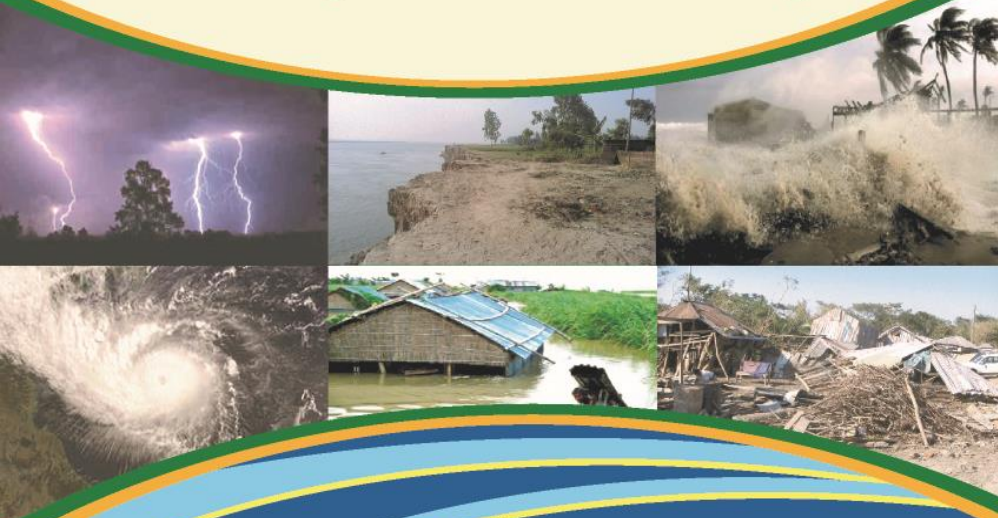**Bangladesh**
Disaster-related Statistics 2015
Climate Change and Natural Disaster Perspectives

Impact of Climate Change on Human Life (ICCHL) Programme
Bangladesh Bureau of Statistics (BBS)
Statistics and Informatics Division (SID)
Ministry of Planning
Government of the People's Republic of Bangladesh

13ᵗʰ National Statistics Convention of Philippines
on
Innovations for Improvement of Official Statistics on Disasters

Bangladesh Experience

Presented by:

Md. Rafiqul Islam
Deputy Director and
National Focal Point Officer
Bangladesh Bureau of Statistics (BBS)

Venue: Edsa Shangri-La Hotel, Mandaluyong City, Philippines.
Date: 3-6 October, 2016

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Introduction

➢ Climate Change and its impacts (Natural Disasters) are the current burning issues in the world and the greatest threat to the mankind, its challenges are multi-dimensionals, multi-sectorals, have immediate as well as long term effects;

➢ Every year Bangladesh faces many natural disasters like drought, flood, water-logging, cyclone and tidal surge, tornado, thunderstorm, river/coastal erosion, landslides, salinity intrusion, hailstorm, extreme weather events etc.

➢ Asia Pacific Disaster Report 2015 (UN-ESCAP) has shown Bangladesh one of the most vulnerable among 15 countries with high exposure to and its risk position is 10th (Exp.) and 5th (Risk).

➢ Bangladesh is also known as one of the most resilient countries of the world despite the regular and devastating disastrous events, the country manages to attain significant progress in almost all sectors of the MDGs.

Objectives

The Report on "Bangladesh: Disaster-related Statistics 2015: *Climate Change and Natural Disaster Perspectives*" **under the ICCHL Programme which has covered following objectives:**

1) To measure the socio-economic characteristics of Household and Population in disaster prone area
2) To assess the loss of agricultural production (Crops, Livestock, Poultries, Fisheries and Homestead Forestry) due to natural disasters;
3) To calculate the damage and loss of cultivable land and useable land in disaster prone area;
4) To measure the damage and loss of residence (dwelling), cowshed, kitchen in the disaster prone area;
5) To collect data of health and sanitation condition from the natural disaster prone area;
6) To assess the vulnerability of the women, children, aged persons and person with disability; and
7) To collect information on the perception and knowledge about climate change, impact of climate change, environment and disaster management.

➤ Geographically, the survey has covered the entire area of the country except territorial enclaves;

➤ Preparing Survey Frame: A mauza/mahallas (Lowest Administrative Unit) list of containing the dominant mauzas across the country in terms of natural disaster prone mauzas under 64 district;

➤ It has prepared according to Two Stage Sampling Frame with Kish Allocation formula;

➤ The first stage was a simple random sampling (SRS) selection of the mauzas/mohallas (PSUs) within the stratum under the districts. The second stage was a systematic sampling of 30 Households from each of the selected PSUs.

➤ Allocation of sample 4,945 PSUs (mauzas/mahallas) from 21,980 highest disaster affected PSUs against 12 main disasters have covered maximum 148,350 households in the entire country, minimum 1440 reported household in each district for district estimation. Ultimately in survey period, it has found that the total number of sampled disaster affected households were 143,980.

Concepts and Definitions

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

- Disaster Management Act 2012: Ministry of Disaster Management and Relief, Government of the People's Republic of Bangladesh.
- Standing Orders on Disaster (SOD) 2010: Ministry of Food and Disaster Management Disaster Management & Relief Division, Disaster Management Bureau, Government of the People's Republic of Bangladesh.
- Durjog Kosh (Disaster Dictionary) 2009: Ministry of Disaster Management and Relief, GOB
- National Plan for Disaster Management 2010-2015: Ministry of Disaster Management and Relief, Government of the People's Republic of Bangladesh.
- National Strategy on the Management of Disaster and Climate Induced Internal Displacement (Nsmdciid), Ministry of Disaster Management and Relief.
- Disaster, Damage, Loss and Needs Assessment Training Guidelines: Prepared for the Government of Bangladesh by the Global Facility for Disaster Reduction and Recovery.
- Defining Sustainable Development: the World Commission on Environment and Development (Brundtland Commission), Milton Park: earthscan/Routledge, 2014
- Banglapedia: National Encyclopaedia of Bangladesh.
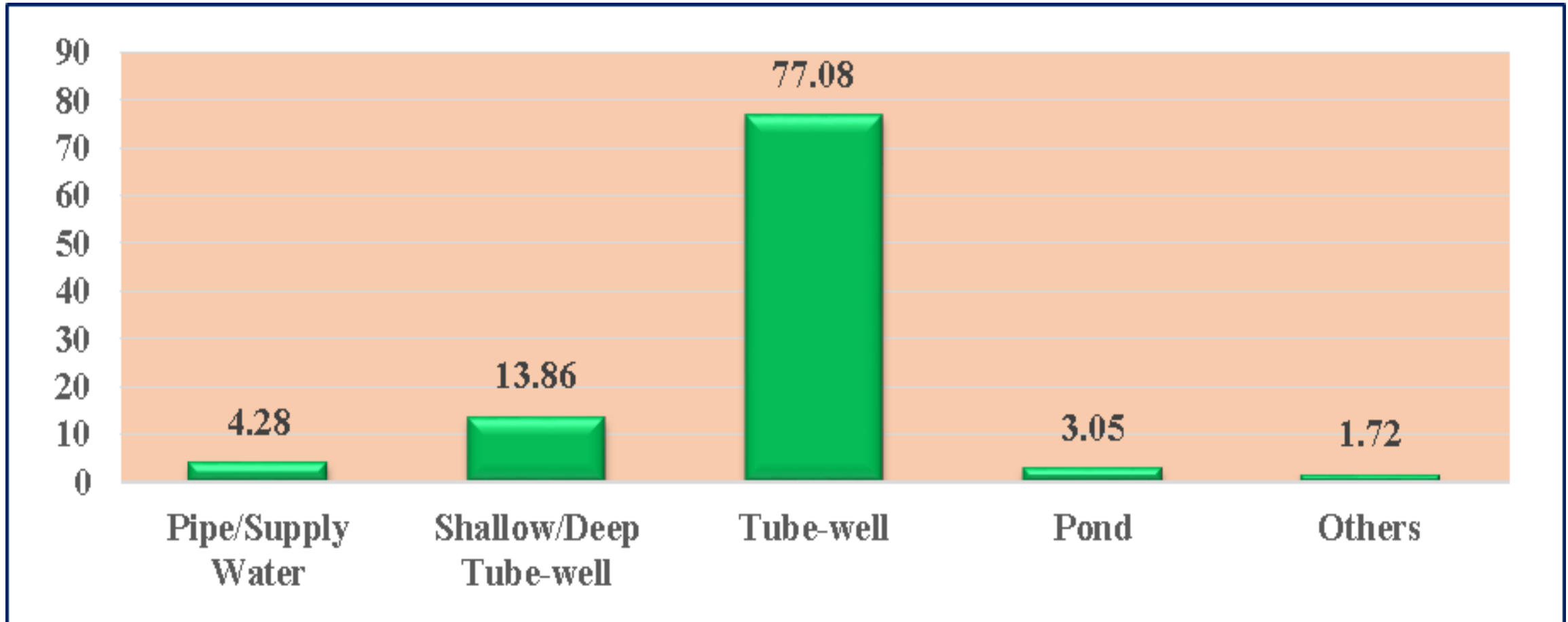
Glimpses of Key Findings

Household, population and household size by division in disaster prone area

Division	Household	Population			Percentage (%)			Household Size
		Total	Male	Female	Total	Male	Female	
1	2	3	4	5	6	7	8	11
Bangladesh	4361261	20204367	10497444	9706923	100.00	51.96	48.04	4.63
Barisal	818137	3728172	1948496	1779676	18.45	9.64	8.81	4.56
Chittagong	430540	2203878	1168609	1035269	10.91	5.78	5.12	5.12
Dhaka	931668	4435469	2309931	2125538	21.95	11.43	10.52	4.76
Khulna	668873	2843763	1463319	1380445	14.07	7.24	6.83	4.25
Rajshahi	613704	2593770	1346316	1247453	12.84	6.66	6.17	4.23
Rangpur	488564	2146425	1111909	1034516	10.62	5.50	5.12	4.39
Sylhet	409776	2252890	1148864	1104026	11.15	5.69	5.46	5.50

About 13 % Household and 12.64 % Population live in disaster prone area of the country. Household size is slightly larger (4.63) than national size (4.44).
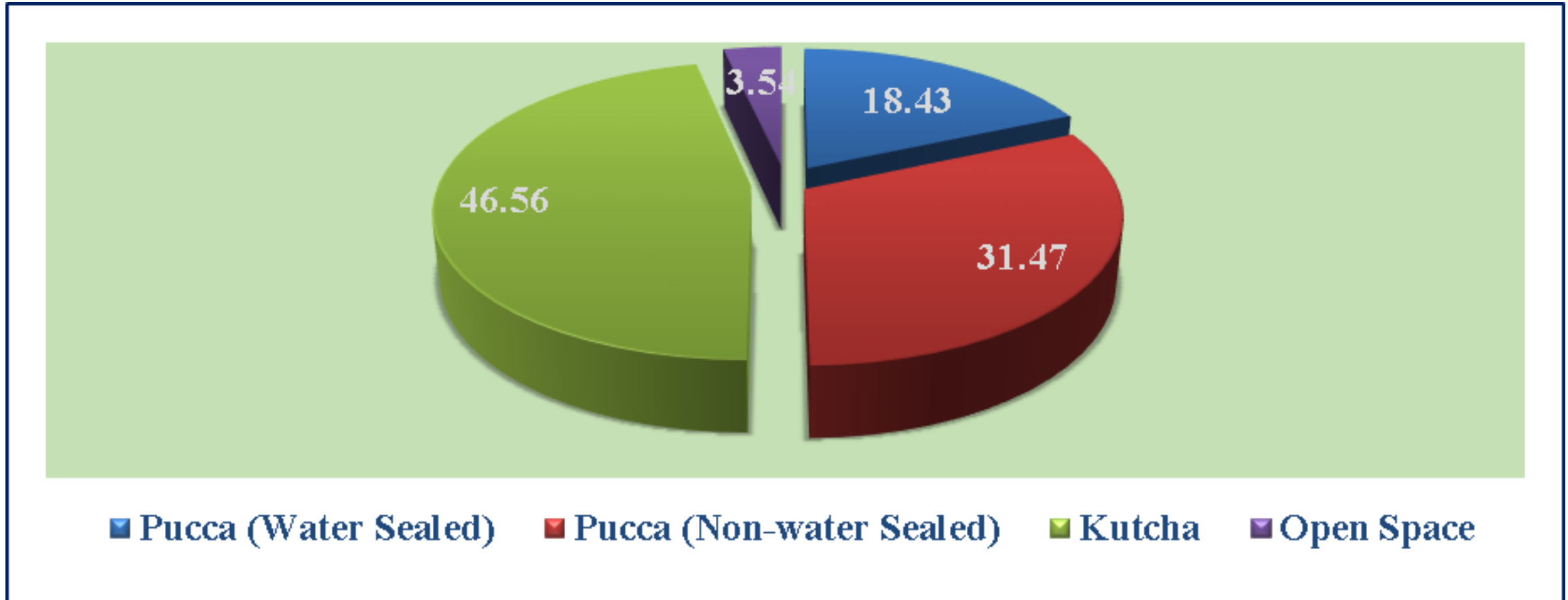
Glimpses of Key Findings

Percentage distribution of drinking water by source, 2014 in disaster prone area

Pipe/Supply water + shallow/deep tube-well + Tube-well=95.23%, Pond + Others=4.77% source of drinking water in disaster prone area where national figure is 97.80 % and 2.20 (SVRS 2014)

Glimpses of Key Findings

Percentage distribution of toilet facilities by type, 2014 in disaster prone area.

3.54

18.43

46.56

31.47

■ Pucca (Water Sealed) ■ Pucca (Non-water Sealed) ■ Kutcha ■ Open Space

Total Pucca 49.90 %, Kutcha 46.56, Open Space 3.54 toilet facilities in disaster prone area where national figure of total pucca 63.50%, Kutcha 34.40 % and open space 2.10 % (SVRS 2014)

Glimpses of Key Findings

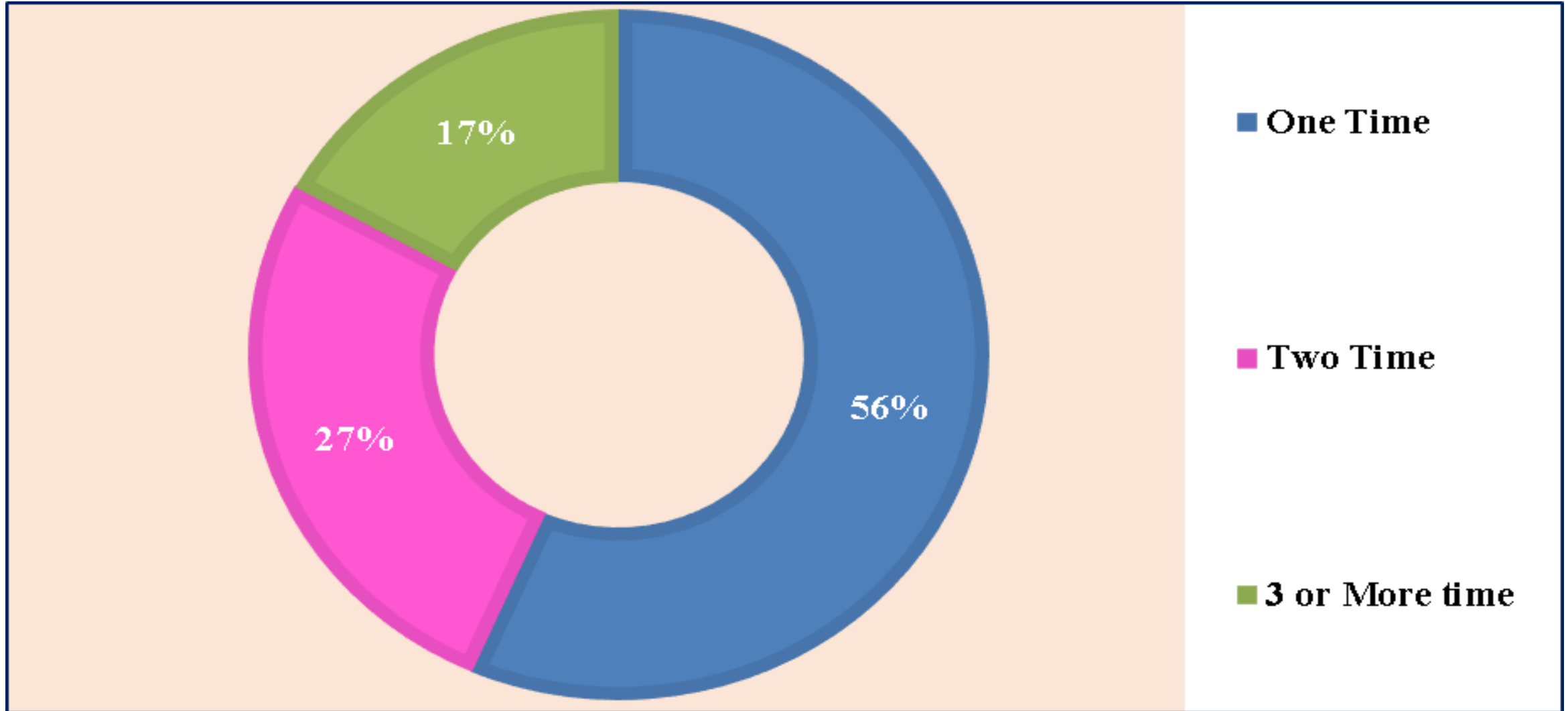**Percentage distribution of household by source of lighting 2014 in disaster prone area.**
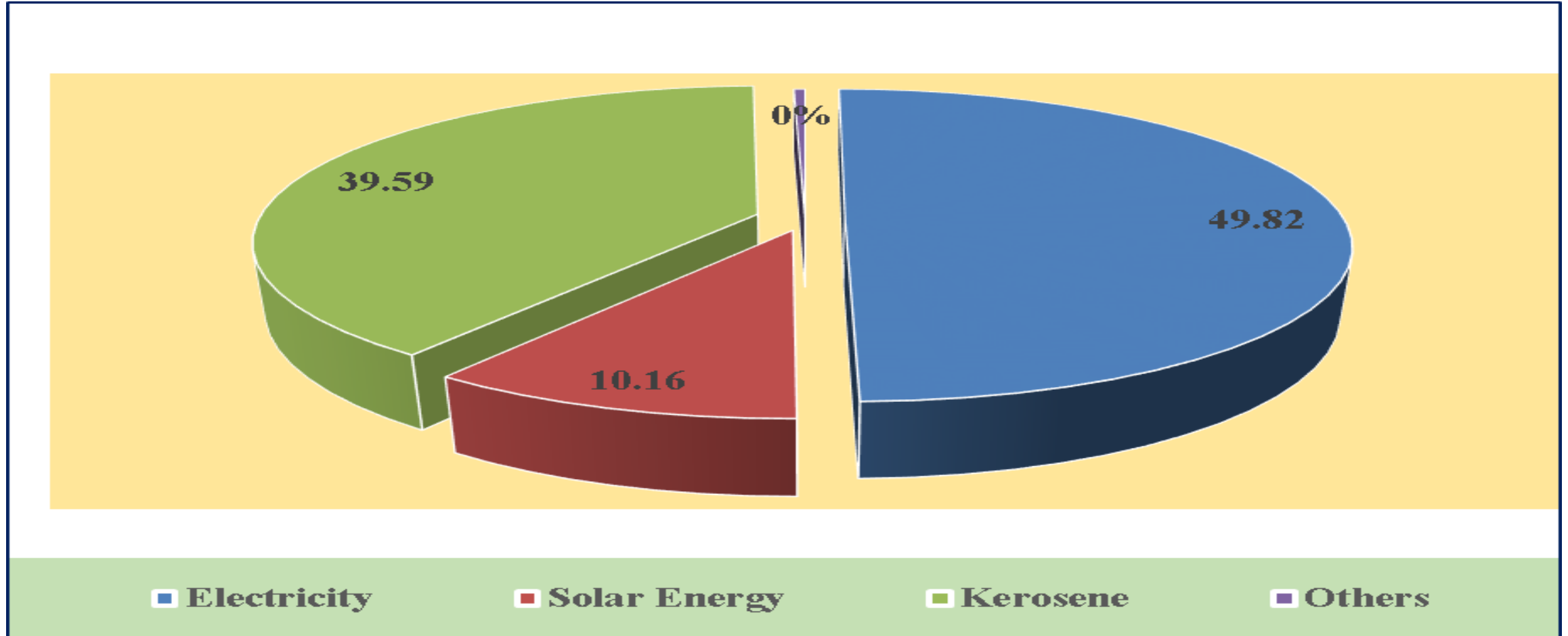
Electricity + Solar Energy=59.98 %, Kerosene + others=40.02 % source of lighting in disaster prone area where National figure of source of lighting Electricity + Solar Energy=67.80 %, Kerosene + others=32.20 % (SVRS 2014).

Percentage of disaster affected time of household, 2009-'14 in disaster prone area

Percentage distribution of non-working days due to last natural disaster, 2009-'14.

| Disaster	Number of non-working days (%)					Average non working days per household
	Total	1 to 7	8 to 15	16 to 30	31 +	
1	3	4	5	6	7	8
Total	100.00	48.46	28.44	18.12	4.98	12.13
Drought	8.17	3.61	2.69	1.47	0.39	12.09
Flood	26.93	4.98	10.62	9.39	1.94	17.63
Water logging	11.11	4.88	3.23	2.05	0.96	14.85
Cyclone	19.17	12.05	4.51	1.95	0.66	9.33
Tornado	3.26	2.65	0.45	0.14	0.03	5.72
Storm/Tidal Surge	7.95	4.92	1.50	1.06	0.47	10.80
Thunderstorm	6.37	3.73	2.14	0.46	0.04	7.60
River/Coastal Erosion	3.62	1.23	1.13	0.92	0.34	16.86
Landslides	0.05	0.04	0.01	0.00	0.00	5.67
Salinity	1.51	1.18	0.24	0.08	0.01	6.80
Hailstorm	7.50	6.29	0.76	0.34	0.12	5.30
Others (Fog, Cold wave etc.)	4.37	2.91	1.16	0.26	0.04	7.15
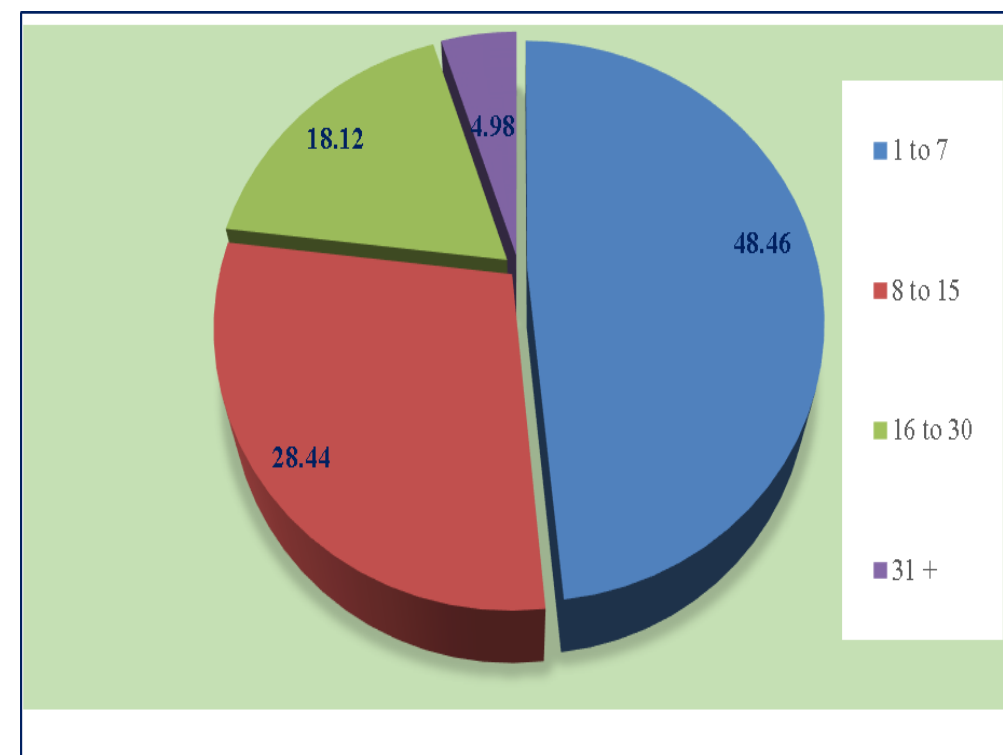
Glimpses of Key Findings

Distribution of damage and loss at HH levels by sector and by disaster categories, 2009-'14.

Disaster	Damage and Loss (by sector)								
	Total		Crops	Livestock	Poultry	Fishery	Land	Houses (Cowshed, Kitchen etc)	Homestead & forestry
1	2		3	4	5	6	7	8	9
	in million taka	%	Percentage (%)						
All	184247.34	100.00	36.20	4.76	1.21	5.82	26.72	17.19	8.10
Drought	10569.20	5.74	4.96	0.10	0.04	0.10	0.38	0.00	0.14
Flood	42807.19	23.23	12.03	1.29	0.32	1.08	4.87	2.74	0.91
Water logging	16062.24	8.72	4.70	0.38	0.11	1.34	0.84	0.96	0.39
Cyclone	28384.81	15.41	2.28	1.70	0.41	1.14	0.00	5.88	3.99
Tornado	4299.03	2.33	0.53	0.08	0.02	0.00	0.00	1.35	0.36
Storm/Tidal Surge	12676.02	6.88	1.27	0.42	0.17	1.78	1.80	1.00	0.44
Thunderstorm	10940.12	5.94	1.35	0.23	0.06	0.00	0.00	3.37	0.92
River/Coastal Erosion	36408.92	19.76	0.58	0.40	0.02	0.18	17.23	1.10	0.25
Landslides	249.01	0.14	0.00	0.00	0.00	0.00	0.11	0.01	0.01
Salinity	6072.94	3.30	1.17	0.08	0.01	0.00	1.50	0.03	0.51
Hailstorm	11471.69	6.23	5.25	0.03	0.01	0.00	0.00	0.75	0.18

From (FY) 2009-15 average GDP (per year) volume is 11,378,286 Million BDT. In 2009-14 (CY) period average per year 30,708 Million BDT. If No damage and loss in that period at hh. levels. GDP volume could be increased about average 0.30 % per year .

Glimpses of Key Findings

Percentage distribution of damage of land area at household levels by types, 2009-'14.
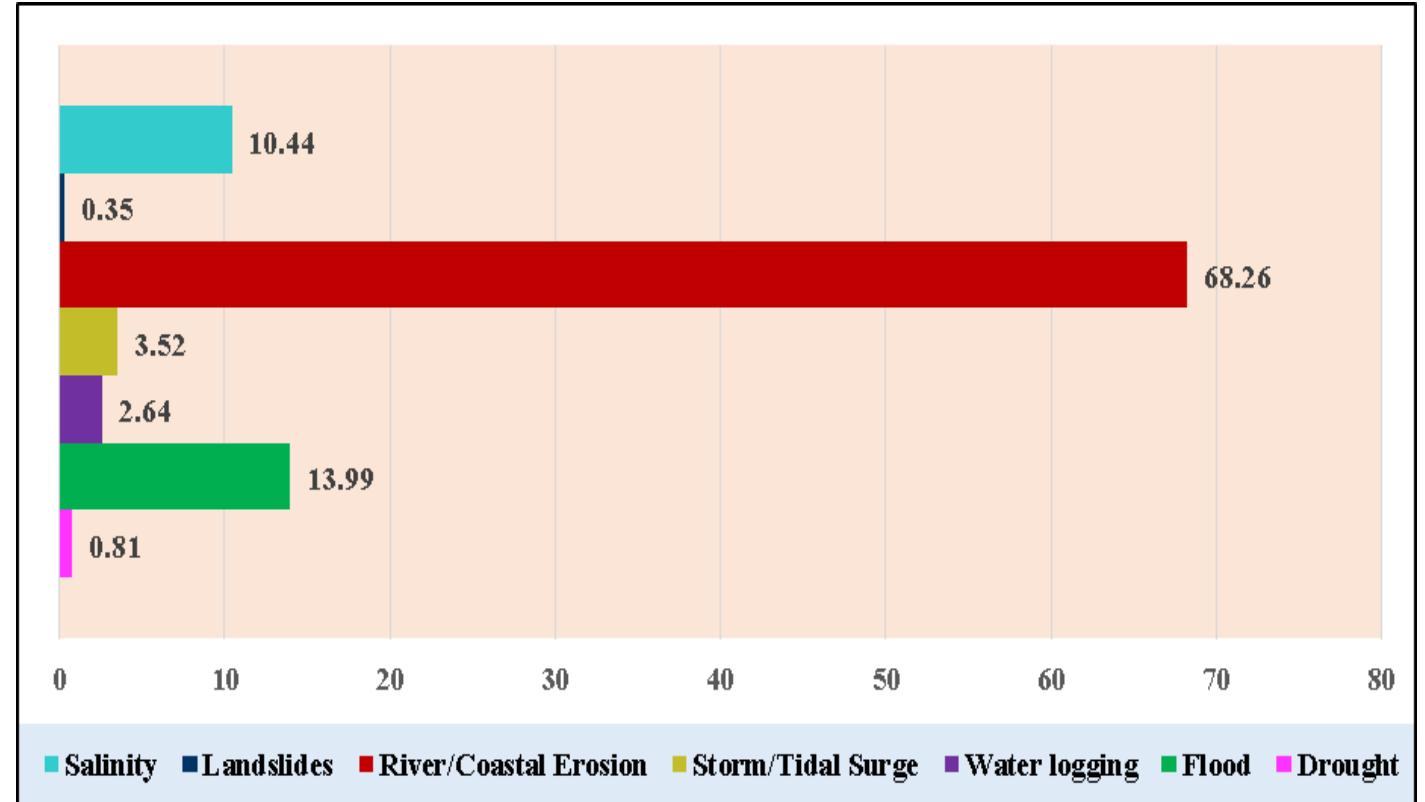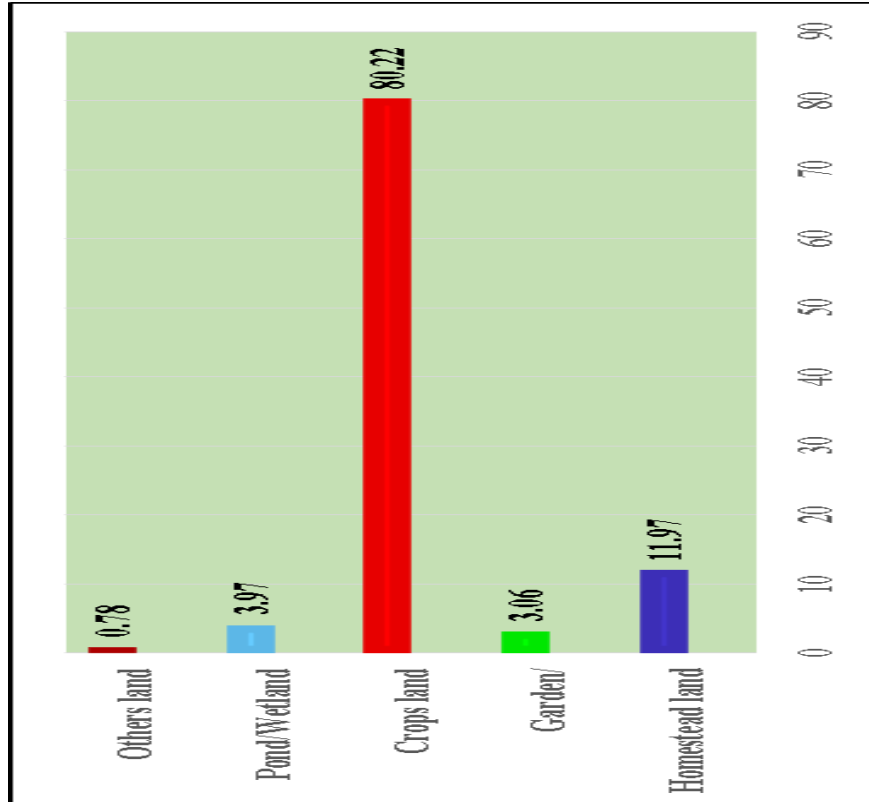
Out of 155175 acres of land 11.97%, 3.06%, 80.22%, 3.97% and 0.78% land was damaged for the homestead, garden or nursery, crops, pond or wetland and others land respectively. The Figure indicates that the majority (68.26%) of land damage is due to river or coastal erosion followed by (13.99%) are in flood, (10.44%) are in salinity and the rest (7.32%) comprise five categories of disaster areas.

Glimpses of Key Findings

Distribution of affected household received early warning and took preparedness by disaster, 2009-'14.

| Disaster	Household		Percentage (%)	Household		Percentage (%)
	Affected	Got early warning		Got early warning	Preparedness	
1	2	3	4	5	6	7
Total		1223835	19.89	1223835	814450	66.55
Drought	645381	30981	4.80	30981	-	-
Flood	1503742	268303	17.84	268303	50597	18.86
Cyclone	929410	620203	66.73	620203	548782	88.48
Tornado	180422	17675	9.80	17675	4183	23.67
Storm/Tidal Surge	377265	230261	61.03	230261	181570	75.85
Thunderstorm	651492	38330	5.88	38330	24065	62.78
River/Coastal Erosion	215702	10989	5.09	10989	5253	47.80
Landslides	3520	112	3.18	112	-	-
Hailstorm	518180	6981	1.35	6981	-	-

Glimpses of Key Findings

Distribution of population suffering from sickness and injury by sex and division

Division	Sickness			Injury		
	Total	Male	Female	Total	Male	Female
1	2	3	4	5	6	7
	Percentage			Percentage		
Bangladesh	100.00	52.40	47.60	100.00	58.12	41.88
Barisal	12.12	6.40	5.72	13.04	7.59	5.45
Chittagong	12.65	6.80	5.85	17.80	11.81	5.99
Dhaka	20.97	11.22	9.75	15.43	8.45	6.98
Khulna	12.97	6.64	6.33	16.09	10.25	5.84
Rajshahi	16.17	8.57	7.60	15.89	9.15	6.74
Rangpur	12.07	6.11	5.96	9.26	4.15	5.11
Sylhet	13.04	6.65	6.39	12.49	6.72	5.76

Glimpses of Key Findings

Household members suffering from of disease due to insufficient supply of drinking water, 2009-'14
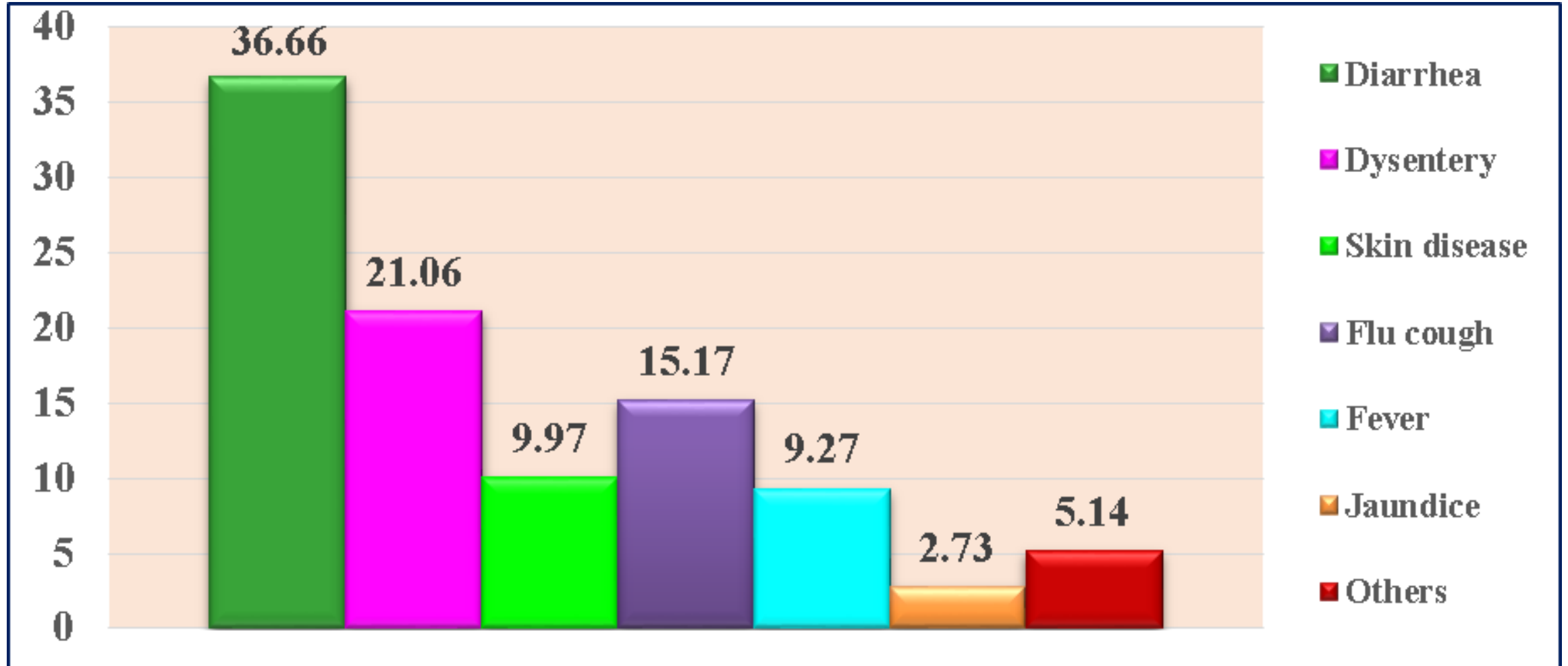
Glimpses of Key Findings

Percentage of sick children received treatment and medical expenditure by division, 2009-'14.

| Division	Type of treatment received							Average Treatment Cost
	Total	No Treatment	MBBS	Paramedic Doctor/Medical Assistant/Nurse	Pharmacy	Rural Physician	Others (kabiraj, homeo, ojha)	
1	2	3	4	5	6	7	8	10
		Percentage (%)						(in thousand Tk.)
Total	100.00	0.65	19.70	26.04	23.85	23.44	6.32	15.09
Barisal	13.24	0.01	2.80	2.33	4.64	2.66	0.79	16.35
Chittagong	12.75	0.08	4.43	2.35	1.81	3.46	0.61	15.25
Dhaka	21.70	0.26	4.32	6.21	6.47	3.16	1.29	14.76
Khulna	10.96	0.04	2.37	2.42	2.40	3.12	0.61	14.25
Rajshahi	15.44	0.08	2.92	3.91	2.98	4.28	1.27	15.04
Rangpur	12.14	0.08	1.26	3.80	2.71	3.21	1.08	16.52
Sylhet	13.77	0.09	1.59	5.03	2.84	3.55	0.67	13.71

Glimpses of Key Findings

Percentage distribution of causes of children not attending school due to disaster by type and division, 2009-'14.

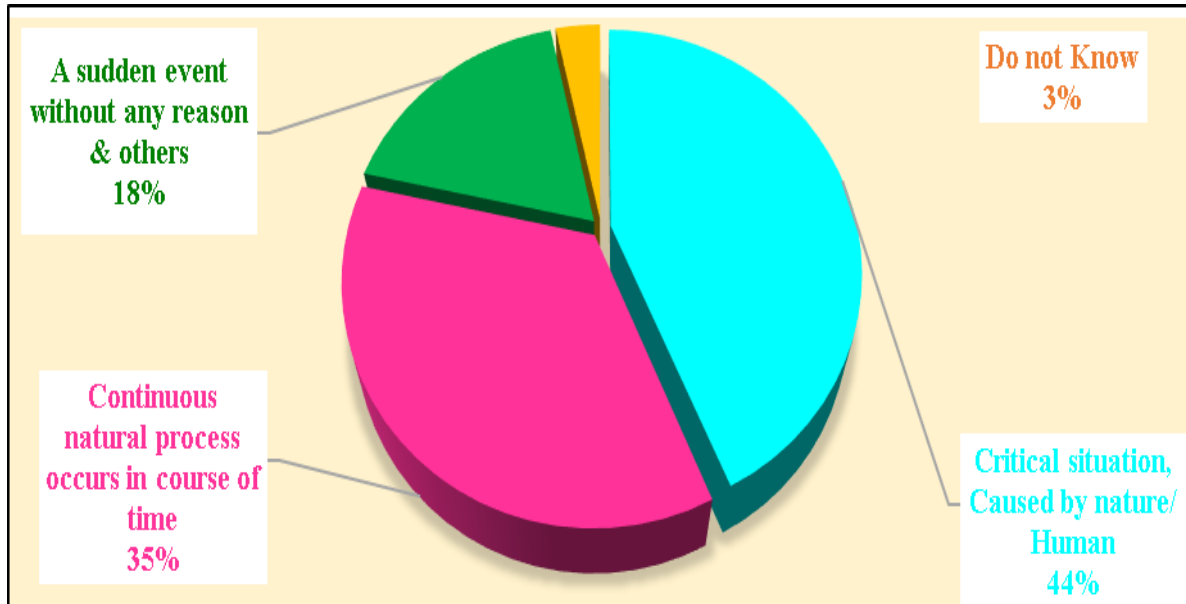| Division	Causes of not attending school					
	Not Attended school	Damaged/Ruined school building	Communication failure	Sickness	Reduced household income/damaged books	Others
1	2	3	4	5	6	7
Bangladesh	100.00	8.41	73.00	10.46	4.33	3.80
Barisal	24.56	4.47	15.09	2.46	1.54	1.00
Chittagong	10.77	0.96	8.10	0.82	0.55	0.34
Dhaka	18.58	0.73	13.83	2.55	0.68	0.80
Khulna	7.15	0.57	5.35	0.30	0.40	0.59
Rajshahi	8.56	0.41	6.61	0.97	0.38	0.18
Rangpur	12.03	0.44	9.12	1.57	0.35	0.56
Sylhet	18.34	0.89	14.87	1.81	0.44	0.33

Glimpses of Key Findings

Percentage of household having knowledge and perception about impacts of climate change, 2014.
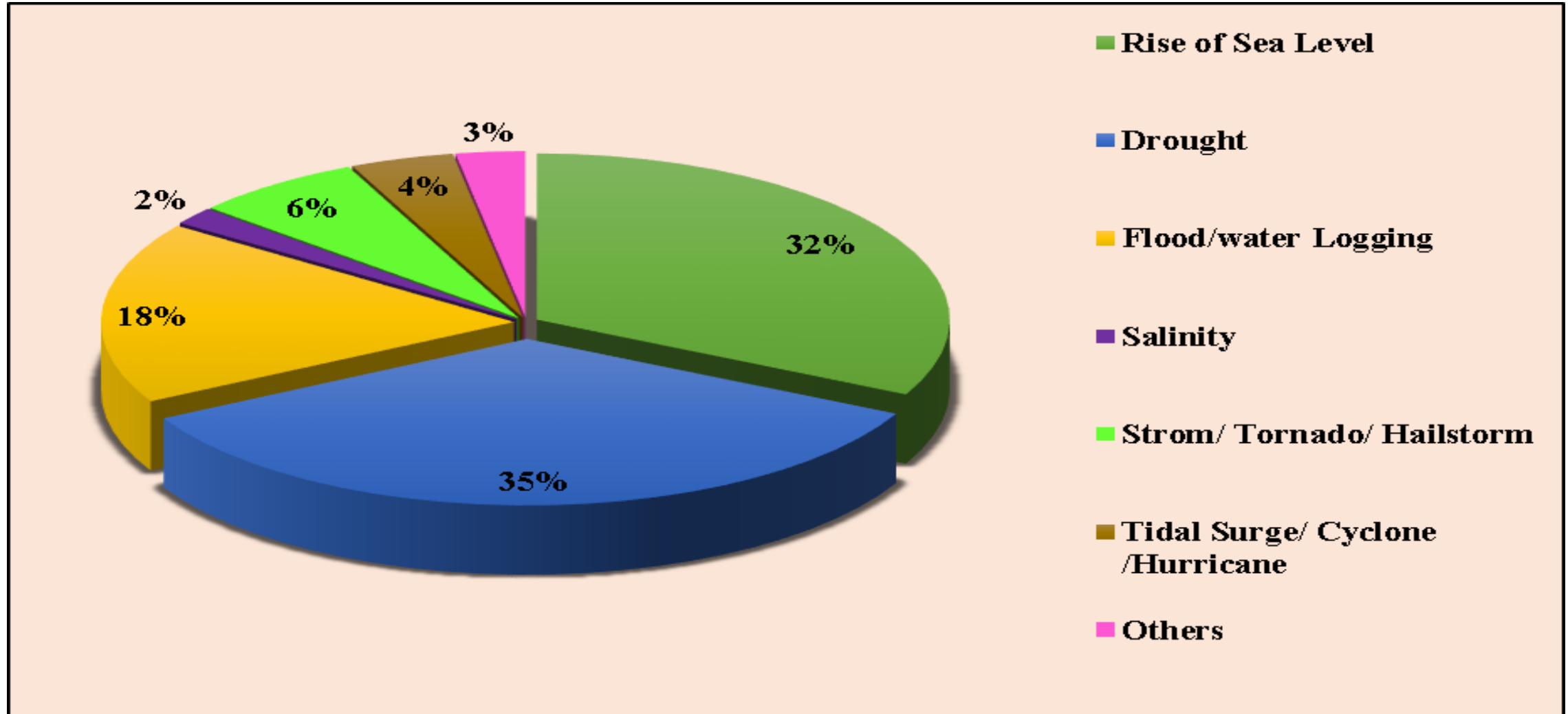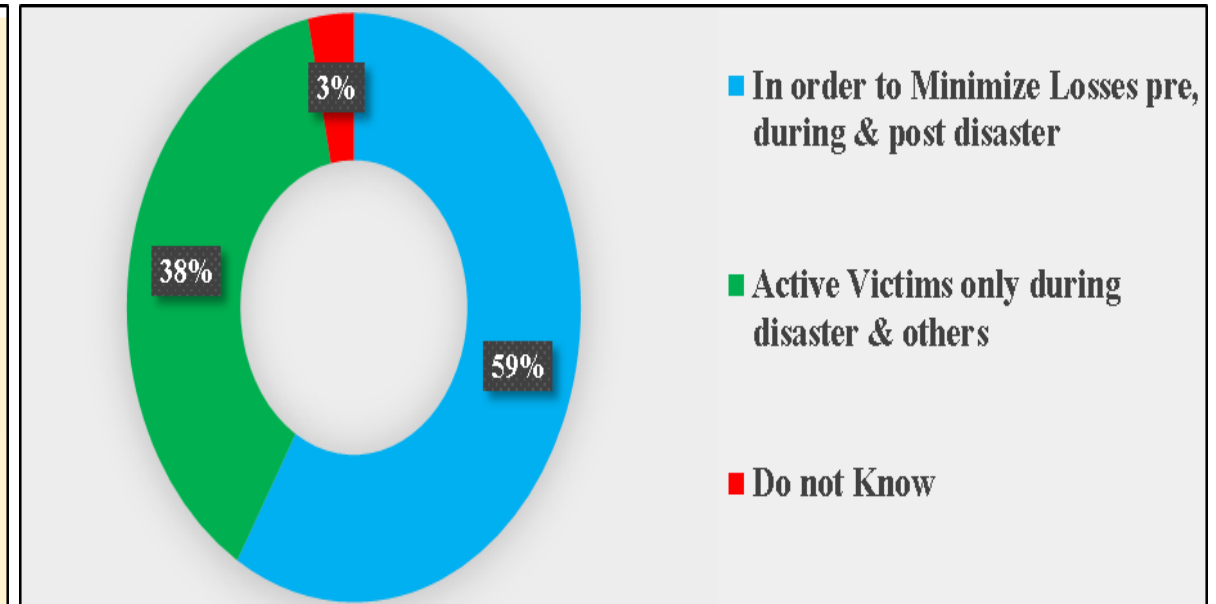
Percentage of household having knowledge and perception about disaster and disaster management, 2014

Disaster

A sudden event without any reason & others
18%

Do not Know
3%

Continuous natural process occurs in course of time
35%

Critical situation, Caused by nature/ Human
44%

Disaster Management

3%

38%

59%

■ In order to Minimize Losses pre, during & post disaster

■ Active Victims only during disaster & others

■ Do not Know

The highest 44 % households explained disaster as critical situation, caused by nature or human. The second highest 35 % households termed it as continuous natural process occurs in the course of time. The third highest 18 % households reported it as a sudden event without any reason & others and remaining 3 %, households did not know.

The highest 59 % households have knowledge and perception about disaster management to minimize losses in pre, during & post disaster, 38 % households were found as active victims only during disaster & others and the rest of 3.23% households is reported they did not know about it.

Vulnerability Assessment based on quintile income group

Household Group	Average Annual Income (Tk)	Average Annual Damage and Loss (Tk)									Proportion of damage and loss to total income
		Crops	Livestock	Poultry	Fishery	Land	Houses	Homestead forestry	Total		
1	2	3	4	5	6	7	8	9	10		11
Q1	34957	2038	279	75	268	1351	1066	394	5471		15.7
Q2	74590	1776	270	77	220	1397	1231	382	5353		7.2
Q3	105986	1987	331	87	300	1888	1255	529	6377		6.0
Q4	152092	2566	353	92	395	2026	1260	743	7435		4.9
Q5	357897	4665	460	95	934	2877	1244	846	11121		3.1
Total	**139357**	**2549**	**335**	**85**	**409**	**1881**	**1211**	**570**	**7040**		**5.1**

Lowest Income Group
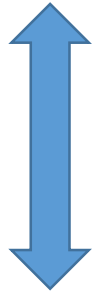
Highest Income Group

As high as 16% of income goes for damage and loss in bottom quintile. While it is only 3% for the top quintile. Bottom quintile is more vulnerable (5 times) than top quintile in exposure to damage and loss. Proportion of damage and loss decrease as income goes up.

➢ It did not attempt to collect information on temperature, rainfall or anything in relation to carbon emission, greenhouse gas etc.;

➢ Constructing the survey frame, the disaggregated data of urban and rural areas were not separated.

➢ Sometimes the respondents of the survey were faced difficulties while answering the questions for recalling the data and information from previous years (2009-2014).

➢ Household levels damage and loss data were measured quite difficult for varying number of reasons like private businesses lost infrastructure and equipment, damaged small retail shops/ factories/ trade shops, loss of employment etc.

Baseline information for monitoring of SDGs & SFDRR 2015-2030

➢ **Sustainable Development Goals (SDGs) 2015-2030:**

▪ **Goal 1 calls for Ending poverty in all its forms everywhere, Target 1.5-** *reduce exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters."*

▪**Goal 11, Target 11.5 calls for making cities and human settlements inclusive, safe, resilient and sustainable-** *reduce the number of deaths and the number of affected people and decrease the economic losses relative to GDP caused by disasters.*

▪**Goal 13 calls for taking urgent action to combat climate change and its impacts*,**
   "Target 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries"; and Target13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning."

➢ **The Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030:**
   SFDRR 2015-30 was adopted at the Third UN World Conference in Sendai, Japan, on March 18, 2015

   The seven global targets of Sendai Framework such as reduce global disaster <u>mortality,</u> reduce the number of <u>affected people,</u> Reduce direct disaster <u>economic loss,</u> Reduce disaster <u>damage to critical infrastructure,</u> Increase the availability of and access to <u>multi-hazard early warning</u> systems and disaster <u>risk information</u> etc.

Institutionalization in BBS

➢ Statistics and Informatics Division (SID) already has approved and established "Environment, Climate Change and Disaster-related Statistics Cell" as an initiatives of institutionalization process (May 2016);

➢ SID has also approved "Inter-Ministerial Technical Working Committee" for preparing and compiling Environment, Climate Change and Disaster-related Statistics headed by Director General of BBS (February 2016);

➢ BBS in collaboration with the MoDMR has been a proud leading agency in the pilot testing of the Development of the Disaster-related Statistics Framework (DRSF) for the Asia Pacific Region as technical guidance by UN-ESCAP.

➢ This ICCHL Programme has established a Disaster-related Database and Training Lab (30 Person) with Modern Work Station (15 Person) at National Accounting Wing, BBS.

➢ **Next Step:** Training Workshop on Situation Analysis of Environment, Climate Change and Disaster-related Statistics for developing "Bangladesh: Environmental Statistics Framework 2016."

For Further Information about this Survey Report

Please Write:

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Website: www.bbs.gov.bd

Survey Report Link:

1) **PDF: http://www.bbs.gov.bd/PageWebMenuContent.aspx?MenuKey=242**

2) **E-Book: http://www.bbs.gov.bd/PageWebMenuContent.aspx?MenuKey=490**

Thank You for Patient Hearing