

Innovative combination of water technologies for the reduction of water consumption and waste in the beverage industry (LESS-WATER BEV.TECH.)

Revision state: *Needs Review*
 Most recent revision: Yes

Tags: [recycling \(/environment/eco-innovation/projects/en/project-keywords/recycling\)](/environment/eco-innovation/projects/en/project-keywords/recycling)
[waste \(/environment/eco-innovation/projects/en/project-keywords/waste\)](/environment/eco-innovation/projects/en/project-keywords/waste)
[water \(/environment/eco-innovation/projects/en/project-keywords/water\)](/environment/eco-innovation/projects/en/project-keywords/water)



- The project proposes an integrated set of innovations through the creation of a new water treatment and recovery system able to reduce the use of primary water in beverage preparation plants, through:
1. a new double Reverse Osmosis system able to increase the water treatment efficiency and to reduce both the raw water consumption and the wastewater production;
 2. a wastewater post-treatment system to recover part of the wastewater produced by the beverage production process and by the Clean-in-Place (CIP) treatment;
 3. a feasibility study of an "ad hoc" small biogas power plant, to convert the organic solid waste generated from the wastewater post-treatment system into energy, in order to increase the energy efficiency of the beverage production process.

In the EU, the highest amount of water consumption is from industrial production, and Food & Beverage is a very water intensive industry. The improvements and innovations in such industry, leading to a reduction of the required primary water, could save enormous quantities in the consumption of such a crucial resource, contributing to decrease the environmental impact of beverage production, to significantly decrease the beverage production costs and so to increase the competitiveness of EU Beverage industry.

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Benefits

Reduction in raw water consumption and increase in wastewater recovery. Increase sustainability & competitiveness of the European Beverage Industry. The partners are working to put in place the innovative system for water treatment and waste recovery which is engineered, integrated and assembled in the client's premises (www.ccdp.it (<http://www.ccdp.it>)). It is at present in its testing phase which is scheduled according to a detailed sub-working plan, indicating the right timing and the needed resources.

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Results

So far, the partners strongly worked to have the start-up of the pilot plant in the middle of May 2016, right after its installation concluded in April 2016. The assembly and the installation of the pilot plant totally met the client's stringent requirements in terms of layout, sqm as well as exact place in which placing the prototype in order that the machine test did not create interference with the daily production processes. The recovery of water included a series of chemical and mechanical treatments that allow water purification and make it suitable, both from the microbiological, chemical and physical points of view to be reintroduced upstream of the production chain or for other purposes. The tests has started in June 2016 by performing some specific analyses also with waters containing tomato sauce in order to verify the correct functioning of the entire system. The contaminants of industrial drink production waste water were different in nature: organic compounds used for production (fruit juices, sugar, flour thickeners, ascorbic acid, citric acid,...), chemical products for washing and disinfecting production equipment (caustic soda, nitric acid, peroxides, chlorine,...), salts and metals (normally present in water used for production, but in this case concentrated and discarded by the reverse osmosis plants). Summarising the results of the seven series of industrial performed tests, one can note that the main recognised analytical data fall within the limits (as established by the main producers of beverages industries worldwide) of the water used for the production of beverages. It should be also noted that, in five out of seven tests, the treated waters can be used to power the smoke-tube boilers, thus expanding the possibilities of reuse the treated waste water by Less-Water Bev.Tech project. The first results of those tests were presented on November 2016 during the workshops organised in Dubai (UAE), Bologna (IT) and Barcelona (ES). The first tests support the good functionalities of the water treatment system developed under the project. Further actions are planned, in particular: some implementation on the pilot plant (installation of the self-cleaning filter), chemical/physical assessments, some microbiological tests and some analyses on the water potability, performed together with the client in order to get an official validation.

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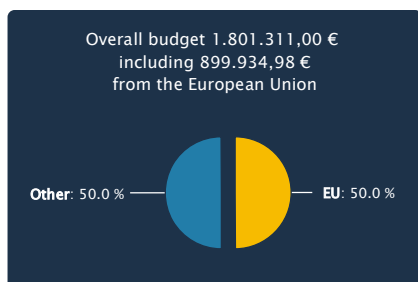
Partners and coordinator

List	Map	
A DUE DI SQUERI DONATO & C SPA (/environment/eco-innovation/projects/en/partners/duel)		Italy
Alma Mater Studiorum - Università di Bologna (/environment/eco-innovation/projects/en/partners/unibo)		Italy
CVAR LTD (/environment/eco-innovation/projects/en/partners/cvar)		United Kingdom

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Key documents

PIS (https://ec.europa.eu/environment/eco-innovation/projects/sites/eco-innovation-projects/files/projects/documents/project_information_sheet_-_less_water_bev_tech.pdf)

PDF 91.13 KB

Innovation Technology (<http://www.lesswaterbevtech.com/upload/niagara-project-profile.pdf>)

Ultrafiltration Technology (<http://www.lesswaterbevtech.com/upload/ultrafiltration-technologies.pdf>)

Carbon footprint policy document (<http://www.lesswaterbevtech.com/upload/carbon-footprint-policy.pdf>)

In brief

Sector: [Food and Drink \(/environment/eco-innovation/projects/en/project-search?f%5B0%5D=field_project_sector%3A151\)](/environment/eco-innovation/projects/en/project-search?f%5B0%5D=field_project_sector%3A151)

Duration: 01/10/2014 to 30/09/2017

Contract number: ECO/13/630314

Website: <http://www.lesswaterbevtech.com/> (<http://www.lesswaterbevtech.com/>)

Related projects

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