IMPACT OF RAINALL ON LANDSLIDE AREAS OF NUWARA ELIYA AND BADULLA

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WEATHER SITUATION

Satellite imagery received in the morning of the 4th of January 1986 indicated a well organized mass of cloud off the east coast in the South West Bay of Bengal with a thick layer of medium level clouds extending from it covering the whole island giving widespread light to moderate rain. A low pressure area developed on the 5th of January over this area in the South West Bay of Bengal, and gradually deepened into a depression by the 7th of January positioned approximately 200 km off the South-eastern cost of Sri Lanka. This system moved across the island in a North Westerly direction and weakened by the 10th of January.

RAINFALL OVER BADULLA DISTRICT

There was almost continuous and widespread rain over Badulla district over the five day period from 5th to 9th January 1986. Of the seventeen rainfall recording stations examined three stations had recorded an aggregate of over a 1000 mm of rainfall for the period of five days. Table 1 gives the rainfall of the seventeen stations of Badulla district. Keenakelle has registered a total of 1047 mm, Ledgerwatte Group, 1041 mm and Kirklees 1012 mm; while most places had rainfall ranging between 350 and 750 mm. (See Fig. 1; Tables I & III).

RAINFALL OVER NUWARA ELIYA DISTRICT

Widespread rain was experienced over the Nuwara Eliya district

during the period 5th to 9th January 1986. The areas of the district North of Nuwara Eliya town adjacent and to the west of Badulla district received the heaviest rainfall, with Lindsdale recording 872 mm and Labukelle 588 mm during that period; while many placed had falls ranging between 250 to 500 mm.(See Fig.1; Tables II & III).

LANDSLIDE AFFECTED AREAS

The affected areas in the Badulla district were Narangala, Ohiya Mandiya estate, Dunhinda, Kandagolla, Passara, Badulsirigama, Bandarawela, Haputale, Welimada and Mahiyangana and in the Nuwara Eliya district areas bordering and to the West of Badulla district.

CONCLUSION

At several of these locations landslides had taken place during the early part of January the 7th 1986. There had been continuous rain during the previous two days 5th and 6th January; very heavy at some places.

To trigger the landslides on this occassion in the Nuwara Eliya and Badulla districts it shows that continuous heavy rain on two consecutive days of a fairly high intensity on an already wet soil structure was quite sufficient.

Out of the rainfall stations investigated, four stations recorded a total around 450 mm or more of rain during the previous two days before the landslides occurred while over most places that had been affected, experienced over 400 mm of rain during the previous two days.

It could be concluded that a threshold figure of 350 to 400 mm of continuous rainfall during two consecutive days could cause landslides to occur in areas prone to such natural events.

My kind thanks are due to Mr Lalith Chandrapala, Meteorologist, for having compiled the data.

BADULLA DISTRICT - RAINFALLS - JANUARY 1986 (mm)

		05th	06th	07th	08th	09th	Total
01	Aluthnuwara	49	62	130	142	130	513
02	Manakadawewa	77	107	150	116	109	559
03	Kandaketiya	131	202	157	120	128	738
04	Keenakelle	200	299	235	155	158	1047
05	Ledgerwatte (Narangala Div.)	216	254	216	203	152	1041
06	Maha Dowa	89	76	70	105	88	427
07	Badulla	115	148	129	121	139	652
08	Wewessa	126	90	118	107	114	555
09	Canavarella	72	54	51	31	61	269
10	Kirklees	164	297	188	178	185	1012
11	L. Spring valley	97	92	103	91	92	476
12	Gourakelle	105	96	107	72	93	473
13	Dyrabba	126	109	75	59	125	494
14	Kinellan S P, Ella	70	57	68	54	68	315
15	Bandarawela	72	65	66	48	81	334
16	Diyatalawa	69	71	67	46	90	343
17	Haputale	47	56	50	50	37	240

TABLE I

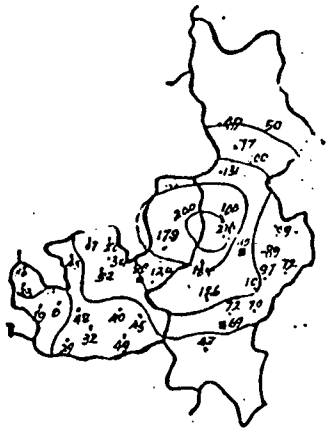
NUWAR ELIYA DISTRICT - RAINFALLS - JANUARY 1986 (mm)

		05th	06th	07th	08th	09th	Total
18	Lindsdale	178	267	116	146	165	872
19	Nuwara Eliya	99	124	59	48	56	386
20	Hakgala	124	158	36	29	72	419
21	Sandringham	45	73	56	22	74	270
22	Campion	49	60	42	12	68	231
23	Annfield	40	59	26	10	0	135
24	Hope Estate	20	90	99	119	117	446
25	Labukelle Group	84	160	99	108	137	588
26	Dunsinane	52	91	57	50	91	341
27	Hellbodde	67	88	82	123	84	444
28	Oonogaloya	45	76	51	25	36	233
29	Balckwater	30	44	18	24	42	158
30	Kenilworth	28	57	31	41	61	218
31	Watawala	22	51	33	14	03	123
32	Norton Bridge	19	43	25	10	33	129
33	Abergeldie	0	42	23	54	0	119
34	Hatton	48	62	36	10	71	226
35	Norwood	32	40	29	21	22	144
36	Maskeliya	29	44	18	09	54	155

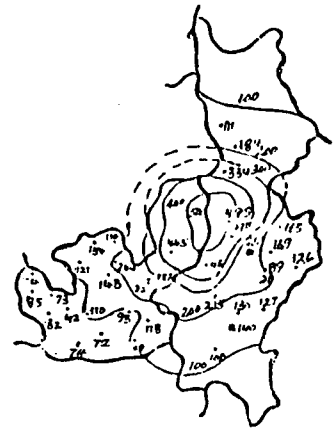
TABLE II

CUMULATIVE RAINFALL

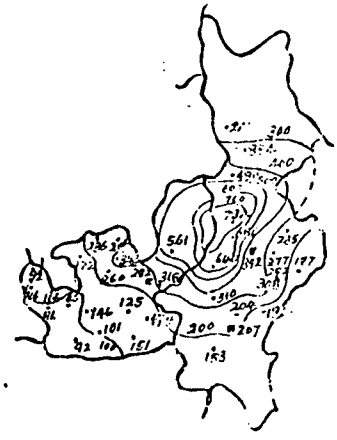
NUWARA ELIYA AND BADULLA DISTRICTS - JANUARY '86



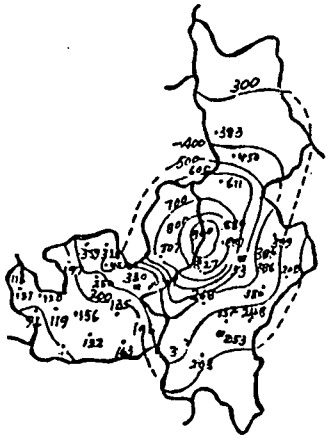
5TH JANUARY 1986



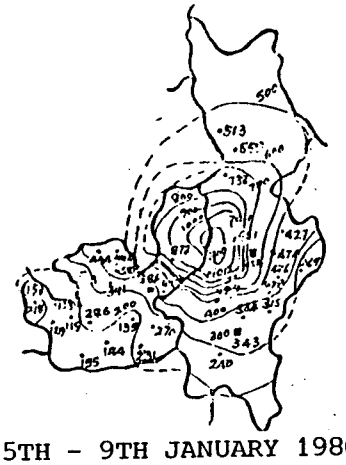
5TH - 6TH JANUARY 1986



5TH - 7TH JANUARY 1986



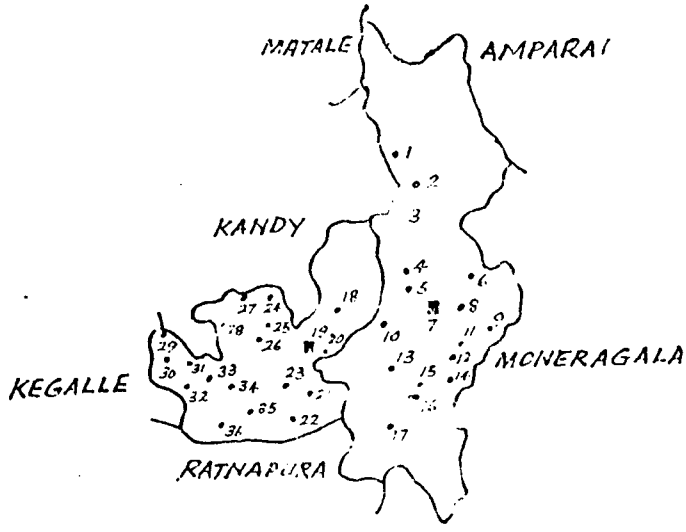
5TH - 8TH JANUARY 1986



5TH - 9TH JANUARY 1986

FIGURE I

BADULLA AND NUWARA ELIYA DISTRICTS (RAINFALL STATIONS)



BADULLA DISTRICT

1. ALUTHNUWARA
2. MAPAKADAWEWA
3. KANDEKETIYA
4. KEENAKELLE ESTATE
5. LEGERWATTE GROUP
6. MAHADOWA GROUP
7. BADULLA
8. WEWESSA GROUP
9. CANAVARELLA
10. KIRKLEES
11. LOWER SPRING VALLEY
12. GOURAKELLE
13. DYRABA
14. KINNELAN S P, ELLA
15. BANDARAWELA
16. DIYATALAWA
17. DAMBATENNA GROUP, HAPUTALE

NUWARA ELIYA DISTRICT

18. LINSDALE
19. NUWARA ELIYA
20. HAKGALA
21. SANDRINGHAM
22. CAMPION ESTATE
23. ANNFIELD
24. HOPE ESTATE
25. LABUKELE GROUP
26. DUNSINANE
27. HELLBODDE
28. OONOGALOYA
29. BALCK WATER
30. KENILWORTH
31. WATAWALA
32. NORTON BRIDGE
33. ABERGELDIE
34. HATTON
35. NORWOOD
36. MASKELIYA

TABLE III