Drinking Water Consumption Practices Reflecting Vulnerability in South-west Coastal Area of Bangladesh

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The south-western coastal region of Bangladesh is the most vulnerable areas in the world due to

- Sea level rise (Auerbach et al., 2014, Brammer, 2014),
- Tidal fluctuation (Uddin & Kaudstaaal, 2003),
- Flooding (Gain et al., 2013b),
- Extreme monsoon rainfall (Mondal et al., 2013; Hossain et al., 2014),
- Land use change (Khan et al., 2014),
- Natural disasters (Mallick and Vogt, 2014),
- Development activities (Gain and Giupponi, 2014)
- Coastal polders (Roy et al., 2009, Hasan, 2010).
• Fresh water is abundant during monsoon from June to October and becomes scarce from November to May (Chowdhury, 2010).

• 90% of sampled shallow aquifer tube-wells having unsafe levels of Arsenic (As) or high salinity (Ayers et al., 2015).

• GW from tube-well has moderate salinity (3.6 ppt) and fresh water pond has lower salinity (1.1 ppt) (Ayers et al., 2015).
Research question

• To explore the existing drinking water consumption status reflecting vulnerability of the people live in SW coastal area of Bangladesh

Specific objectives

• Identifying major sources and demand of drinking water in the study area;

• Finding people perception on quality of drinking water and its implication on health during water crisis period.
Study area:
7 unions of Koyra Upazilla in Khulna District

Data collection:
• House hold survey by structured questionnaire with the assistance of employed trained enumerators
• Purposive focus group discussion

Sampling:
382 HH was randomly sampled in the seven unions of Koyra Upazilla
Analysis and Findings

- 100% of sampled households change their sources of drinking water for twice round the year.

- Per capita drinking water consumption:
  - for male is $3.7 \pm 0.8$ liter/day and
  - for female is $3.2 \pm 0.9$ liter/day

- Basic requirement of drinking water for the people of tropical and subtropical climate is 5 liter/day/person (Gleick, 1996; Saunders & Warford, 1986)
Analysis and findings

Drinking water sources during water crisis period (March-May)

- **Koyra**: 76.4% DTW, 7.3% PSF, 14.5% STW, 1.8% Pipe supply
- **Moharajpur**: 80% DTW, 9.1% PSF, 10.9% STW, 0% Pipe supply
- **Maheswaripuri**: 100% DTW, 0% PSF, 0% STW, 0% Pipe supply
- **U.Bedkashi**: 70.9% DTW, 3.6% PSF, 14.5% STW, 10.9% Pipe supply
- **D.Bedkashi**: 70.9% DTW, 0% PSF, 0% STW, 29.9% Pipe supply
- **Amadi**: 94.5% DTW, 0% PSF, 0% STW, 1.8% Pipe supply
- **Bagali**: 13.0% DTW, 20.4% PSF, 61.1% STW, 3.7% Pipe supply

Water sources in %
Distance to collect drinking water during water crisis (March-May)

- Bagali: 1.47 km
- Amadi: 1.25 km
- D.bedkashi: 0.97 km
- U.Bedkashi: 3.27 km
- Maheswaripur: 1.37 km
- Moharajpur: 1.64 km
- Koyra: 9.15 km
People perception on water quality during water crisis (March-May)

- Sweet: 58.07%
- Salty: 22.25%
- Turbid: 9.90%
- Turbid & salty: 10.68%
Analysis and findings

Histogram of people reporting intestinal diseases during specific month

Histogram of people reporting highest level of water crisis during specific month
Implication of the findings of this study

- Initiate more activities to develop safe water access during water crisis period
  - Construction of PSF mainly in Amadi, Bagali and Moheswaripuri
  - Clean Ponds on regular basis
  - Explore new technology for long term preservation of water from RWH system
  - Road access should be develop to reduce the collection time of DW
Thank you

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