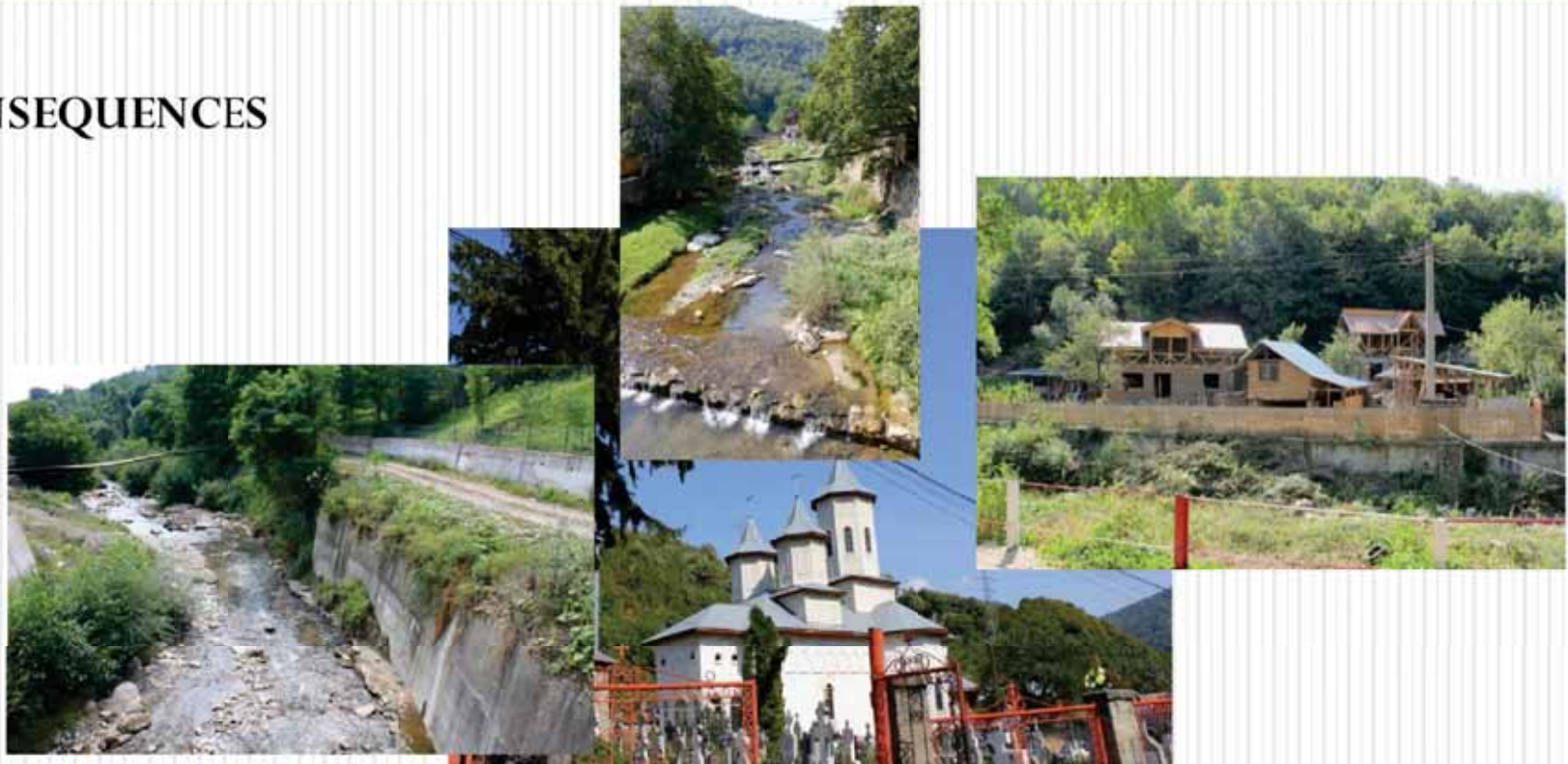


TECHNICAL SKILLS COURSE 02

ANALYZING THE EFFECT OF CHANGES IN NEHOIU CATCHMENT

GROUP 3 : CONSEQUENCES

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Objectives

- Classification and mapping buildings types
- Reconstructing flash flood event 2004
- Changes in damage of the elements at risk

Analyzing And Mapping Buildings Type

BUILDINGS ATTRIBUTE:

- occupancy type
- structural type
- flood area (width x length)
- nr floors
- floors space
- nr households
- remarks



Building samples

Occupancy	Nr_Buildings	Wood	Adobe	Wood + Adobe	Wood+Stone Masonry	RCC + Masonry	Steel
Residential	26	16	1	8		1	
Commercial	11	5		5		1	
Storage	6	6					
Abandoned	2				1		1
Shed	2	2					
Touristic Hotel	1					1	
Restaurant	2	1				2	
Wood Workshop	1	1					
Community Center	1					1	
School	1					1	

Building sampling (cont.)

id	occupancy_type	structural_type	nr_floors	remarks
140919	residencial_single house_lc	adobe	1	asbestos_roof
140920	storage	wood	1	garage_storage_workshop
140921	storage	wood	1	garage_storage_workshop
140922	storage	wood	1	garage_storage_workshop
140923	residencial_single house_lc	wood_adobe	1	
140924	residencial_single house_lc	wood_adobe	3	
140925	residencial_single house_lc	wood_adobe	1	
140926	residencial_single house_lc	wood_adobe	2	
140927	storage_workshop	wood_frame_congl_wall	1	
140928	residencial_single_house_mc	wood	3	toopfloor_wood
140929	residencial_single_lmc	wood_adobe	1	existing_building_corrugated_roof
140930	residencial_single_lmc	wood	2	topfloor_attic
140931	residencial_single_lmc	wood	3	topfloor_attic
140929	residencial_single_lmc	wood_adobe	1	existing_building_corrugated_roof
140930	residencial_single_lmc	wood	2	topfloor_attic
140935	residencial_single_lmc	wood	2	
140936	residencial_single_lc	wood_stee_sheet_roof	1	conglomerate_of_houses
140937	residencial_single_lc	wood_stee_sheet_roof	2	conglomerate_of_houses
140938	residencial_single_lc	wood_stee_sheet_roof	3	conglomerate_of_houses
140939	Residencial_single_lc	Wood_stee_sheet_roof	4	Conglomerate_of_houses
140940	Shop	Wood_stee_sheet_roof	1	Conglomerate_of_houses
140941	Shop	Wood	1	Second_hand_store

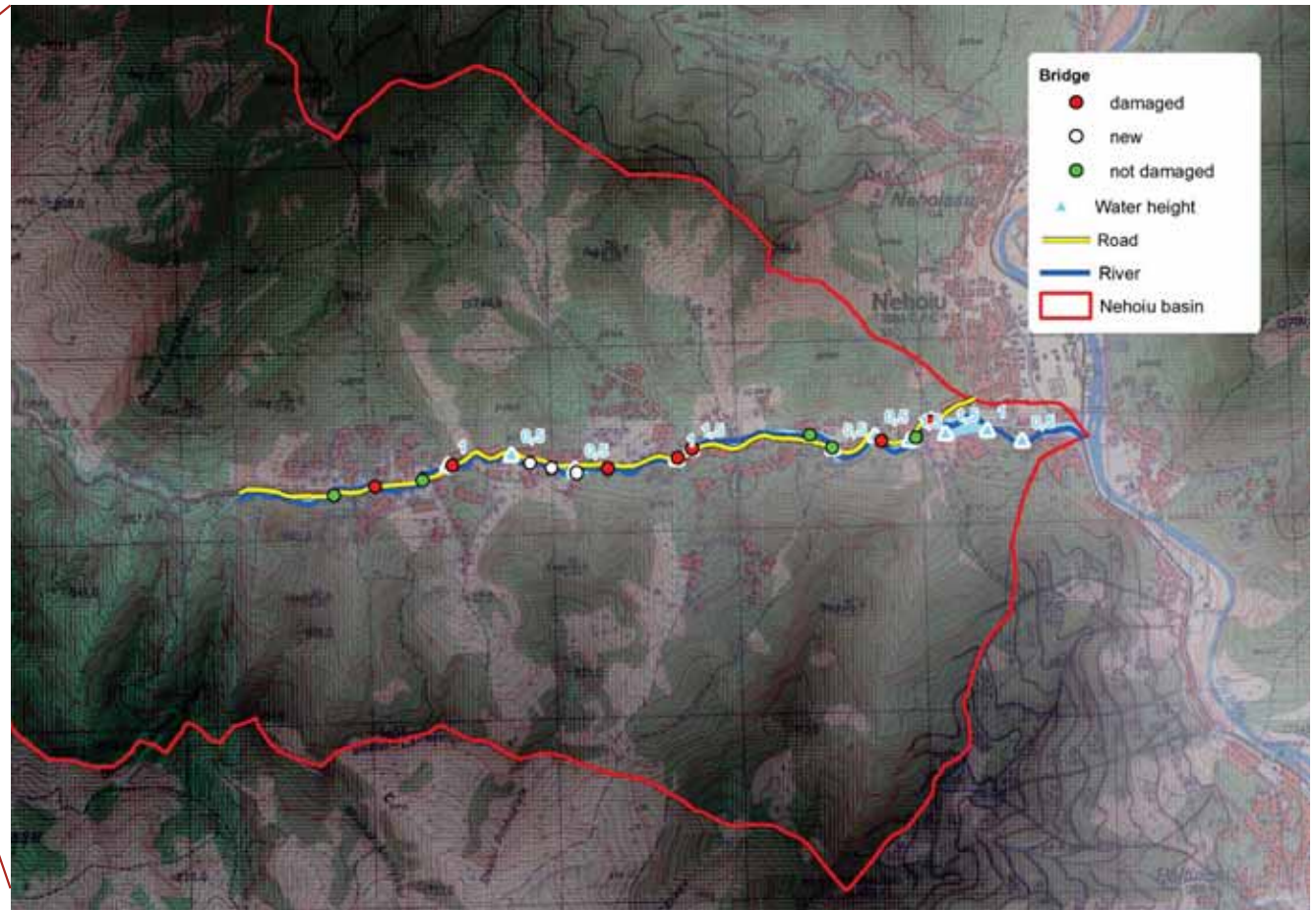


Reconstructing Flash Flood Event 2004

- Water height marks on poles and buildings
- River channel morphology
- Sediment load and debris along river channel
- Remains of damaged bridges

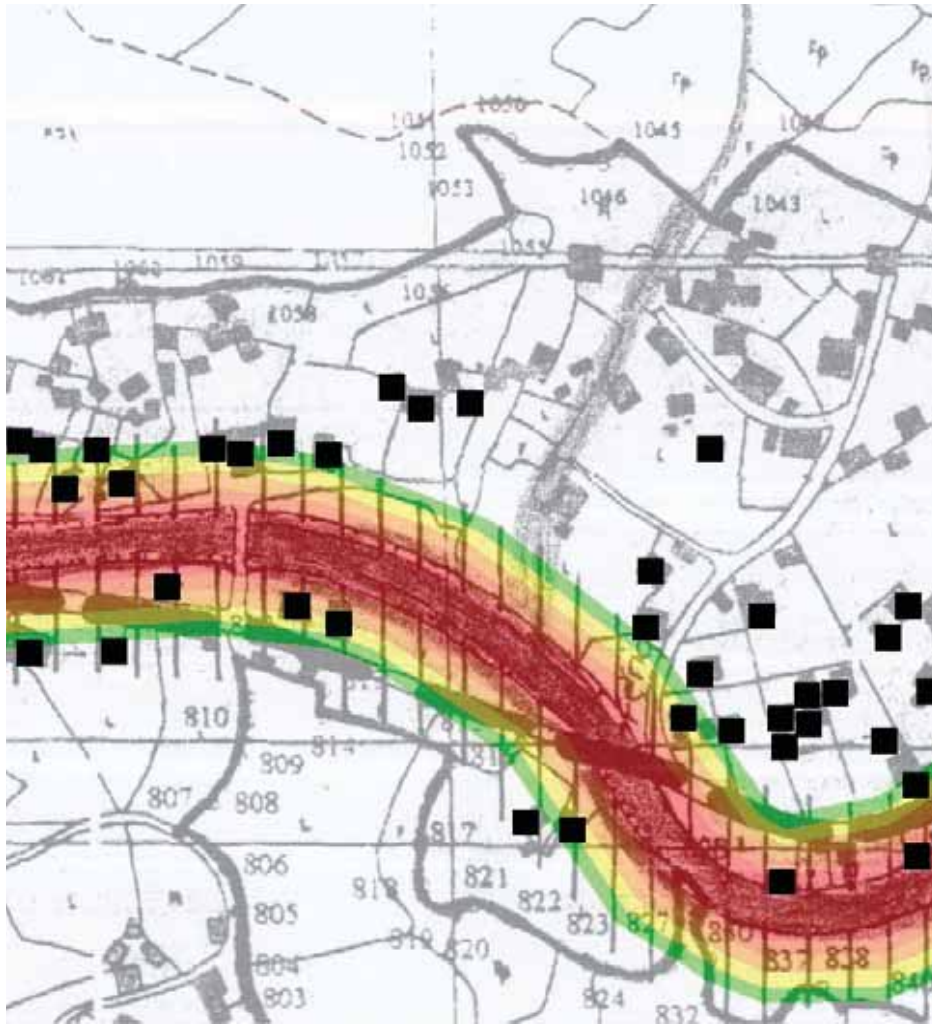


What was the extension of the 2004 Flash Flood Event ?



- Maximum height = 6 – 7 m
- Maximum extent = 120 m
- Road length = 4.5 km

How many buildings are close to the river?



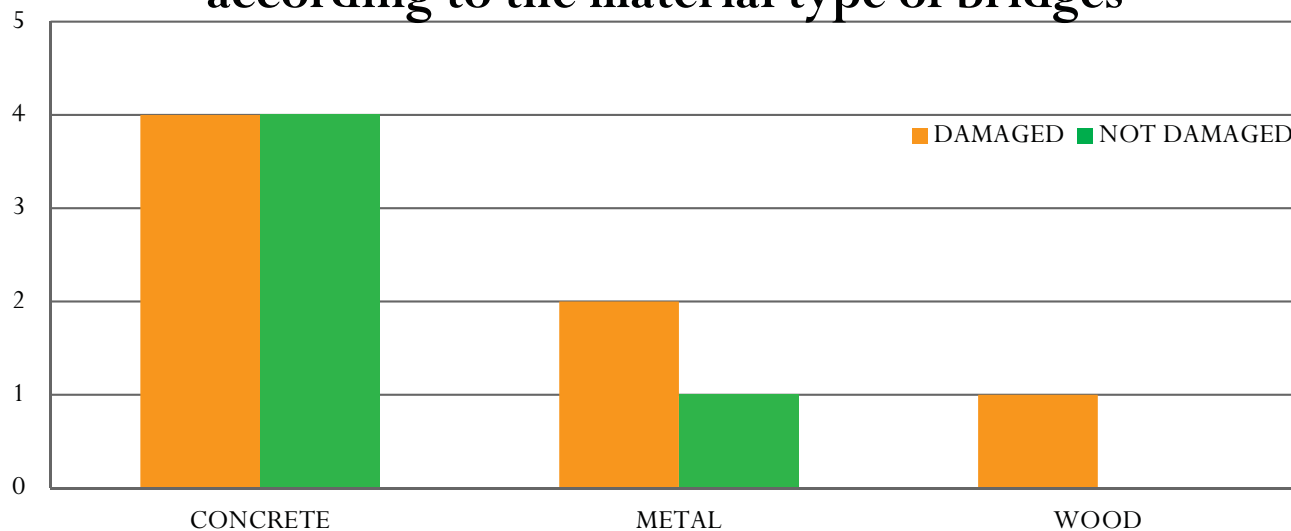
Distance	Number of building
0 to 5 m	11
5 to 10 m	10
10 to 15 m	24
15 to 20 m	23
20 to 25 m	40

How many bridges were damaged?

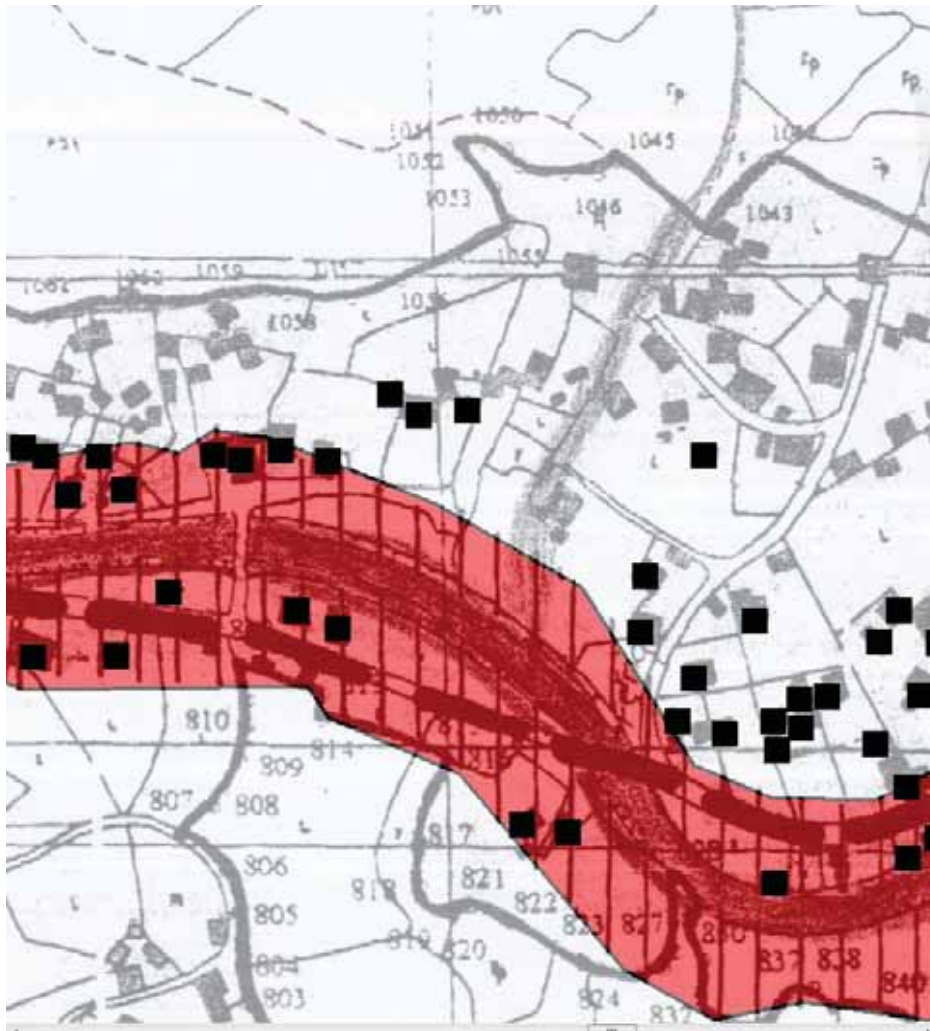
BRIDGES		TYPE OF MATERIAL			
		CONCRETE	METAL	WOOD	TOTAL
DAMAGE	YES	4	2	1	7
	NO	4	1	0	5
TOTAL		8	3	1	11



Damaged bridges after flash flood in 2004 according to the material type of bridges



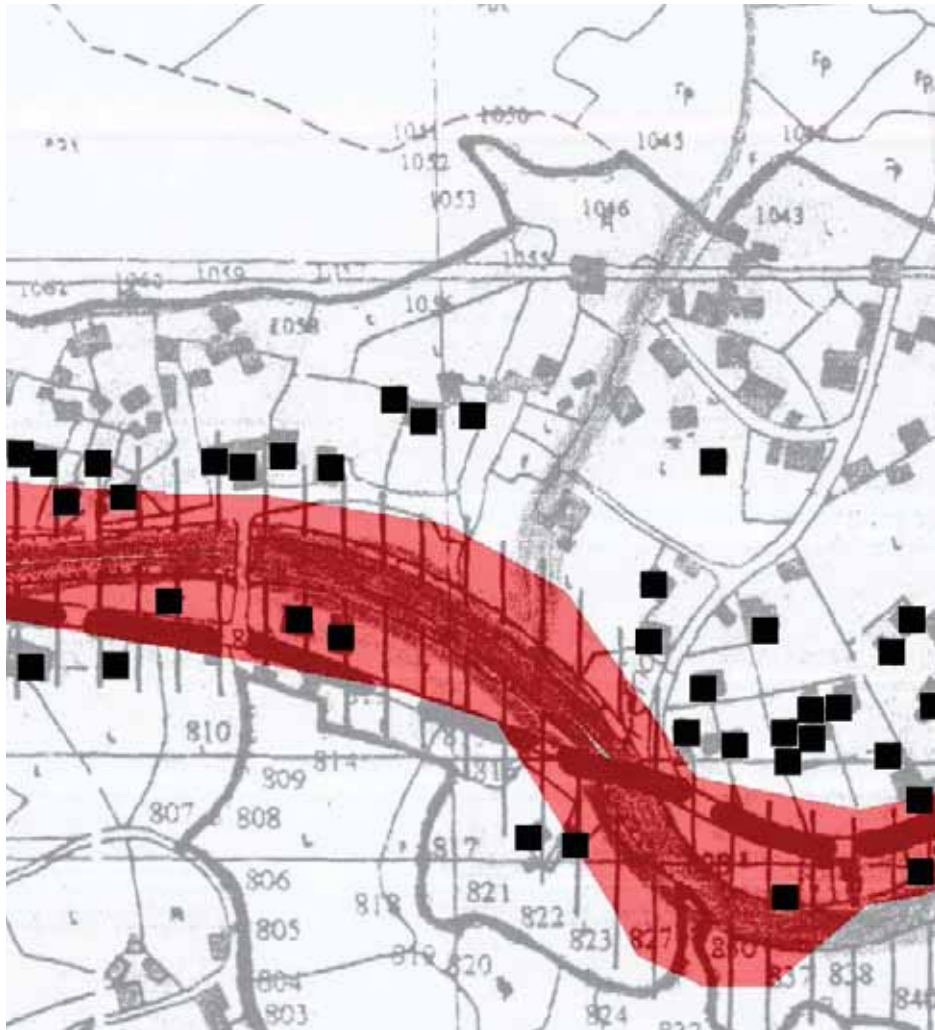
How many buildings are in the zone in which constructions were prohibited?



- 131 buildings are located in the zone that was indicated as a no-construction zone after the 2004 event.
- Several new constructions are taking place



How many buildings would be flooded if the 2004 event would happen now?



- 42 buildings are located in the zone that was flooded in the 2004 event.
- Some areas seem not to have been flooded at all.



Thank you for your attention!