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Supplement of

Quantifying the potential benefits of risk-mitigation strategies on future flood losses in Kathmandu Valley, Nepal

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Supplementary Material

Table S1. List of acronyms used in this work

Acronym	Description
DRR	disaster risk reduction
A	adobe
BSM	brick/stone masonry with mud mortar
BSC	brick/stone masonry with cement mortar
W	wood-frame
RC-CCP	current-construction-practice reinforced concrete
RC-WDS	well-designed reinforced concrete
RM	reinforced masonry

Table S2. Mean loss metrics for Scenario A, and absolute changes to these metrics in Scenarios B, C, and D, disaggregated by district

| Flooding occurrence	Metric	District	Scenario A	Scenario B	Scenario C	Scenario D
100-year	Mean absolute financial losses (€)	Bhaktapur	62,253,439	+8,617,871	-6,306,202	+9,605,264
		Kathmandu	345,346,326	+57,348,232	-51,220,080	+32,270,581
		Lalitpur	65,333,200	+8,687,941	-5,757,517	+10,815,200
	Mean loss ratio	Bhaktapur	3.5%	-0.09%	-0.81%	-0.84%
		Kathmandu	2.7%	-0.07%	-0.80%	-0.82%
		Lalitpur	2.4%	-0.02%	-0.49%	-0.52%
1000-year	Mean absolute financial losses (€)	Bhaktapur	89,654,403	+12,377,766	-5,258,360	+18,393,467
		Kathmandu	576,162,142	+83,341,425	-56,444,738	+88,865,127
		Lalitpur	108,976,618	+12,182,617	-4,690,669	+23,241,568
	Mean loss ratio	Bhaktapur	5.0%	-0.13%	-1.0%	-1.0%
		Kathmandu	4.6%	-0.20%	-1.1%	-1.2%
		Lalitpur	4.0%	-0.11%	-0.66%	-0.74%

Table S3. Mean loss metrics for Scenario A, and absolute changes to these metrics in Scenarios B, C, and D, disaggregated by income level

Flooding occurrence	Metric	Income level	Scenario A	Scenario B	Scenario C	Scenario D
100-year	Mean absolute financial losses (€)	Low	38,592,710	+18,097,384	-6,774,800	+2,259,014
		Middle	103,189,196	+23,146,134	-11,400,874	+14,191,417
		High	331,151,059	+33,410,526	-45,108,125	+36,240,614
	Mean loss ratio	Low	2.1%	+0.10%	-0.88%	-0.90%
		Middle	2.4%	-0.08%	-0.71%	-0.73%
		High	3.0%	-0.04%	-0.69%	-0.72%
1000-year	Mean absolute financial losses (€)	Low	60,564,250	+25,800,358	-7,288,996	+7,639,070
		Middle	162,179,628	+35,446,740	-11,381,018	+29,947,118
		High	552,049,285	+46,654,710	-47,723,753	+92,913,974
	Mean loss ratio	Low	3.3%	+0.06%	-1.3%	-1.3%
		Middle	3.7%	-0.14%	-1.0%	-1.0%
		High	5.0%	-0.15%	-0.94%	-1.0%
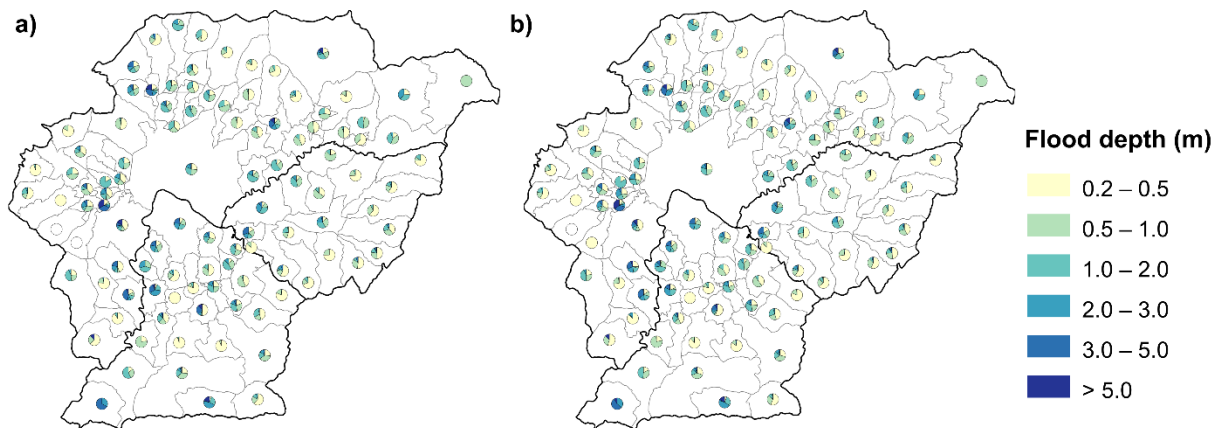
Figure S1. Expected proportions of buildings within various depth ranges of the 100-year floodplain for a) Scenarios A, C, D, and b) Scenario B.

Scenarios A, C, and D yield identical results, since the flood-hazard-informed land-use planning imposed as part of Scenarios C and D means that the expected number of buildings within the floodplain in 2031 (Scenarios C, D) remains limited to 2021 levels (Scenario A).
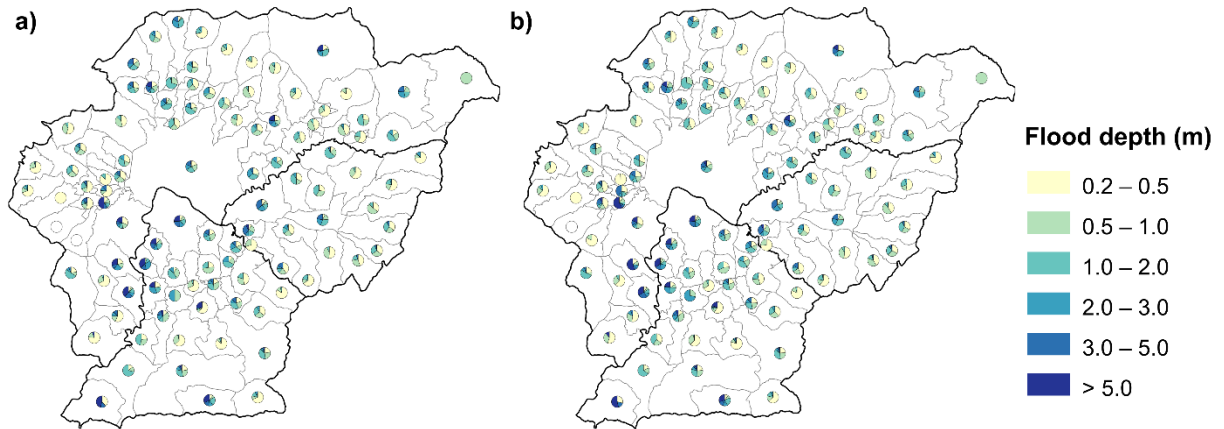
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