D.3.1.1 Network Design

Document Control Sheet

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INDEX

1. INTRODUCTION

Sharing of needs, available data, and results is a fundamental component in a collaboration dealing with a multifaceted problem such as salinization of coastal aquifers, which requires a fully integrated approach due to its complexity. Within the framework of the ASTERIS project, defining a well-functioning network of collaboration is a pre-requisite to the accomplishment of all the actions and goals subtended, particularly within WP3 and WP4 and, ultimately WP5. A continuous exchange of information is needed to second the interconnectedness between the themes and subthemes of the research actions carried out by the scientific partners and the land management by the territorial agencies in the three selected case studies. Besides plenary meeting, such as the kick-off meeting held in Urbino on March 28, 2019, which allowed a more general discussion of these matters, the appointment of responsible individual for each of the partners involved has allowed to gather a synergistic platform for the exchange of ideas through informal meetings (in person or by teleconference) which have been instrumental to define the basis for the subsequent design of an operational planning. This process has been arranged into a logical succession of steps, including the assessment of needs, the definition of the network of collaboration itself and a preliminary identification of the operations. For the sake of clarity, these are described separately in the following paragraphs.

2. Needs Assessment

This phase, designed to obtain a preliminary evaluation of the resources and tools (including IT resources) necessary to develop the work, has been conducted at three levels including:

Definition of the available data: an inventory of information on already available data will be an obvious prerequisite for the identification of need for data implementation, with particular reference to the monitoring of coastal aquifers in the three surveyed case studies (Fano

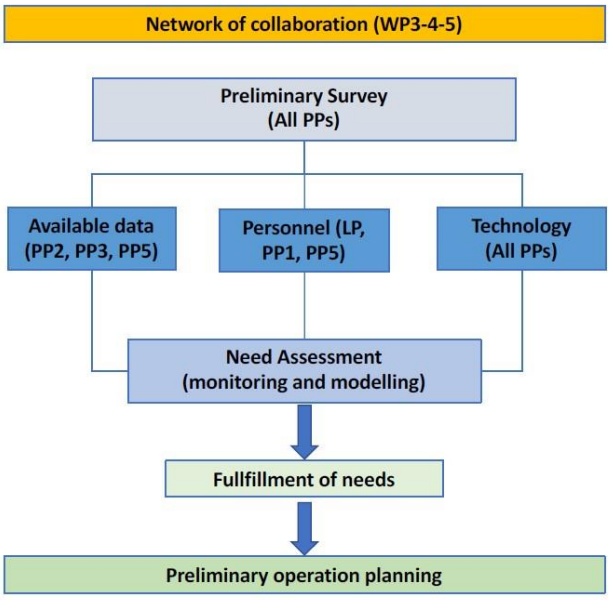
Municipality, Ravenna Municipality and Neretva Delta). The first action has been the definition of standard set of data deemed necessary for the accomplishment of the monitoring within the goal of the project. Subsequently, a first survey of available data has allowed defining the most suited areas to conduct the monitoring, based on the continuity and spectrum of the available time series.

Personnel: Similarly important has been the definition of responsibilities for different actions to be accomplished at the individual level by the personnel involved in each of the PPs in order to identify potential gap. The main need identified at this level concerns the definition of personel dedicated to the technical work in the implementation of the map of risk on one hand, and the collection of data in the field to create a continual link with the territorial agencies on the other hand. Two contracts of collaboration have been deemed necessary in this respect.

In-house IT facilities and technology: Based on the evaluation described on point a, carried out in collaboration between all the scientific partners and the territorial agencies involved the needs for data implementation in terms of areal coverage and technology have been defined. In-house facilities are sufficient for all analytical actions although needs are evidenced for the monitoring network. Importantly, the assessment of needs for actions related to the evaluation of future sea level scenarios is totally autonomous in this evaluation because it will be derived from a numerical simulation independent of the monitoring of the selected case studies. Main needs regard the field for which the integration the monitoring systems and monitoring tools, including and portable IT need to be partially integrated, predictably with different impacts for the three different areas.

3. Preliminary Evaluation of the Operations needed

The evaluation has been mainly focussed on operations needed to accomplish actions included in WP3 and WP4. One first basic operation is the definition of project standards that satisfy the scientific needs for a thorough monitoring of individual sites and, at the same time, allow the same analytical approach to be taken for all of them. This operation, which has already been accomplished, entails the need for the integration of the monitoring system as a follow-up operation.



The latter has been planned out at specific time intervals within the year in order to be representative of inter-seasonal fluctuations.

Practically, this will involve the scientific partners in the field, the territorial agencies for area of pertinence and the personnel under contract. At the same time, operations are to be taken on the modelling of future sea level scenarios. Territorial agencies will provide the necessary data as far as aquifer exploitation is concerned. The wealth of data and numerical simulation derived during these operations, together with already existing data will allow the development of a conceptual model of vulnerability for all the selected case studies. This operation will allow the identification of a best case study on which running a numerical simulation to create a comprehensive risk and vulnerability assessment. The succession of actions to eventually define a preliminary plan of operation is summarised in figure 1 as a conceptual map of the network design.