
water
services corporation
ANNUAL REPORT
2017

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CEO Report

2017 was a busy year for the Water Services Corporation, during which it worked hard to become more efficient without compromising the high quality service we offer our customers.

During a year, in which the Corporation celebrated its 25th anniversary, it proudly inaugurated the North Wastewater Treatment Polishing Plant in Mellieħa. This is allowing farmers in the Northern region to benefit from highly polished water, also known as 'New Water'.

WSC also had the opportunity to establish a number of key performance indicator dashboards, produced inhouse, to ensure guaranteed improvement. These dashboards allow the Corporation to be more efficient, both in terms of performance as well as customer service. The Corporation also managed to improve its energy efficiency, especially through Reverse Osmosis energy measures. Furthermore, the Institute of Water Technology successfully organised an international workshop, attended by approximately 90 participants from all over the world.

In line with the Government's roadmap to meet the 2020 target, the Corporation also completed with success the first communal solar energy farm in the Maltese Islands which will reduce CO2 emissions by 600 tons.

Financially, the Corporation can look back on a successful business performance in 2017, despite increased expenditure and a slight decrease in revenue, with unaudited financial statements registering a surplus for of more than €2 million euro.

WSC has also worked extensively towards a major EU funded project which will substantially increase the quality of tap water, increase efficiencies and safeguard Malta's groundwater resources. The Corporation will be able to refine its water-blending and provide drinking water of a uniform quality across Malta. Secondly, RO plants will be upgraded to further improve energy efficiency and production capacity. Furthermore, a new RO plant will be commissioned in Gozo. This RO will ensure self-sufficiency in water production for the whole island of Gozo. The potable water supply network to remote areas near Siġġiewi, Qrendi and Ħaż-Żebbuġ will be extended. Moreover, ground water galleries will also be upgraded to prevent saline intrusion. The project also includes the extension of the sewer network to remote areas that are currently not connected to the network. Areas with performance issues will also be addressed.

Having only been recently appointed to lead the Water Services Corporation, I fully recognize that the privileges of running Malta's water company come with important responsibilities. It is my main task to ensure that the cumulative effect of our decisions will benefit our customers and stakeholders over the long term, as well as meeting our immediate needs. Ensuring the right strategic outcomes for our business to support the long term needs of our customers and the environment, while maintaining a healthy financial balance sheet, is central to the future of WSC.

2018 will definitely be a challenging year; however I am more than determined to keep up the speed with which we are moving to ensure an excellent service to our consumers, while also preserving the quality of our product. We've started an exciting new chapter and look forward to work hand in hand with you towards achieving an ever-stronger corporation.

Water Resources

The main focus of the Water Production unit was continued process optimisation to improve work practices thus increasing operating efficiency in all areas especially energy consumption. During 2017 most of the membranes were replaced at the Pembroke, Lapsi and Ċirkewwa plants thus improving the overall water blend distributed to consumers.

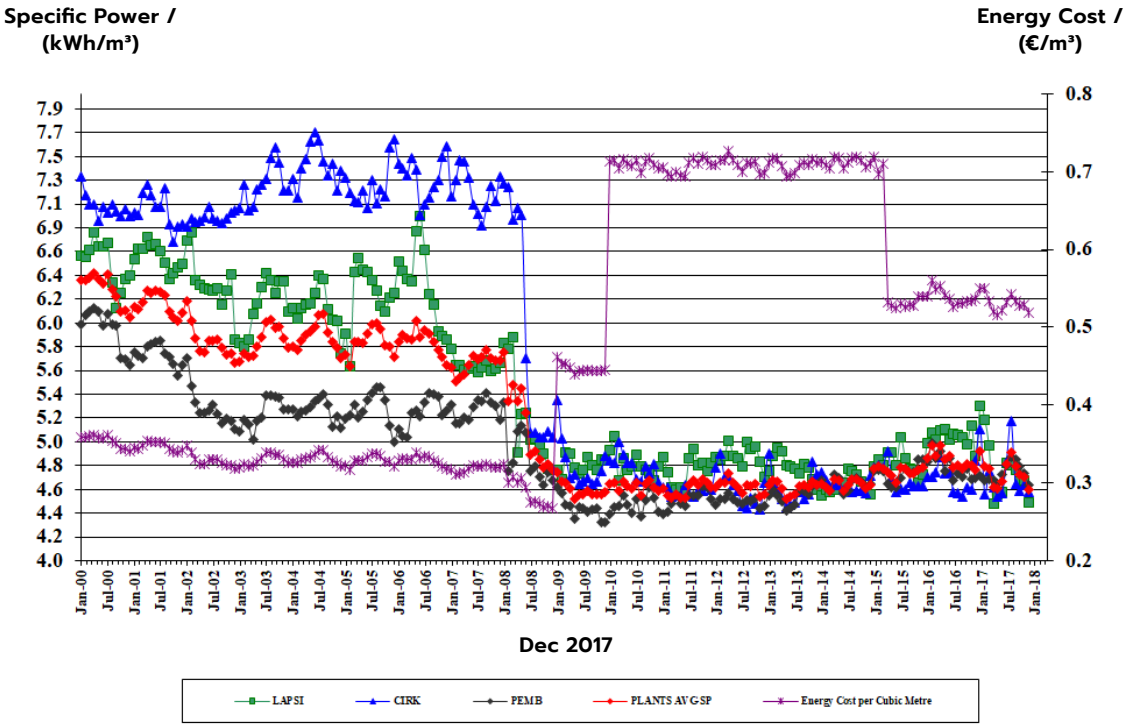
The period under review also saw the finalization of preliminary designs and the drafting of tender specifications to upgrade the RO plants and ground water infrastructure. The three ultrafiltration plants at Wied il-Kbir, Ħlas and Xewkija pumping stations were successfully commissioned. The three plants are now operating continuously thus reducing the pumping stations' downtime.

Ultrafiltration plant

a. Energy Consumption (Reverse Osmosis plants)

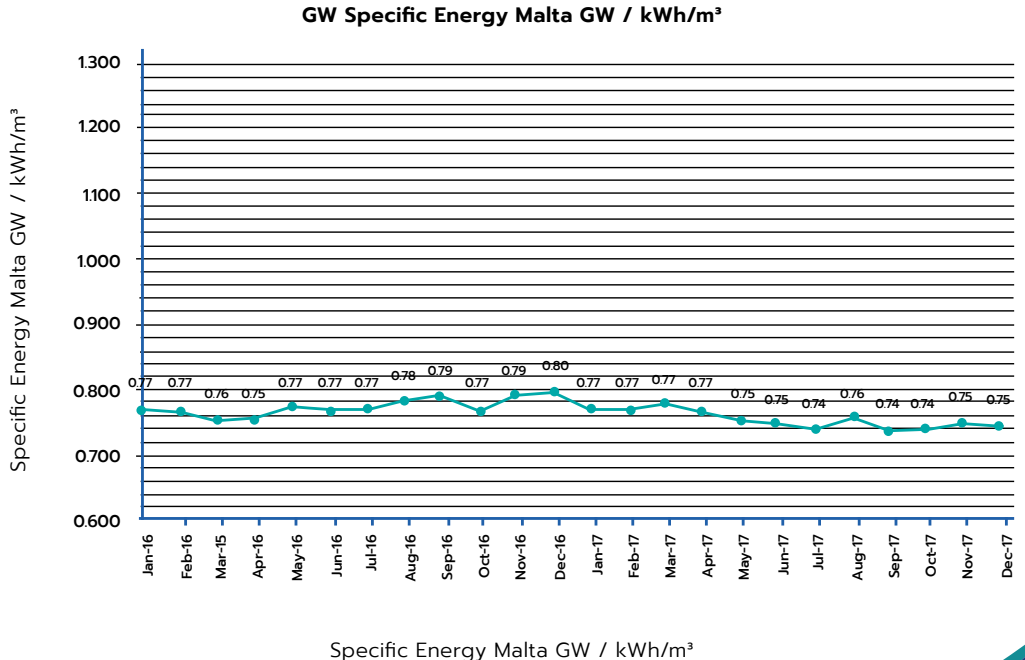
The specific power during the period under review was 4.76kwhr/m³ which is lower than last year's 4.85 kWhr/m³ mainly due to improved operational efficiency.

Specific power trends are shown in the graph below:



b. Energy Consumption (Groundwater Abstraction)

Ground water abstraction efficiency improved mainly due to the installation of more efficient pumps. Specific power trends for Groundwater abstraction is shown in graph below:



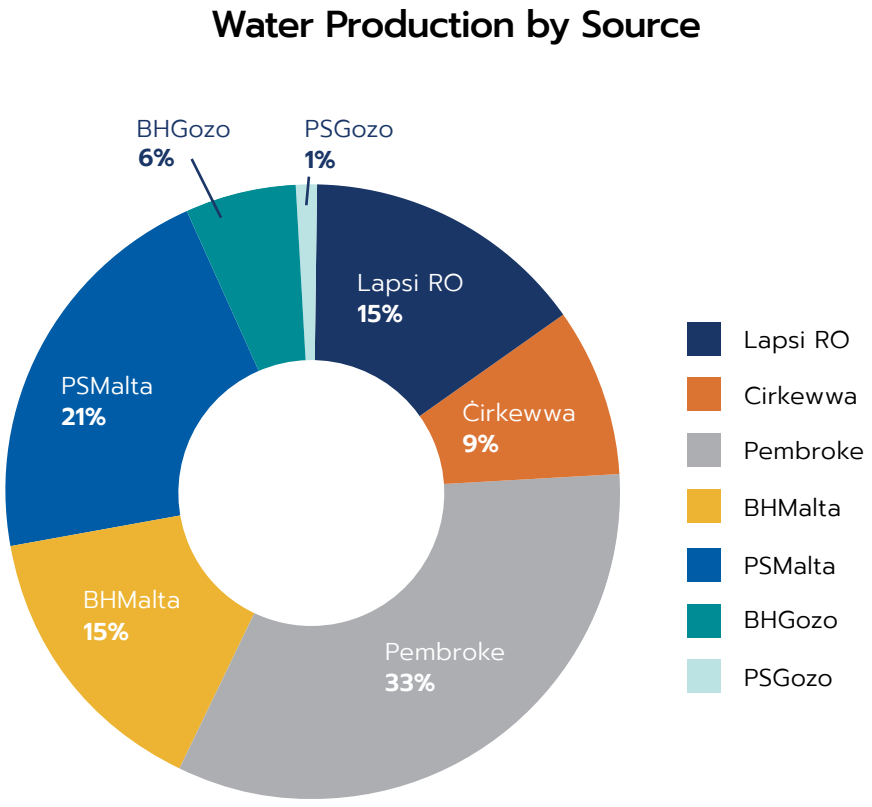
Specific Energy Malta GW / kWh/m³

c. Water Production

During the period under review the total desalinated water produced was 18,890,081 m³ whereas the total groundwater abstracted was 14,360,651 m³.

The production from each water source is tabulated below.

	Production m³	Percentage
Lapsi RO Plant (Lapsi RO)	4,878,616	15
Ċirkewwa RO Plant (Ċirkewwa RO)	2,989,247	9
Pembroke RO Plant (Pembroke RO)	11,022,218	33
Total Seawater Desalination	18,890,081	57
Boreholes Malta (BHMalta)	5,072,582	15
Pumping Stations Malta (PSMalta)	6,995,255	21
Boreholes Gozo (BHGozo)	2,140,332	6
Pumping Stations Gozo (PSGozo)	152,482	1
Total GW	14,360,651	43
Total Water Production Malta & Gozo	33,250,732	100



d. DSM Ltd

The section consolidated its activities and added new customers to its clients list. During the period under review DSM Ltd built a reverse osmosis modular system of 220m³/day capacity for the Salini Hotel and a 75m³/day capacity unit for the Malta National Aquarium. Several proposals were submitted to the hospitality industry both for new systems as well as upgrades.

e. Wastewater treatment and polishing plants

i) Gozo Urban Wastewater Treatment Plant – l/o Għajnsielem, Gozo

During 2017 the plant treated 1.40 million cubic metres of wastewater. All treated wastewater is discharged through a submarine outfall at Ta' Mġarr ix-Xini, limits of Għajnsielem.

ii) Iċ-Ċumnija Wastewater Treatment Plant – l/o Mellieħa, Malta

During the same year the plant treated 3.60 million cubic metres of raw sewage. The treated effluent discharges through a coastal discharge point at iċ-Ċumnija, limits of Mellieħa.

The plant's aeration capacity was doubled in 2014 and an upstream sewage gallery converted for retention in 2015. With these improvements in place the plant can better withstand the ever-increasing demographic pressures and tourism peaks, particularly during summer.

A 6,400 m³/day production polishing plant completed in 2016 was inaugurated on the 23rd May 2017. During 2017 the plant supplied around 135,000 cubic metres of high-quality New water for agricultural use.

iii) Sant Antnin Wastewater Treatment Plant – l/o Marsascala, Malta

This plant has been in operation since 1982, providing second class water to meet irrigation demand requirements in its whereabouts.

During 2017 the plant treated 1.29 million cubic metres of sewage, with 500,000 cubic metres supplied for reuse in agriculture.

iv) Ta' Barkat Wastewater Treatment Plant l/o Xgħajra, Malta

During 2017 the plant treated 19.48 million cubic metres of wastewater. All treated wastewater is discharged to sea through a 1km pipeline.

In 2017 the plant recovered 4.42 GWh of renewable energy from biogas accounting for 25 % of its overall energy requirements.

The commissioning of a new 9,600 m³/day polishing plant is underway and is expected to be operational soon.

Water Quality

a. Laboratory Monitoring programmes

The laboratory monitoring programmes support and regulate corporate production and distribution operations. Thus the laboratory collects, monitors and analyses samples from sources such as groundwater boreholes and pumping stations, desalinated water, reservoirs in which blending operations take place prior to distribution. It also closely monitors the wastewater cycle from raw sewage to sludge and treated effluent generation and since March 2017, New Water production.

Tables 1a and 1b highlight the number of potable, New Water and wastewater tests performed during 2017, as well as the number of tests covered by laboratory accreditation.

Table 1a:

2017	Potable	New Water	Wastewater	Grand Total
Total Number of samples taken care of by the WSC laboratory	12509	228	5833	18570
Total Number of chemical tests	60300	2311	25589	88200
Total Number of microbiological tests	23470	1107	402	24979
Total Number of subcontracted tests	7769	0	93	7862
Grand total of tests	91539	3418	26084	121041

Table 1b:

2017	Potable	Wastewater	Grand Total
Total Number of ISO17025 accredited tests carried out in WSC laboratory	78845	22323	101168

b. Potable Water Monitoring

The following is the total number of samples analysed as part of the potable water quality control checks.

Table 2:

2017	MALTA	GOZO
From village points (check monitoring programme)	1033	234
From random households (for audit monitoring programme)	77	8
From Reservoirs	222	106
From Resources:		
Boreholes	717	391
Pumping stations	134	61
GW Polishing plants	/	186
RO plants	168	/

Samples at village points were collected in line with the Drinking Directive frequency of sampling requirements. A water supply zone is a geographically defined area within which the water quality is constant since it is being supplied from a particular source. The Maltese Islands are divided into 11 water supply zones. These zones are defined in table 3 below:

Water Quality Zone	Localities	Source	Region Responsibility
WQZ 1	Għadira, Marfa, Ċirkewwa, Comino, GħajnTuffieħa, Manikata	Ċirkewwa R.O Plant	North Region
WQZ 2	Mellieħa, Xemxija, Selmun, Tunny Net, Mistra	Ċirkewwa R.O Plant & Miżieb P/St.	North Region
WQZ 3	Magħtab, Burmarrad, Salina, Buġibba, St.Paul's Bay, Wied il-Għasel, Qawra, Naxxar, Mosta, Għargħur, Madliena, Ibraġġ, Techno Park, St. Margerita & Fortizza Areas at Mosta, San Ġwann ta' Żwejt, St. Patricks Barracks, Baħar iċ-Ċaghaq	Naxxar Res. Blend	North Region & Central Region
WQZ 4	Mġarr, Żebbiegħ, Wardija, Pitkali Area, Binġemma	Ċirkewwa R.O Plant and Collection of Ta' Falka, Mġarr, Binġemma, Macedonia & Speranza	North Region

Water Quality Zone	Localities	Source	Region Responsibility
WQZ 5	Rabat, Dingli, Mdina, Baħrija, Mtarfa, Bidnija, Kunċizzjoni + Mtaħleb + Santi	Ta' Qali Group Blend & Fiddien/ Chadwick B/Holes Collection	North Region
WQZ 6	Ta' Qali + Crafts Village, Żokkrija, Żebbuġ Village, Siġġiewi, Farżina, Ħandaq, Attard, Santa Venera, Lija, Balzan, Iklin, Ħamrun (excl. Rabbat area), Valletta, Floriana, Albert Town (Excl. Wasteserv, Civil Abattoir, and Marsa Open Centre), Gwardamanġia, Pietà, Lower Parts of Msida, Parts of Ta' Xbiex, Birkirkara, Marsa (Excl. Upper + Race Course)	Ta' Qali Group Blend	North Region & Central Region
WQZ 7	Parts of Żebbuġ (Laurenti Area included), Għar Lapsi, Siġġiewi (Providenza Area)	Siġġiewi B/H collection system	North Region
WQZ 8	Qrendi, Mqabba, Kirkop, Żurrieq, Safi, Gudja, Għaxaq, B'Bugia, Żejtun, Żabbar, Isla, Bormla, Birgu, Kalkara, Xghajra, Marsaxlokk, Marsaskala, Fgura, Paola, Tarxien, Ħal-Far, Free Port, Luqa, Ħal-Farruġ, Kordin Ind Est, Qormi (excluding Handaq + Farzina), Drydocks, St. Vincent de Paule, Marsa Ind. Est, Ħamrun Tar-Rabat area, Parts of Marsa (Upper + Racecourse, Wasteserv, Civil Abattoir, and Marsa Open Centre), Bulebel, Santa Luċija	Qrendi Res. Blend	South Region & Central Region
WQZ 9	St. Andrews, Pembroke, Swieqi, Paceville, St. Julians, Sliema, Gżira, Mater Dei, University Heights, San Ġwann (Excl. Ta' Zwejt), Swatar & Upper Parts of Msida (including Msida Circus & Lautier Aluminium area), Parts of Ta'Xbiex	Pembroke R.O Plant	Central Region
WQZ 10	Għajnsielem, Mġarr, Qala, Xagħra, Nadur, Xewkija (lower), Victoria (upper), Fontana.	Predominantly Cenc 3	Gozo Region
WQZ 11	Sannat, Munxar, Xlendi, Għarb, Ghasri, Kerċem, M'Forn, Victoria (Lower), San Lawrenz, Xewkija (upper), Żebbuġ.	Predominantly Cenc 4	Gozo Region

* From August 2017 all of Birkirkara, Balzan, Lija and Iklin form part of WQZ 6 (moved parts from WQZ 3 and Ta' Paris from WQZ 9)

Analysis of consumers' points resulted in the following percentage compliance during 2017, as per table 4 below:

	2017
% compliance Microbiological parameters	100%
% compliance Mandatory parameters	99%
% compliance Indicator parameters	90%

A particular challenge was the boron parameter. Standard reverse osmosis desalination only partially removes boron. The WSC carried out a substantial investment during 2016 and 2017 and replaced the reverse osmosis membranes. This investment proved its worth with greater improved results.

As in previous years, the laboratory's wastewater monitoring programme covered the analysis of all stages of the 4 sewage treatment plants, ranging from crude sewage, to all levels of treatment, till the final effluent and sludge being generated from the plants.

Table 5 below depicts the number of samples analysed from the four sewage treatment plants during 2017.

	Gozo STP	North STP	Ta' Barkat STP	St Antnin STP
Total number of samples analysed	578	473	3071	574

c. Monitoring New Water

The Corporation started producing New Water from the Ċumnija plant in March 2017. Since the commissioning stage the laboratory has tested samples from different stages of production and verified its compliance with the report entitled: 'Minimum Quality Requirements for Water Reuse in Agriculture Irrigation and Aquifer Recharge' which was published by the Joint Research Centre (JRC) which is the European Commission's science and knowledge service. The laboratory also led extensive discussions with the Food Safety Commission until the green light was given by this same commission for the WSC to make New Water available for Agriculture. New water is regularly analysed to continue to ensure compliance. During the period under review, 228 samples were analysed, resulting in a total number of 3418 tests during monitoring. Table 1 above depicts the total number of samples and tests analysed.

d. Other samples analysed

Apart from the monitoring programmes mentioned, the laboratory also performs various investigations such as those involving leakages, laying of new mains, customer complaints and compliance with respect to discharges into sewers. Moreover, the laboratory is actively involved in research and other corporate projects. It also offers its analytical services to third-parties. Table 6 below shows the number of samples analysed in the categories mentioned.

Category	Number of samples
Water leakage investigations	1494
Laying of new mains	163
WSC investigations or research programmes	2870 + 85 (WW)
Customer complaints	98
Wastewater samples related to Discharge Permit Unit investigations	19
External Customers	3153 + 379 (WW)

Compliance

The role of the Compliance and Quality Directorate is to serve as the Corporation's internal regulator. Through its different sections, it monitors various operations and products. In brief, the WSC laboratory monitors and controls water and wastewater quality and liaises with external regulators. The Management Systems Office ensures that all processes within the Corporation are adequately documented, understood and followed and is also the internal operational auditor. The Health and Safety Office acts as the internal regulator on health and safety matters, whilst the Discharge Permit Unit controls trade discharges into sewers. The following pages provide details of each of these sections.

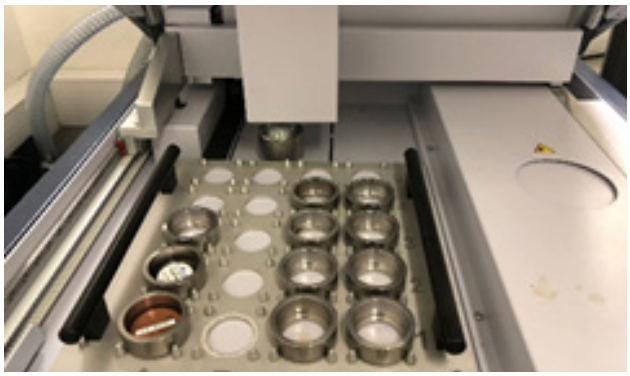
a. The Laboratory

During 2017 the WSC continued to improve its laboratory's parameter portfolio, whilst also investing heavily in staff development. Staff was sent for training in the UK on pesticide analysis, whilst the corporation also invested in new equipment for the analysis of pesticides and other parameters. The laboratory possesses the necessary expertise in the scientific and technical fields and supports various other WSC departments.

Validation of new laboratory methods are ongoing and the methodology of bromates and other parameters was completed. Other validations including the review of several in-house procedures are being performed. Several other initiatives are also underway and these include studies to become more cost-effective and increase the lab's market. During the period under review the WSC concluded several agreements with third parties so that its facilities can provide analyses and expertise in water treatment and analysis.

The WSC laboratory is already accredited for possibly the largest number of parameters in both chemical and microbiology fields in Malta. This will increase in the coming years since the corporation is in the process of validating several other parameters such as Total Organic Carbon, Total Nitrogen, Chlorates, Chlorites and other different water matrices to further increase its scope in other chemical parameters. This will ensure reliable analysis of waters such as potable, waste and "New Water" as well as treated effluent, within the shortest turnaround times.

The WSC also increased the laboratory's work force, which now numbers 5 scientists and 12 lab technicians. The corporation continued its collaboration with MCAST to provide apprenticeship schemes to future technicians. The corporation is also attempting to access more EU funds to expand the laboratory's waste analysis capabilities. Plans are also underway to create a dedicated Legionella analysis laboratory.



Along with other WSC sections, a number of laboratory professionals participated in various TV and Radio programmes in order to highlight the capabilities and expertise of the corporation and to educate the public and various entities on water quality and other issues.

b. Institute for Water Technology

As in previous years, various activities especially training and meetings were held at the WSC's IWT facilities.

One major event was the European Benchmarking Workshop in November. Around 90 participants from different water utilities participated in this international workshop to discuss the results of a benchmarking exercise performed between different European water and wastewater utilities. This included the checking of input data and indicators, assessment of performance gaps, the identification and sharing of best practices, discussing ways for improvement and networking. The workshop consisted of plenary and various breakout sessions to discuss best practices and ways on how to improve benchmarking across Europe. It also focussed on Asset Management, Energy Efficiency and Climate Resilience as well as on Cyber security

Minister Joe Mizzi (R) and WSC CEO Richard Bilocca addressing the workshop

c. Discharge Permit Unit

Over the years the importance of sewage quality has increased greatly because rather than a problem, sewage is now viewed as a resource that can be exploited and put to good use.

This shift in mentality has brought into the limelight the reuse of waste water which was embodied through the New Water project. Central to the success of this is the quality of sewage being discharged into the sewer network by industries operating in Malta.

The WSC's Discharge Permit Unit (DPU) is responsible for the enforcement of the Sewer Discharge Regulations (SL 545.08). The DPU carries out inspections and issues discharge permits to operators in industrial sectors ranging from catering & accommodation, various SMEs, food factories, pharmaceutical companies, to fuel stations and other industries which essentially produce wastewater.

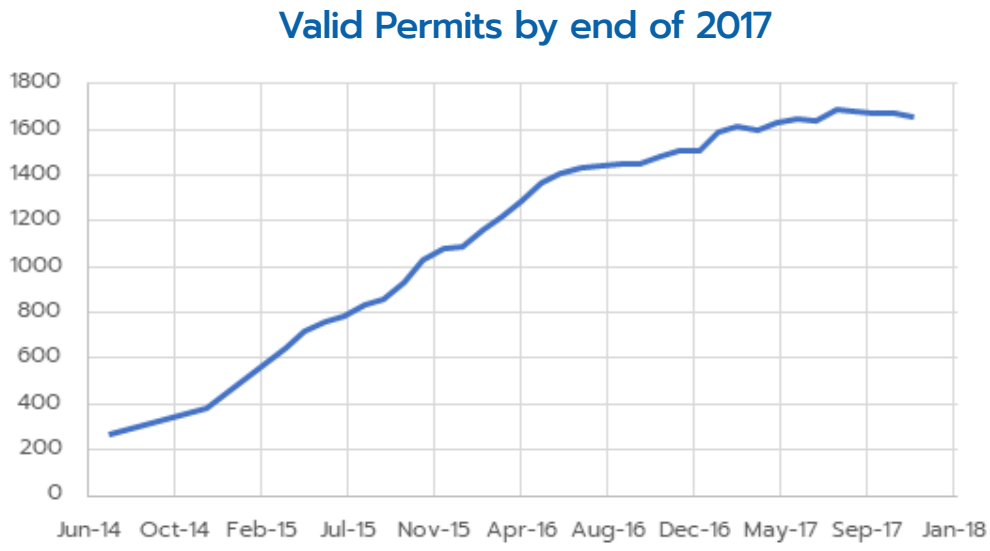
The DPU mainly carries out inspections which include random surprise inspections, follow-up inspections, on-site meetings and collection of samples. During 2017 the DPU teams carried out 3897 inspections on various establishments from all industry sectors. The DPU also performs special investigations which are generally of a more complex nature requiring collaboration with other WSC sections. These inspections arise from internal reports, feedback from customers, as well as through third-parties such as ERA, MRA, MTA, TM, and Local Councils. The inspections carried out and the resultant details from same can be seen below in Table 1.

Month	Tot. no of Inspections	Permits Issued	New Industrial	New Catering	Renewal Industrial	Renewal Catering
Jan-17	451	147	5	14	9	119
Feb-17	379	195	12	15	15	153
Mar-17	389	145	5	19	8	113

Month	Tot. no of Inspections	Permits Issued	New Industrial	New Catering	Renewal Industrial	Renewal Catering
Apr-17	375	194	16	16	8	154
May-17	438	185	7	8	13	157
Jun-17	291	140	8	10	16	106
Jul-17	260	102	5	11	17	69
Aug-17	208	93	5	10	12	66
Sep-17	196	67	4	9	9	45
Oct-17	341	133	5	7	11	110
Nov-17	369	161	9	6	19	127
Dec-17	200	102	5	5	14	78
TOTAL 2017	3897	1664	86	130	151	1297

These enforcement efforts resulted in the DPU issuing 1664 permits during 2017 - an increase of about 10% over the previous year. Renewed permits numbered 1448, a very significant 44% increase over the previous year. Moreover, the total number of entities covered by a valid permit by the end of 2017 increased by a further 10% over the previous year and now stands at 1657.

The increased number of entities covered by a permit since July 2014 may be seen in Figure 1 below. The work done by the DPU has helped lower the number of network blockages, prevented the discharge of prohibited effluents and decreased wastewater treatment costs



As a result of WSC's continuous investment in its staff the performance of the DPU section has steadily improved in order to meet the level of excellence required. Proof of this commitment is the use of around €6M of EU funds for projects related to discharges into sewers. These projects will allow the DPU to keep raising enforcement levels which is so important given the expansion of Malta's industrial sector.

d. Management Systems Office

During 2017 the final surveillance audit in the current cycle was carried out which also included the transition audit for the new standards. The latter was conducted by our external assessors from SGS UK Ltd. This external audit comprised a series of interviews with key contact people, observation of core operations and a review of documentation and upkeep of records.

The Corporation successfully completed the transition to the new 2015 standards ISO 9001 and ISO 14001. The section also coordinated 84 internal audits and 19 site audits were carried out to ensure continued compliance to 14001 site requirements. In addition to the sites currently 14001 certified, other non-certified sites were visited and audits were carried out to act as a gap-analysis. This shows an increase of control by the Management Systems team and a culture of continuous improvement.

The categories examined include emergency preparedness, waste management, security of chemicals, storage and storage media and the importance of personnel competence and training.

Special trays and storage hardware to hold hazardous waste were installed in 14001 certified sites. The renewal-of-certification for the WSC's 7 waste carrier vehicles was also carried out.

Since the WSC is considered a producer, the Waste Scheme for Electrical and Electronic Equipment was implemented and resulted in a total of 5.8 tons disposed of according to local regulations.

The section is currently working on the upcoming re-certification to ISO 9001 and ISO 14001 standards, which includes the updating of documentation and operational procedures, checking of records etc. This will ensure that in 2018, re-certification will proceed and WSC's credibility preserved. The management systems office is liaising and coordinating with several other sections in preparation for the upcoming external audit.

e. Health and Safety

The Corporation is working towards a Zero Tolerance policy – a culture where safety is a priority for all employees, contractors and the general public. No injury is considered acceptable and all activities are undertaken without compromising health and safety.

The Corporation continued to invest in its health and safety by increasing the number of inspections and risk assessments and in the continuous training of its employees in proper safety procedures. Health and safety representatives were nominated for each section to strengthen health and safety awareness and adherence to health and safety regulations. Various processes were improved in accordance to health and safety.

f. REWS Reporting Requirements

The Corporation is obliged to have an updated operating licence from the Regulator for Energy and Water Services (REWS). The WSC therefore submitted a number of detailed reports to REWS that encompass a number of different aspects of WSC activities. These included data on water production, waste water collection and treatment, payroll, assets, customer care, emergency preparedness, security of supply and leakage control.

Network Infrastructure

a. Key Performance Indicators real time dashboard application software

During 2017 a real-time dashboard application software was created inhouse to depict key performance indicator values of the water and waste water networks of the four regions. Each KPI was allocated to each unique operation and is distinct for all the regions in question. Accountability is guaranteed and regional personnel engage in healthy competition as comparisons are made.

The most important feature of this real-time dashboard is that one can easily assess the impact of decisions taken and fine-tune as necessary to ensure corporate goals are achieved.

This tool accepts different performance indicators and target values, sending a clear and consistent message to the workforce to reduce handling times when it comes to performance and productivity. It helps create a mindset focused on the most important issues and requirements.

The following are KPIs presently updated in real time:

- **Billing Update Failed**

  This depicts the difference between installed meters and those capable of generating solid information that enables successful billing. It is useless to install many AMM modules that fail to provide the required accurate information, so this KPI keeps regions and installers in check.

- **Pending Leak Marks**

  This is a check on how much pending suspected leak marks there are in the region and should be seen in conjunction with the leakage levels. A balance needs to be struck here to ensure that the right resources are being allocated to different work streams.

- **Pending Leak outside**

  This is another check of pending works and needs to be viewed in the overall context of pending jobs and leakage values.

- **New Services**

  This indicator is bound by customer charter and needs to be carried out within expected timeframes.

- **Pending Notifications**

  This refers to the overall global requests for all regions. A quick glance at this figure depicts the capability of the region to keep up with the incoming work load.

- **Infrastructure leakage index**

  This is undoubtedly the most important KPI. It is an international indicator that shows how well the island is controlling leakage. Each region is monitored separately and compared to previous years. Regions are kept in check by this kpi and is the indicator that most strongly dictates the allocation of work load.

By means of this application, each Region has more control in deciding which key performance indicators need urgent attention and may compare its performance on a weekly and yearly basis.

At the end of the period under review over 8,100 RF modules capable of sending meter readings electronically for billing purposes were installed. Thus far, 241,000 meters are equipped to send meter readings automatically. Meetings were held with all the stakeholders including the Customer Care Centre, Strategic Information Directorate (SID) as well as ARMS Ltd to ensure seamless integration in the way notifications are handled by the Regions vis-à-vis the meter Work Orders being issued. This was crucial to ensure that installations are not faulty with meters not capable of.

The number of "reached" RF modules remained steady over 2017. The receiver layer requires constant maintenance and it is WSC's intention to invest in this network to increase the percentage of AMM modules received by the system

b. Billing Update

During 2017 the centralised Meter Section was better sized and equipped to improve customers' billing by resolving issues from WSC's end in a timely manner.

A number of back-office personnel now liaise between customers and technicians to resolve issues such as incorrect meter/module numbers, meter readings and other anomalies. These issues are depicted through what are called the Recovery Queue (RQ), Account Locks and BUPFs. So many things can go wrong during an installation so it is necessary to keep errors to a minimum to ensure that billing progresses smoothly without causing problems to consumers and WSC personnel.

Given the substantial increase in work load, the number of failed work orders, which are errors emanating due to installation mistakes, increased slightly during 2017. Compared to total meter numbers this is not significant and will be tackled throughout 2018.

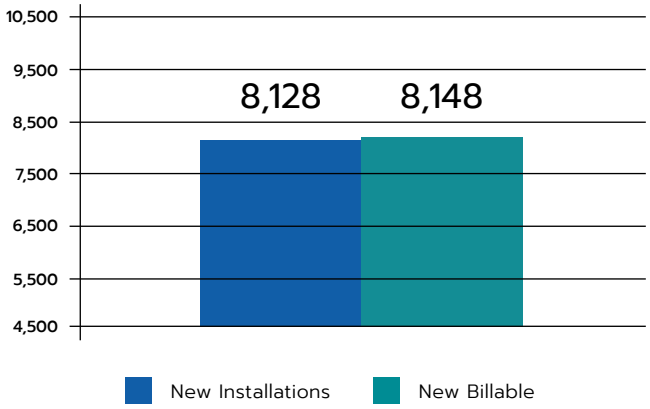
Over 9,000 accounts were cleared and forwarded for billing purposes. These locked accounts are generally under control except for seasonal fluctuations.

c. Billing Update Failed (BUPF) Notifications trend

Much effort and resources were allocated to reduce this type of error, which prevents an account from being successfully billed. Following a sustained drive BUPFs have been consistently on the decline where over 2,500 cases were resolved over the year.

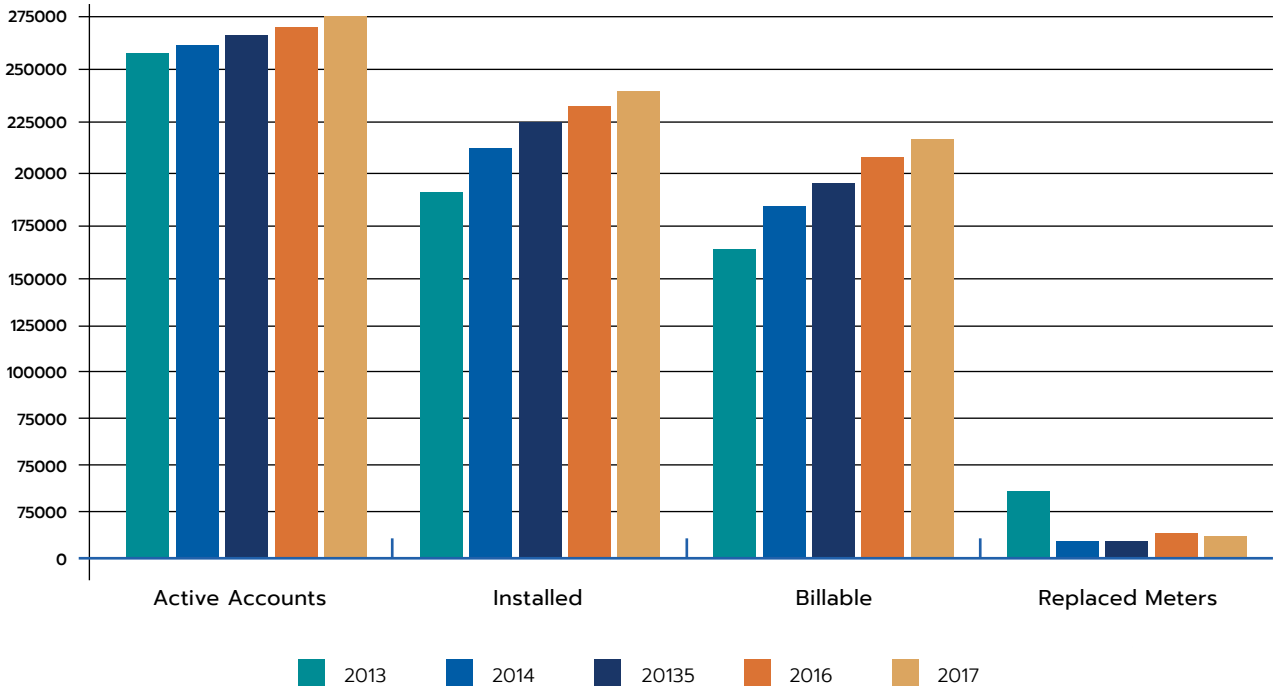
The total number of automatically billable accounts over the year 2017 increased from 207,195 to 215,343 which is a substantial increase. Notwithstanding, efforts will be made in to increase automatic billing to capture a wider consumer base.

d. Overall Billable when compared to New Installations

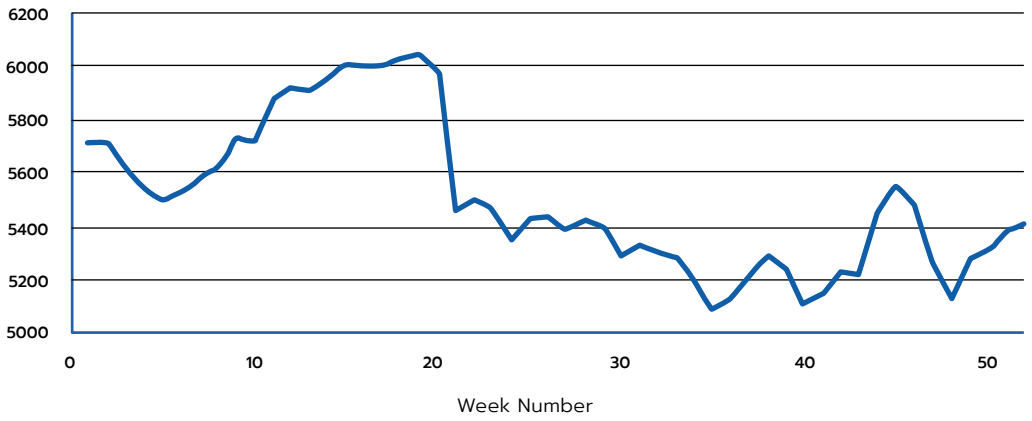


This important KPI ensures that all the new RF Installations executed were correct throughout and some past mistake corrected since there was a more than 1:1 ratio in the increase between new installations and billable. More effort to recoup past errors shall be ensured over the coming years.

Depicts comparison of works since 2013:

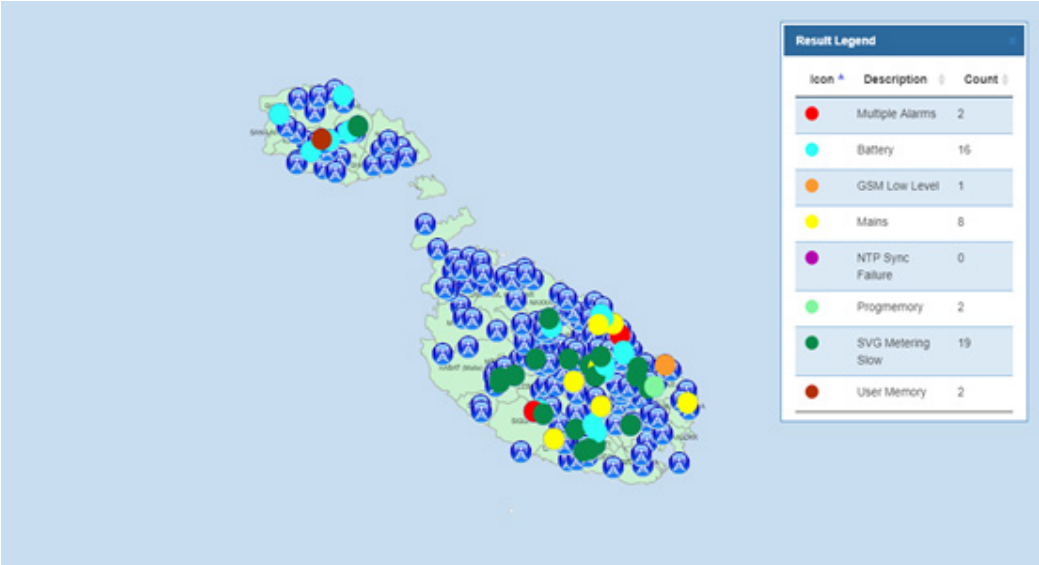


Notification trend on the decline throughout 2017:



Following an increase at the start of the year, a steady decline was registered in Q3 and held over Q4. Much effort was allocated to solving all issues related to notifications and section is now geared up to address and further reduce these pending works.

GIS Integration has become a tool assisting metering section on a daily basis:



Various new reporting tools in 2017 were developed together with the SID to help monitor and manage progress in a better manner. KPI's are now updated in real time and are visible to all stake holders, who in turn act to ensure no sensitive area lags behind other less critical areas.

e. High Consumption Section

Over 2000 letters were sent to customers all over Malta and Gozo to warn them of a possible leakage in their household. Specialised software pinpoints excessive consumption by looking at night consumption and warning of possible leakage that results in unnecessary waste and possibly high bills. The average leak in households throughout 2017 was of around 90 litres per hour. During 2017 millions of litres of water were saved from being wasted by going unnoticed by customers using this initiative. Over 2500 home visits related to high consumption or water infiltration from neighbouring premises were carried out. This tool also serves daily operations as it also pinpoints leakages in private households that end up being a nuisance to neighbouring property.

f. Capital investments carried out to increase effectiveness and efficiency in operations.

Network operations necessitates continuous investment in tools and upgrading of existing assets to ensure both the water and waste water systems function efficiently. During 2017 investments were made in pumps, network alterations, drainage cameras, control panels and modelling software.

g. Pipe inspection tools:

A new CCTV rotating camera and lateral cutter was bought by the waste water departments in order to keep abreast with new technologies and ensure excellent service to consumers. The exact location and nature of required interventions is quickly passed on to the repair teams who repair the inside of the pipe within the pipe itself, without the need to excavate. Used together with other special tools such as a root-cutter and a lateral cutter machine, this camera reduces costs and traffic disturbances by avoiding excavation work.

TOP: Motorized rotating head camera mounted on a robot that travels inside pipes.

RIGHT: Faults located by the camera inside a damaged pipe.

This latest addition to the hi-tech tooling is an engineering solution that permits several operations within the boundary of the pipe itself. Elimination of root ingress and trimming of protruding service pipes inside sewage mains can now be practically done without excavation.

Lateral cutter machine operates from within the pipe itself.

h. Generator at Lunzjata sewage pumping station

To enhance network robustness the WSC installed a generator at the critically-located sewage pumping station in Lunzjata valley. This station receives raw sewage from various villages and is sited in a protected nature habitat. This will reduce and hopefully eliminate the possibility of valley contamination. Prior to this project, during power failures technicians had to transport and temporarily connect a large generator on-site, in a race against time to avoid sewage overspills. Now this automatic system has eliminated such wasteful practices.

i. New efficient booster pumps

All WSC operations depend heavily on grid power so engineers keep abreast of energy saving technical solutions and best practices.

Energy audit exercises are regularly carried out to pinpoint inefficient pumps. This eventually leads to the purchase of more efficient pumps and network alterations. This year saw upgrades in four pumping stations, replacing old motors with IE 4 rated upgrades. These motors consume 30% less electrical power for the same output, with a payback period of just under two years. The booster pumps carry a typical lifetime of at least 10 years when working continuously over 24hrs a day when controlled by special inverters.

j. Modelling Software

The corporation acquired MIKE URBAN modelling software for urban water networks. Through this software WSC engineers can improve sewer design and sizing of mains and pumping stations. Rain water loading in sewers can also be modelled and it is now easier to pinpoint bottlenecks and other flow issues and prioritize works accordingly.

k. WSC Projects for EU-Funding Period 2014-2020

Throughout 2017 the WSC concluded all the planning, designs and bills-of-quantities (BOQs) of a major €100 million project consisting of diverse infrastructural projects to be implemented through EU funding (period 2014-2020). This preparatory work involved various focus groups made up of management, professionals and senior staff, who developed designs, reports, specifications and tender documents. Throughout the year under review the WSC co-ordinated with EU consultants JASPERS to finalise project approval and the commitment of funds.

The project proposal includes several modules which address all the main areas of the Corporation's operational cycle, namely water production and distribution, wastewater collection and treatment and water reuse. Moreover, the project aims to have an impact on a more widespread level to ensure that benefits in one area of the operational cycle, affect other operational areas. So for example, the benefits gained by improving drinking water quality, will have a positive effect on wastewater treatment costs and even on further treatment for water reuse.

The expected benefits of this project on the Corporation's main operations are improved customer service, optimised operational efficiency and reduced environmental impact.

l. Net Zero Impact

This project will allow the Water Services Corporation to have a neutral and possibly even a beneficial impact on the water environment. It will ensure that by means of aquifer recharge and the distribution of New Water instead of groundwater, the corporation will return to the environment at least the same volume of water as that abstracted from underground aquifers.

The project will significantly reduce the WSC's environmental impact by increasing energy efficiency, lowering emissions and improving the quality of treated wastewater discharged to sea, to levels well above the minimum requirements of the Urban Wastewater Treatment Directive.

	Action title
1	Balancing of the spatial distribution of groundwater abstraction for a better water blend
2	Investment in the primary water network to supply potable water to unconnected areas in Malta
3	Investment in the primary water network to improve the efficiency and blending capacity of the distribution network (Pembroke-Qali Underground gallery)

	Action title
4	Greater energy efficiency and renewable energy measures to improve the sustainability of water production and distribution processes.
5	Increased production capacity and desalinated water stability in Gozo (Ħondoq RO)
6	Increased secondary network to deliver highly-treated polished water to communal distribution points across the Maltese Islands
7	Upgrading and expanding the public sewage network

Another example is the proposed upgrading of the Western Area drinking water network to ensure potable water supply security. This will allow the WSC to better manage ground water abstraction, thus offering better aquifer protection. These projects demonstrate how the various components complement each other and how their implementation will ensure that the project is more than the sum of its parts

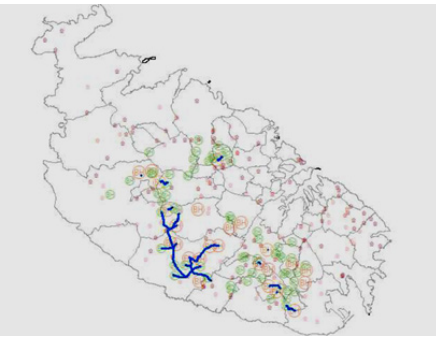
The Scope of the Seven Initiatives

i - Ground Water Improvement

Groundwater quality will improve by using some sources that are currently off-line from other parts of the Island. More ground water will be stored in reservoirs and the sumps of some groundwater pumping stations will be refurbished to prevent sea-water infiltration.

ii - Extending the Potable Water Network

This will complement the above-mentioned and extend the water network to the outskirts of Siġġiewi/Qrendi/Żebbuġ.



The Scope of the Seven Initiatives

iii - Tunnel from Pembroke RO to Ta' Qali Reservoirs

The primary scope is to have more uniform water quality over all areas of Malta. The tunnel will be used to pump water from Pembroke RO to Ta' Qali Reservoirs, then the blended water will be distributed by gravity from the Reservoirs

iv - (Phase 1 – RO upgrades)

Some of the equipment in the existing RO Plants will be upgraded, after which all the trains at the plants will run at an operational efficiency of 2.8KwHr/m³. Photovoltaic panels will be installed on roofs at Pembroke and Lapsi.

(Phase 2 – RO capacity increase)

This will ensure an adequate supply to meet future demand for drinking water and guarantee that the National Water Policy to achieve >250mg/l chlorides across all the Maltese Islands is achieved.

The Scope of the Seven Initiatives

v – New RO Plant in Gozo

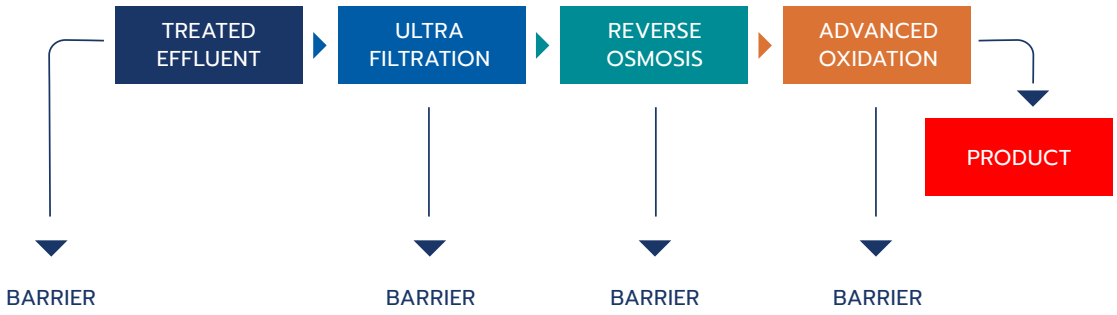
A new 9,000 cubic metre per day RO Plant at Ħondoq ir-Rummien Gozo will be installed in the existing old decommissioned distiller plant building.

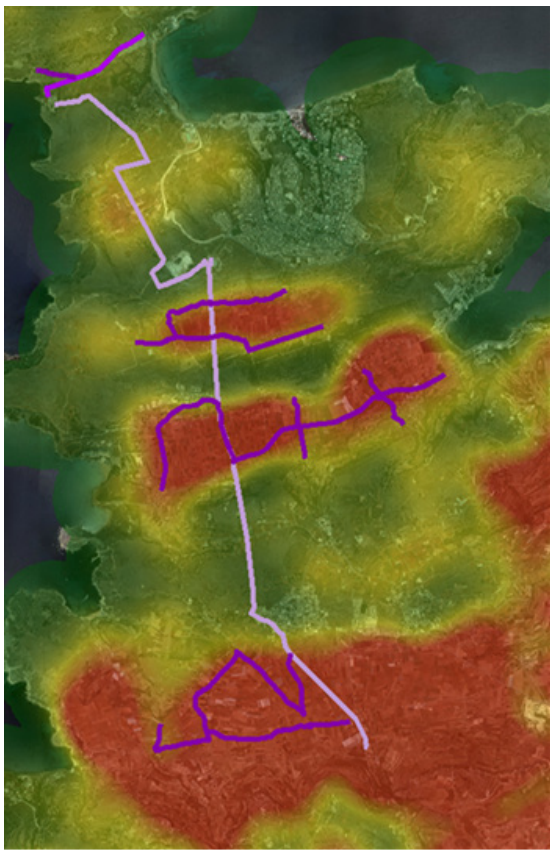
With the Ħondoq RO Plant and the investment made through Action 3, the number of water quality zones can be decreased from the present 11 to 6 as shown hereunder.

The Scope of the Seven Initiatives

vi – 'New Water' network extension

This will allow the New Water produced by the new polishing plants to be distributed more widely across the Maltese Islands. More automatic dispensing points (hydrants) for agricultural use will be installed.

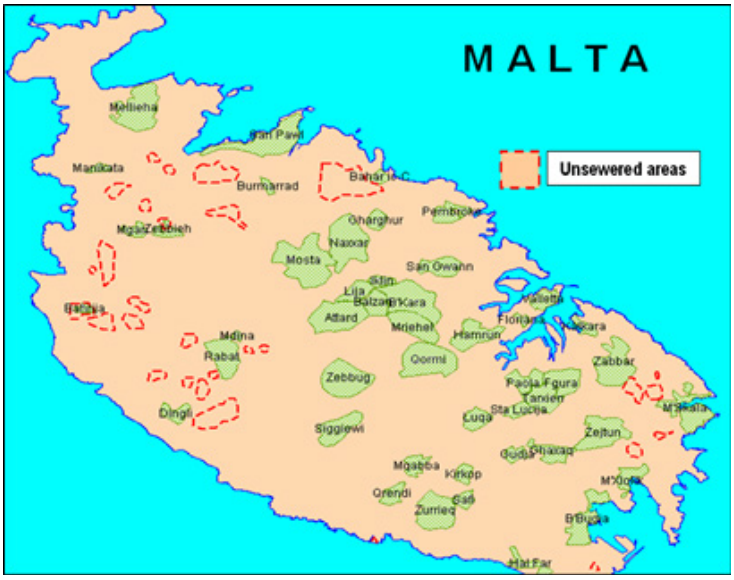




The Scope of the Seven Initiatives

vii – Upgrading and expansion of the sewage collection network

A number of sewage network extensions and refurbishments are planned. These will reduce sea-water infiltration in the sewer network, remove bottlenecks where capacity has been exceeded, service currently unconnected areas to the wastewater network and improve the monitoring of discharges into the network.



Corporate Services Directorate

The main duties and responsibilities of the Corporate Services Directorate include the strategic overall management of the Finance (incl. Payroll), Procurement, Stores and Logistics, Technical (Auxiliary) Support Services and General Administration including Insurances, Legal, Corporate Security.

a. Investment in Renewable Energy Technology

In 2017 the Water Services Corporation successfully completed a €1.46 million communal solar energy farm project. A first in the Maltese Islands. More than 3,500 photovoltaic panels with a surface area of circa 16,000m2 generating a total of 1 megawatt peak of alternative energy annually were installed on Tal-Fiddien Water Reservoir roof situated at Rabat. These are expected to have a lifetime of 25 years.

In line with the Maltese Government's roadmap to meet the 2020 target of Directive 2009/28/EC, the project not only helps in reducing CO2 emissions by six hundred tons per year, but 370 families who lack the necessary airspace for the installation of photovoltaic panels, were able to invest in clean energy and benefit from lower electricity bills.

Fig. 1: More than 3,500 photovoltaic panels were installed on Tal-Fiddien Reservoir.

Having already established long-term strategic partnerships with the Malta Developers Association and GRTU to collaborate in solar energy investments, during 2017 the WSC continued with its programme of investment in renewable energy technology, through the setting up of two subsidiary limited liability companies. These have been entrusted with the procurement, operations and maintenance of solar photovoltaic arrays to be installed on the rooftops of other WSC owned reservoirs at Ta' Qali, Mellieħa and Ta' Ċenċ Gozo. The two projects are expected to generate 3 megawatts of alternative energy annually and will be operational in 2018.

b. Corporate Social Responsibility

The Corporation's social responsibility policy is integrated within its own business model. Its corporate social responsibility policy goes beyond compliance, company interest and statutory requirements. It engages in actions that further the social good of the citizens of Malta. The WSC's CSR strategies are meant to make a positive impact on the environment for the benefit of all stakeholders including consumers, employees, investors, local communities, and others. The Corporation has primarily set its sights upon contributing to the protection of the environment and children's education on the use and re-use of water and waste water management.

During 2017 the WSC introduced social initiatives in line with its corporate strategy for the years 2016-2020. Consequently, the Corporation became the lead sponsor of the Multiple Sclerosis Society of Malta in both financial aid and the collaboration of events.

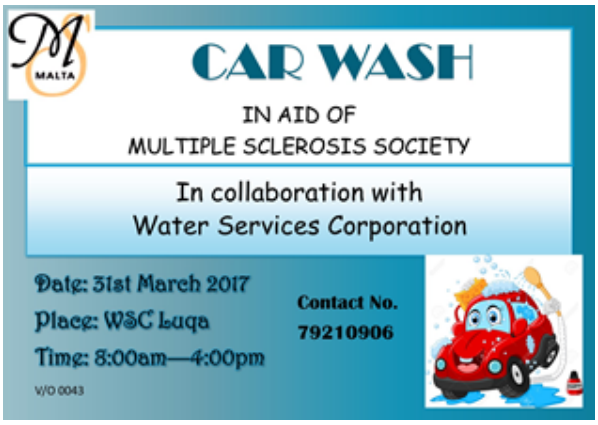


Fig. 2: Car wash activity held on the 31st March 2017 on WSC grounds. This poster was drawn up by a member of the MSS.

In a similar vein the Corporation carried out voluntary works in the following NGO's: Dar Merħba Bik in Balzan; Villa Chelsea; Paola Guest House Richmond Foundation, Żejtun Richmond for Kids and St. Joseph Home, Żabbar. The works included repairs, renovation and restoration and were carried out through the Corporation's own resources.

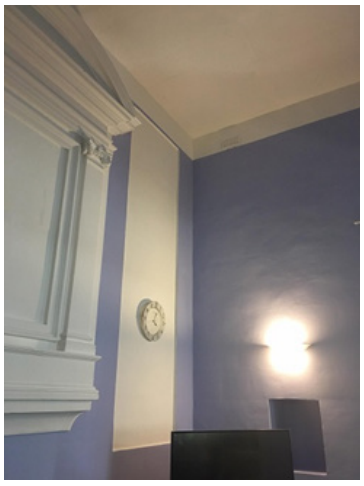


Fig. 3: Works carried out at Villa Chelsea

Fig. 4: Works carried out in Paola Guest House

The corporation is acutely aware that by providing a community role to inmates, work becomes an optimal way to rehabilitate and reintegrate inmates within society.

During the year under review, the WSC also liaised with the Substance Abuse Therapeutic Unit (S.A.T.U.) and hosted an inmate to conduct community work within its premises. This was done in accordance with the Department of Correctional Services Guidelines for Community Work Placement Providers.

c. Finance

The finance section is responsible for all corporate accounting, payroll and financial matters. The section provides valuable tools and reports to the Board of Directors and top management. These include monthly management financial statements, detailed expenditure schedules of the various cost-centres, budget projections, and analyses variances of actual against budgeted expenditure. This is done to review the financial position of the Corporation and take strategic decisions based on these reports. The section also compiles several financial reports and other statutory reports required by various stakeholders.

d. Overall assessment of business performance

The Corporation's focus remains that of establishing a self-sufficient financial balance without compromising on quality and credibility. The WSC can look back on a successful business performance in 2017, despite increased expenditure and a slight decrease in revenue when compared to the previous year.

Unaudited financial statements for the year under review show that for the fourth consecutive year, the Corporation continued to strengthen its financial position and registered a surplus of over €2 million. At the same time more than €2.32 million were repaid on the European Investment Bank Loan which now puts the Corporation's total interest-bearing loans and facilities down to €70.17 million.

Figure 5 shows the net profit registered by the Corporation, after interest payable during the period 2013-2017, while Figure 6 gives a breakdown of WSC's loans and borrowing during for the year under review.

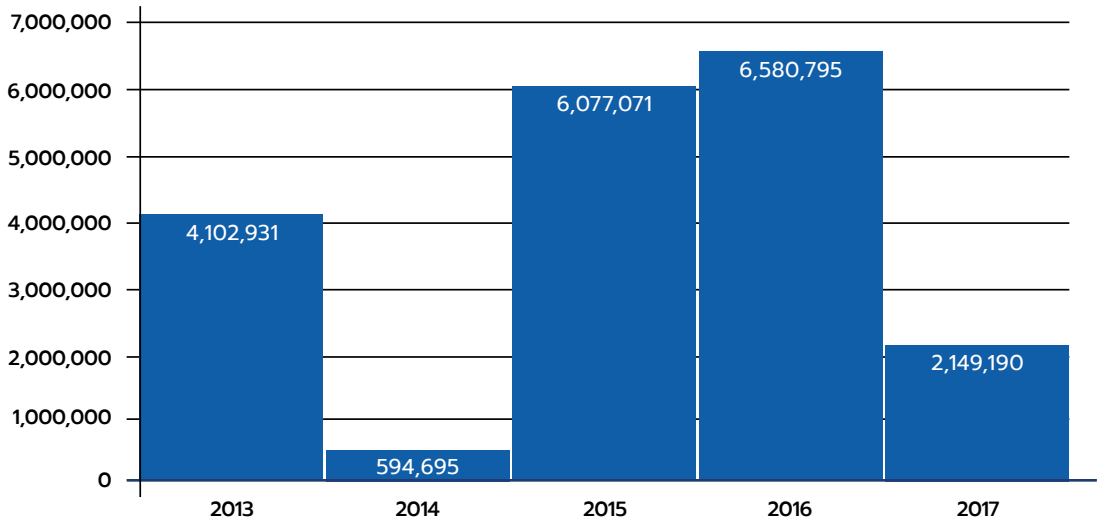


Fig. 5: Net profit registered by WSC during the period 2013 - 2017

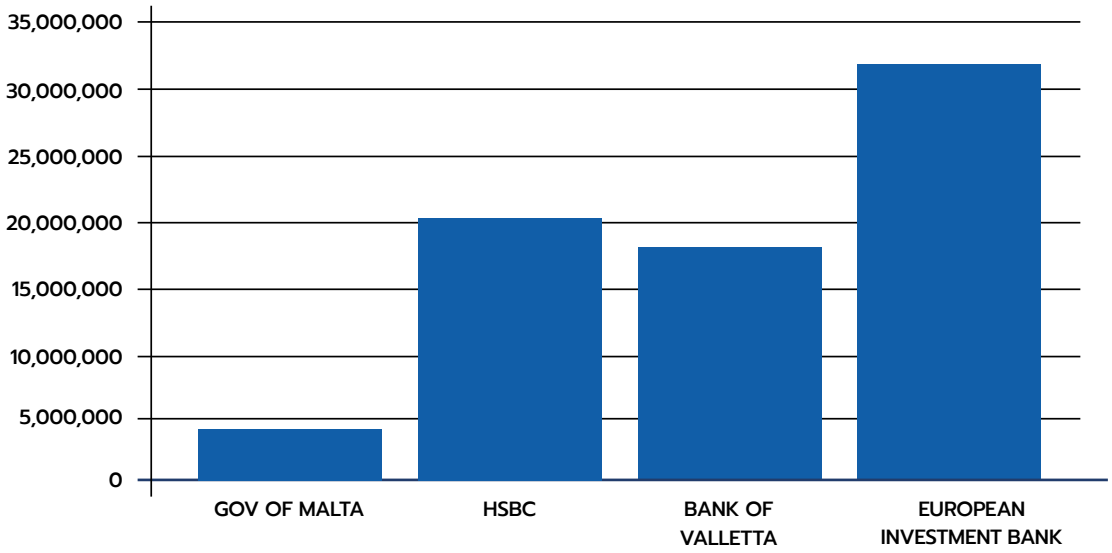


Fig. 6: WSC's loans and borrowings during - 2017

Revenue registered from the sale of water and related services amounted to circa €59.92 million which was a marginal decrease of around €90,000 over the previous year. Other revenue amounted to €3.53 million and the total subvention received from the Government amounted to €14.90 million. Deferred income amortization was €9.15 million which puts the total turnover for the year 2017 at €87.50 million as shown in Figure 7.

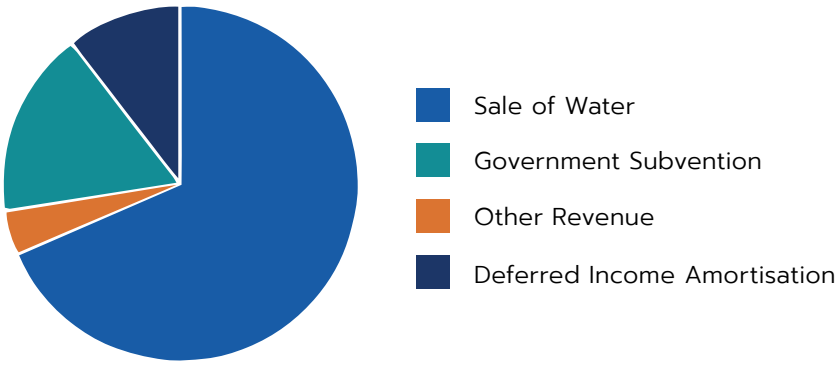


Fig. 7: Total Turnover for 2017

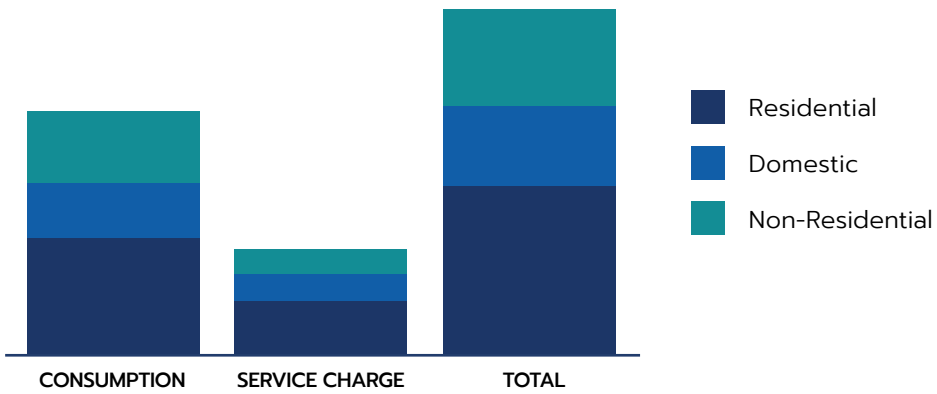


Fig. 8: Breakdown of Revenue related to the Sale of Water

Figure 9 shows the sale of water in m³ divided per category up to December 2017. In total, 17.82 million m³ of water was consumed

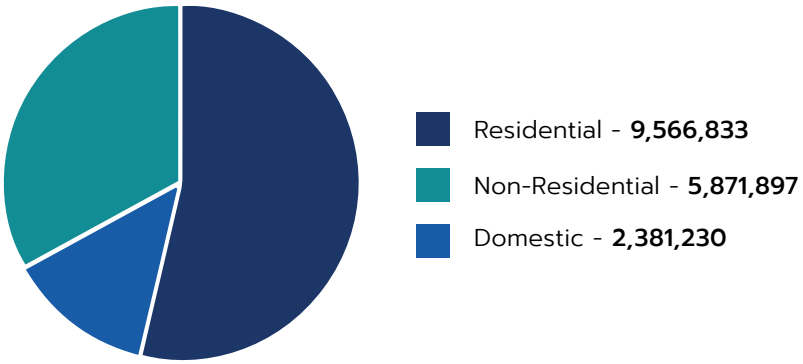
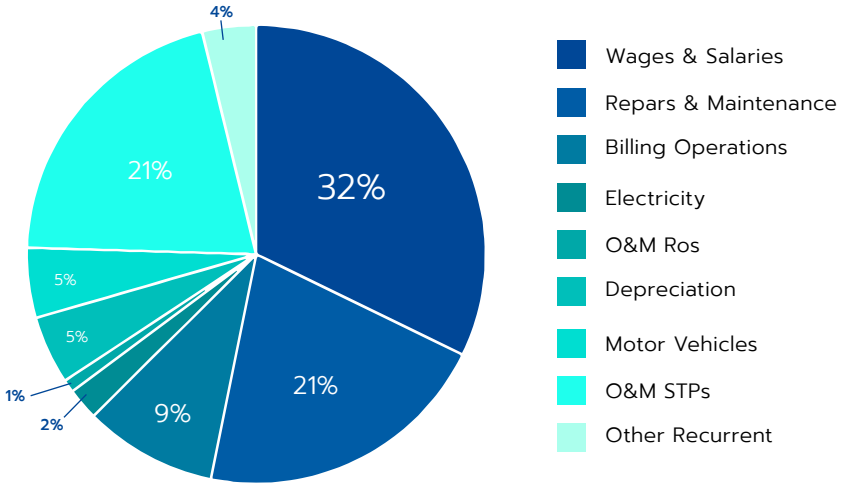


Fig. 9: Actual sale of water in m³ up to December 2017

Total expenditure in 2017 increased by 6% over the previous year to reach €82.88 million, reflecting the cost of operating and maintaining WSC's increasing and diverse infrastructure. Wages and salaries remain the main expenditure item, which at €26.69 million, corresponds to 32% of total costs.

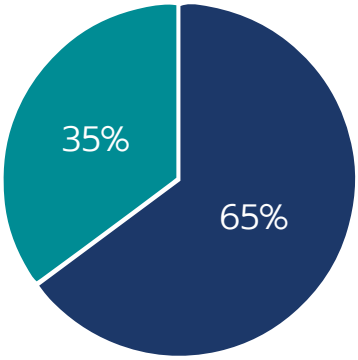
The other two main items are electricity and depreciation, amounting to €17.38 million and €17.19 million respectively, which together make up 42% of total costs. Figure 10 shows the total expenditure of the Corporation per main cost item for the year under review.



e. Procurement

The Procurement Section is primarily responsible for overall corporate procurement and contract support to other sections and units.

During the last couple of years the office was upgraded and its operations streamlined to respond better to the approximately 150 EU funded tenders to be issued during 2018. This included the allocation of more human resources and training to ensure the provision of efficient and extensive services particular those related to the disbursement of EU funds.



Tenders, **59, 65%**

Quotations, **32, 35%**

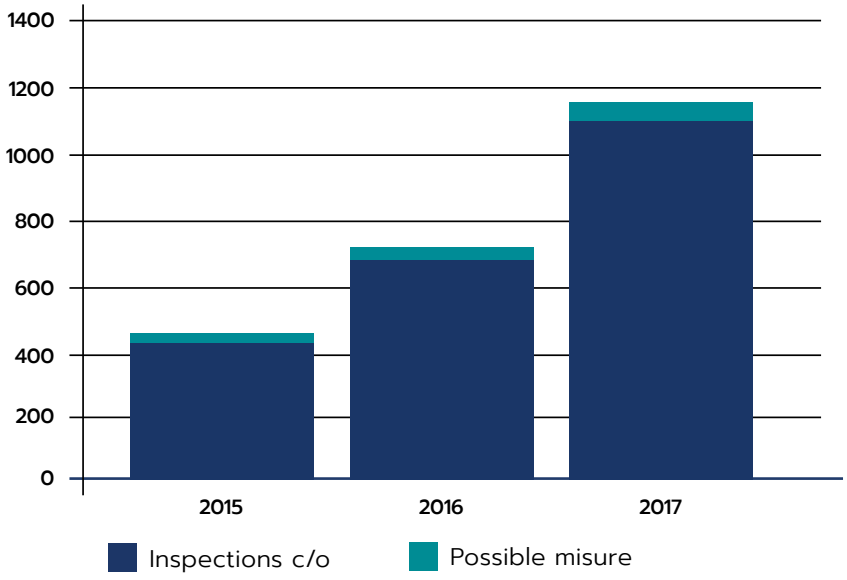
While significant progress was made the office continues to seek improvements by becoming more involved with internal customers and by gaining a better understanding of their needs and recommending purchasing programs that increase efficiency through process simplification.

During the year under review the section issued 91 public calls, of which 59 were calls for tenders, for an estimated value of €10,046,708. Figure 11 gives a snapshot of the calls issued in 2017 when compared to the previous year.

f. Corporate Security

Tampering with the water supply infrastructure is illegal. The WSC takes water theft seriously and aims to crack down on systematic water theft. While customers are encouraged to prevent water theft by reporting any suspicious behavior or suspected wrongdoing, the section has a dedicated team of inspectors aimed at detecting and tackling possible water misuse in a rigorous manner. Indeed during 2017, the section registered significant improvement over previous years and managed to detect 54 cases of possible water theft and/or meter tampering and 38 cases of missing meters. In total 1,106 inspections were carried out. In line with its revised administrative processes, €47,068 were collected during the last year and judicial action was taken for the recovery of unpaid balances.

The table below shows a summary of the progress registered in 2017 when compared to the previous years.



The Corporation continued to guard its infrastructure from theft and sabotage through an all-hazards approach to security, thereby enabling protection and increased resilience to its critical assets. It continued to enhance its resources through numerous protective improvements including control of access to its buildings, cctv installations and training of its security personnel. During 2017 the section carried out 14,353 guard tour patrols on various boreholes, pumping stations and other assets.

Strategic Information Directorate

a. Office 365

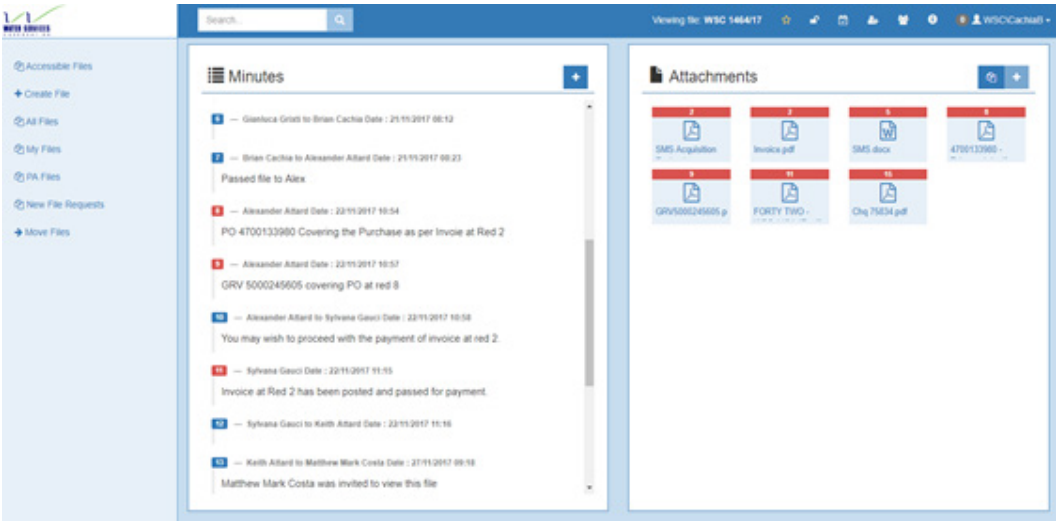
During 2017 negotiations with Microsoft were held to obtain the latest enterprise software and Microsoft Office tools. As a result over 550 employees were provided with new cloud services and Office 365 suite packages. Employees were also granted access to OneDrive Synchronised Services whereby electronic files are automatically backed up. SharePoint online, Skype for business and Yammer have also been provided to all users across the corporation and are now providing employees with effective sharing and communication tools.

b. Antivirus

The corporation implemented a new antivirus software. Apart from security services another benefit obtained was the cloud-based management facility whereby no local servers and support are required.

c. ISO 14000

To meet the required ISO 14000 standards that reduce environmental impact, the SID developed solutions that will greatly reduce or eliminate the use of paper. One of these solutions is the internal File Management System whereby all new files are now being created electronically. This means that apart from drastically reducing the amount of paper this solution also instantly provides authorised personnel with any required documents. The possibility of any loss or misplacement of documents has also been eliminated.

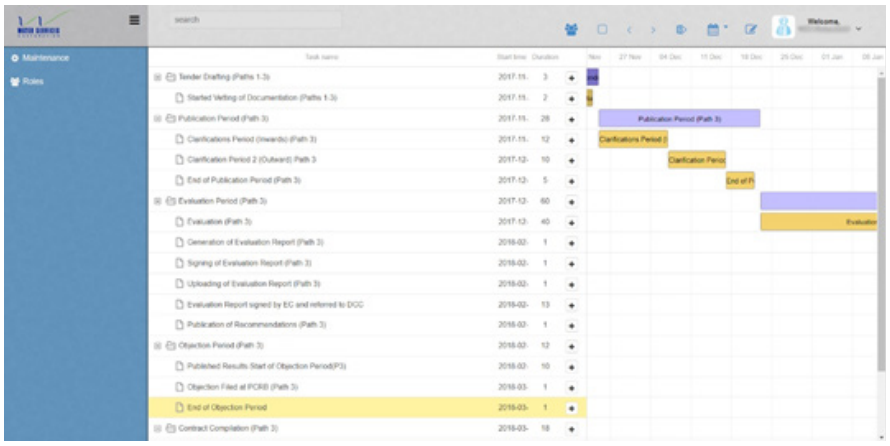


Internal file application

Moreover, to further reduce paper use, any processes, procedures and associated paper forms are being converted to electronic ones. These are in their majority accessible through mobile native applications and fully integrated with SAP whenever required.

d. Procurement

An application to facilitate the procurement monitoring process was introduced. Procurement staff can initialise and track the complete purchasing procedure from tender initialisation, awarding, product delivery and payment follow-up. This application was also integrated with Share Point.

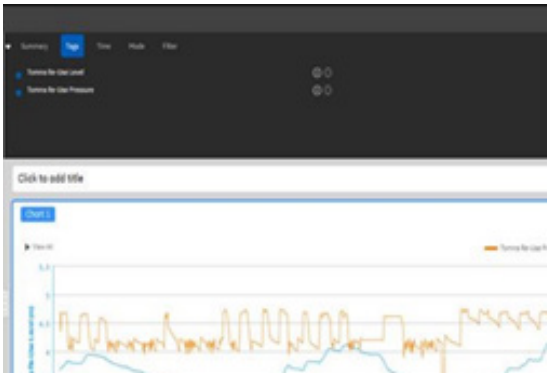


e. GDPR General Data Protection Regulation

During 2017 the Strategic Information Directorate started an exercise to ensure that all the information technology systems and applications used are GDPR compliant. This is an EU regulation that unifies data protection in all EU countries and the WSC is obliged and fully committed to reach full compliancy by May 2018.

f. Supervisory Control and Data Acquisition (SCADA) Strategy

As part of a planned three-year strategy the SCADA section within the SID directorate purchased SCADA specialised software to improve accessibility and efficiency. Major upgrades in SCADA infrastructure were carried out particularly server and database upgrades. One of the major software acquisitions was a specialised software named Historian which consists of an underlying database and front-end interface specifically optimised for handling SCADA data and which greatly facilitates the work of monitoring staff.



Historian Software Interface

The SID department also introduced software to give end-users SCADA accessibility on mobile devices. This is a very useful tool to SCADA technicians and other employees working in this area.

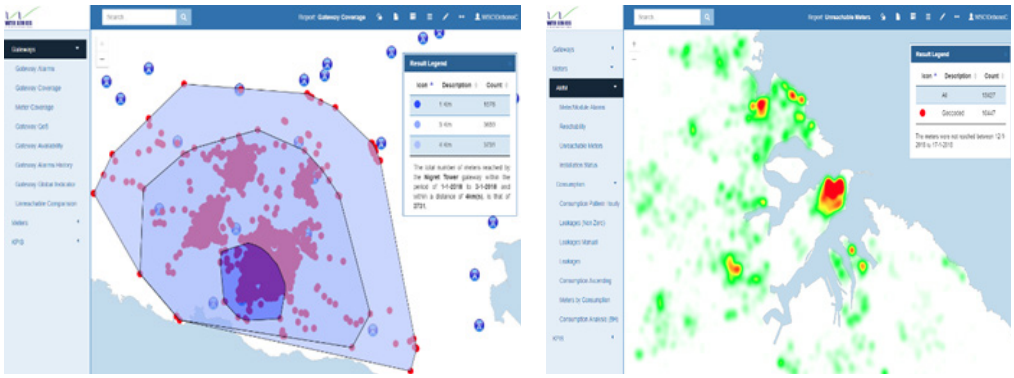
SCADA applications on mobile device

g. Automated Meter Management (AMM)

During the period under review upgrades to the current automated metering architecture and infrastructure were implemented. Most of the upgrades will be carried out at all levels namely transmission, reception and data. The main benefits of this upgrade will be the ability to improve concentrator and transmitter technology. New database technology will be implemented to cater for real-time meter index data. These upgrades will ultimately provide the corporation with endless analytical possibilities especially in the water distribution domain.

h. AquaDot AMM V2

An updated version of AquaDot AMM which is the main automated metering operations monitoring tool was deployed. Apart from improved functionality, visuals and performance, the updated application was designed to incorporate all operational reporting aspects required by AMM technicians thereby eliminating the use of third party software and their license expenses.

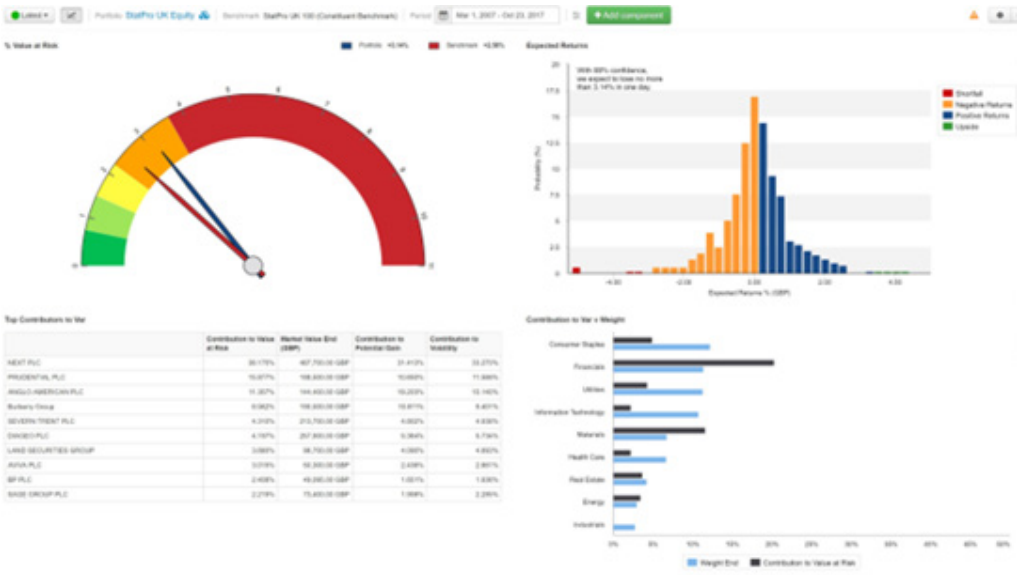


i. Analytics – Business Intelligence

During 2017 the SI Directorate began a project to acquire, transform and interpret data, to carry out meaningful data and business intelligence analysis. Through this specialised business intelligence software investment, managing and administrative personnel are well supported especially where it comes to determining business motives, obtaining informative forecasts, monitoring and real-time decision making. This project stresses the importance of data collection and its integrity throughout corporate departments.

Various Customer Care related business intelligence reports were compiled. These real-time reports continuously monitor the efficiency of services being provided such as the time taken from creation of a customer report to its closure. Since these reports were introduced the time taken to complete jobs has fallen drastically.

Business intelligent real-time reports



A business intelligent monitoring interface.

j. DARA – Data Analytics and Revenue Assurance

A new section was set up to analyse metering data and revenue assurance related tasks. This department identifies financial haemorrhage in various business areas but mainly in the metering sector. Intelligent applications were again deployed to identify various water meter issues. Action was taken to recover any revenue being lost through such issues and since its creation this section identified over one thousand water meter faults out of which more than 70% were rectified. This translates to the recovery of more than 1.1 Million m³ in back billing. The revenue of around one thousand cubic metres of water is being recovered daily.

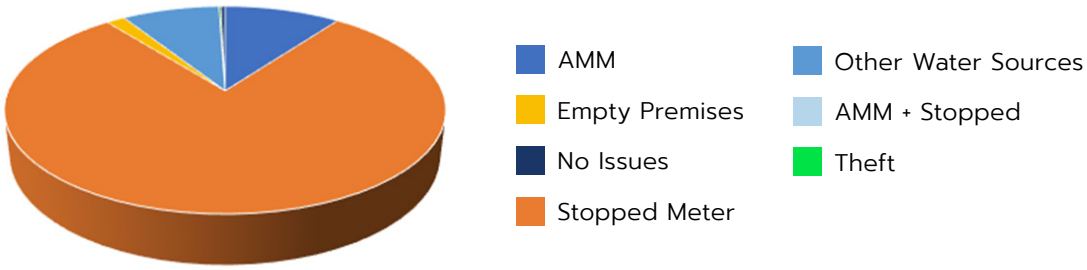


Figure above showing real-time consumer meter issues.

k. SAP Improvements and Enhancements

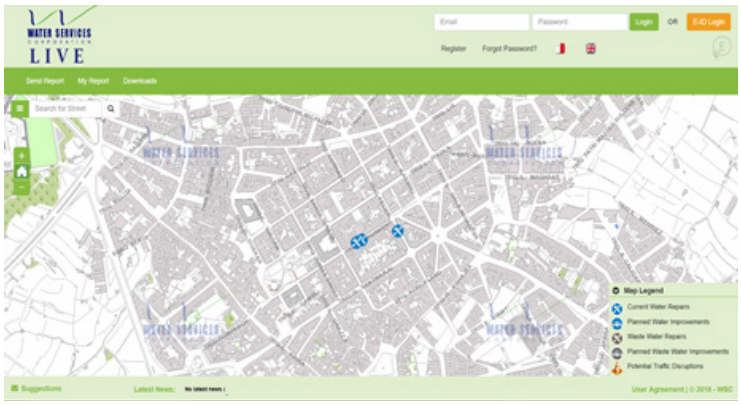
SAP BI is the core report generator for the Corporation supporting Finance and other core business Segments. The SI Directorate in conjunction with IBM conducted a full technical upgrade of SAP Business Intelligence tools which were urgently required to reduce maintenance, increase access to more detailed information and resultant accuracy.

The SI Department also started a New Water related project by conducting the required analysis and coordination so that together with the SAP team and other stakeholders, customisation of prepaid billing facilities would become available.

Customer Care

a. WSC Live Portal

Further developments to improve customer services were carried out on the WSC live portal. Through an additional e-form, customers can now also apply for "New Water" by simply entering the required details and attaching all documents needed for application processing.



WSC live Portal

b. Metering Services Appointment Scheduling

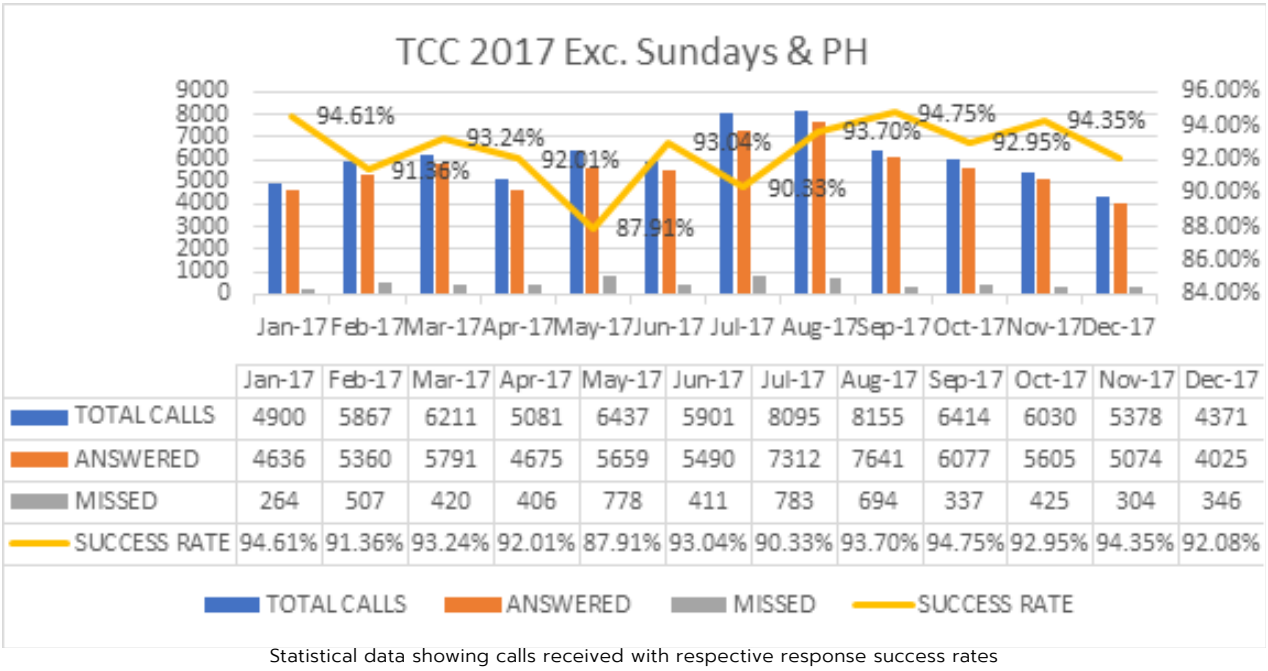
An application to manage customer metering services appointments was also developed. This not only facilitated operations at the metering section, but also greatly improved customer services. This application automatically sends SMS notifications to customers on any scheduled appointment and related changes.

c. SMS notifications of Water Cuts

Customers already registered through the WSC Live now receive a tailored SMS notification on any water cuts in their area.

d. Technical Call Centre

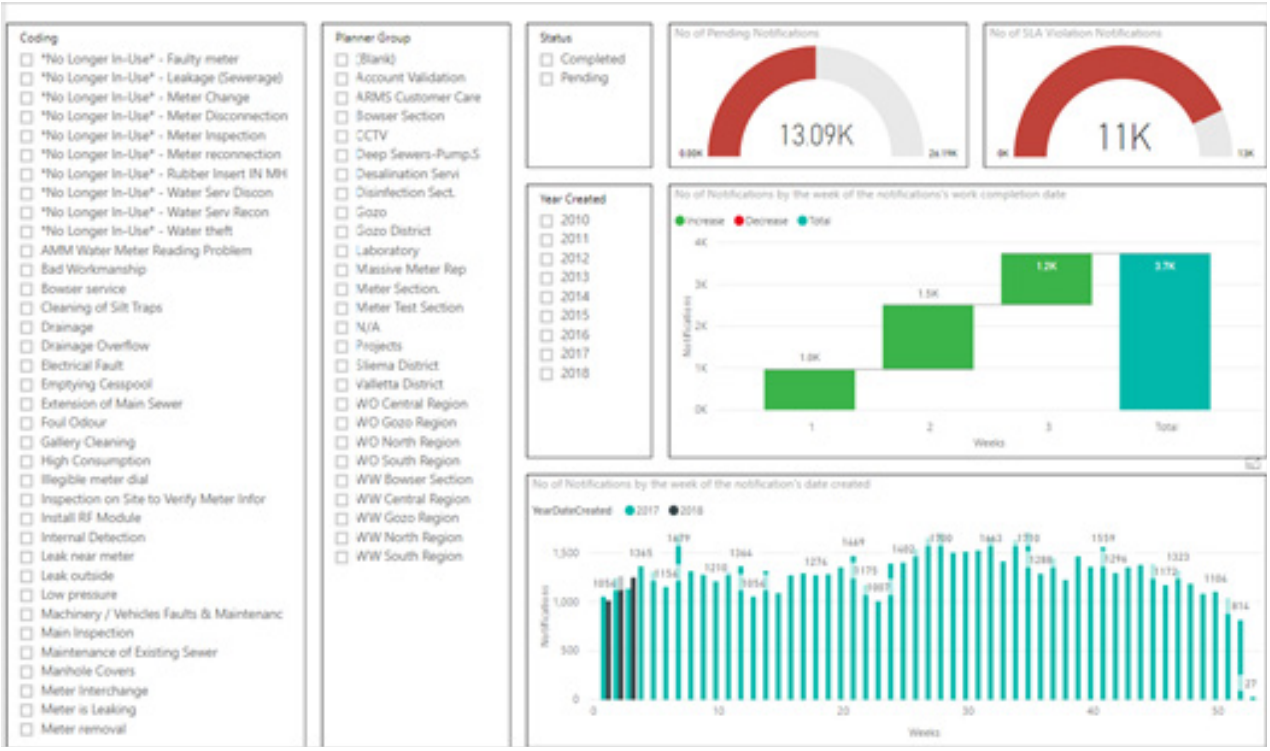
During 2017 the technical call centre team continued to provide efficient feedback and response to customers. The percentage success rate of answered calls was 90.8% with a loss of only 9.2% of the total incoming calls, an increase in answered calls over the previous year. It is important to note that the call loss rate includes calls which were terminated before 10 seconds as well as those which didn't get through so obviously could not be answered. Callers usually fail to get through during major water supply outages or leakages due to the inundation of calls received during these short but intense periods.



	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17
TOTAL CALLS	4900	5867	6211	5081	6437	5901	8095	8155	6414	6030	5378	4371
ANSWERED	4636	5360	5791	4675	5659	5490	7312	7641	6077	5605	5074	4025
MISSED	264	507	420	406	778	411	783	694	337	425	304	346
SUCCESS RATE	94.61%	91.36%	93.24%	92.01%	87.91%	93.04%	90.33%	93.70%	94.75%	92.95%	94.35%	92.08%

Statistical data showing calls received with respective response success rates

The technical call centre also helped develop new analytic tools for call centre operations. These tools provide a live follow up of all outstanding reports, relevant measurements and other performance indicators required to provide inter-departmental support and ultimately better customer service.



Customer Call Centre monitoring tools

Human Resources

During the period under review the Human Resources Department broadened its main activities in line with the current and future HR strategic requirements. In addition to traditional people-management, payroll and attendance control, the department was also responsible for:

- **Organizational and Staff-Development Services**
- **Policy and Workforce Planning functions**
- **Disciplinary procedures**
- **Employment returns**
- **Progression and Increments**
- **Training Needs**
- **Childcare**
- **Performance Appraisals**
- **Employees reward scheme**
- **Family Friendly Measures**
- **Employees Assistance Schemes**

The HR department also became responsible for all training within the corporation.

Although this report refers to activities and initiatives during 2017, the data in table 1 is featured in order put into perspective employee numbers between 2011 and 2017.

Year	WSC	GOVT	TOTAL	TERMINATIONS	RECRUITED
2011	471	569	1,040	71	31
2012	446	485	931	158	49
2013	452	460	912	54	35
2014	565	410	975	61	124
2015	596	372	968	59	52
2016	661	326	987	70	62
2017	877	285	1162	72	259

Table 1: Terminations/Recruitment 2011 – 2017

In its efforts to eventually operate all its plants whilst minimizing its dependency on sub-contracting, the WSC resorted to external recruitment.

The graph shows a consistent decrease in Government detailed employees coupled with an increase in WSC employees.

Over the last three years the Corporation replaced retired employees. Better-qualified professionals were required to meet its ever more complex operational needs. There were 74 professional employees at the corporation during 2017.

a. Recruitment and Selection

In 2017 there were 259 new recruits in professional/technical grades and clerical staff. These were aimed at strengthening all levels of the Corporation's HR compliment.

At the end of the year the Corporation had 8 apprentices studying academic subjects coupled with on-the-job training. The apprenticeship program will develop a pool of employees with accredited skills and knowledge in industrial electronics, electrical and electronics, computer engineering, electrical installations, welding and laboratory technology. Our aim is to expose our apprentices to related work experience while they complete their formal in-class training and development and to offer a full-time job upon completion of their apprenticeship.

b. Summer Workers

Fifty students were employed as summer workers. The WSC's aim is to give students job-exposure in a modern work environment and help with duties. Students also complete an employee exit survey the results of which were very positive.

c. Tele-Working and Flexi-Time Family-Friendly Measures

Tele-Working is based on a voluntary agreement between the individual and the employee's supervisor. Employees can work up to 10 hours at their usual place of work and the rest from home. This measure is especially beneficial to female employees, helping them care for young children because they work minimum hours at work, whilst working the balance of their work hours at home. Employees are also provided with equipment at home where necessary. Thirty-eight employees were on tele-working during 2017.

Flexi-Time lets employees benefit from up to 15 minutes' grace when they report late for work. Any lateness up to 15 minutes is compensated for after employees' finishing time. Ad hoc agreements are made with employees who wish to work on flexi-time arrangements upon request.

d. Personal Assistance Scheme

The WSC introduced a personal assistance scheme for employees who need social assistance from time to time. Although unable to offer a direct cure or solution to problems, the corporation refers cases to the Employee Support Program within the Office of the Prime Minister. Others are referred to Caritas Malta and the Richmond Foundation. The HR department continues to monitor referred employees to try to find suitable solutions for problems.

e. Skills Cards and Skills-Matrix Training Needs Analysis

All workers assigned outdoor duties were provided with a skills card showing details of their skills, licenses, qualifications and immunizations. These cards are regularly updated as required. Discussions have started with JobsPlus to issue Job Cards to all WSC employees in the coming months.

f. Child Care Centre

The centre started to accept children of persons not employed with the Corporation. New facilities were introduced to help the children's education and to encourage their abilities. Risk Assessment and safety measures were taken according to WSC standards and policies. With 12 children attending every day the child care centre is now full.

g. Retiring Personnel

The corporation tries to ensure that persons approaching retirement are well prepared with all the information that they may need. Some 2 years before actual retirement, employees are briefed about their pensions, best options, rights and obligations, so that there will be no hiccups upon retirement. Prior to this initiative retired employees sometimes found themselves administratively unprepared and having to wait several months before first disbursement of their pensions. Fifty employees retired during 2017.

h. Immunisation

Since our employees may be exposed to a variety of diseases, the corporation tries to give maximum protection to persons in contact with hazardous substances such as wastewater.

Rigorous checks are carried out to assure that all those requiring immunisation receive the required jab in time. Stricter rules were introduced to ensure total employee immunisation is carried out without fail.

i. Medical

Employees undergo various medical tests to reflect their different duties. Those found unfit for specific duties are advised accordingly and new alternative employment is normally found within the corporation. An agreement with a private medical doctors' firm was signed to ensure maximum checks on employees and thus reduce sickness abuse.

j. Persons with special needs

During the year under review the WSC offered jobs to persons with special needs who were registering with Jobs Plus. Thirteen persons were recruited and only one person's job was terminated during the probation period.

k. Training

Following the necessary training needs analysis, training was organised in different subjects to 1036 employees. The corporation invested 10,106 hours of training in courses the varied from Computer studies (ECDL), Industrial breathing apparatus, team building, confined space, to first aid, chemical awareness and handling and English.

In most of the cases, courses are held inhouse but in some cases employees are sent to other locations to follow the necessary training. Both inhouse and private tutors were used.

Unaudited Financial Statements

FOR THE YEAR ENDED - **31ST DECEMBER 2017**

Water Services Corporation

Statement of Financial Position
As at 31st December 2017

	Notes	**2017**	2016
		€	€
ASSETS			
Non-current assets			
Property, plant and equipment	1	**281,017,697**	284,209,801
Investments	2	**136,258**	135,658
Amounts due from Government	4	**32,580,321**	31,536,202
		313,734,275	315,881,662
Current assets			
Inventories	3	**14,227,955**	13,295,371
Trade and other receivables	4	**23,686,603**	27,194,449
Cash at bank and in hand	5	**346,489**	342,537
		38,261,047	40,832,357
Total Assets		**351,995,323**	356,714,018
EQUITY AND LIABILITIES			
Capital and Reserves			
Government contribution	6	**73,142,325**	73,142,325
Revenue reserve	6	**20,530,285**	18,381,094
Other Reserve	6	**(2,333,897)**	(2,333,897)
Total Equity		**91,338,713**	89,189,522
Non-current liabilities	7	**70,166,036**	72,495,832
Interest bearing loans and borrowings (NCL)	7	**70,166,036**	72,495,832
Deferred Government grants (NCL)	8	**110,509,030**	118,360,042
Provisions for other liabilities and charges	9	**15,521,102**	15,306,511
		196,196,168	206,162,386

Water Services Corporation

Statement of Financial Position
As at 31st December 2017

	Notes	**2017**	2016
		€	€
Current liabilities			
Interest bearing loans and borrowings (CL)	7	**4,812,388**	3,859,851
Government loan	11	**4,367,887**	4,367,887
Deferred Government grants (CL)	8	**6,114,139**	6,114,139
Trade and other payables	10	**49,166,029**	47,020,233
		64,460,443	61,362,111
Total Liability		**260,656,611**	267,524,497
Total Equity and Liability		**351,995,323**	356,714,018
TURNOVER			
Sale of Water		**59,917,262**	60,007,508
Other Revenue		**3,529,128**	3,602,503
Government Subsidies		**14,900,000**	14,603,500
Deferred Income Amortisation		**9,150,137**	9,656,425
		87,496,528	87,869,937
EXPENDITURE			
Wages & Salaries		**26,691,152**	23,578,982
Electricity		**17,387,935**	16,785,504
Repairs & Maintenance		**7,779,465**	7,927,756
Motor Vehicles Expenditure		**1,862,491**	1,816,537
Operations & Maintenance - ROs		**749,337**	916,508
Operations & Maintenance - STPs		**3,987,420**	3,981,888
Net Expenditure on Billing Operations		**4,085,213**	3,753,221
Depreciation (Note 1)		**17,187,921**	16,961,877
Other Recurrent Expenditure		**3,151,349**	2,234,540
		82,882,284	77,956,814

Water Services Corporation

Statement of Financial Position
As at 31st December 2017

	Notes	**2017**	2016
		€	€
(Loss)/Profit from Operations		**4,614,244**	9,913,123
Interest Payable		**(2,465,054)**	(2,597,327)
Net (Loss)/Profit for the period		**2,149,190**	7,315,795

Water Services Corporation

Statement of Financial Position | As at 31st December 2017

1. Tangible Fixed Assets

	Land & Buildings	Water Infrastructure Assets	Reverse Osmosis Plants	Sewerage Treatment Plants	Other Assets	Integrated Utilities Business Systems	Wastewater Infrastructure Assets	Work in Progress	Total
	€	€	€	€	€	€	€	€	€
COST									
As at 1st January 2017	48,476,062	153,901,308	21,498,310	89,537,469	15,807,401	35,283,068	42,138,094	49,481,709	456,123,421
Additions	104,113	1,540,778	53,876	165,075	1,385,997	-	712,615	12,333,881	16,296,335
Disposals	-	-	-	-	-	-	-	-	-
As at 31st December 2017	48,580,174	**155,442,086**	**21,552,187**	**89,702,544**	**17,193,398**	**35,283,068**	**42,850,709**	**57,770,312**	**468,374,478**
DEPRECIATION									
As at 1st January 2017	11,662,660	59,134,909	16,346,619	33,305,878	12,066,231	27,517,806	11,879,517	-	171,913,620
Charge for the year	940,226	4,125,124	553,617	5,362,697	1,153,327	1,585,198	1,722,972	-	15,443,161
Released on disposal	-	-	-	-	-	-	-	-	-
As at 31st December 2017	12,602,886	63,260,032	16,900,236	38,668,575	13,219,558	29,103,004	13,602,490	-	187,356,781
NET BOOK VALUE									
As at 31st December 2017	**35,977,289**	**92,182,053**	**4,651,951**	**51,033,969**	**3,973,840**	**6,180,064**	**29,248,220**	**57,770,312**	**281,017,697**
As at 31st December 2016	36,813,402	94,766,399	5,151,691	56,231,591	3,741,170	7,765,262	30,258,577	49,481,709	284,209,801

Water Services Corporation

Statement of Financial Position
As at 31st December 2017

1. Tangible Fixed Assets

Depreciation

Infrastructure assets are being depreciated on a systematic basis over their estimated useful life. This method shall reflect the pattern in which the assets' future economic benefits are expected to be consumed by the entity.

	WSC Funds	EU & Govt Funds	**Total**
		€	**€**
Capital Infrastructure			
Balance as at 1st January 2017			
Water	24,752,324	16,686,037	**41,438,361**
Wastewater	7,798,369	244,979	**8,043,348**
	32,550,693	16,931,016	**49,481,709**
Additions			
Water	7,865,545	-	**7,865,545**
Wastewater	4,468,336	-	**4,468,336**
	12,333,881	-	**12,333,881**
Capitalisation/Adjustments			
Water	(2,504,583)	-	**(2,504,583)**
Wastewater	(1,540,695)	-	**(1,540,695)**
	(4,045,278)	-	**(4,045,278)**
Balance as at 31st December 2017			
Water	30,113,285	16,686,037	**46,799,322**
Wastewater	10,726,010	244,979	**10,970,989**
	40,839,296	16,931,016	**57,770,311**
Total Balance	40,839,296	16,931,016	**57,770,311**

Water Services Corporation

Statement of Financial Position
As at 31st December 2017

2. Investments

	2017	2016
	€	€
Investment in Desalination Services and Marketing Ltd	**4,659**	4,659
Investment in ARMS Ltd	**125,000**	125,000
Investment in WSC International Limited	**5,999**	5,999
Investment in Malta Developers Green Energy Ltd	**600**	-
	136,258	135,658

Desalination Services Marketing Limited has its registered office at WSC, Qormi Road, Luqa. The Corporation has 99% shareholding of the subsidiary's ordinary share capital.

Automated Revenue Management Services (ARMS) Limited has its registered office at WSC Corporate Building, Qormi Road, Luqa. The Corporation jointly controls 50% shareholding of the ordinary share capital.

WSC International Limited has its registered office at WSC, Qormi Road, Luqa. The Corporation has 99% shareholding of the subsidiary's ordinary share capital.

Malta Developers Green Energy Ltd has its registered office at Malta Developers Association, Ursuline Street, Gwardamangia, Pieta. The Corporation has 51% shareholding of the subsidiary's ordinary share capital.

3. Inventories

Inventories are made up as follows:

	2017	2016
	€	€
Mains and Pipes	**4,531,670**	4,297,175
Consumable Stores	**608,061**	590,032
Stock of Meters	**1,789,210**	1,520,171
Chemicals	**214,653**	195,161
Parts	**11,256,640**	10,863,327
Provision for Obsolete Stock	**(4,172,278)**	(4,170,496)
	14,227,955	13,295,371

Water Services Corporation

Statement of Financial Position
As at 31st December 2017

4. Trade and other receivables

	2017	2016
	€	€
Current		
Trade Debtors	**21,387,963**	23,974,857
Provision for impairment of trade receivables	**(9,054,862)**	(9,083,903)
Other Debtors	**1,923,690**	1,864,066
Provision for impairment of other receivables	**(595,437)**	(585,721)
Accrued Income (Note i)	**9,515,929**	10,306,979
Government Subsidy	**(390,000)**	-
Prepayments	**899,320**	718,170
	23,686,603	27,194,449
Non-Current		
Amounts due from Government (Note ii)	**32,580,321**	31,536,202
Total trade and other receivables	**56,266,924**	58,730,650

(i) Accrued Income represents the estimate of unbilled sales value in respect of water units supplied and service charge to customers between the date of their last meter reading and the end of the accounting period. The estimation process requires certain assumptions to be made for bills not yet issued at period end in relation to units consumed during the year.

(ii) Amounts due from Government represent the Corporation's entitlement to the reimbursement of specific bank borrowings used by the Corporation for capital expenditure purposes. The amount is unsecured, interest free and the timing of its settlement will match the principal repayments of the said bank borrowings.

5. Cash and cash equivalents

	2017	2016
	€	€
Cash at bank and in hand	**346,489**	342,537
Bank overdrafts (Note 7)	**(4,812,388)**	(3,859,851)
	(4,465,899)	(3,517,314)

Water Services Corporation

Statement of Financial Position
As at 31st December 2017

6. Capital and Reserves

(a) Government contribution

Government contribution amounting to €73,142,325, represents converted permanent debenture stock by virtue of amendments to the Water Services Corporation Act, passed through Act XXVII of 2007, whereby Article 35 of the Water Services Corporation Act has been deleted.

(b) Revenue reserve

The movements for the current and comparative year in the revenue reserve are set out in the statement of changes in equity.

(c) Other Reserve

A reserve representing the revision made to IAS 19 - Pensions Obligations. This relates to actuarial losses brought forward from year 2012 and transferred from the retained earnings reserve.

7. Interest bearing loans and borrowings

	2017	2016
	€	€
Current		
Bank overdraft	**4,812,388**	3,859,851
Non-current		
HSBC Loan a/c 043 002369 300	**20,094,922**	20,094,922
BOV Loan a/c 4001763076-6	**17,881,854**	17,881,854
European Investment Bank Loan	**32,189,260**	34,519,056
	70,166,036	72,495,832
Total bank borrowings:		
At fixed rates	**32,189,260**	34,519,056
At floating rates	**37,976,776**	37,976,776
	70,166,036	72,495,832

The interest rate being charged by BOV and HSBC is 2.7% (0.55% plus 2.15% bank base rate) and 2.85% (0.5% plus 2.35% bank base rate) respectively.

Letters of Guarantee were issued on 30th April 2017 to HSBC and BOV by the Government in favour of Water Services Corporation, covering general banking and loan facilities amounting to €73,841,137 up to 30th April 2018.

Water Services Corporation

Statement of Financial Position
As at 31st December 2017

The European Investment Bank Loans have a moratorium period of 6 years for Tranche 1 & 2 and 2 years for Tranche 3 and 4. Loans are to be paid in a period of 20 years by 2028, 2029, 2030 and 2032 having an effective rate of 4.719%, 4.526%, 3.574% and 3.076% per annum respectively. These loans are to be repaid by the Government.

	2017	2016
	€	€
Total bank borrowings:		
To be paid by Government (EIB Loan)	**74,978,424**	76,355,683
To be paid by the Corporation	**32,189,260**	34,519,056
	42,789,164	41,836,627

8. Deferred Income

	2017	2016
	€	€
At 1 January	**124,474,181**	130,953,150
Subsidies recognised during the year	**255,006**	2,083,110
Transfer to profit and loss	**(8,106,018)**	(8,562,079)
Closing Balance - Deferred Income	**116,623,169**	124,474,181

9. Provisions for other liabilities and charges

	2017	2016
	€	€
Provisions for legal claims (Note i)	**4,344,169**	4,429,578
Pensions and other post-employment benefit plans (Note ii)	**11,176,933**	10,876,933
	15,521,102	15,306,511

(i) The amounts shown above comprise gross provisions in respect of legal claims brought against the Corporation. In the opinion of the Directors, after taking appropriate legal advice, the outcome of the outstanding legal claims will not give rise to any significant loss beyond the amounts provided at the end of the reporting period. It is unlikely that these claims will be settled within twelve months of the end of the reporting period.

Water Services Corporation

Statement of Financial Position
As at 31st December 2017

(ii) A defined benefit plan defines an amount of pension benefit that an employee will receive on retirement. As originally provided for in the Pensions Ordinance, 1937, this amount is dependent upon an employee's final compensation upon retirement, as well as completed months of service. Furthermore, qualifying employees must have worked for Government for a minimum of 10 years, been employed by Government prior to 1979 and must have remained in service with Water Services Corporation until retirement (the vesting period), in order to be unconditionally eligible to receive a pension under the scheme.

10. Trade and other payables

	2017	2016
	€	€
Current		
Trade Creditors	**21,404,122**	20,725,287
Other Creditors	**5,042,016**	3,335,347
Related Party balances - ARMS Ltd	**836,091**	261,375
Accruals	**21,883,800**	22,698,224
	49,166,029	47,020,233

11. Government loan

	2017	2016
	€	€
Government Loan (unsecured and interest free)	**4,367,887**	4,367,887

Government Loan is interest free and repayable either through any surpluses generated or through a Transfer Voucher in the event that the Government subvention is still required.

Water Services Corporation

Statement of Financial Position
As at 31st December 2017

Turnover Schedule

Sale of Water	Consumption	Consumption	Service Charge	Total
	m³	€	€	€
2017				
Residential	9,566,833	20,180,455	9,054,424	29,234,879
Domestic	2,381,230	9,101,210	4,546,204	13,647,414
Non-Residential	5,871,897	12,589,203	4,445,765	17,034,968
	17,819,960	**41,870,867**	**18,046,394**	**59,917,262**
2016				
Residential	10,125,928	21,092,718	8,953,631	30,046,348
Domestic	2,336,931	8,930,857	4,495,728	13,426,586
Non-Residential	5,643,045	12,043,111	4,491,463	16,534,574
	18,105,904	**42,066,686**	**17,940,822**	**60,007,508**

	2017	2016
	€	€
Other Revenue		
Water - Other Charges (incl. New Services)	**2,543,094**	2,363,398
Recoverable Expenses	**2,544**	49,407
Other Income	**983,491**	1,189,699
	3,529,128	3,602,503
Government Subsidies		
Government Subsidy a/c 6779 - Drainage Directorate	**14,900,000**	14,603,500
	14,900,000	14,603,500
Deferred Income Amortisation (Note 8)		
Government Subventions (Various) - Capital Expenditure	**2,594,966**	2,573,606
EU Funds - Capital Expenditure	**3,904,464**	3,904,464
EIB Loan - Capital Expenditure	**2,650,707**	3,178,355
	9,150,137	9,656,425

Water Services Corporation

Expenditure Schedule

Statement of Financial Position
As at 31st December 2017

	2017	2016
	€	€
Wages & Salaries:		
Board Members Remuneration	**39,125**	55,065
Salaries & Wages	**26,352,027**	23,672,717
Pension contributions	**300,000**	(148,800)
	26,691,152	23,578,982
Electricity		
- RO plants	**10,043,050**	10,080,248
- Sewage treatment plants	**2,704,945**	2,484,260
- boreholes, pumping stations and administration	**4,639,941**	4,220,995
	17,387,935	16,785,504
Repairs & Maintenance		
Repairs & Maintenance	**1,739,099**	1,571,988
Subcontracted work	**3,325,244**	3,896,906
Consumables	**1,411,111**	1,039,263
IUBS Maintenance	**1,304,011**	1,419,600
	7,779,465	7,927,756
Motor Vehicles Expenditure:		
Motor Vehicles Maintenance	**145,040**	229,307
Transport Expenses	**1,129,300**	1,021,729
Fuel Expenses	**588,150**	565,501
	1,862,491	1,816,537
Operation & Maintenance of STPs:		
STP - consumables and parts	**2,573,439**	2,496,906
Waste Disposal & Transport charges	**1,413,981**	1,484,982
	3,987,420	3,981,888

Water Services Corporation

Statement of Comprehensive Income

Statement of Financial Position
As at 31st December 2017

	2017	2016
	€	€
Other Recurrent Expenditure		
Printing and stationery	**122,508**	99,317
Advertising & Promotion	**105,331**	43,649
General Expenses	**11,569**	17,075
Telephones	**185,581**	207,782
Travelling & Accommodation	**53,713**	87,452
Insurance	**317,581**	287,359
Consultancy Fees	**161,299**	145,505
Subscriptions	**1,805**	2,042
Training Expenses	**88,071**	69,434
Uniforms & Protective Clothing	**90,095**	77,010
Licences & Permits	**399,989**	260,251
Rent	**114,752**	112,290
Security	**32,099**	26,064
Audit Fees	**55,597**	45,183
Court Fees	**42,558**	18,018
Medical Services	**33,710**	27,835
Cleaning Service Expenses	**249,709**	262,852
Bank charges	**49,159**	8,677
Exchange Difference	**11,052**	14,670
Sponsorships	**435,243**	7,610
Welfare fund contribution	**23,000**	23,300
Laboratory Accreditation	**17,603**	15,162
Water Quality	**54,932**	22,979
Health & Safety	**5,419**	11,638

Water Services Corporation

Statement of Financial Position
As at 31st December 2017

Statement of Comprehensive Income

Over/under water and electricity payments	**55**	7
Loss on disposal	**-**	274
MRA charge	**200,400**	200,400
Child Care Running Expenditure	**10,373**	8,488
Penalties and Interest	**5,451**	1,550
Provision for impairment of receivables	**270,913**	54,331
Provision for obsolete stock	**1,783**	73,183
	3,151,349	2,234,540