

A BRIEF REPORT ON LANDSLIDE SITE VISIT IN IDUKKI DISTRICT, KERALA

Based on the direction from the Member Secretary (KSDMA), we (a team comprised of Prof. Dr. Cees van Westen, Faculty of Geo-Information Science and Earth Observation, University of Twente (ITC), & Dr. Sajin Kumar K. S., Assistant Professor, Department of Geology, University of Kerala) visited the landslide sites in Idukki district on June 12 & 13, 2019. The purpose of the study is to assess the possible causes of the landslides occurred in Idukki district during the 2018 Southwest monsoon.

On Day 1, the team visited the following sites along with the Village Officer, Munnar

Sl. No.	Site Name	Coordinates
1.	Govt. Arts College, Munnar	N 10°4'56.8" E 77°4'21.3"
2.	SBI, Devikulam	N 10°4'4.7" E 77°6'21.8"
3.	Brother's Convent, Devikulam	N 10°03'47.5" E 77°06'12.9"
4.	Nallathanni, Devikulam	N 10°5'37.5" E 77°3'10.7"
5.	Near Munnar Bridge (Munnar-Devikulam Road)	N 10°5'4.1" E 77°3'44.1"
6.	Nettikoodie, Gudallam Road	N 10°3'47.5" E 77°6'12.9"

On Day 2, the team visited the following sites:

Sl. No.	Site Name	Coordinates
1.	Chelachuvadu, Churuli	N 9°54'54.0" E 76°57'29.8"
2.	Karimban	N 9°53'41" E 76°58'19.6"
3.	Near Cheruthoni Bridge	N 9°51'27.2" E 76°57'49.1"
4.	Cheri (Thodupuzha Road)	N 9°40'39.2" E 76°55'09.6"

Possible Causes

- High intensity rainfall triggers the slope by saturating the overburden and slope materials thereby causing landslides.
- These areas are covered by very thick layer of overburden material (mainly composed of clay rich lateritic soil). Also the underlying rocks are highly weathered gneissic rocks. The Lateritic soil with higher clay content has high water retention

capacity and less water draining capacity; thereby developing high water pressure in the slope material.

- The Dip-slope relationship of the foliation plane of gneissic rock facilitated the translational (planar) mode of failure of the overlying debris and weathered materials (rocks or boulders)
- Human interventions along/near the river and stream channels, and slopes.
- Toe cutting caused by the streams at the base of the slope during the high intensity rainfall period
- Lack of adequate protective measures (retaining walls) along the road cut slopes, and lack of adequate drainage channels along the sides of road to drain out the excess surface runoff.
- Reactivation of the paleo-landslide zones. Most of the paleo-landslides were left unprotected.
- Lack of properly designed culverts (culverts without adequate number of weep holes) to drain out the excess rain water.
- Heavy loading on the slopes caused by the buildings/multi-storied resorts on cut and fills ground with lack of adequate protective measures at the uphill and downhill sides.
- Landslide-damming caused by the slides and resulted blockage of river channels and change of river course.

Submitted by,



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IDUKKI
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Location: Near Cheruthoni Bridge



Location: Cheri



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