



regenera

Regenerable high efficiency filtering media for arsenic treatment in drinking water

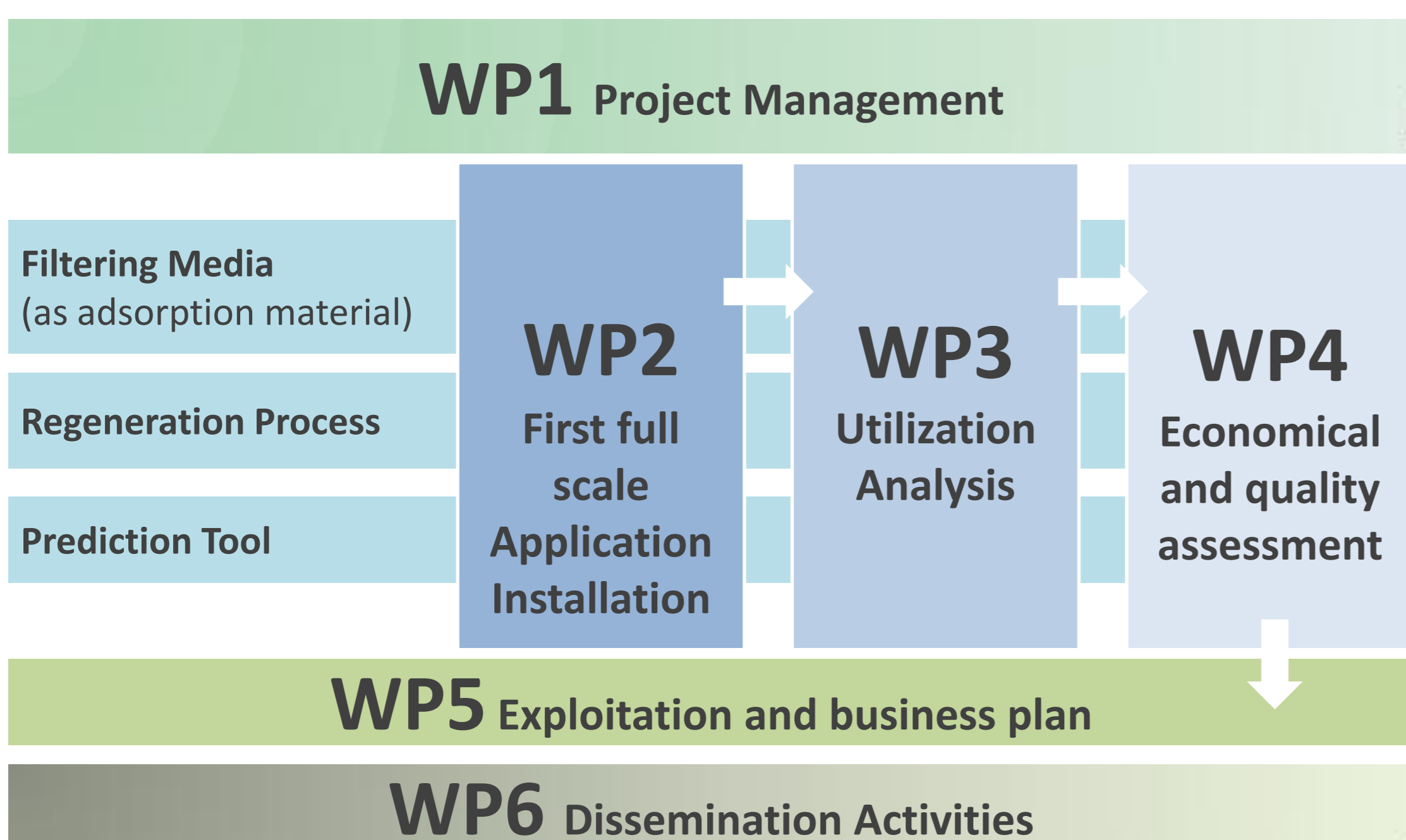
The Project

The project includes three innovative and interconnected items:

- A highly-efficient production plant characterized by a low environmental impact to produce an iron oxide-hydroxide based filtering media to remove arsenic from drinking water
- A high yield regeneration plant characterized by a low environmental impact to regenerate the iron oxide-hydroxide saturated with arsenic.
- A quick prediction tool to evaluate at laboratory level the field performance of filters.

REGENERA is a production and regeneration system of a high performance regenerable filtering media for purification of drinking water from arsenic and other pollutants in water treatment plants

Structure



Enviromentals Benefits

Many advantages arise from the possibility to regenerate the material of the project, as compared to the best traditional (and not-regenerable) solutions available on the market.

- **Reduction in the amount of material to be landfilled.** In a typical filtration plant, the use of 10 tons of REGENERA filtering media in place of traditional media will lead to only around 500 kg of sludge to be landfilled. With current solutions all 10 tons should be landfilled when the material reaches saturation.
- **Reduction in the consumption of raw materials.** One of the starting materials commonly used to produce iron oxide-hydroxide is ferric chloride. The amount of this chemical saved owing to reuse of regenerated material in an average size water filter is in the order of 14 tons each time regenerated material is used in place of new material. In addition to the obvious beneficial economic impact, also environmental costs related to transportation and storage are positively affected.
- **Reduction in water consumption.** The production process of iron oxyde-hydroxide involves substantial use of water that is strongly dependent on the type and design of the manufacturing plant, but in any case is in the order of several tenths of cubic meters per ton of material produced. On the other end, the water consumption in the regeneration process is absolutely negligible, leading to remarkable amounts of water saved.

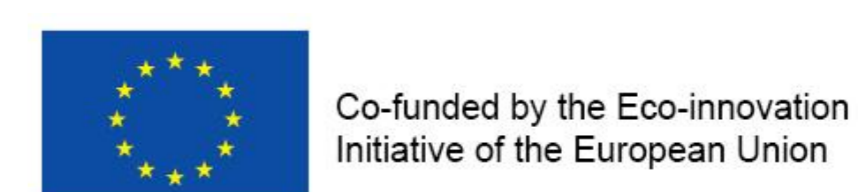
The material of this project, whether new or regenerated, belongs to the class of adsorption filtering media. The removal of arsenic through adsorption, as opposed to chemical precipitation or other techniques, is a true environment friendly process. A pure adsorption process, like is the case with REGENERA filtering media, does not need any addition of chemicals or surveillance personnel, does not produce any waste and could even be run at no energy cost. As a matter of fact, owing to minimum head loss through the material, in most cases the water can flow through the filter by gravity, and even the power to operate a pump can be saved.

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