**Project Background**

- The WASH Benefits Study Bangladesh is one of the largest randomized control trials to focus on water, sanitation and hygiene issues.
- Three out of eight of the WASHB intervention arms will use point of use water treatment with sodium dichloroisocyanurate (NaDCC) tablets, a solid form of chlorine.
- 97% of the Bangladeshi population relies on groundwater as their main source of water. There are an estimated 6-11 million tube wells across the country (British Geological Survey).
- Elevated concentrations of chemicals such as iron can increase the chlorine demand for treating water.
- Preexisting data on iron concentration in groundwater in tube well water from a 1998/9 geological survey which was used to select WASHB trial sites may no longer be accurate.

**Project Goals**

Data on iron levels from the 1998-99 British Geological Survey formed the basis for the WASHB site selection strategy. Two key assumptions were made about this data: 1) the iron levels are still valid, 2) areas adjacent to low iron areas in the 1998/99 study also have low iron levels. The central goal of this project is to verify whether the iron data from the 1998/99 study is still valid.

**Expected Outcomes**

This study aims to achieve the following:
1. determine the ideal chlorine dosing for water that does not produce the desired chlorine residual after treatment at a rate of 20L with one NaDCC tablet,
2. assess the validity of self-reported iron presence and staining of water storage vessels as a screening tool for high iron,
3. compare the 1998/9 British Geological Survey iron concentration levels results with the new iron levels.

**Populations/Communities Served**

WASHB is targeting young children and their mothers/guardians living in 10 districts including villages in Gazipur, Kishorgonj, Manikganj, Mymensingh, Tangail, Netrokona, Pabna, Sirajganj, Natore and Bogra districts of Bangladesh where communities meet the following study criteria:
- Rural communities
- Drinking water has:
  - Low levels of iron and arsenic
  - Sources know to be frequently contaminated with fecal indicator bacteria
  - Low levels of fully hygienic latrine coverage
  - Levels of childhood stunting > 30%

The Iron Measurement and Chlorine Dosing Study will focus on Gazipur, Tangail and Mymensingh districts, the first three targeted districts of the WASHB trial.

**Project Timeline**

- April 2012: WASHB Baseline Trial begins
- Early May 2012: Meet with WASHB team to discuss project; Design protocol for iron measurement and chlorine dosing study
- Late May-July 2012: Phase 1
- Late July 2012: Draft report of Phase 1 findings; prepare for Phase 2
- September -October 2012: Phase 2
- November 2012: Draft report of Phase 2 findings

**Progress to Date**

- As of July 20 2012 Phase 1 was completed. Phase 1 involved:
  - Testing in three sub-districts (Kaligonj, Kapasia and Sreepur) of Gazipur district,
  - 264 tube wells in 66 villages were tested for iron, treated with one 33 mg NaDcc tablet and tested for chlorine residual.
  - A draft of the Phase 1 report and preliminary data analysis has been completed and presented to key partners.
  - Data analysis for Phase 1 data is continuing.
  - Planning and organization is taking place for Phase 2 of the study.

**Next Steps**

- Oversee Phase 2 data collection via email and skype conferencing with field team
- Carry out in-depth analysis of data collected during Phase 1 and Phase 2
- Compose final report and distribute it to partners
- Disseminate data on iron levels to icddr,b for use on future projects

**Project Partners**

- Abu Mohammed Naser Titu; Leanne Unicomb, PhD; Steve Luby, MD; Water, Sanitation and Hygiene Research Group, Centre for Communicable Disease at the International Centre for Diarrhoeal Disease Research, Bangladesh
- WASH Benefits Team
- UC Davis and the Gates Foundation
- Emory Global Health Institute