

**"Cr(VI) Impacted water bodies in the Mediterranean:
Transposing management options for Efficient water Resources use through an Interdisciplinary
Approach"**

Project Summary

The project will deliver an optimization tool including documentation and a database to assist water resource management organizations and water users on decision making when coping with water scarcity, climate change and polluted water. Pollution by Cr(VI) will be used as an example of additional water pressure problem that has to be tackled through integrated water resource management. Most of the Cr(VI) in the environment arises from human activities. Until recently, this was considered the only Cr(VI) source in groundwater, although latest research has shown that relatively high levels of Cr(VI) can also be attributed to natural processes. These are related to the weathering of minerals of specific rock types found in ophiolite sequences, i.e. remnants of ancient oceanic crust (Fig. 1, Fig.2).

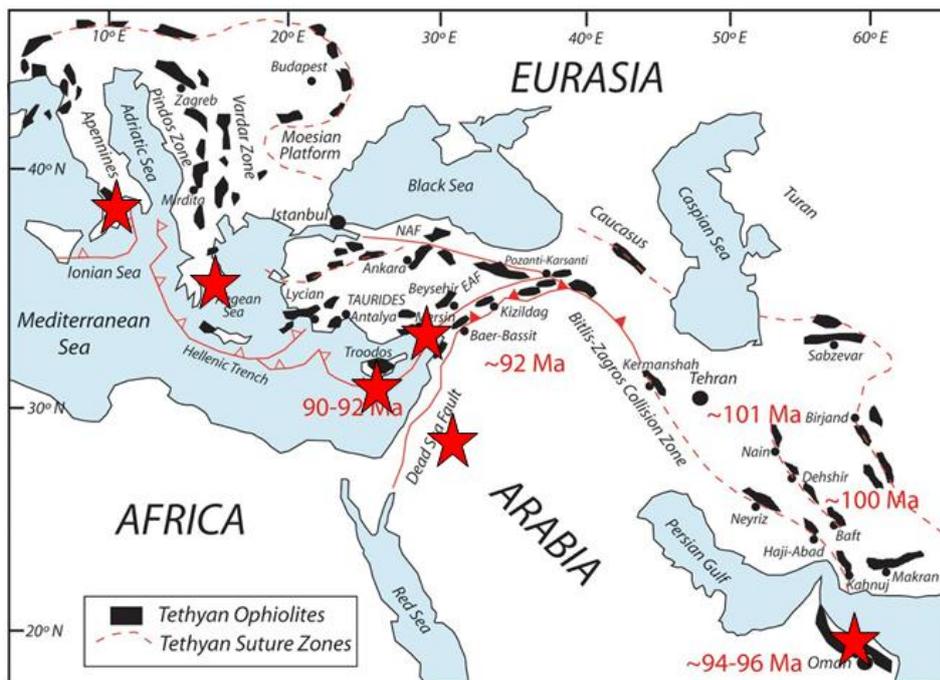


Fig.1

The specific objectives of the project include:

1. Promote collaboration between Mediterranean countries in researching the Cr(VI) problem in water by creating a scientific network to enable information and research data sharing.
2. Examine the extent or identify the problem of Cr(VI) water contamination and its impacts in selected Mediterranean water bodies by designing and implementing an appropriate sampling and analysis programme, focusing on the WFD objective of chemical status and quantitative status of surface and groundwater.
3. Enable participation of stakeholders in finding the most appropriate option for tackling the problem by involving them in dialogue and support, during data collection and development of a water use demand driven management process dealing with Cr(VI) contaminated water bodies.
4. Study the effect of climate change on the impacts and mitigation of Cr(VI) in water by exploring different scenarios in relevance to extreme weather conditions (prolonged drought periods as well as sudden and intense precipitation events) taking into account ground truth data from the extremely arid environment of Oman, where widespread outcrops of ophiolite rocks occur.

The methodological approach will be based on comparative, collaborative research using real situation data from case study areas in each of the participating countries. Such areas have already been identified in Greece and Italy where data on Cr(VI) in water exist. These will be further monitored, evaluated and compared to potentially affected water bodies in Cyprus, Turkey, Jordan and Oman within the same time frame.

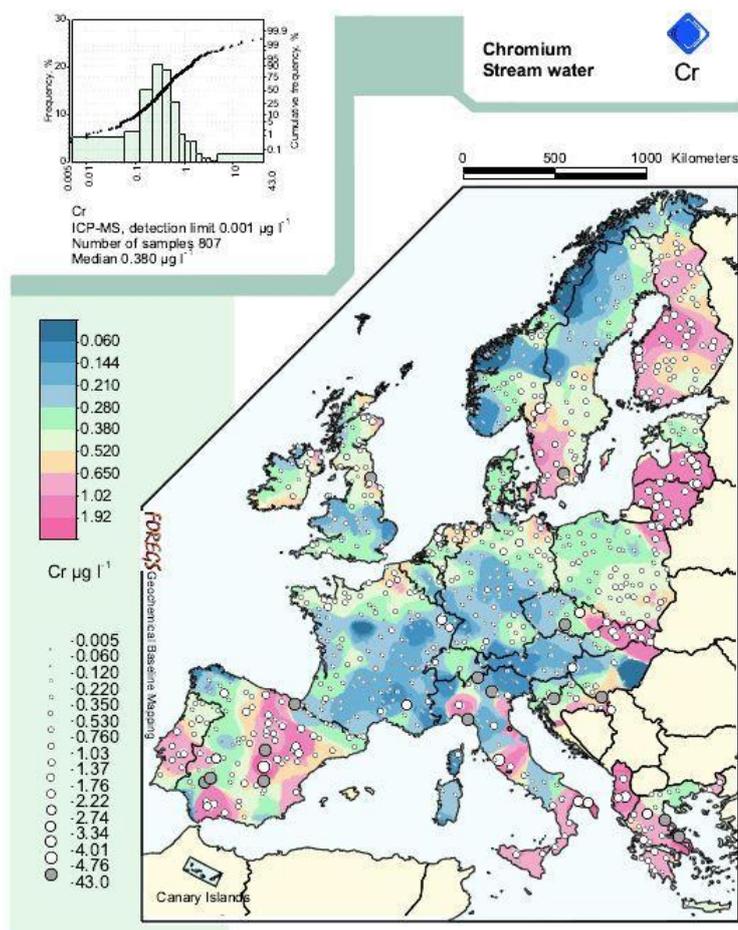


Fig.2

CrITERIA will address capacity building and mobility, through training of water users to enable participation in the water monitoring process and scholarships for young researchers. We aspire to develop a user-friendly process providing access to a set of problem-response options that will support stakeholders on management decisions, in line with their priorities of water use (civil, industrial, agricultural) taking into account the EU water framework directive and the prescribed water quality regulations on Cr(VI). The project will give a specific focus on water quantities, direct costs for water treatment and indirect costs accounting for impact of Cr(VI) contamination. Different scenarios will be explored in relevance to climate change taking into account ground truth data from the extremely arid environment of Oman, where similar geologic conditions prevail, as a future analogue of Mediterranean water basins. For each case study, the tool will provide high-spatial resolution information on vulnerability and impact indicators related to water budget and extreme events for the present and the projected future climate.

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