Meeting the SDG 6.1 for Safely Managed Drinking Water:
Challenges, Evidence and Priority Recommendations
A safely managed drinking water source is one that is improved, free of faecal or priority contaminants, located on premises and available when needed. It is of higher service than basic drinking water and addresses the human rights of **quality, availability and accessibility**.

Bangladesh has made considerable progress towards providing universal access to improved water sources.

**SAFELY MANAGED DRINKING WATER SCENARIO IN BANGLADESH**

- **98%** of the population used improved water sources.
- **95%** had access to improved sources that meet the basic water supply standard (available within thirty minutes).
- **88%** of water sources were improved and complied with Bangladesh standard for arsenic (<50 ppb).

Between 2009 and 2013, about 1.6 million people gained access to arsenic-safe water.
DISPARITY BETWEEN QUANTITY AND QUALITY

153.3 million people had access to improved water sources in Bangladesh.

80 million people used improved drinking water sources that meet the GoB standards for arsenic and E. coli.

73.3 million people used improved drinking water sources that do not meet the GoB standards for arsenic and E. coli.

74% of improved water sources were available on premises.

58% of water sources complied with Bangladesh standard for E. coli (<1 CFU/100 ml).

53% of population collected water from a source that meets Bangladesh standard for both arsenic (<=50 ppb) and E. coli (<1 CFU/100 ml).

1 in 2 About one in two households (52.3%) collected water from a source that meets Bangladesh standard for both arsenic (<=50 ppb) and E. coli (<1 CFU/100 ml).

1 in 4 of households that used unimproved water sources, only one in four used appropriate water treatment methods.

1 in 3 Only one in three households (34.6%) drank water that meets both standards at the point of consumption.

POLICY RECOMMENDATION

Advocate for inclusion of water safety plans as performance management criteria for water services authorities in urban and rural areas.

Fund and implement the National Implementation Plan for arsenic mitigation in drinking water (2016-2025).
EXPOSURE TO ARSENIC THROUGH DRINKING WATER

Mortality from cancer increases with exposure to high arsenic concentrations in drinking water. Effects of long term exposure include cancers of the skin, lungs, bladder, kidney and social stigma.

In 2000, 35 million people (26.6% of the population) consumed water that exceeded the Bangladesh standard of 50 ppb at household level.

In 2012, 19.4 million people (12.4% of the population) consumed water that exceeded the national standard of 50 ppb at household level.

Household water sources: Arsenic contamination

- Tube wells: 13.8%
- Surface water: 2.9%
- Piped water: 2.6%

All 64 districts of Bangladesh had some households with arsenic concentrations above 10 ppb in their stored drinking water.

In 17 districts, more than 1 in 5 people consumed water with arsenic concentrations above 50 ppb.

POLICY RECOMMENDATIONS

Enable the private sector to build arsenic and microbiologically safe water points.

Advocate for a review of the Government of Bangladesh’s standard for drinking water from 50 ppb to 10 ppb.

Adopt a harmonized, sector-wide approach and protocol for arsenic mitigation in drinking water.
**E. coli Contamination of Drinking Water**

The presence of *E. coli* in water suggests faecal contamination and the likely presence of pathogens that may cause diarrhoea, dysentery, cholera and typhoid. Bangladesh has a standard that stipulates that no *E. coli* should be found in 100 ml sample of drinking water.

**E. coli contamination by water supply option**

A proportion of households had very high *E. coli* risk levels (>100 CFU/100 ml) in water sources at household level.

- **46.3%** Piped water into dwelling
- **3.6%** Tube wells

**E. coli contamination by District and Division**

At least 30% of households in all divisions consumed faecally contaminated drinking water, except Rangpur (28.2%). The three divisions with highest levels were Syhlet (61.9%), Dhaka (50.9%) and Chittagong (48.1%).

More than 50% of the households in all divisions consumed faecally contaminated drinking water, in which microbiological contamination worsened from source to household.

**D running water quality deterioration (*E. coli*) from source to point of consumption**

- 41.7% of the households in Bangladesh used drinking water sources faecally contaminated.
- Faecal contamination increased to 61.7% at the point of consumption.

In almost two out five households (38.3%), microbial quality of the drinking water worsened from source to household. This suggests that the quality of improved drinking water sources can only be safeguarded if integrated with safety planning and behaviour change communication.
**E. coli contamination by other risk factors**

Poor hygiene practices in terms of **handwashing and safe water handling by caregivers** negatively impacts on newborn and child mortality.

**DRINKING WATER QUALITY AND SANITATION:**

Households that used **piped sewerage** and **flush-to-elsewhere** were more likely to have contaminated water sources at home than...

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piped sewerage and flush-to-elsewhere</td>
<td>40.7%</td>
</tr>
<tr>
<td>Piped sewerage and flush-to-elsewhere with latrine</td>
<td>38.4%</td>
</tr>
<tr>
<td>Piped sewerage and flush-to-elsewhere with latrine, slab</td>
<td>10.8%</td>
</tr>
<tr>
<td>Piped sewerage and flush-to-elsewhere without latrine</td>
<td>9.2%</td>
</tr>
</tbody>
</table>

**Users with ventilated improved pit latrines or pit latrine with slab**

**DRINKING WATER QUALITY AND HANDWASHING:**

Very high risk levels of faecal contamination were more likely if **no cleansing agent** was observed or shown compared to...

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No cleansing agent observed or shown</td>
<td>19.7%</td>
</tr>
<tr>
<td>With cleansing agent observed or shown</td>
<td>11.5%</td>
</tr>
</tbody>
</table>

**Households with soap**

**Water stored in covered and uncovered containers** at home had a higher **E. coli** risks compared to...

<table>
<thead>
<tr>
<th>Storage Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covered containers</td>
<td>15.8%</td>
</tr>
<tr>
<td>Uncovered containers</td>
<td>14.3%</td>
</tr>
<tr>
<td>Directly from source, on premises or outside</td>
<td>7.1%</td>
</tr>
<tr>
<td>Directly from source, outside</td>
<td>6.1%</td>
</tr>
</tbody>
</table>

**Very high risk levels of faecal contamination** were more likely if no cleansing agent was observed or shown compared to...

**POLICY RECOMMENDATION**

Initiate and develop a national communication strategy for water safety.
**SOCIOECONOMIC DISPARITIES IN DRINKING WATER SAFETY**

Arsenic contamination of drinking water sources was three times more likely among the urban poorest than the richest.

In rural areas, the richest quintile was half as likely as the poorest to have very high E.coli risk levels.

**SUMMARY**

Although coverage has improved significantly, challenges remain with water quality nationally and with equitable access in hard to reach areas. Without safe drinking water, reduction of maternal, newborn and child morbidity and mortality, improved nutrition, school attendance and time savings for productive activities cannot be achieved.

**MOVING FORWARD**

Universal access to safely managed drinking water is achievable with government leadership, partnerships and joint actions. An estimated amount of $305,000,000 is required to provide 20 million people with safe drinking water (IPAM 2016 -2025).