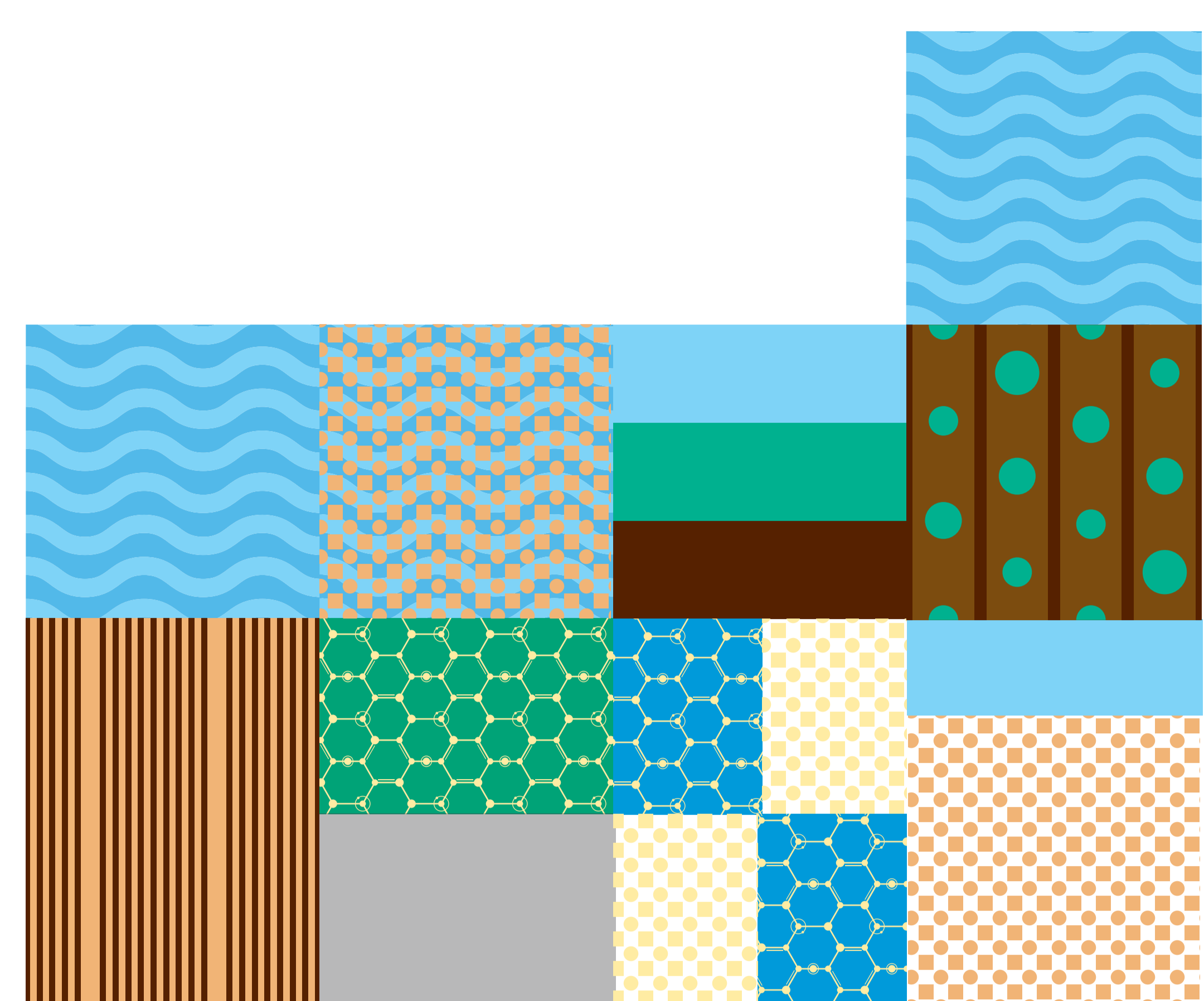


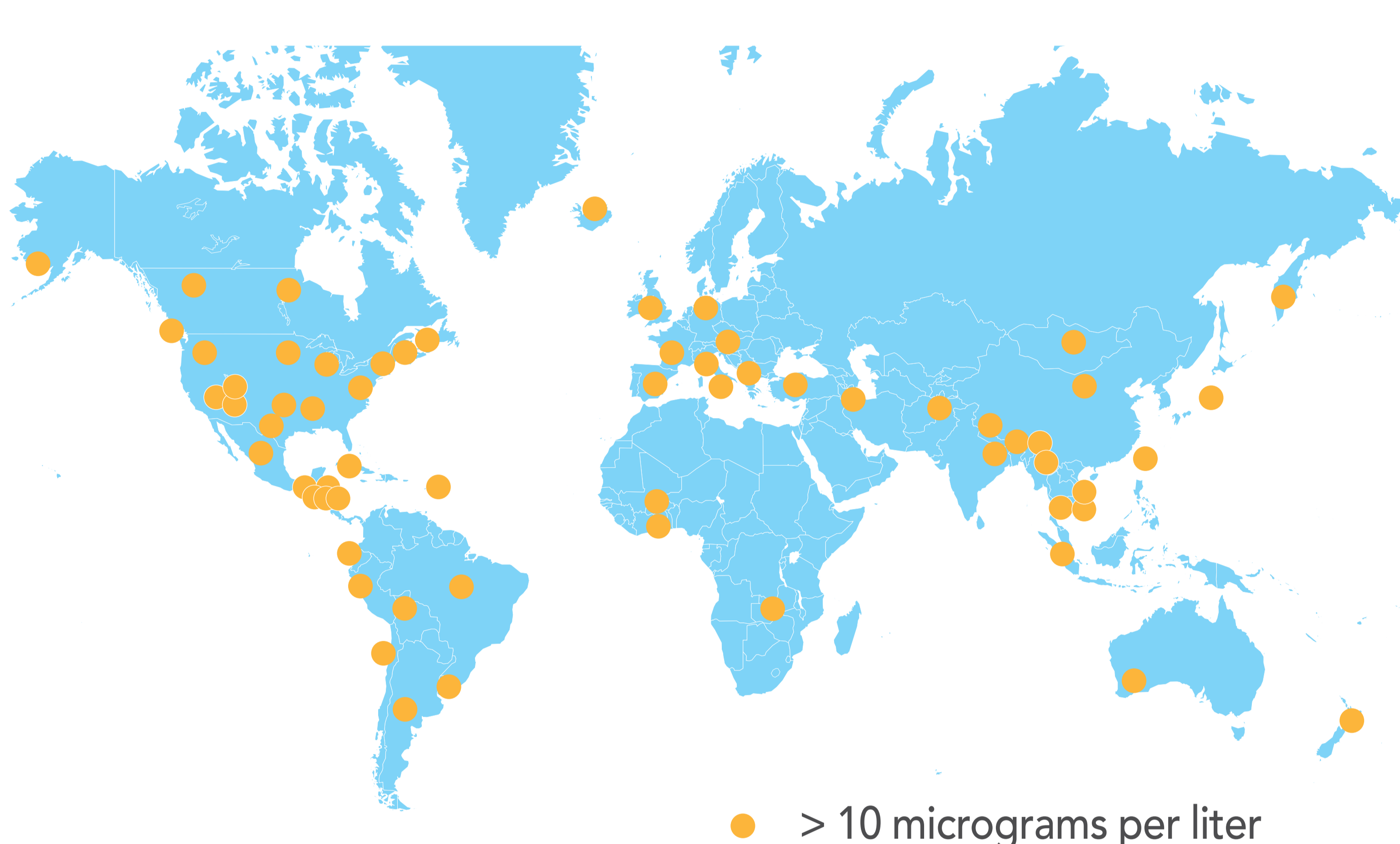
IRON AND BACTERIA TOGETHER FOR CLEAN WATER

Arsenic is usually found on earth in low concentrations; nevertheless natural processes or anthropic activities can induce pollution of superficial and ground

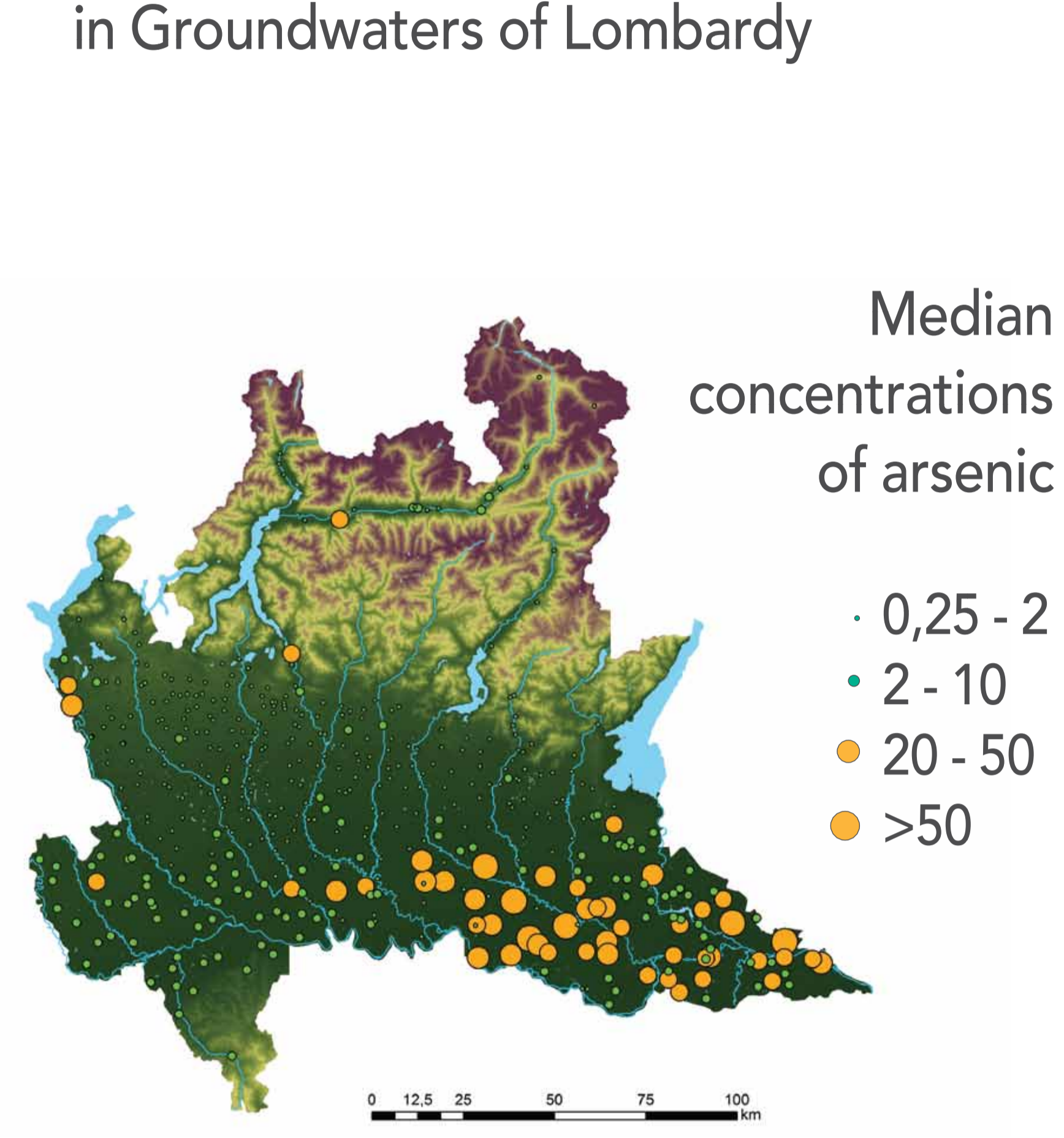
waters. **Arsenic polluted waters are considered a threat** for human health and they must be treated in order to lower arsenic levels below the threshold imposed by national laws.



Global Distribution of Arsenic Pollution in Groundwaters



Arsenic Concentrations in Groundwaters of Lombardy



In arsenic polluted groundwater arsenic is mainly present as reduced form, arsenite [AsIII], and in lesser extent, as oxidized form, arsenate [AsV].

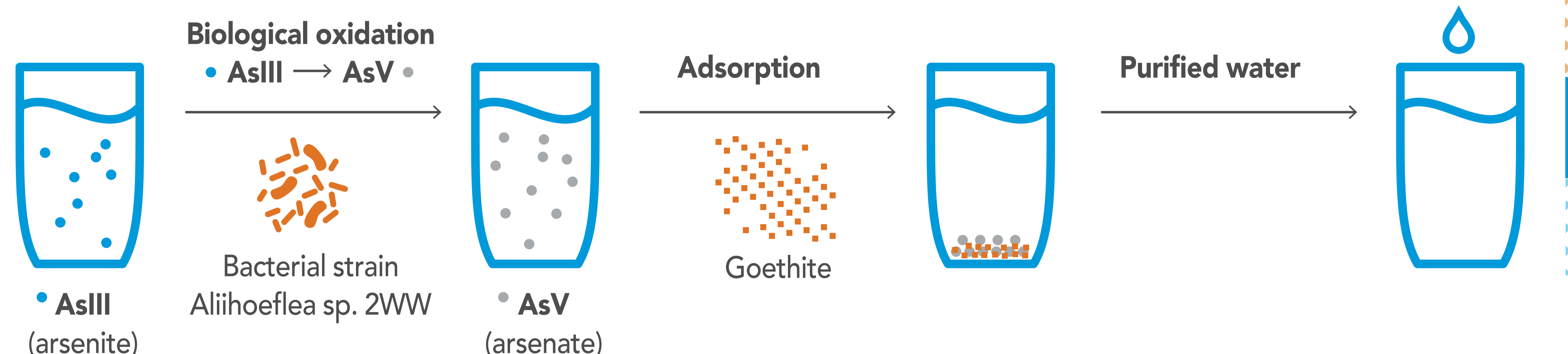
Arsenite is more dangerous because it is more toxic and mobile compared to arsenate. Arsenate can be easily retained onto soil mineral surfaces.

Bacteria able to oxidize arsenite to arsenate are naturally present in the environment (**Biological oxidation of arsenite**).

PROJECT BATA

Bacterial-assisted Adsorption Technology for Arsenic removal from water (2015-2017)

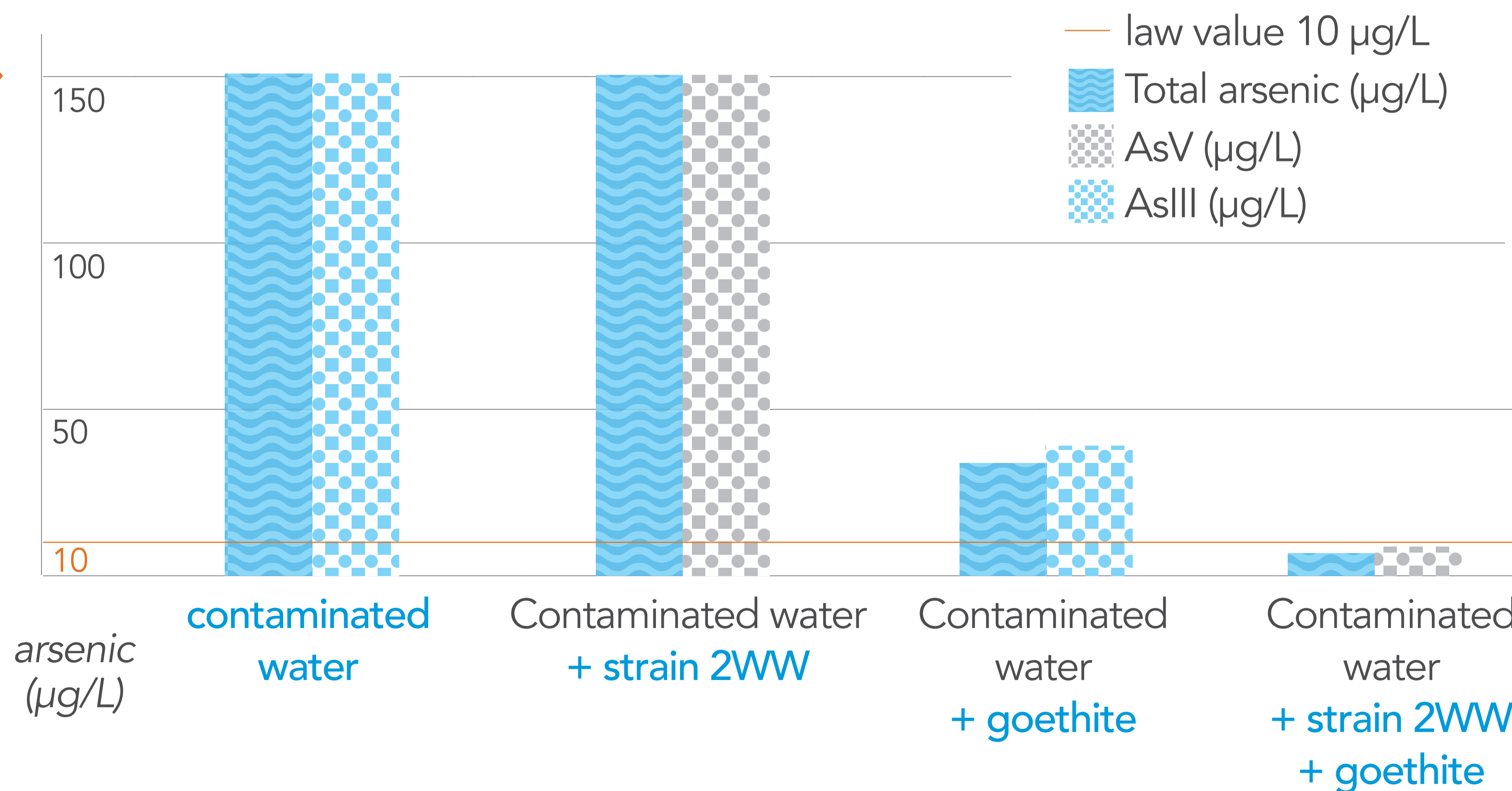
Aims: coupling biological oxidation of arsenic with adsorption on iron-based sorbents to clean-up water



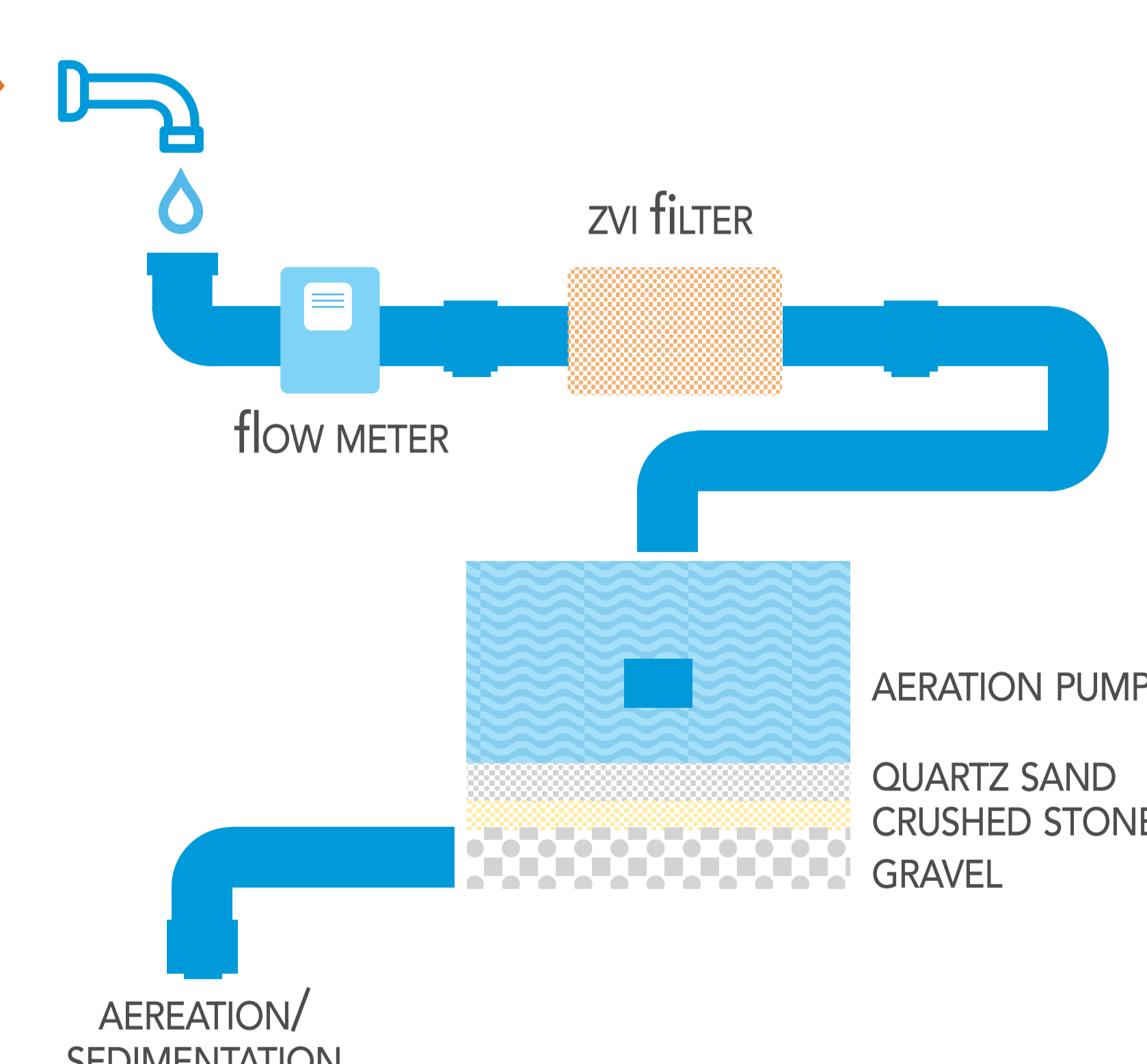
FIRST RESULTS:

Arsenic removal from contaminated groundwater by using the combined system of bacterial strain 2WW and goethite

Arsenic removal from contaminated groundwater by using the combined system of bacterial strain 2WW and goethite.



Arsenic removal from polluted groundwaters using nano-iron zero valent



pilot scale (cnr roma)



finanziato da
mipaaf
Ministero delle politiche agricole alimentari e forestali

