



## **ENSURE PROJECT**

*Contract n° 212045*

# **ENSURE E-LARNING TOOL**

## **Sol07a**

### **Working on the assessment process**

### **Reading the assessment steps in Ilia case study**



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## Working on the assessment process

### Iliia case study ENSURE\_DeI5.3.1

#### Synthesis of the working sequence

See also file F31 in module 2 *Methodological framework for an Integrated multi-scale vulnerability and resilience assessment*

#### 1. General presentation

- ✓ Brief description of the region, identification of the main hazards, reasons for the selection of the region.
- ✓ Geographic maps and administrative organization.
- ✓ Identification of needed data and of data collection sources. The study mostly refers to two collection methods:
  - creation of appropriate data bases from statistical compendia
  - interviews with public officials at the local and regional level, as well as with competent staff of Public Utility companies

#### 2. Hazards characterization

- ✓ Identification of “local” hazards, that is of all natural and na-tech hazards affect the region concerned.
- ✓ Description of the main characteristics of each type of hazard: where, with which return time, examples (when/where), with what dynamics, affecting which territorial elements, subjects and activities, with which impacts (hazard scenarios). Notice the use of existing risk/hazard maps, tables of data and graphs.
  - Forest fires
  - Floods
  - Seismic hazards

#### 3. Socio-economic settings of the case study

- ✓ Selection and description of some main indicators describing the socio-economic elements and values exposed to hazards. These are the basics to understand the potential impacts of hazards in the exposed region and how fragile some elements, subjects and activities could be facing different danger profiles produced by different events.
- ✓ Indicators: GDP, population age, characteristics of production sectors (agriculture, industry and services), employment and unemployment, education, ecological system.

#### 4. Introduction to the assessment process

- ✓ Brief description of how each hazard will be “processed”, with elements explaining the assessment criteria which will be applied.

- Forest fires
- Floods
- Seismic hazards

## 5. Mitigation capacity

**From file F31, chapter 2.3** *“In the first set of matrices, the capacity to mitigate is addressed; this means concretely that the vulnerability of the natural environment, the characteristics of the hazard are known, mapped and monitored appropriately. With respect to the vulnerability of objects and artefacts what is checked here is whether or not vulnerability assessment has been carried out and taken into consideration in planning and risk prevention policies; in the case of critical facilities, not only the awareness of systemic vulnerability is addressed but also the capacity to reduce it in ordinary maintenance programs should be envisaged and new facilities or replacement of existing ones must be considered. With respect to agents, their awareness of existing threats and fragilities is assessed as well as their willingness/capacity to address them when the hazard does not seem to impede in any particular fashion and time has passed since the last catastrophic event”*.

- ✓ Application of the ENSURE project vulnerability assessment matrices for each hazard.
  - Forest fires
  - Floods
  - Seismic hazards
- ✓ For each hazard four assessment framework are considered
  - Natural environment
  - Built environment
  - Infrastructures and production sites
  - Social system
- ✓ Notice which aspects, parameters/indicators, criteria, descriptors for assessment have been selected for each sector.
- ✓ Notice here the selection of weight (importance associated with each criterion in the assessment process) and the assignment of scores (importance ranking associated with the result of the measurement)
- ✓ Notice the result of the application of the method to the region concerned in the last column “Application to the Ilia case study”
- ✓ Notice the brief summaries for each sector, in which main elements, phenomena and dynamics can be underlined, both concerning the application of the method or the assessment results

## 6. Physical vulnerability

**From file F31, chapter 2.3:** *“In the second set of matrices, the physical propensity to damage of the natural environment, objects, critical facilities and people is assessed. All factors that may increase the potential damage are considered, including the possibility of enchainned effects, both between natural hazards (like for example landslides triggered by earthquakes) or between natural and vulnerable built systems (like for example na-tech)”*.

- ✓ The same steps as above
- ✓ Notice the production/use of maps: hazard maps, exposition maps, vulnerability maps
- ✓ Notice the use of data tables and graphs showing the characteristics and dynamics of elements with an impact on vulnerability (positive or negative) or exposed/vulnerable to hazards in the region concerned
- ✓ Notice the high potential impact of seismic hazards and events (earthquakes)

## 7. Systemic vulnerability

**From file F31, chapter 2.3:** *“In the third set of matrices, the potential reaction to first level losses is addressed: secondary effects in the natural environment, like for instance lahars or debris flows consequent to fires denuding entire slopes is considered. With respect to artefacts, urban areas and critical facilities, the capacity to keep functioning despite some level of physical damage is evaluated, considering the interdependencies among systems and among components of vital systems. With respect to agents, the capacity to manage emergencies, to endure in time of limited facilities and restricted access to resources and markets is considered.”*

- ✓ The same steps as above
- ✓ Notice the use of an integrated approach, with particular reference to physical infrastructures networks and interactions among territorial elements, subjects and activities

## 8. Resilience

**From file F31, chapter 2.3:** *“In the last set of matrices, the recovery potential is appraised. As for the natural environment the ecological resilience is referred to, particularly for those hazards like fire or drought that may significantly disrupt the natural environment itself with permanent damage. For buildings and cities, the capacity to embed the lessons learnt in the disaster while reconstructing artefacts and places is evaluated, as well as the capacity to couple the physical reconstruction with the symbolic one, accompanying the healing process of a traumatized social system. Regarding the latter, access to resources for reconstruction, availability of good administrative procedures, fast delivery of compensation are elements that seemed particularly relevant to recover in a satisfactory way. Fast access to compensation need not to be taken as an isolated indicator: the capacity to couple it to the control of how reconstruction will proceed and to what extent pre event vulnerabilities will be addressed is equally, if not more, important.”*

- ✓ Application of the ENSURE project resilience assessment matrices for each hazard.
  - Forest fires
  - Floods
  - Seismic hazards
- ✓ The same steps as for vulnerability assessment
- ✓ Notice the particular importance of social system in resilience assessment

## 9. Weaknesses and strengths of the Ensure framework

- ✓ Some points about the operational performance of the ENSURE project methodology. Useful for future research developments and operational application of the methodology in other regions.