Research Project 1: Contact Christian.Camilleri@mcast.edu.mt

Performance Research On Mechanical Rotary Piston Water Meters– Technical and Economic Evaluations at a Macro Level on the Local Scenario

Industrial Partner: Water Services Corporation

Non-Revenue Water (NRW) is defined as water that is produced but not measured as being consumed. The amount of NRW is made up of both real and apparent losses. Real losses refer to water lost from leaks in the distribution network and infrastructure, while apparent losses come from theft and metering or billing inaccuracies.

Numerous other studies on the efficiency, or lack of it, of mechanical water meters in use by the WSC have identified potential losses in revenue of up to 25%, mostly due to the typical low flow situations of Maltese consumer profiles. Additionally, the change in performance of mechanical meters over time has never been studied in detail. The following is some information that is worth investigating:

- The performance of mechanical meters currently in use at WSC as they age,
- The performance of mechanical meters currently in use at WSC of the same age but installed in different Water Quality Zones (WQZs),
- The performance of mechanical meters from different meter manufacturers, and
- The average age and at which total consumption should water meters be replaced.

The desired goals and objectives to address the needs/problems stated above include:

- Producing a meter degradation profile for each manufacturer,
- Producing the best time at which a water meter should be replaced,
- Finding whether other meter technologies or specifications should be requested in future tenders when procuring water meters for use by the WSC.

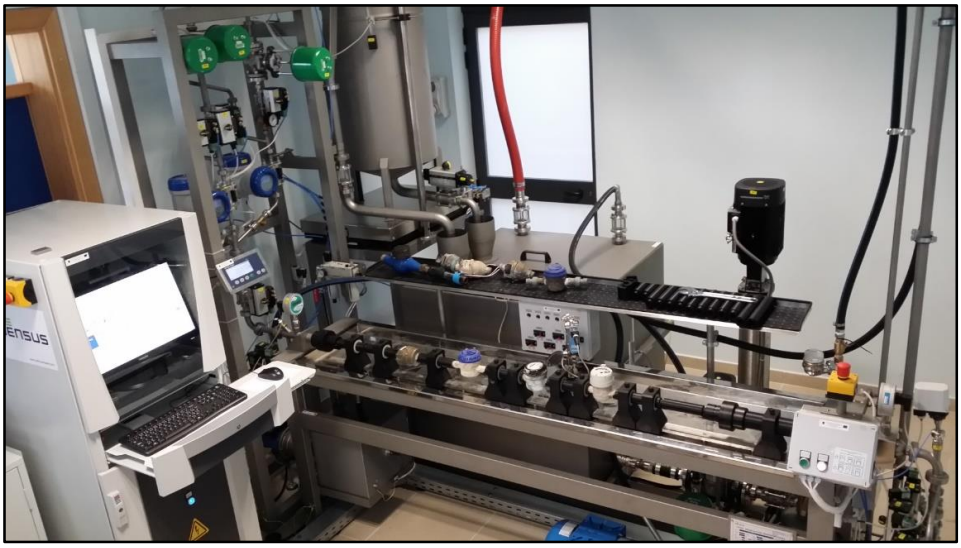


Figure 1: Water Rig Facility at the IAS

Research Project 2: Contact Christian.Camilleri@mcast.edu.mt

Implementing a pilot project at the Malta Internal Airport (MIA) to assess the feasibility of plants/crops that support bee colonies and honey harvesting

Industrial Partners: Malta International Airport (MIA) together with Honey and More Golden Island Ltd

This dissertation project aims at studying a number of endemic plants that support bee colonies and honey harvesting which can be planted on MIA grounds. Various parameters regarding the plant selection were set including height restriction, low maintenance, resilience to water shortage, good plant anchorage and evergreen perennially. Furthermore, only endemic plants were considered in order to sustain local environment. Through this analysis, the endemic plants chosen and planted were Rosemary, Thyme, and Mediterranean Heath.

This multi-faceted research endeavour offers wide ranging benefits not only for the three organizations themselves, but also for the society at large. The research's success will subsequently lead the way for the plantation of more crops at the MIA, resulting in honey harvesting on a large scale, hence, increasing the economies of scale by spreading the fixed costs over a high production output. Also, this project offers other advantageous, namely, the positive environmental impacts generated through the invaluable benefits that bees provide to the agricultural community and potentially generating green jobs. Furthermore, this project can also help to revive the local Apiculture industry in producing the high quality honey.