INVESTMENT FACT SHEET

Output O.I5.1.1, Analytical inspection potential of Vodovod Zadar (HR)

<table>
<thead>
<tr>
<th>Project index number and acronym</th>
<th>AMIIGA CE32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible partner (PP name and number)</td>
<td>Vodovod d.o.o. Zadar,( Water supply company Zadar), PP12, VZ</td>
</tr>
<tr>
<td>Linked to pilot action (number and title)</td>
<td>Pilot Action 1: Bokanjac-Zadar Functional Urban Area</td>
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<tr>
<td>Delivery date</td>
<td>03.2019</td>
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**Description and technical characteristics of the investment**

Within AMIIGA project, the planned acquisition of photometric analyzer for automated simultaneous analysis of selected parameters from multiple samples and gas chromatograph.

During the 2nd (01.03.2017 - 31.08.2017) reporting period we purchased “Photometric Analyzer for Simultaneous Measurement from a Sample” (Discrete analyzer). The analyzer provides an integrated platform for two metering, photometric and electrochemical (ECM) techniques that can be run in parallel. At the same time, determining several analyzes from a single sample and many automated features ensures effectiveness in the analysis. A ready-to-use reagent kit eliminates long-lasting reagent preparation, allowing for additional cost savings. A discrete analyzer is used daily in a chemical laboratory for checking chemical indicators of the health of water for human consumption. Some indicators are determined on a daily basis, while some are determined periodically. Indicators are determined simultaneously, which shortens the time required for the analysis. A small sample volume is required for the analysis, which simplifies sample preparation. In analysis, the factory prepared reagents are used, which ensures high precision and precision in the determination. For now, the instrument can be used to determine 13 different chemical indicators. For some indicators several analytical methods have been introduced, depending on the examined concentration range.

Gas chromatograph (GC) is an analytical instrument that measures the composition of different components in the sample. The gas chromatograph is called gas chromatography.

Principle of Gas Chromatography: The sample injected into the instrument enters the gas stream to transfer it to
the separating tube called the "column". (As the so-called gas carrier, helium or nitrogen is used.) Different components are shared within the column. The detector measures the amount of components leaving the column. To measure the sample of unknown concentrations, a standard sample of known concentrations is inserted into the instrument. The standard retention time of the sample and the surface are compared with the test sample and its concentration is calculated.

Investment costs (EUR) including a break-down of main cost items

"Photometric Analyzer for Simultaneous Measurement from a Sample"(Discrete analyzer)
Price without VAT: 39112.29 EUR

„Gas chromatograph (GC)“
Price without VAT: 29482.08 EUR

Investment location

<table>
<thead>
<tr>
<th>NUTS 3</th>
<th>Address (Street, house number, postal code, city, country)</th>
<th>GPS coordinates</th>
</tr>
</thead>
<tbody>
<tr>
<td>HR033, Zadarska županija</td>
<td>Put vrela bb, 23000 Zadar, Croatia</td>
<td>44°09'55.1&quot;N 15°15'38.3&quot;E</td>
</tr>
</tbody>
</table>

Duration and process of investment implementation

<table>
<thead>
<tr>
<th>Start date</th>
<th>End date</th>
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</thead>
<tbody>
<tr>
<td>09.2016</td>
<td>03.2019</td>
</tr>
</tbody>
</table>

Major milestones of investment implementation

Advantages of photometric analyzer and GC is possibility of determining a wide range of inorganic and organic substances in water (cations, anions, petroleum derivatives, polycyclic aromatic hydrocarbons, etc.), shorter time of analysis, less reagent consumption, waste after analysis is minimized, the possibility of finding new potential pollution. Main benefit for Water supply and the city of Zadar is information on sources of pollution that will improve the management of water resources. In the case of an incident situation exceeding the permissible concentrations of harmful substances, intervention measures for rehabilitation will be provided. Improvement of the quality of groundwater and ensuring health-friendly water for human consumption.
Ownership and durability of the investment (e.g. maintenance, financing)

Investment is located on area owned by Vodovod Zadar. Vodovod Zadar is responsible for retain ownership of the investment after the end of the project. After project the investment will be used for common water analysis and to perform actions with water safety. The equipment will become a part of Vodovod Zadar water laboratory monitoring system. Vodovod Zadar is responsible for maintenance of investment. Durability of investment will be ensured by Vodovod Zadar. All necessary service action as well as all consumables for proper use of chromatograph will be covered by Vodovod Zadar, as described investment will become a part of water monitoring system.

References to related pilot action (output fact sheet) and relevant deliverables (e.g. pilot action report, studies) and web-links.
If applicable, additional documentation, pictures or images to be provided as annex

Annexes:
1. D.T2.1.1 Report from compilation
2. D.T2.1.2 Report on selecting and developing appropriate numerical model
3. D.T2.1.3. Solution of the inverse problem
4. D.T2.1.4. Final report with suggestion
6. Pictures of equipment

Web links:
https://drive.google.com/drive/u/1/folders/0B1ady7gFIJszUUdUd1WTJhX28
file:///C:/Users/ante/AppData/Local/Temp/Temp1_presentation_amiiga_wednesday.zip/AMIIGA-%20-final%20brochure-LR.pdf
https://www.vodovod-zadar.hr/amiga-2/
https://www.voda.hr/en/node/3844
https://www.zadarskilist.hr/clanci/09042019/eu-projekt-amiiga-udio-zadarskog-vodovoda-u-projektu-iznosi-786000-kuna