

## D.3.2.2 – Survey report



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DI FANO



## Document Control Sheet

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## 1. Introduction

With deliverable 3.2.1 a survey was submitted to scientific partners. The scope of the survey was to identify and collect data available at project area level and consequently to share the best approach to assess the territorial hazards to salt intrusion in coastal aquifers.

The questionnaire was focused on the following point:

- Identification of information on human pressure (i.e. wells distribution, touristic pressure, etc.);
- Identification of information on natural hazard (as storm surge databases)
- Definition of practical aspects for the approach for the assessment (as the range of the area considered, etc.)

The activity is preparatory to the elaboration of a map of territorial hazards and consequently of vulnerability to salt intrusion in coastal aquifers. The scope of the map is to give a broad range idea of the risks of different areas in the northern Adriatic basin to the phenomenon of salt intrusion. This would be used in the upscaling of the evaluation obtained at case study level.

## 2. Distribution of questionnaires and answer received

Questionnaires have been submitted to partners on 04 September 2019. All partners have received the survey, and scientific partners involved in WP3 and WP4 were asked to answer.

A feedback on the survey was sent back from:

- Municipality of Ravenna;
- IAKR
- IGG-CNR
- Croatian Waters

The element included in the survey have been also presented and discussing during the Steering committee in Split (10/10/2019). To find a common position, some specific methodological aspects were discussed directly with some of the scientific partners.

## 3. Results

Based on survey results, on internal discussion and on desk research, the following approach for the elaboration of the map of risk to salt intrusion has been selected.

### Territorial limit.

- the map would be referred to the high Adriatic Sea, extended also to territories not directly pertaining to project partners.
- The distance from the coast to which the analysis is extended will be of 5 km. A grid of 1 km x 1 km would be used to analysed and combine information.

### Human pressure

- There is not uniform information on wells for the whole area of interest. In the first approximation, wells will be not included in the analysis. They will be considered and analysed at case study level.
- As proxy of overexploitation, an index of touristic pressure would be used. Information on population density will be also included in the analysis. In addition, the use of soil (Corine Land Cover) is introduced as further proxy of human pressure.

### Natural hazard

- Information on storm surge will be used as index of coastal hazard
- Coastal morphology and characteristics of aquifers will be included in the analysis

From the survey and following discussion, has emerged the necessity of find and share the useful information. A list of information needed has been shared with partners in order to collect the missing data.

## ANNEX 1: Survey template

### SECTION 1 - OPEN QUESTIONS

**Q.1.1** Do partners considers useful/necessary a further investigation on availability of data from Adriatic regions not covered by partners to complete the map at **Adriatic level**?

- Yes
- No

**Q.1.2** Which distance from the coast (and as a consequence, which dimension of the cell) is more appropriate to analysed the variables and to create the map?

- 5 km
- 2 km
- 1 km
- 500 m
- other (please, specify)

**Q.1.3:** Which is a definition of overexploitation that you consider appropriate for the analysis of hazards at regional scale?

### SECTION 2 - INFORMATION ABOUT WELLS

**Q.2.1** - Are you depositary of information on wells?

- Yes
- No

**Q.2.1.a)** If yes, please specify the information available:

- Localisation (x,y coordinates)
- capacity (as maximum capacity authorised)
- number of water supply systems connected
- uses (drinking water, agriculture, other)

**Q.2.1.b)** If not, are you aware of the existence of repositories or catalogues with the information above?

### **SECTION 3 - INFORMATION ON OVEREXPLOITATION**

**Q.3.1** - Are you aware of situations of overexploitation of wells?

- Yes
- No

**Q.3.1.a)** If yes, please specify the related information (including the localisation of wells)

**Q.3.1.b)** If not, are you aware of the existence of databases of such information?

### **SECTION 4 - INFORMATION ON EXTREME EVENTS**

**Q.4.1** Are you depositary of information on storm surges?

- Yes
- No

**Q.4.1.a)** If yes, please specify the information available:

- Geographical distribution of information
- Time range of information
- Specific information on single events

**Q.4.1.b)** If not, are you aware of the existence of repositories or catalogues with the information above?

## ANNEX 2: Synthesis of survey results

Question	Ravenna	IAKR	CNR	Croatian Water
Q.1.1 Need of map at Adriatic level	YES	NO	YES	YES
Q.1.2. Distance from the coast	500 m	20 km	5 km	5 km
Q.1.3. Definition of overexploitation	Output flux is greater than input flux	<i>n.a.</i>	The negative trend of groundwater level in appropriate monitoring wells/piezometers	<i>n.a.</i>
Q.2.1. Depository of information on wells	NO	NO	YES	NO
Q2.1.a Specification of available information on wells	<i>n.a.</i>	<i>n.a.</i>	Localisation coordinates, use (partially)	<i>n.a.</i>
Q.2.1.b existence of repositories or catalogue on wells	ARPAE-SAC for Emilia Romagna region	<i>n.a.</i>	partially	<i>n.a.</i>
Q.3.1. Situation of overexploitation of wells	NO	YES	NO	NO
Q.3.1.a Specify information on overexploitation	<i>n.a.</i>	One specific situation: <i>Doljani well</i>	<i>n.a.</i>	<i>n.a.</i>
Q.3.1.b Existence of database on overexploitation	Management plans at regional and basin level, with identification of each aquifer	NO	NO	NO



	according to its level of criticality.			
Q.4.1. Depository of information on storm surges	NO	YES	NO	NO
Q.4.1.a Specify information on storm surge	<i>n.a.</i>	Specific information on single events	<i>n.a.</i>	<i>n.a.</i>
Q.4.1.b Existence of database on storm surges	ARPA-SIM, (Hydro Meteorological Service of Emilia Romagna Environmental Agency)	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>