

# THE KINDRA H2020 PROJECT: A KNOWLEDGE INVENTORY FOR HYDROGEOLOGY RESEARCH

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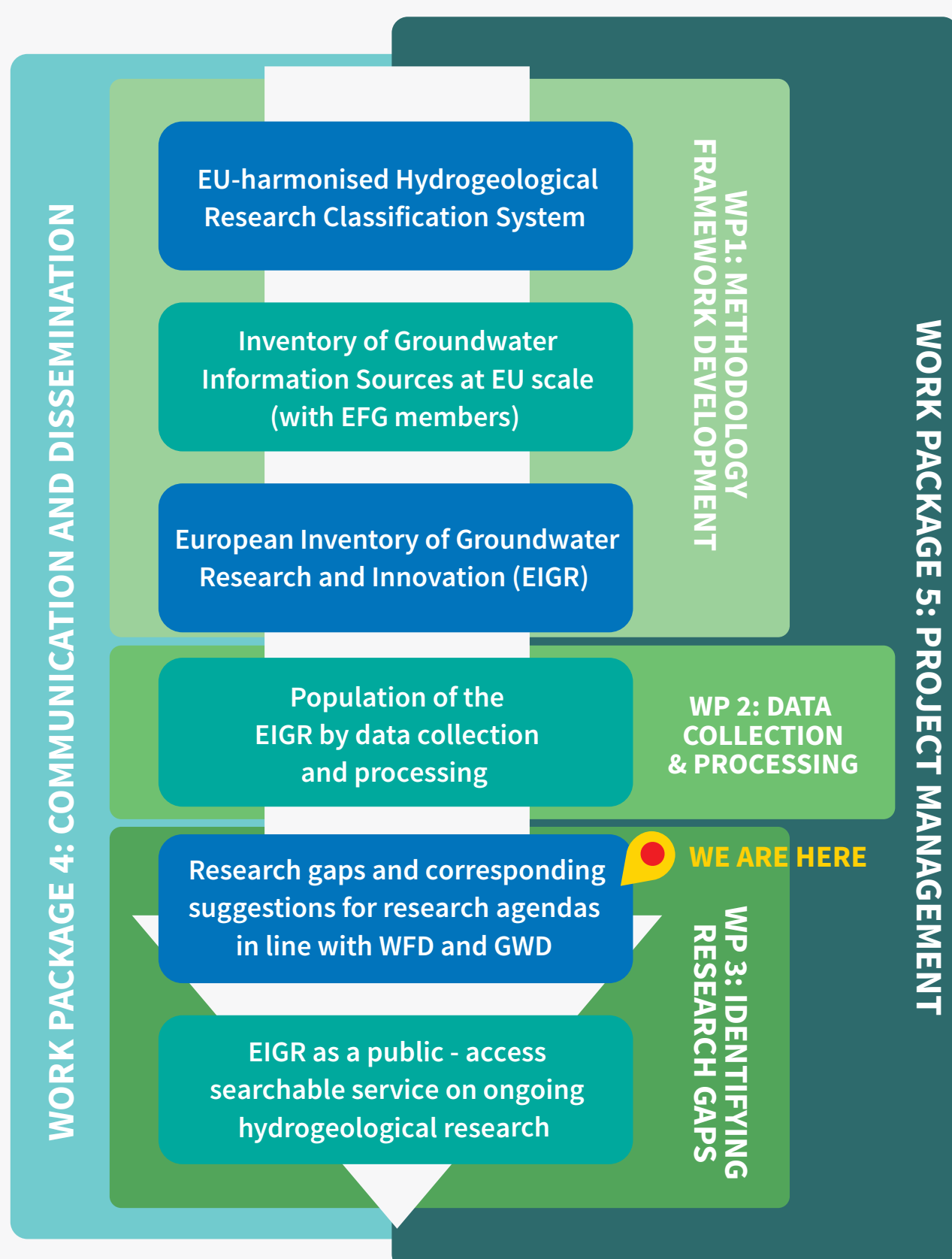
## “A PROJECT ON GROUNDWATER RESEARCH INVENTORY AND CLASSIFICATION TO MAKE GROUNDWATER VISIBLE”

### INTRODUCTION

Hydrogeology related research activities cover a wide spectrum of research areas at EU and national levels. The European knowledge base on this important topic is widespread and fragmented into broader programmes generally related to water resources, environment and ecology.

To achieve a comprehensive understanding on the groundwater theme, the KINDRA project - Knowledge Inventory for Hydrogeology Research seeks to carry out an **accurate assessment of the state of the art in hydrogeology research** and to create a critical mass for scientific exchange of hydrogeology research, to ensure wide accessibility and applicability of research results, including support of innovation and development, and to reduce unnecessary duplication efforts.

### THE APPROACH



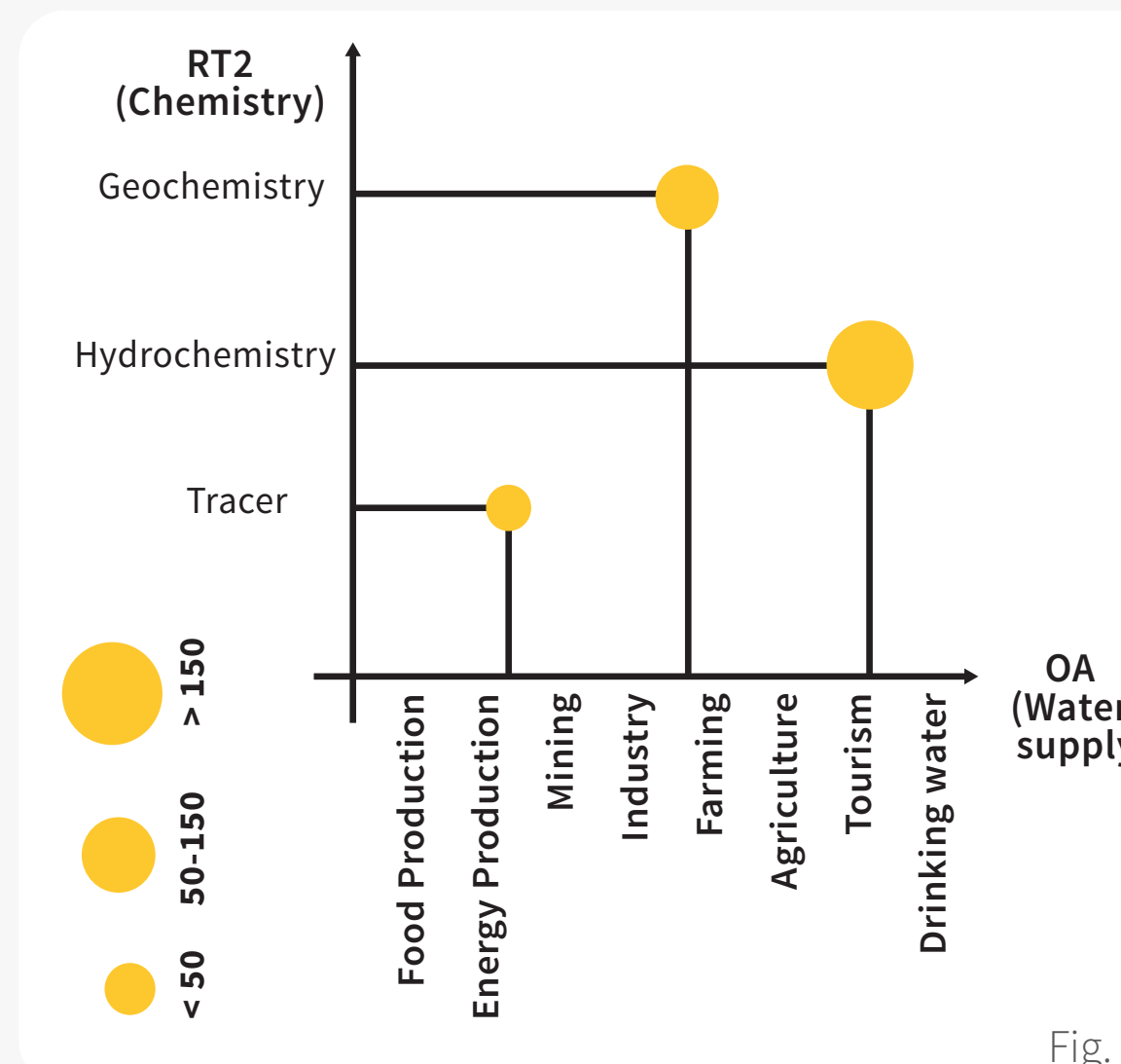
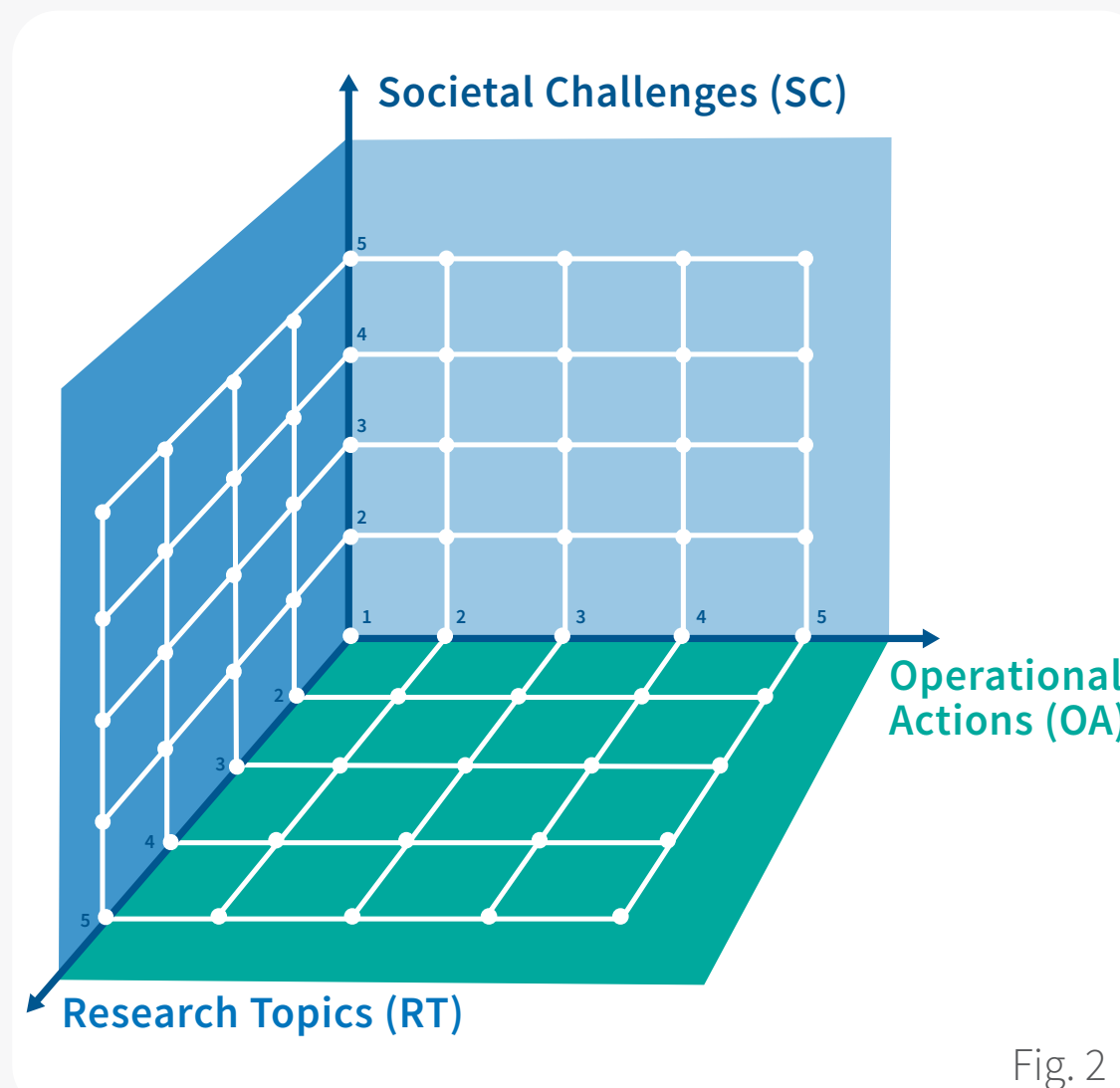
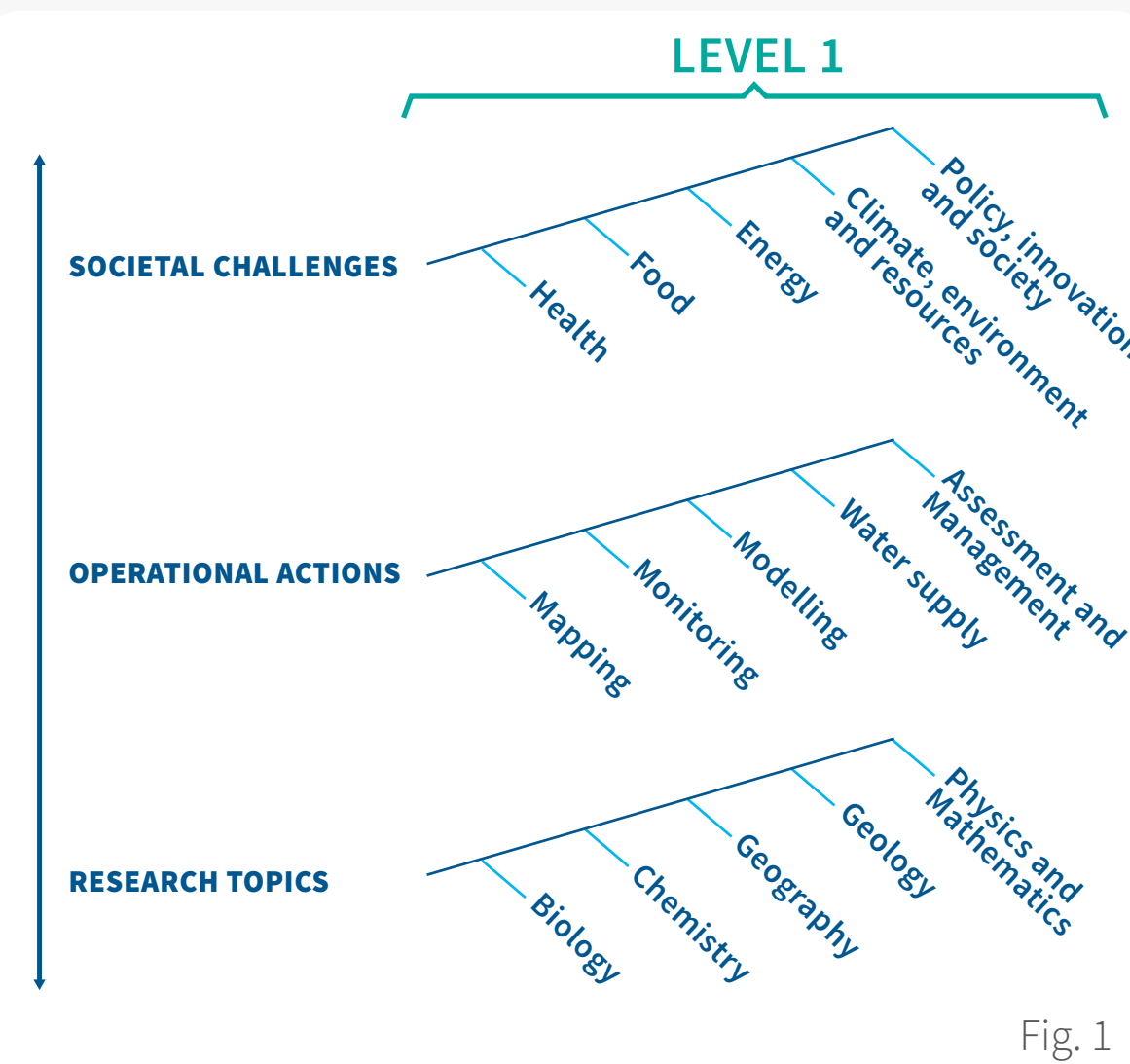
### GAP ANALYSIS

The adopted set of performance indicators (classes of research/knowledge, technology readiness level, grants etc.) are used for a trend gap analysis currently on-going. The identification of research gaps will give useful suggestions for the actualisation and continuous development of research and innovation agendas in line with the Water Framework Directive.



### GROUNDWATER CLASSIFICATION

For developing the common terminology and classification, keywords characterizing research on groundwater have been identified following two approaches: (1) from the most important EU directives and documents, and (2) from groundwater related scientific literature, which has been fundamental for identifying relationships and intersections between topics, themes and activities. To assess the importance and pertinence of the keywords, these have been ranked by performing searches via the Web of Science and Scopus search engines. **The complete merged list of keywords consisting of about 240 terms have been organized in a tree hierarchy, identifying three main categories: Societal Challenges (SC), Operational Actions (OA) and Research Topics (RT).** In each of these three categories, 5 overarching groups have been defined for easy overview of main research areas, representing level 1 (Fig. 1). All identified keywords have been categorized into one of these overarching group in up to three levels. The classification system previews the interaction among the three main categories through a 3D approach (Fig. 2), where along each axis the 5 overarching groups are indicated. This also results in a 2D representation for each of the Societal Challenges, where Operational Actions and Research Topics intersect in a 5x5 matrix (Fig. 3).



**The proposed classification system allows the immediate comparison of the two "technical categories" with the Societal Challenges identified by the European Commission in Horizon 2020.**

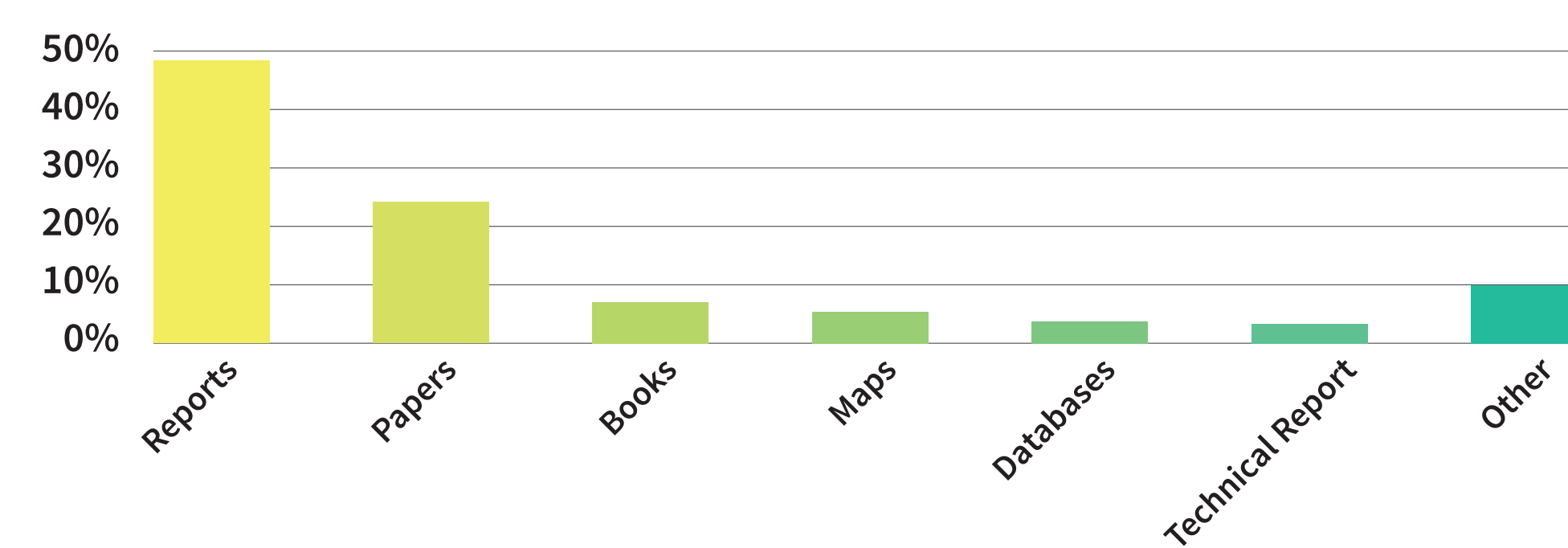
### EUROPEAN INVENTORY FOR HYDROGEOLOGY RESEARCH

The European Inventory of Groundwater Research (EIGR) is a tool which allows the application of the proposed classification.

**The EIGR currently contains approximately 2000 records, metadata of research efforts and topic related knowledge such as scientific reports, articles, projects etc., illustrating and providing links to research efforts carried out throughout Europe since 2000**, indicating where data can be retrieved, following their classification per the proposed methodology. The uploaded metadata distinguish between 'research' and 'knowledge' according to four different classes identified by the level of performed quality insurance.

Both the harmonised methodology (HRC-SYS) and the EIGR tool, are fundamental to achieve the overall aim to create an overview of the scientific knowledge covering European countries by means of an accurate assessment of hydrogeology research in various geographical and geo-environmental settings, and to allow direct comparison and exploit synergies.

#### NEAR 2000 COMPLETED METADATA RECORDS\* FROM EUROPEAN RESEARCH SINCE 2000



**Open!**  
ACCESS EIGR:  
[HTTP://KINDRAPROJECT.EU/EIGR/](http://kindraproject.eu/EIGR/)

If you wish to contribute to the EIGR by uploading new records, please fill in the registration form and send it to [reg@kindraproject.eu](mailto:reg@kindraproject.eu)

#### ADDED VALUES OF PRESENTING YOUR RESEARCH IN KINDRA EIGR

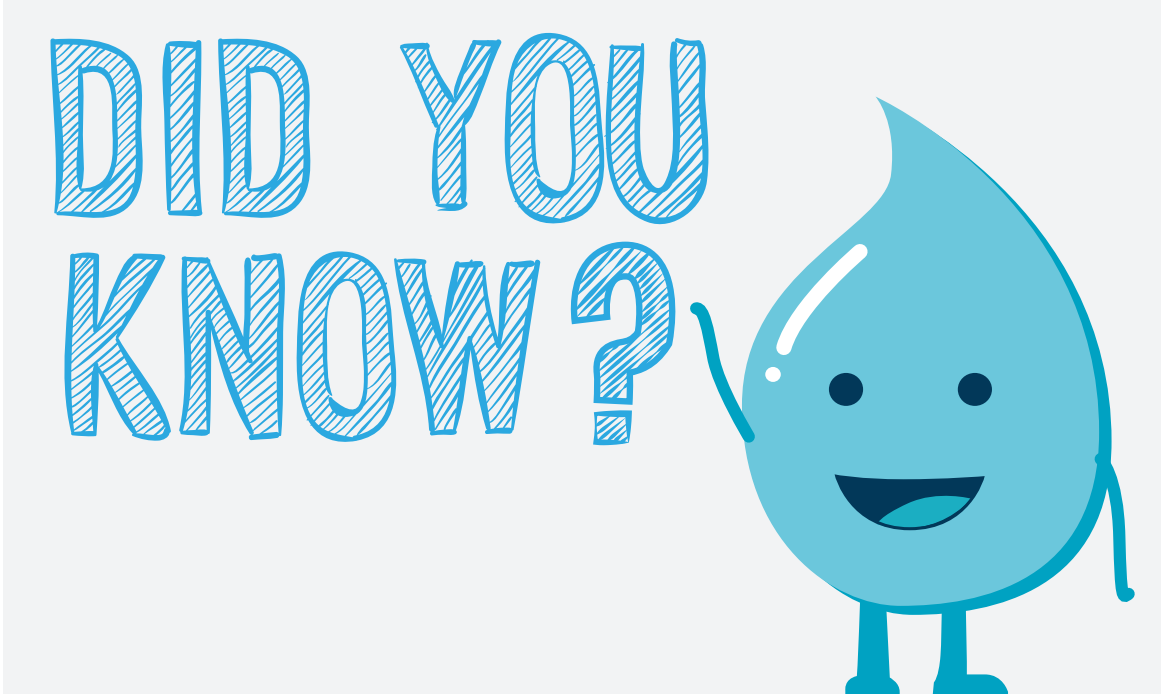
- 1 VISIBILITY IN THE FIRST ONLINE TOOL EXCLUSIVELY TO GROUNDWATER RESEARCH & KNOWLEDGE
- 2 ALLOWS LIKE-MINDED PROFESSIONALS TO FIND EACH OTHER
- 3 CLASSIFICATION OF YOUR RESEARCH, PRODUCTS, PAPERS AND PROJECTS
- 4 EXPOSE YOUR RESEARCH TO DATABASE ANALYSIS FOR EU POLICY SUPPORT AND WATER DIRECTIVES IMPLEMENTATION

### HORIZONTAL AIM: MAKING GROUNDWATER VISIBLE

Water is a key-topic in modern society: not only it is a pivotal human, biological and environmental requirement, it also represents the engine for several research topics which are interconnected and cover the water-food-energy-climate nexus. It has an impact on urban systems too.

Groundwater, on the other hand, is the hidden component of the water cycle, and is difficult to assess, evaluate and communicate, even though it plays a fundamental role in our life by sustaining the health of our ecosystems, ourselves and our industrial and agricultural production.

KINDRA seeks to help achieve a better understanding of the groundwater topic **by adapting its technical content and results into outreach materials that help citizens to understand the relevance of groundwater in daily life. As part of this task, we have developed two Did you know? booklets.**



### DOWNLOAD SECTION



- HARMONISED METHODOLOGY ·
- EIGR 'USERS' MANUAL ·
- EDUCATIONAL BOOKLETS ·

**AND MUCH MORE!**

KINDRA IS ACTIVE AT:



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### THE TEAM



20 EFG LINKED  
THIRD PARTIES

10 MEMBERS  
OF THE JOINT  
PANEL OF  
EXPERTS