COMPARABLE SOCIAL VULNERABILITY PROFILING CASE STUDY: CROATIA



Empowered lives. Resilient nations.

PRESENTATION OUTLINE

Background info - Croatia

Flooding 2014

CSVP methodology

CONCLUSIONS

Understanding Risk Forum 2016 Venice, 18 May 2016

CASE STUDY INTRODUCTION

Republic of Croatia Size: 56.542 km² **Population:** 4.284.889 (census 2011) Territorial division: City of Zagreb (capital) and 20 counties (regions)



DISASTER RISK DOCUMENTS in CROATIA

Republic of Croatia HAZARD ASSESSMENT (March 2013)

Problem: NO SOCIAL VULNERABILITY DATA

(note that as of November 2015 Republic of Croatia has new RISK ASSESSMENT however this problem was not solved)

Republic of Croatia PROTECTION AND RESCUE PLAN (July 2010)

Problem: NO CONTINGENCY PLANNING IN TERMS OF SOCIAL VULNERABILITY

(the only remote mention of social vulnerability within a document of 79 pages is that evaucuation lists of vulnerable groups shoud be made with info on: pregnant women, mothers with children of up to 12 y/o, children of up to 15 y/o, persons with special needs, sick, helpless, imobile and older than 75 y/o)

GENERAL PROBLEM:

LACK OF STANDARDIZED SOCIAL VULNERABILITY METHODOLOGY

Source: http://www.duzs.hr/page.aspx?PageID=571

BACKGROUND:

MAY 2014

2 weeks of heavy rain

Highest ever recorded peeks of River Sava

13.000 persons at risk





RESULT:

Flooded area 18 May 2014

3 villages completely flooded 3 villages partially flooded 2 fatalities 11.172 buildings/ houses flooded 8.635 evacuated







COULD WE HAVE REACTED BETTER IN TERMS OF PROTECTION AND RESCUE IF WE HAD MORE ACCURATE DATA ON SOCIAL VULNERABILITY?

COMPARABLE SOCIAL VULNERABILITY PROFILING (CSVP) – CASE STUDY CROATIA

Recommendations/Guidelines for development of Social Vulnerability Methodology in Croatia are to first and foremost rely on two important pillars and those are: <u>data Simplicity and Comparability</u>.

Based upon widely accesible and standardized data as per <u>Census of</u> <u>Population, Households and Dwellings in Croatia 2011</u>

VULNERABILITY DATA INDICATORS

CSVP variables selection/principles

Once the Census 2011 data is collected it can be summarized using basic percentages and proportions to compare and contrast areas.

- Age (Av)
- Gender (Gv)
- o Education (Ev)
- Minorities (Mv)
- Income (Iv)
- Disability/Dependency (Dv)
- > **No pondering** (values added) to indicators
- Plus sign "+" and red color stand for more vulnerability and minus sign "-" and green color stand for less vulnerability

VULNERABILITY DATA INDICATORS (Av, Gv, Ev)



VULNERABILITY DATA INDICATORS (Mv, Iv, Dv)



>calculating respective vulnerability variables and creating an overall vulnerability table:

AGE variable (Av)
GENDER variable (Gv)
EDUCATION variable (Ev)
MINORITY variable (Mv)
INCOME variable (Iv)
DISABILITY variable (Dv)

OVERALL CSVP FOR GUNJA MUNICIPALITY										
MUNICIPALITY	VULNERABILITY	A(v)	G(v)	E(v)	M(v)	l(v)	D(v)			
Gunja	+	34.03%	52.73%	63.85%	34.16%	43.59%	17.68%			
	-	65.97%	47.26%	36.15%	60.12%	56.4%	82.31%			

➢When all the vulnerability variables are mathematically calculated they are all included in one overall table representing Comparable Social Vulnerability Profile of respective municipality/city/county

Step two

Comparing respective vulnerability tables (municipalities/cities/counties)

➢Vulnerability variables are presented in percentage of respective category within a total number of population, those variables that are increasing the level of vulnerability are being compared (marked with plus sign "+"and red color).

Community having 4,5 or 6 increased vulnerability categories attached, and is therefore recognized as more vulnerable (as oppose to the community with 1 or 2 higher vulnerability categories in its favor is recognized as less vulnerable).

CSVP COMPARABILITY: ILOK vs GUNJA										
CSV profile	A(v) G(v) E(v) M(v) I(v) D(v) VULNERA									
	+	-	-	-	-	+				
llok	35.7%	48.53%	59.57%	22.4%	34.96%	20.67%	-			
Gunja	34.03%	52.73%	63.85%	34.16%	43.59%	17.68%	+			
	-	+	+	+	+	-				

CSVP COMPARABILITY: VINKOVCI vs ZAGREB												
CSV profile	A(v)	A(v) G(v) E(v) M(v) I(v) D(v) VULNERABILITY										
	+	-	-	+	+	+						
Vinkovci	32.97%	52.22%	53.65%	6.84%	37.59%	16%	+					
Zagreb	25.17%	53.25%	55.34%	5.26%	28.41%	14.49%	-					
	_	+	+	_	_	_						

Step three

> Comparing respective vulnerability tables against common denominator

To determine vulnerability levels between respective communities within one area, all the results derived from respective vulnerability tables need to be compared with the common denominator.

If the respective community vulnerability variable is higher than the reference vulnerability variable it gets marked with red color; in the opposite case it gets marked with green color meaning that with that particular variable community is lower vulnerable than its reference point (county/state).

Overall community vulnerability when cross-referenced to the common denominator is determined in the following manner:

"low vulnerability communities" "medium-low vulnerability communities" "medium vulnerability communities" "medium-high vulnerability communities" "high vulnerability communities"

CSVP comparability table County 1-7										
CSV profile	A(v)	G(v)	E(v)	M(v)	l(v)	D(v)	RESULT		CSVP	
Community 1	+	+	+	+	+	+	0	+6	H	
Community 2	-	+	+	+	+	+	-1	+5	H	
Community 3	-	-	+	+	+	+	-2	+4	M-H	
Community 4	-	-	-	+	+	+	-3	+3	М	
Community 5	-	-	-	-	+	+	-4	+2	M-L	
Community 6	-	-	-	-	-	+	-5	+1	L	
Community 7	-	-	-	-	-	-	-6	0	L	

Vulnerability variables marked with red color (0 to +6). Vulnerability variables marked with green color (0 to -6).

CSVP comparability table Lika-Senj County										
CSV profile	A(v)	G(v)	E(v)	M(v)	l(v)	D(v)	RESULT		CSVP	
	1	1								
Lika-Senj	43.96%	50.23%	57.67%	14.76%	29.34%	20.65%	RI	REFERENCE		
			1							
Lovinac	50.55%	48.16%	61.47%	16.48%	23.04%	18.67%	-3	+3	М	
Brinje	40.69%	50.58%	67.69%	6.54%	35.04%	25.49%	-2	+4	M-H	
Donji Lapac	38.76%	49.69%	57.31%	80.97%	18.22%	18.84%	-5	+1	L	
Gospić	37.23	50.33%	56.43%	6.02%	30.83%	20.21%	-4	+2	M-L	
Karlobag	40.13%	50.49%	54.42%	4.14%	24.54%	23.45%	-4	+2	M-L	
Novalja	37.1%	49.3%	52.01%	3.38%	30.74%	14.14%	-5	+1	L	
Otočac	37.49%	49.99%	42.11%	7.83%	32.51%	20.09%	-5	+1	L	
Perušić	46.1%	49.7%	67.32%	8.91%	25.44%	25.36%	-3	+3	М	
Plitvička J.	37.34%	51.13%	57.42%	28.17%	30.76%	18.39%	-3	+3	М	
Senj	34.88%	50.61%	52.98%	2.3%	27.67%	16.42%	-5	+1	L	
Udbina	42.74%	50.43%	63.98%	52.35%	22.41%	26.31%	-2	+4	M-H	
Vrhovine	40.19%	50.76%	57.06%	80.96%	21.87%	14.12%	-4	+2	M-L	

	1	MEDIUM	N/I_I	D /	MEDIUM	N.4. 1.1		
LOW	L	LOW	IVI-L	IVI	HIGH		пібп	

CSVP LESSONS LEARNED / CONCLUSIONS

> DATA AVAILABILITY

 if no adequate data available from census you could consider other other sources or even conducting your own researches

> SIMPLICITY

 especially recomendable during the introductory phase as overly complicated solutions might not be accepted

> COMPARABILITY

- social vulnerability data will not serve its purpose if they cannot be compared against each other
- POLITICAL WILL (THERE IS TIME AND PLACE FOR EVERYTHING)

CSVP CROATIA MAP

Thank you!



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Krunoslav Katic

