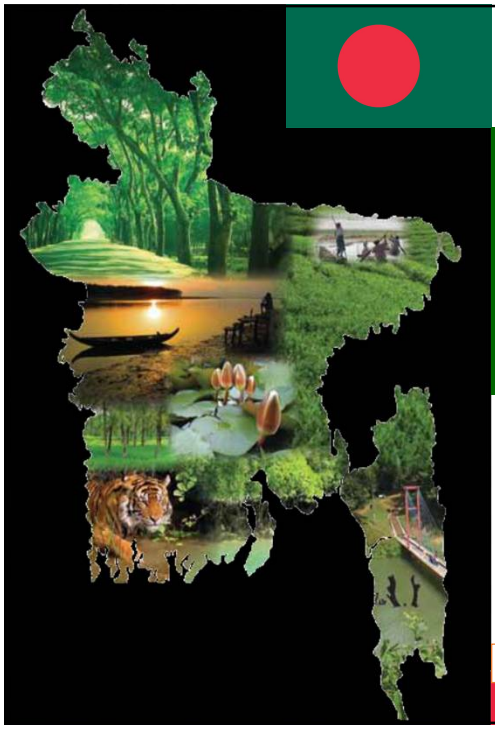


Welcome to the Dissemination Ceremony on

Key Findings with detailed tables of the BDRS 2021 and Bangladesh Environment Statistics 2020

Md. Rafiqul Islam
Project Director
ECDS Project, BBS
Statistics and Informatics Division
Ministry of Planning

Venue: NEC Auditorium, Planning Commission,, Dhaka Date: 29 March 2022

বিসমিল্লাহির-রহমানির রহিম
(দয়াময়, পরম দয়ালু, আল্লাহের নামে/ পরম করুণাময় সৃষ্টিকর্তার নামে)

পরিবেশ ও জীব-বৈচিত্র্য সংরক্ষণ ও উন্নয়ন

আমাদের পবিত্র সংবিধানের ১৮ (ক) অনুচ্ছেদে স্পষ্টভাবে বলা আছে, "রাষ্ট্র বর্তমান ও ভবিষ্যৎ নাগরিকদের জন্য পরিবেশ সংরক্ষণ ও উন্নয়ন করিবেন এবং প্রাকৃতিক সম্পদ, জীব-বৈচিত্র্য, জলাভূমি, বন ও বন্যপ্রাণির সংরক্ষণ ও নিরাপত্তা বিধান করিবেন"।

Contents

- Background
- Brief of the ECDS Project, BBS
- Objectives of the ECDS Project
- Sampling Frame and Methodology of BDRS 2021
- Glimpses of Key Findings
- SDGs & SFDRR Indicators under BDRS
- Comments, Questions and Suggestions

Background

Bangladesh is one of the **world's most disaster and climate vulnerable countries**, at the same time most resilient countries, due to the frequent, regular, and devastating disasters, subject to a wide variety of climatic variability, including irregular rainfall, cyclones, storm surges, SLR, salinity, floods, and droughts.

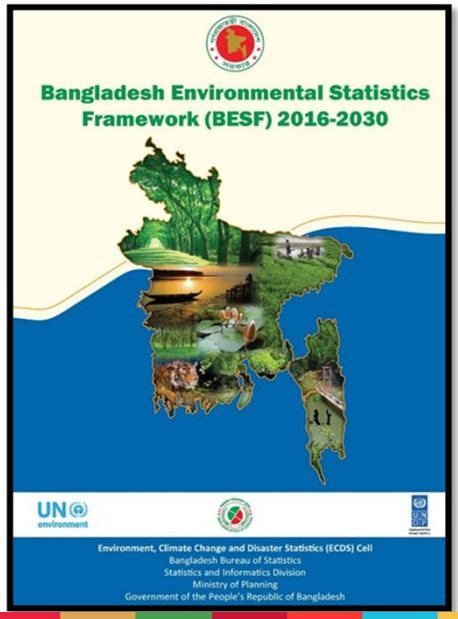
Bangladesh has only 7% area of the total GBM basins which has more than 405 rivers, including 57 trans-boundary rivers.

Impacts of climate change, such as drought, floods, extreme weather events like cyclone and food and water insecurity, affect women and men differently while making the poorest more vulnerable **(Signatory of SDGs, Paris Agreement & SFDRR)**

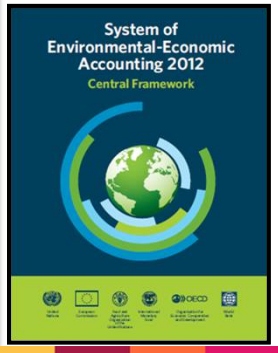
Gender are therefore disproportionately affected, at the same time they play a crucial role in climate change adaptation and mitigation actions.

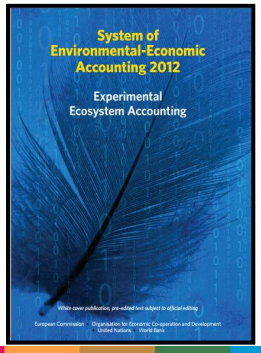
In order to bring about a **paradigm shift towards climate resilient development pathways**, globally and at national level, all climate change mitigation and adaptation actions need to equally pursue broader environmental, social, economic, and political benefits in a gender-responsive manner.

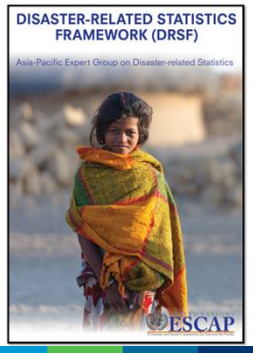
Background of the ECDS Project



About **half of the SDGs** are directly environmental in focus or address the sustainability of natural resources", and"...**over 86 targets and 93 indicators** concern environmental sustainability, including **at least one target in each of the 17 Goals**".







Brief of the ECDS Project, BBS

The main objective: to generate environment, natural resources, bio-diversity, climate change and disaster-related statistics for institutionalization of environmental statistics in Bangladesh

SPECIFIC OBJECTIVES:

1) To conduct the climate change and natural disaster-related statistical survey to **monitor the impacts of climate change** and disastrous events;
2) To develop natural resource accounts **[Eco-system Accounts (EEA)]** align with "System of Environmental Economic Accounting (SEEA)" and BESF 2016-2030.
3) To conduct **Environmental Protection Expenditure** and **Waste Management Survey**.
4) To assess the **damage and loss** of agricultural production, equipment/machineries, land and soil, residence, infrastructure etc. due to climate change and natural disaster;
5) To assess or measure the **affected population with area, deaths and missing population** due to climate change and natural disasters with multi-sectoral GIS integration;
6) To collect and compile data and information from secondary sources of the **"Compilation of Bangladesh Environmental Statistics 2020 & 2023**; and
7) To strengthen capacity of District and Sub-District Statistical Offices **using tablets with digital applications for data collection** with real time.

MAIN OUTPUTS

1) Bangladesh Disaster-related Statistics (BDRS) 2021: Climate Change and Natural Disaster Perspectives
2) Compilation of Bangladesh Environmental Statistics 2020
3) Bangladesh Environmental Protection, Expenditure, Resource and Waste Management Survey 2022
4) Natural Resource: Experimental Ecosystem Accounts/Statistics in Bangladesh 2023
5) Multi-sectoral GIS integration of the affected population with area, deaths and missing population due to climate change and natural disasters
6) Compilation of Bangladesh Environmental Statistics 2023

The BDRS 2020 Fulfill the SDGs Indicators:

- Directly: 1.5.1, 1.5.2, 11.5.1, 11.5.2, 13.1.1, 15.3.1 and
- Partially: 11 Indicators as Data Source;

Fulfill the Targets 4 of the SFDRR, as Data Source;

The ECDS Project is providing guidance and training on SDG's Env Data to Ministries/ Divisions/org. and members of the NDCC Sub-committee

B D R S 2021
Objectives, Sampling F rame, Scope And Coverage

OBJECTIVES: *to document and measure*

- Socio-economic characteristics of Household in disaster prone area
- Disaster-induced agricultural production losses (Crops, Livestock, Poultries)
- Damage and loss of cultivable land and useable land;
- Damage and loss of residence (dwelling), cowshed, kitchen
- Health and sanitation condition from the natural disaster prone area;
- Vulnerability of the women, children, aged persons and person with disability; and
- Perception and knowledge about climate , environment, and disasters.

SAMPLING FRAME

1) Geographically to cover the entire area except territorial enclaves;
2) Survey Frame: A mauza/mahalla list of containing the dominant mauzas in terms of natural disaster prone mauzas under 64 district;
3) Two-Stage Sampling Frame with Kish Allocation formula:
   1. a simple random sampling (SRS) selection of the mauzas/mohallas (PSUs) within the stratum under the districts.
   2. a systematic sampling of 30 Households from each of the selected PSUs.

1) Allocation of sample:

- 4,240 PSUs (mauzas/mahallas) from
- 30 thousand highest disaster affected PSUs against 12 main disasters
- 127,200 households for district estimation.

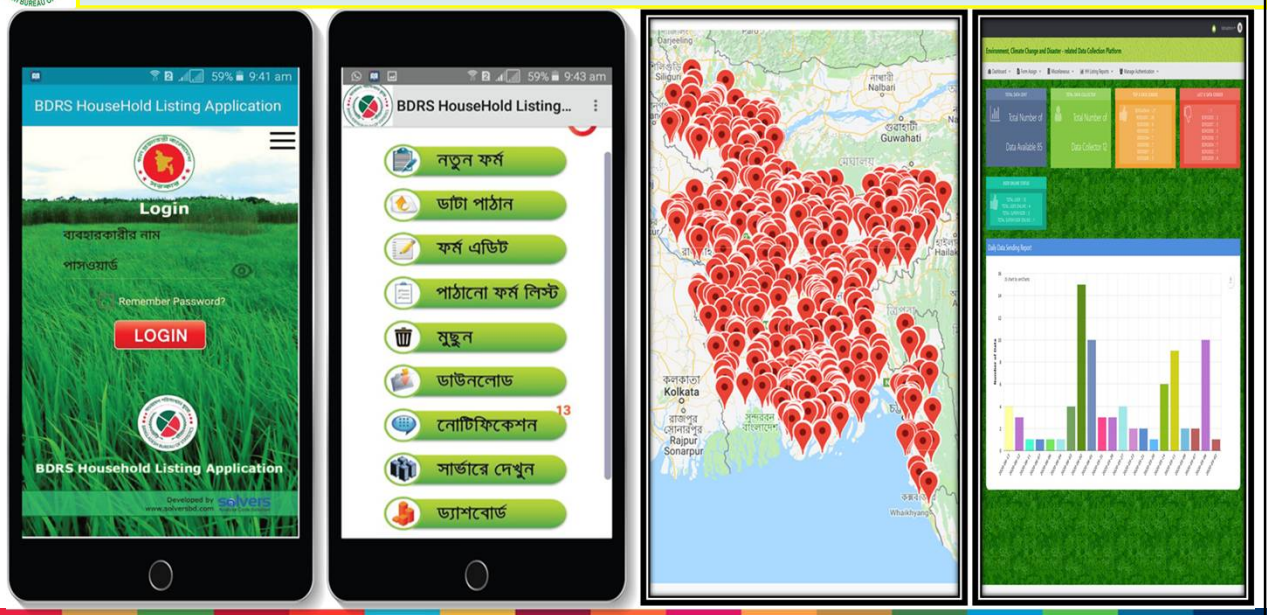
SCOPE AND COVERAGE

- Geographically, covering the entire country.
- To cover disaster prone areas (mauzas/mahallas),
  - a mauza/mahalla list containing the dominant mauzas/mahallas across the disaster prone areas under 64 districts will be generated.
  - Mauzas/mahallas are simply called as a Primary Sampling Unit (PSU)
- The To capture various data and information of the sample households pertaining to their livelihood activities in relation to the direct and indirect impacts of climate change and natural disaster.
- It will not attempt to collect information on the climate parameters or components like temperature, rainfall or anything in relation to carbon emission, greenhouse gas etc.

Concepts, D efinitions and H azards Classifications

Climate Change and Disaster-related concepts and definitions have been taken in the following national and International evidences and documents:

Mobile Application and Using M D M Software



Web Application

Web Application Login

High Level Solution Diagram for CAPI

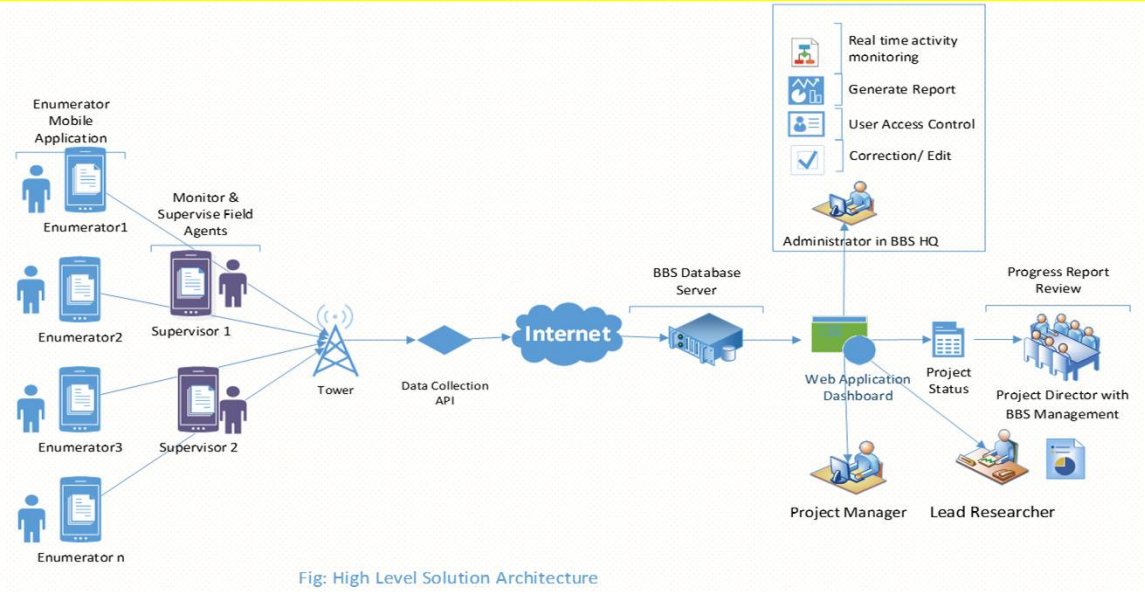


Fig: High Level Solution Architecture

Comparison of Cyclonic Storm from 2009-14 to 2015-20

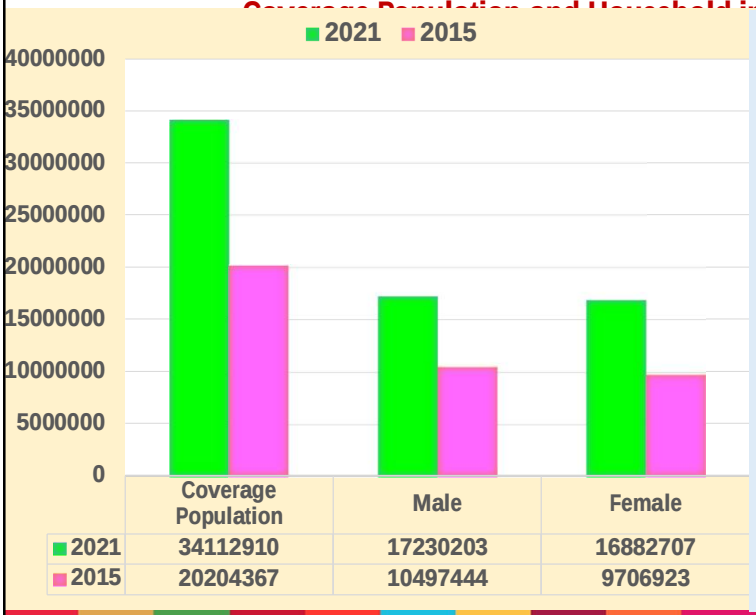
Major Cyclonic Storm 2009-14

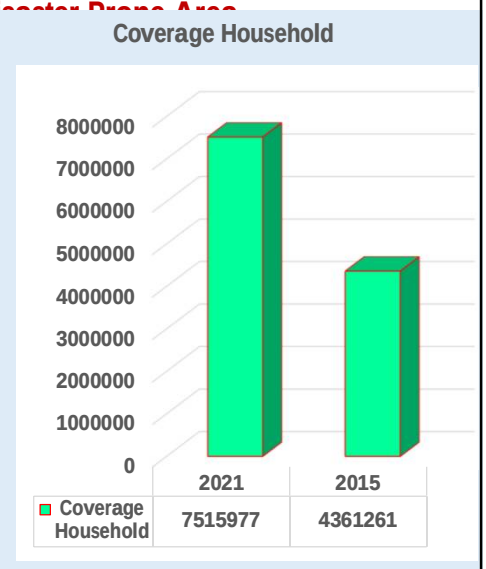
25.05.09	Cyclonic Storm (AILA)
16.05.13	Cyclonic Storm (MAHASEN)

Major Cyclonic Storm 2015-20

30.07.15	Cyclonic Storm (KOMEN)
21.05.16	Cyclonic Storm (ROANU)
30.05.17	Severe Cyclonic Storm (MORA)
04.05.19	Very Severe Cyclonic Storm (FANI)
10.11.19	Very Severe Cyclonic Storm (BULBUL)
20-05-20	Severe Cyclonic Storm (AMPHAN)

Glimpses of Key Findings

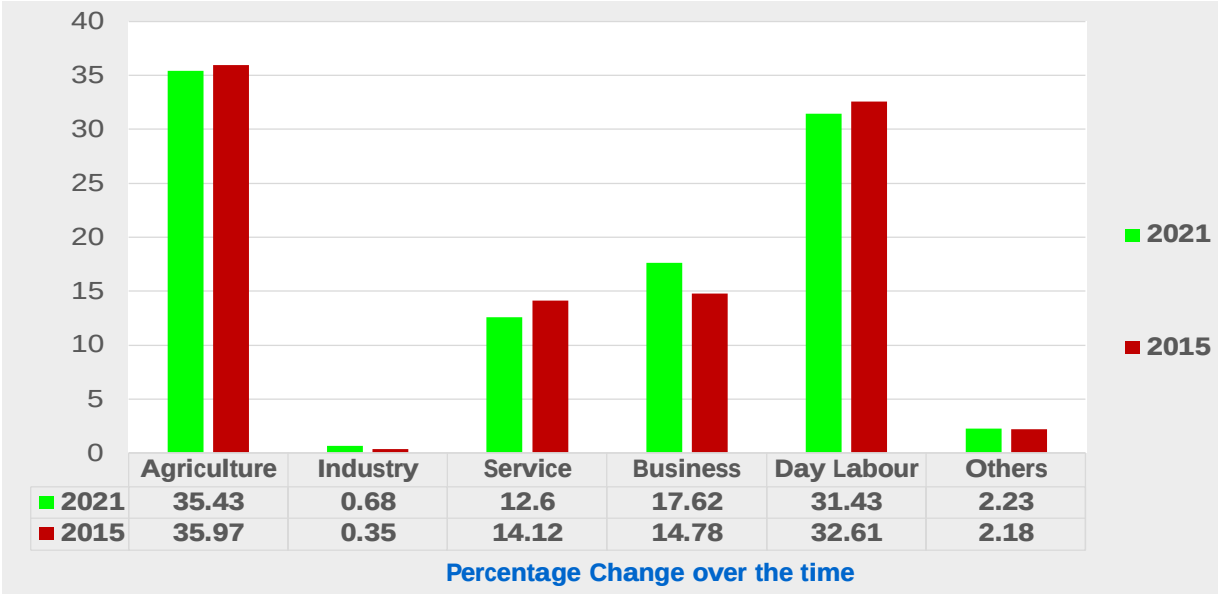




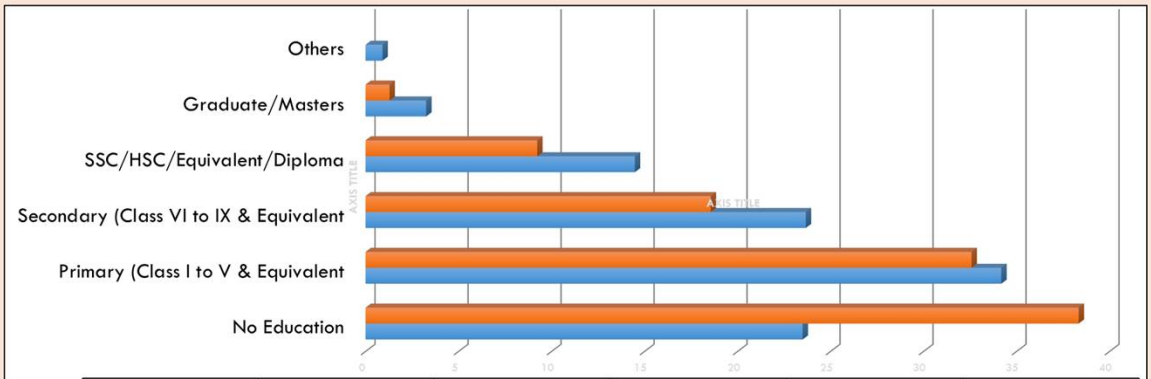
Description (Disaster Prone Areas of Bangladesh)	2021		2015	
	Number /Value	Percentage (%) /Average	Number /Value	Percentage (% /Average
Type of Main Dwelling Structure	**7515977**	**100.00**	**4361261**	**100.00**
Pucca	805186	10.71	444447	10.19
Semi pucca	2190540	29.15	760531	17.44
Kutcha	4444115	59.13	3066364	70.31
Jhupri	70083	0.93	84987	1.95
Others	6053	0.08	4931	0.11
Main Source of Drinking Water	**7515977**	**100.00**	**4361261**	**100.00**
Pipe/Tap (WASA/Municipality)	880417	11.71	186877	4.28
Shallow Tube well (Up to 199 feet)	4797897	63.84		
Deep Tube well (200 feet or more)	1540225	20.49		
Shallow/Deep Tube Well			604600	13.86
Tube Well			3361627	77.08
Safe Drinking Water	**7218539**	**96.04**	**4153104**	**95.22**
Pond/Dighi	125616	1.67	132993	3.05
Others (Cannel/River/Rainfall/Waterfall	171821	2.29	75163	1.72

Description (Disaster Prone Areas of Bangladesh)	2021		2015	
	Number /Value	Percentage (%) /Average	Number /Value	Percentage (%) /Average
Type of Toilet Facility	**7515977**	**100.00**	**4361261**	**100.00**
Pucca Slab (water sealed)	1794560	23.88	803661	18.43
Pucca Slab (not water sealed)	2146010	28.55	1372574	31.47
Kutcha	3418008	45.48	2030788	46.56
Open space/No latrine	157400	2.09	154238	3.54
Main Source of Lighting	**7515977**	**100.00**	**4361261**	**100.00**
Electricity	7069741	94.06	2172901	49.82
Solar Energy	301723	4.01	443201	10.16
Kerosene	130321	1.73	1726708	39.59
Others	14193	0.19	18451	0.42
Main Source of Cooking Fuel	**7515977**	**100.00**	**4361261**	**100.00**
Wood/Fuel wood/Bamboo	3943597	52.47	1790532	41.06
Cow dung/Leaves/Straw	2611802	34.75	2492363	57.14
Gas/LPG/Biogas/Kerosene/Electricity	947958	12.61	75426	1.73
Others	12621	0.17	2941	0.07

Main Source of Household Income



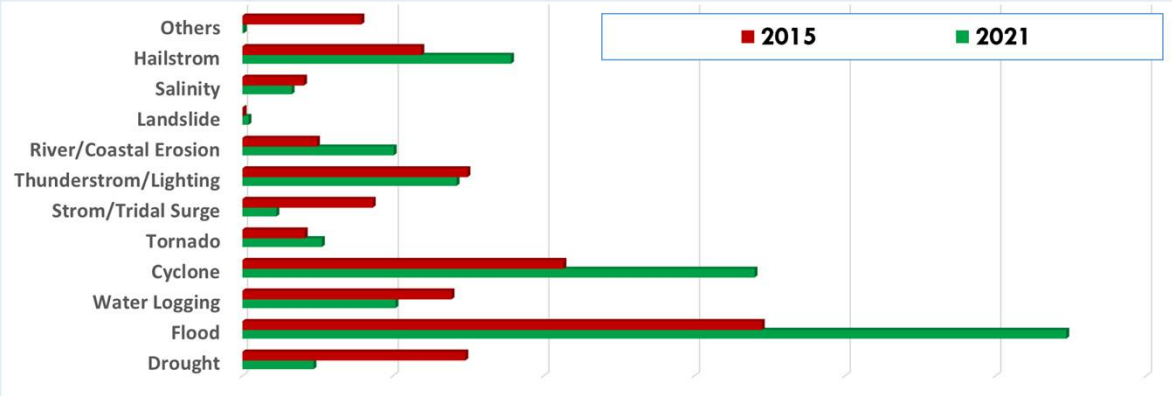
Level of Education in Disaster Prone Area



	No Education	Primary (Class I to V & Equivalent	Secondary (Class VI to IX & Equivalent	SSC/HSC/Equivalent/Diploma	Graduate/Masters	Others
2015	38.34	32.58	18.56	9.23	1.29	
2021	23.5	34.18	23.67	14.48	3.26	0.91

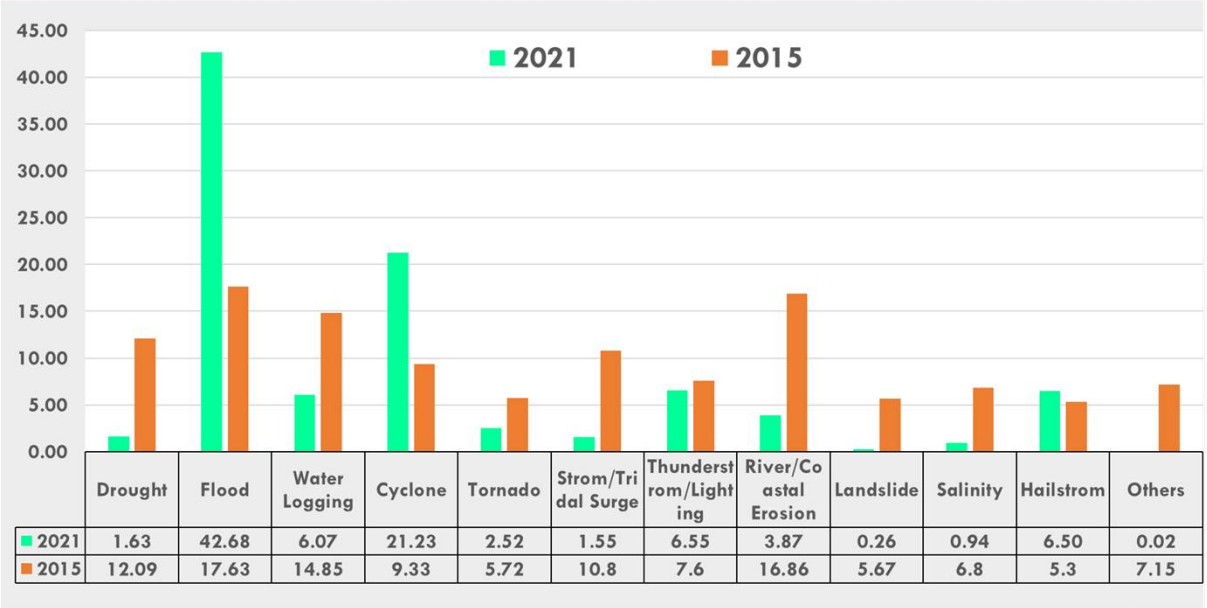
2015 2021

Disaster Affected Household by Type of Disaster



	Drought	Flood	Water Logging	Cyclone	Tornado	Strom/Tridal Surge	Thunderstrom/Lighting	River/Coastal Erosion	Landslide	Salinity	Hailstrom	Others
2015	14.8	34.48	13.88	21.31	4.14	8.65	14.94	4.95	0.08	4.09	11.88	7.9
2021	4.72	54.69	10.16	34.00	5.28	2.26	14.22	10.04	0.40	3.27	17.83	0.09

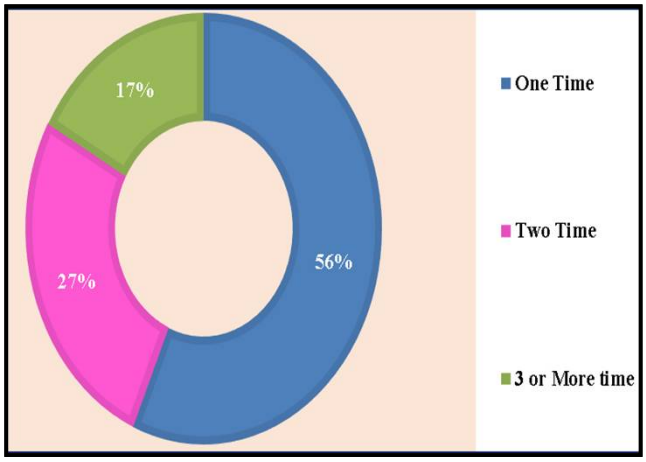
Non - working days due to Last Natural D isaster



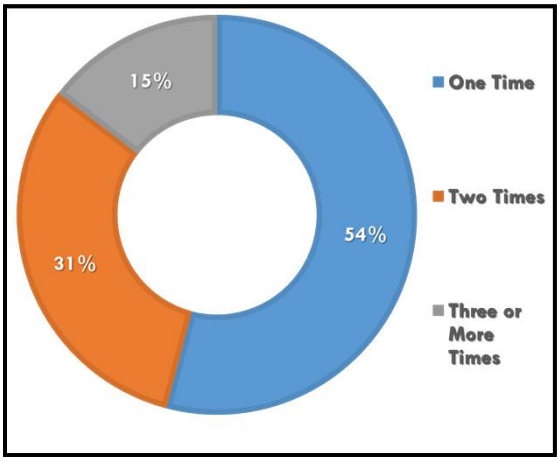
	Drought	Flood	Water Logging	Cyclone	Tornado	Strom/Tridal Surge	Thunderstrom/Lighting	River/Coastal Erosion	Landslide	Salinity	Hailstrom	Others
2021	1.63	42.68	6.07	21.23	2.52	1.55	6.55	3.87	0.26	0.94	6.50	0.02
2015	12.09	17.63	14.85	9.33	5.72	10.8	7.6	16.86	5.67	6.8	5.3	7.15

D isaster Affected T ime of H ousehold

Disaster Affected Time of Household 2015



Disaster Affected Time of Household 2020



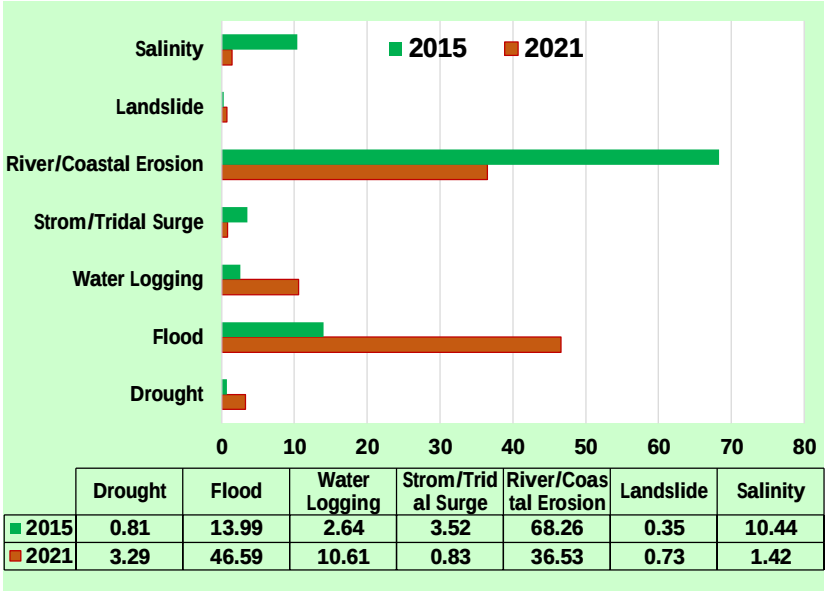
Damage and Loss by Disaster Types and Sector (2015-2020)

Disaster	Damage and Loss by Type of Disaster	
1	2	3
	in Million Taka	%
All	**1791988.00**	**100.00**
Drought	27344.00	1.53
Flood	**1010882.00**	**56.41**
Water logging	93860.00	5.24
Cyclone	**255382.00**	**14.25**
Tornado	15226.00	0.85
Storm/Tidal Surge	15475.00	0.86
Thunderstorm	29195.00	1.63
River/Coastal Erosion	**268703.00**	**14.99**
Landslides	6082.00	0.34
Salinity	20756.00	1.16
Hailstorm	48945.00	2.73
Others	136.00	0.01

Sectors	Damage and Loss by Sector	
1	2	3
	in Million Taka	%
All	**1791988.00**	**100.00**
Crops	517961.00	28.90
Livestock	71373.00	3.98
Poultry	26976.00	1.51
Fishery	66460.00	3.71
Land Degradation	941843.00	52.56
Dwelling Houses & Infrastructure	132315.00	7.38
Homestead & Forestry	35061.00	1.96

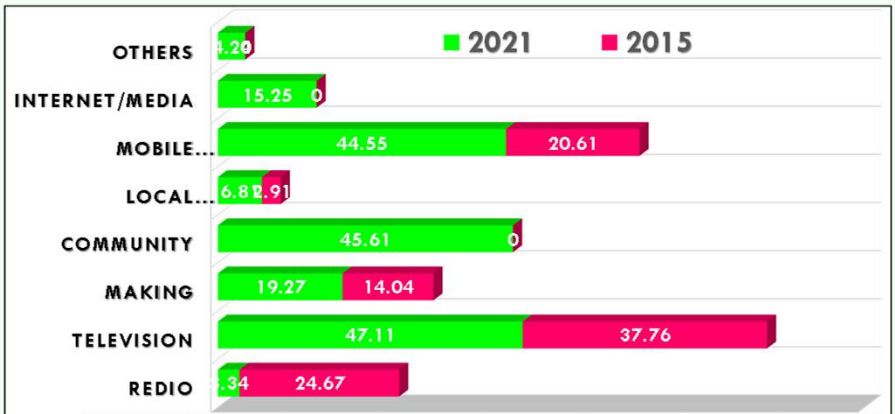
Damage of Land including reduced valuation by type of Disaster

Damage of Land by Disaster including reduced valuation (In Acres) 2015-2020	868206
Drought	28548
Flood	404501
Water Logging	92120
Storm/Tidal Surge	7192
River/Coastal Erosion	317186
Landslide	6295
Salinity	12363



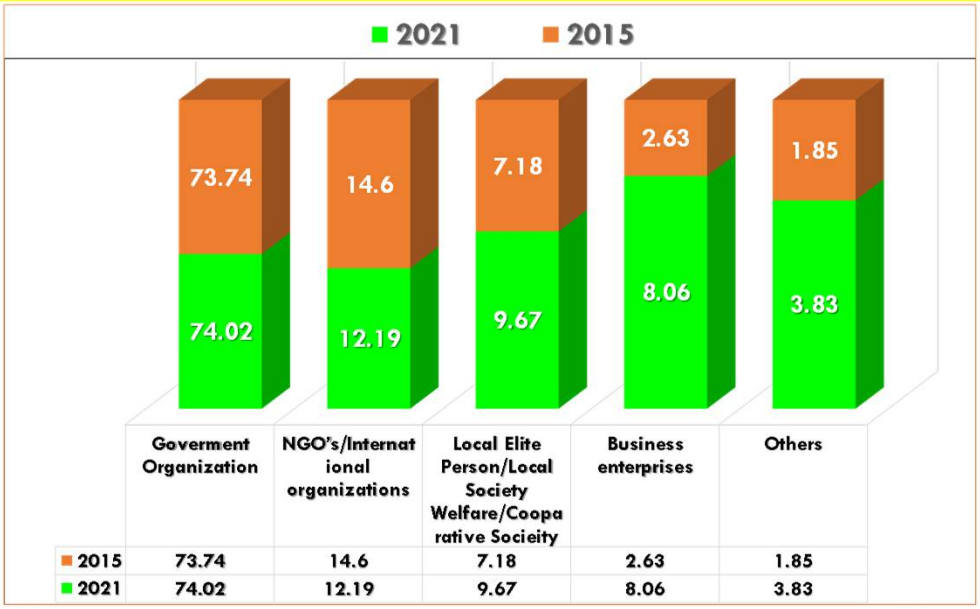
	Drought	Flood	Water Logging	Strom/Tridal Surge	River/Coastal Erosion	Landslide	Salinity
2015	0.81	13.99	2.64	3.52	68.26	0.35	10.44
2021	3.29	46.59	10.61	0.83	36.53	0.73	1.42

Received Early Warning by type of Media



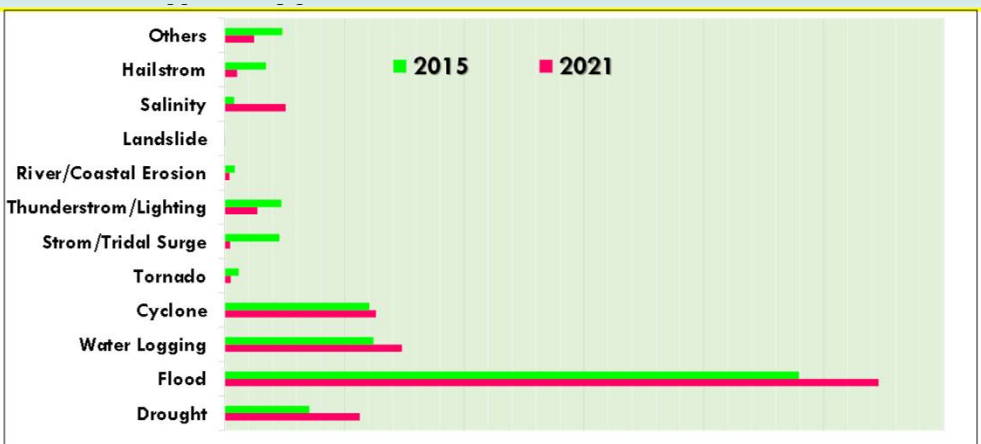
	Redio	Television	Making	Community	Local Administration	Mobile Telephone/ SMS	Internet/Media	Others
2021	3.34	47.11	19.27	45.61	6.81	44.55	15.25	4.24
2015	24.67	37.76	14.04	0	2.91	20.61	0	0

Household Received Financial Support by Organization



	Goverment Organization	NGO's/International organizations	Local Elite Person/Local Society Welfare/Cooparative Socieity	Business enterprises	Others
2015	73.74	14.6	7.18	2.63	1.85
2021	74.02	12.19	9.67	8.06	3.83

Suffering from Sickness due to Disaster

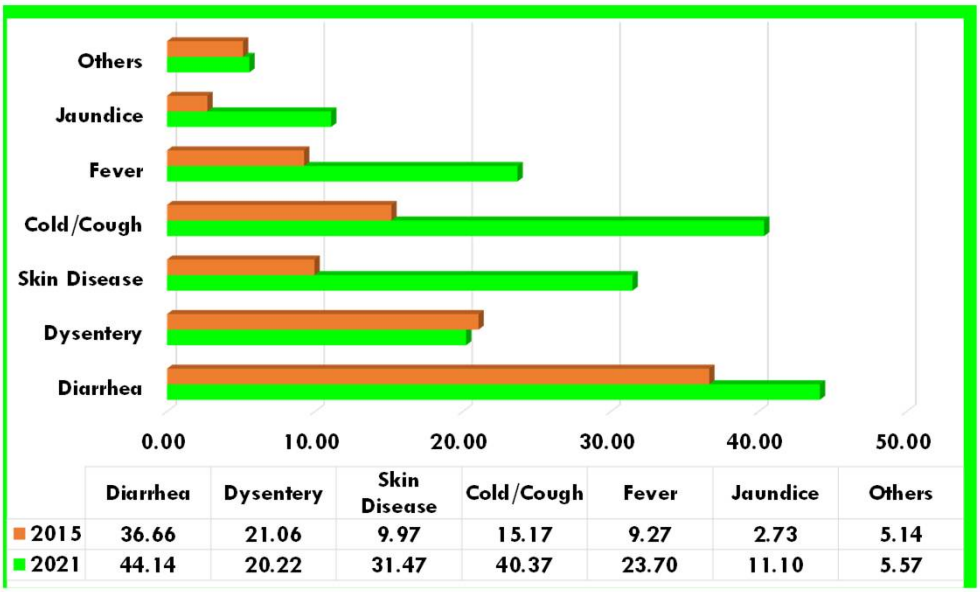


	Drought	Flood	Water Logging	Cyclone	Tornado	Strom/Tridal Surge	Thunderstrom/Lighting	River/Coastal Erosion	Landslide	Salinity	Hailstrom	Others
2015	7.07	47.91	12.43	12.07	1.2	4.57	4.74	0.85	0.04	0.8	3.48	4.84
2021	11.27	54.57	14.80	12.64	0.53	0.46	2.75	0.43	0.06	5.10	1.06	2.46

Injured by Disaster

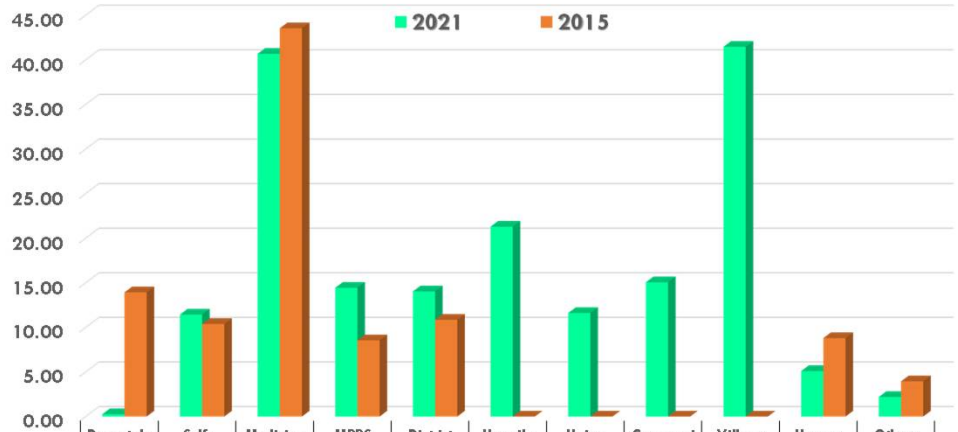
	Flood	Water Logging	Cyclone	Tornado	Strom/Tridal Surge	Thunderstrom/Lighting	River/Coastal Erosion	Landslide	Hailstrom	Others
2021	54.74	8.96	23.77	3.81	1.93	9.44	1.93	0.16	2.88	2.44
2015	41.89	7.68	15.21	8.42	3.87	6.69	4.16	0.01	9.08	3.00

Main Disease due to insufficient Supply of Drinking Water



	Diarrhea	Dysentery	Skin Disease	Cold/Cough	Fever	Jaundice	Others
2015	36.66	21.06	9.97	15.17	9.27	2.73	5.14
2021	44.14	20.22	31.47	40.37	23.70	11.10	5.57

Received Treatment due to Insufficient Drinking Water



	Do not do anything	Self-treatment	Medicine shop/Pharmacy	MBBS Doctor	District Government Hospital	Upazila Health & Family Welfare Clinic	Union Health & Family Welfare Clinic	Community Clinic	Village doctor	Homeo doctor/Kobiraj/Ohja	Others
2021	0.26	11.43	40.68	14.44	14.03	21.29	11.61	15.06	41.46	5.10	2.20
2015	13.93	10.38	43.54	8.54	10.85	0.00	0.00	0.00	0.00	8.80	3.95

Treatment Cost [Medical Expenditure]

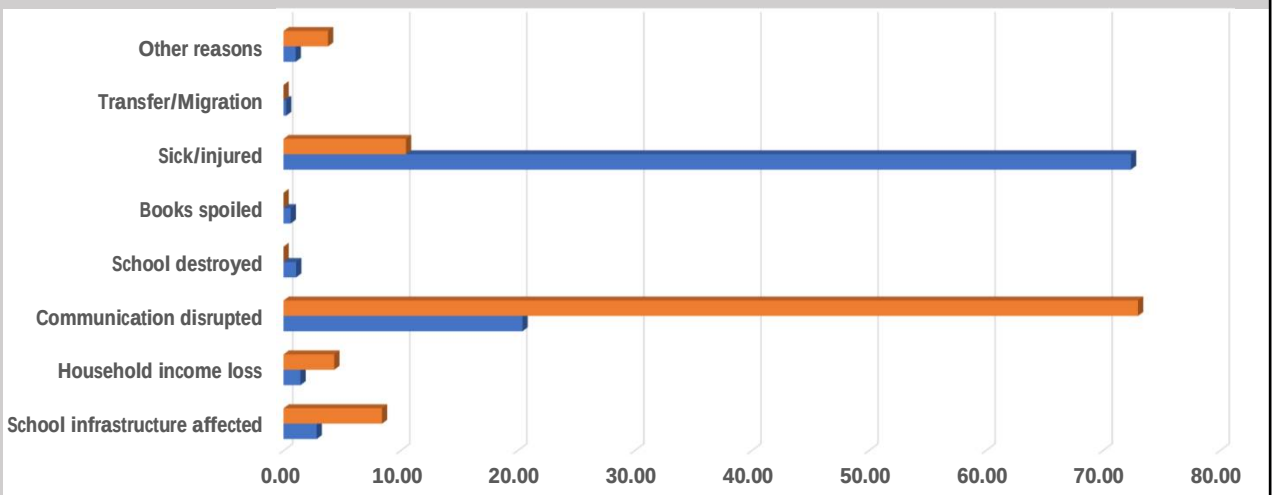
Treatment Cost 2015-2020 (Expenditure)		
Average Treatment Cost (in TK.) of All Ages due to Disaster	No. of HH. Members	Average Cost
	2412389	16341.00
1 – 9999	1333435	5368.44
10000 – 24999	621077	16666.91
25000 – 49999	385316	38188.54
50000 – 99999	53135	61350.70
100000 +	19427	202626.26

Treatment Cost 2015-2020 (Expenditure)		
Average Treatment Cost (in TK.) of Children (age 0 - 17 years) due to Disaster	No. of Children	Average Cost
	1448498	17821.17
1 – 9999	705262	6727.81
10000 – 24999	419936	17647.09
25000 – 49999	298392	39145.63
50000 – 99999	21333	67530.13
100000 +	3575	150225.10

Sick Children Received Treatment by Facility

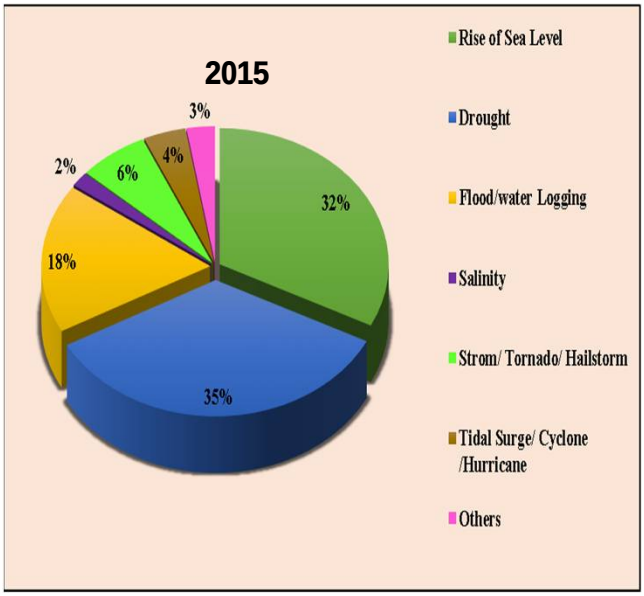
Sick Children Received Treatment (Age 0 - 17 Years)	2021	2015
MBBS	27.46	19.70
Paramedics Doctor/Medical Assistant/Nurse	33.92	26.04
Pharmacy	17.00	23.85
Village Doctor	12.41	23.44
Others (Kabiraj/Homeo-Doctor/Ojha/Aiurbedic/Unani)	3.62	6.32
No Treatment	5.58	0.65

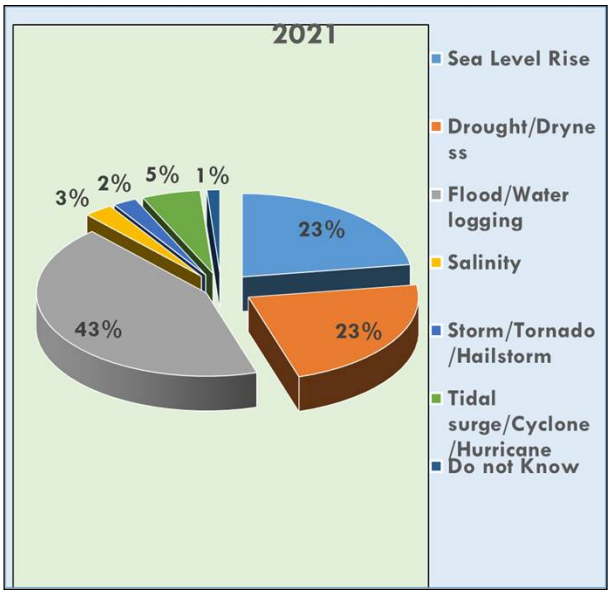
Cause of not attending School of Children due to Disaster



	School infrastructure affected	Household income loss	Communication disrupted	School destroyed	Books spoiled	Sick/injured	Transfer/Migration	Other reasons
2015	8.41	4.33	73.00	0.00	0.00	10.46	0.00	3.80
2021	2.83	1.44	20.41	1.07	0.61	72.39	0.22	1.03

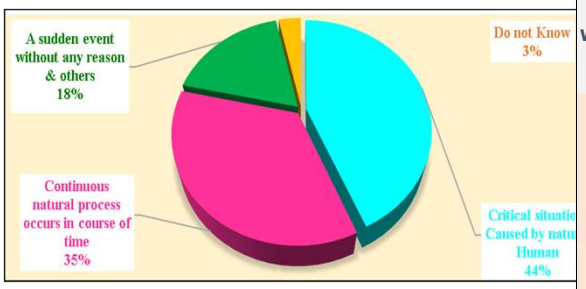
Knowledge and Perception about Impacts of Climate Change



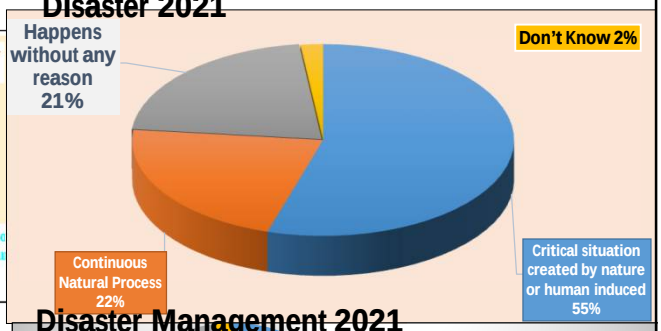


Knowledge and Perception about Disaster & Disaster Management

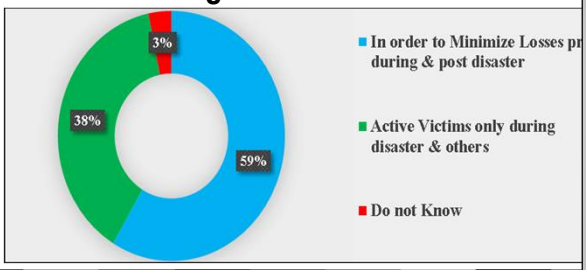
Disaster 2015



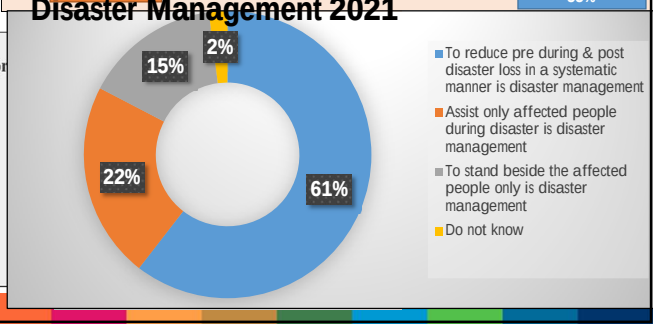
Disaster 2021



Disaster Management 2015



Disaster Management 2021



Vulnerability Assessment based on Quintile Income Group

Household Group	Average Annual Income (Tk)	Average Annual Damage and Loss (Tk.) by BDRS 2021 Sample Survey								Proportion of damage and loss to total income
		Crops	Livestock & Feed	Poultry & Egg	Fishery	Land	Housing & Others	Homestead forestry	Total	
1	2	3	4	5	6	7	8	9	10	11
Q1	31001	7380	1334	423	456	17491	2642	399	30125	**97.17**
Q2	100628	7213	1290	453	603	16792	2981	517	29848	**29.66**
Q3	158014	8963	1390	484	762	18397	2921	629	33546	**21.23**
Q4	239275	12241	1437	569	1164	19737	2907	884	38938	**16.27**
Q5	722903	22142	2500	1081	4509	32506	3229	1493	67459	**9.33**
Total	**246241**	**11486**	**1583**	**598**	**1474**	**20885**	**2934**	**777**	**39737**	**16.14**

Lowest Income Group

Highest Income Group

As high as 97.17% of income goes for damage and loss in bottom quintile. While it is only 9.33% for the top quintile. Bottom quintile is more vulnerable (10.4 times) than top quintile in exposure to damage and loss. Proportion of damage and loss decrease as income goes up.

Note: Quintiles are representative of 20% of a given population . Therefore, the first quintile (Q1) represents the lowest fifth of data and top quintile (Q5) represents the last 5th (20%) of a data. Here, we use household income for preparing the quintile

Standard Error Calculation of Total Income and Total Damage & Loss

Items	Mean	Linearized Standard Error	[95% Conf. Interval]		Relative STD Error (%)
			Lower Level	Upper Level	
1	2	3	4	5	6
Bangladesh					
Total Income	**246297.50**	**5592.20**	**235333.90**	**257261.20**	**2.27**
Total Damage & Loss	**238428.20**	**10237.37**	**218357.60**	**258498.90**	**4.29**

Bangladesh Environment Statistics 2020

Compilation of '**Bangladesh Environment Statistics 2020**' has been compiled by collecting, processing, analyzing and reporting through Environmental Data from the secondary source i.e. the concerned Ministries/ Divisions/ Department/ Agencies. The following components of **the Compilations** have been prepared in light of the **UNFDES and Bangladesh Environmental Statistics Framework (BESF) 2016-2030:**

1. *Environmental Conditions and Quality;*
2. *Environmental Resources and their Use;*
3. *Residuals;*
4. *Extreme Events and Disasters;*
5. *Human Settlement and Environment Health; and*
6. *Environmental Protection, Management and Engagement.*

S D Gs and S F D R R I ndicators from B D R S 2020 & 2015

SDGs Indicators & Sub-Indicators No.	Description of SDGs and SFDRR Indicators	SDGs & SFDRR Indicators 2020	Baseline of SDGs & SFDRR Indicators 2015
1.4.1	**Proportion of Population Living in Households with Access to Basic Services [National: Sanitation 96.2%, Electricity 96.2%, (SRVRS 2020), Clean Fuel 19.0% (MICS 2019]**		
	a) Sanitation	**52.43**	**49.90**
	b) Electricity	**94.06**	**49.82**
	c) Clean Fuel	**12.61**	**1.73**
1.5.1, 11.5.1, 13.1.1	**Number of Deaths, Missing persons, Injured, Sickness and directly affected persons attributed to disasters per 100,000 population**	**3765.80**	**12881**
1.5.1.1	a) Disaster Deaths	**0.85**	
1.5.1.2	b) Missing Persons	**0.03**	
1.5.1.3	c) Injured Persons	**18.09**	
1.5.1.4	d) Disaster Sickness	**167.77**	
1.5.1.5	e) Affected Persons	**3578.03**	

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S D Gs and S F D R R I ndicators from B D R S 2020 & 2015

SDGs Indicators & Sub-Indicators No.	Description of SDGs and SFDRR Indicators	SDGs & SFDRR Indicators 2020	Baseline of SDGs & SFDRR Indicators 2015
1.5.2, 11.5.2	**Direct Economic Loss attributed to Disasters in relation to Gross Domestic Product (GDP) damage to critical infrastructure and number of disruptions to basic services (Proportion of GDP)**	**1.32**	**1.30**
1.5.2.1	**Sector Wise Damage and Loss (% Share)**	**100.00**	**100.00**
	Crops	28.90	36.20
	Livestock	3.98	4.76
	Poultry	1.51	1.21
	Fishery	3.71	5.82
	Land Degradation	52.56	26.72
	Dwelling & Others Infrastructures	7.38	17.19
	Homestead Forestry	1.96	8.10

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SDGs and SFDRR Indicators from BDRS 2020 & 2015

SDGs Indicators & Sub-Indicators No.	Description of SDGs and SFDRR Indicators	SDGs & SFDRR Indicators 2020	Baseline of SDGs & SFDRR Indicators 2015
1.5.2, 11.5.2	**Direct Economic Loss attributed to Disasters in relation to Gross Domestic Product (GDP) damage to critical infrastructure and number of disruptions to basic services (Proportion of GDP)**	**1.32**	**1.30**
1.5.2.2	**Damage and Loss by Disaster (% Share)**	**100.00**	**100.00**
	Drought	1.53	5.74
	Flood	56.41	23.23
	Water Logging	5.24	8.72
	Cyclone	14.25	15.41
	Tornado	0.85	2.33
	Storm/Tidal Surge	0.86	6.88
	Thunderstorm/Lighting	1.63	5.94
	River/Coastal Erosion	14.99	19.76
	Landslide	0.34	0.14
	Salinity	1.16	3.30
	Hailstorm	2.73	6.23
	Others	0.01	2.34

SDGs and SFDRR Indicators from BDRS 2020 & 2015

SDGs Indicators & Sub-Indicators No.	Description of SDGs and SFDRR Indicators	SDGs & SFDRR Indicators 2020	Baseline of SDGs & SFDRR Indicators 2015
4.1.2	**Completion rate of Education (National: Primary: 82.6%; Lower Secondary: 64.7%; Upper Secondary: 29.4%[MICS 2019, BBS]**		
	Primary (Class I to V & Equivalent)	34.18	32.58
	Secondary (Class VI to IX & Equivalent)	23.67	18.56
	SSC/HSC/Equivalent/Diploma	14.48	9.23
4.3.1	**Participation Rate of Youth and Adults in Formal Education [National: a) Secondary 75.62% b) H. Secondary 48.39% c) *Tertiary* 20.07 % (BANBEIS, 2020)]**		
	(a) Secondary	23.67	18.56
	(b) Higher Secondary	14.48	9.23
	(c) *Tertiary*	3.26	1.29
7.1.1	**Proportion of Population with Access to Electricity [National 96.2% (2020) SVRS, BBS]**	**94.06**	**49.82**

For Further Information

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