

DRAFT
Groundwater issues and the impact of tsunami on water, soil and vegetation

Joint Collaboration between NSF-US and NSF-Sri Lanka

US Panel Visit, Workshops and the Conference

Current Sponsors:

- **National Science Foundation – United States**
- **National Science Foundation - Sri Lanka**
- **Soil Science Society of Sri Lanka**

1. Pre-workshop preparation organized by NSF-Sri Lanka

Objective: To coordinate and develop a consensus on key scientific issues on groundwater to be discussed at the two September workshops. This will be achieved through (a) the development of several white papers on the current understanding of key themes on groundwater with emphasis on the impact of tsunami; and (b) conducting a brainstorming session among the Sri Lankan scientists and engineers to finalize the white papers and prepare presentation material for the workshop. At the conclusion of this brainstorming session, key Sri Lankan speakers who will present the material at the September workshop should be identified. All white papers should be forwarded to the Principal Investigators of US NSF project to be distributed among the US panel members two weeks prior to the September workshop to be used as background and preparatory material for them to organize their presentations to focus on the critical and relevant issues.

The suggested themes are shown in the table below:

Topic	Suggested Speaker
<ul style="list-style-type: none">• Overall assessment of the spatial distribution of inundation and wave height associated with the tsunami• New phenomena associated with tsunami needing scientific research	Professor Ananda Gunatilaka
<ul style="list-style-type: none">• Current and expected water demands as a result of tsunami and the constraints for development of new and/or alternate sources (ground and surface water)	R.S.C George or someone else from NWSDB, NWRA or WRB

<ul style="list-style-type: none"> • Pre- and post-tsunami findings of the temporal and spatial characteristics of salt water intrusion • Current understanding of the geology and the hydrogeology of the coastal belt affected by the tsunami • Current understanding of geochemistry (geochemistry) of coastal aquifers 	Dr. Atula Senaratne, WRB Dr. Karen Villholth, IWMI
<ul style="list-style-type: none"> • State of groundwater (quantity and quality) modeling with particular emphasis on coastal belt 	Dr. S.B. Weerakoon or someone else from EFAC, Peradeniya or EFAC, Moratuwa
<ul style="list-style-type: none"> • Pre- and post tsunami salinity effects on agricultural lands (both coastal and uplands) 	Prof. Ranjith Mapa, Soil Science Society of Sri Lanka and University of Peradeniya
<ul style="list-style-type: none"> • Post tsunami effect of sea waves on inland vegetation and mangroves (both physical and biological) 	To be determined
<ul style="list-style-type: none"> • Current state of water quality monitoring and laboratory facilities in Sri Lanka 	Dr. A. M. Mubarek, ITI
<ul style="list-style-type: none"> • Findings of the “brown report” and the “green report” sponsored by government agencies and the universities 	Dr. Mahesh Jayaweera, University of Moratuwa
<ul style="list-style-type: none"> • Current state of GIS and Remote Sensing capabilities in Sri Lanka 	Dr. Sohan Wijesekera, University of Moratuwa
<ul style="list-style-type: none"> • Current understanding of the surface water and groundwater interaction in coastal watersheds 	Dr. Karen Vilholth, IWMI?
<ul style="list-style-type: none"> • Economic impacts of tsunami on groundwater utilization 	To be determined
<ul style="list-style-type: none"> • Existing academic and research programs in Sri Lankan Universities on relevant or related topics 	Prof. Sirimali Fernando or designee

Dates: July 3 through September 1st

Facilitator: Professor Ananda Gunatilaka, NSF – Sri Lanka

Location: NSF-Sri Lanka

Suggested Participants:

Professor Sirimali Fernando

Dr. Atula Senaratne, WRB

Dr. Karen Villhoth, IWMI

Dr. Panabokke, IWMI and WRB

Professor Ranjith Mapa, University of Peradeniya
Dr. S.B. Weerakoon, University of Peradeniya
Mr. R.S.C George, NWSDB
Dr. Mubarak, and Dr. Peris?
Professor D.C.H Senarath
Dr. Sohan Wijesekera
Dr. Mahesh Jayaweera
Prof. Kapila Gunasekara, VC, University of Peradeniya
Prof. Nimla Gunawardena, University of Peradeniya
Other scientists invited by NSF-Sri Lanka to cover above thematic areas

2. First Workshop

Objective: The goal of this workshop is to educate the US participants about the key scientific issues developed through pre-workshop activities described above. The workshop will be facilitated by NSF-Sri Lanka and will include a series of presentations by pre-assigned Sri Lankan scientists and engineers. The topics included for presentation should cover all the thematic areas providing the US team members with a thorough understanding of the scientific and technical issues associated with groundwater with emphasis on tsunami impacts. Assistance will be provided by US-NSF project leaders to prepare the agenda and conduct the workshop.

Time & Date: 2pm-6pm, September 19, 2005

Facilitators: Professor Ananda Gunatilaka, NSF – Sri Lanka, and Professor Ranjith Mapa, Soil Science Society of Sri Lanka

Location: Soil Survey Laboratory & SRICANSOL Resource Center, University of Peradeniya

Suggested participants:

Key speakers identified for presentation of thematic areas and others who can contribute the discussions

3. Field Visit by US Panel Members

Objective: Provide a first-hand look at the affected areas

US Team will visit the tsunami affected areas to get first hand information on impacts of tsunami waves on water supply sources, groundwater, soil and vegetation. The field trip will commence immediately after the first workshop. The site visits will include, but are not limited to, Muruthumunai near Kalmunai, Komari, Pottuville, Arugambay, Hambantota, Kirinda, Galle, and Hikkaduwa area. Along the route, the team will stop at various locations to inspect dug wells, natural vegetation, and croplands affected by the tsunami. They will also meet with officials from the National Water Supply and Drainage Board and local officials to discuss the water supply situation and salt water

intrusion issues. During the field trip, the team will also talk to engineers and geologists from Water Resources Board to inspect any drilling operations and discuss site-specific conditions of hydrogeology and geochemistry.

Dates: September 20-21, 2005

Facilitator: Prof Ananda Gunatilaka, NSF (Coordinate with NWSDB, Eastern University, WRB, and possibly Irrigation Department)

Locations:

Day 1: Start from Kandy early morning, drive to Kalmunai area, and inspect sites along eastern highway. Stay the night at Arugambay

Day 2: Inspect tsunami impacted areas along Galle Road starting from Hambantota area. The sites to be visited should include Kirinda, Matara, Galle, and Peraliya. Arrive in Colmobo at night.

Suggested Participants:

US Team

Professor Ananda Gunatilake

Others familiar with individual sites

4. Second Workshop

Objective: To provide the state-of-the-art of the thematic areas by the US team members. This will also allow US Team members to provide their input on the scientific issues identified by the Sri Lankan team. At the end of each presentation by one or more US Team member, a panel discussion will be held to brainstorm recommendations from the two workshops. The topics and the presentation details will be developed after the US team is fully identified and committed.

Date: September 22, 2005

Facilitators: Prof. Tissa Illangasekare and Dr. Jayantha Obeysekera

Location: Colombo (to be arranged by NSF-Sri Lanka)

Suggested Participants:

All participants of the First workshop

Organizing committee members

Interested technical personnel from relevant agencies

5. Conference

Objective: Disseminate the workshop findings to the general public

It is expected that the Hon. Minister of Science will participate in a press-conference

style meeting to present the findings of the join US-Sri Lanka project funded by the National Science Foundation of each country. At this meeting, selected members of the US and Sri Lankan teams will present the findings to the general public and the invited members of the media.

Time & Date: 9 am – 12 noon, September 23, 2005

Facilitator: Professor Sirimali Fernando

Location: Colombo (to be arranged by NSF-Sri Lanka)

Suggested Participants:

Members of the public and media invited via a newspaper announcement? (Perhaps the NSF media department can organize this)