

Data obtained from field work

Table A-1: Landslide data obtained from field

Location No.	Co-ordinates		Comments
	N	E	
1	28.2847222	83.8713889	Gabion Walls, Vegetation Growth
2	28.2827778	83.8533333	Recent, Roadblock
3	28.2836111	83.8494444	Recent, Due to road construction
4	28.2841667	83.8491667	Gabion Walls
5	28.2844444	83.8486111	Recent but cleared, gabion walls are prepared
6	28.2775000	83.8313889	Near settlement, no stabilization works
7	28.2777778	83.8308333	Red soil, vegetation on both sides
8	28.2786111	83.8288889	Active, debris falling
9	28.2786111	83.8288889	Active, Different soil layers in single place
10	28.2783333	83.8244444	Water Flow
11	28.2786111	83.8250000	Water Flow
12	28.2777778	83.8238889	Water Flow
13	28.2772222	83.8247222	Dry, Large rock debris collected at bottom
14	28.2763889	83.8255556	Heavy Rock Fall
15	28.2783333	83.8288889	Near River
16	28.2755556	83.8258333	Active, Blocked Road, Destroyed Vegetation
17	28.2752778	83.8255556	Active, Blocked Road, Steep slope in forest,
18	28.2755556	83.8350000	Debris Falling, Near Field
19	28.2672222	83.8266667	Active, Below Road
20	28.2700000	83.8272222	Near Road, Movement with vegetation
21	28.2655556	83.8302778	Landslide from boundary of temple

Location No.	Co-ordinates		Comments
	N	E	
22	28.2622222	83.8280556	Steep slope in forest valley
23	28.2694444	83.8283333	Near House, No stabilization measures
24	28.2858333	83.8327778	Gabion Walls, Rocks falling on road

25	28.2838889	83.8400000	Near Road, Cleared, No stabilization works
26	28.2847222	83.8297222	Both gabion and retaining walls, water flow
27	28.2858333	83.8297222	Near Drain, Affected field, not recent
28	28.2905556	83.8280556	Retaining Walls
29	28.2911111	83.8255556	Recent, Near road, Below forest, Cleared
30	28.2841667	83.8119444	Recent, Near road, steep slope, cleared
31	28.2833333	83.8119444	Recent, Steep Slope, Rock debris at bottom
32	28.2838889	83.8116667	Recent, Retaining Walls
33	28.2800000	83.8100000	Multiple landslides, small rock debris
34	28.2783333	83.8100000	Destroyed vegetation, Disturb Road
35	28.2783333	83.8100000	Wet, Vegetation, Debris at bottom
36	28.2783333	83.8100000	Recent, multiple landslides, small rock debris
37	28.2738889	83.8180556	Recent, Retaining Walls, Near Road
38	28.2730556	83.8163889	Recent, Debris Clear, Retaining Walls
39	28.2733333	83.8158333	Vegetation growth
40	28.2661111	83.8202778	Along with vegetation Growth
41	28.2663889	83.8200000	Gabion walls
42	28.2652778	83.8194444	Recent, Small rock debris, Vegetation
43	28.2713889	83.8180556	Fully Covered by vegetation
44	28.2683333	83.8105556	Retaining wall destroyed, above , below road
45	28.2683333	83.8094444	Vegetation Growth
46	28.2688889	83.8083333	Recent, Wet, Vegetation, Roadside, Multiple
47	28.2686111	83.8083333	Recent, Debris at bottom, Vegetation, Steep
48	28.2688889	83.8077778	Recent, Vegetation, Steep
49	28.2694444	83.8063889	Steep slope in forest
50	28.2725000	83.8072222	Water Flow
51	28.2736111	83.8019444	Recent, Large rock debris

Location No.	Co-ordinates		Comments
	N	E	

52	28.2675000	83.8002778	Gabion Walls, Water Flowing
53	28.2777778	83.7925000	Recent, Steep Slope, rock debris
54	28.2802778	83.7872222	Gabion Walls, Vegetation Growth
55	28.2802778	83.7872222	Below unpaved road
56	28.2816667	83.7800000	Steep slope, near road and stream
57	28.2822222	83.7772222	Taken lives and destroyed settlements
58	28.2867720	83.7854020	Recent, Wet, Vegetation
59	28.2962520	83.8120580	Recent, Vegetation
60	28.2986620	83.8096450	Recent, Steep, rock debris, roadside
61	28.2977076	83.8076640	Water Flow
62	28.2921670	83.8028700	Recent, Multiples, Big rocks
63	28.2904860	83.7999480	Recent, Dry, Steep, near to road, Vegetation
64	28.2911480	83.8003220	Recent, Near playground, large rocks
65	28.2923920	83.8000100	Active, In Fewa Watershed,
66	28.3023540	83.7773600	Vegetation growth
67	28.3025990	83.7770310	Recent, Retaining Walls, Vegetation
68	28.3024970	83.7795250	Near river, Large rocks debris
69	28.3022426	83.7815660	Recent, Near river, Large rock debris
70	28.2791327	83.8156240	Retaining Walls, Near Settlement
71	28.2854130	83.8635060	Retaining Walls
72	28.2963990	83.7749090	Near River
73	28.2974840	83.7775710	Near River
74	28.2978520	83.7750580	Water Flow, Small Rock debris
75	28.2995950	83.7705390	Retaining Walls
76	28.3005100	83.7711870	Near River, Steep slope
77	28.3043830	83.7708800	Steep Slope
78	28.3052520	83.7711410	Near River, Steep Slope
79	28.3070070	83.7739070	Above and below road, Large rocks
80	28.3104706	83.7775068	Old Landslide, Not Active, Vegetation grow
81	28.3143258	83.7816454	Below Road, Large Rocks
82	28.3243700	83.7905262	Above Road, Rock Debris, Vegetations

	Co-ordinates	
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Location No.	N	E	Comments
83	28.3266756	83.7964318	Near Stream, Recent
84	28.3337470	83.7979060	Vegetation growth
85	28.3360310	83.7992520	Vegetation growth
86	28.3392120	83.7995940	Below road, Steep Slope
87	28.3451780	83.8009920	Above and Below road, gabions destroyed
88	28.3458443	83.8006764	Steep Slope, Gabion Walls
89	28.3458160	83.8055730	Gabion Walls
90	28.3458160	83.8055730	Gabion Walls
91	28.3459090	83.8059350	Top of hill to bottom
92	28.3461440	83.8063830	Little vegetation growth
93	28.3466120	83.8068763	Gabion Walls
94	28.3529720	83.8093270	Riverside, Steep Slope
95	28.3532210	83.8095400	Vegetation Growth
96	28.3532910	83.8092490	Gabion Walls
97	28.3532460	83.8092490	Gabion Walls, Water Flowing
98	28.3521720	83.8087500	Recent, Gabion Walls, Large Rock Debris
99	28.3582491	83.8255639	On way to Landruk
100	28.3569642	83.8259260	Recent, Multiples, Roadside, Gabion Walls
101	28.3603900	83.8114830	Recent, Multiple, Retaining Wall, Large rock
102	28.3607900	83.8100892	Recent, Retaining Walls, Large rock debris
103	28.3608230	83.8110850	Both retaining and gabion walls
104	28.3614100	83.8117990	Gabion Walls
105	28.3619970	83.8145050	Continuous six Landslides up to next point
106	28.3615750	83.8145800	Roadside, Wet
107	28.3646610	83.8156590	Recent, Retaining Walls
108	28.3681040	83.8157460	Continuous
109	28.3699020	83.8162610	Retaining Walls
110	28.3722740	83.8159900	Retaining Walls

111	28.3731140	83.8159455	Near Road Construction, Large Rocks
112	28.3778330	83.8172000	Recent, Roadside
113	28.3275830	83.7948990	Recent, Roadside

Location No.	Co-ordinates		Comments
	N	E	
114	28.3113530	83.7732120	Retaining Walls
115	28.3120504	83.7701827	Destroy vegetation, Trees uprooted
116	28.3121489	83.7709608	Recent, Steep Slope, Vegetation, Large Rocks
117	28.3100299	83.7769814	Recent, Roadside
118	28.3026650	83.7941010	Recent, Multiple Landslides
119	28.2986980	83.8080950	Destroyed Road, Taken Lives, Steep
120	28.2986440	83.8077150	Steep Slope, Large Rock Debris
121	28.2983750	83.8069160	Old, Roadside, Vegetation Growth
122	28.2333760	84.0561140	Gabion Walls
123	28.2401690	84.0620390	HILL SLOPE
124	28.2406650	84.0624430	Recent, Damaged Drain, roadside
125	28.2427530	84.0639040	HILL SLOPE
126	28.2434190	84.0642320	HILL SLOPE
127	28.2482850	84.0669510	HILL SLOPE
128	28.2485400	84.0670660	HS, SEEPAGE
129	28.2488020	84.0670990	SEEPAGE
130	28.2496880	84.0663210	ROCK FALL, ROADBLOCK
131	28.2515120	84.0659860	HILL SLOPE
132	28.2540750	84.0673320	STEEP SLOPE, WEAK ROCK
133	28.2811220	84.0687710	HILL SLOPE
134	28.2873420	84.0677240	ROCK FAILURE, WATER SEEPAGE
135	28.2919800	84.0707460	HILL SLOPE
136	28.2986930	84.0674940	STEEP, WET
137	28.3183600	84.0558740	MUD SOIL
138	28.3123480	84.0720120	TREES UPROOTED, ROCK DEBRIS
139	28.3223370	84.0533180	ROADSIDE, TREES UPROOTED
140	28.3291380	84.0458210	RETAINING WALL, STEEP SLOPE

141	28.3248360	84.0512510	WET, LARGE ROCK DEBRIS
142	28.3238280	84.0538680	ROCK DEBRIS FALLING, WET
143	28.3503130	84.0896000	LARGE ROCK DEBRIS

APPENDIX B: Calculations

Table B-1: Calculation of FR values of each factor class

SN	Factors	Classes	Class Pixels	% Class Pixels	Landslide Pixels	% Landslide Pixels	FR
1	Slope	< 15	112329	10.37	272	4.98	0.48
		15 - 25	267018	24.64	1119	20.49	0.83
		25 - 35	343451	31.69	2047	37.48	1.18
		35 - 45	216465	19.97	1386	25.38	1.27
		> 45	144469	13.33	638	11.68	0.88
	Sum		1083732	100	5462	100	4.64
2	Aspect	North	43477	4.01	227	4.16	1.04
		North-East	93808	8.66	610	11.17	1.29
		East	130058	12.00	803	14.70	1.23
		South-East	198652	18.33	1476	27.02	1.47
		South	210051	19.38	929	17.01	0.88
		South-West	159885	14.75	760	13.91	0.94
		West	107940	9.96	401	7.34	0.74
		North-West	98093	9.05	171	3.13	0.35
		North	41768	3.85	85	1.56	0.40
	Sum		1083732	100	5462	100	8.33
3	Curvature	Concave	528163	48.38	2969	54.18	1.12
		Flat	35246	3.23	157	2.86	0.89
		Convex	528288	48.39	2354	42.96	0.89
	Sum		1091697	100	5480	100	2.89
4	Distance to Road	< 50	44454	4.07	345	6.30	1.55
		50 - 100	35493	3.25	136	2.48	0.76
		100 - 150	29724	2.72	109	1.99	0.73
		150 - 200	21064	1.93	70	1.28	0.66
		200 - 250	23787	2.18	134	2.45	1.12
		250 - 300	20205	1.85	138	2.52	1.36
		300 - 350	16607	1.52	145	2.65	1.74

SN	Factors	Classes	Class Pixels	% Class Pixels	Landslide Pixels	% Landslide Pixels	FR
		> 350	900363	82.47	4403	80.35	0.97
	Sum		1091697	100	5480	100	8.90
5	Distance to Stream	< 50	46251	4.24	1110	20.26	4.78
		50 - 100	45621	4.18	880	16.06	3.84
		100 - 150	43896	4.02	509	9.29	2.31
		150 - 200	32898	3.01	240	4.38	1.45
		200 - 250	40370	3.70	209	3.81	1.03
		250 - 300	37958	3.48	186	3.39	0.98
		300 - 350	33644	3.08	184	3.36	1.09
		> 350	811059	74.29	2162	39.45	0.53
	Sum		1091697	100	5480	100	16.02
6	Distance to Fault	< 100	14109	1.29	97	1.77	1.37
		100 - 200	12804	1.17	71	1.30	1.10
		200 - 300	14139	1.30	64	1.17	0.90
		300 - 400	11948	1.09	49	0.89	0.82
		400 - 500	12976	1.19	118	2.15	1.81
		> 500	1025721	93.96	5081	92.72	0.99
	Sum		1091697	100	5480	100	6.99
7	Landcover	Waterbody	508	0.05	0	0.00	0.00
		Glacier	135448	12.41	51	0.93	0.08
		Snow	70834	6.49	80	1.46	0.22
		Forest	448629	41.09	1220	22.26	0.54
		Riverbed	248	0.02	0	0.00	0.00
		Built-up area	487	0.04	2	0.04	0.82
		Cropland	80423	7.37	594	10.84	1.47
		Bare soil	74	0.01	0	0.00	0.00
		Bare rock	49455	4.53	450	8.21	1.81
		Grassland	181943	16.67	2621	47.83	2.87
		Other wooded land	123648	11.33	462	8.43	0.74

SN	Factors	Classes	Class Pixels	% Class Pixels	Landslide Pixels	% Landslide Pixels	FR
	Sum		1091697	100	5480	100	8.56
8	Geology	Paleozoic Sedimentary Rocks	376665	34.50	1229	22.43	0.65
		Preambrian High Grade Metamorphic Rocks	376816	34.52	2596	47.37	1.37
		Ghan Pokhara Formation	95878	8.78	310	5.66	0.64
		Naudanda Formation	18506	1.70	11	0.20	0.12
		Ranimatta Formation	198328	18.17	1158	21.13	1.16
		Kushma Formation	10694	0.98	151	2.76	2.81
		Ulleri Formation	14810	1.36	25	0.46	0.34
	Sum		1091697	100	5480	100	7.10
9	Parent Soil	Gneiss, migmatite	881684	80.76	4104	74.89	0.93
		Fluvial non calcareous	5237	0.48	6	0.11	0.23
		Quartzite	150551	13.79	870	15.88	1.15
		Slate, phyllite	54200	4.96	500	9.12	1.84
	Sum		1091672	100	5480	100	4.14
10	Average Annual Precipitation	< 2000	91136	8.35	0	0.00	0.00
		2000 - 3000	184914	16.94	509	9.29	0.55
		3000 - 4000	416434	38.15	2334	42.59	1.12
		4000 - 5000	368814	33.78	2197	40.09	1.19
		> 5000	30399	2.78	440	8.03	2.88
	Sum		1091697	100	5480	100	5.74
11	SPI	< 1	285592	26.35	1097	20.08	0.76
		1 - 5	3585	0.33	44	0.81	2.44
		> 5	794555	73.32	4321	79.11	1.08
	Sum		1083732	100	5462	100	4.28
12	TWI	< 5	285678	26.36	1097	20.08	0.76
		5 - 10	570555	52.65	2794	51.15	0.97
		> 10	227499	20.99	1571	28.76	1.37
	Sum		1083732	100	5462	100	3.10

