Coordinating partner:	IGRAC		
Person(s) in charge for the data management:	Name:	Mihai MICU	
	email address:	mikkutu@yahoo.com	
	Tel No.	0040726560537	

STUDY AREA: Buzau County			
Country:	Romania	Location:	Curvature Carpathians-Romanian Plain, 110 km NE of Bucharest
Scale:	☒ Single slide	☐ Catchment	☒ Regional
Reference geographical coordinates	NNW corner: E 26°23'18'' N 45°48'11'' SSE corner: E 27°07'53'' N 44°44'04''	Google Earth™ kml file submitted with this form:	☒ Yes ☐ No

DATA OWNERSHIP & STAKEHOLDERS		
Data owner:	IGRAC	
Owner contact data (optional):	IGRAC; some landslides within the inventory are based on the Emergency Situation Inspectorate (Civil Protection) data-base (they are stakeholders and end-users); National Institute of Hydrology and Water Management: river gauging stations data; National Meteorological Administration: climatic data for 2 weather stations	
Owner is (or is interested in becoming) end-user of CHANGES:		☒ Yes ☐ No
Confidentiality/ Access to data	☐ Public (full access and deployment) ☒ Not Public (specify whether authorization is already available/requested): climatic and hidrologic data should be requested, IGRAC has used them in a previous project but only for that project's purposes	
Stakeholders:	Buzau County Emergency Situations Inspectorate (Civil Protection) Buzau County Prefecture Buzau County Council Municipalities of Patarlagele and Nehoiu	
Case study is suitable for (check relevant box, TA refers to Topic Actions in Changes):	☐ TA1.1 Inventory of approaches /case studies on the analysis of changes in risks ☒ TA1.2 Climate change models & expected changes in triggering conditions ☒ TA1.3 Probabilistic models for flood hazard assessment ☒ TA1.4 Probabilistic models for landslide hazard assessment ☒ TA2.1 Current vulnerability situation based on historical developments ☒ TA2.2 Expected changes in ecosystems and land use patterns ☒ TA2.3 Uncertainties in vulnerability of infrastructure, buildings and land use ☒ TA3.1 Inventory of software tools for probabilistic risk assessment ☒ TA3.2 Probabilistic risk assessment of hydro-meteorological hazards ☐ TA3.3 Web-based environment for probabilistic risk assessment	

	☒ TA3.4 Risk scenarios and risk maps in the study areas ☐ TA4.1 Inventory of risk management strategies in Europe ☐ TA4.2 Risk information in Strategic Environmental Assessment / spatial planning ☒ TA4.3 Cost-benefit analysis for the planning of risk reduction measures ☒ TA4.4 Emergency preparedness and early warning scenarios ☐ TA4.5 Internet-based Decision Support System for change-proof planning ☒ TA5.1 Risk governance strategies for different EU countries ☒ TA5.2-5.3-5.4 Web-based risk communication and visualisation tool

LANDSLIDE DATA / INFORMATION			
Historical data:	☒ Yes ☐ No	If yes, specify (including time span): - Event database (including damage): accurate for 2005 – 2010 (on going); in progress for 1960-2005 - Mitigation works database: 2000 – 2010 (on going)	
Movement type:	☒ Falls ☐ Topples ☒ Slide rotational ☒ Slide translational ☐ Spreads ☒ Flows ☒ Complex	Material:	☒ Rock ☒ Debris ☒ Earth ☐ Other (specify):
		Type of occurrence	☒ First time ☒ Recurrent ☒ Reactivation
Triggering mechanism	Rainfall, snowmelt, seismic acceleration		
Average velocity:	Variable according to the type of processes: - mud flows : usually 10-20 m/h up to 100 m/h - shallow landslides: up to 10 m/month - deep-seated debris-slides: very variable		
Landslide geometry:	Thickness (m)	Very variable according to the type of process	
	Surface* (m^2)	Very variable according to the type of process	
	Volume (m^3)	Very variable according to the type of process	
Run-out:	Height (m)	Very variable according to the type of process	
	Distance (m)	Very variable according to the type of process	
Area extension Number of active mass movements	Surface (km^2) Nbr.	6100 More than 2000-3000 (no final inventory available).	
Further notes:	-		

* For multiple or regional system, specify the overall area extension

FLOOD DATA / INFORMATION			
Historical data:	☒ Yes ☐ No	If yes, specify (including time span): - Event database (including damage): 1950 – 2010 (in progress) - Mitigation work database: 1950 – 2010 (in progress)	
Monitoring data:	☐ Water height ☒ Discharge ☒ Water velocity ☐ Fluid concentration ☐ Other:	Records on flood event:	☒ Map of flood extent ☐ Map of damage ☐ Other: ....
Number of stations:	4 river gouging stations	Type of occurrence	☒ Years ☒ Decades
Triggering:	Rainfall, snowmelt		

Area extension Number of recorded floods	Surface (km²) Nbr.	6100
Further notes:		

DATA ON CONDITIONNING FACTORS				
Topographic maps:	☒ Yes ☐ No	If yes, specify :	Scale(s): TopoMap25 (1/25000) TopoMap10 (1/10000)	Year(s): 1940, 1970, 1980, 1989 1970, 1980
Digital Elevation Model	☒ Yes ☐ No	If yes, specify:	Resolution and accuracy: Digital Terrain Model (30 m grid, improved SRTM); for sale DTM at 10 m grid, aerial-photos (2005) derived	
Optical, airborne / satellite images:		☒ Yes ☐ No	If yes, specify coverage and date: - Aerial airborne orthophotographs (1960, 1970, 1980, 1990, 2005) – for sale (IGRAC purchased less than 10% of the area) - Landsat ETM (TM30m & P15m) (2000, 2004)	
Radar, satellite images:		☐ Yes ☒ No	If yes, specify type (technique), scale and date:	
Ground-pictures of the area of interest		☒ Yes ☐ No	Scanned and on paper	

Geology and geomorphology: (available on several sites)	☒ Yes ☐ No		- Geological map (some 1/50000; entirely 1/100000, 1/200000) - Map of soil (1/100000)
Geophysics: (available on several landslides)	☐ Yes ☒ No		
Geotechnical data: (available for several sites and several soil types)	Site: ☐ Yes	☒ No	
	Lab: ☒ Yes	☐ No	- Physical identification (grain size, Atterberg, density, etc) - Triaxial tests (drained, undrained)
Groundwater:	☐ Yes ☒ No		-
Thematic conditioning factors map:	☒ Yes ☐ No		- Geomorphologic map 1/100,000 (region); 1/5000 to 1/500 (local sites) - Geomorphodynamic map: 1/500 (one local site) - Lithology map 1/100,000 - Tectonic map 1/100,000 - Hydrological map 1/25,000 (stream, spring, lake, etc) - Landcover map (1990, 2000, 2006) - Forest map (including tree characteristics) 1/100,000

DATA ON TRIGGERING FACTORS		
Rainfall data:	☒ Yes ☐ No	- 2 weather stations (period 1960-ongoing) Climate change data available (scenario A1B, IPCC), Period of simulation: 2010-2100

Temperature data:	☒ Yes ☐ No	- 2 weather stations (period 1960-ongoing)
Humidity data:	☐ Yes ☒ No	
Earthquake strong motion data:	☒ Yes ☐ No	- seismic station at Vrancioaia, Bisoca, Pietroasele
Monitoring and/or early warning systems:	☐ Yes ☒ No ☐ Envisaged	

DATA ON ELEMENTS AT RISK & DATA ON LAND PLANNING		
Elements at risk (specify): Roads, bridges, buildings, located on or near active landslides, on active torrential cones and in the floodplain Data available: - Element at risk map (including attributes of the elements at risk) – 1/100,000 - Data on damages on elements at risk - Fragility functions and value of some category of buildings		
Human losses (death and injuries) due to previous events:	☐ Yes ☒ No	If yes, quantify:
Economic loss due to previous events:	☐ Yes ☒ No	If yes, quantify
Social consequences due to previous events:	☒ Yes ☐ No	Relocation of some inhabitants, destruction of housing, destruction or closing of roads
Mitigation (already performed or envisaged):	☒ Yes ☐ No	Structural – Water drainage, reforestation for landslides; Rivers dykes for floods
Land planning already established for the case:	☐ Yes ☒ No	

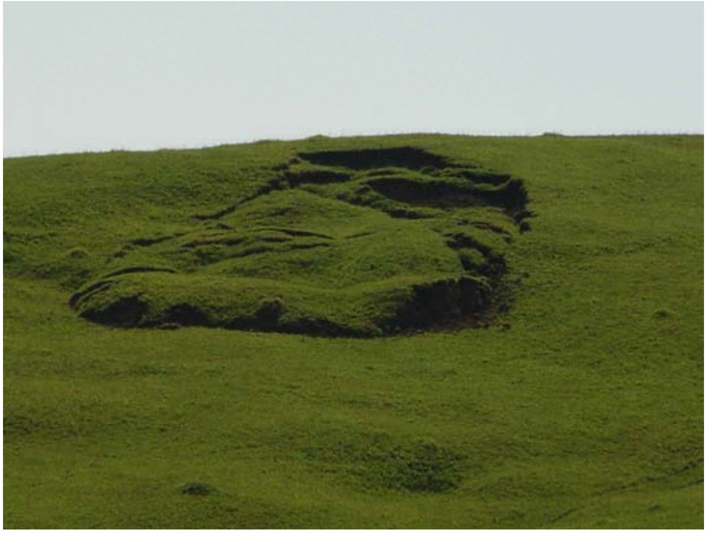
NUMERICAL MODELLING / RISK ANALYSES		
Numerical modelling (already done):	☐ Yes ☒ No	
Risk analyses (already carried out)	☐ Yes ☒ No	

REFERENCES	
References (papers and other published material, www site), specify:	1. Bălteanu, D, Micu, M. (2009) *Landslide investigation: from morphodynamic mapping to hazard assessment. A case-study in the Romanian Subcarpathians: Muscel Catchment,* in vol.: Landslide processes: from geomorphologic mapping to dynamic modeling, CERG Editions, Strasbourg , France . 2. Constantin, M., Trandafir, A.C., Jurchescu, M.C., Ciupitu, D. (2009), *Morphology and environmental impact of the Colți-Aluniş landslide (Curvature Carpathians, Romania)*, Environmental Earth Sciences, Ed.

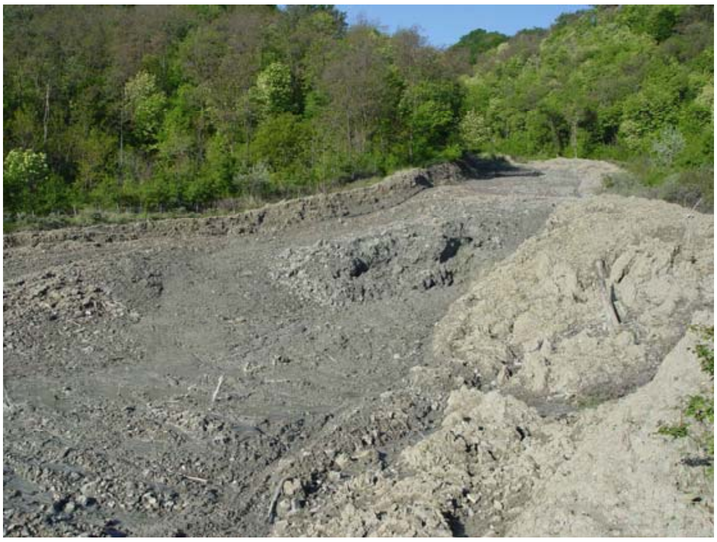
	Springer, Volume 59, Issue 7 (2010), page 1569, DOI 10.1007/s12665-009-0142-1 http://www.springerlink.com/openurl.asp?genre=article&id=doi:10.1007/s12665-009-0142-1 3. Constantin M., Jurchescu M., Fujisawa K., Ishida K. (2009) *The estimation of the slip plane at the Colți-Aluniş landslide (Buzău Mountains, Romania) using ground surface displacements measurements,* in "Analele Universității din Oradea", seria Geografie, tom XIX, (http://journals.indexcopernicus.com/karta.php?action=masterlist&id=3951) 4. Constantin M., Bednarik M., Jurchescu M.C., Vlaicu M. (2010) *Landslide susceptibility assessment using the bivariate statistical analysis and the index of entropy in the Sibiciu Basin (Romania)* Environmental Earth Sciences, Ed. Springer,DOI: 10.1007/s12665-010-0724-y http://www.springerlink.com/content/agx48w20q52h543n/. 5. Dragotă, Carmen, Micu, M., Micu, Dana (2008), *The relevance of pluvial regime for landslides genesis and evolution. Case-study: Muscel Basin (Buzău Subcarpathians), Romania* , în *Present Environment and Sustainable Developmen*t, vol. 2, Iaşi . 6. Micu, M., Bălteanu, D. (2009) *Landslide hazard assessment in the Curvature Carpathians and Subcarpathians , Romania ,* Zeitschrift fur Geomorphologie, Suppl.3, 53, Stuttgart, Germany 7. Micu, M., Vespremeanu-Stroe, A., Cruceru, N., (2006) *The 3D analysis of Valea Viei mudflow morphodynamics, Buzău Subcarpathians*, Revista de Geomorfologie, Bucureşti, Nr. 8, p. 95-109, 7 fig. 8. Micu M., Chendeş V., Sima M., Bălteanu, D., Micu, D., Dragotă, C.(2010), *A multi-hazard asssessment in the Bend Carpathians of Romania,* in vol. (Eds: Glade, T., Casagli, N., Malet, J.P) *Mountain Risks: bringing science to the society*, CERG Editions, Strasbourg. 9. Sandu, Maria, Micu, M.(2008) *Morphostructure and Morphology in the Bend Carpathians and Subcarpathians. Trotuş – Teleajen Sector*, Revue Roumaine de Geographie, Tomes 49-52, 2005-2008.

The case history has been considered in other research projects?	☒ Yes ☐ No	FP6 CLAVIER

GENERAL COMMENT & PICTURES
Add a serie of photographs of the study areas:

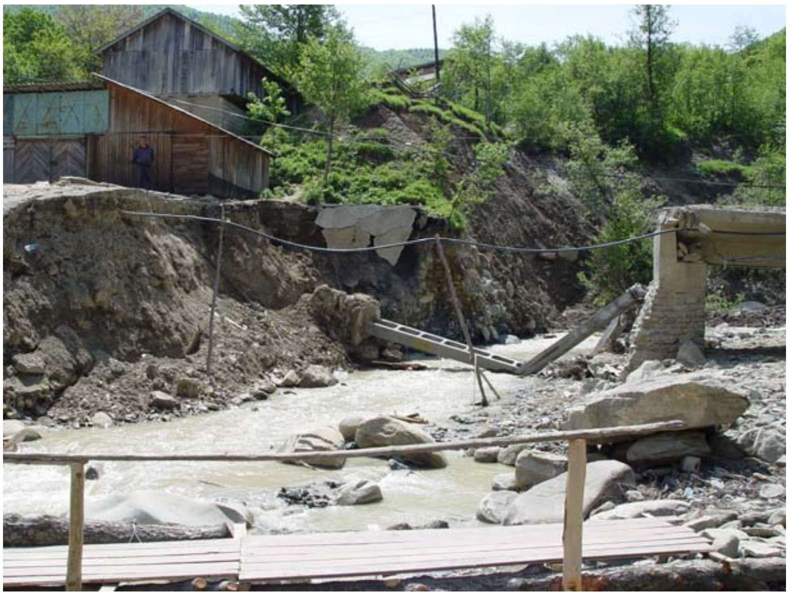

Shallow slide


Chirlesti mudflow


Chirlesti mudflow

Siriu deep seated landslide (Siriu reservoir)

Rockfalls along Siriu reservoir and national road 10



Nehoiu small catchment: flash flood effects