Medical Waste
 - Segregation of Medical Waste
 - Minimization, Treatment and disposal of Medical Waste
 - Education and Training of Medical professionals

Day 2

- Review of Day 1 (15 minutes) (Roper, Dutta, & Tata)
- Water Treatment Technology Operations and Remote Sensing (1 hr.)
 - c. Wastewater treatment plant – Operations/Operator’s perspective (Dr. Tata)
 - d. Remote Sensing Technologies [Bill Roper (non-attending) and Subijoy Dutta]
 - i. Hyperspectral analysis of streambeds, hifidelity image processing by AVIRIS (NASA) and Indian ISRO for science and application research.
 - ii. Hyperspectral analysis of algal growth in water, forest cover and vegetation.
- Climate Change (30 Minutes)
 - a. Environmental Problems/Climate Change Factors

b. Some relevant studies and simple local observations of sea-level/temperature rise over a period of time, trend analysis

c. Climate Monitoring, State of the Climate by NOAA

- Environmental Indicators-
 - a. Use of Environmental Indicators to Monitor Issues (Roper/Dutta)
- Testing & Evaluation (1hr. 30 minutes)
- **Lunch (1 – 2 PM)**
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