Thirst at the Tide Line

How salt, caste and gender are turning climate change into a water-rights crisis on Bangladesh's coast, and what government should do now

Based on two studies (2022, 2025) conductued by Nagorik Uddyog

0.9
natural-capital vulnerability on a 0–1 scale, the highest of five capitals

18.2%
of people in Khulna Division have safely managed drinking water

22%
of women report violence or harassment while fetching water

16%
of minority households received any livelihood support

The bottom line. Salinity is the "new disaster" of Bangladesh's south-west coast. Rising seas, cyclones and waterlogging have made fresh water scarce, costly and dangerous to collect, and the households with the least power over it are Dalit, Munda and other minority families, especially their women and girls. Two field studies three years apart reach the same verdict: Bangladesh has strong climate plans on paper, but they are not reaching these communities. The priority now is delivery and inclusion, not more strategy.[9,10]

1 EXECUTIVE SUMMARY & POLICY CONTEXT

The southwestern coastal belt of Bangladesh—specifically Satkhira and Khulna districts—occupies ground zero of global anthropogenic climate breakdown. While macro-level disaster discourses celebrate Bangladesh as an international adaptation benchmark due to early warning mechanisms and cyclone shelters[1], aggregate statistics conceal a stark socio-ecological crisis: the systemic marginalization and disproportionate exposure of historically excluded Dalit and Indigenous (Adivasi Munda) communities[2].

This Briefing Note provides a critical policy synthesis of two foundational field investigations conducted by Nagorik Uddyog (Citizen's Initiative): (i) a multidimensional empirical evaluation of socio-economic vulnerability, livelihood collapse, Gender-Based Violence (GBV), and Sexual and Reproductive Health and Rights (SRHR) across 396 households in Assasuni, Dacope, Paikgachha, and Shyamnagar (Helios/NU 2025); and (ii) an in-depth human rights diagnostic across Shyamnagar and Koyra (Koyra/Bedkashi), examining water commodification, salinity intrusion, and social discrimination (NU 2022).

Synthesizing these empirical datasets through the dual lenses of Kimberle Crenshaw's Intersectionality Framework [3]and the DFID/UNDP Sustainable Livelihoods Framework (SLF)[4], this brief establishes that climate change acts as an aggressive vulnerability amplifier. Untouchability stigma, occupational entrapment, landlessness, and patriarchal subjugation intersect with sudden shocks (cyclones, tidal surges) and slow-onset environmental hazards (hyper-salinization, perennial waterlogging), trapping 69% of minority households in chronic debt cycles, forcing 30% into distress migration, and exposing women and girls to severe GBV and systemic reproductive health failures[5].

Geographic Exposure & Demographic Stratification

The targeted administrative units—Assasuni, Dacope, Paikgachha, and Shyamnagar—span the intertidal interface of the Bay of Bengal and the Sundarbans mangrove ecosystem. Over the past three decades, inland saline water intrusion has advanced 20 to 30 kilometers into coastal aquifers[6], driven by relative sea-level rise rates of 6-8 mm/year (substantially higher than the global mean)[7], soil/water salinity increases of 26%,[8] and the unregulated proliferation of commercial Brackish-Water Shrimp Ghers [5].

The surveyed minority population comprises deeply stratified, historically marginalized sub-groups: lower-caste Dalits (Horijon, Rishi, Behara, Pal, Jele, Poramanik, Rajbongshi, Nomoshudro, Jola/Karigar, Shil) representing 88.6% of respondents, and Indigenous Mundas representing 11.4%. In terms of faith, 70% identify as Hindu, 22% as Christian (mostly converted Dalit communities, such as Poramanik, seeking relief from caste stigma), and 8% as Muslim (Jola handloom weavers). Monthly household income averages a meager BDT 11,159 ($95 USD), with 18% having no formal education and 42% possessing only incomplete or primary education [2].

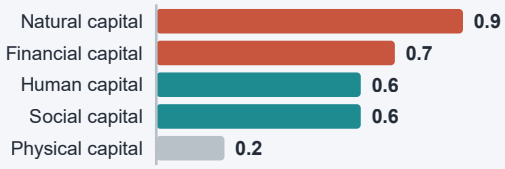
"When we throw a pebble at the nearby pond at night, there are green flickers of light in the dark. That is the level of salinization... It is a 'Notun Durjog' (New Disaster) that affects everything—our water, our skin, and our minds." — ***Asia Begum (60), Gabura Union, Shyamnagar [5]***

2 TWO STUDIES, ONE PATTERN

STUDY	WHERE AND HOW	CORE MESSAGE
2022: Water, Water Everywhere Nor any Drop to Drink	Shyamnagar (Satkhira) and Koyra (Khulna); focus groups, interviews and desk review	Salinity, cyclones and floods are eroding the rights to water, health, work and dignity; migration is displacement by another name
2025: Socio-economic Status of Dalit and Minority Communities and Climate Change	Assasuni, Dacope, Paikgachha, Shyamnagar; 396 household surveys plus focus groups and key informants	Composite vulnerability of 0.6; Shyamnagar is the most stressed upazila; women and girls bear the heaviest burden

FIGURE 1

Vulnerability score by livelihood capital
(0 = low, 1 = maximum; overall index 0.6)



Households reporting change
(past 10 years, %)

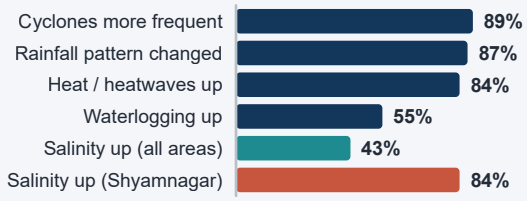


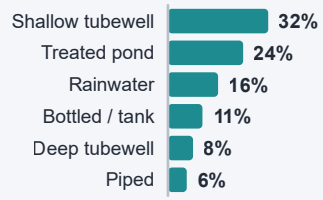
Figure 1. Natural and financial capital are the most exposed; most households say cyclones, rain and heat have all worsened. Source: 2025 study, Tables 5 and 12.

3 KEY FINDINGS THAT MATTER

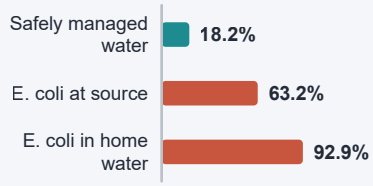
1. **Water is the front line:** Brine from shrimp ghers and tidal surges mixes with freshwater ponds in the monsoon. Shallow tubewells, the main source for 32% of households, fail seasonally, and nearly half of households changed their main source in a decade. Only 32% have a source in the yard; women in 2022 reported walking one to two kilometers with clay jars.[15]
2. **Water is also a caste and gender risk:** About 22% of women report violence or harassment at water points (including sexual threats), a Dalit woman's water was thrown away because she touched it, and 79% of women and girls drank too little during menstruation. The study itself judges this under-reported.[16]
3. **Health pays first:** 79% of households had a sick member in the past year; skin disease, hypertension and reproductive-health problems are common; 22% of women missed antenatal or postnatal care and 34% of girls missed iron and folic acid because of climate events. Independent data show hypertension in pregnancy in Dacope more than doubles in the salty dry season (Figure 3).[17,18]
4. **Lost livelihoods become debt and unsafe migration:** 59% of households lost productive assets, 30% have a migrant member, and 69% carry loans (58% borrowed to recover from disasters, at interest of up to 20–30% in 2022). Women report earning BDT 200–250 a day against BDT 300 for men; shrimp-fry gatherers earned at most 50 taka a day in 2022, roughly two kilograms of rice.[19]
5. **Exclusion is structural:** Only 15% of households belong to any community group, 65% of non-recipients did not know support existed, and after Cyclone Aila people were asked for ID cards that the storm had destroyed. Only 3% of women decide on household assets alone.[20]

FIGURE 2

Main drinking source
(% of 396 households)



Water quality, Khulna Division
(MICS 2025)



Women and girls
(% reporting)

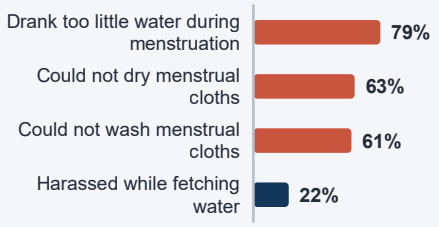


Figure 2. Few safe sources, widespread contamination and heavy costs for women and girls. Sources: 2025 study, Table 9, Table 26, Table 31; MICS 2025 via Prothom Alo.

FIGURE 3

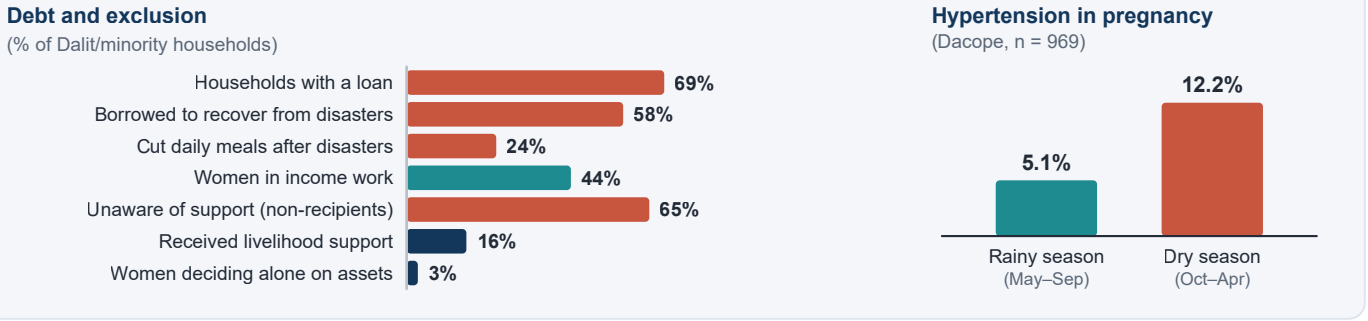


Figure 3. Households use debt rather than support to cope; salty dry-season water coincides with higher pregnancy hypertension. Sources: 2025 study, §7.2.4–7.3; Khan et al. 2011.

4 OTHER EVIDENCES

- **Water is brackish and unreliable.** In five south-west upazilas, tubewell water averaged 1,733 mg/L of dissolved solids against a national limit of 1,000; only 27% of tubewells and 48% of ponds met it. Reliable water was unavailable about 4.7 months a year, only 16% of households owned a source, and about 80% relied on women and girls to fetch it.[21]
- **Dalit women are hit hardest.** Amnesty (2025) found Dalit sanitation workers in Khulna and Satkhira without water infrastructure; after Cyclone Remal, aid did not prioritize their colonies, and families earning 3,000–8,000 taka a month struggled to buy safe water.[22]
- **The trend is worsening.** Soil and water salinity rose 26% in 2000–2019; the World Bank projects 13.3 million internal climate migrants over 30 years, a loss of one-third of agricultural GDP by 2050, and at least $12.5 billion of adaptation investment.[23,24]

5 NATIONAL POLICIES AND THE GAPS

POLICY OR LAW	WHAT IT PROVIDES	GAP SHOWN BY THE STUDIES
NAPA (2005), climate action plan (2009) and Climate Change Trust Fund	Early adaptation planning; more than $400 million in trust-fund money.	! Minorities were not consulted on NAPA; local officials lack a clear approach, so funds and plans do not reach villages.[25]
National Adaptation Plan 2023–2050	Eight sectors including water, with gender and ethnic communities as cross-cutting issues.	! No Dalit-specific measures in the published overview; no caste-disaggregated data to track who benefits.[26]
Hard-to-Reach Areas Water and Sanitation Strategy (2011)	Recognizes coastal saline zones (39 upazilas); backs subsidies for the poorest and inclusion of all castes.	! No coverage targets; Khulna Division still has 18.2% safely managed water and harassment at water points.[27,28]
Social safety nets and relief	Pensions, rations and cash support for vulnerable groups.	! ID rules exclude storm victims; 84% of households got no livelihood support; schemes are not shock-responsive.[29]
Child Marriage Restraint Act 2017	Penalizes child marriage; sets 18 as the legal age.	! Section 19 allows marriage under 18 in “special circumstances”; child marriage is accepted among minorities and eases poverty pressure.[30]
Anti-Discrimination Bill 2022	Would prohibit discrimination, including caste.	! Tabled but never passed, so there is no remedy for untouchability at wells or exclusion from aid.[31]
Cyclone preparedness and shelters	About 12,000 shelters (42 in 1970); volunteer warning system saves lives.	! Little space and poor sanitation, hard on women, children and pregnant women; 44% of women report more GBV during disasters.[32]

Internationally, Bangladesh is bound by the ICESCR (water and sanitation) and ICERD (structural discrimination), and its own SDG commitments on gender equality, clean water and reduced inequalities.[33]

ICESCR ICERD SDGs

6 KEY RECOMMENDATIONS

1. **Guarantee safe water, with targets.** Set time-bound coverage targets for the 39 coastal upazilas named in the 2011 strategy; expand rainwater harvesting, deep tubewells and community desalination; reserve a share for Dalit and minority colonies; test against the 1,000 mg/L standard.
   LEAD **LGD, DPHE, unions**

2. **Regulate shrimp-gher brine.** Stop saline water intake near freshwater ponds and enforce zoning, so fresh water is not traded for export income.
   LEAD **DoF, DoE, local government**

3. **Legislate against discrimination.** Pass an Anti-Discrimination Act covering caste and descent, with penalties for blocking water access; repeal Section 19 of the Child Marriage Restraint Act.
   LEAD **Parliament, Law Ministry**

4. **Count and include.** Collect caste- and gender-disaggregated data in national surveys and NAP monitoring; reserve seats for Dalit and minority women on union disaster and water committees.
   LEAD **BBS, MoDMR, Planning**

5. **Make social protection shock-responsive.** Accept alternative ID after disasters; run birth-registration and ID camps; target pensions, cash and relief by vulnerability, not paperwork.
   LEAD **Social Welfare, Cabinet Div.**

6. **Rebuild livelihoods and curb debt.** Fund skills and diversified work for women and migrants; enforce written contracts and equal wages; offer low-interest group credit to replace 20–30% informal loans.
   LEAD **Labor, Finance, NGOs**

7. **Protect women's health and safety.** Mobile antenatal and postnatal care, iron-folic supply through schools, menstrual-hygiene water, GBV response teams, safe water points and shelters; build the specialized coastal hospital proposed in 2022.
   LEAD **Health, WCA, DDM**

8. **Channel climate finance locally.** Track what share of trust-fund, NAP and international adaptation money reaches Dalit and minority communities, and fund locally led adaptation.
   LEAD **Finance, MoEFCC, donors**

SOURCES AND NOTES

1 World Bank (2024). Bangladesh Coastal Climate Resilience Project Assessment. Washington, DC: World Bank Group.

2 Helios Consultancy & Nagorik Uddyog (2025). Socio-economic Status of Dalit and Minority Communities and the Impact of Climate Change on them with Special Focus on Women and Girls. Research Report, Dhaka, pp. 1-71.

3 Crenshaw, K. (1991). Mapping the Margins: Intersectionality, Identity Politics, and Violence Against Women of Color. Stanford Law Review, 43(6), 1241-1299.

4 DFID (1999). Sustainable Livelihoods Guidance Sheets. London: Department for International Development; Rahman et al. (2024). Assessing Climate Livelihood Vulnerability Using SLF. Social Sciences, 13(12), 638.

5 Nagorik Uddyog (2022). Water, Water Everywhere Nor Any Drop to Drink: A Community Centric Study on the Impact of Climate Change on Human Rights in Southwestern Coastal Bangladesh. Field Diagnostic Report, Dhaka, pp. 1-75.

6 Bhattacharya, A. (2014). Saline Water Intrusion in Coastal Aquifers: A Case Study from Bangladesh. Journal of Coastal Hydrology, 18(2), 112-129.

7 IPCC (2021). Sixth Assessment Report: The Physical Science Basis. Cambridge University Press; Brammer, H. (2014). Bangladesh's Dynamic Coastal Regions and Sea-Level Rise. Climate Risk Management, 1, 51-62

8 BARC (2023). Soil and Water Salinity Mapping in Southwestern Bangladesh. Dhaka: Bangladesh Agricultural Research Council.

9 Nagorik Uddyog, Water, Water Everywhere Nor any Drop to Drink: A Community Centric Study on the Impact of Climate Change on Human Rights in the South-Western Coastal Regions of Bangladesh (2022). Fieldwork Sept 2021–Jan 2022 in Shyamnagar (Satkhira) and Koyra (Khulna); about 100 focus-group participants and 25 interviews.

10 Helios Consultancy for Nagorik Uddyog, Socio-economic Status of Dalit and Minority Communities and the Impact of Climate Change, with Special Focus on Women and Girls (July 2025). 396 household surveys and 30 qualitative contacts in Assasuni, Dacope, Paikgachha and Shyamnagar; data collected May–June 2025. Shyamnagar's ethnic-minority sample is small (n = 45).

11 2025 study, §7.2.1, Table 5 (Composite Vulnerability Index 0.6; Shyamnagar 0.7). Salinity statistic: 2025 study §7.2.2, Table 12.

12 Prothom Alo, "Arsenic, bacteria and lead pose risks in saline coastal areas," summarizing BBS–UNICEF Multiple Indicator Cluster Survey 2025 (Khulna Division) and a 2026 Utilities Policy study of 39 unions in Koyra, Dacope, Paikgachha, Assasuni and Shyamnagar (2021 data). en.prothomalo.com/bangladesh/cxtwlpjmo7

13 2025 study, §7.4.3.1.2–7.4.3.1.3 (Table 26) and §7.4.4 (Table 31, Annex 28). The study cautions that violence is likely under-reported because of stigma and fear of retaliation.

14 2022 study, §3.5 and §4 (pensions and relief denied for lack of ID after Aila); 2025 study, §7.2.7 (16% received support; 65% of non-recipients unaware of services).

15 2022 study, §2.1.1 and §3.4; 2025 study, §7.2.1.3–7.2.1.4 and Table 9.

16 See note 5 above.

17 Khan, A. E. et al., "Drinking Water Salinity and Maternal Health in Coastal Bangladesh," Environmental Health Perspectives 119(9), 2011: 90 cases of hypertension among 969 pregnant women (9.3%); dry season 12.2% vs. rainy season 5.1%. The study does not prove causation.

18 2022 study, §2.1.4 and §3.5–3.6; 2025 study, §7.4.4 (Tables 29–30), §7.4.3 (Tables 27–28).

19 2025 study, §5 (salinity up 26% in 2000–2019, citing BARC 2023) and §7.2.3 (30% of households with a migrant member; 14% with a migrant woman). 2022 study, §5 cites sea-level rise of 85–140 cm by 2100 in parts of the delta.

20 See note 6 above.

21 See note 4 above.

22 Amnesty International, "Left Behind in the Storm: Dalit Women Sanitation Workers and the Fight for Water and Dignity" (press release, 16 Oct 2025), Khulna and Satkhira.

23 World Bank, Country Climate and Development Report for Bangladesh, 31 Oct 2022, worldbank.org/en/news/feature/2022/10/31/key-highlights-country-climate-and-development-report-for-bangladesh

24 See note 11 above.

25 2025 study, §5 (citing Baird 2008; Ahmed 2020 on the exclusion of minorities from NAPA consultations); 2022 study, §4 on the Climate Change Trust Fund (more than $400 million) and the gap between national policy and village practice.

26 Government of Bangladesh, National Adaptation Plan of Bangladesh 2023–2050, overview at preventionweb.net/quick/92430: lists gender, ethnic communities and other disadvantaged groups as cross-cutting issues; the overview names no Dalit-specific measures.

27 Government of Bangladesh, Final National Strategy for Water and Sanitation in Hard to Reach Areas (Dec 2011): "Coast, offshore island and saline" covers 39 upazilas and 213 unions; calls for subsidies for the poorest and participation of all caste groups; sets no coverage targets for these areas.

28 See note 4 above.

29 See note 6 above.

30 UNFPA–UNICEF review of the Child Marriage Restraint Act 2017, reported by IANS (Morung Express, 14 Oct 2026): about 41.6 million child brides; Section 19 permits marriage under 18 with court approval in "special circumstances." Also UNICEF via The Daily Star, 7 Oct 2020: 51% of women aged 20–24 were married as children.

31 Philip Gain, The Daily Star, 25 Feb 2026 (via Business & Human Rights Resource Centre): the Anti-Discrimination Bill 2022 was tabled but never passed; no interim-government reform commission addressed the most marginalized communities.

32 2022 study, §5 (cyclone shelters grew from 42 in 1970 to about 12,000 today) and §2.2.1 (overcrowding, poor sanitation; <1 sq ft per person); 2025 study, Tables 27–28 (44% of women report increased GBV during disasters).

33 See note 14 above.

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