

**8th Meeting of the GEOSS AWCI ICG and the 1st AWCI
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**Scopes of Water Quality in
Integrated Water Resources
Management and CC Adaptation:
Bangladesh Perspectives**

Bilqis Amin Hoque

**Professor and Dean, SEDS, Uttara University &
President of Environment and Population Research Centre**

Background

- Water quality recognized but limited progress
- Flood intensity increasing. Impacts on WQ?
- Adaptation to climate impacts on GW resources has not received adequate attention
- Substantial changes in the hydraulics, water level, demand and water quality of GW also
- Saltwater and other contaminant transport
- Proposed data needs/structures
- AWCI- WQ group; thanks to Prof Koike

Purpose & Method

- Discuss: (i) the scopes of WQ in IWRM, MDG and CC Adaptation based on Bangladesh experience---mainly domestic water (ii) probable concept
- Sources of data: UNICEF and EPRC projects

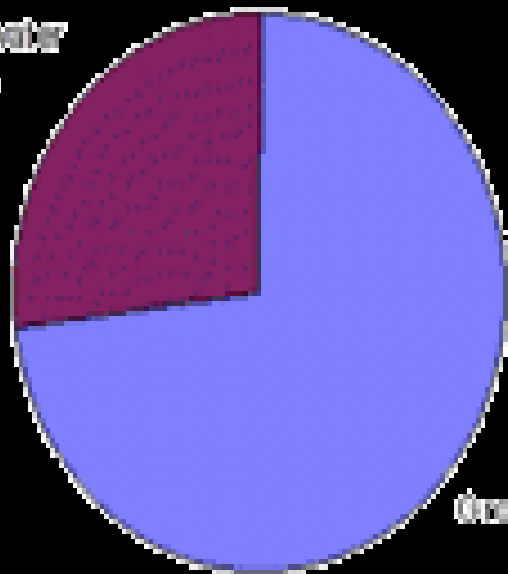
Bangladesh Water Resources and Uses

- 93% of catchments area outside
- Approx. 85% between June-October
- Water use: 86% agric., 12% drinking and 2% industry
- Domestic water uses both GW (drinking) and SW
- Boro paddy/most agric. activities during winter-dry
- Winter agric./rice irrigation mostly GW
- Temp. increased during Dec-Feb
- WQ and WQ not uniformly distributed
- Water table declining
- Bangladesh policy for SW and conjunctive use
- WQ monitoring rarely done

Water Use in Bangladesh

FIGURE 2
Water supply by source

Surface water
27%

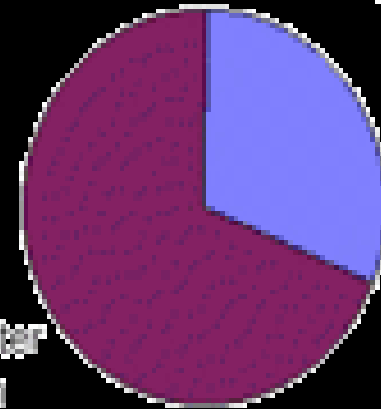


Groundwater
73%

Total water withdrawal

FIGURE 4
Type of irrigation
Total: 3.25 million ha in 1995

Surface water
irrigation
21%

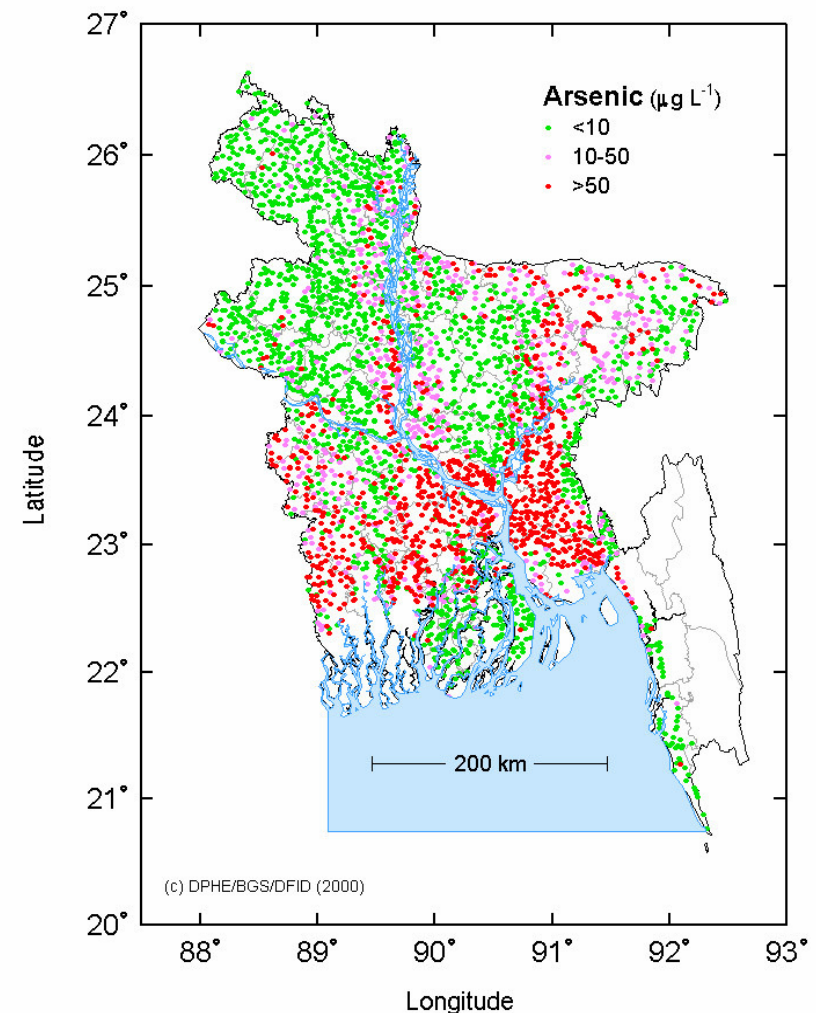


Groundwater
irrigation
79%

Irrigation Water

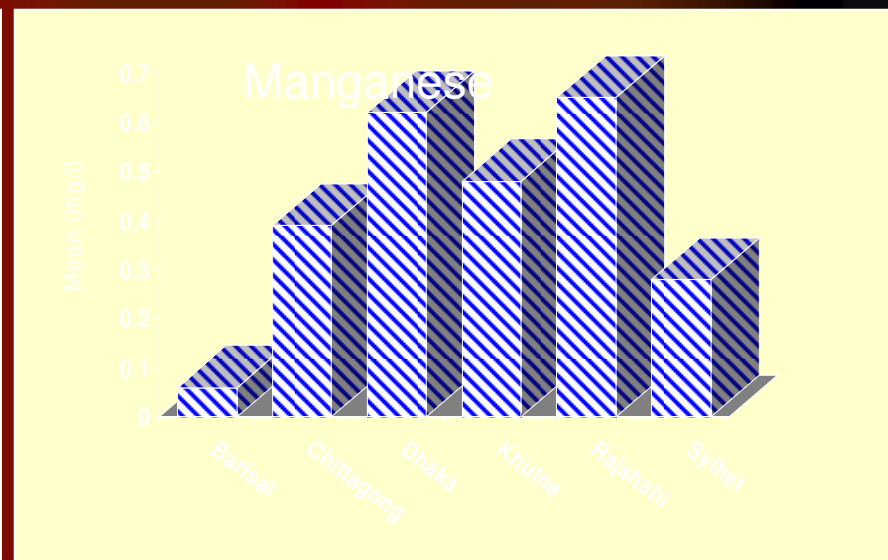
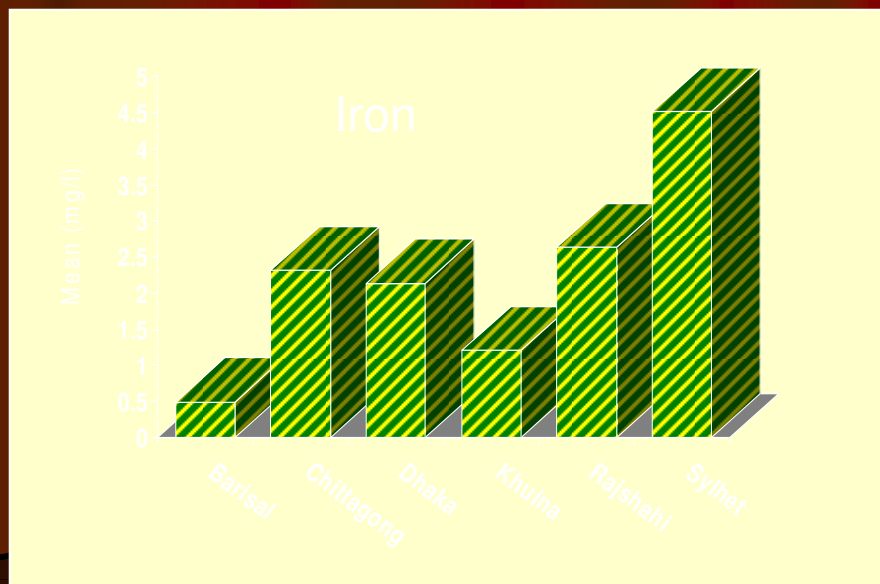
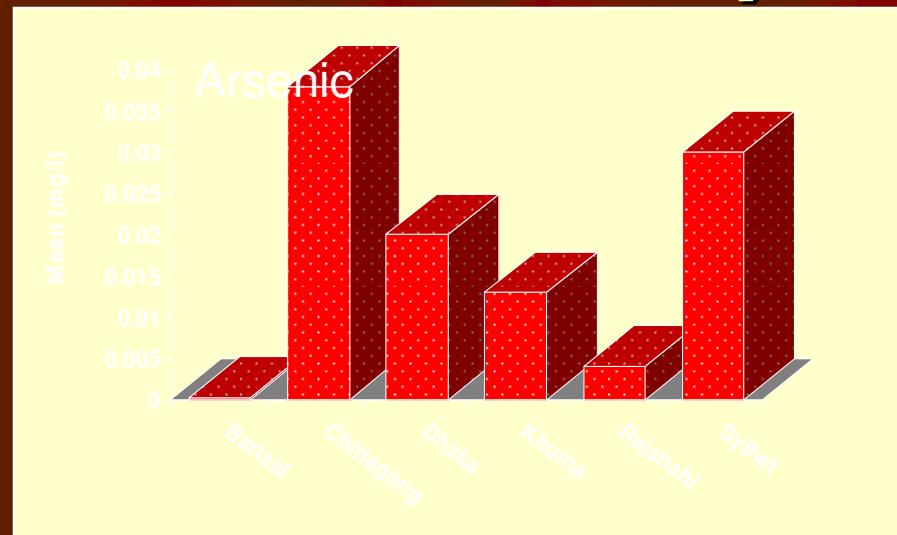
Drinking Water Supply: Arsenic Contamination (1999-2001)

- **Safe Water Supply in 1999:**
 - Rural: 97%
 - Urban: 99%
- **Detected in 1993**
- **29% of HPs affected**
- **61 out of 64 district**
- **28- 60 M. people**
- **Urban Popn. 3.4 M**
- **Challenge: providing access to water that is both chemically and biologically safe**



Source: BGS, et al 2001

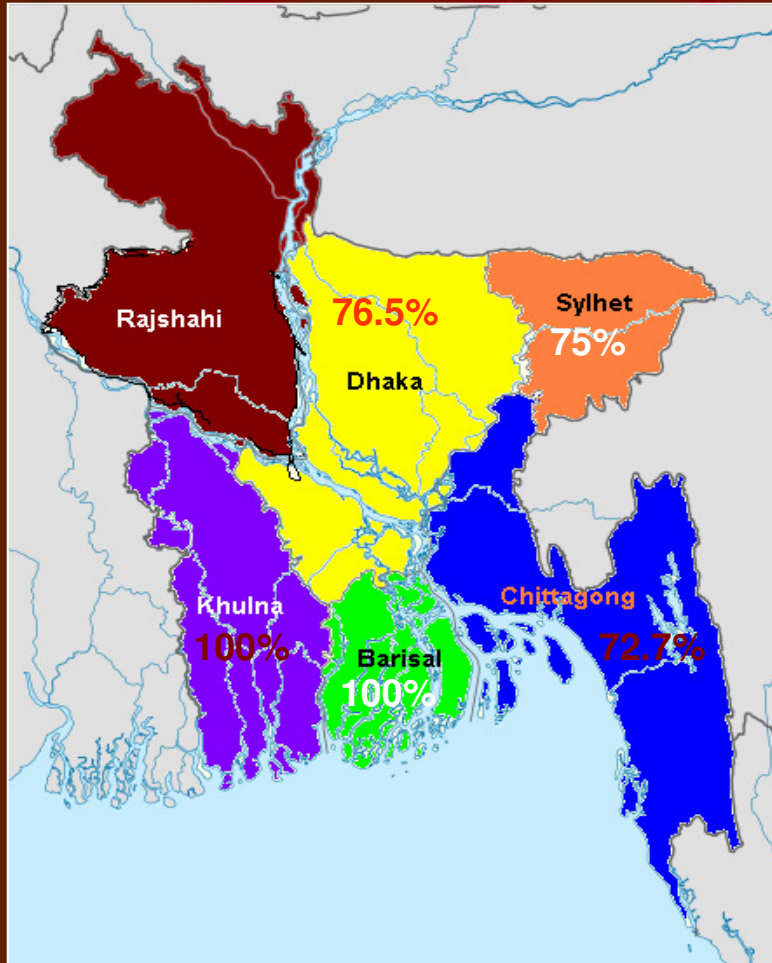
Mean of values at Divisional level (UNICEF 2009)



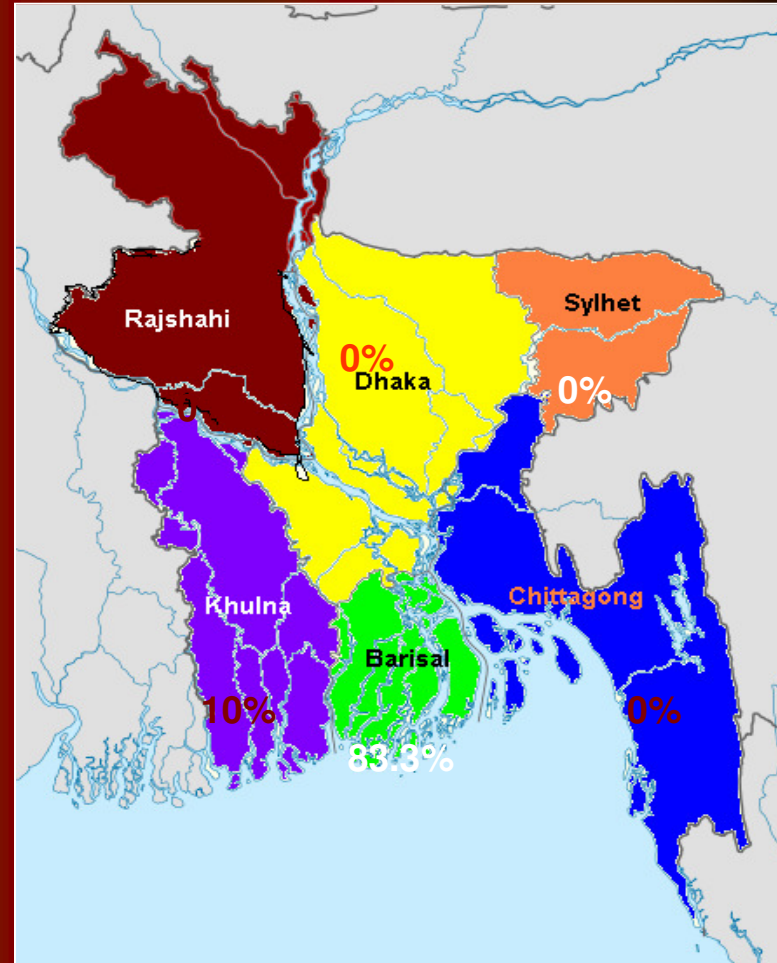
Source: UNICEF 2009

Arsenic & Other WQ (%) at 75th Percentile

Arsenic safe



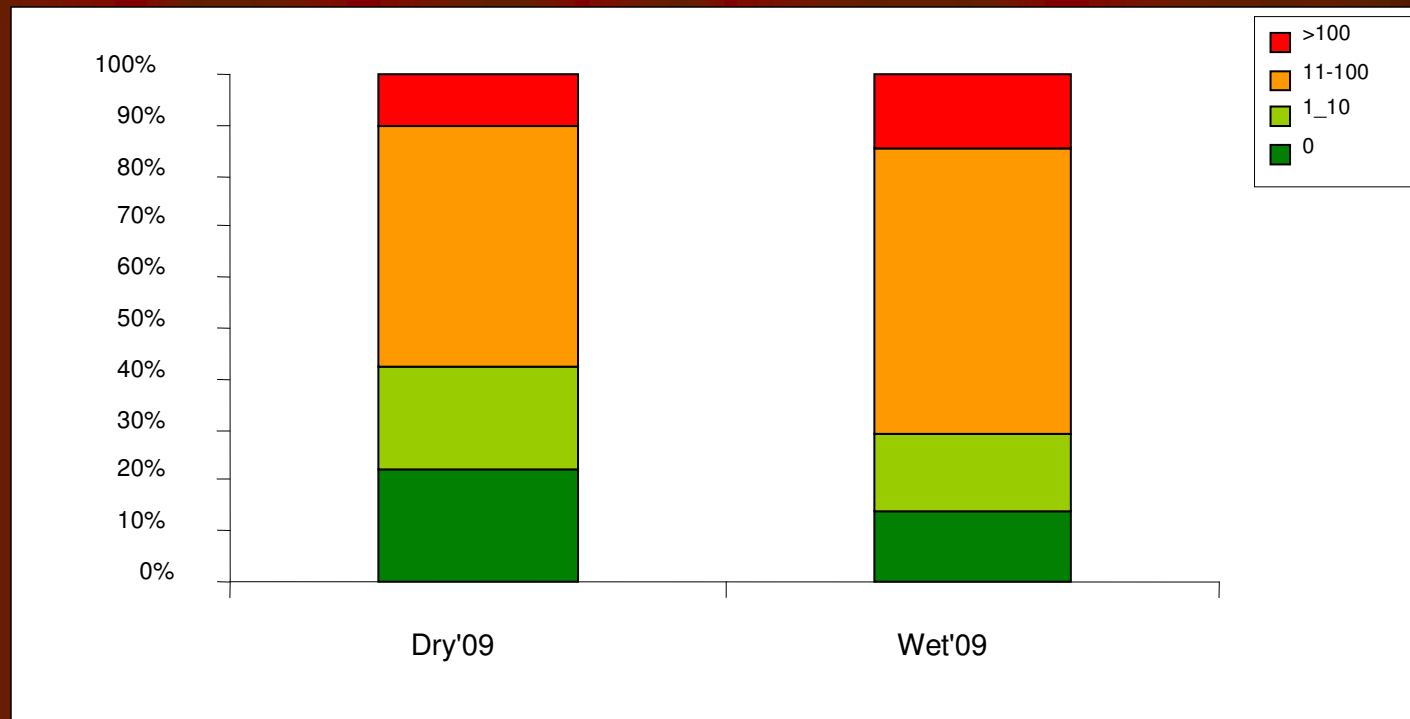
Within arsenic safe area other contamination



Computed by the author after UNICEF 2009 data. Seasonality and disasters not incorporated by UNICEF survey.

Issues about arsenic safe water

- Alternative Options including SW, GW (deeper aquifer) and RW sources
- Status? WQ monitoring at source not done after 2003
- A sampled survey showed about 60% functioning
- Other WQ challenges emerging/compounding
- Arsenic contaminated irrigation water affecting food chain



Distribution of Bacteriological contamination (TTC) in tube-wells used for drinking purposes during dry and wet seasons

Source: Bilqis et al 2007

