

# Landslides in Bangladesh & Future Planning

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BANGLADESH  
INSTITUTE OF  
PLANNERS  
BIP



**Presented by-**  
**PLANNER BAYES AHMED**

**National Press Club, Dhaka, Bangladesh**  
**21 June 2017**

# Hill Cutting

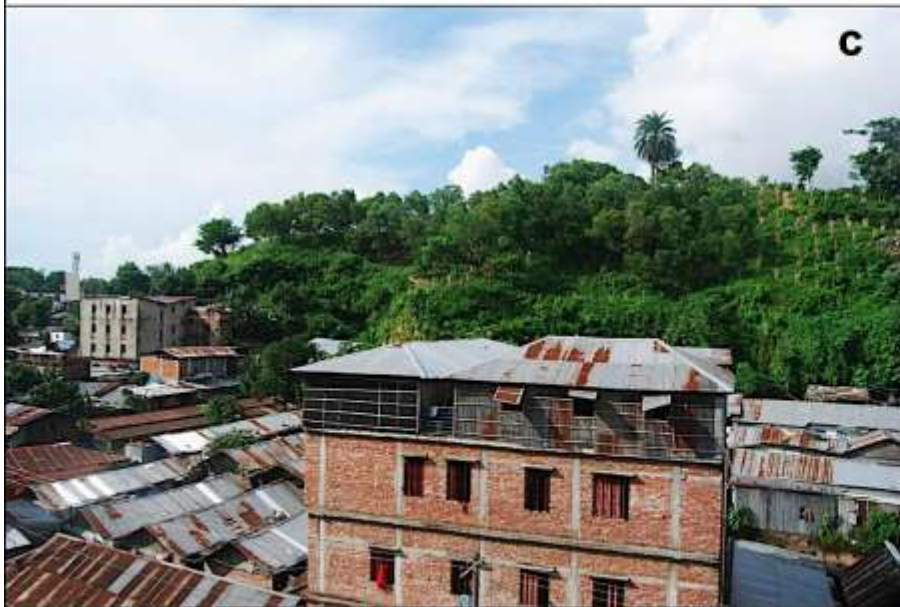
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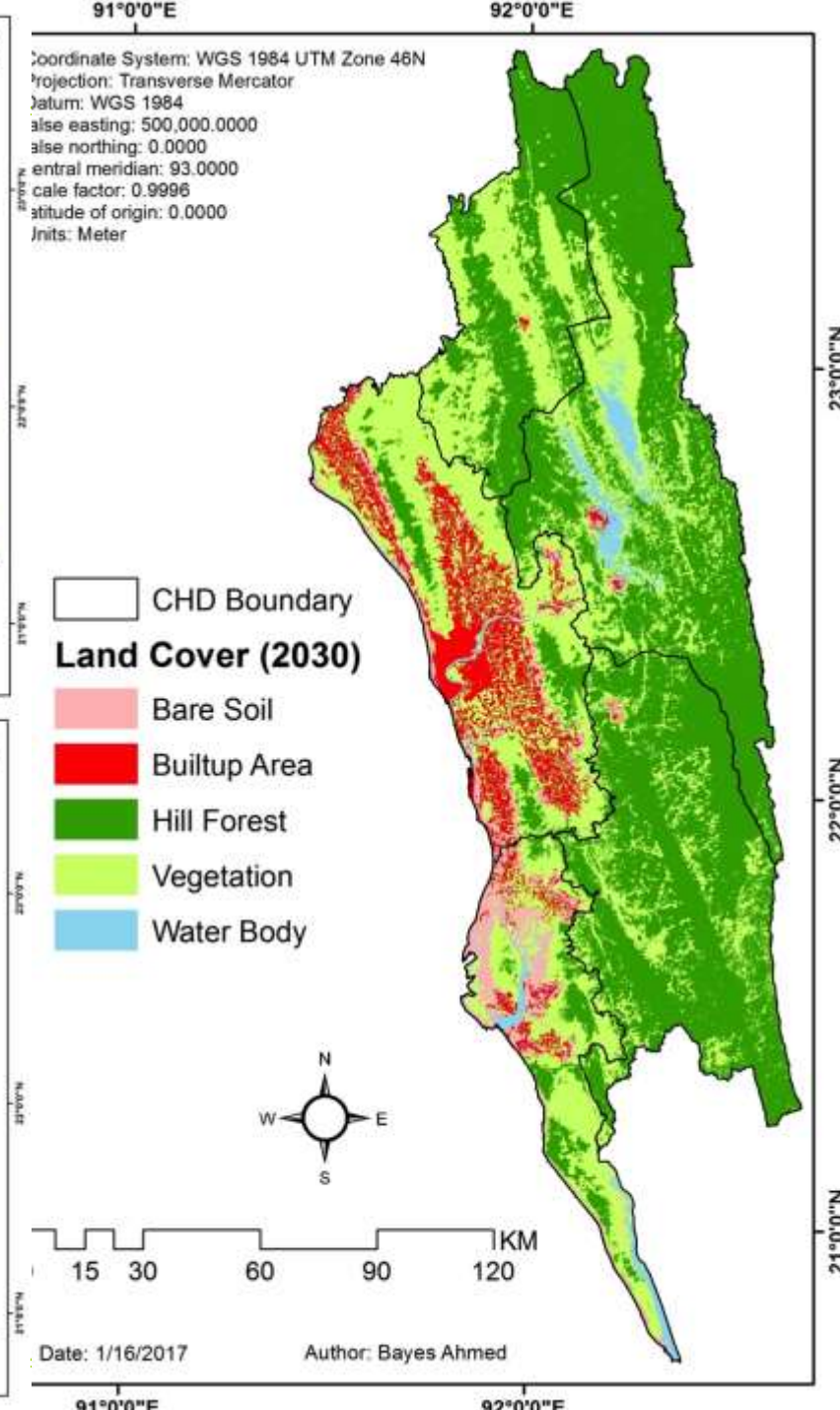
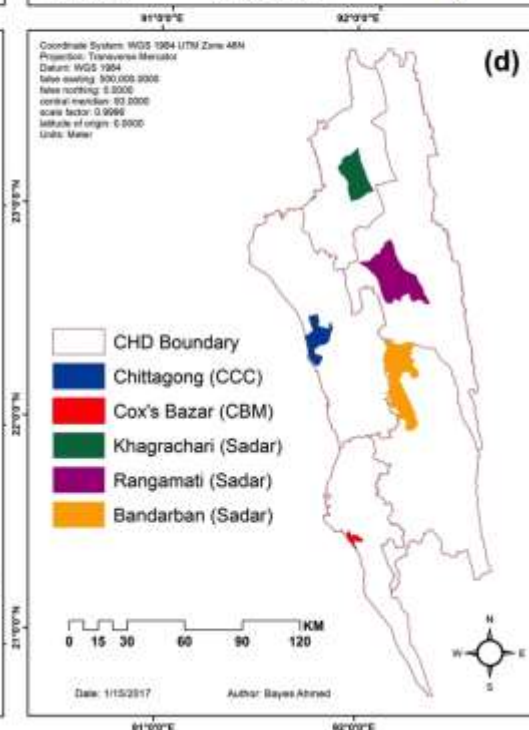
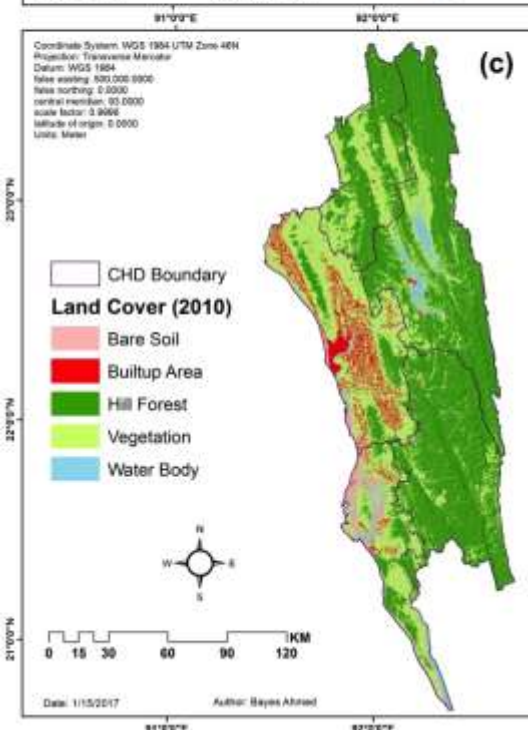
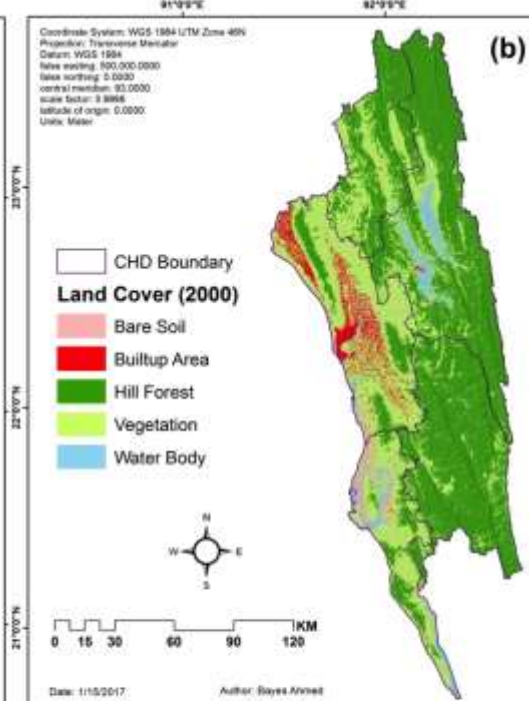
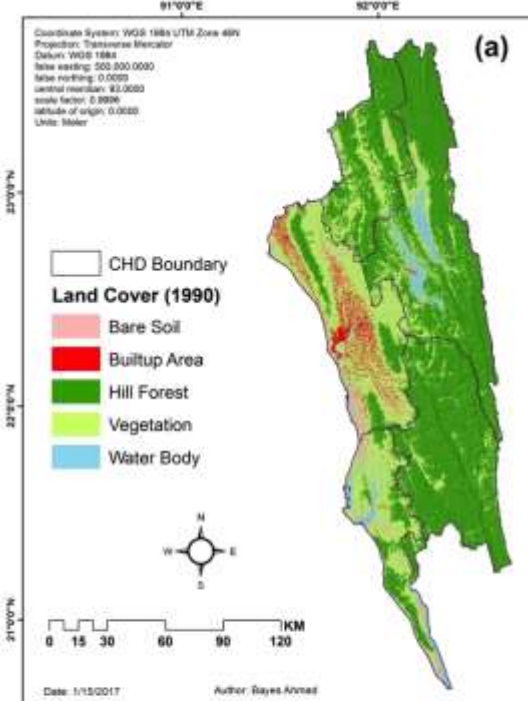


# Background

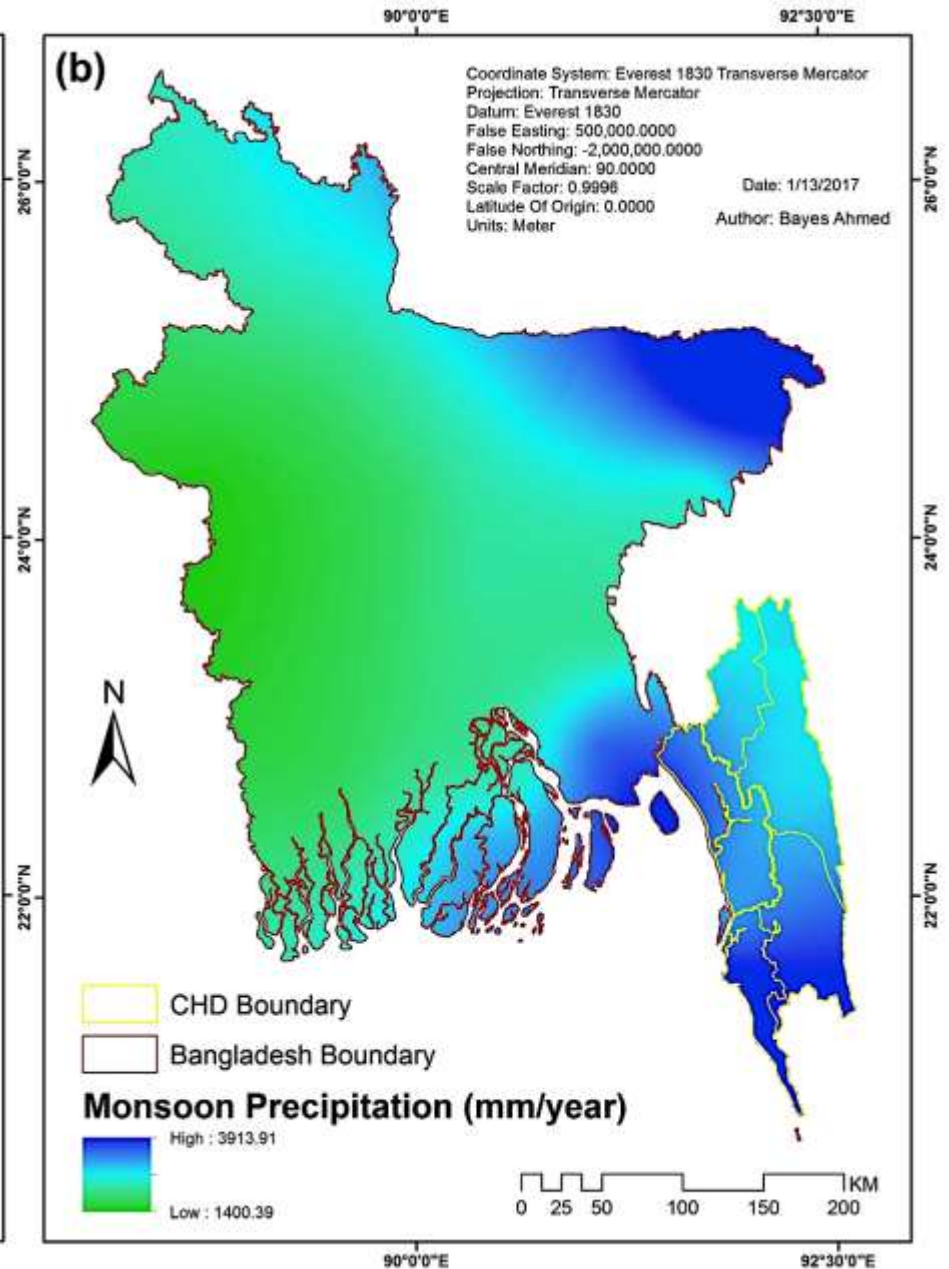
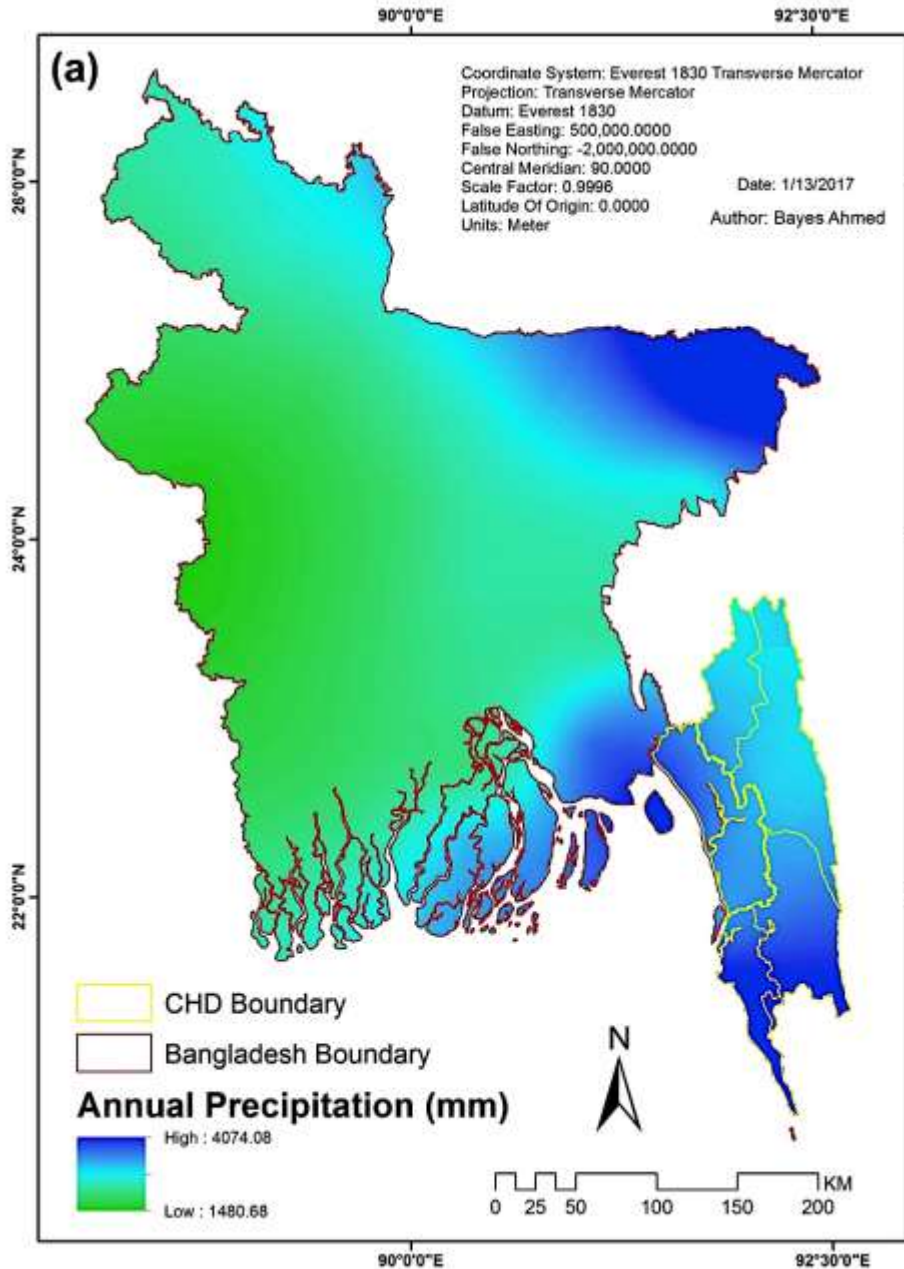


# Population Growth

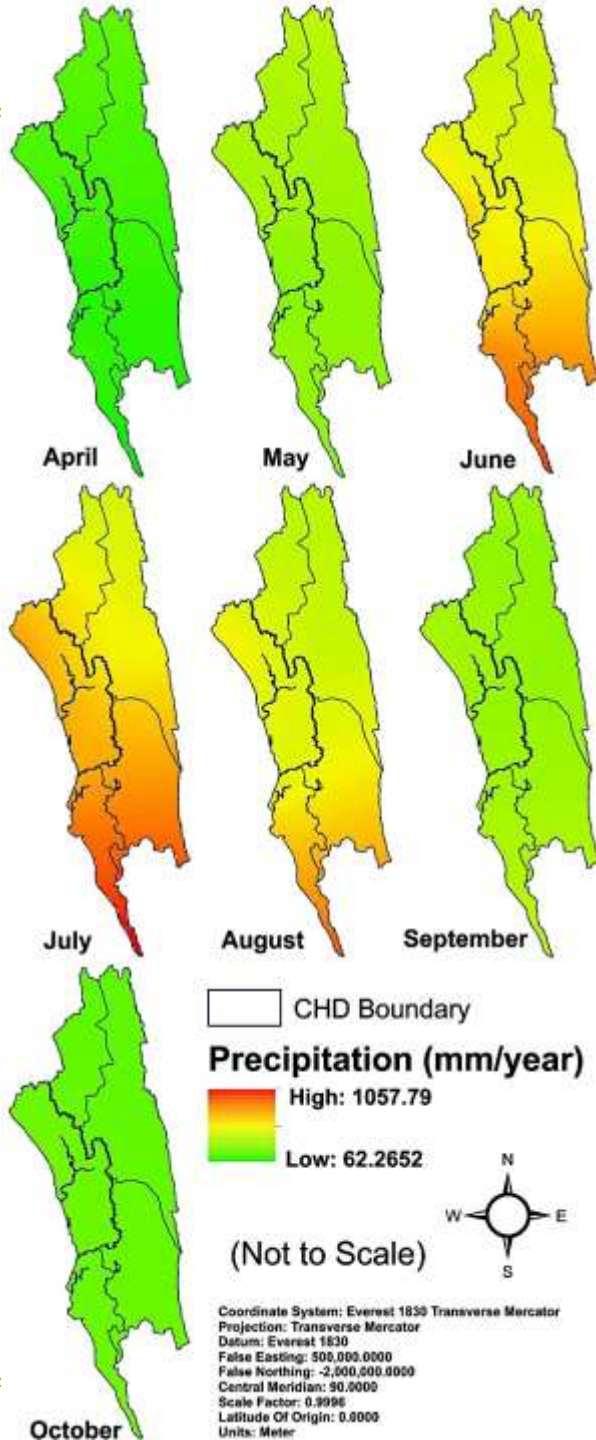




# Rainfall Pattern




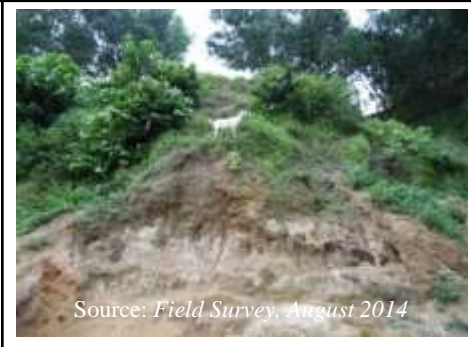
# Rainfall Pattern



- ❑ **4000 mm** rainfall during the monsoon season
- ❑ **June, July and August** the most vulnerable months
- ❑ **421 sq. km.** areas converted from vegetation to **built-up area**

# Landslide Inventory



Basic Information	
<b>Landslide ID :</b> 05 <b>Landslide Location:</b> Tanker Pahar, Moti Jharna <b>Coordinates:</b> 22° 20' 54.27''N, 91° 48' 51.60''E	<b>Datum:</b> WGS 1984 <b>Elevation (m):</b> 41.18 <b>Area of Displaced Mass (sqm):</b> 331.84 <b>Rainfall:</b> Unknown
 <p>Source: Field Survey, August 2014</p>	 <p>Source: Field Survey, August 2014</p>
Landslide Mechanism	
<b>Type of Movement:</b> Slide <b>State:</b> Active, Reactivated, Suspended <b>Distribution:</b> Advancing	<b>Style:</b> Single <b>Water Content:</b> Moist <b>Material:</b> Soil/Earth
<b>Land Cover/Use Type (%):</b> Herbaceous vegetation is the Primary land cover of Tanker Pahar. Forest/ woodland type is also visible in this hill.	
<b>Causes of Movement:</b> Hill cutting is the major issue that caused landslide in this area and intense rainfall acted as a triggering factor for landslide.	
Land Slide History and Future Risk of Landslide	
<p>Landslide in this site occurred in 1982, 1989, 1991, 1994, 1996 and 2013. 10 houses got damaged and almost 22 people died due to landslide at different periods. Utility facilities were highly damaged in this incident. Economic activities were hampered so does the social life of people. Environment has been found to be severely damaged. Still there are many houses located at the down slope of the hill. Soil of this site has been found to be sandy. The escapement slope is found to be near vertical. The failed mass is a part of upper portion. Vertical Slope characteristics can be considered as a contributing factor to future landslide for this hill. Settlements located at the down slope of this hill are at a huge risk of massive landslide. The risk is high (Field survey, August 2014).</p>	



# Socio-Economic Surveying



<b>Name of the study area</b>	<b>Total Population</b>	<b>Sample size</b>
Moti Jharna	52000	248
Batali Hill	13000	142
Golpahar	33000	114
Goachibagan Medical Hill	5000	86
<b>Total sample size</b>		<b>590</b>

# Outreach Activities



Stakeholder Meeting with Chittagong Development Authority



Community Awareness Building at Ward Councilor office



Expert Knowledge Sharing Meeting at Chittagong

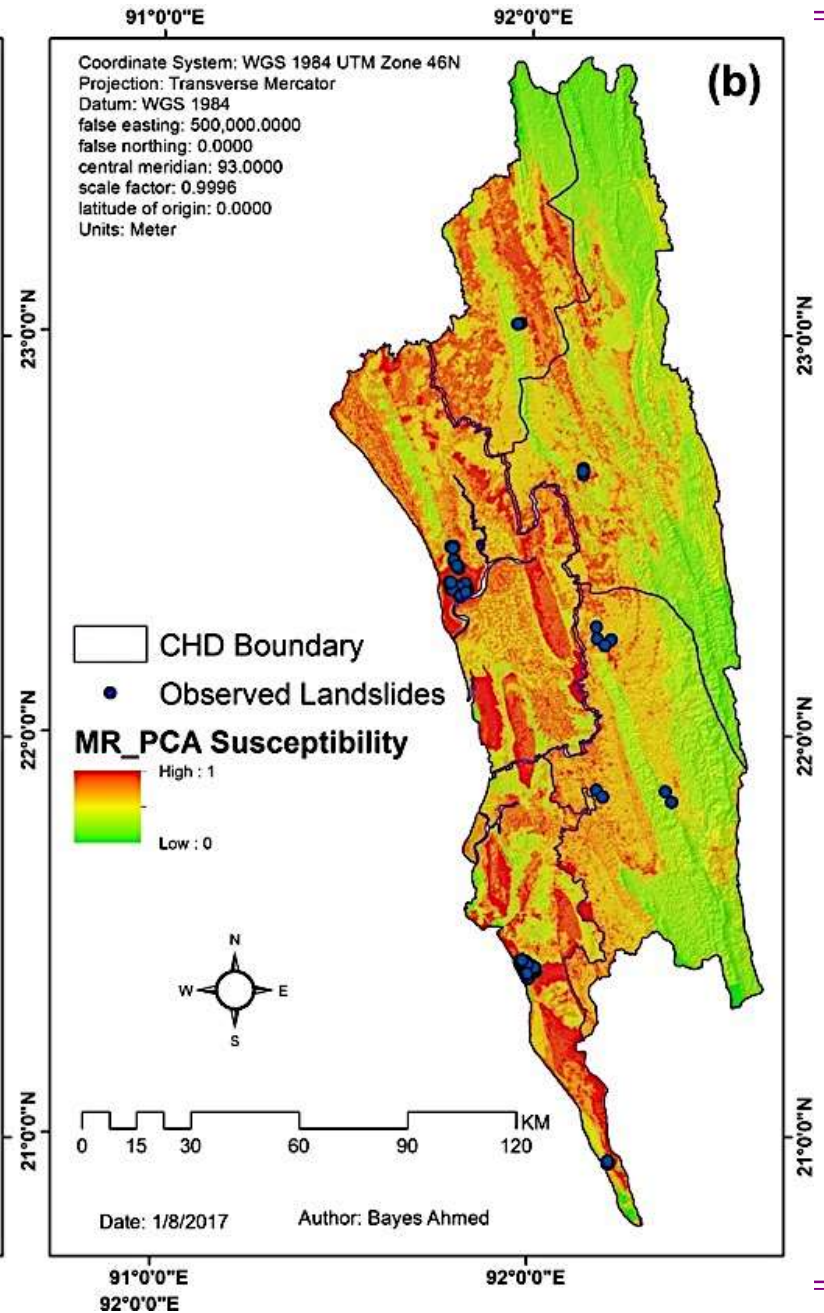
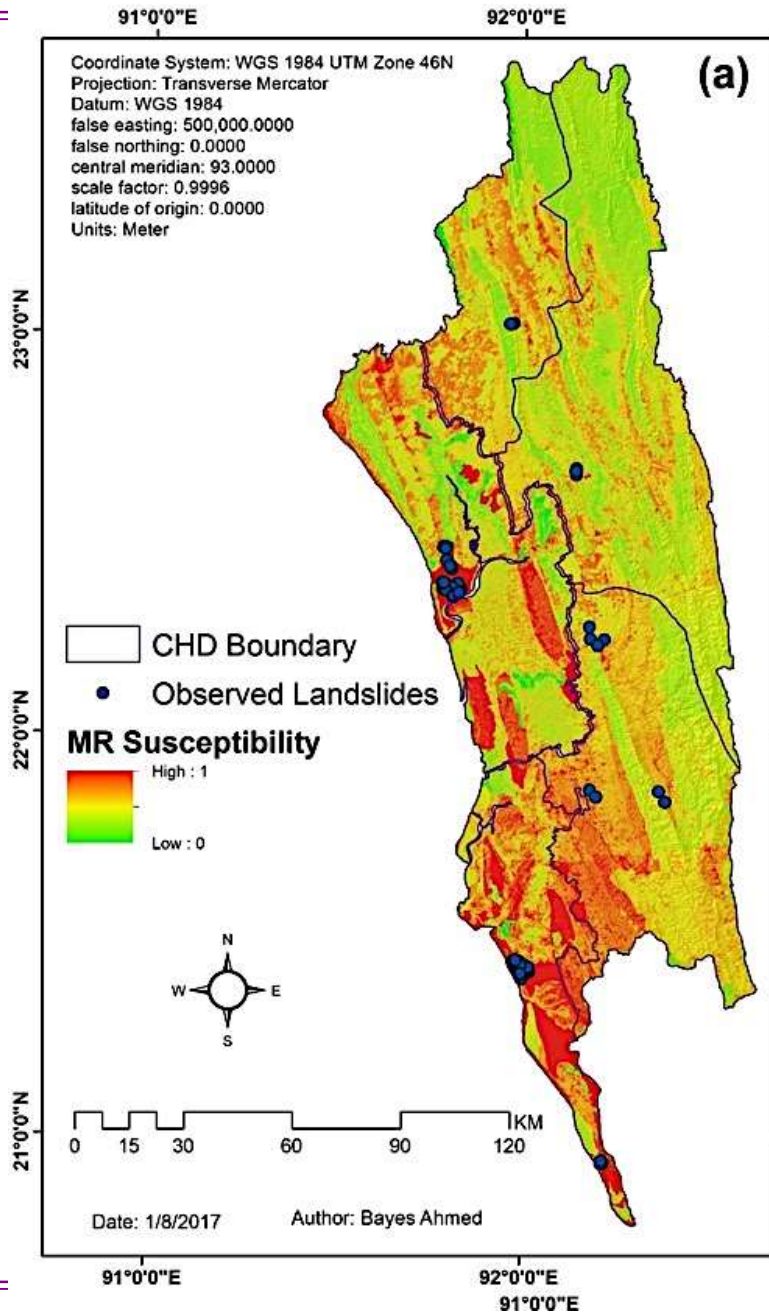


Door to Door Awareness Building Program in Vulnerable Community

# Landslide Vulnerability



# Landslide Susceptibility Mapping



# Landslide Early Warning System

0	35	210	151	142	226
41	67	180	129	111	167
98	105	255	249	250	87
66	170	222	180	200	99
38	119	178	159	199	80
186	20	17	77	45	20

24 hours **90mm** Rainfall

Red Cells: 21 (16)

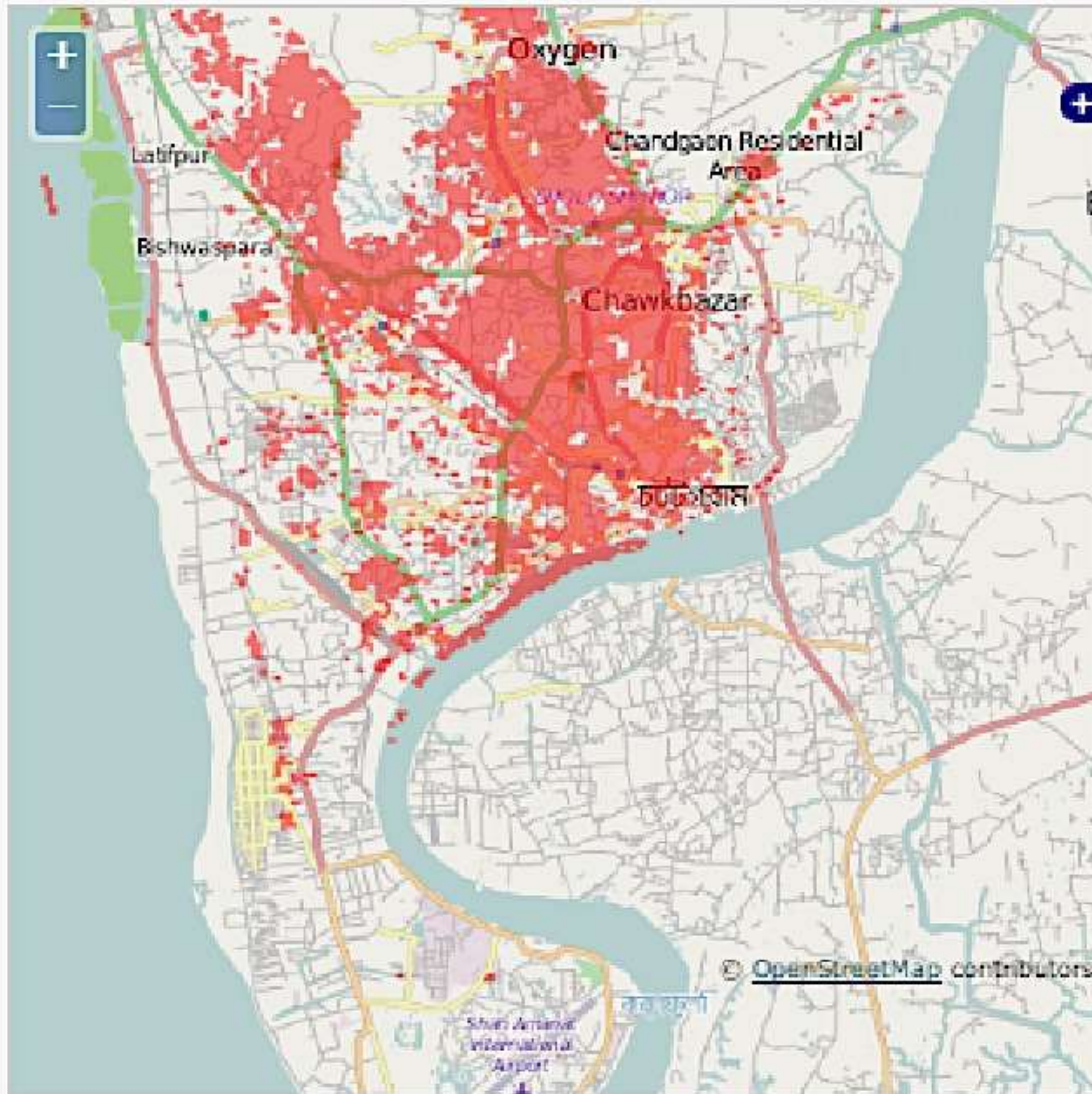
Yellow Cells: 11 (10)

Green Cells: 4 (10)

# Landslide Early Warning

Receive alerts Last 30 days Forecast

[www.landslidebd.com](http://www.landslidebd.com)



Id	Date	Precipitation(mm)	
0	Jun 29, 2015	4.30	▲
1	Jun 28, 2015	16.10	
2	Jun 27, 2015	26.20	
3	Jun 26, 2015	64.00	
4	Jun 25, 2015	90.70	III
5	Jun 24, 2015	117.00	
6	Jun 23, 2015	60.50	
7	Jun 22, 2015	55.00	
8	Jun 21, 2015	5.70	
9	Jun 20, 2015	14.60	
10	Jun 19, 2015	0.20	
11	Jun 19, 2015	7.10	
12	Jun 18, 2015	0.70	
13	Jun 17, 2015	0.10	
14	Jun 17, 2015	0.30	
15	Jun 16, 2015	0.50	
16	Jun 16, 2015	1.20	
17	Jun 15, 2015	13.20	
18	Jun 15, 2015	15.10	▼

## **Measures to be Undertaken:**

- 1. Detailed surveying of the Hills**
- 2. Landslide Early Warning System**
- 3. Evacuation and Landslide Shelter**
- 4. Landslide Disaster Risk Reduction Plan**
- 5. Urbanized Hill and Indigenous Tribal  
Community Harmony**
- 6. Livelihood and Housing Design**
- 7. Collaboration with All Concerned  
Authorities**

**THANK YOU ALL!**

**Any Question, please contact:**

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