

The risk perception of unexpected disasters and self-organizing capacity by stakeholders from peripheral areas

Case Study of River Ipel

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Peripherality...

- an output of difficult conditions based upon the **physical-geographic, technical and social factors...**
 - might be observed and investigated in **various contexts and dimensions** (spatial, regional, social, cultural..)
 - peripheral territories are less or more successful through the **successful integration of their individual and collective structures, processes and systems.**
 - current European neo-regionalism is based on the reduction of regional differences through **activating of endogenous potential** of local users in given area, through improving a social capital, through mutual participation and through cohesion in regions.
 - rather assymetrical relationship between centres and peripheral territories makes itself felt through a **various levels of risks, stability and potentials.**
- This contribution deals with the processes of **local stakeholders perceptions of risks and disturbances** e.g. floods and others natural disasters, and also is focused on their **self-organizing capacity.**

Risk perception...

- risk is the chance that something bad/negative with **potentially detrimental effects might happen**. According to the USA National Safety Council (2003, In Inouye 2016), risk is „a measure of the probability and severity of adverse effects“. Short (1984, In Sjoberg et al 2004, p.7) defines risk as „the likelihood that an individual will experience the effect of danger“ and Rayner and Cantor (1987, In Sjoberg et al 2004, p.7) defined risk as the probability of an adverse event and the magnitude of its consequences.

- **substantial key element of any risk situation in a certain degree of uncertainty**: psychological sense of uncertainty and its coping is assumed to be an important mediator of any human response in a situation with unclear outcome (Sjoberg et al 2004).

- any **understanding of the risk** on the individual level is **socially and culturally determined and learnt** and is related to the structuration of the world (Boholm 1998, in Sjoberg et al 2004, p.7). It reflects not only some individual variables (personality, cognitive style, decision making style) but the general values, norms, ideology and cultural layers as well.

Contexts of risk perception (sociological view)...

- First concepts of the research of **public risk perception** appeared in **1960s** in were related to the public opposition to **nuclear technology, transport issues and industrial hazards** (Sjoberg 2004).
- In 1980s the **general discourse adopted risk as an integral part of the modern world**, some kind of „systematic“ element, which has been shown e.g. in the famous theory of Ulrich Beck („Risiko-gesellschaft“).
- system failures endangered all forms of life in our planet and these **failures are deeply anchored** in the crisis of all societal institutions of modern civilizations.
- concept of risk society is based upon the assertion, that not the revolutionary clash of paradigmas (modernity versus post-industrial society), but **the „calm“ everyday modernization steps and their collateral effects are the most prominent risks** and prerequisites of the destruction of human civilization (Beck 2002).

Individual response to risk perception...(psychological view)

- 1. Cognitive response** (risks/benefits, technological details, consequences/exposure...) The initial surveys (Gorman 2013) indicated, that rational arguments (providing information) are the key factor in risk copying mechanisms. While experts judge risks in quantitative aspects (e.g. morbidity), laymen are generally more emotional.
- 2. Affective response** includes emotions, anxiety, withdrawal and negative learning. The general public is involving much more emotional processes activated when dealing with risks. Risk is much better accepted when the participation is voluntary (Starr 1969, In Sjoberg 2004). Fear of loss is one of the key emotional issues in the risk aversion strategies of individuals.
- 3. Behavioural response** (phylogenetical predispositions fight/flight). People tend to be highly intolerant of risks that they perceive as being uncontrollable, having catastrophic potential, fatal consequences and bearing an inequitable distribution of risks and benefits. Most adverse reaction is to risks, which are new, unknown and with delayed effect.

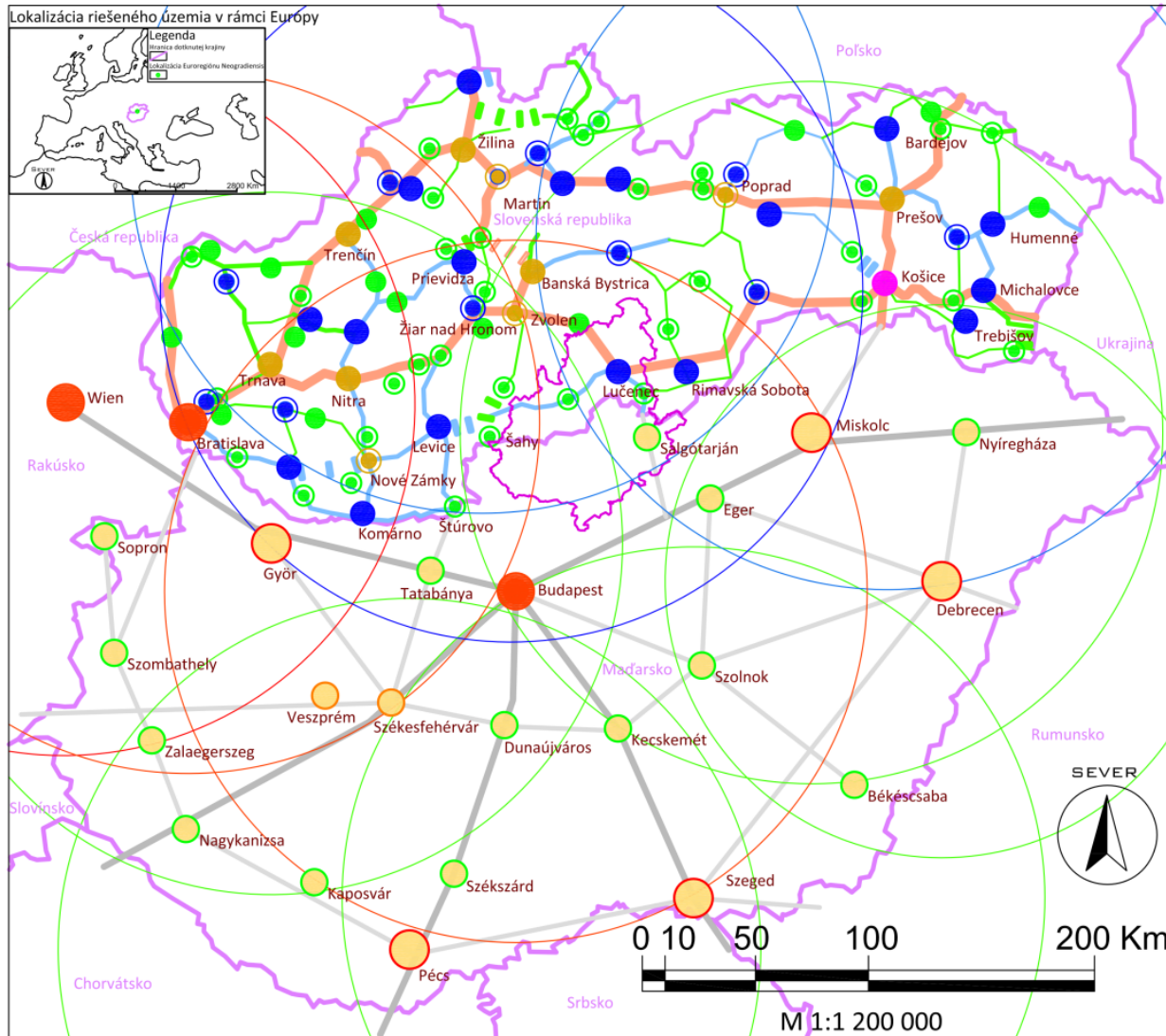
**Regional resilience and risk management
(main topic of research, A.Tóth 2016)**

**Individual risk perception, impact of
peripherality and self-organizing capacity for
coping with a vulnerability in selected model
area (subordinate topic)**

Research Question :

„What is the impact of the peripherality and the quality of human capital at risk perception and at self-organising capacity?“

Model area – Euroregion Neogradiensis



Slovak part:

- Novohrad (Lučenec)

Hungarian part:

-Nógrad (Salgótarján)

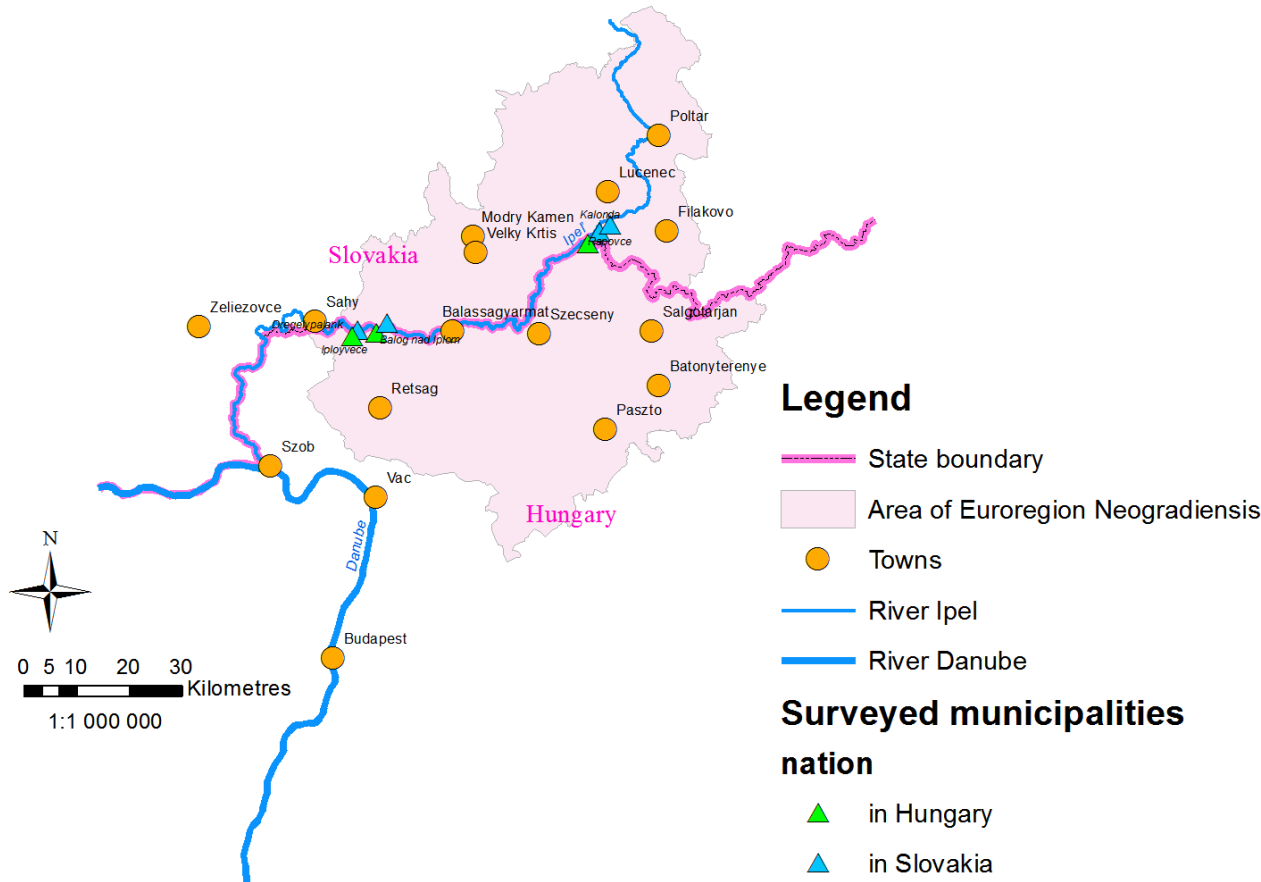
Divided historical region

Nógrad after first world war,
with many movement of
boundary during first half of
20th century.

Very close to Budapest,
cca 1 – 1,5 hour

Natural boundary is created
with river Ipel (Ipoly)

Model area – Euroregion Neogradiensis



- 9 municipalities from slovak part,
- 6 from hungarian side of cross-border area close to river Ipeľ
- River Ipeľ (140km as boundary)

Group A (left +):
 Drégelypalánk (HU)
 Ipolyvece (HU)
 Ipeľské Predmostie (SK)
 Balog nad Ipľom (SK)

Group B (right -):
 Ipolytarnóc (HU)
 Rapovce (SK)
 Kalonda (SK)

Methodology

Desk-research to the concept of resilience

Field-research with 5 kinds of stakeholders (Mayors, Inhabitants, Local entrepreneurs, Environmentalists, Stakeholders of Nature – farmers, rangers, fishermen) in Slovak and Hungarian municipalities

- Workshops (52 respondents altogether)
- Questionnaires (52 respondents altogether)

Evaluation of data:

- Table of success of selected factors between Slovak and Hungarian municipalities
- Correlations
- Network GIS analyse: An identifying of service areas for emergency rescue
- Spider chart to self-organising capacity (in development proces)

Selected factors from empirical research in municipalities of cross-border area

ID	Selected factors (1.-7. mayors; 8. inhabitants)	Abs. SK	% SK	Abs. HU	% HU
1.	Prepared master plan or strategy of development	9	77%	6	100%
2.	Problems with marginalised groups	9	14%	6	100%
3.	Solidarity with others municipalities	9	89%	6	67%
4.	Identified danger localities in managed area of municipality, during workshop through using of local knowledge of respondents	9	66,6%	6	50%
5.	Critical impacts after natural disturbances (deaths, significant financial losses)	9	44,4%	6	50%
6.	Warning system in municipality	9	66,6%	6	83,3%
7.	Executed countremeasures against floods, landslides,...	9	33,3%	6	83,3%
8.	Feeling of danger among inhabitants	13	77%	4	75%

Unconfirmed correlation between a feeling of danger and real state of floods in urban area

Evaluated area with 22 inhabitants	Cross-border area	Only Slovak area	Only Hungarian area
Correlation value	0.227	-0.358	0.064
Significance F	0.396	0.343	0.890

SUMMARY OUTPUT

Regression Statistics

Multiple R	0,193649
R Square	0,0375
Adjusted R Square	-0,01063
Standard Error	0,396863
Observations	22

ANOVA

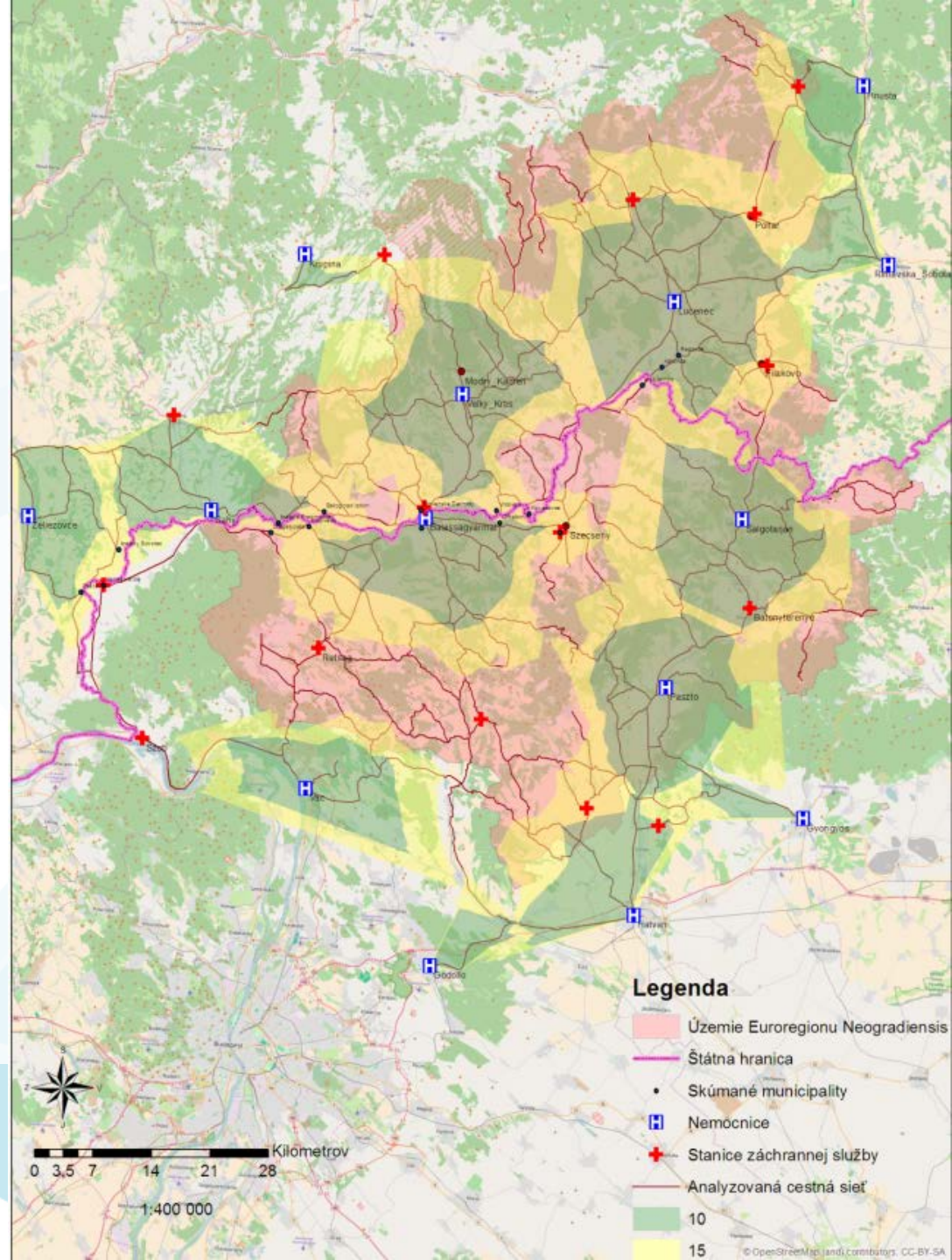
	df	SS	MS	F	Significance F
Regression	1	0,122727	0,122727	0,779221	0,387866808
Residual	20	3,15	0,1575		
Total	21	3,272727			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%	Upper 95,0%
Intercept	0,1	0,125499	0,796819	0,434914	-0,161786335	0,361786	-0,16179	0,361786
X Variable 1	0,15	0,169926	0,882735	0,387867	-0,204460373	0,50446	-0,20446	0,50446

Network GIS analyse: An identifying of service areas for emergency rescue

(within 15 minutes – 22,5 km),
if estimated speed is in average
90km/h)

Only municipality Ipolytarnóc (HU) of
Group B was outside of accessibility for
ambulance to 15 minutes.



Group A + (more successful partnership)

Drégelypalánk, Ipolyvece, Ipeľské Predmostie, Balog nad Ipl'om



Fig.: Footbridge between village Ipeľské Predmostie (SK) and Drégelypalánk (HU)



Fig.: Observation tower near to village v Ipolyvece (HU) and near to wetlands of river Ipeľ (Natura 2000, Ramsars Convention)



Fig.: Duplicate of Hungarian crown, which was created thanks to gifts of inhabitants from village Balog nad Ipl'om.(SK)

Sources of pictures:

<http://www.dregely-erdeiskola.hu/hid.jpg>

http://kep.cdn.index.hu/1/0/519/5194/51943/5194340_49e719ac491502675b8110595a02e82a_wm.jpg

<http://static.panoramio.com/photos/large/121663438.jpg>

http://www.smato.sk/gallery/koruna_0000.jpg

Group B - (municipalities as competitors)

Ipolytarnóc, Rapovce, Kalonda



Fig.: Geopark
Nógrád, Ipolytarnóc
(HU)



Fig.: Cableway,
ipolytarnóc (HU)



Fig.: Bathing pool with sea
thermal water, Rapovce (SK)

Sources of pictures:

<http://osmaradvanyok.hu/uploads/images/gal%C3%A9ria/lombsetany/lombsetany3.jpg>

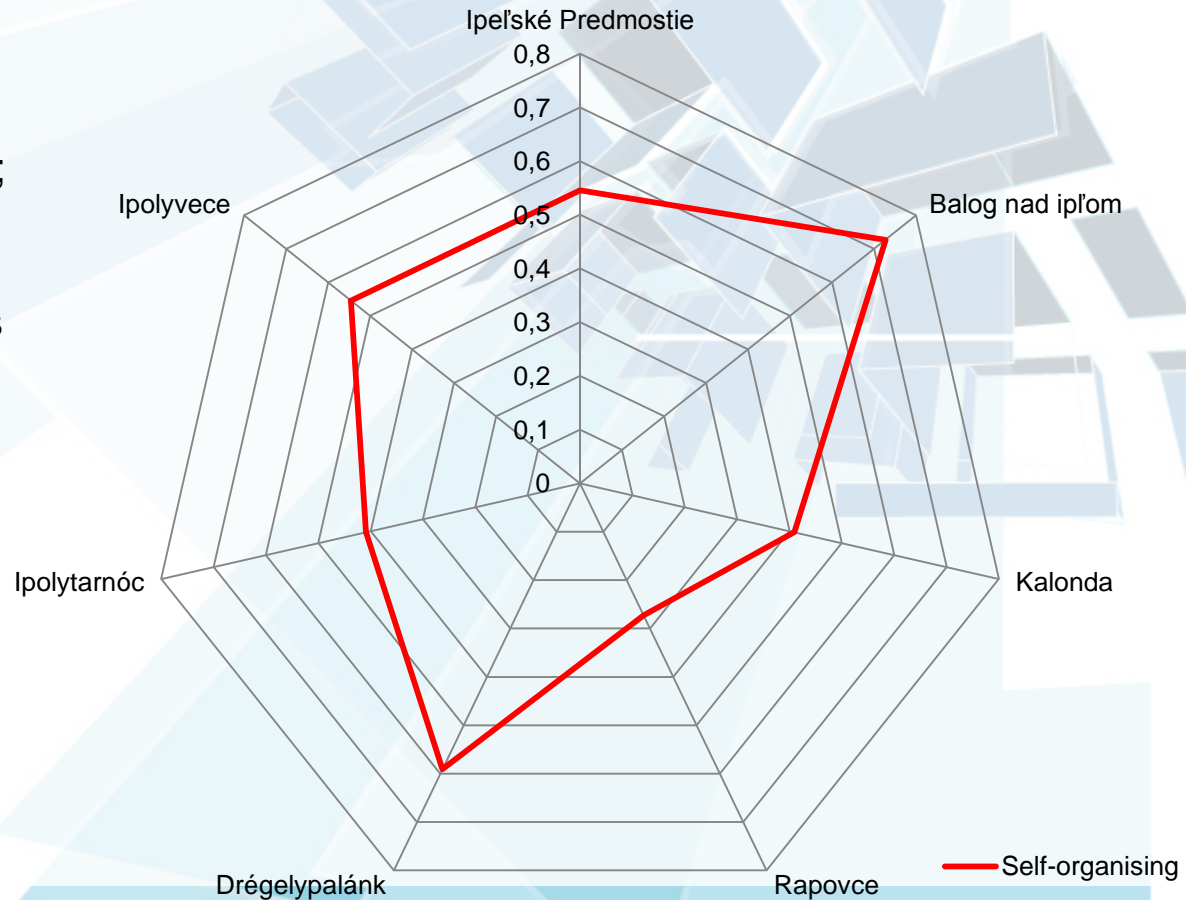
http://sk.gotohungary.com/site/upload/2015/12/Ipolytarnoc_labnyom.jpg

http://www.kamnavylet.sk/images/goals/1065/large_3516.jpg?1406893511

Self-organising capacity (in development proces)

Elements for the evaluation:

- Solidarity;
- Support of identity by municipality;
- Support of new investors/inhabitants;
- Public discussions with authorities of municipality and with stakeholders of nature;
- Accessibility to information;
- Satisfaction with public services;
- Qualitative evaluation of cross-border partnerships;
- Qualitative evaluation of public-private partnerships



+Balog n. Ipľom and Drégelypalánk
- Ipolytarnóc, Rapovce and Kalonda

„Aspects of internal social and human capital“

Concluding remarks:

- Need for shared responsibility of all municipalities in given region
- Need for diversity of measures against disturbances
- Need for feedback and communication, including non-formal communication patterns, common planning culture, readiness to cooperation, mutual trust, sense of togetherness...
- Need for management based on the detailed knowledge of local specifics and peculiarities
- Need for sharper focus on public services in the peripheral municipalities, with the special attention dedicated to vulnerable groups of citizens...