



**CARTIF**

# TOWARDS A SMART & INTEGRAL TREATMENT OF NATURAL RADIOACTIVITY IN WATER PROVISION SERVICES



TRAINING SEMINAR

*Purification of drinking water from natural radionuclides and  
management options for NORM*

**3<sup>rd</sup>-4<sup>th</sup> of March 2020. Viimsi (Estonia)**



LIFE16 ENV/ES/000437

European project co-financed by **LIFE Programme** of the European Union

## Project partners

■ Coordinator: **CARTIF** Technology Center in Boecillo (Valladolid) – Spain

■ Associated beneficiary`s:

- **Diputación de Almería** in Almería – Spain
- **Solar Energy Research Center (CIESOL)** in Almería – Spain
- **Tallin University of Technology (TalTech)** in Tallinn – Estonia
- **University of Tartu** in Tartu – Estonia
- **Viimsi Vesi Ltd.** In Viimsi – Estonia

■ Duration: 01/10/2017 – 31/12/2020



## Main objective



- To remove/reduce **natural radioactivity** from water and minimize the generation of NORM



- Technical and economic feasibility of alternative **systems based on bed filters** are optimized and demonstrated.



## Project pilot plants

■ 4 pilot plants:



Alboloduy



Benizalón



Tahal



Viimsi

## Spanish pilot plants



Alboloduy



Benizalón

- ✓ Two stages filter beds
- ✓ Radium and/or uranium isotopes



Tahal

## Estonian pilot plant



- ✓ Hydrous Manganese Oxide
- ✓ One stage filter bed
- ✓ Radium isotopes

Viimsi

## Expected results

- To reduce the radionuclides concentration in drinking water, **75-90%**.
- To reduce the NORM generated during the removal of radioactivity, **90%**.
- To reduce the energy consumption, **80%**.



To reduce the environmental impact associated to whole treatment, **80-90%**



## Other objectives



- To replicate project solutions in facilities of other European countries  
(databases access: [www.lifealchemy.eu/en/dwtp-database-request/](http://www.lifealchemy.eu/en/dwtp-database-request/))



- **Transferability** to other facilities and European Union members.

## In conclusion



Water management  
Water suppliers

Alternative systems  
more environmentally  
sustainable





[www.lifealchemy.eu/en/home/](http://www.lifealchemy.eu/en/home/)

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