

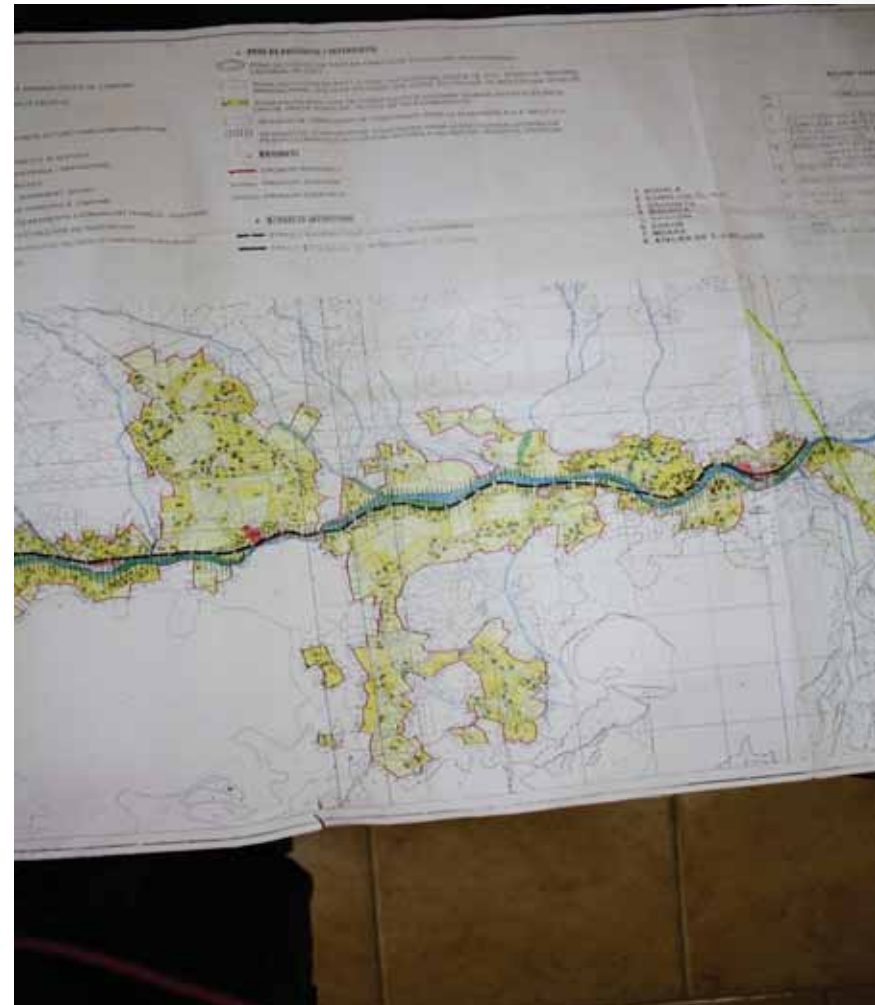
Spatial Planning and Emergency Management

Approaches

- Interviews with inhabitants
- Interview with head of urban planning office
- Field observations
- Analysis of existing data

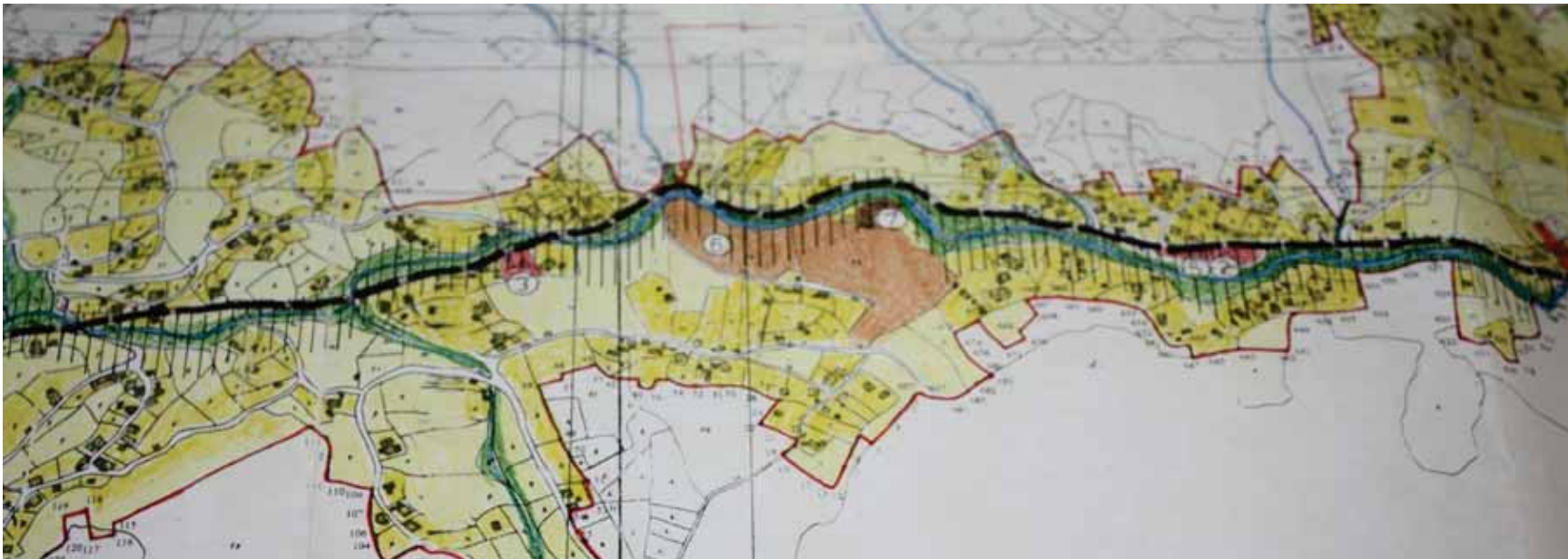
General Urban Plan

- Plan was made in 2004
- Defines the areas allocated for development
- Construction outside the plan is allowed
 - An access road
 - No existing landslides



General Urban Plan (2)

- Regulatory zoning along the river bed (temporary “interdiction” of constructions)
- Only construction allowed near the river are garages, storage spaces etc.





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Changes in development

- First, houses were constructed in the upper part of the village
- Affected by landslides and they moved down to the river
- Main road is newer (and better maintained) than the old road in the upper valley
- New houses were built close to the main road and thus can be more easily affected by floods
- Expected for future development: people will move from more affected areas to less affected areas -> (safe) areas free of development needed



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Risk identified

- Houses are located close to the river and due to missing elevation more prone to floods



Risk identified (2)

- Landslides beside the road



Risk identified (3)

- River can be blocked due to the material and design of the bridge



Emergency Management

- Self-reliance
 - Inhabitants rely on the local knowledge of meteorology to observe the situations
- Support from Municipality
 - Exercises done once per year with the approval of County Council

Problems: Emergency Management

- Communication between upper and lower part of the valley when
 - road is blocked
 - telephone network is broken
- Lack of resources due to absence of funds
- No insurance plan for floods & landslides
- No standard format (unstructured information) for recording of the characteristics and consequences of events

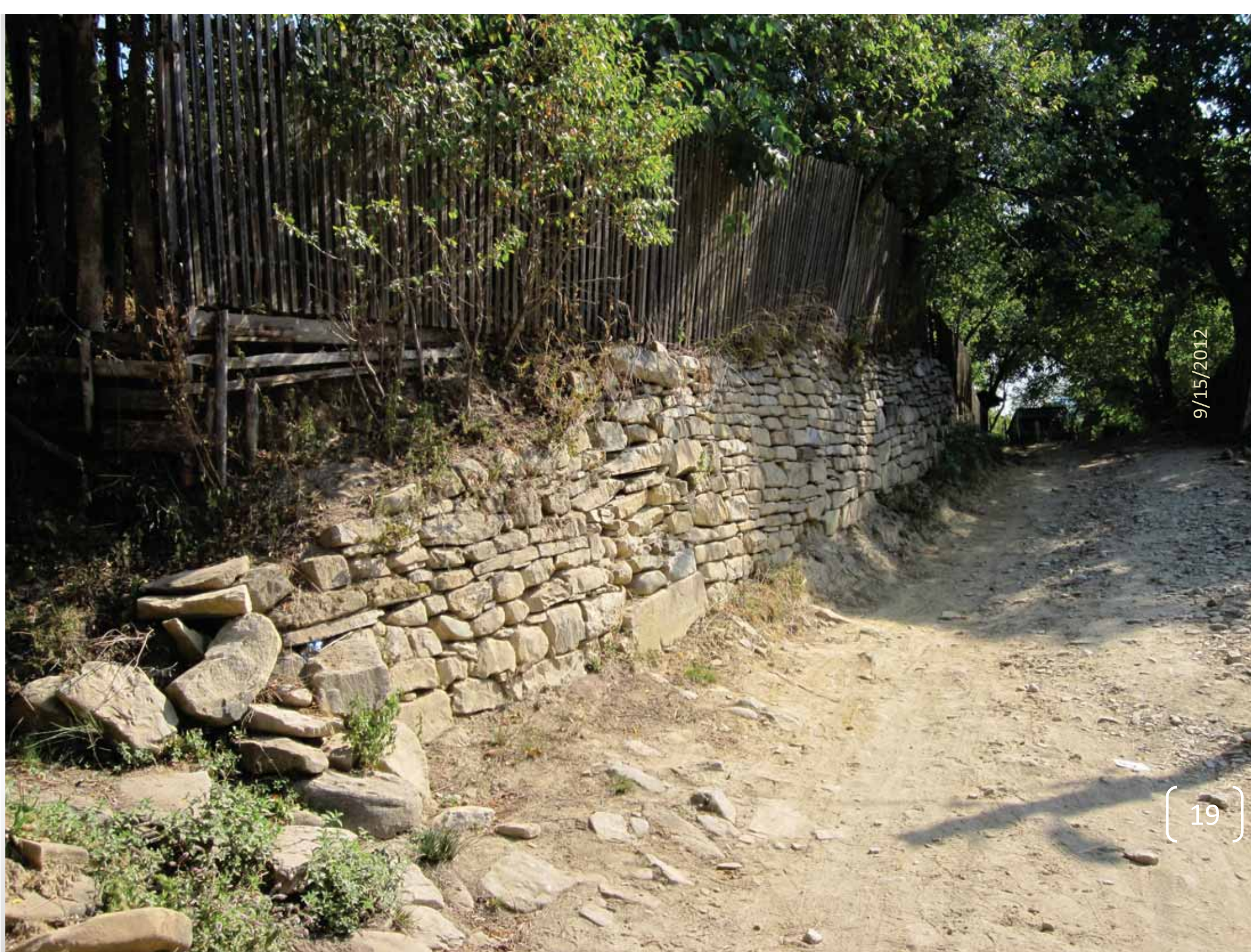


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Existing measures







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Conclusions

- Lack of coherence between existing urban plans and possibility to build outside the plan area
- Should be completely forbidden
 - To build very close to the river and road
 - To build along the river when the level of basement is lower than the road
- Existing settlement in the area potentially endangered by the landslides
 - drainage and protection work should be done

Conclusions (2)

- Prevention measures before crisis time do not form an important part of the risk reduction strategy, but
 - Structural measures have priority, provided enough funding is available
 - The following actions are being taken (and possibly intensified)
 - Consolidation of the side of the river bed
 - Replantation
 - Regulation of the river bed

Thank You!