

# Overview of activities of the JRC-hosted European landslide expert group and objectives of the meeting

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- The European Soil Thematic Strategy and the associated Proposal for a Framework Directive on the protection and sustainable use of soil (2006) calls for specific strategies for **risk area delineation** and **mitigation measures** management of eight major soil threats including also landslides
- For five soil threats including landslides, the Soil Information Working Group (SIWG) of the European Soil Bureau Network (ESBN) developed a uniform framework for risk area assessments where hierarchically ordered, nested geographical analysis schemes ("**Tiers**") are envisaged
- In this common framework, the European landslide experts group hosted by JRC suggested the generation of a **European-wide landslide susceptibility map** and other **susceptibility maps at national or regional scales**

# General landslide susceptibility mapping approach

- Based on geographically nested approaches (Tiers)
- Two main Tiers: Tier 1 and Tier 2, ranging from smaller to larger scale mapping:
  - Areas identified as of higher susceptibility in small-scale Tier 1 are assessed and mapped at larger scale and higher accuracy in Tier 2
- A possible Tier 3 approach in high-susceptibility areas identified in Tier 2

- Tier 1

- Production of a preliminary map over Europe at 1:1 Million scale and 1 km grid cell using a heuristic approach (see A. Günther's presentation)
- Experiment for France using a heuristic approach: a few departments mapped at 1:1 Million scale (see J.-P. Malet's presentation)

- Tier 2

- Experiment for Italy using a (multivariate) probabilistic model with data at 1:1 Million (see P. Reichenbach's presentation)

- Günther, A., Hervás, J., Reichenbach, P., Malet, J.-P., 2010. Progress in landslide susceptibility mapping over Europe using Tier-based approaches. Geophysical Research Abstracts, Vol. 12, EGU2010-15275.
- Günther, A., Reichenbach, P., Hervás, J., 2009. Approaches for delineating areas susceptible to landslides in the framework of the European Soil Thematic Strategy. Proc. First World Landslide Forum, Tokyo, 18-21 November 2008, pp. 235-238.
- Hervás, J. (Ed.), 2007. Guidelines for Mapping Areas at Risk of Landslides in Europe. Proc. Experts Meeting, Ispra, Italy, 23-24 October 2007. JRC Report EUR 23093 EN, Office for Official Publications of the European Communities, Luxembourg, 53 pp.
- Hervás, J., Günther, A., Reichenbach, P., Guzzetti, F., Chacón, J., Pasuto, A., Trigila, A., Malet, J.-P., Tagliavini, F., 2008. Towards a common approach for mapping areas susceptible to landslides in Europe. Geophysical Research Abstracts, 10, EGU2008-A-12200.
- Malet, J.-P., Thiery, Y., Hervás, J., Günther, A., Puissant, A., Grandjean, G., 2009. Landslide susceptibility mapping at 1:1M scale over France: exploratory results with a heuristic model. Proc. Int. Conf. on Landslide Processes: from Geomorphologic Mapping to Dynamic Modelling, 6 -7 February 2009, Strasbourg, France. CERIG Editions, Strasbourg, pp. 315-320.

- JRC Work Programme 2010: “Delivery of a landslide susceptibility map for Europe (“Tier 1”) and recommendations for national- and regional-level maps from successive Tiers” (as a collaborative effort of the JRC-hosted European landslide experts group) by December 2010
- ICL-IPL (International Programme on Landslides of the International Consortium on Landslides) project “Tier-based harmonised approach for landslide susceptibility mapping over Europe”, submitted in 2009 as a joint activity of the JRC-hosted European landslide experts group

- Title: Tier-based harmonised approach for landslide susceptibility mapping over Europe
- Objectives:
  - Produce a Europe-wide landslide susceptibility map
    - ✓ using already available datasets for the whole of Europe
    - ✓ using a common approach
  - Identify areas in Europe where more detailed landslide susceptibility mapping is required
    - ✓ using a common quantitative methodology

- Present the status of work within the expert group on landslide susceptibility assessment using Tier-based approaches (Tier 1 and 2)
- Discuss further work to complete the Tier 1 landslide susceptibility map for Europe within 2010, defining a work plan and output
- Discuss complementary initiatives for Tier 1 in some EU countries
- Discuss further work on Tier-2 models and data for selected EU countries or regions



## Some topics for discussion (1)

- General approach
  - Model
  - Mapping unit
  - Previous geographical segmentation based on topographical, structural or other area properties
  - Landslide factor data used including newly available datasets
  - Generation of a generic landslide susceptibility map versus generation of maps for major landslide types (e.g. rockfalls/topples and other landslide types) and possible further integration into a unique map, etc.
- Model calibration and validation: availability and use of (non-harmonised) inventory data
- Selecting Tier 1 or Tier 2 at national level for selected countries

## Some topics for discussion (2)

- Output
  - Map (digital and printed versions)
    - ✓ Coverage and projection
    - ✓ Representation/symbology, including also background data
    - ✓ Ancillary information for the downloadable and printed version (authorship, methodology including data input, etc.)
    - ✓ Format(s)
  - Publications (in addition to minutes)
    - ✓ Peer-review article(s)
    - ✓ Conference papers
    - ✓ Report to ICL-IPL
    - ✓ EUR Report?

## Some topics for discussion

- General approach
  - Application in areas identified in Tier 1 versus country-wide application
  - Model
  - Mapping unit
  - Previous geographical segmentation based on topographical, structural or other area properties
  - Landslide factor data used
  - Generation of a generic landslide susceptibility map versus generation of maps for basic landslide types (e.g. rockfalls/topples and other landslide types) and possible further integration into a unique map, etc.
- Model calibration and validation
- Harmonisation and interoperability issues for different countries