



**eco-innovation**  
WHEN BUSINESS MEETS THE ENVIRONMENT

**CIP Eco-innovation  
Pilot and market replication projects  
Call 2013**

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**Progress Report 1  
Less-Water Bev.Tech  
Contract ECO/13/630314**

**Covering the reporting period from  
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Deliverable: **D1.12 First Progress Report (PR1)****

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### 1 Progress of work plan in the period

This technical progress report (named progress report - PR), contains all the needed information for EASME to evaluate the state of implementation of the project, the respect of the work plan and how far project's objectives have been achieved. This PR does not include any financials, but only an overview of the hours spent by the staff allocated to the project per each partner and per WP.

#### 1.1 General progress

The project was carried out by partners according to the scheduled timetable, without any problem in terms of deviation to the original Gantt. Each of the scheduled task and deliverable has been timely produced by partners according to the responsibility set in the Annex I of the Grant Agreement.

The lead partner coordinated the overall project management. The cooperation among partners was very good, ensured by different means, like physical and virtual meetings (e.g. via Skype<sup>TM</sup>, WebEx<sup>TM</sup>), phone call, very frequent e-mail exchange and many different contacts in the project management tool (BaseCamp<sup>TM</sup>). All the deadlines and the action plans were agreed together with the partners, which have been very active.

As for the technical activities, partners strongly worked to design the innovative system for water treatment and waste recovery dedicate to a plant for beverage preparation. Strong efforts have been made for choosing the type of processes to be implemented to recover wastewater from the production of beverages and fruit juices, with the final goal to construct the pilot plant to recover this water to be installed at a beverage or juice manufacturing and bottling company, recording of the operating parameters for the duration of the project and final analysis of the data collected with the preparation of the necessary conclusions.

Many efforts have been put also to select and visit possible clients to which install the prototype. The process led to the selection of *Consorzio Casalasco del Pomodoro* (Fontantellato, Parma-Italy) as site in which installing the machine.

In addition, partners started studying on how implementing each designed function units in order to be developed and industrialised, so as to verify the soundness of the proposed idea.

Some dissemination activities have been carried out, in particular through the project web site [www.lesswaterbevttech.com](http://www.lesswaterbevttech.com) (that was built up, together with a brand new project logo) and project information sheet updated on the web database.

Two technical team members took part in a sectorial exhibition held in Djazagro (Algeria), April 20<sup>th</sup> to 23<sup>rd</sup> 2015, during which presented and diffused info about the project through flyers, posters and a specific power point presentation. E-mails with description of general project goals were sent to all the potential final users.

## 1.2 Progress on all work packages against initial objectives

All the project progress, in comparison to the planned activities (as in Annex I of the Grant Agreement), are hereafter reported, work package by work package.

In **WP1 (Management)**, the kick-off meeting has been held on October 1<sup>st</sup>, 2014 at A Due Spa premises, in which all the partners and external experts took part, putting the basis for a sound tasks implementation since the very beginning of the project. Both Project Management Team and Project Quality Team were created, in addition to an Administrative Group. The meeting was organised into two different sessions in which both administrative and technical aspects of the project were deeply discussed and analysed. An action plan for the next tasks to be performed was prepared and agreed among partners (*see deliverable D1.1 Project kick-off: meeting and action planning*).

Then, other three different transnational meetings have been carried out, as scheduled (on December 3<sup>rd</sup> 2014, March 16<sup>th</sup> 2015 and July 22<sup>nd</sup> 2015), in order to discuss and review on the project correct implementation, keeping all the key actors updated and fully coordinated. All the partners and external experts took part. The adopted scheme was the same of the kick off meeting, so that both administrative and technical issues were discussed in different sessions and in sub-groups in order to define the next steps to perform to reach the project goals (*see deliverables D1.2 Project coordination meeting/sub-meetings #1; D1.3 Project coordination meeting/sub-meetings #2; D1.4 Project coordination meeting/sub-meetings #3*).

The web-platform for data sharing and communications among partners was set and updated with all the project materials in conjunction with a Project Management tool (Basecamp<sup>TM</sup>). In Basecamp<sup>TM</sup>, which is on-line-based, all partners can easily and at anytime from anywhere do the following tasks: share files, check due dates, set discussions, collaborate on documents and activities, assign and review tasks (*see deliverable D1.11 Set up of an on-line web-platform for data sharing and communications among participants*).

The last activity was the preparation of this PR (*see D1.12 First Progress Report -PRI, coordination and timing control*). All the partners gave their contributions to finalise it, under the coordination of the lead partner.

As for **WP2 (Design of a new water treatment and waste recovery system)**, the activities have been coordinated by the WP leader (Unibo) and mainly supported by A Due Spa. CVAR participated with a minor role.

During this period the partners discussed much the activities for the scouting of clients (divided in three possible categories), potentially interested for the installation of the prototype. Personnel from A Due and Unibo went directly to the possible clients' production plant for a survey on water usage and waste-water management. The collected samples have been delivered to the Laboratory in charge of the analysis. A Due and Unibo also took part in the H2O - Accadueo exhibition held in Bologna to find out further possible clients.

One basic characteristic of the chosen client (*Consorzio Casalasco del Pomodoro*) was that to have already the Osmosys System, also located near the A Due headquarter, in order to ease the activities for the collection of data needed for the engineering phase.

In parallel with the selection of the clients, partners carried out the technical deliverables, with the aims to design the innovative system for water treatment and waste recovery dedicate to a plant for beverage preparation.

The purpose of the work was the choice of the type of processes to be implemented to recover waste water from the production of beverages and fruit juices, with the final aim to construct the pilot plant to recover this water to be installed at a beverage or juice manufacturing and bottling company, recording the operating parameters for the duration of the project and final analysis of the data collected with the preparation of the necessary conclusions.

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.

The contaminants of industrial drink production waste water are 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).

The treatment plant will have to be able to treat about 45,000 l/h of wastewater with a recovery of water of about 25,000 l/h (*see deliverables D2.1 Design of double reverse osmosis water treatment plant; D2.2 Functional unit upgrades and design actions; D2.3 Water recovery system design*).

Concerning **WP 3 (Engineering, integration and assembly of the new water treatment and recovery system)** partners started setting the technical activities, in order to proceed towards the industrialisation and pilot plant assembly (water treatment system and water recovery system only, not biogas plant). Within WP3, the design of each function units designed in WP2 will be developed and industrialised so as to verify the goodness of the proposed idea. Particular attention will be directed to the new water treatment system and to the water recovery system. These new plants allows the entire system to save about 198.000 m<sup>3</sup>/(year plant) and (potentially) relevant amount of electric energy.

The activities have been coordinated by the lead partner (a Due Spa) and the other two partners participated with a minor role. No deliverables were scheduled in this reporting period.

No activities have been performed in **WP4 (Start-up, tuning and performance/sustainability analysis)** and **WP5 (Business plan & exploitation)**, according to the project Gantt.

In **WP6 (Dissemination activities)**, the activities have been coordinated by the lead partner, with the active participation of the other two partners with different level of efforts (minor role for CVAR).

The website was put on-line, with the goal to carry out a better dissemination and communication of the new technology ([www.lesswaterbevtech.com](http://www.lesswaterbevtech.com)). With this regard, the website is dynamic, easily connectable with the main standard applications (e.g. Youtube, Vimeo, etc.), as a very useful tool for communication, where the participants can publish information, since it is the main business card and window on the project to generate interest in all potential stakeholders (*see deliverable D6.10 Project Website*).

The project logo was created, the project information sheet was prepared and updated, to be published in the Eco-Innovation website (*see deliverables D6.1 Project information updates; D6.2 Project information updates*).

As for the major subcontractors, A Due Spa hired Mrs. Micaela Guerzoni, a chemical expert that intervenes in the design and engineering of the water treatment system, with particular regard to chemical aspects.

In addition, A Due Spa contracted and Mr. Violi Maurizio, an experienced engineer in water treatment process, which intervenes in the design and engineering of the water treatment system.

A Due Spa, by the end of this year, will contract a mechanical engineering company (still to be chosen) for the support in the design of the mechanical parts of the water treatment plant.

The following equipment will be purchased by A Due Spa by the end of this year:

- Laboratory instruments for chemical analysis
- Software licenses for design/engineering
- Components for assembling the pilot RO water treatment system
- Components for assembling the pilot filtrating water treatment system (sedimentation, filtering, ultraviolet purification)
- Components for assembling the pilot UV water treatment system
- Pipe, wires and other components for assembling the water treatment pilot plant
- Materials and other consumables for system integration and testing

The table below reports the deliverables listed in Annex I of the Grant Agreement which correspond to the present reporting period:

Del. N° <sup>1</sup>	Deliverable name <sup>1</sup>	Type <sup>1</sup>	WP N° <sup>1</sup>	Delivery date from Annex I <sup>1</sup>	Delivered (yes/no) and status (draft/final)	Submission with report <sup>2</sup>	Forecasted delivery date	Comments on progress
D1.1	Project kick-off: meeting and action planning	Meeting minutes	1	1/11/2014	Yes - final	PR1	1/11/2014	None
D6.1	Project information updates (pre-defined)	text, ppt	6	1/12/2014	Yes - final	PR1	1/12/2014	None
D1.2	Project coordination meeting/sub-meetings #1	Meeting minutes	1	1/01/2015	Yes - final	PR1	1/01/2015	None
D1.11	Set up of an on-line web-platform for data sharing and communications among participants	File/Document sharing website	1	1/01/2015	Yes - final	PR1	1/01/2015	None
D1.3	Project coordination meeting/sub-meetings #2	Meeting minutes	1	1/04/2015	Yes - final	PR1	1/04/2015	None
D6.10	Project Website	Website	6	1/04/2015	Yes - final	PR1	1/04/2015	None
D1.4	Project coordination meeting/sub-meetings #3	Meeting minutes	1	1/09/2015	Yes - final	PR1	1/09/2015	None
D2.1	Design of double reverse osmosis water treatment plant	Report	2	1/09/2015	Yes - final	PR1	1/09/2015	None
D2.2	Functional unit	Report	2	1/09/2015	Yes - final	PR1	1/09/2015	None

<sup>1</sup> This information must be identical with your List of Deliverables in Annex I of your Grant Agreement.

<sup>2</sup> Please indicate the report with which you have submitted the deliverable (PR1, IR, PR2, ...).

Del. N° <sup>1</sup>	Deliverable name <sup>1</sup>	Type <sup>1</sup>	WP N° <sup>1</sup>	Delivery date from Annex I <sup>1</sup>	Delivered (yes/no) and status (draft/final)	Submission with report <sup>2</sup>	Forecasted delivery date	Comments on progress
	upgrades and design actions							
D2.3	Water recovery system design	Report	2	1/09/2015	Yes - final	PR1	1/09/2015	None
D1.12	First Progress Report (PR1), coordination and timing control	Report + Project Information Sheet	1	1/10/2015	Yes - final	PR1	30/09/2015	None
D6.2	Project information updates (pre-defined)	text, ppt	6	1/10/2015	Yes - final	PR1	30/09/2015	None

All the due deliverables with public dissemination level (PU) are put in the project website for public download. The Eco-Innovation logo and the legal disclaimer are indicated in these published documents.

### 1.3 Identified deviations, problems and corrective actions taken in the period

No problems arose in terms of project implementation. However, after a careful analysis, the partners identified a problem in the original project formulation: the recovered water cannot be sent to the existing water treatment plant without do changing in its process. Therefore, considering that it is not easy (in terms of costs, stop time, warranty, etc.) doing such a modification in the existing plant, the partners decided to create an independent new treatment plant that takes the waste water from the “Beverage Preparation Pant”, treats this waste and feeds this recovered and purified water directly to “Beverage Preparation Pant”.

In addition, it should be highlighted that partners got some informal rumours from stakeholders (mainly customers and suppliers) that, despite the legislation allows the reuse of purified wastewater for food purposes (i.e. for beverages preparation), there are some brand image and precautionary reasons that can possibly led to the fact that the final customers will not accept the re-use of this purified wastewater as an ingredient in the production line. In any case, the purified wastewater can be used for any other services and for utilities in the plant. This will be verified and duly reported in the next project semesters.

### 1.4 Progress regarding performance indicators

Presently, the performance indicators cannot be assessed as they concern a situation that will be achieved at the end of the project. No amendments are to be done.

## 2 Progress regarding market uptake and exploitation

No market uptake and exploitation have been performed so far, as scheduled.

## 3 Work plan for the next period

### 3.1 Planned activities in the next period

In the next reporting period, partners will meet twice for discussing on the project implementation at technical and administrative points of views (WP1). This will give the chance to discuss on how to amend, if needed, the agreed time plan and to deal with possible deviations, if any, that can emerge from the technical project implementation in WP2.

Partners will mainly work on the finalisation of WP3 deliverables, in particular on the engineering and implementation of the new double reverse osmosis water treatment plant, integration of the existing syrup preparation plant with the new units, engineering and implementation of water recovery system, and engineering and implementation of control and supervising system.

In addition, there will be the plan to initiate with the start-up, tuning and evaluating the productivity and sustainability performance of the innovative water treatment and water recovery systems for a Non Carbonate Beverage (NCB) or Carbonated Soft Drink (CSD) plant, as scheduled in WP4.

At the end of the next reporting period, partners will fine-tune market scenario analysis of WP5, through the deepening and the completion of the competitive analysis, according to Porter's five forces. Moreover, a SWOT analysis will be implemented. The focus of this first analysis will be kept on the EU market.

The dissemination activities will continue as scheduled in WP6.

### **3.2 Planned meetings, activities related to market uptake and dissemination activities**

As for the next project meetings (until the next report), partners intend to meet twice (November 2015 and March 2016, as scheduled), but the dates and the location are still to be agreed. The main topics to discuss will be both in technical and administrative spheres.

Concerning the activities to foster the market uptake, the Business Plan for EU markets will be formally defined. After that, partners can start with all the actions to promote and disseminate the project results.

Partners plan to take part in the following exhibitions:

- Gulfood Manufacturing 2015 (October 27-29<sup>th</sup> 2015 in Dubai-UAE), the leading exhibition in the sector for MENA countries, which are obviously interested in water saving - <http://www.gulfoodmanufacturing.com/>;
- Brau Beviale 2015 (November 10-12<sup>th</sup> 2015 in Nurnberg, Germany), the leading exhibition in the sector for European and Russian markets - <https://www.braubeviale.de/>.

## **4 Other issues**

No other issues to report.

## **5 Annexes**

This PR consists in 2 originals and 1 electronic format, and contains as annex:

- the updated version of the publishable project information sheet
- a copy of the deliverables produced during the reporting period, excluding those already sent with the previous report

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