

ঢাকার পাঁচটি এলাকায় কলেরা টিকাদান কর্মসূচি



## PAMIs in Bangladesh

GTFCC Surveillance Meeting

May 2, 2023, Maputo

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- I. Epidemiological situation
- II. Key parameters for PAMIs
- III. Indicators
- IV. Vulnerability factors & additional information
- V. Flow of analysis
- VI. Workshop
- VII. Main results
- VIII. Way Forward
- IX. Lessons learned

# I. CHOLERA EPIDEMIOLOGICAL SITUATION



- Population:
  - 8th most populous country in the world - 166.2 million (2022)
- Endemic Cholera
  - Annual incidence rate of 1.64/1,000 population.
  - Estimation: 450,000 hospitalised cases and >1 million infections per year.
  - 4 Seasonality with a biannual peak
  - Last large outbreak in 2022 in Dhaka City
- Vulnerability :
  - vulnerability to the natural disasters (cyclones, floods) & Climate change
  - River network
  - Population density, ongoing urban migration
- National Cholera Control Plan (2019 -2030)

## II. KEY PARAMETERS FOR THE PAMI ANALYSIS

### Studied population

- Population above 5 years old
- Patients with diarrhoea of infectious origin, consulting in public health facilities (DHIS-2)

### Population

- Census 2011 with 1.2 % growth rate (census 2022)
- Not included: FDMN in Ukhiya and Teknaf Upazilas (different access to health care)

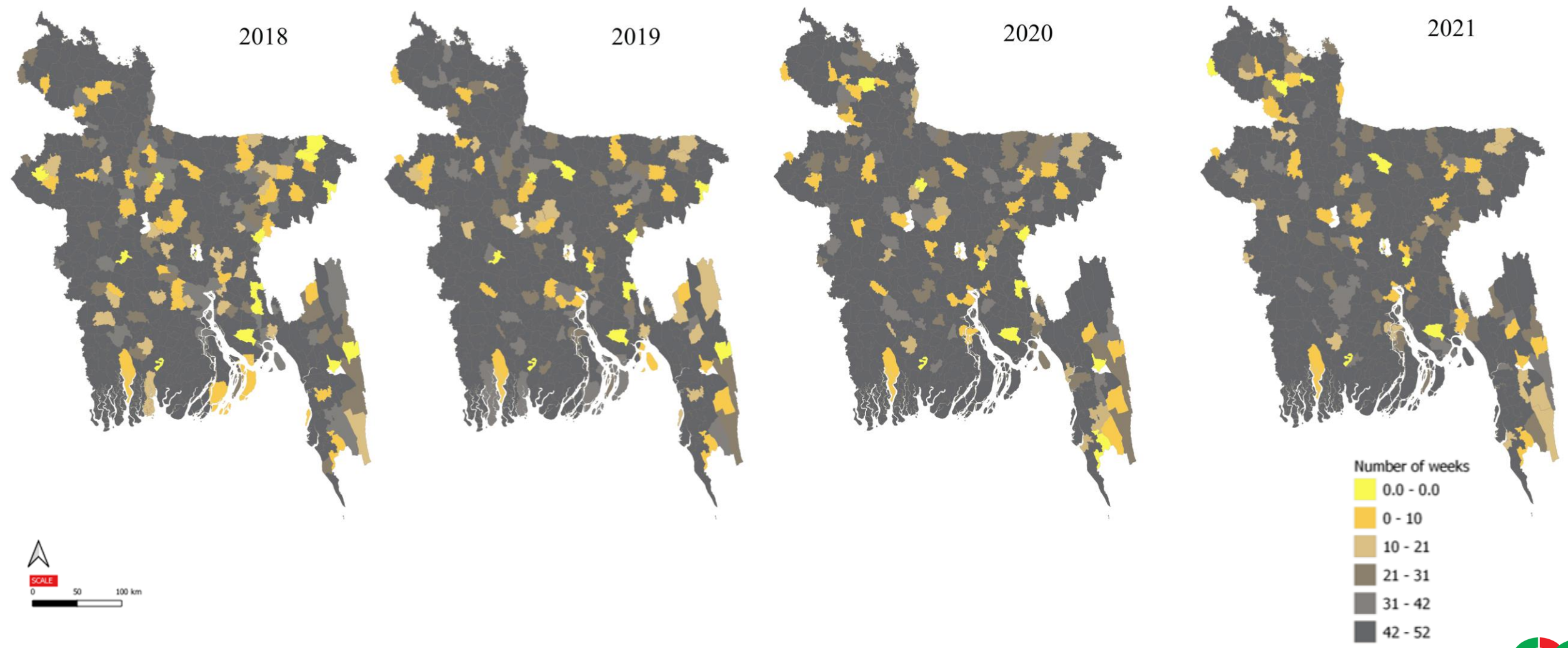
### Studied Period

- 2018-2022
- 5-year period

### Administrative Levels

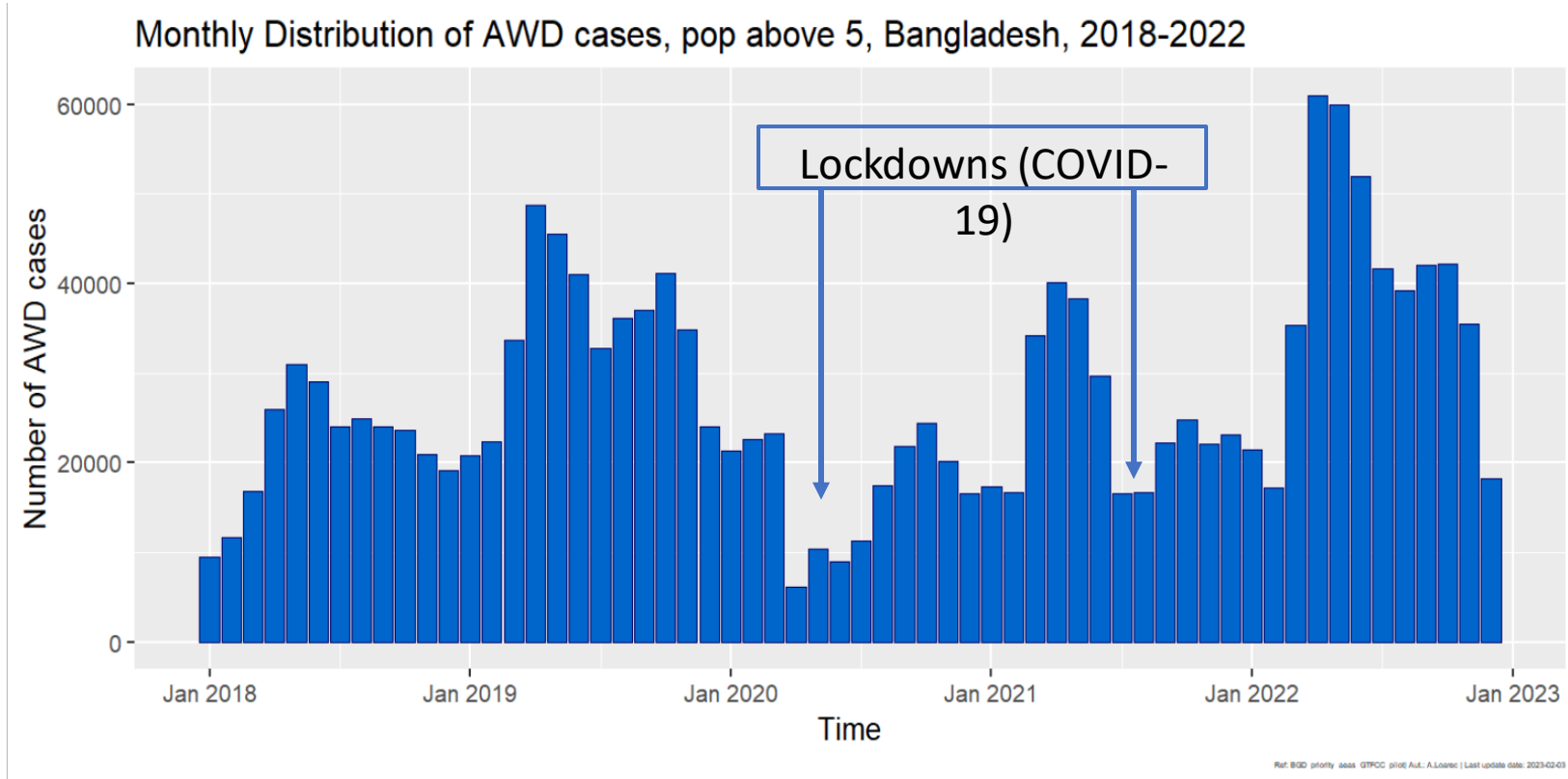
- Use of OCHA GIS files, (2018)
- 543 upazilas or thanas (administrative level 3 units)

# REPORTING UNITS



# GENERAL DISTRIBUTION OF CASES OVER TIME

Population analysed from DHIS, above 5y.o., between 2018 and 2022:  
**1,651,265**



# III. INCIDENCE & PERSISTENCE WITH DHIS-2

## Country Analysis

- **Incidence:**
  - the number of diarrhea cases (infectious origin, >5 y.o., inpatients),
  - reported per 100,000 person-years over the 5-year analysis period.

- **Persistence:** Calculated by dividing:
  - the **number of weeks with at least 10 diarrhea cases** reported in DHIS in the upazilas over the 5-year analysis period
  - by the total number of weeks over the period.

## Dhaka Analysis

- **Incidence:** calculated by dividing :
  - Estimated number of cholera cases (>5.y.o., inpatients) consulting in Dhaka hospital, during the month
  - reported per 100,000 person-years over the 5-year analysis period.

- **Persistence:** Calculated by dividing:
  - the **number of weeks with at least one positive cholera test** (culture) reported in Dhaka Hospital over the 5-year analysis period
  - by the total number of weeks over the period.

# III. SCORING OF EPIDEMIOLOGIC INDICATORS

## Incidence

Suspected & confirmed

## Persistence

% of weeks with at least ten suspected cases reported

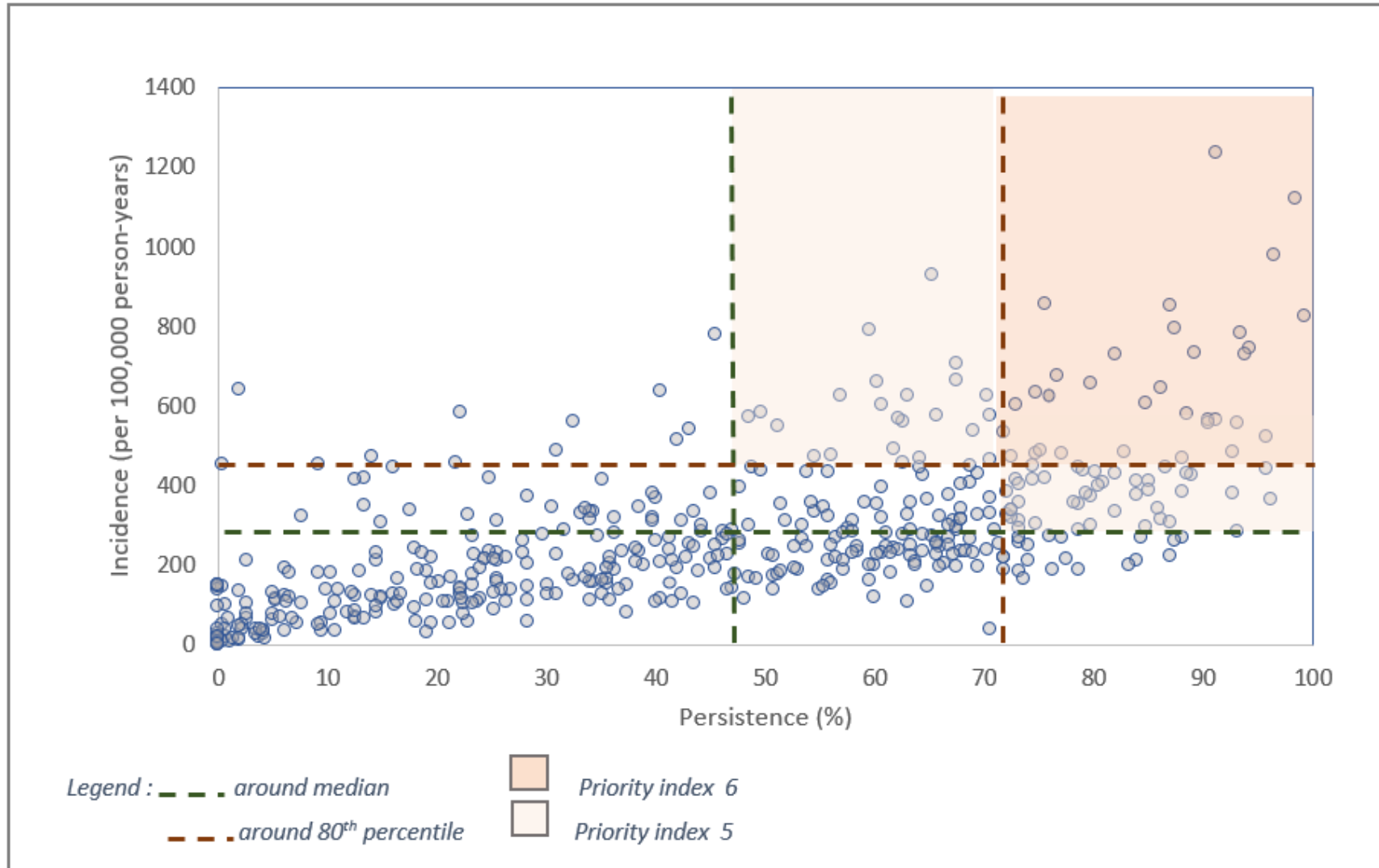
Epidemiologic indicator	Score			
	0 point	1 point	2 points	3 points
<b>Incidence</b>	No case	>0 and <median	≥median and <80th percentile	≥80th percentile
<b>Persistence</b>	No case	>0 and <median	≥median and <80th percentile	≥80th percentile

**Priority index = incidence score + persistence score**



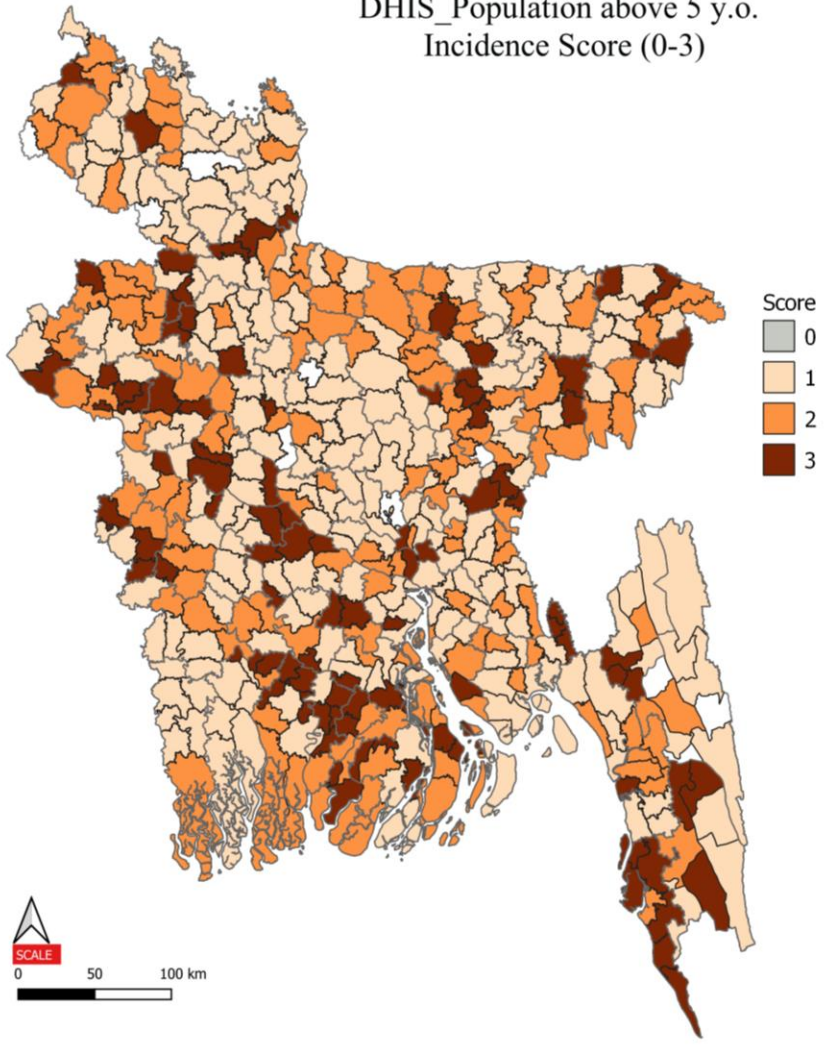
# III. NUMERICAL PRIORITY INDEX

Figure: Distribution of the incidence and the persistence of diarrhoea cases of infectious origin, for the whole country (without Dhaka City), 2018-2022

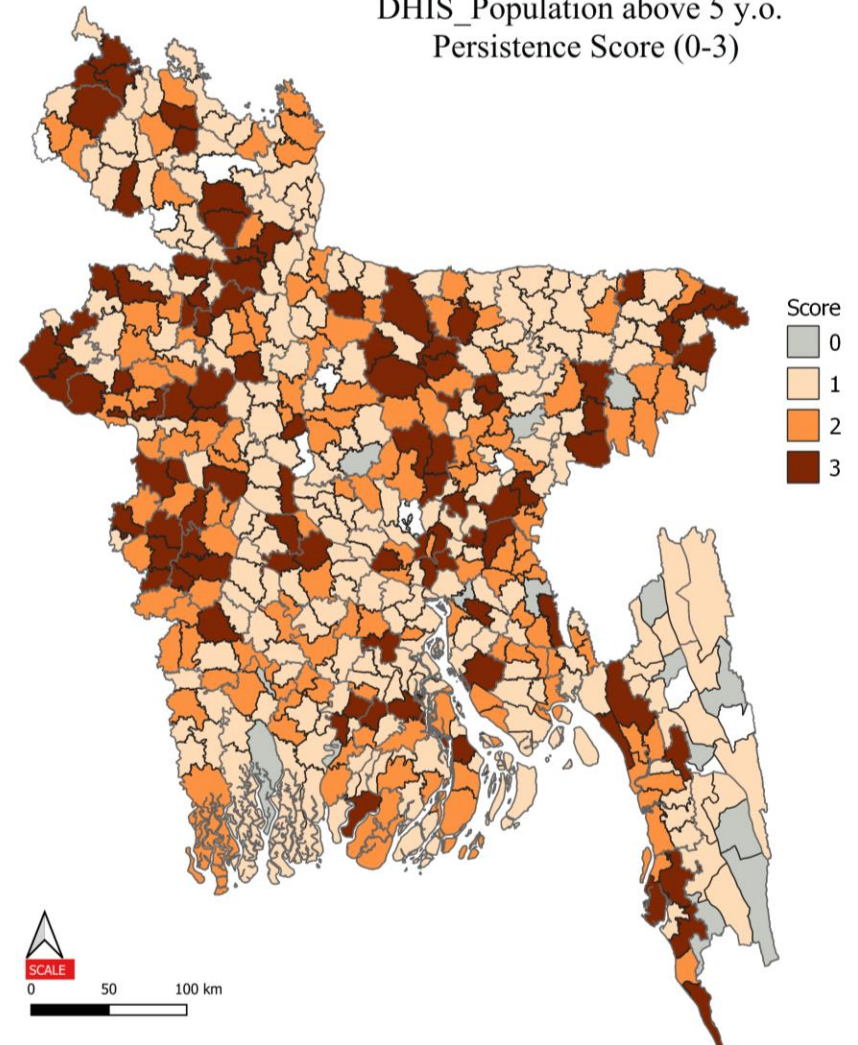


# SCORES

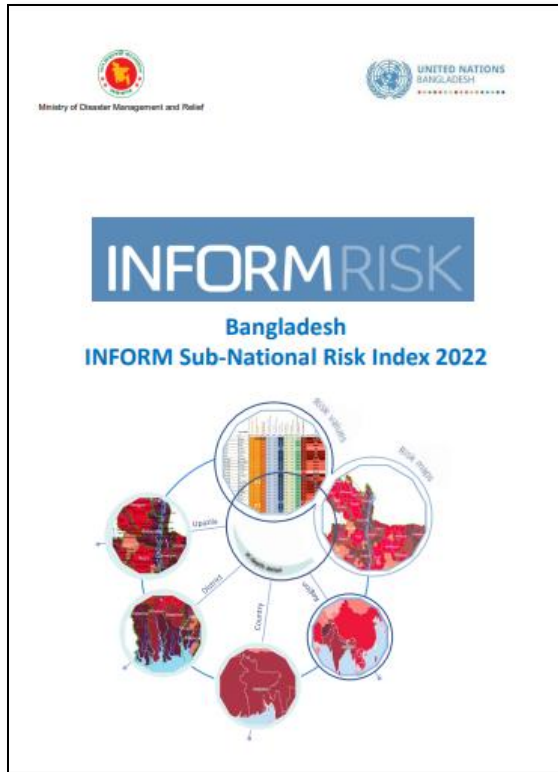
DHIS\_Population above 5 y.o.  
Incidence Score (0-3)



DHIS\_Population above 5 y.o.  
Persistence Score (0-3)



# IV. VULNERABILITY FACTORS

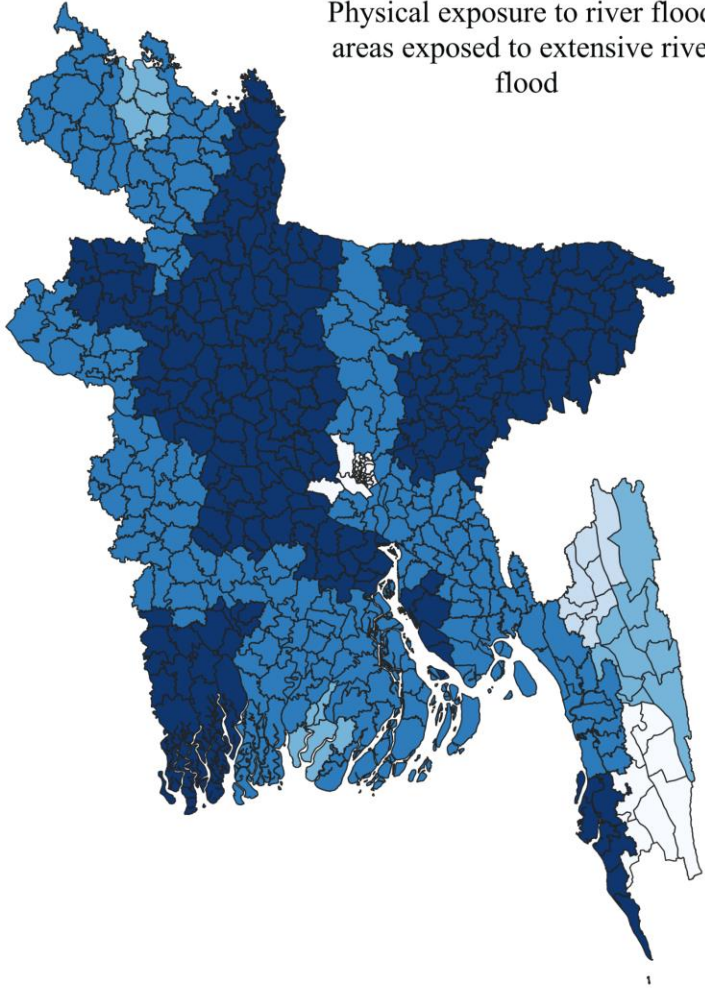


Source:  
[https://bangladesh.un.org/sites/default/files/2022-12/INFORM%20Sub%20National%20Risk%20Index\\_2022\\_Bangladesh\\_Final.pd\\_.pdf](https://bangladesh.un.org/sites/default/files/2022-12/INFORM%20Sub%20National%20Risk%20Index_2022_Bangladesh_Final.pd_.pdf)

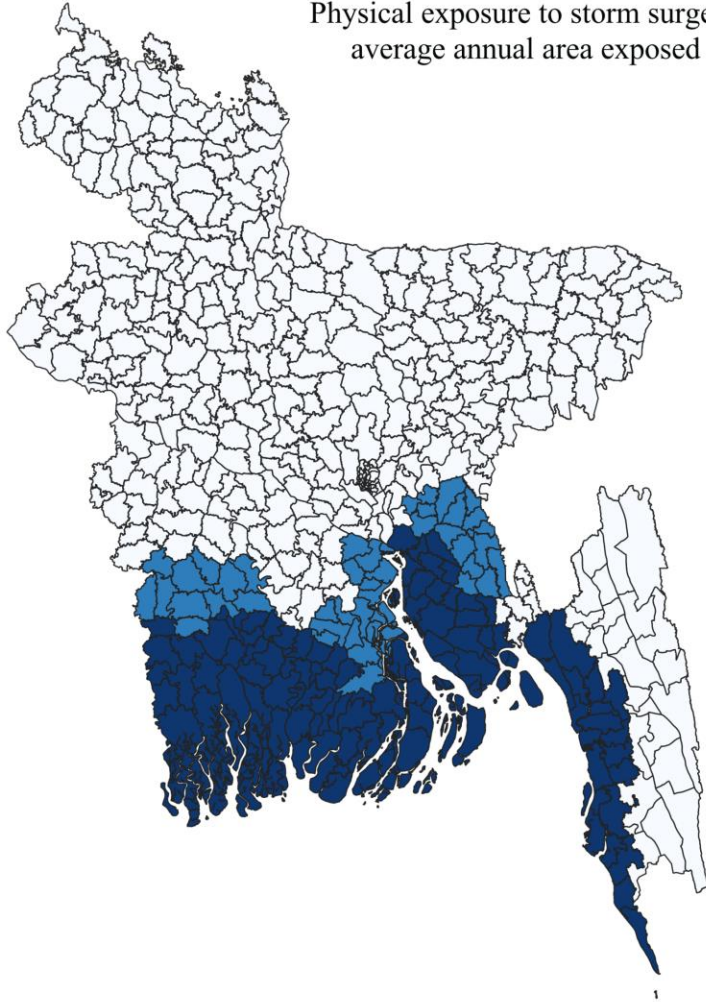
Component	Indicator Name
Flood	Physical exposure to flood
Cyclone	Physical exposure to storm surges
Epidemic	Physical exposure to salinity
Density	Population density
Vulnerable Groups	Refugees and asylum-seekers by country of asylum
WASH	People using at least basic sanitation services
WASH	People using at least basic drinking water services
WASH	People with basic handwashing facilities including soap and water

# IV. VULNERABILITY FACTORS

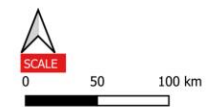
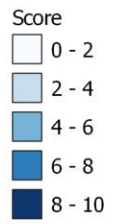
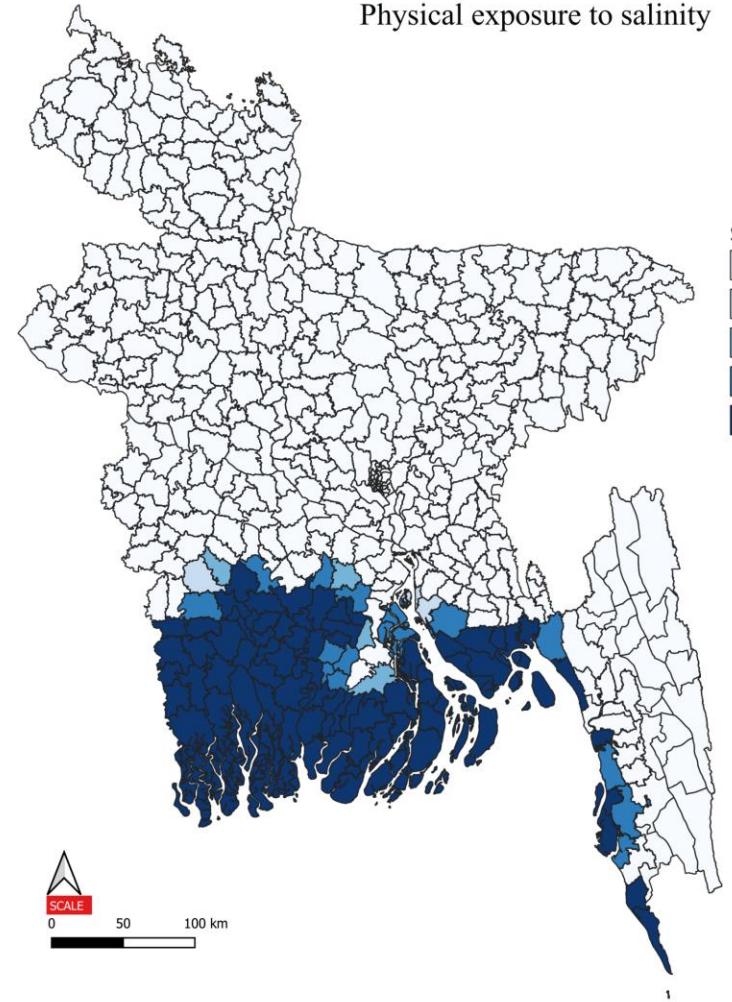
Physical exposure to river flood, areas exposed to extensive river flood



Physical exposure to storm surges, average annual area exposed

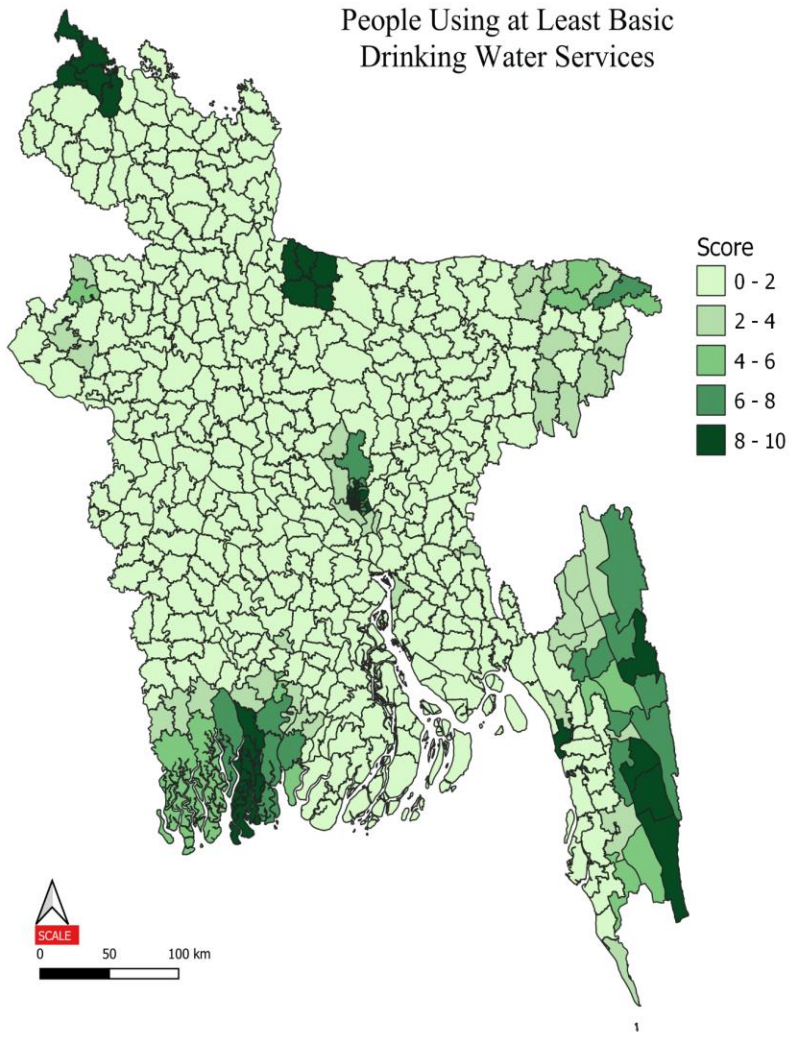


Physical exposure to salinity

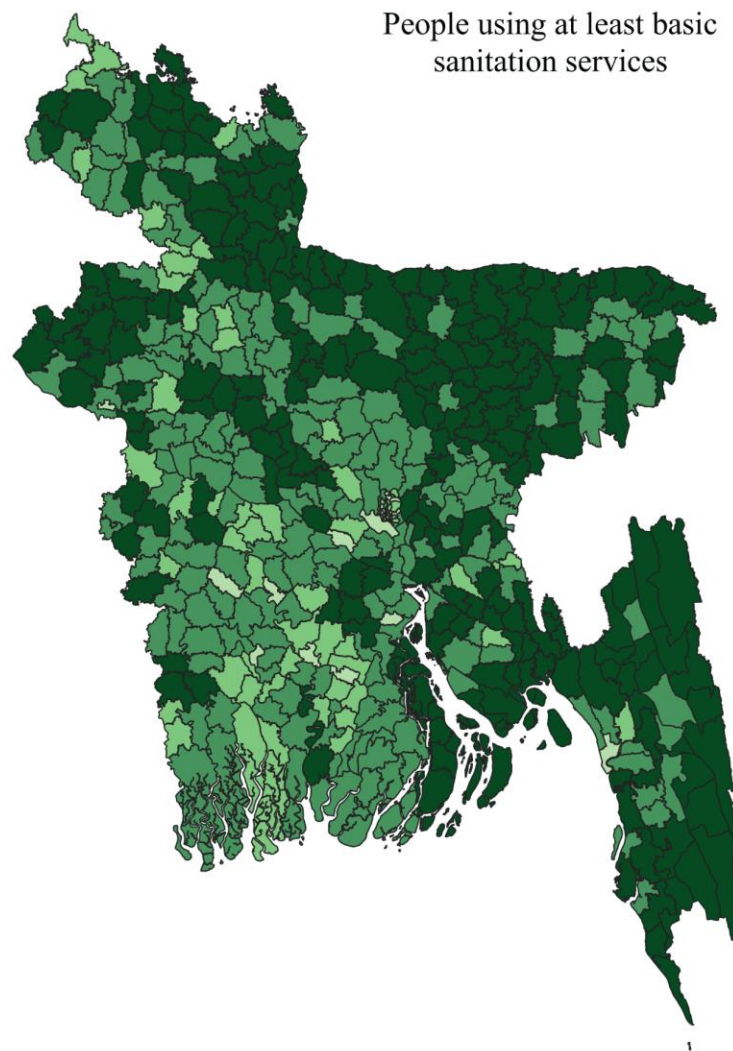


# IV. VULNERABILITY FACTORS

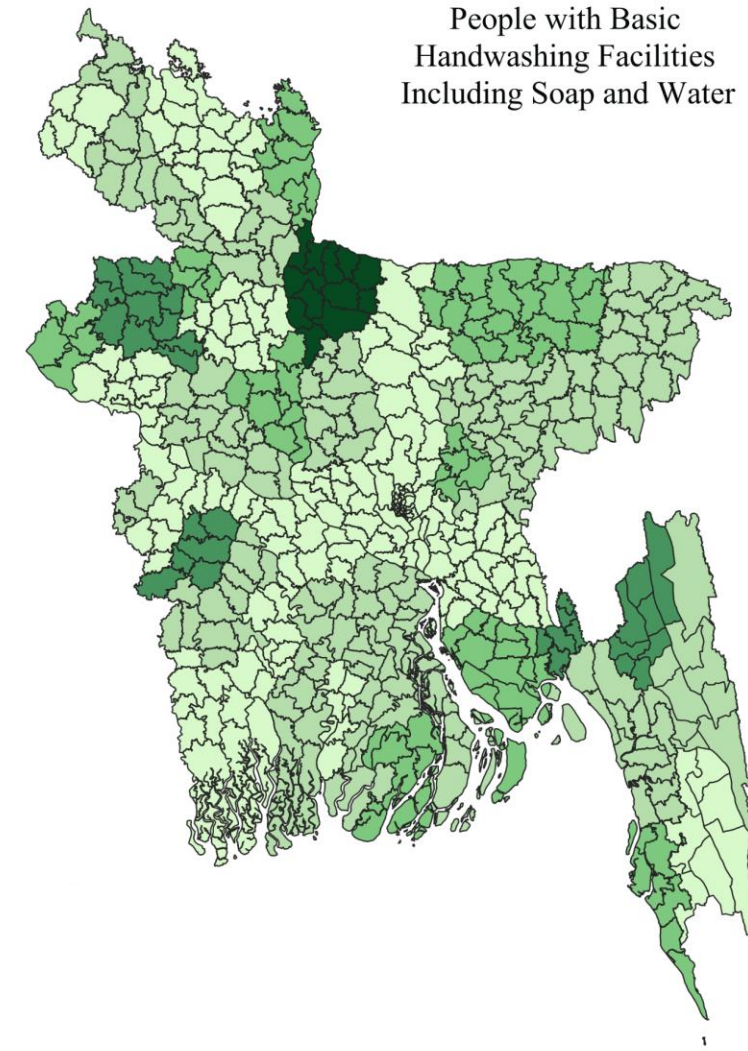
People Using at Least Basic Drinking Water Services



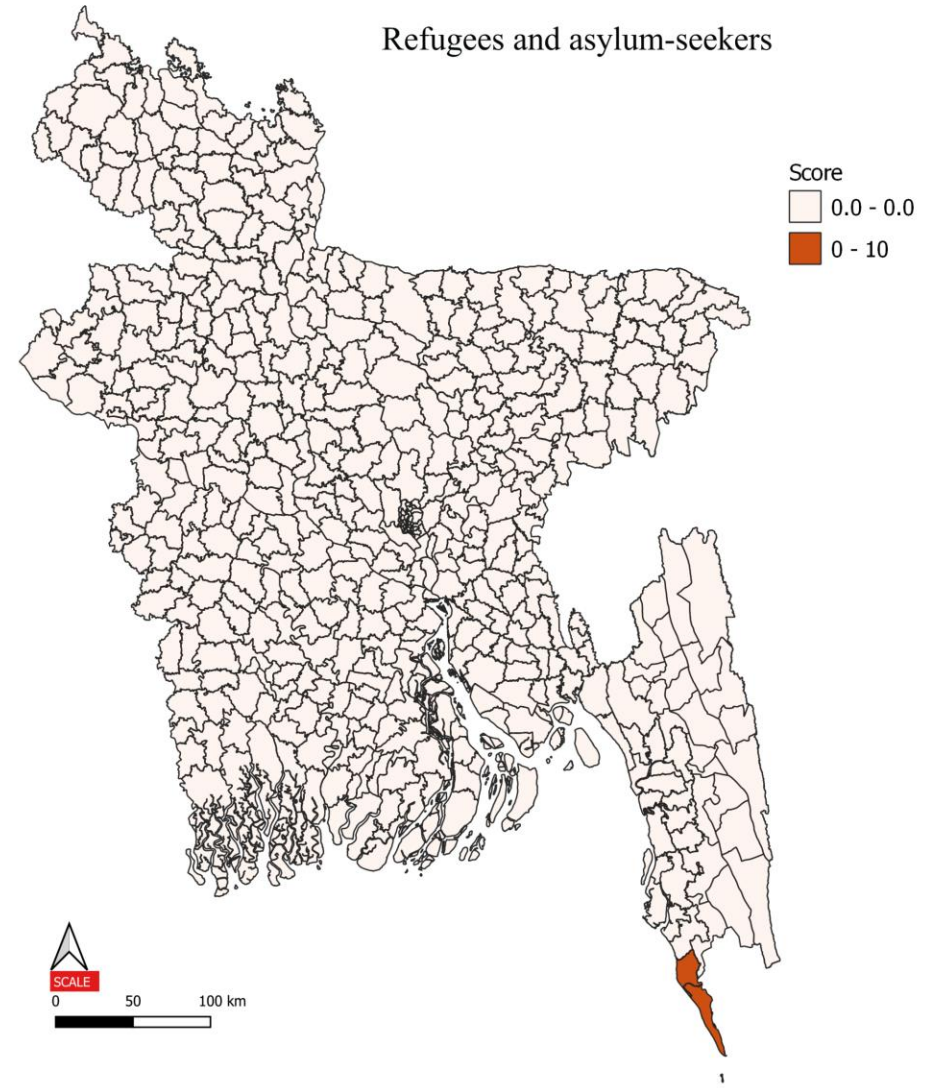
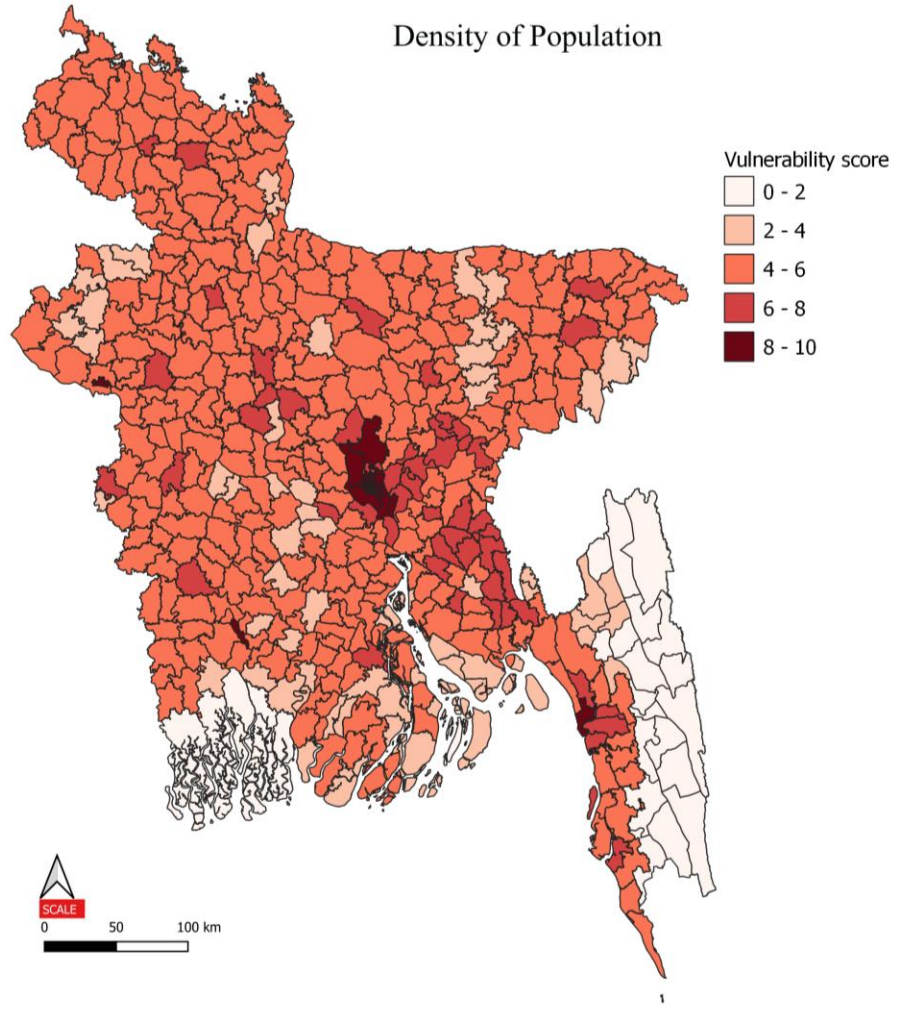
People using at least basic sanitation services



People with Basic Handwashing Facilities Including Soap and Water



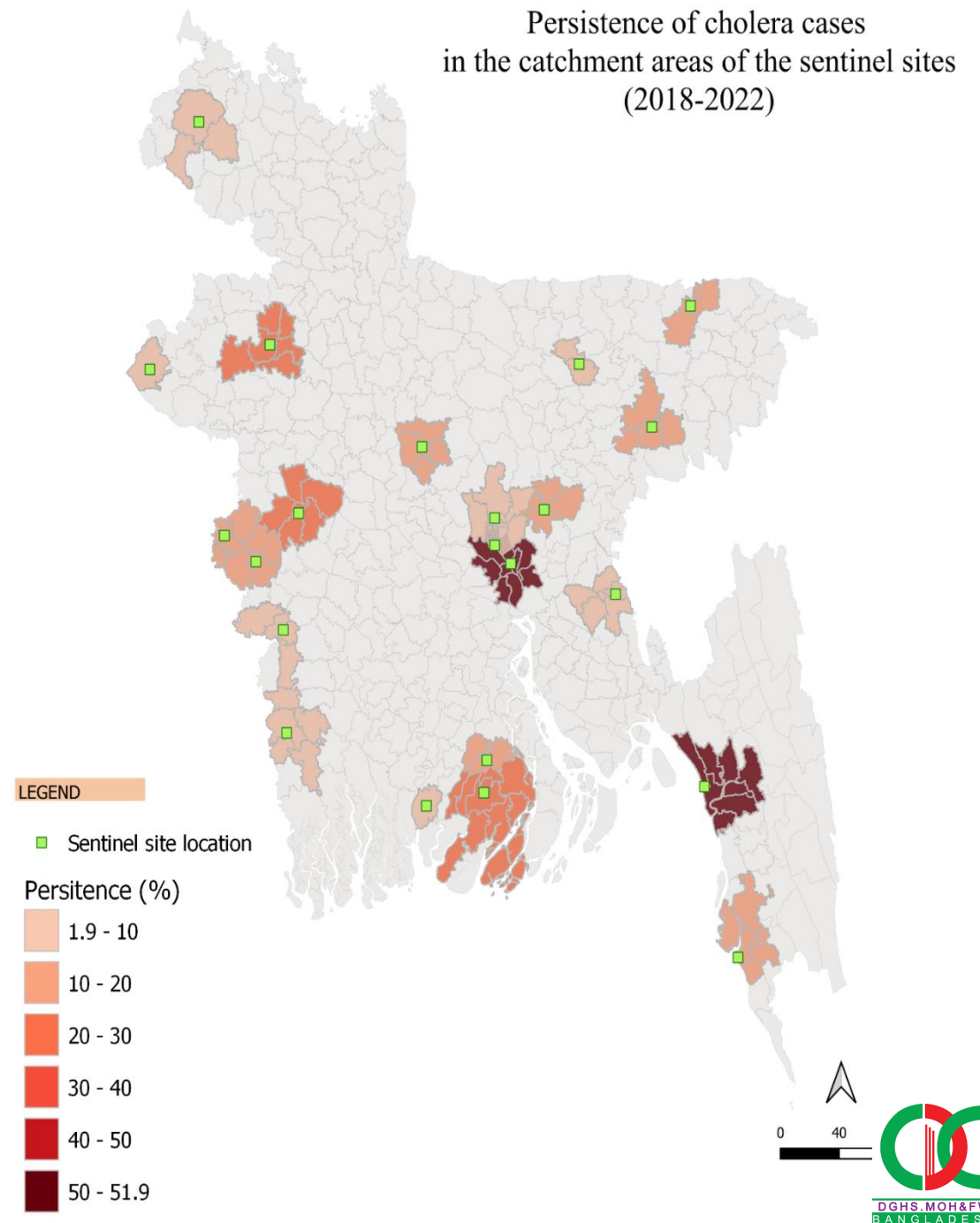
# IV. VULNERABILITY FACTORS



## IV. IEDCR-ICDDR,B SENTINEL SITES

- Nationwide surveillance, since 2014
- 16 sites (22 sites in 2020)
- **Standard surveillance:**
  - 20 samples/site/week-12 sites
  - 1<sup>st</sup> 4 samples 5 days a week (Sat- Wednesday).
  - All the samples have undergone a rapid diagnostic test (Cholkit) on the site and systematic 20% (every 5<sup>th</sup> sample/site) microbiological culture
- **Enhance surveillance:** 4 sites
  - All tested with rapid diagnostic test on the site
  - Microbiological culture for 20% of the subsamples
  - In addition, microbiological testing has been carried out for every 5th of the RDT negative stool specimens.

Persistence of cholera cases  
in the catchment areas of the sentinel sites  
(2018-2022)



## IV. ADDITIONAL INFORMATION

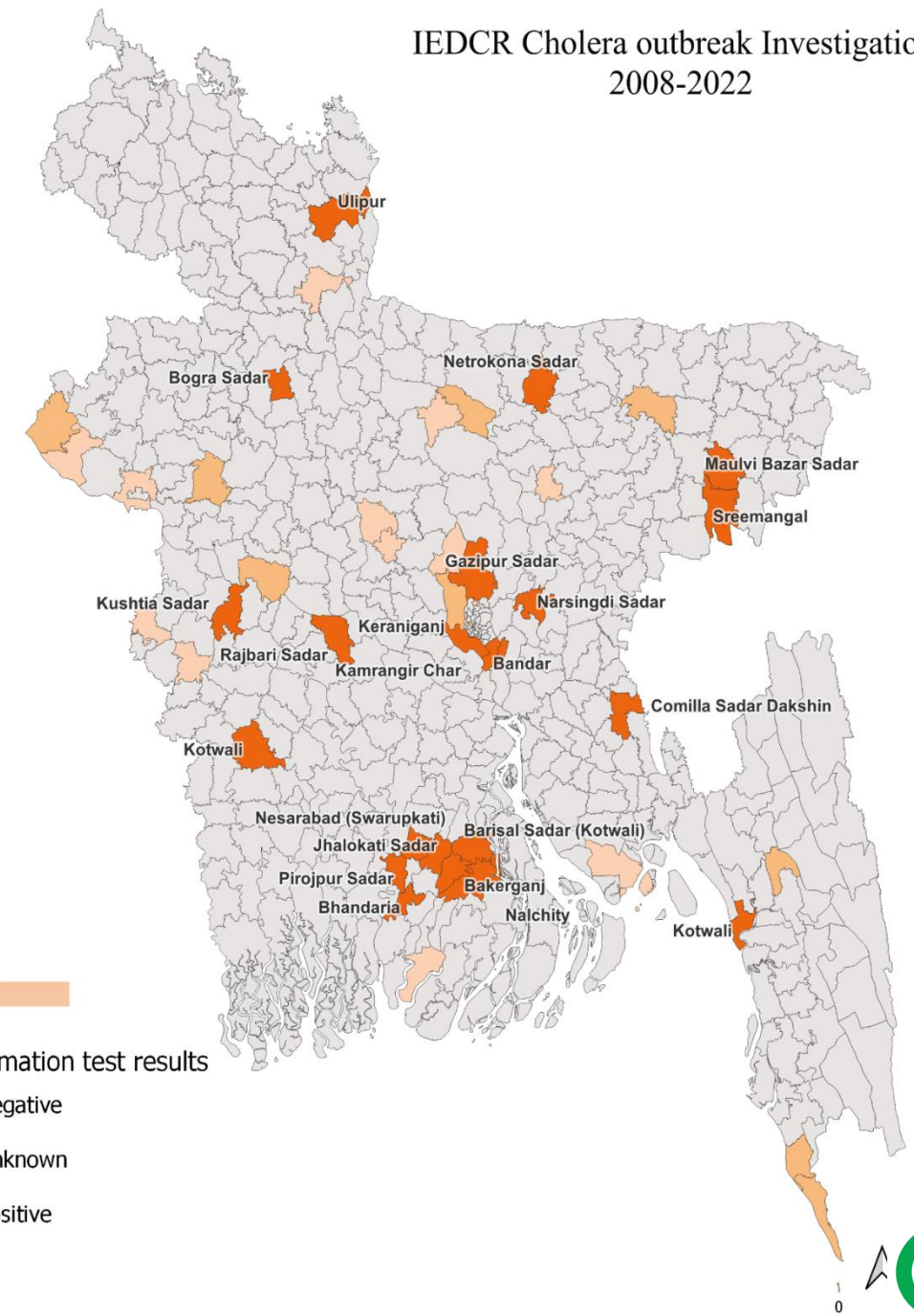
- **Other sources of information** for units with uncertain risk
  - Investigations of cholera outbreaks
  - Aggregated data from the surveillance system
  - Media monitoring

IEDCR Cholera outbreak Investigations  
2008-2022

### LEGEND

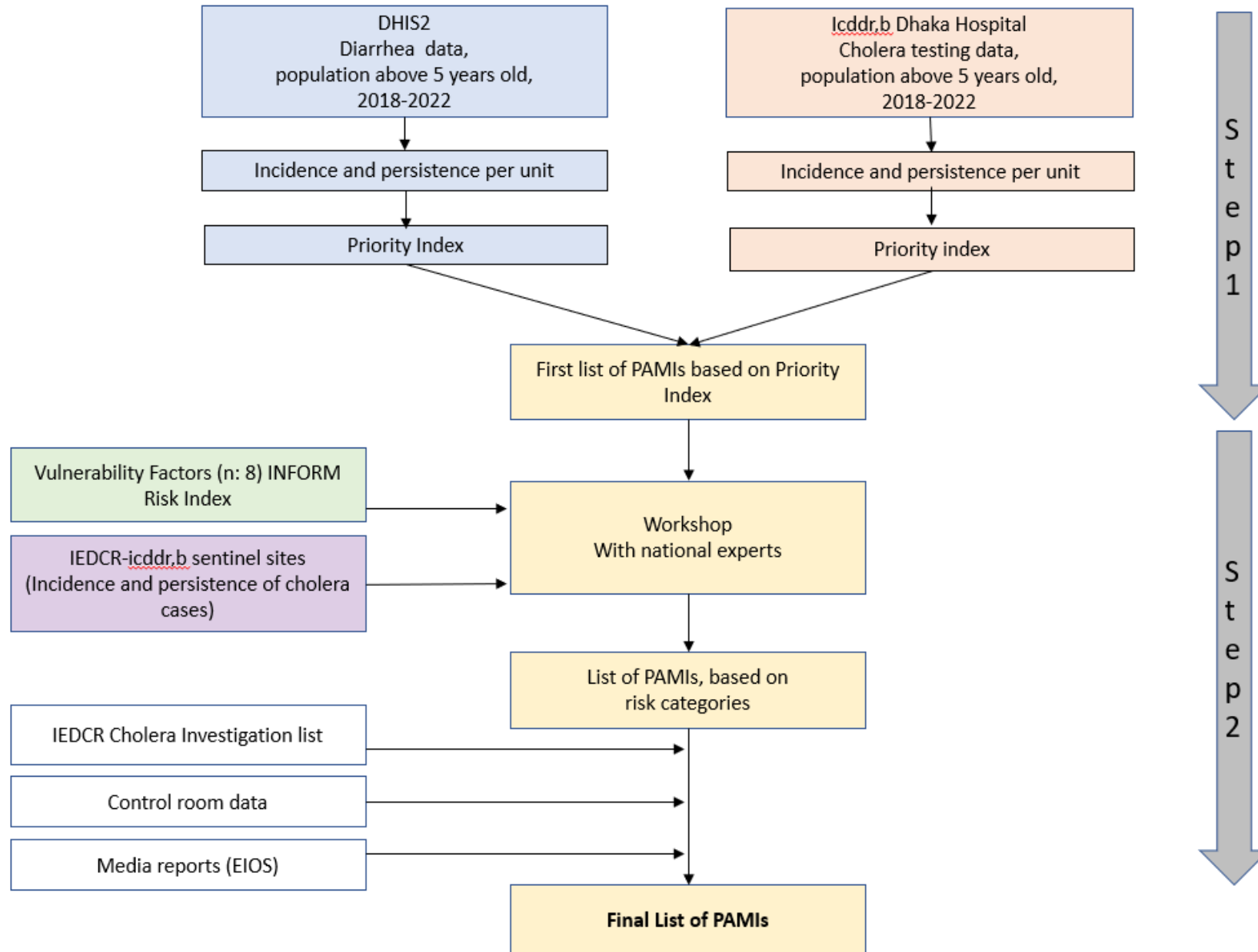
Confirmation test results

- Negative
- Unknown
- Positive





# V. FLOW OF ANALYSIS



## VI. WORKSHOP 8-9TH FEBRUARY

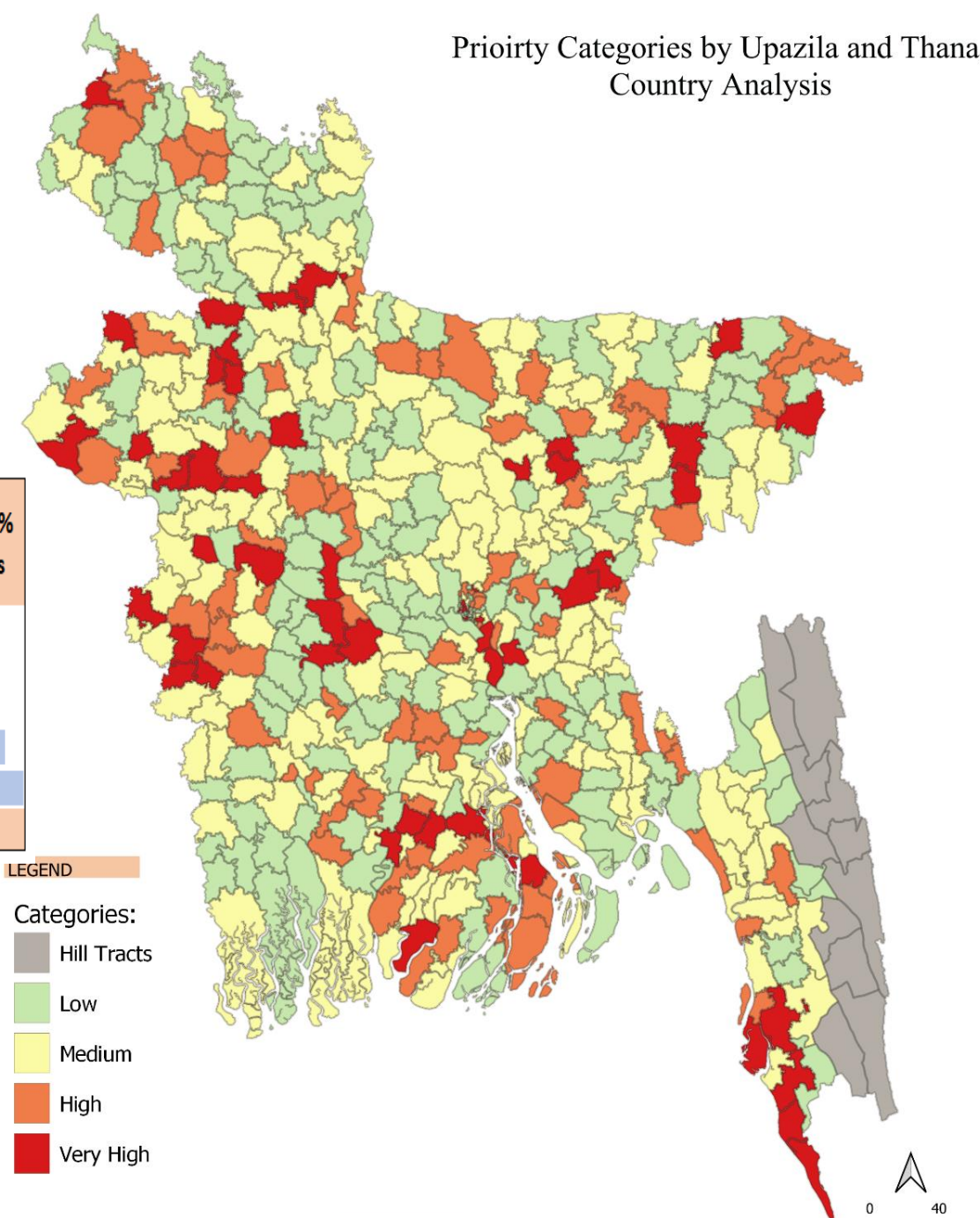
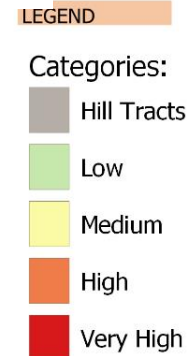
- 48 participants, 15 organizations
- Discussions surveillance system & Sources of information
- **Main decisions concerning PAMIS:**
  - Priority categories:
    - Very high,
    - High,
    - Medium,
    - Low
    - Hill track
  - PAMIS = very high & high priority categories
  - Specific category for Hill Track area (Border with Myanmar)



# VII. PAMI RESULTS

Table 1 Summary table of key parameters, stratified by priority category, Bangladesh, 2023

Categories	Units*	Rel. % of the units	Cumulative % of units	Est. Population	Rel. % of the population	Cumulative % of population	Diarrhea Cases**	Cumulative % of the cases
Very High	53	10.1	10.1	18,443,471	11.2	11.2	432,279	25.3
High	91	17.3	27.4	27,761,695	16.9	28.1	410,352	49.3
Hill Tracts	11	2.1	29.5	729,360	0.4	28.6	6,822	49.7
Medium	192	36.6	66.1	63,663,380	38.8	67.3	637,570	87.1
Low	178	33.9	100.0	53,642,452	32.7	100.0	220,974	100.0
<b>Total</b>	<b>525</b>	<b>100</b>		<b>164,240,358</b>	<b>100</b>		<b>1,707,997</b>	



# IX. WAY FORWARDS WITH THE NATIONAL CONTROL PLAN

- Improvement of National surveillance
  - Inclusion of RDT test result and Dehydration status
  - Enhance regional laboratories in the PAMIs
- Common platform with:
  - Water surveillance,
  - Waste water surveillance
  - Diarrhoea surveillance
- Multi year OCV preventive campaign with a focus on PAMIs
- Health awareness campaign at community, schools, media and social media before the peak season with a focus on PAMIs.
- WASH invention to be prioritized in PAMI areas
- Review of the PAMIs in 2-3 years with additional information (with Mortality and RDT results) using GTFCC template



## X. LESSONS LEARNED

- Country specific parameters: Indicators to adapt to the surveillance system
- Choice of the vulnerability factors adapted to the country situation: vaccination, WASH status, disasters, etc.
- Opportunity to discuss results per divisions (using division maps)
- Modified Template, used for the presentation of the results, to support the discussion and to give an overview of the final results
- Review of the PAMIs in 2-3 years with additional information (with Mortality and RDT results) using GTFCC template

**Thank you**

**Together we can  
#endcholera**



GLOBAL TASK FORCE ON  
**CHOLERA CONTROL**