WASH Mapping at Host Communities and Participatory WASH Plan for Cox's Bazar District

Environmental Interventions Unit
icddr,b

Team

Tanvir Ahmed

Mahbubur Rahman

Mahbub Ul Alam

Daisy Farwa

Debashish Biswas

AKM Shoab

Rashidul Azad

Md. Nuruzzaman

Sharmin Khan

Rehnuma Haque

Background

- Cox's Bazar:
  - 2491.86 sq km
  - total population 2,289,990 (population density 920/km2)
- Access to improved water source: 86% (30th out of 64 districts)
- Access to improved sanitation: 48% (57th out of 64 districts)
- Handwashing knowledge: 80% (57th out of 64 districts)
- More than 745,000 Rohingya refugees fled in Cox's Bazar
- This influx exceeded the coping capacity of local systems
- Overall WASH situation in wider Cox's Bazar is unknown
- Current situation assessment required for evidence based programming
- This study will generate evidence to fill that gap

Objectives

- Assessing the current WASH situation
  - WASH facilities, knowledge and practices in households
  - WASH facilities, knowledge and practices in schools
  - WASH facilities at health care centers
  - WASH facilities at public place/growth centers
- Identifying barriers, challenges and exploring opportunities for future WASH intervention
- Assessing local institutional capacity and opportunity to successful implement of WASH interventions
- Developing participatory WASH Plan

How we achieved this?

Questionnaire survey

Spot check

Structured observation

Microbiological test of water

How we achieved this?

Focus Group Discussion

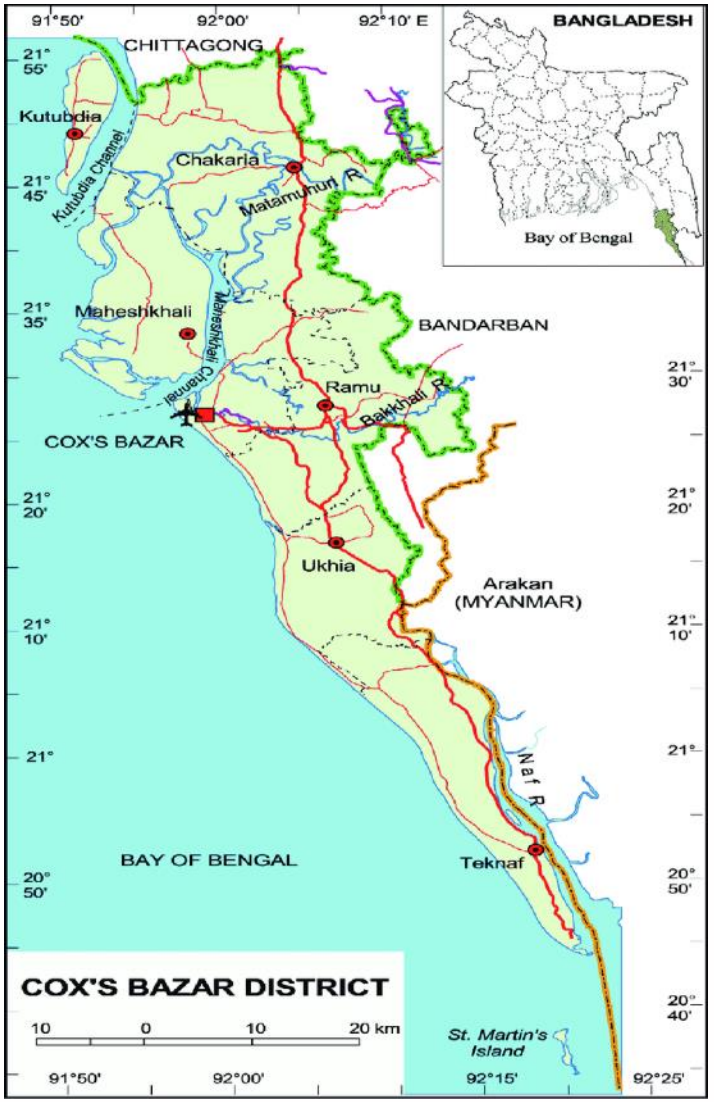
Key Informant Interview

Institutional capacity assessment workshop

Participatory WASH planning workshop

Research design and field sites

- Mixed methods cross-sectional design
- All 8 Upazilas of Cox's Bazar
- We selected from each Upazila:
  - Pourashava or Sadar Union
  - Randomly 2 Unions
- Each selected Unions /Pourashavas = Cluster
- Total 24 clusters



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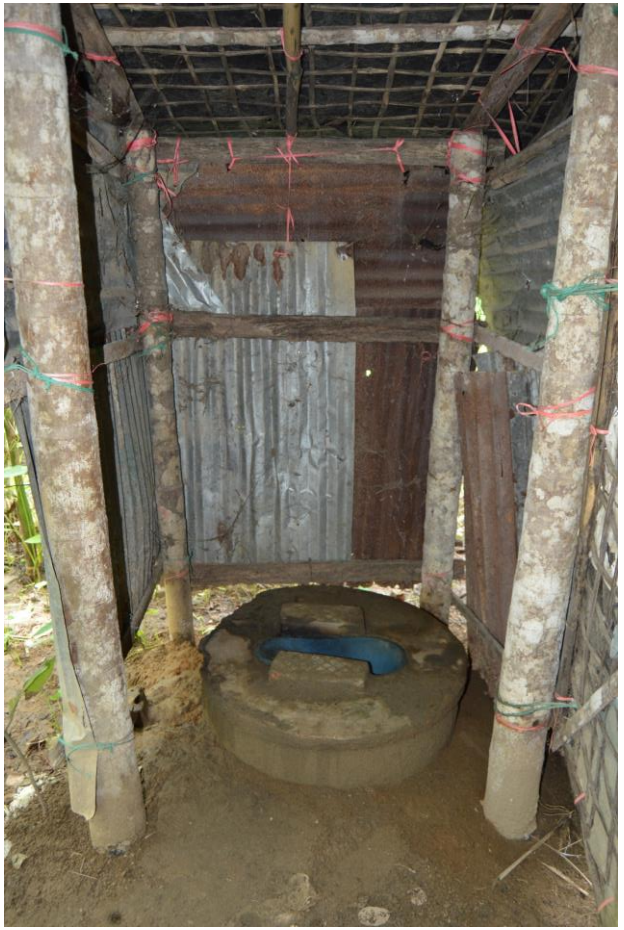
Quantitative methods (at a glance)

Data collection method	Households (N=2155)	Schools (N=72)	Health centers (N=52)	Growth centers (73)
Questionnaire survey	2155	576 students	X	X
Spot check	2155	72 Schools	52	73
Structured observation	119	X	X	X
Water sample collection	220	144	104	X

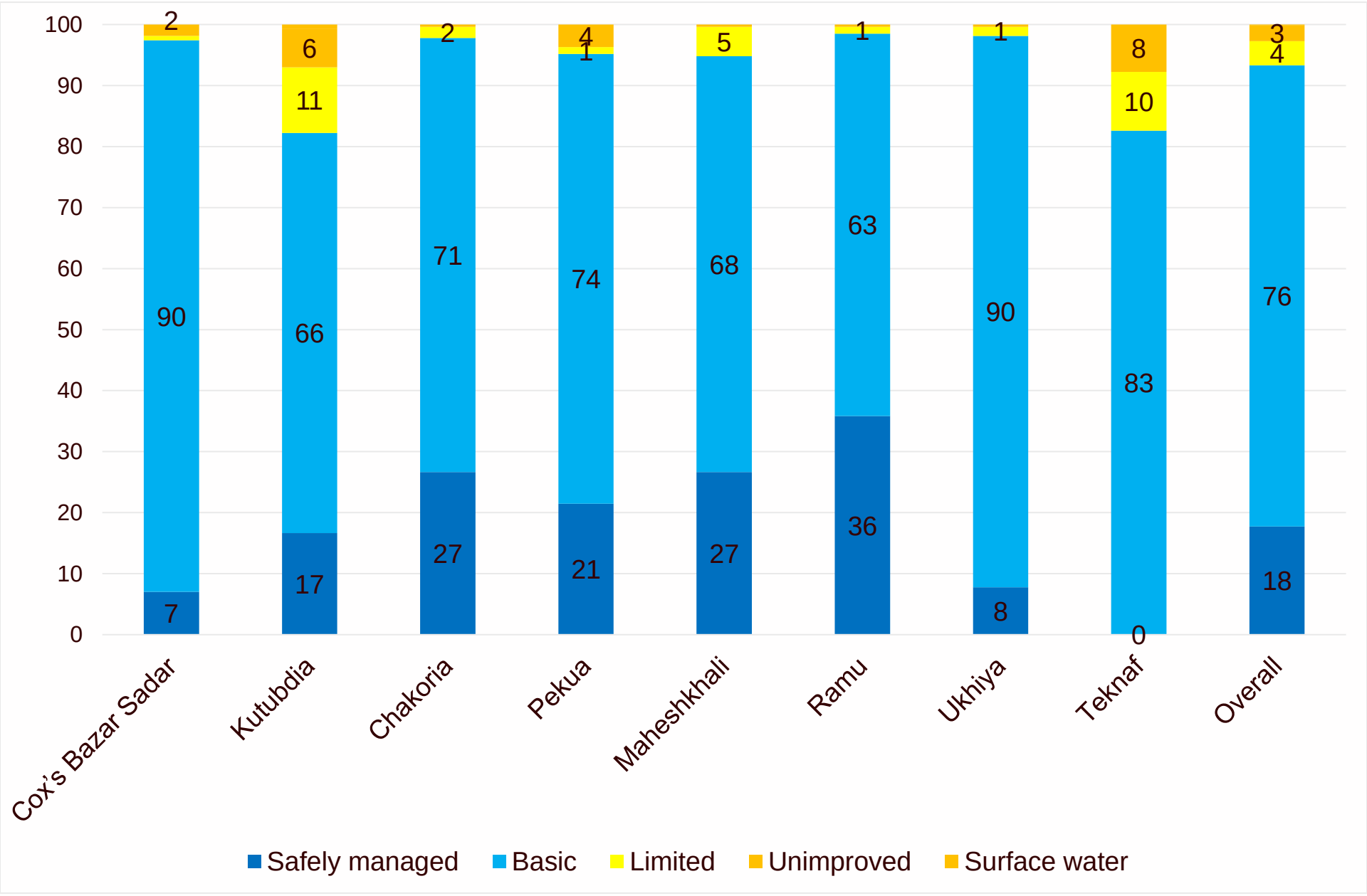
Qualitative methods (at a glance)

Respondents	Methods		
	Key Informant Interview (KII)	Focus Group Discussion (FGD)	Participatory workshop/meeting
Adult female	-	12	-
Adult male	-	12	-
Adolescent boys	-	12	-
Adolescent girls	-	12	-
UP representative	24	-	-
Capacity assessment and validation workshop	-	-	15
Participatory planning meeting	-	-	25

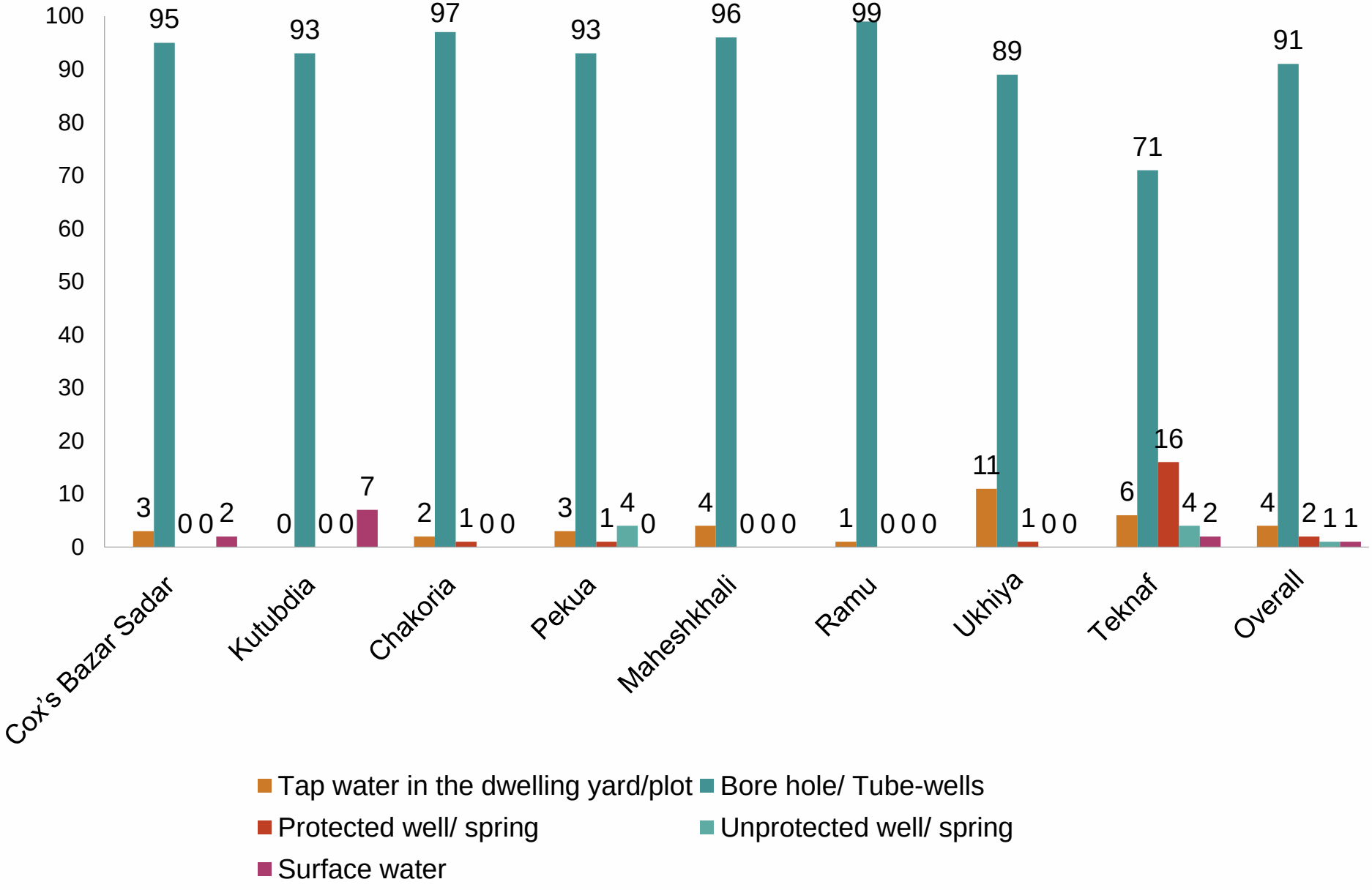
Results: Households



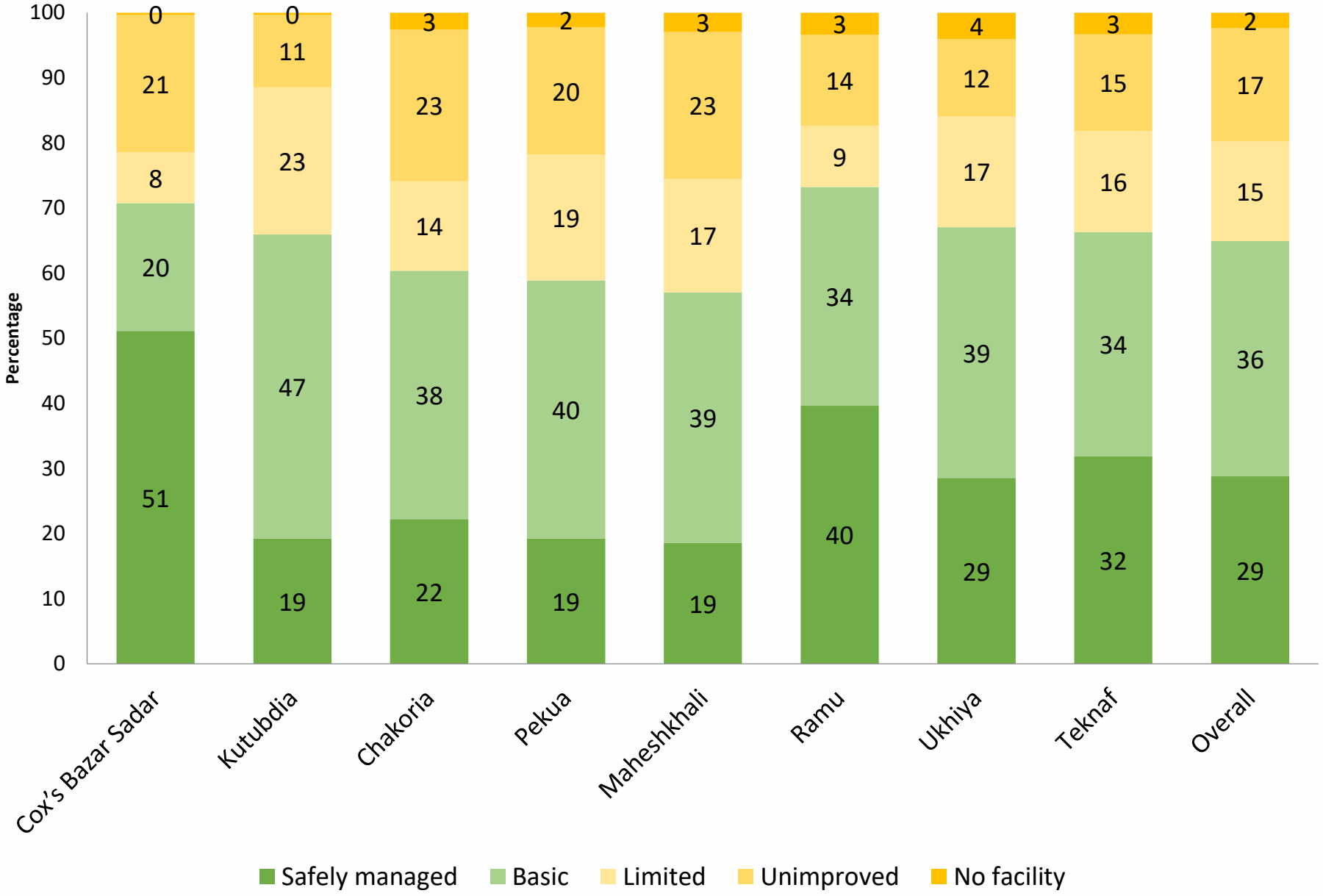
Drinking water access at Households



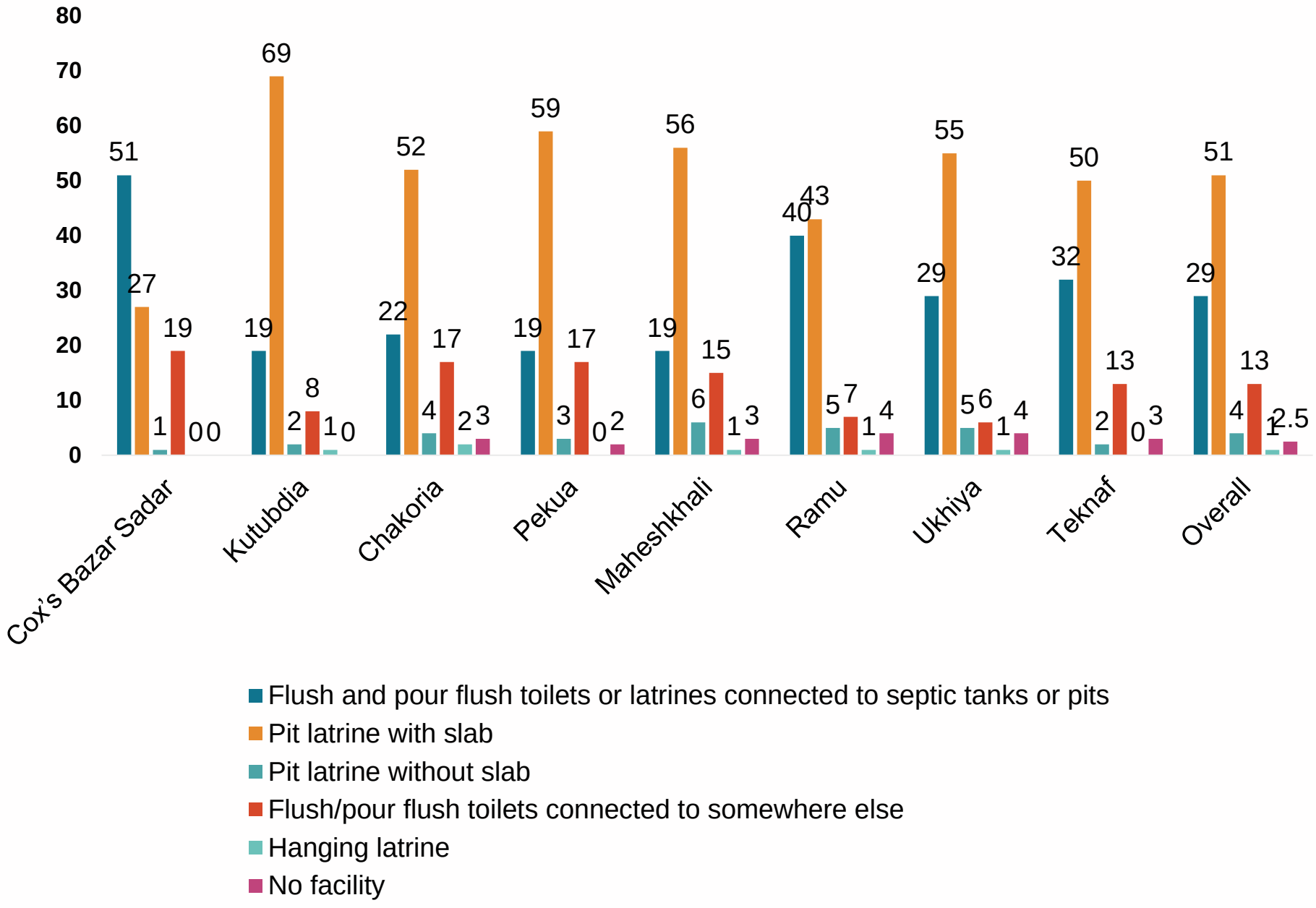
Drinking water options at households



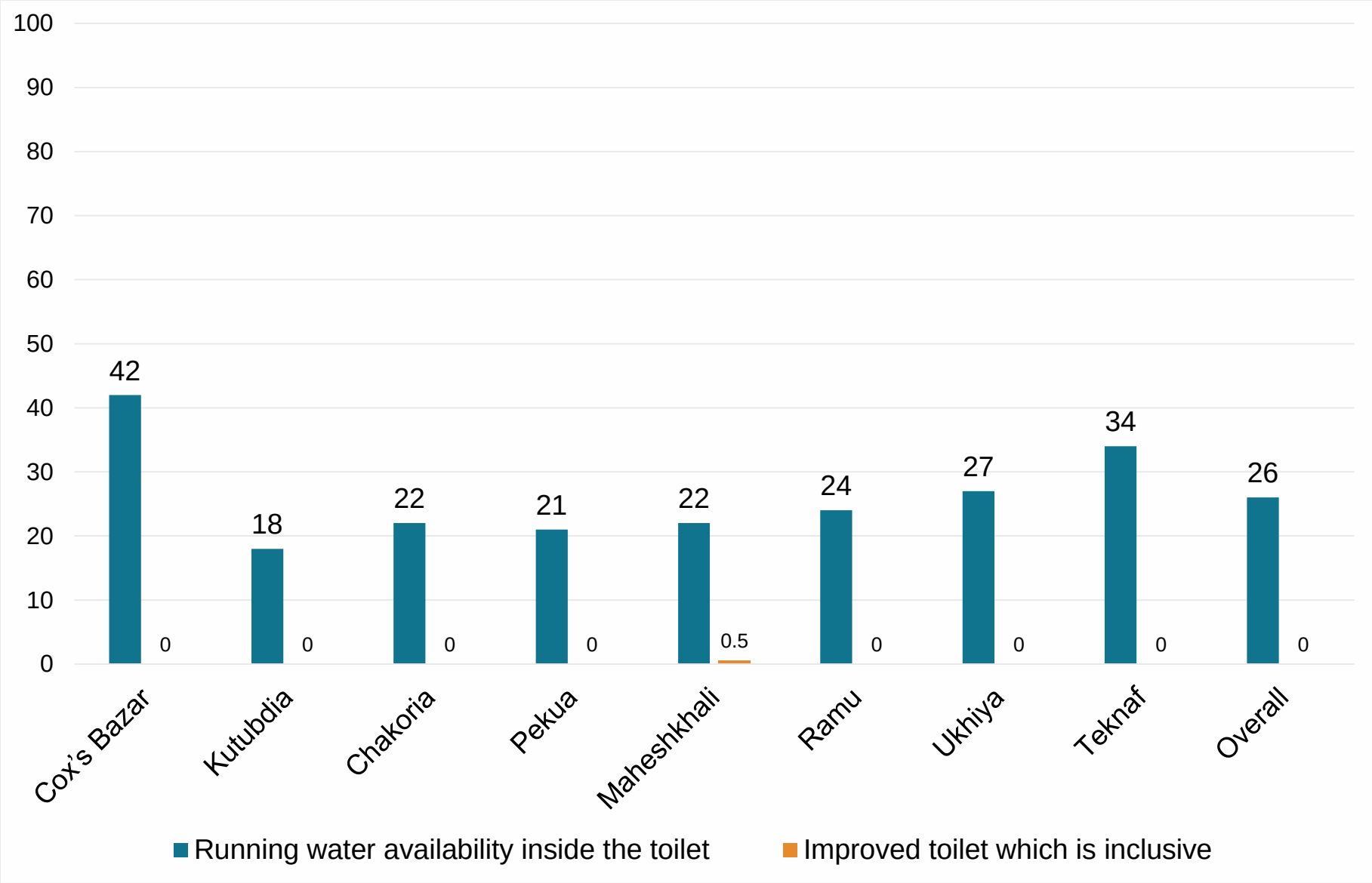
Sanitation access at households



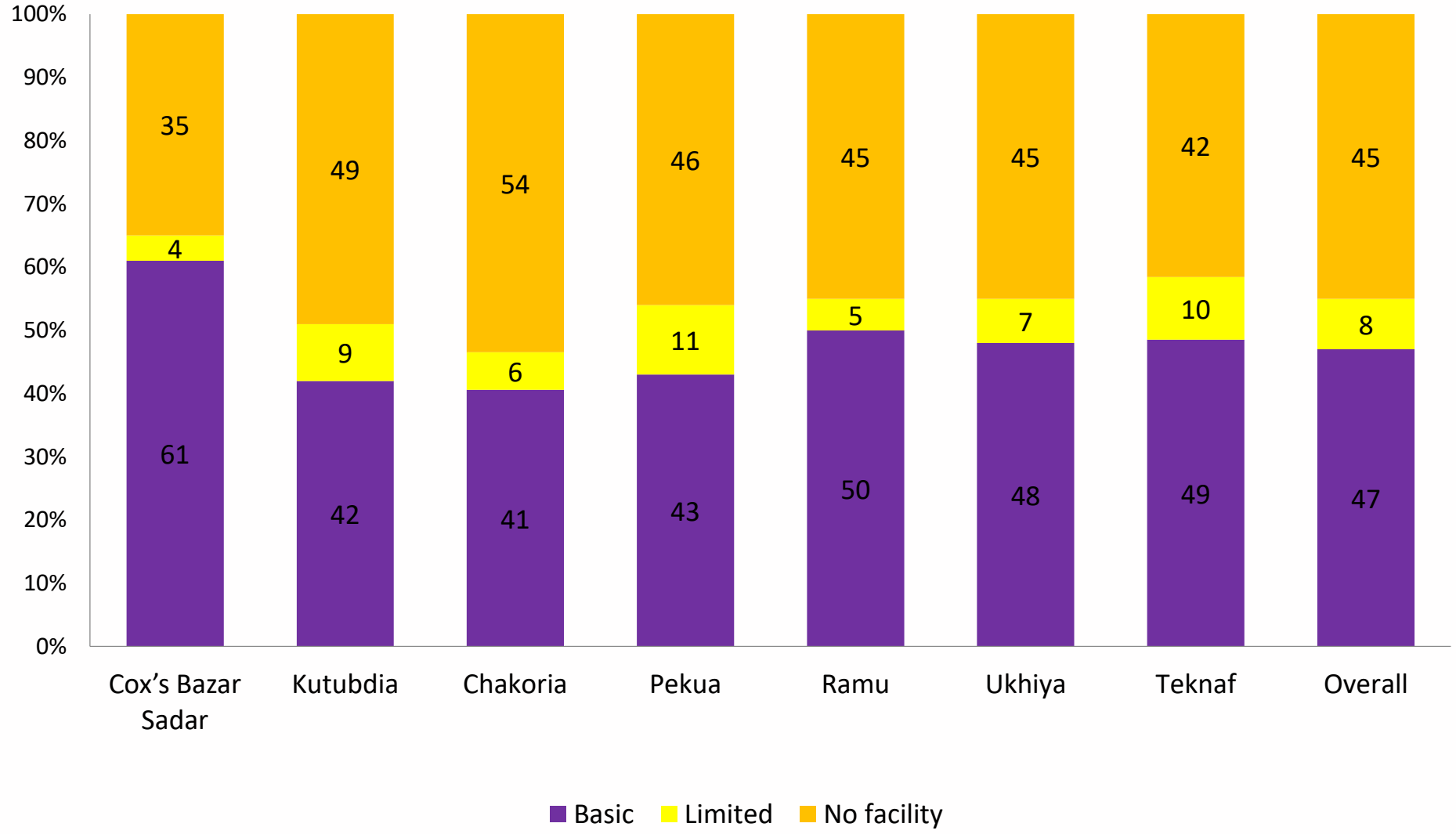
Sanitation technologies at households



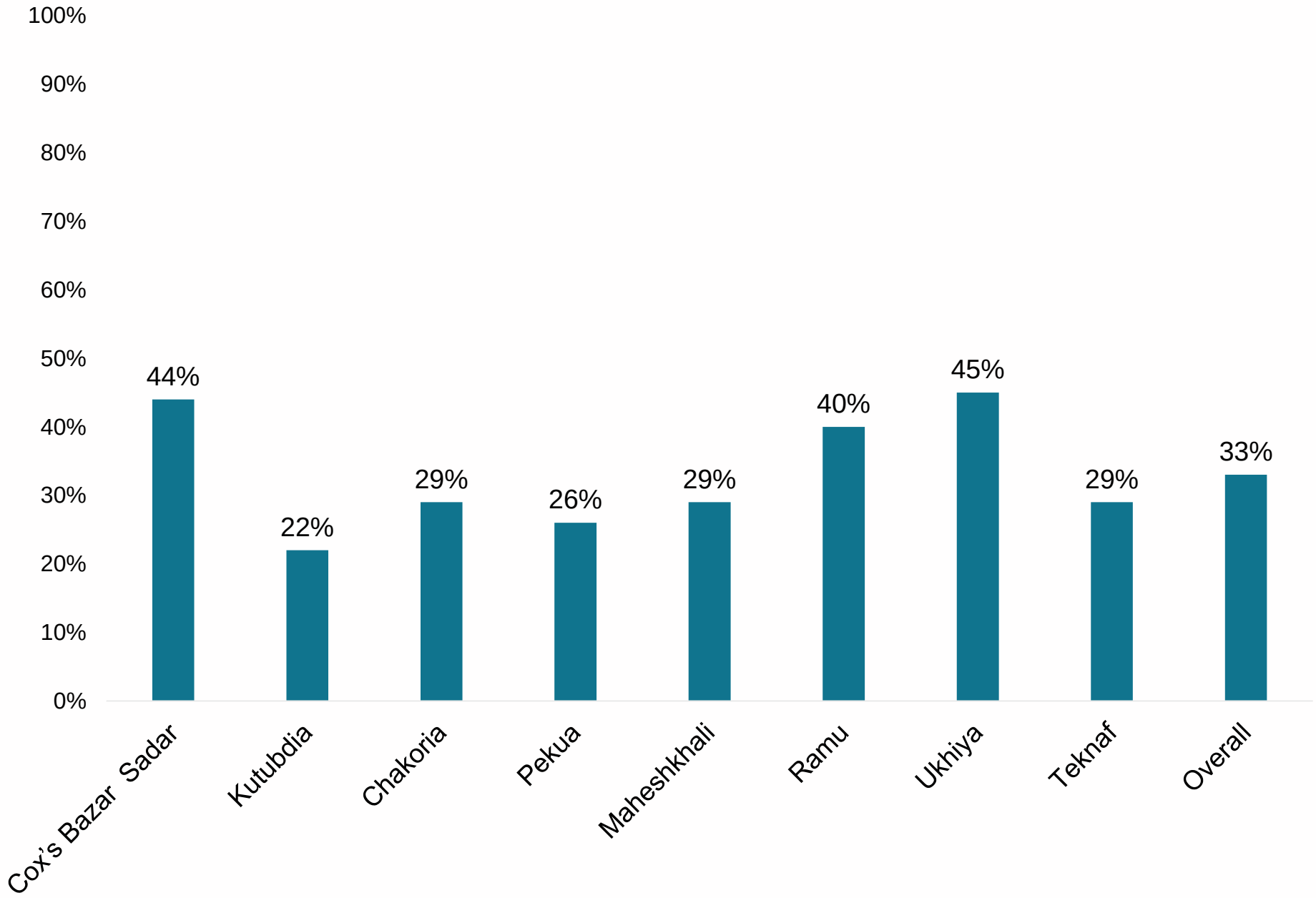
Running water available inside toilet at households



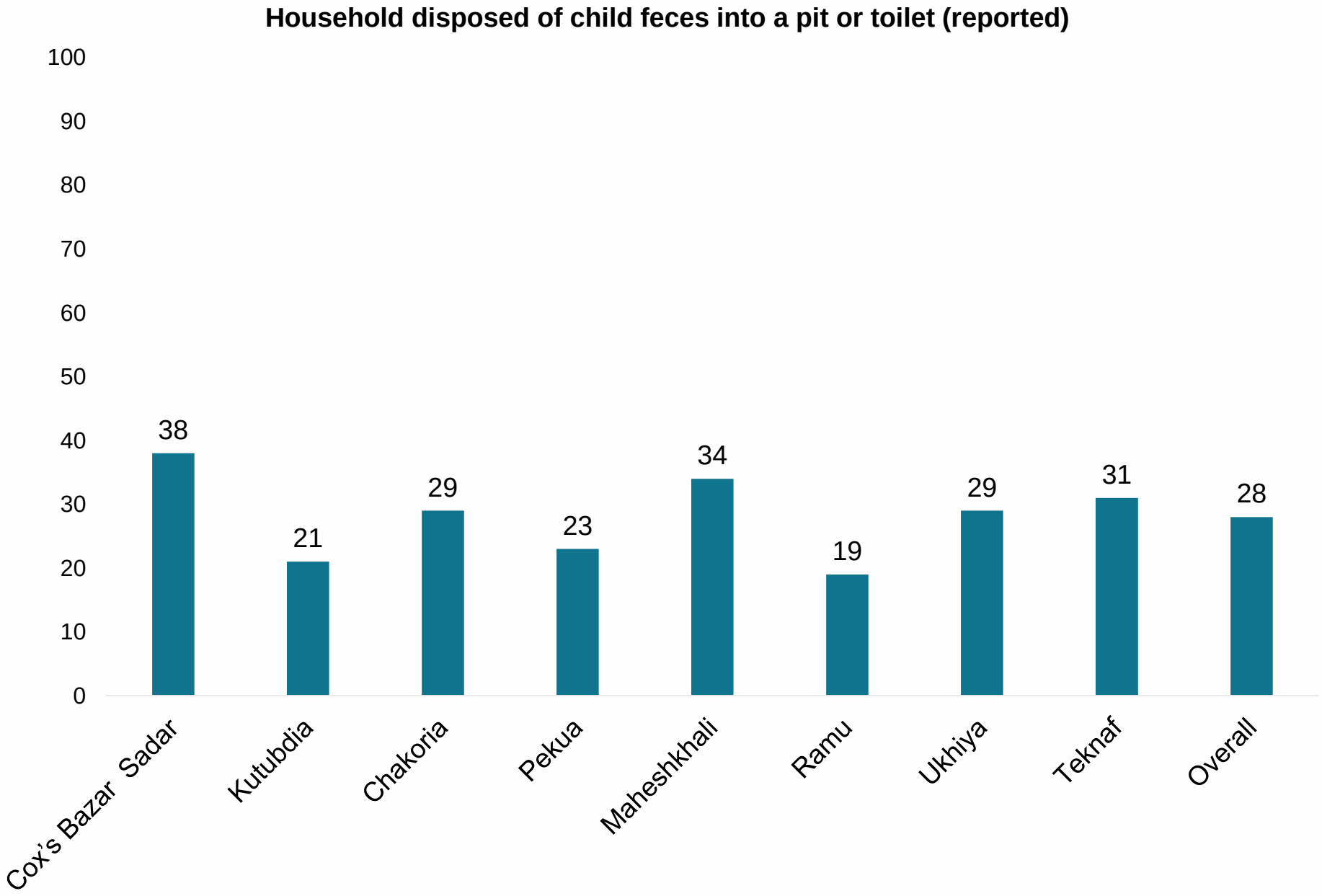
Hand washing facilities on premises at households



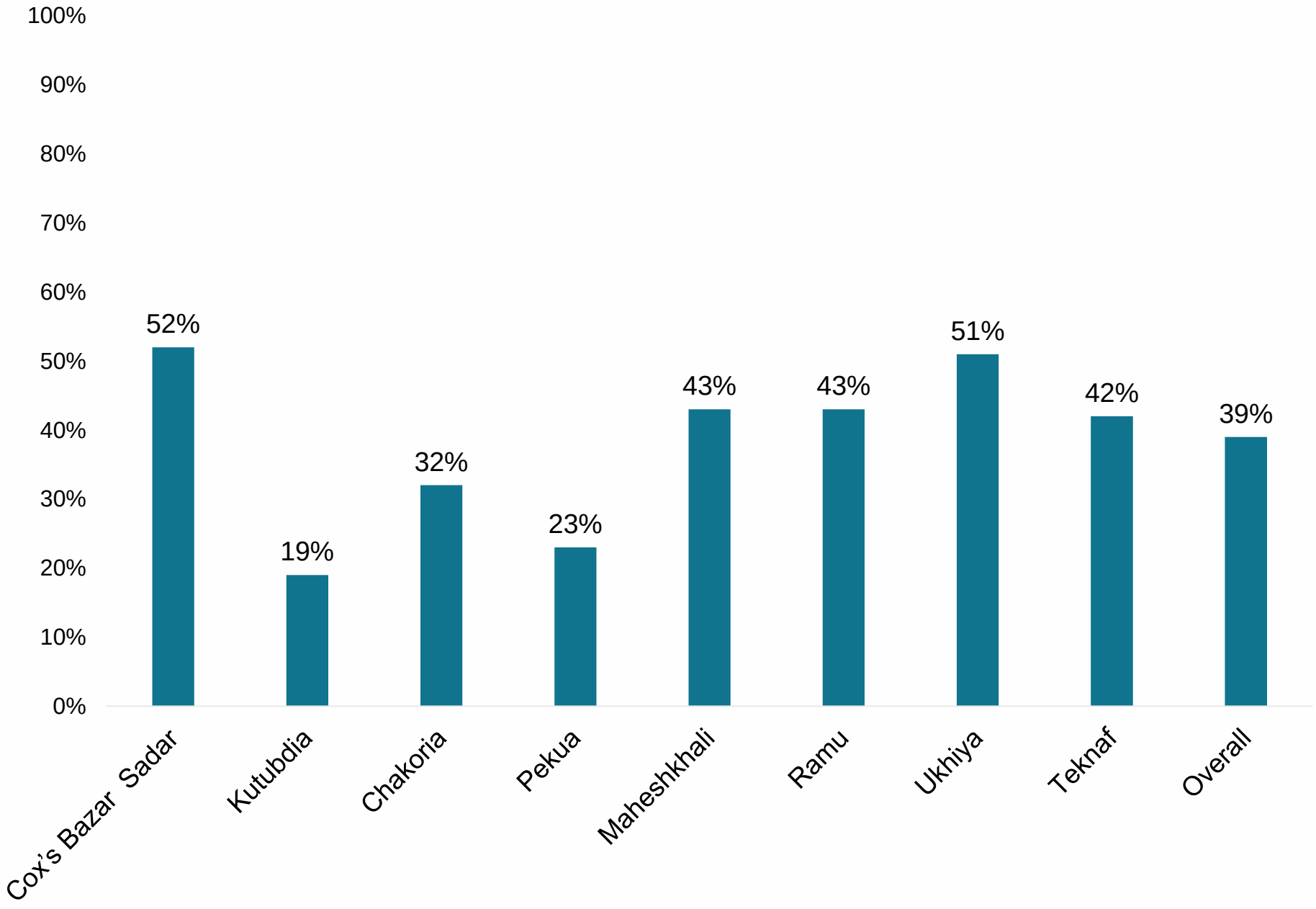
Hand washing practices at households



Child feces disposal practices at households

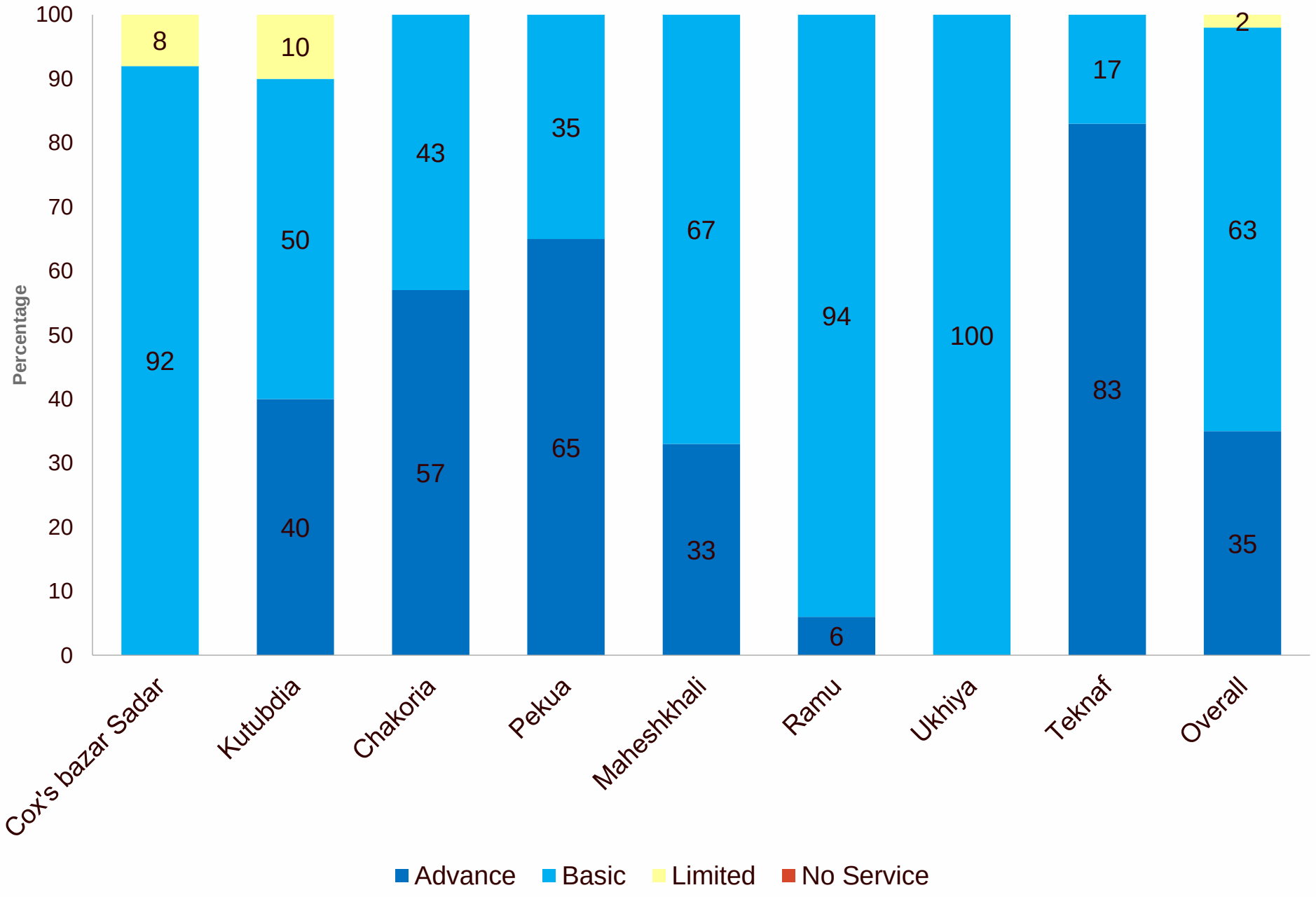


Menstrual hygiene management at households

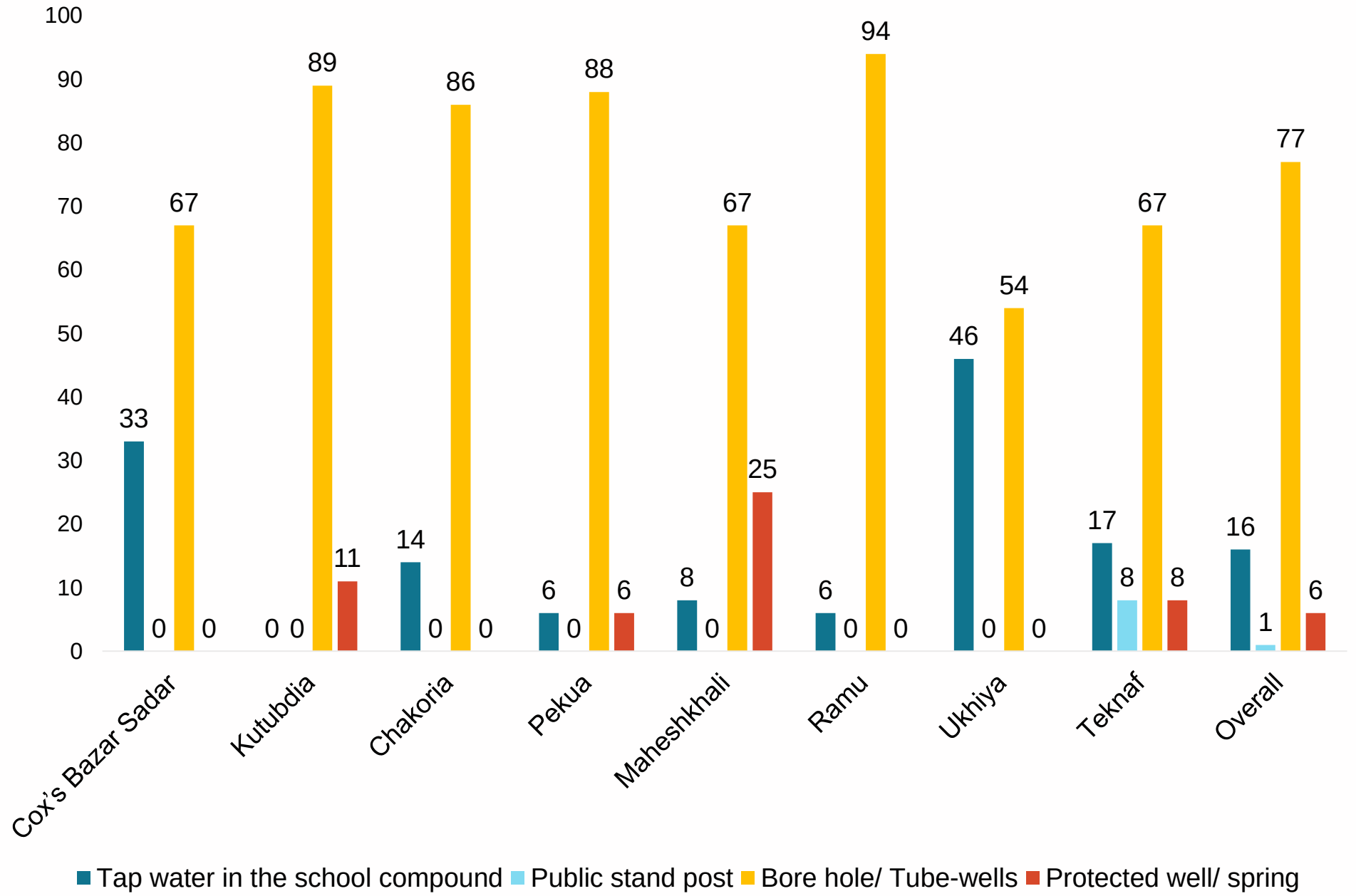


Results: Schools

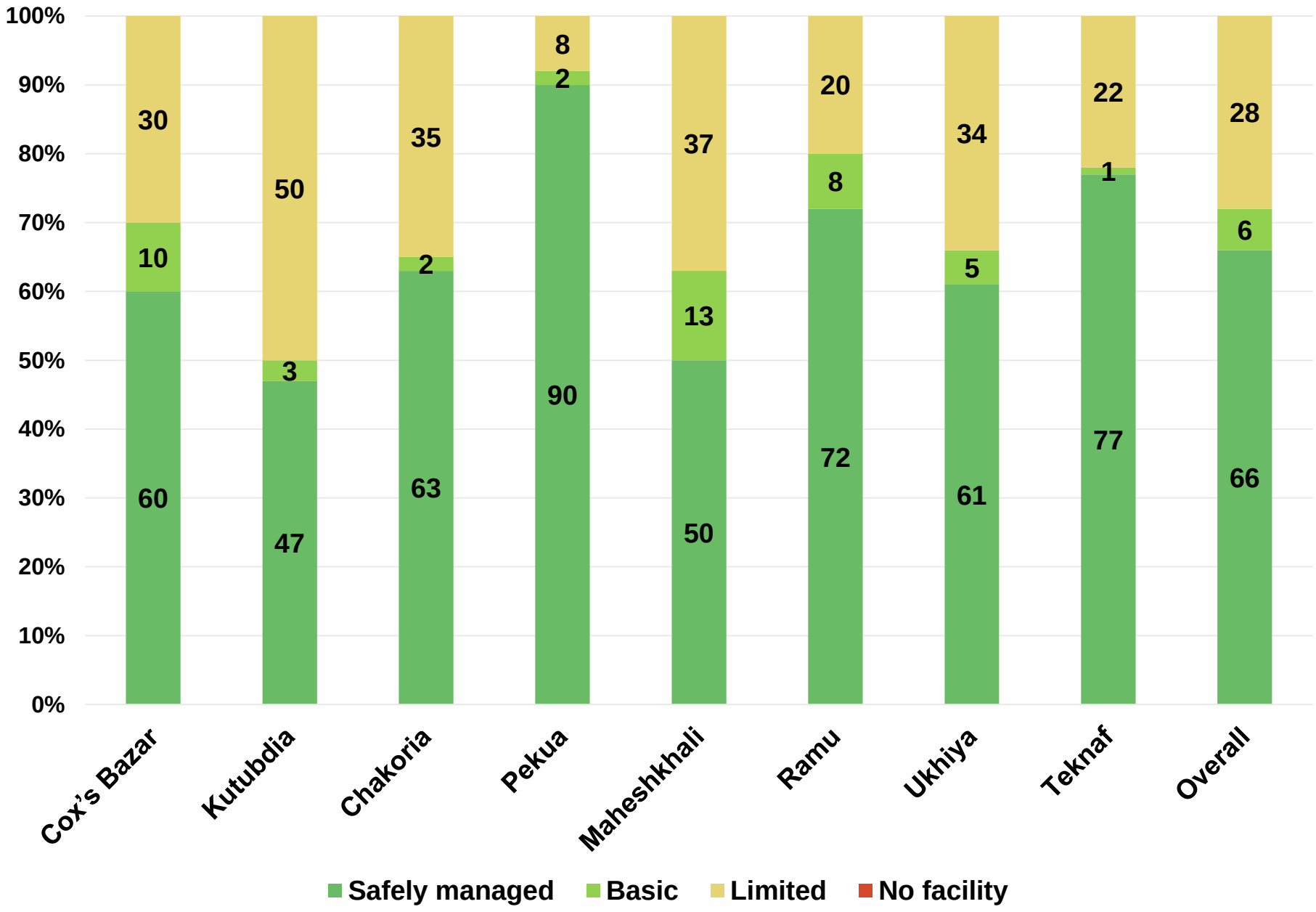
Drinking water access at Schools



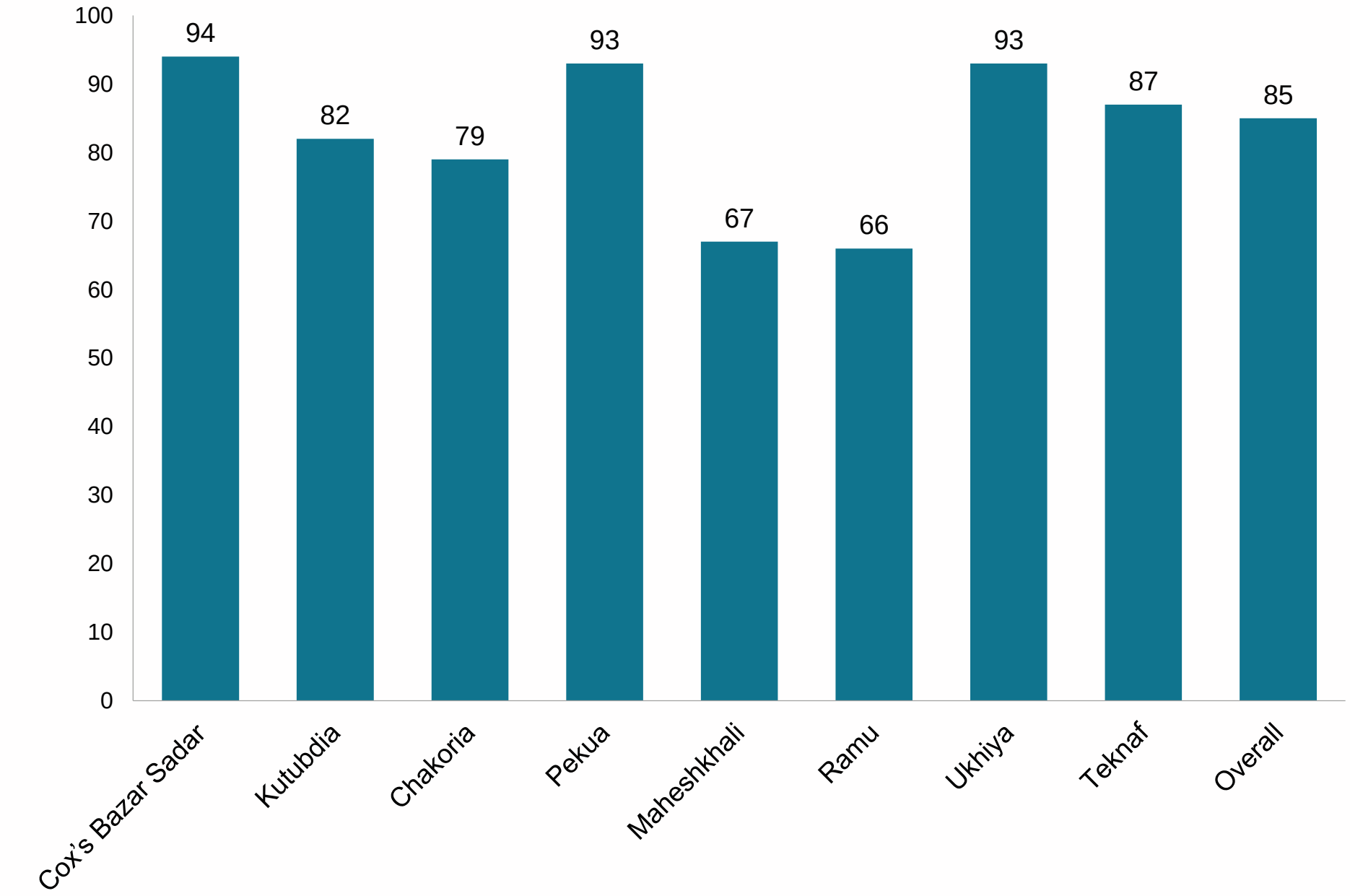
Drinking water technologies at Schools



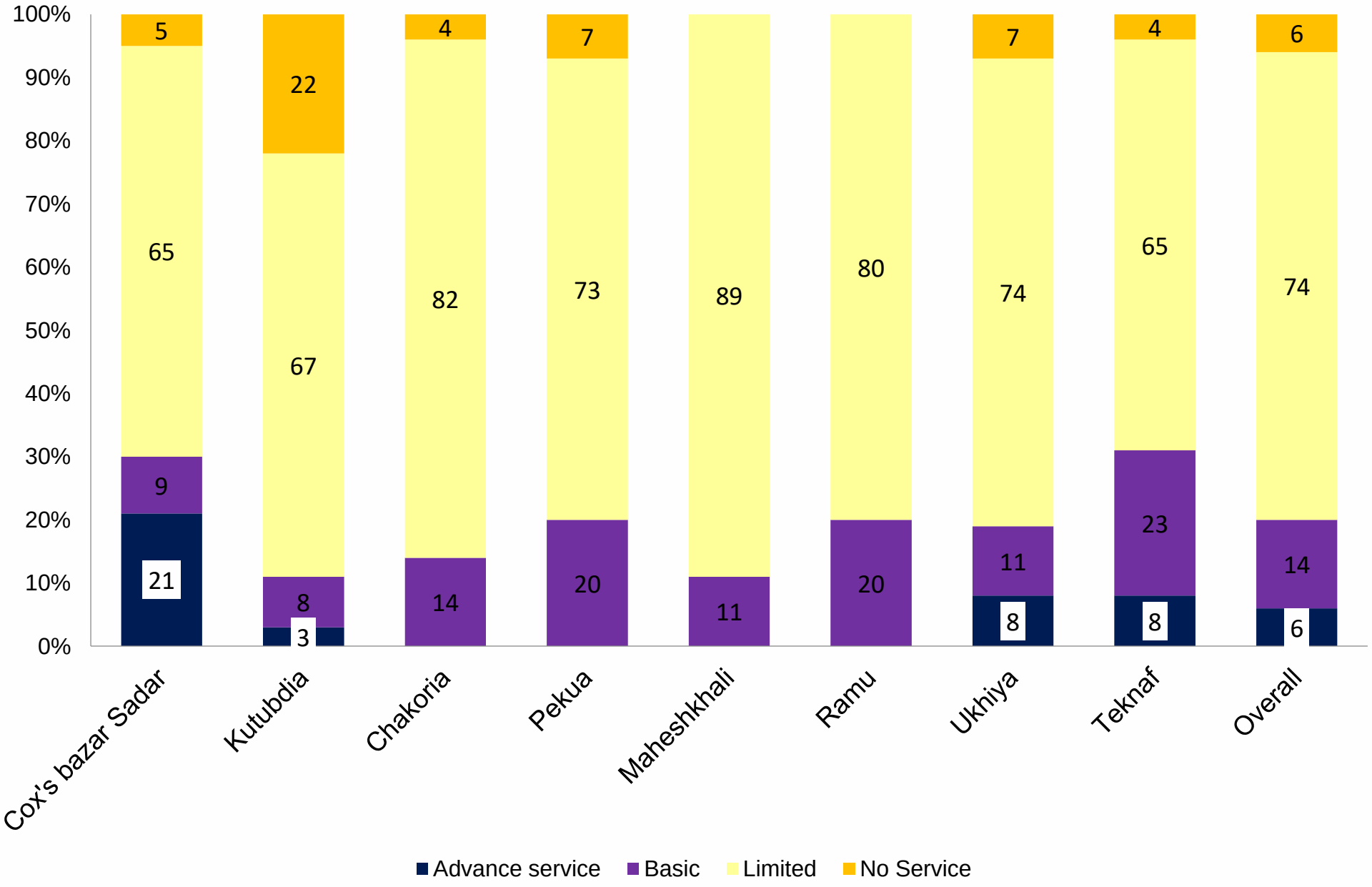
Access to sanitation at Schools



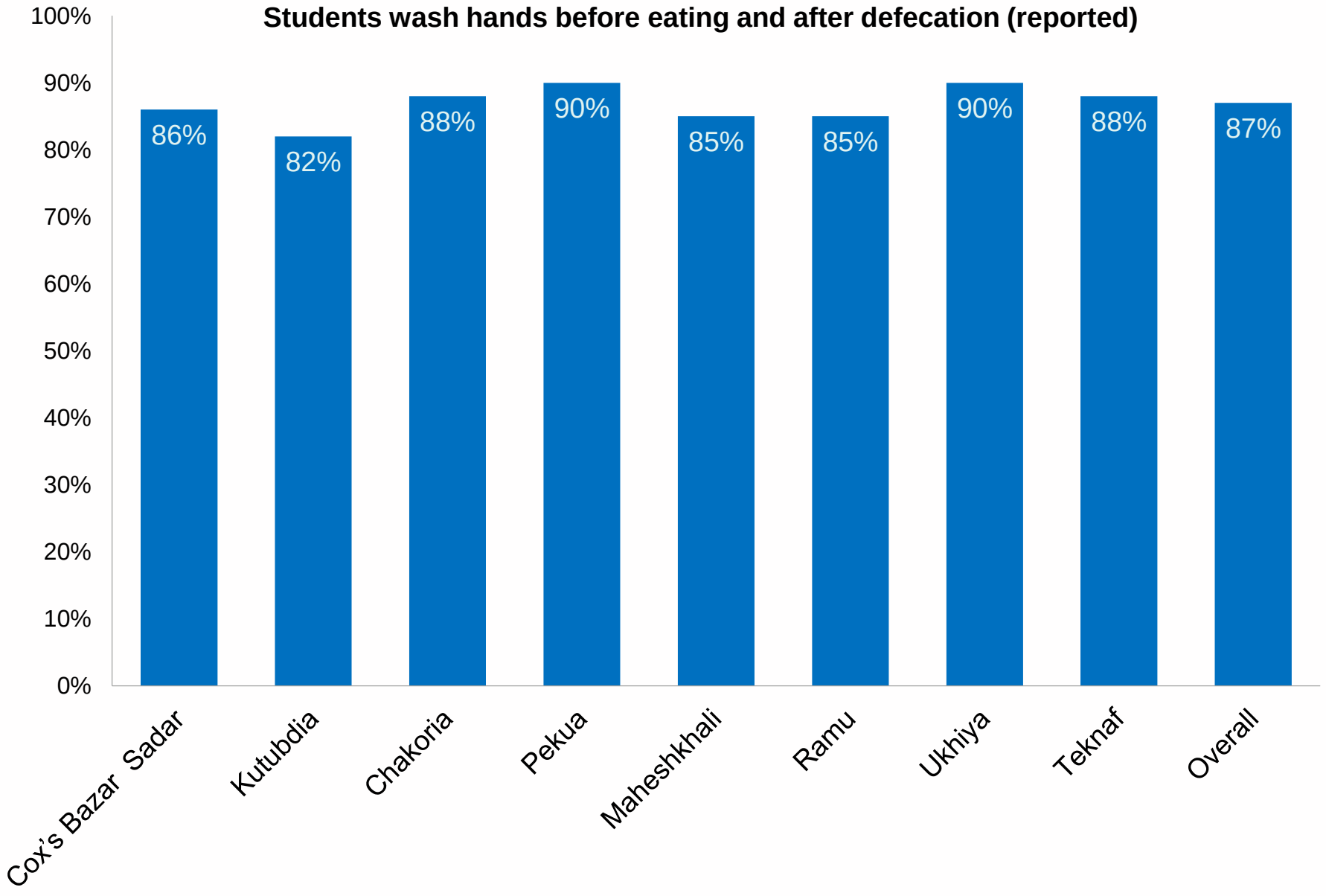
Running water available inside toilet at schools



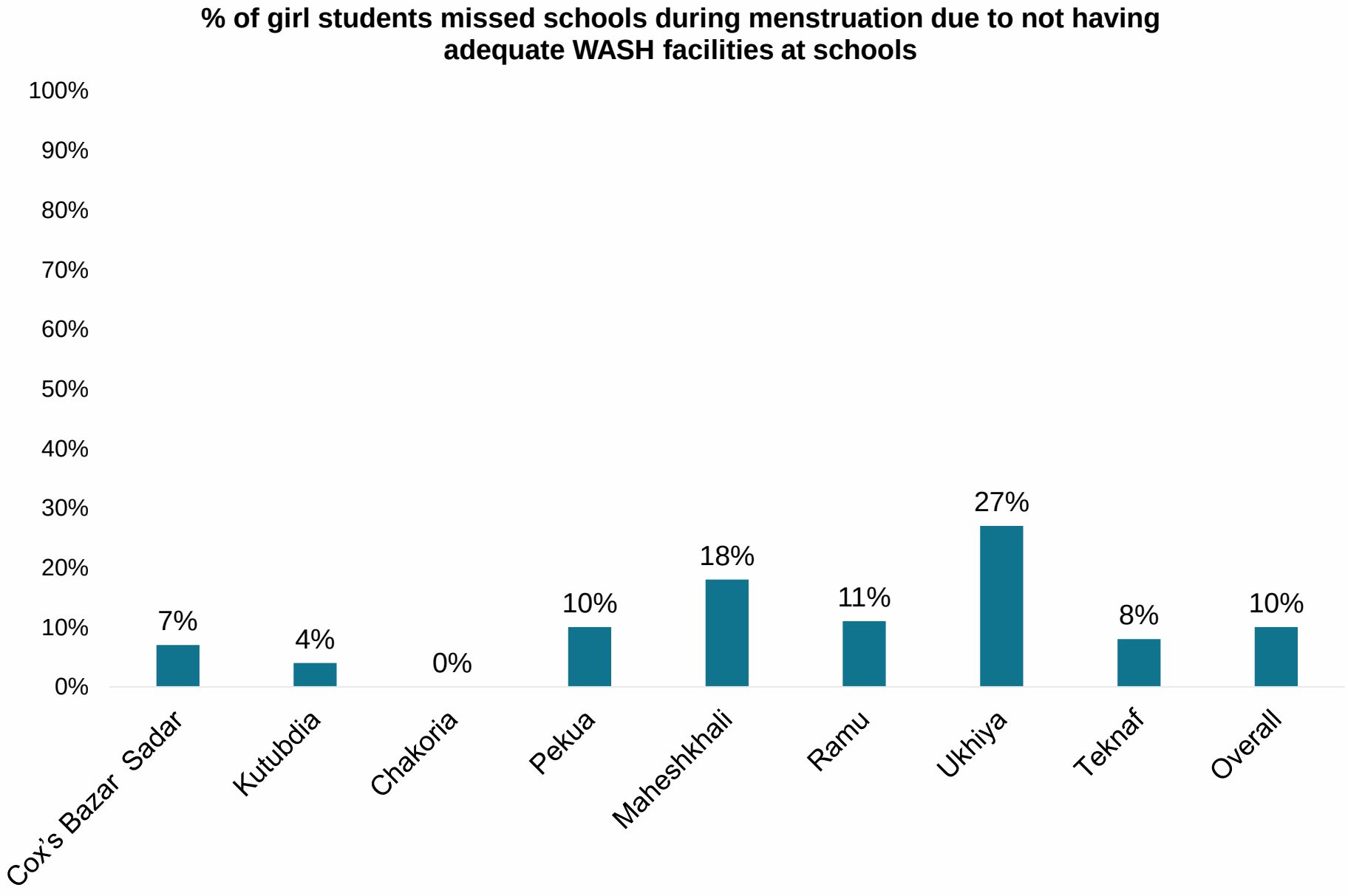
Hand washing facilities at schools



Hygiene practices at schools

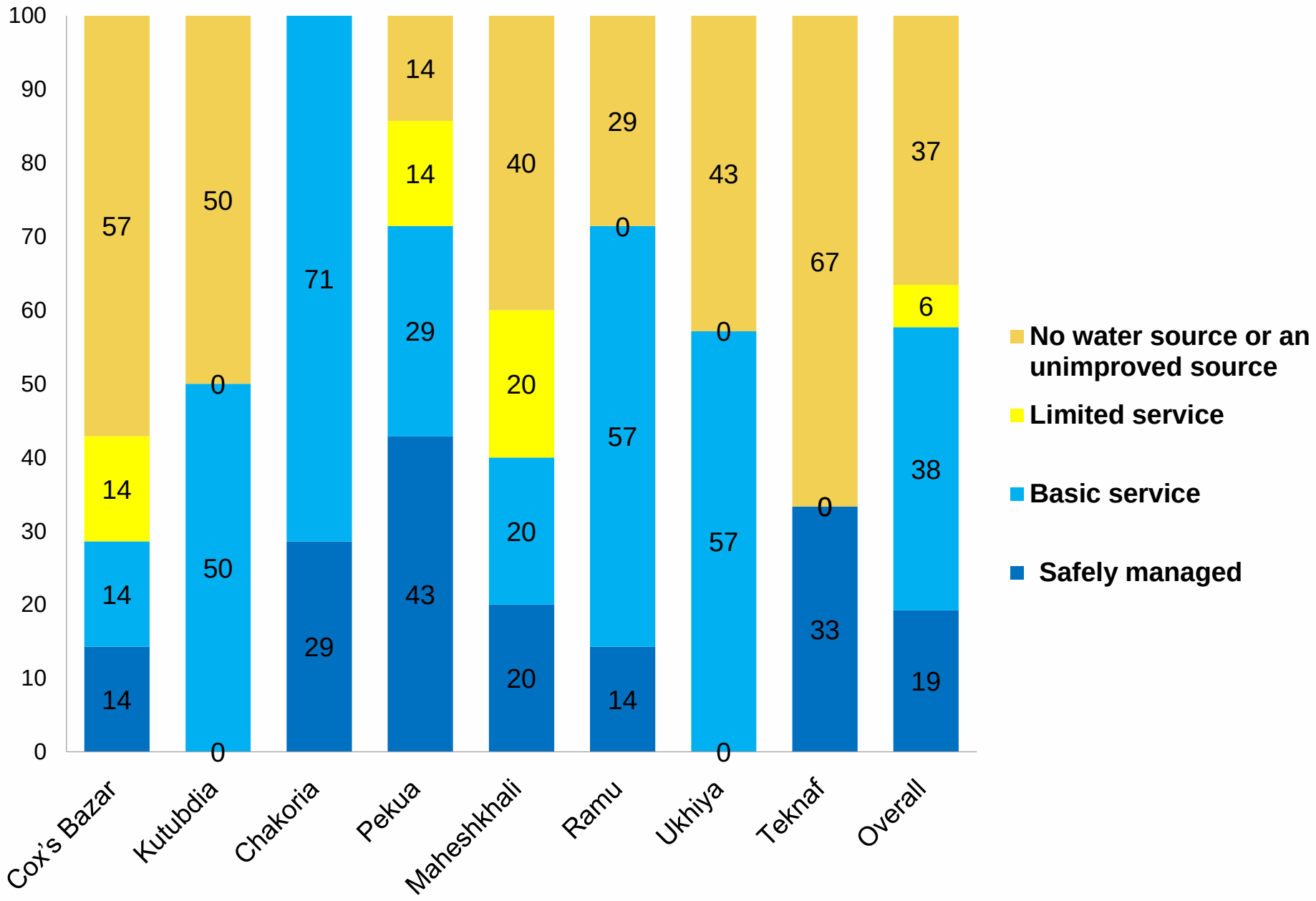


Menstrual hygiene management at schools

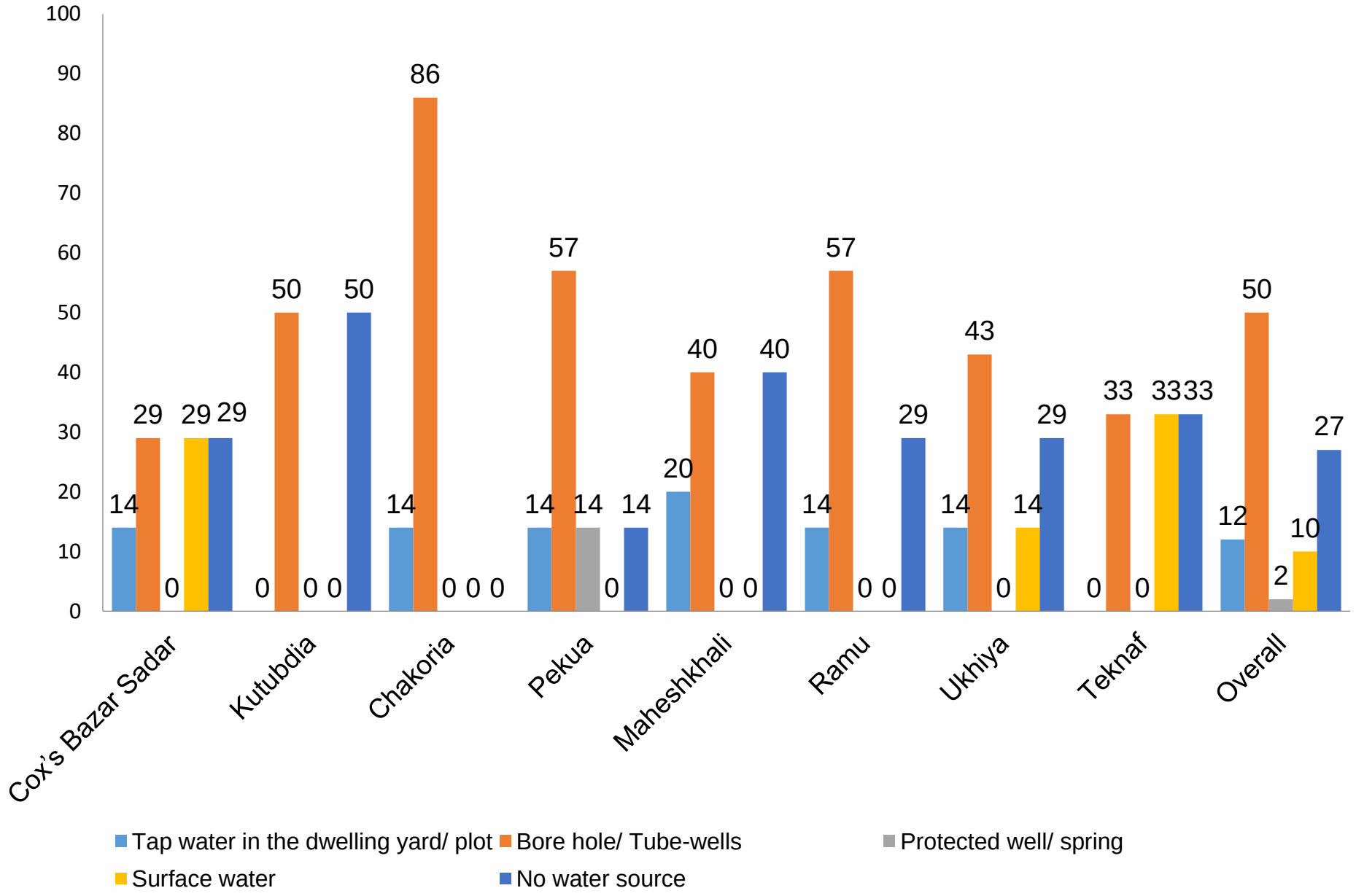


Results: Health centers

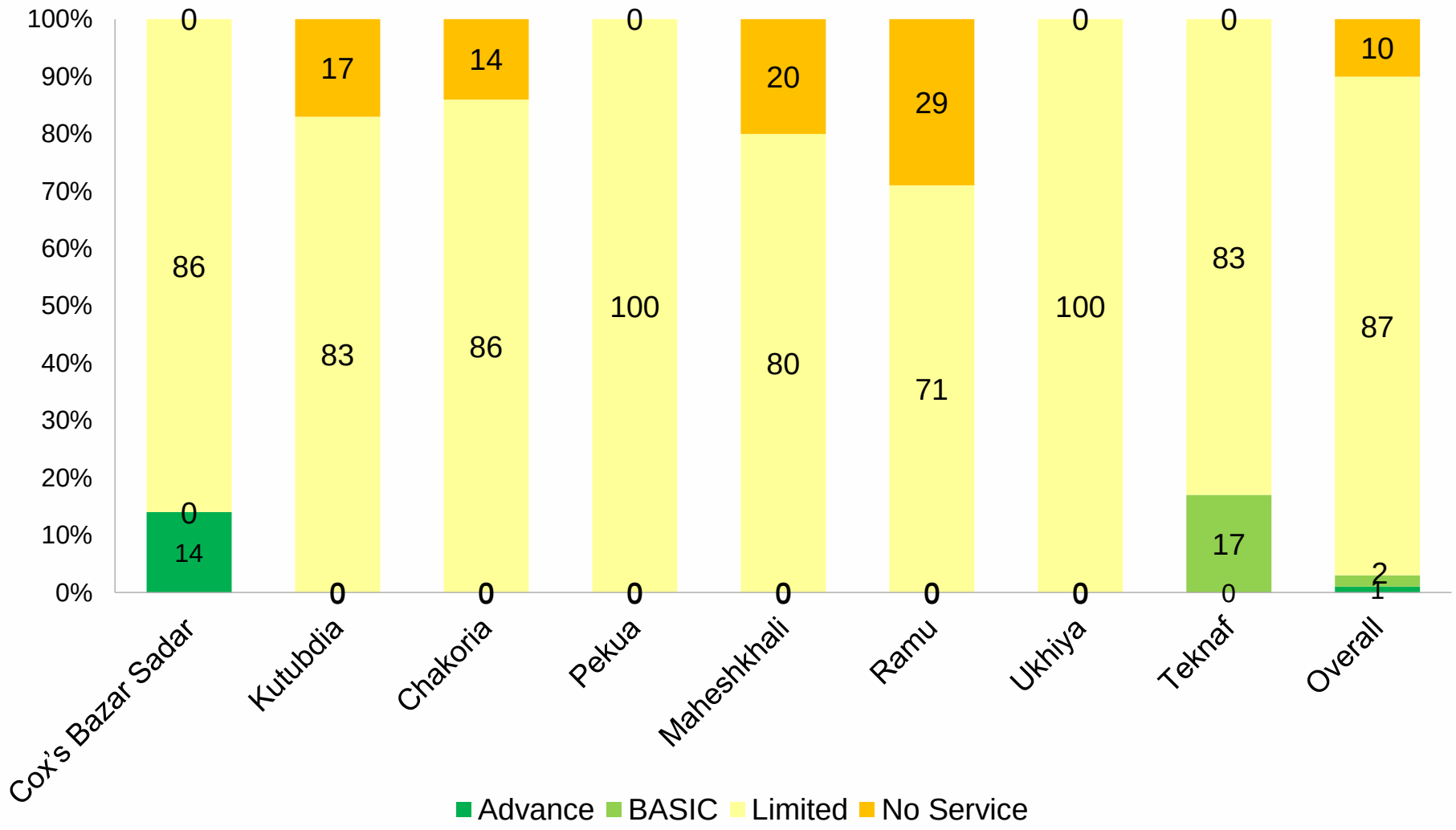
Drinking water at health care center



Drinking water technologies at health centers



Sanitation access at health centers



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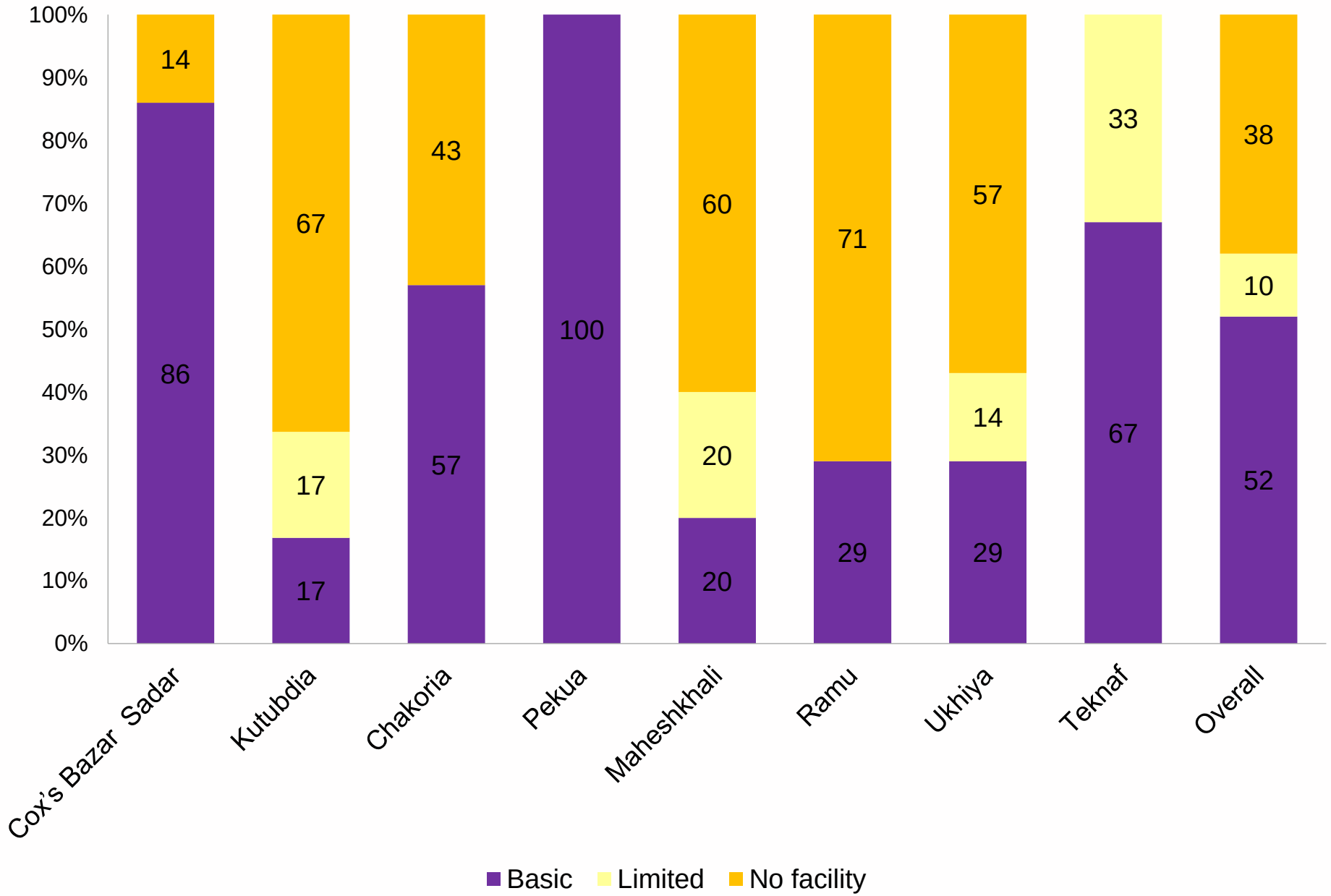
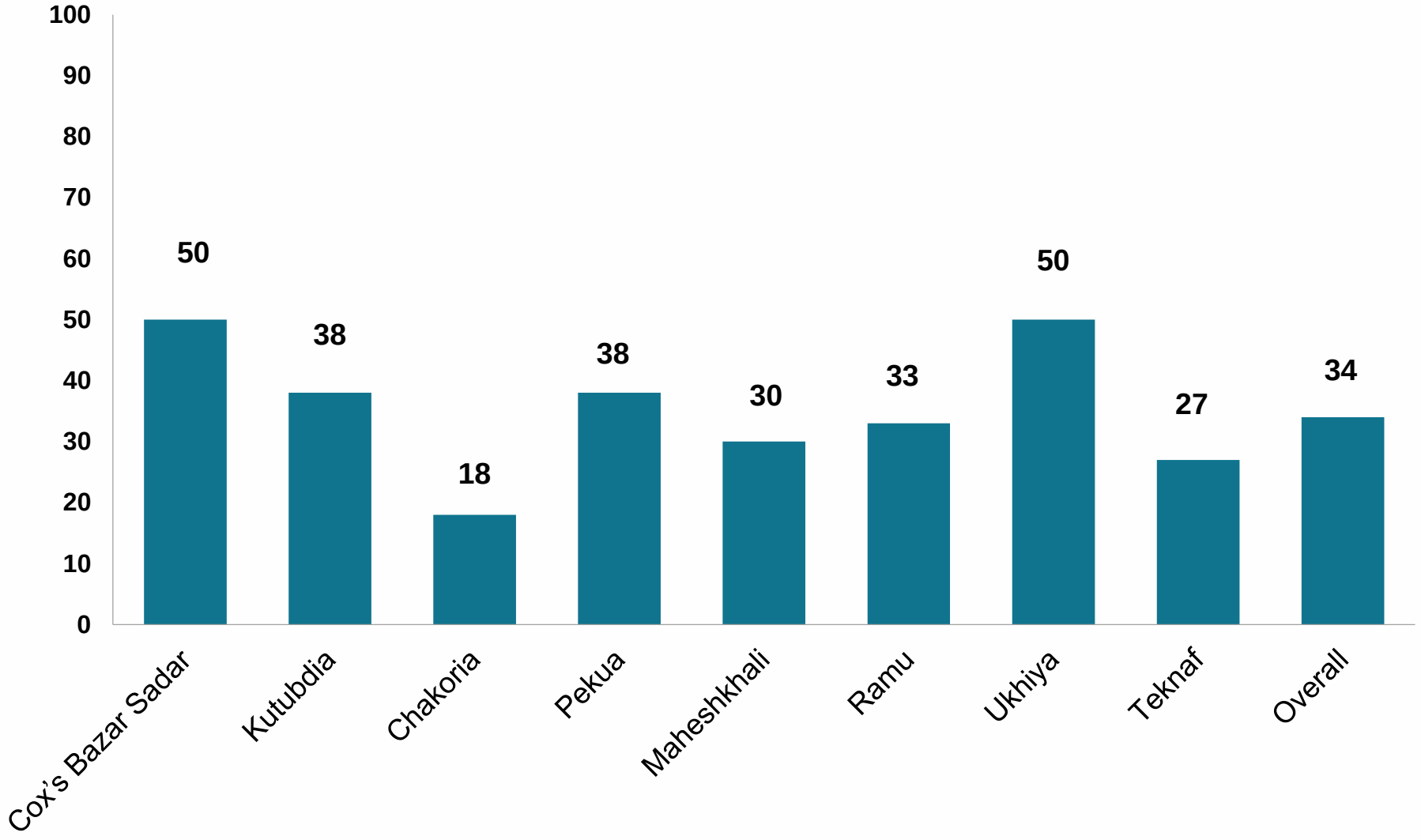
Hygiene facilities at health centers



Growth centers

Water access at growth centers



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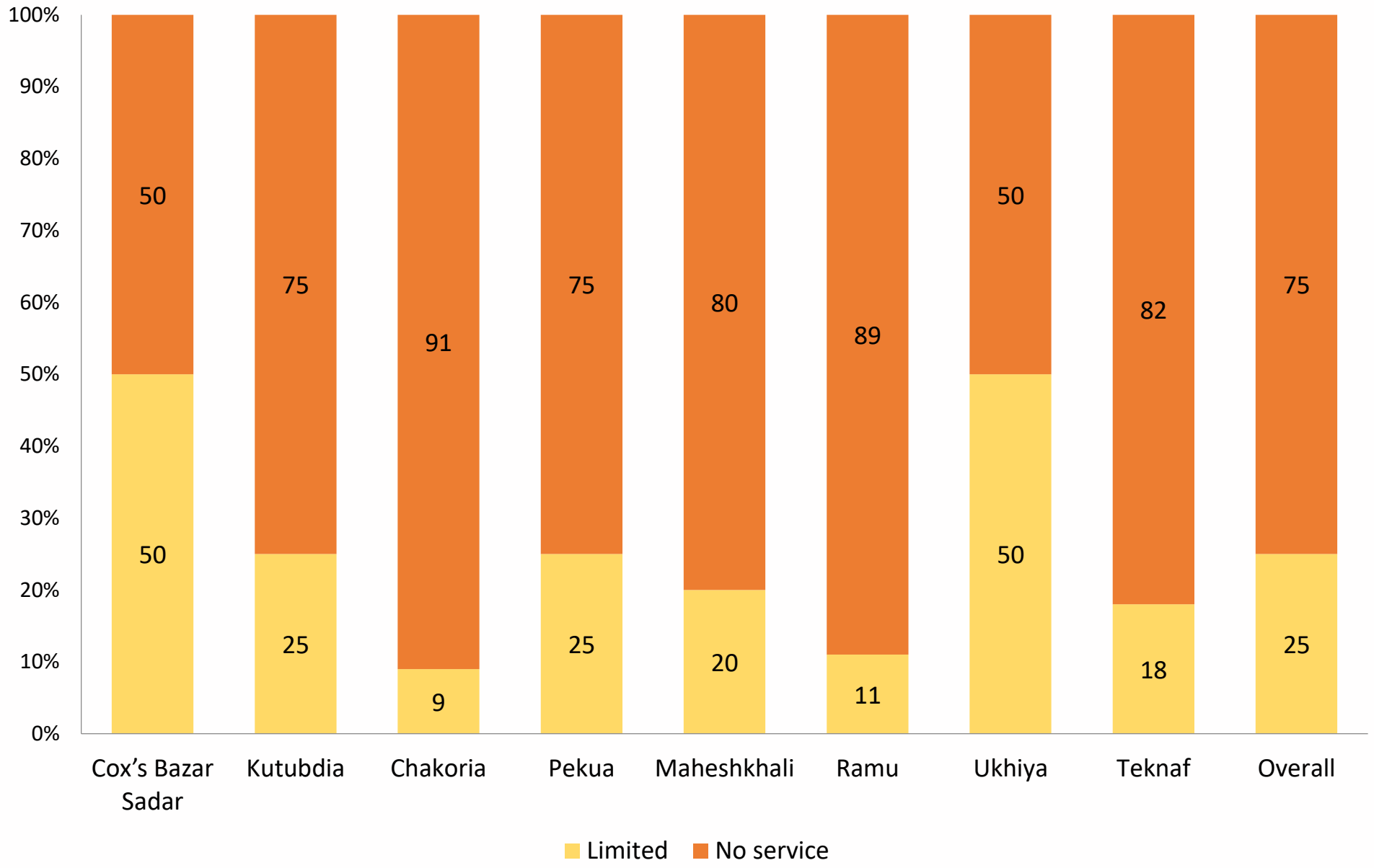
Sanitation access at growth centers



Results: Qualitative Assessment

Barriers and challenges to access to safe drinking water

Description of barriers	Cox's Bazar Sadar	Ramu	Ukhiya	Teknaf	Chakoria	Pekua	Maheshkhali	Kutubdia
High concentration of iron and saline								
Expensive technologies								
Long distance, hilly area								
Inadequate number of improved water sources								

Factors affecting the adoption of an improved toilet

Description of barriers	Cox's Bazar Sadar	Ramu	Ukhiya	Teknaf	Chakoria	Pekua	Maheshkhali	Kutubdia
Lack of resources for improved toilet and child's potty								
Poor designed latrines and lack of maintenance								
Lack of awareness about the advantages of sanitary latrines								

High barrier Medium barrier Low barrier

Factors affecting the regular hand washing with soap

Description of barriers	Cox's Bazar Sadar	Ramu	Ukhiya	Teknaf	Chakoria	Pekua	Maheshkhali	Kutubdia
Lack of awareness about benefit of handwashing with soap								
Habits of not washing hands with soap								
Inconvenience of getting soap and water together at handwashing location								
Lack of affordability to buy soap regularly								

High barrier Medium barrier Low barrier

Institutional Capacity Assessment

Key Findings and Recommendation: Enabling Environment

Key Findings	Recommendations
Low awareness about the national policies, strategies, frameworks and guidelines	Develop proper materials and arrange training, workshop for all stakeholders to inform WASH policies, strategies, frameworks and guidelines
Institutes works as per instruction of higher authorities	Upazila based guideline for coordination of various institutes is necessary for smooth implementation of WASH programs

Key Findings and Recommendation: Institutional Arrangement

Key Findings	Recommendations
• Inadequate WASH facilities in public places, growth centres, cyclone shelters and CC • Lack of effective coordination among DPHE and other WASH stakeholders • Union council and DPHE work in coordination but do not have any institutional accountability	• To achieve SDG 6.2 by 2030, DPHE local authority would take initiative to assess local situation and make plan with the support and participation of all stakeholders • Develop joint monitoring mechanism at local level and share monitoring report among the relevant stakeholders
Apart from project-based planning, no long-term or short-term plan available for WASH services	Promote bottom-up, participatory, long-term plan for delivering WASH services by DPHE in coordination with relevant institutes

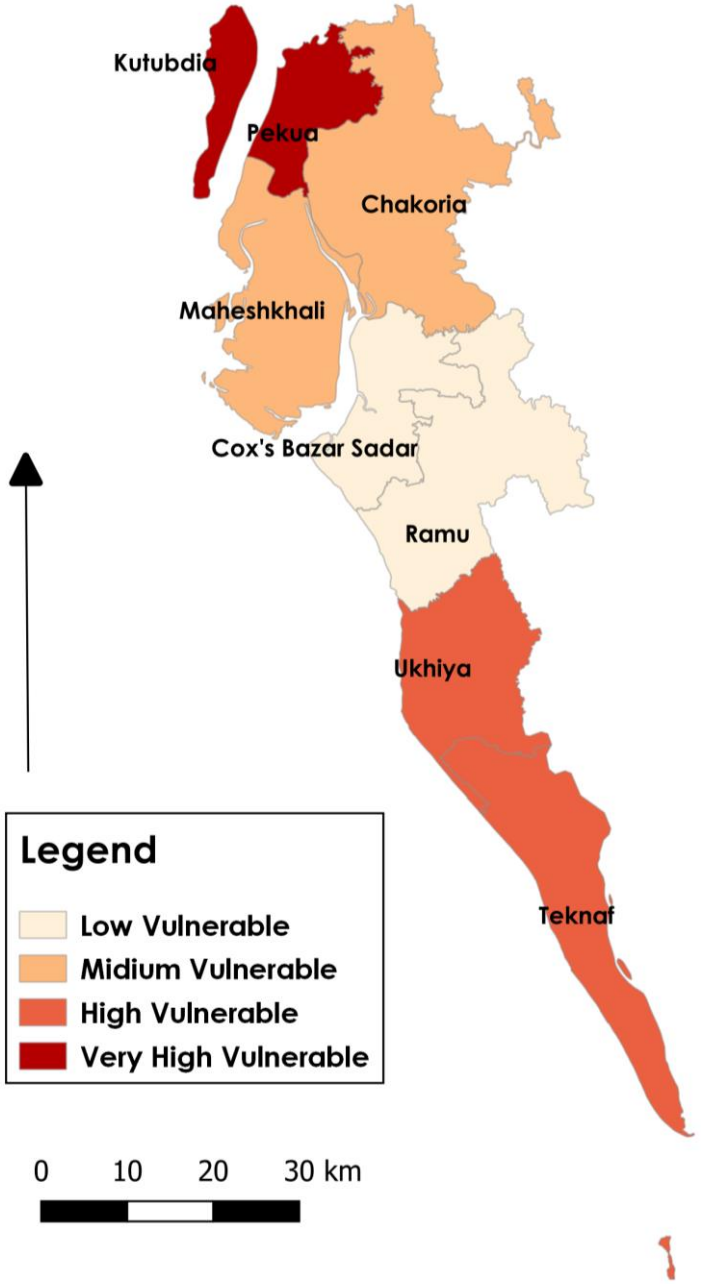
Key Findings and Recommendation: Institutional Arrangement

Key Findings	Recommendations
Upazila WATSAN committees were not active; and lack of linkage between Upazila and Union WATSAN Committees	Ensure regular monthly meetings of the Union and Upazila level WATSAN committees by the lead role of DPHE
No mechanism for quality assurance of the WASH products	A mechanism must be developed for the private sector/local entrepreneurs to produce quality products
No accountability of the private sector/local entrepreneurs	Ensure accountability of the sanitation business owners to the government

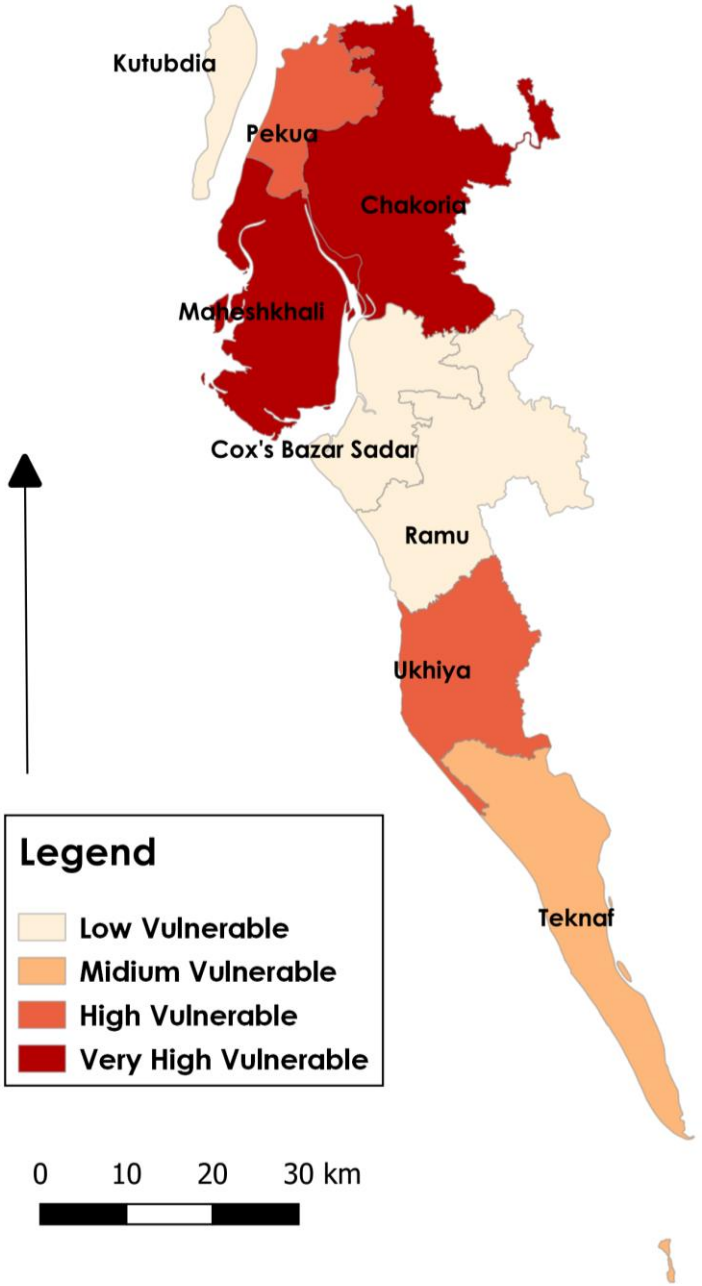
Key Findings and Recommendation: Resource Management

Key Findings	Recommendations
Inadequate vehicles for DPHE upazila level staff for field movement and monitoring activities	Ensure arrangements of official vehicles to perform routine duties and monitoring activities for DPHE staff
Inadequate workforce for WASH activities in health and family planning sector	WASH specific workforce required to improve WASH situation at households and growth centers
Lack of budget allocation for the Primary Education department in WASH services	• Budgets and targets should be fixed after planning at local level • Need participation of Education Officer during allocation of ADP budget
Local offices did not have any role in budget preparation (top-down approach)	About 40% of the budget should allocate by the MPs, 40% by the WATSAN committee and 20% by the institutes

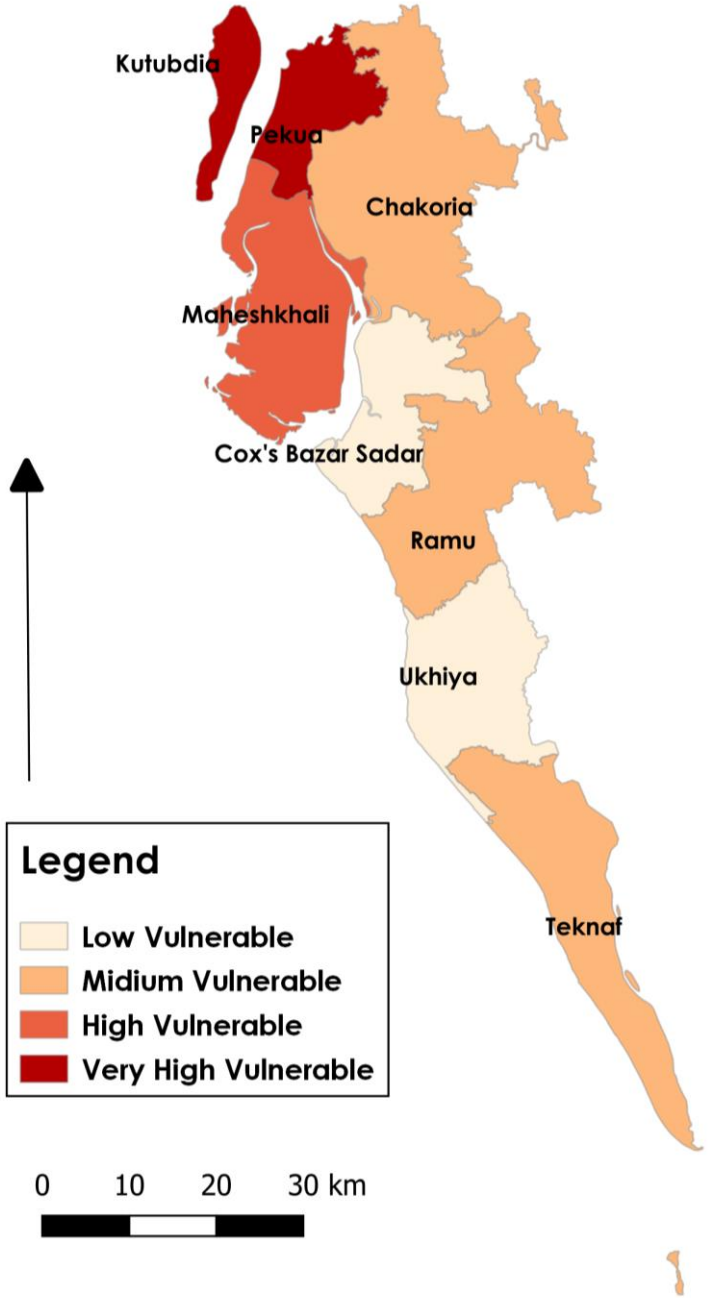
Vulnerability in terms of Water



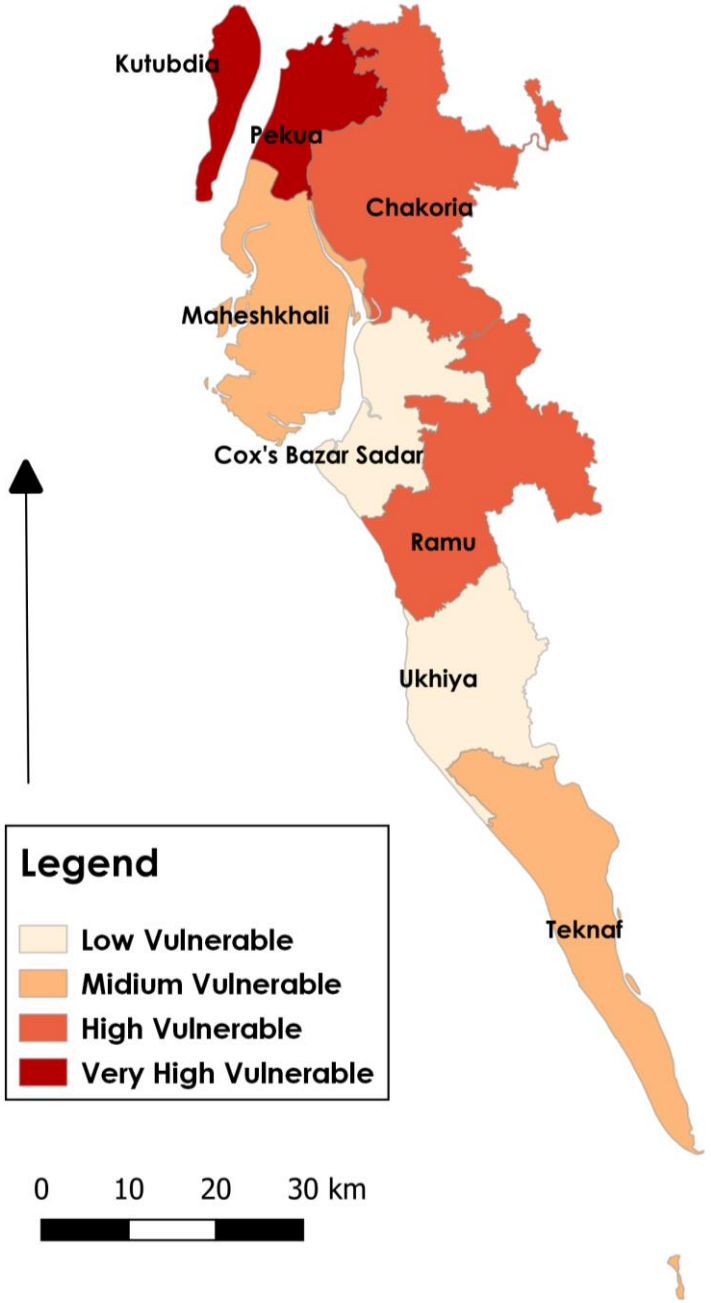
Vulnerability in terms of sanitation



Vulnerability in terms of hygiene



Overall WASH vulnerability



This project has been funded by

unicef
for every child

Collaborators:

Government of the People's Republic of Bangladesh

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icddr,b also thanks its core donors for their on-going support

Government of the People's Republic of Bangladesh

Canada

SWEDEN

UKaid
from the British people

Thank You

Annex: additional slides

Methods & Results

Households

Sampling and respondent selection

- Sampling technique: Systematic sampling technique
- Started from geographic middle point of each cluster
- Then selected the first household from north side
- Selected primarily any adult female as respondent; if female not available, then select adult male
- Skipped 2 household to select the next household
- If a household refused, next closest eligible household was selected
- Process continued until attainment of required sample size

Key indicators for households survey: Water

- Type of water source according to JMP definition
- **Safely managed:** Drinking water from an improved source which is located on premises, available when needed and free from faecal and priority chemical contamination
- **Basic:** Drinking water from an improved source, provided collection time is not more than 30 minutes for a roundtrip
- **Limited:** Drinking water from an improved source for which collection time exceeds 30 minutes for a roundtrip
- **Unimproved:** Drinking water from an unprotected dug well or unprotected spring
- **Surface water:** Drinking water directly from a river, dam, lake, pond, stream, canal or irrigation canal

Key indicators for households survey: Water

- Water safety plan according to WHO guidelines
- Accessibility
    - functional and improved water source
    - within the house/150 meters
- Utilization
    - accessible
    - using water within last two days

Key indicators for households survey: Water

- Adequate coverage
  - utilization
  - using a minimum of 20 liters/person/day of water round the year
- Disaster resilience
  - submerged water source during flood
  - raised platform within 500 meter from household

Key indicators for households survey: Sanitation

- Type of toilet according to JMP definition
- **Safely managed:** Use of improved toilet which are not shared with other households and where excreta are safely disposed in situ or transported and treated off-site
- **Basic:** Use of improved toilet which are not shared with other households
- **Limited:** Use of improved toilet, shared between two or more households
- **Unimproved:** Use of pit latrines without a slab or platform, hanging latrines or bucket latrines
- **Open defecation:** Disposal of human faeces in fields, forests, bushes, open bodies of water, beaches and other open spaces

Key indicators for households survey: Sanitation

- Accessibility
  - households use an improved toilet within 20 meters
- Utilization
  - accessible
  - accessible by all members including >5y old child
- Adequate coverage
  - utilization
  - clean and can be used all year round

Key indicators for households survey: Sanitation

- Effective coverage
  - adequate coverage
  - handwashing facilities with water and soap available inside or within 5m of the toilet
- Safe faces disposal for under five years of age child
- Disaster resilience
  - toilet within 50 meter from the household
  - accessible to disable
  - with raised pit/septic tank and with water seal

Key indicators for households survey: Hygiene

- Type of handwashing facilities according to JMP definition
- **Basic:** Availability of a handwashing facility on premises with soap and water
- **Limited:** Availability of a handwashing facility on premises without soap and water
- **No facility:** No handwashing facility on premises
- Accessibility

  - mothers/caregivers of children under five who have knowledge of the critical times to wash hands with soap
- Utilization

  - households with soap and water available inside the latrine or within five meters of the latrine
- Adequate coverage

  - observed latrine visits which were followed by handwashing with soap

Key indicators for households survey: Hygiene

- Effective coverage
  - observed latrine visits
  - effective handwashing: washed both hands with soap for at least six seconds
- Menstrual hygiene management
  - use of sanitary pad
  - use of reusable cloth which was washed with soap and dried under sunlight
  - able to change/wash when required
  - disposed properly
- Food hygiene (food was covered with lid)
- Hygiene knowledge, attitude and practice (KAP)

Households Survey: Other indicators

- Household demography
- Asset/wealth
- Home environment
- Childhood diarrhoea and other illness (reported)
- Exposure to hygiene promotion
- Handwashing practices (demonstration)
- Hand cleanliness score for the respondents
- Presence of Iron in the water (reported)
- Rural vs. Urban differences

- **Instrument:**
  - icddr,b standard module
  - Finalized upon consultation with unicef and stakeholders

Structured observation at households

- Structured observation (SO) at 119 households
- Duration: 120 minutes
- Two time slots in a day:
  - Morning (8.00am-10.00am)
  - Noon (11.00am-1.00pm)

Indicators

- Handwashing at key times
- Food hygiene
- Water collection and storage

Microbiological test of drinking water

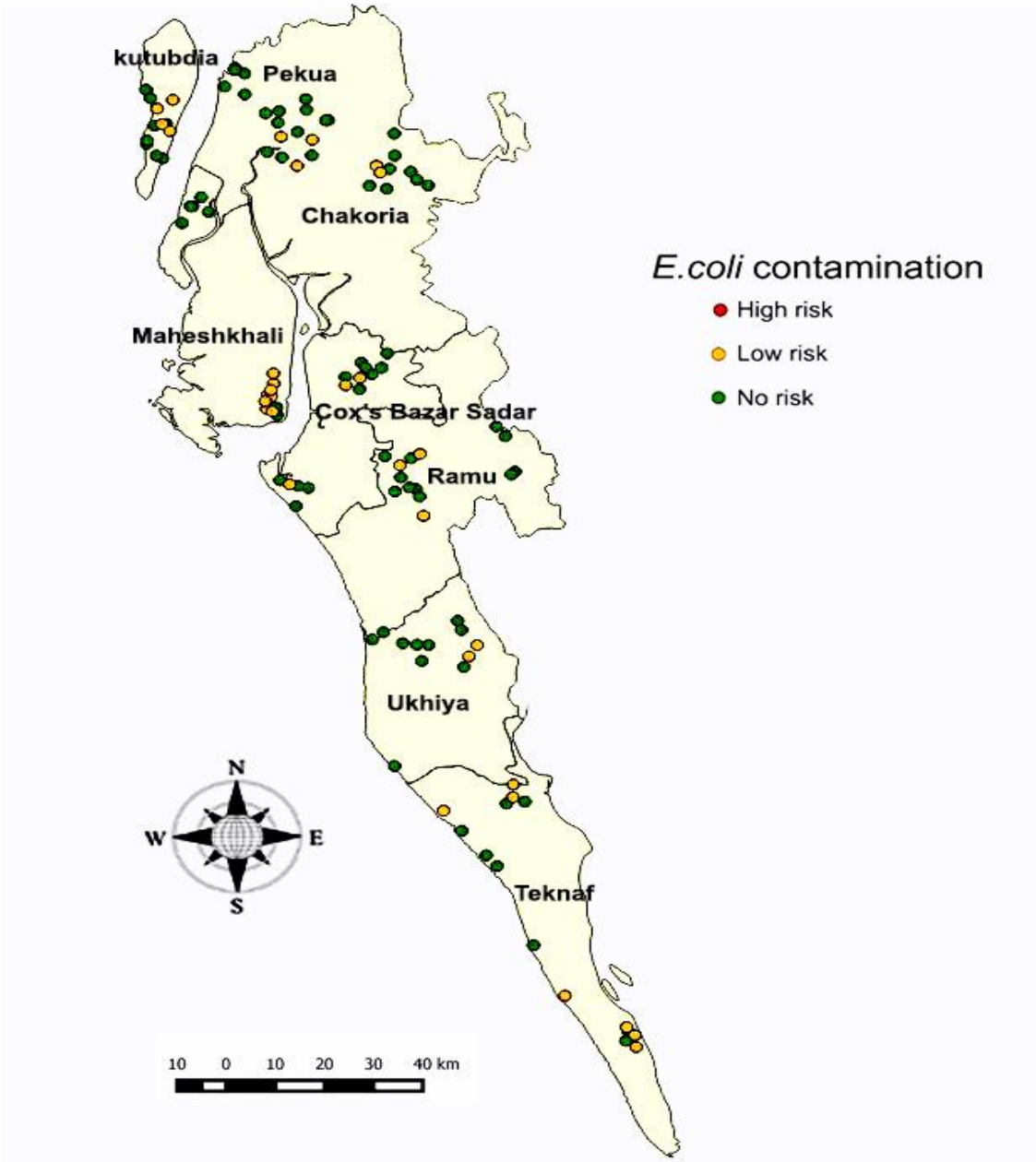
- Drinking water collection : 119 households, 52 health centers and 72 schools
- Both source and storage water was collected
- Sterilization of sample collection materials in earlier day
- Water collection in Whirl-Pak bag and immediately place it into cool box at < 10°C
- Samples was sent to icddr,b lab (DPHE) within 6 hours
- Stored them in refrigerator at 4°C until testing
- Faecal Coliform and E. coli testing: **IDEXX method**

Quantitative Data Analysis

- Descriptive analyses
- Disaggregated analysis:
  - Geography
  - Gender
  - Wealth quintile
  - Urban vs, Rural
- Result was compared with DHS, MICS and BNHS
- Generalized Estimated Equation (GEE): Association of child illness with WASH indicators
- Multivariable model: confounder and cluster adjustment
- Spatial distribution of WASH facilities

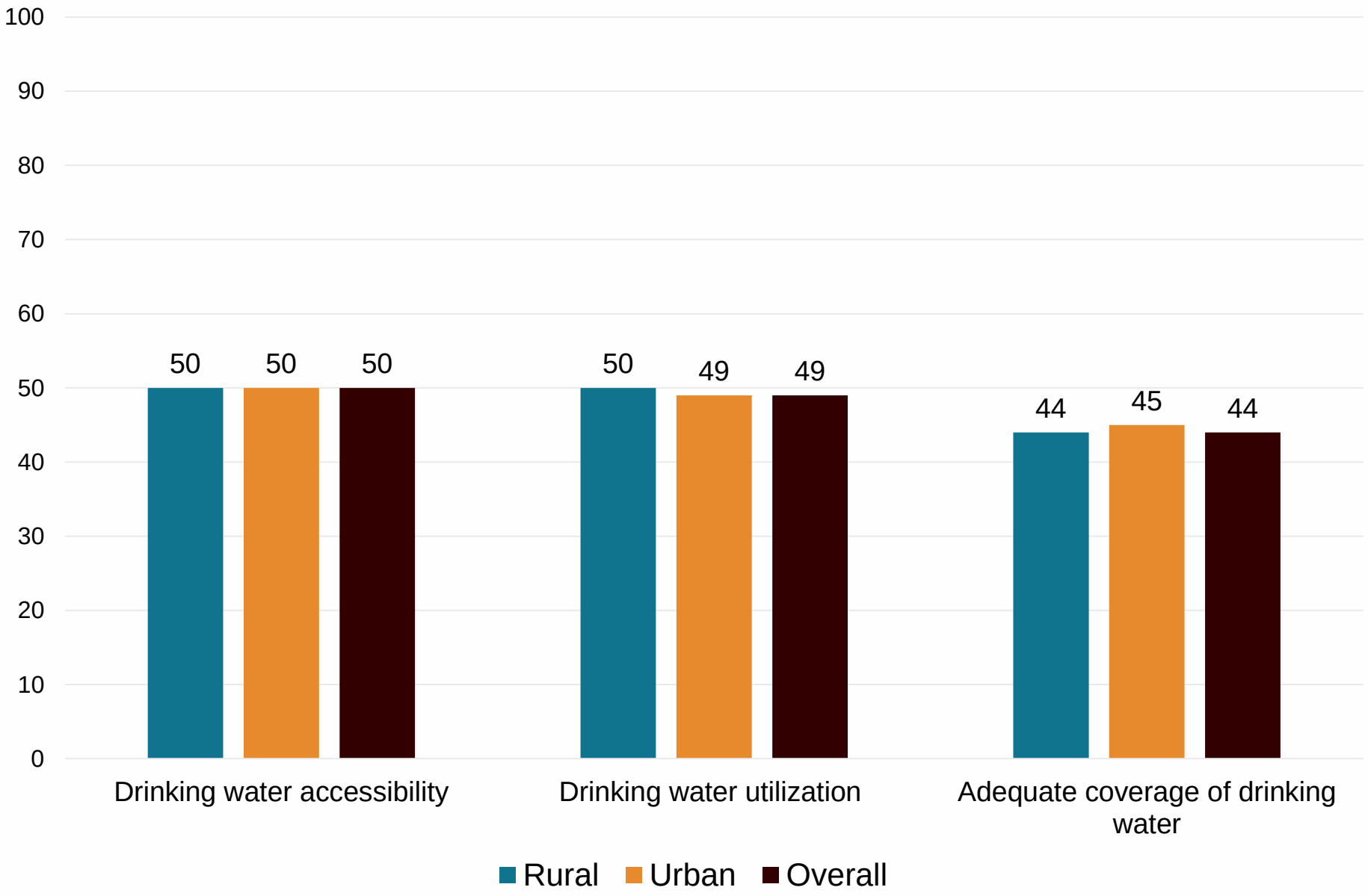
Results: Households

Drinking water quality at households



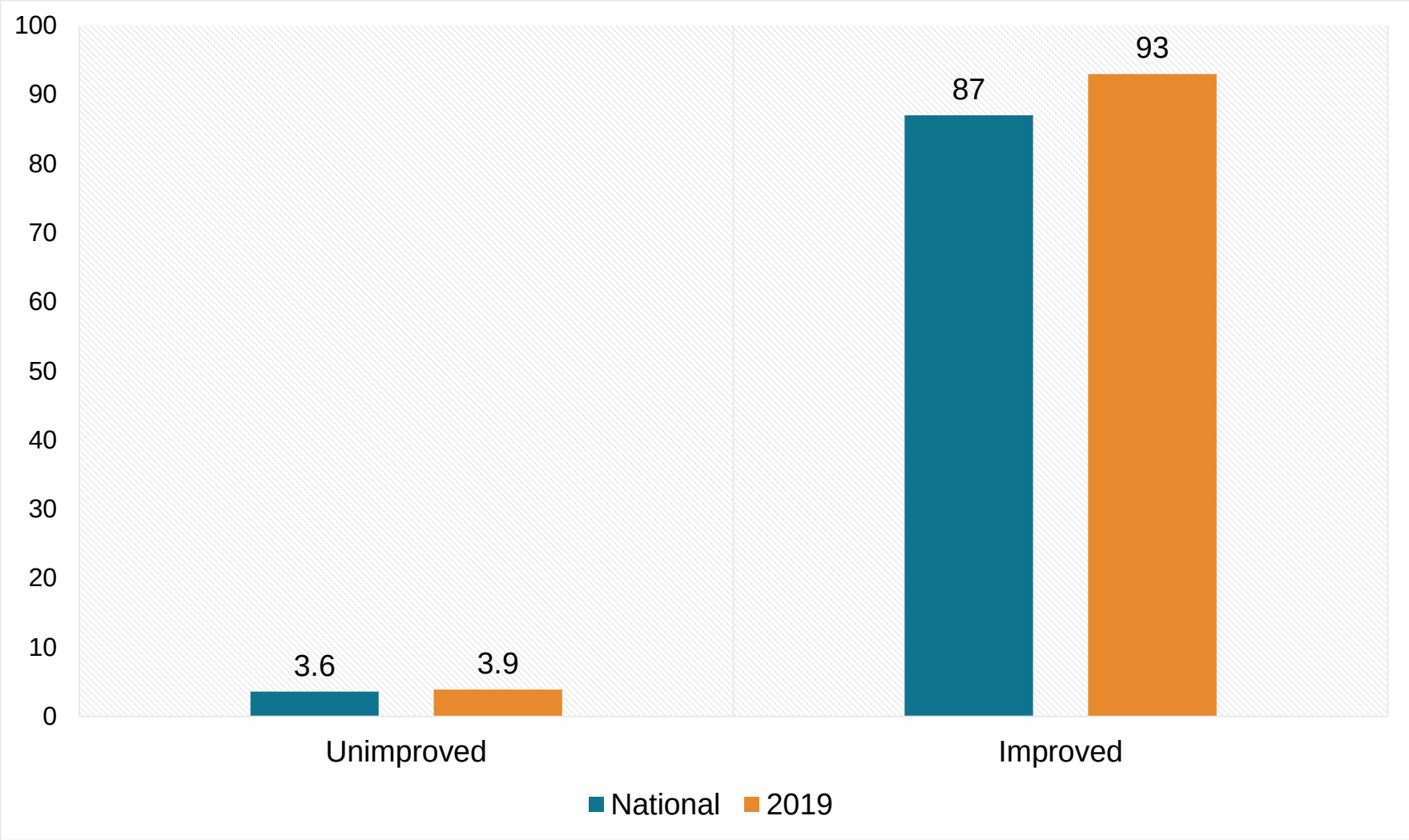
***E. coli (WHO disease risk category)*
<1 MPN (no risk)
1-10 MPN (low risk)
>10 MPN (moderate to high risk)

Accessibility, utilization and adequate coverage of drinking water at households



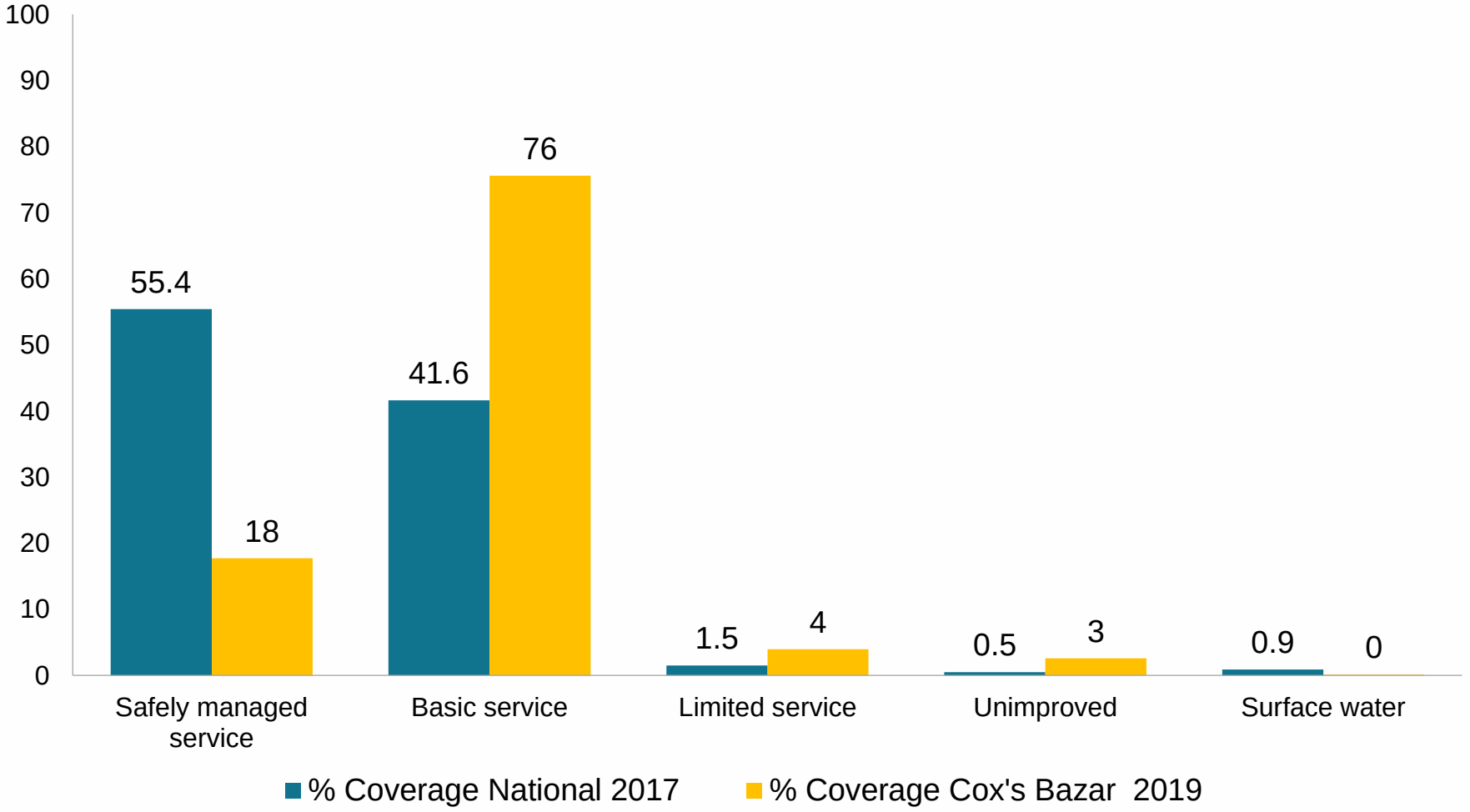
Comparison with national data set

Water source at household: National vs. Cox's Bazar 2019

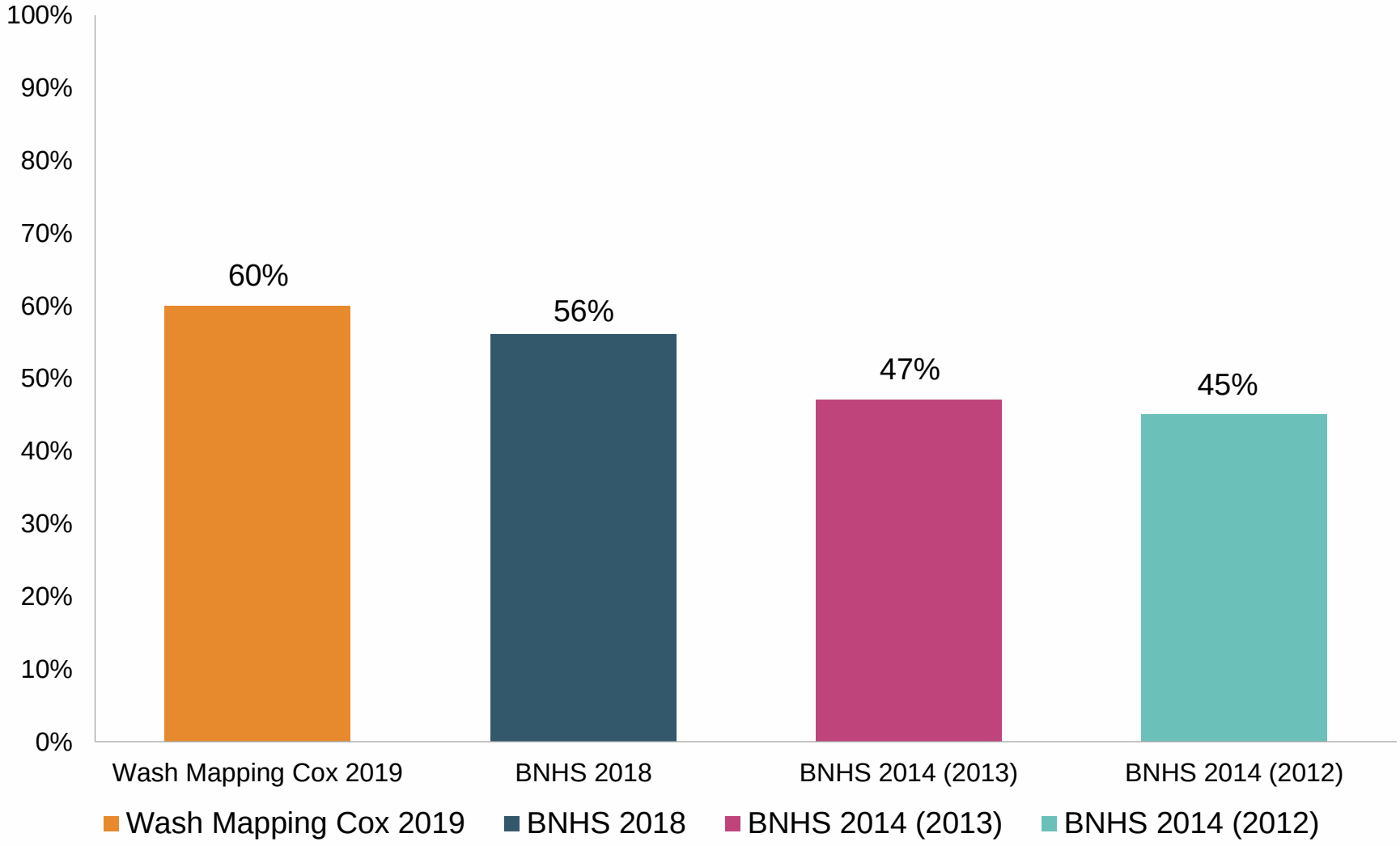


National data source: unicef 2017

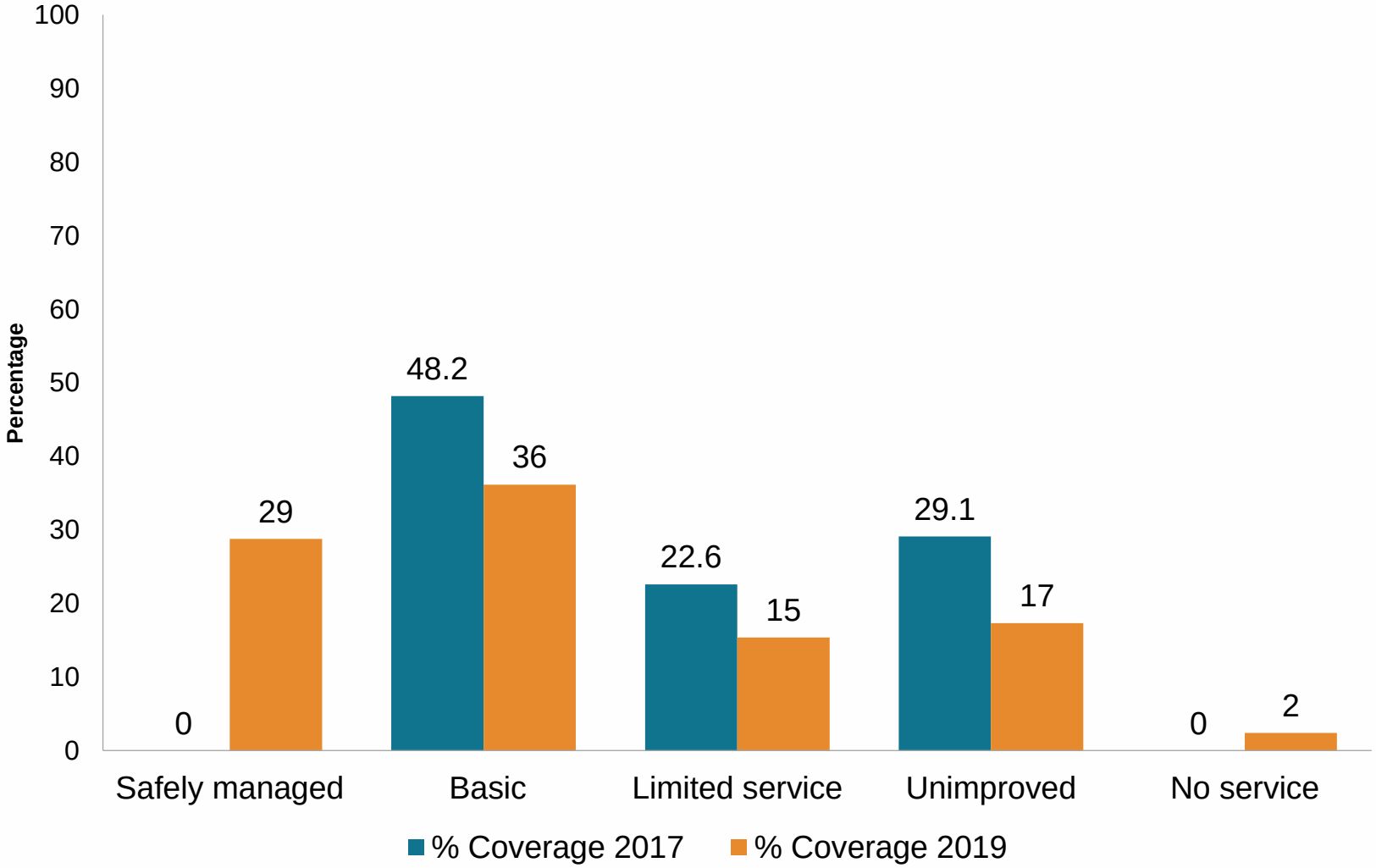
Drinking water access at households: National 2017 vs. Cox's Bazar 2019



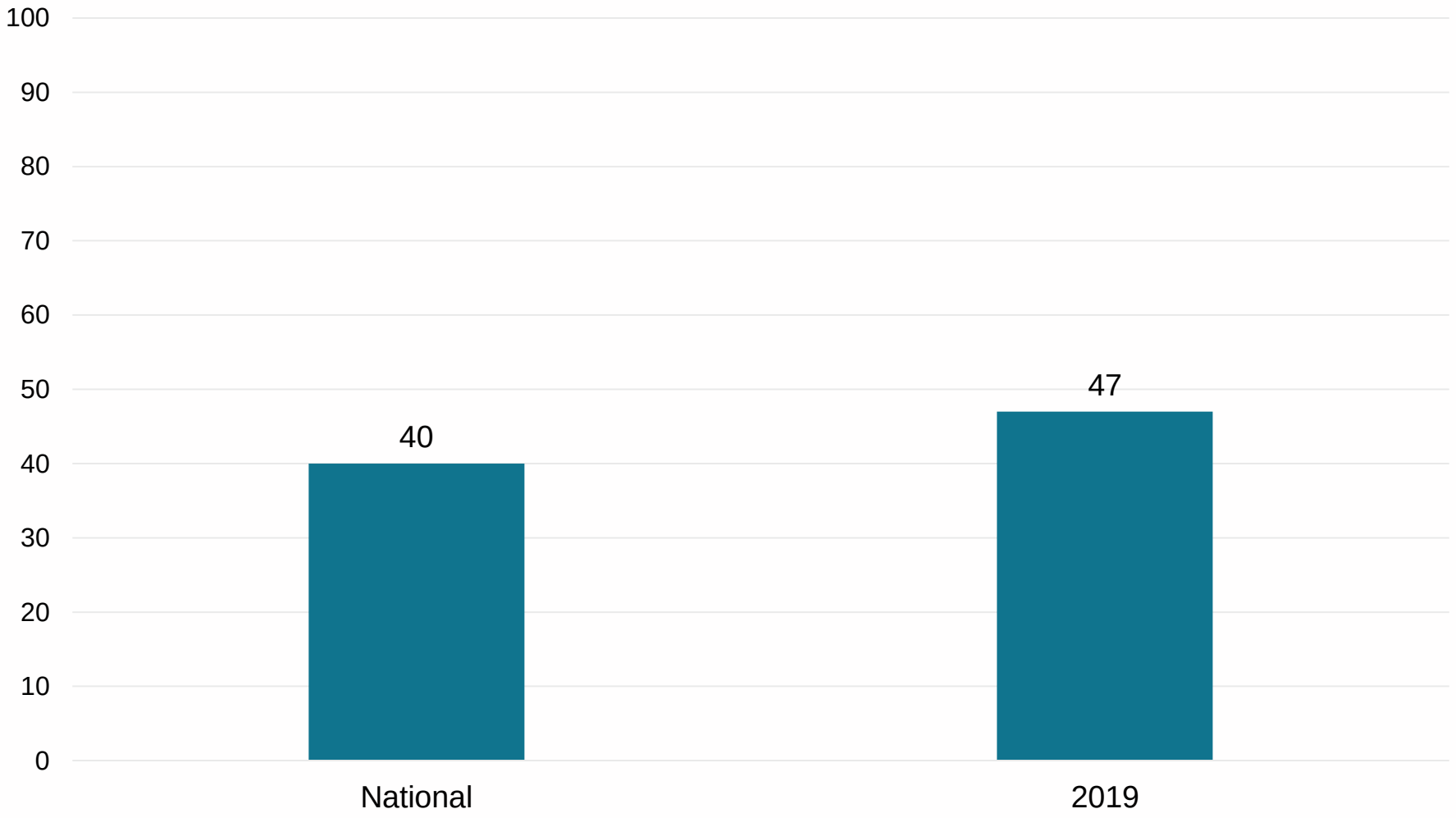
Improved sanitation access at households: comparison with other national survey



Sanitation access at households: National 2017 vs. Cox's Bazar 2019

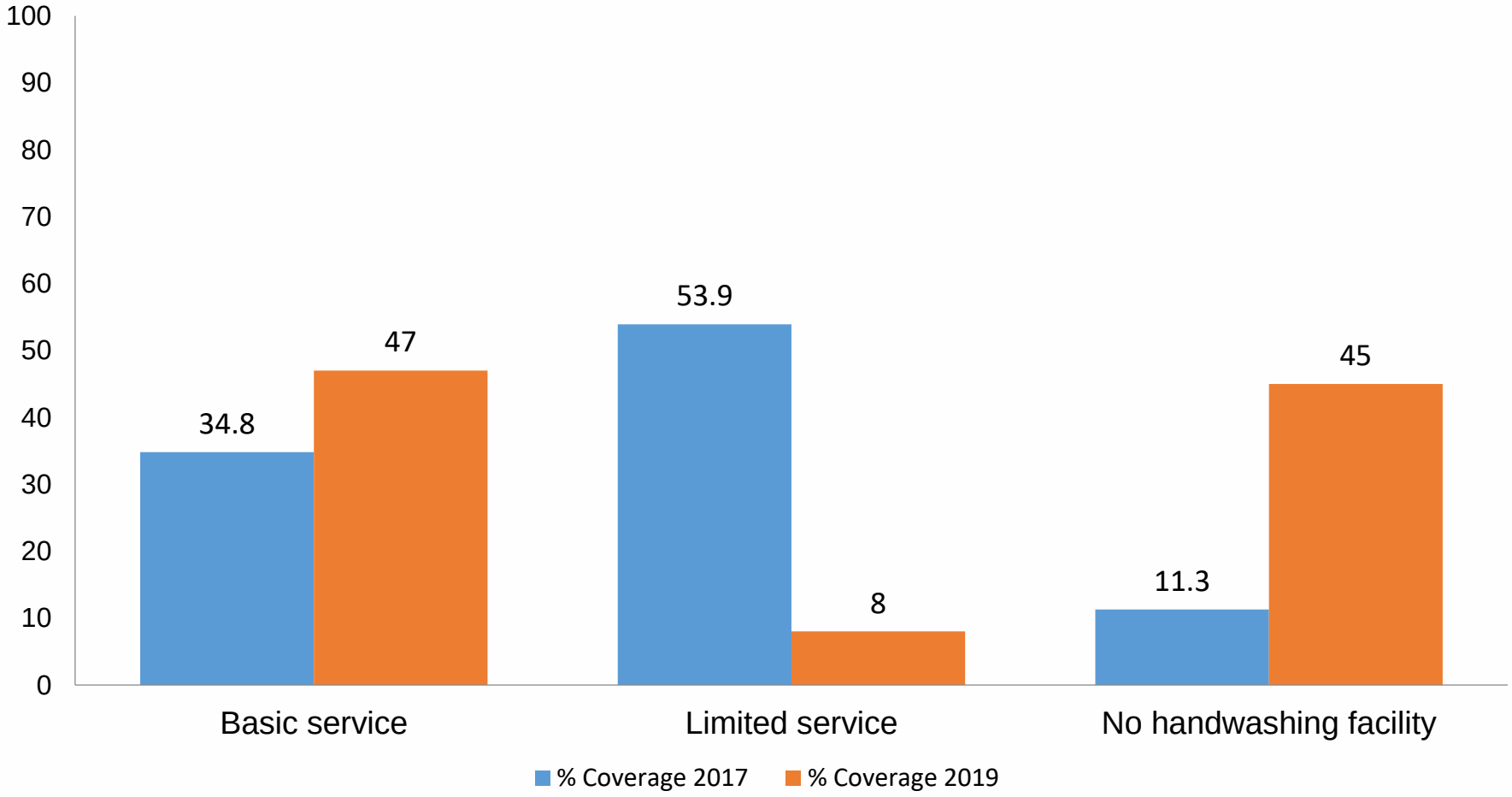


Water and soap together at handwashing place: National vs. 2019



National data source: NHS 2014

Hygiene at households: National 2017 vs. Cox's Bazar 2019



Schools

Sampling and respondent selection: School survey

- Three schools per cluster was selected

Assessment component

- Environmental spot checks
- Interviews of students (half of them was female)

Eligibility criteria

- One from each cluster: government schools, private schools, and madrasa
- Preferably co-education or girls schools
- Considered school that was used as cyclone shelter (at least one school from each cluster)
- Adolescent school girls/boys from grade V to X
- Unavailability of three schools, approach neighboring Union

Key indicators for school survey: Water

- We used JMP definition
- **Advance:** Water is available from an improved source on the premises and free from fecal and priority chemical contamination.
- **Basic:** Drinking water from an improved source is available at the school
- **Limited:** There is an improved source but water not available at time of survey
- **No service:** No water source or unimproved source (unprotected well/spring, surface water)

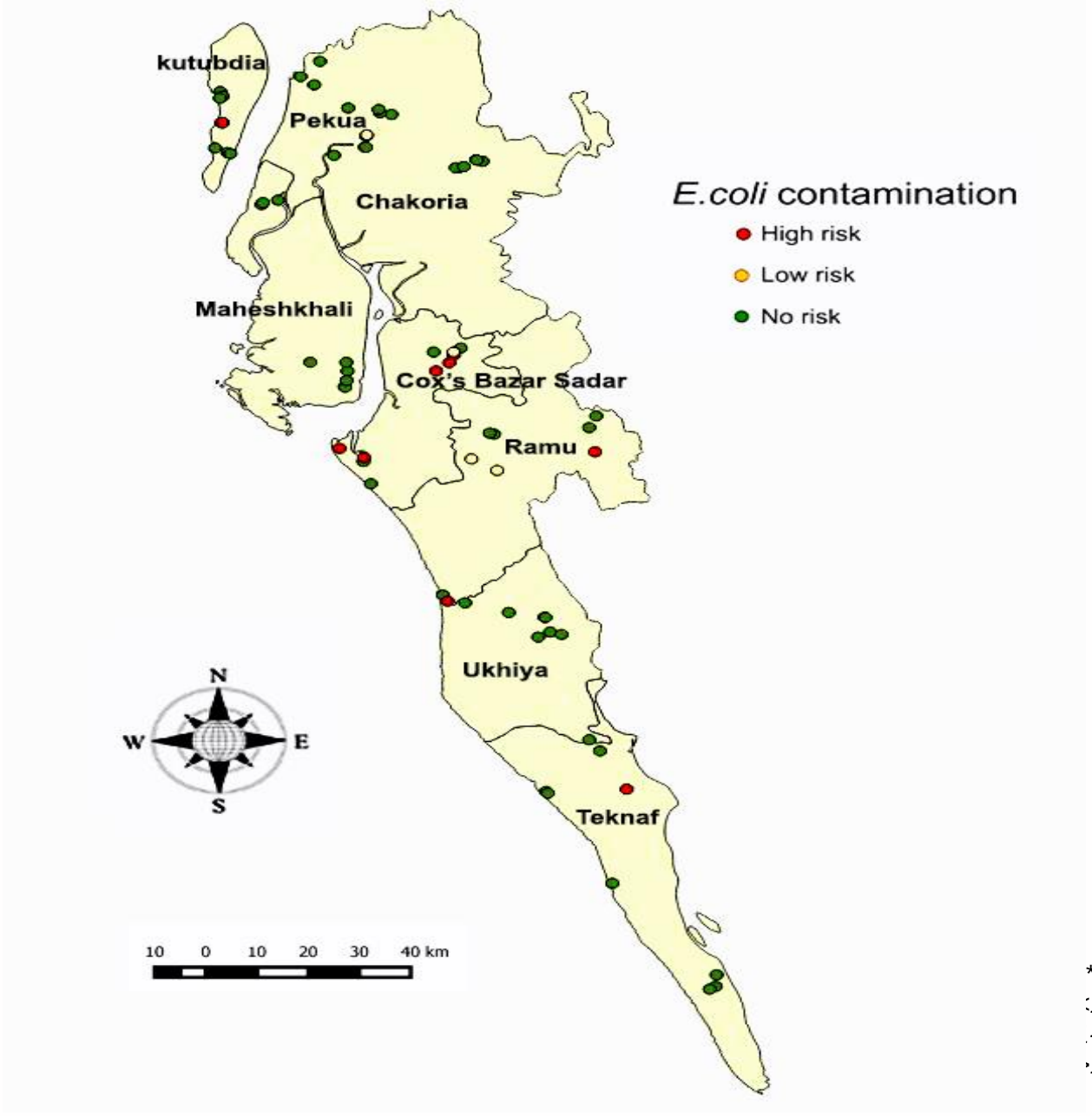
Key indicators for school survey: Sanitation

- **Advanced:** Improved facilities, which are single-sex and usable, with sealed septic tank at the schools.
- **Basic:** Improved facilities, which are single-sex and usable at the school
- **Limited:** There are improved facilities but not single-sex or not usable at time of survey
- **No service:** No toilets or latrines, or unimproved facilities

Key indicators for school survey: Hygiene

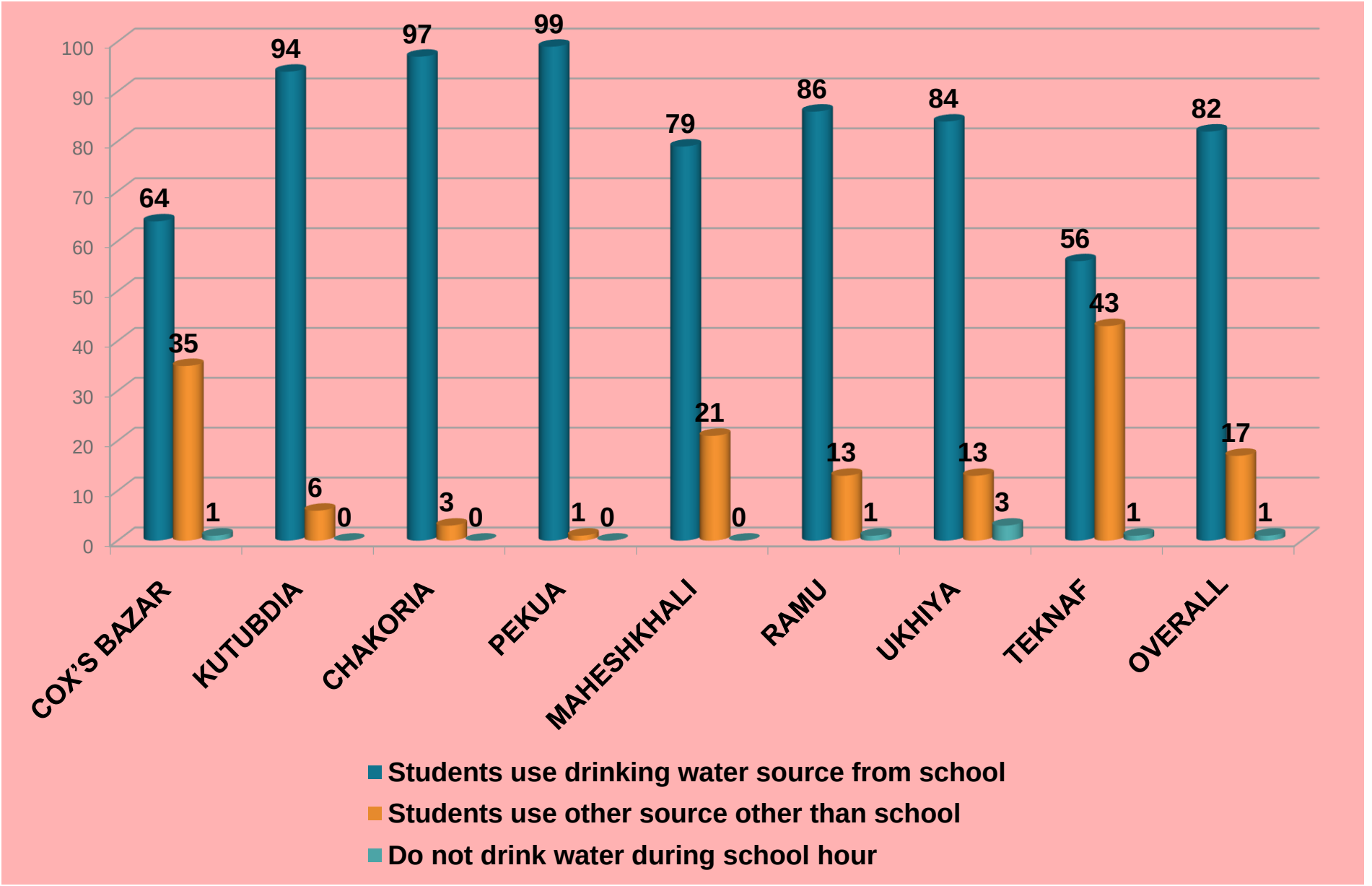
- We followed JMP hygiene definition
- **Advanced:** Availability of a designated hand washing facility on premises with soap and water.
- **Basic:** Availability of a handwashing facility on premises with soap and water
- **Limited:** Availability of a handwashing facility on premises without soap and water
- **No facility:** No handwashing facility on premises
- Menstrual hygiene management facilities
- Menstrual hygiene knowledge, attitude and practices
- Hygiene knowledge, attitude and practice (KAP)

Drinking water quality at Schools



*E. coli (WHO disease risk category)
:1 MPN (no risk)
.-10 MPN (low risk)
›10 MPN (moderate to high risk)

Use of drinking water source at Schools



Health centers

Health centers spot check

Eligibility criteria

- Upazila Health Complex's (UHC)
- Union Health and Family Welfare Centers (UHFWC)
- Community Clinics
- Private clinic/hospitals
- Only spot check was conducted

Spot check indicators according to JMP: Water

- **Advanced:** Water is available from an improved source on the premises and free from faecal and priority chemical contamination
- **Basic:** Water is available from an improved source on the premises
- **Limited:** An improved water source is within 500 metres of the premises, but not all requirements for basic service are met
- **No service:** Water is taken from unprotected dug wells or springs, or surface water sources; or an improved source that is more than 500 metres from the facility; or the facility has no water source.

Health centers spot check

Spot check indicators according to JMP: Sanitation

- **Advanced:** Improved sanitation facilities are usable with at least one toilet dedicated for staff, at least one sex-separated toilet with menstrual hygiene facilities, and at least one toilet accessible for people with limited mobility and where excreta are safely disposed in situ or transported and treated off-site
- **Basic:** Improved sanitation facilities are usable with at least one toilet dedicated for staff, at least one sex-separated toilet with menstrual hygiene facilities, and at least one toilet accessible for people with limited mobility
- **Limited:** At least one improved sanitation facility, but not all requirements for basic service are met
- **No service:** Toilet facilities are unimproved or there are no toilets

Growth centers

Growth centers spot check

Eligibility criteria

- Growth Centers
- Bazaar/Market place

- Spot check and survey with caretaker was conducted in public toilets

Spot check indicators according to JMP definition

- Access to safe sanitation
- Access to handwashing facilities
- Water and soap available at handwashing facilities

Conclusion and Recommendation

- Household's WASH situation of Cox's Bazar Sadar is comparatively better than seven other Upazila of Cox's Bazar district
- In Cox's Bazar, sanitation of HH improved 13% in the last five years
- 83% schools of Teknaf have advance access to potable water while 90% schools of Pekua have advance sanitation access
- To achieve SDG 6.2 by 2030, DPHE local authority should assess the local situation and make a plan with the support and participation of all stakeholders

Institutional Capacity Assessment

Institutional Capacity Assessment

Objectives

- To identify local organizational capacities
- Challenges, gaps, opportunities and good practices

Activity

- Conducted 5 KIIs with govt. and other local stakeholders
- Conducted 7 capacity assessment workshops
- Planning workshop in 8 upazila

Participants

- Local DPHE officials
- Local education department officials
- Local health department officials
- Members of LGI Standing Committees
- Union parishad Chairman
- NGO representatives
- DPHE Technicians

Institutional Capacity Assessment

- Capacity is the power of something (a system, an organization, a person) to perform or to produce.
- A capacity assessment is usually the first step in a capacity development program.
- Capacity development initiatives should incorporate activities based on the assessment related to two levels as follows:

At the individual level: Human Resource Development

At the organizational/institutional level: Organizational/ Institutional Development

WASH related Institutional capacity of the local authorities (Upazila level)

- Enabling Environment (policy strategy, organizational mandates and framework)
- Institutional Arrangement (planning, coordination, monitoring and reporting)
- Resource Management (human and financial resources, available logistics/ equipment)

Participatory WASH Plan for Cox's Bazar

WASH Plan for Cox's Bazar Sadar

Communities:

- 93% of households (HH) in Cox's Bazar Sadar demands for SM drinking water and 20% of them require pipeline water networks by 2030
- All of the public places of Sadar Upazila require adequate WASH facilities

Institutes:

- Most of the CC and FWC of Sadar Upazila have WASH facilities that required renovation
- Around 60% of primary and secondary schools of this Upazila require advance WASH facilities on their premises

WASH Plan for Chakoria Upazila

Communities:

- Above 70% of HH require SM sanitation and potable water and 97% of growth centers need WASH facilities
- 70% of HH require hygiene knowledge and handwashing facilities

Institutes:

- FWCs need three advance sanitation services while all of the CC demands for either renovation or new installation
- About 20 secondary schools need advance drinking water supply, whereas both in primary and secondary schools need advance hygiene facilities on their school compound

WASH Plan for Pekua Upazila

Communities:

- 80% of HH asks for SM drinking water
- Community people can built 60% improved sanitation facilities but 20% hardcore people needs free distribution of improve sanitation
- A pilot program of Iron Removal Plant (IRP) can be taken with the pipeline water network
- More than 70% of HH needs hygiene related knowledge, handwashing facilities at their premises

Institutes:

- WASH facilities of the CC and FWC require renovation and new installation which is the same for all primary and secondary schools

WASH Plan for Maheshkhali Upazila

Communities:

- Above 80% of HH demands for SM drinking water and sanitation facilities

Institutes:

- 36 CC (out of 38) and two FWC requires renovation of hand washing facilities
- 36 secondary schools (out of 43) and 16 for primary schools (out of 70) need advance handwashing facilities

WASH Plan for Ramu Upazila

Communities:

- 55% of HH's require tube well installation for SM drinking water and 20% requires a pipeline water network by 2030

Institutes:

- There is no demand for WASH in the CC's
- All of the primary schools urge to renovate their handwashing facilities.
- Out of nine FWC, four requires renovation and five needs new installation of handwashing facilities
- Four FWC's need renovation of sanitation facilities

WASH Plan for Ukhiya Upazila

Communities:

- 90% of the HH's need SM drinking water supply however only 20 % of them need tube well installation while 70% of the HH's needs pipeline water network

Institutes:

- There is no demand for advance drinking water and sanitation in CC's of this Upazila. In all CC's, water purifier machines for safe water can be installed
- WASH facilities of secondary schools are good in condition however, the number of WASH facilities is inadequate compared to the number of students
- Among 83 primary schools, 60 demands for advance potable water supply and 80 requires advance handwashing facilities

WASH Plan for Teknaf Upazila

Communities:

- 100% of the HH's need SM drinking water supply however, and 80% of the HH's want pipeline water network
- A desalination program can take as pilot basis and the water of the Naf river can be used

Institutes:

- Almost all of the FWC's of this Upazila require a new installation of WASH facilities.
- Twinty nine out of 32 secondary schools require either renovation or new installation of handwashing facilities

WASH Plan for Kutubdia Upazila

Communities:

- Above 80% of HH of Kutubdia Upazila need SM drinking water and sanitation facilities

Institutes:

- All the CC's require deep tube well in replace of shallow tube well
- Out of six FWC, five requires installing new handwashing facilities
- All the primary schools need advance sanitation facilities while 48 primary schools require advanced handwashing facilities
- All the secondary schools need deep tube well with IRP for SM drinking water; and advance sanitation facilities either newly install or renovation

Thank You