



Supplement of

Cost estimation for the monitoring instrumentation of landslide early warning systems

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Supplementary material

Table S1. Socio-demographic and topographic factors and cost estimation for suitable sites for the installation of landslide EWS. Total area of the site in hectares (Area), total population (Pop.), population density as people per hectare (Pop/ha), vulnerable population (Vul. Pop.), built-up density as the total building area per ha (BU den.), road density (Road den.), mean slope of the site in degrees (Slope), aspect of the main orientation of the slope (Asp.), landslide susceptibility (Susc.), sensor density as the number of sensors per ha (Sensor den.), total number of sensors, infrastructure and subsurface sensors (Total sens., Infr. Sens and Subs. sens) per site, number of gateways, total estimated cost and cost per person.

Neighbourhood	Socio-demographic and topographic factors									EWS sensors and cost estimation							
	Site	Area	Pop.	Pop/ha	Vul. pop.	BU den.	Road den.	Slope	Asp.	Susc.	Sensor den.	Total sens.	Infr. sens.	Subs. sens.	Gateways	Cost (€)	Cost (€/per)
Santo Dom.Savio 1	1	22.54	7,680	341	7,680	0.351	366	25	W	0.801	6.4	145	51	94	1	65,070	8
La Avanzada	2	20.14	4,875	242	4,692	0.218	293	25	NW	0.762	6.1	123	27	96	1	60,332	12
Carpinelo	3	19.85	4,243	214	4,243	0.193	272	27	W	0.792	6.3	126	24	102	1	62,618	15
Carpinelo / Maria cano-carambolas	4	45.93	13,875	302	13,848	0.257	319	24	W	0.741	5.9	272	70	202	2	130,223	9
Maria cano-carambolas	5	27.62	3,601	130	3,601	0.139	248	29	W	0.826	6.6	183	25	157	2	94,866	26
Oriente	6	32.64	3,464	106	3,278	0.139	227	22	SW	0.589	4.7	154	21	132	2	80,634	23
Oriente	7	36.32	5,532	152	5,532	0.166	299	31	W	0.785	6.3	228	38	190	2	115,710	21
La Cruz	8	52.19	9,522	182	9,522	0.199	287	26	SW	0.751	6	314	62	251	3	156,651	16
La Cruz	9	13.69	1,114	81	1,114	0.082	169	27	SW	0.766	6.1	84	7	77	1	45,127	41
Versalles No.2	10	41.91	8,595	205	8,578	0.163	249	27	W	0.757	6.1	254	41	212	2	128,462	15
Llanaditas	11	28.54	8,152	286	8,152	0.254	316	27	W	0.707	5.7	161	41	120	2	79,088	10
Llanaditas	12	25.39	6,716	265	6,716	0.248	311	26	W	0.728	5.8	148	37	111	2	73,037	11
La Libertad	13	23.59	5,953	252	5,953	0.226	276	20	SW	0.619	4.9	117	26	90	1	57,174	10
San Antonio	14	21.34	4,990	234	4,934	0.264	350	23	SW	0.729	5.8	125	33	92	1	59,472	12
Villa Turbay	15	16.49	1,945	118	1,873	0.146	250	31	W	0.846	6.8	112	16	95	1	57,296	29
Villa Lilliam	16	40.25	8,168	203	8,151	0.24	278	27	SW	0.786	6.3	253	61	192	2	122,488	15
La Sierra	17	25.98	3,719	143	3,658	0.189	276	28	S	0.703	5.6	146	28	119	2	74,756	20
Juan Pablo II	18	46.13	8,970	194	8,740	0.201	247	23	N	0.609	4.9	225	45	179	2	111,792	12
Cucaracho	19	32.16	6,579	205	2,161	0.176	232	20	S	0.642	5.1	165	29	136	2	84,471	13
Área exp.Pajarito	20	15.68	4,989	318	0	0.109	314	15	SE	0.537	4.3	67	7	60	1	36,180	7

Área exp.Pajarito	21	23.57	12,068	512	0	0.117	239	15	S	0.557	4.5	105	12	93	1	54,931	5
Área exp. pajarito/ San Cristóbal	22	47.96	11,224	234	1,416	0.13	205	17	S	0.563	4.5	216	28	188	2	111,899	10
Santa Margarita	23	23.45	4,134	176	4,134	0.202	278	19	SE	0.6	4.8	113	23	90	1	55,946	14
Olaya Herrera	24	17.83	2,080	117	2,042	0.117	278	28	N	0.734	5.9	105	12	92	1	54,723	26
Olaya Herrera	25	28.35	8,884	313	8,877	0.262	249	26	N	0.618	4.9	140	37	103	2	68,985	8
Juan XXIII La Quiebra	26	13.09	1,673	128	1,648	0.133	145	26	S	0.662	5.3	69	9	60	1	36,712	22
El Pesebre	27	14.36	5,098	355	2,607	0.256	218	26	S	0.593	4.7	68	17	51	1	33,686	7
Nuevos Conquist.	28	38.95	11,194	287	11,154	0.268	228	25	NE	0.673	5.4	210	56	154	2	100,663	9
El Corazón	29	12.69	2,394	189	2,101	0.254	188	18	S	0.509	4.1	52	13	39	1	26,129	11
Betania	30	19.88	4,476	225	3,592	0.237	216	19	NE	0.53	4.2	84	20	64	1	41,616	9
El Rincón	31	25.84	7,421	287	5,955	0.265	216	23	N	0.541	4.3	112	30	82	2	55,838	8
San Ant. de Prado	32	27.12	4,516	166	4,119	0.2	191	18	SE	0.569	4.6	124	25	99	2	63,494	14

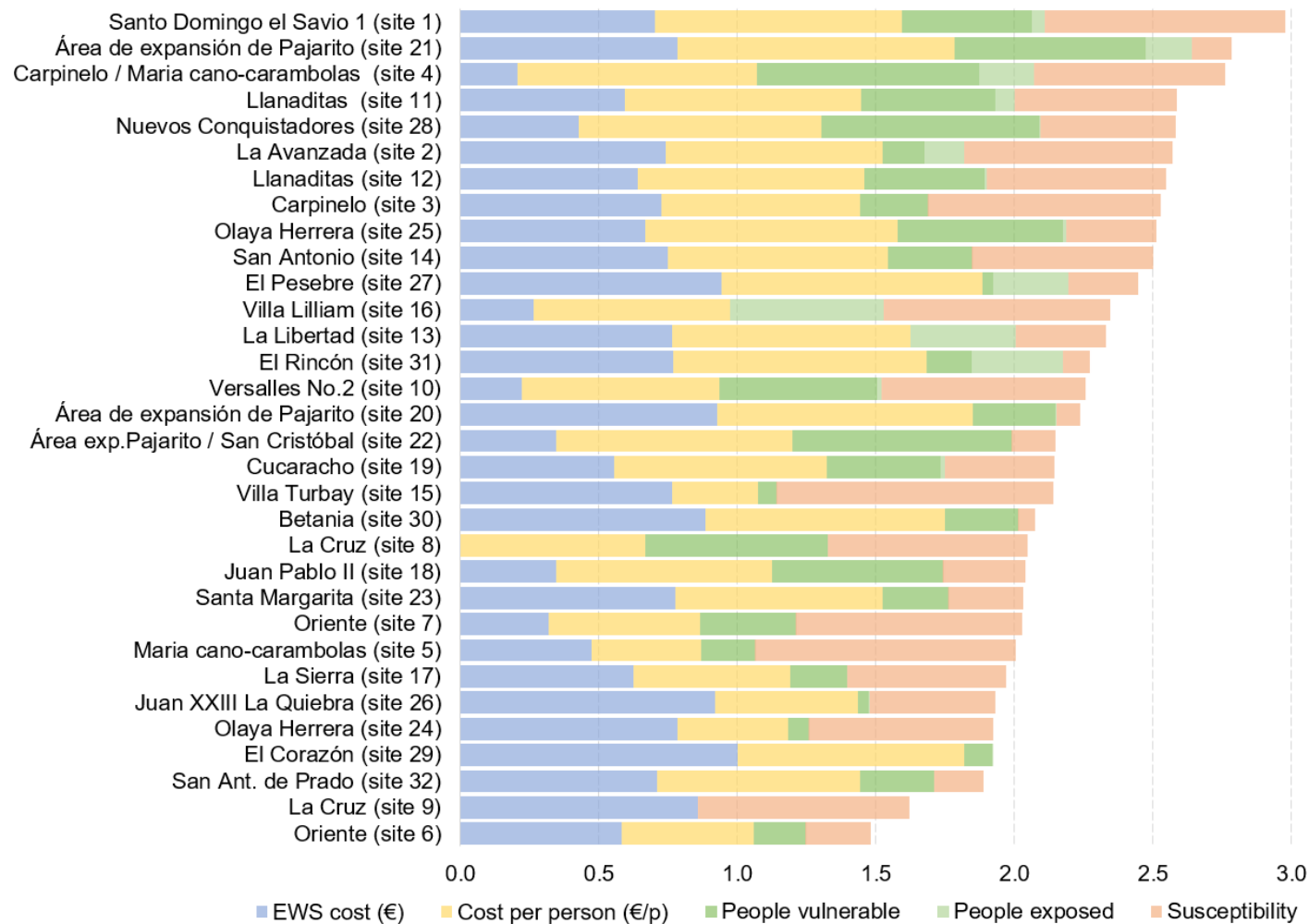


Figure S1. Site-specific landslide EWS prioritization based on the combination of four cost-effectiveness scenarios: overall cost of ESW, cost per person, total population exposed and vulnerable, and landslide susceptibility. Values are normalized in a min-max scale, where 1 is the highest priority per scenario. The combined scaled values show the priority considering all scenarios, the higher the value, the most efficient.