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**DIAM SPECIAL FEATURE**



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**KEEPING PACE WITH QUALITY DEVELOPMENTS**

The management of the water sector is not simple because it depends on policies and strategies to ensure the quality of water for the consumer.

This is the vision through which Diam works to deliver high quality drinking water in accordance with international standards adopted in the production of drinking water. We are constantly working to update these international standards and this confirms to us that there are continuous efforts to keep abreast of developments in water quality at the local and global levels.

During the current year, Diam is working through several projects and strategic plans in the field of water quality, which include raising goals and performance indicators in water quality and working on water quality strategy. Diam is seeking to obtain ISO 17025 in the efficiency of water quality laboratories.

If we speak in the language of numbers about what Diam is doing, it clearly shows the scale of efforts by Omani youths working in team in the field of water quality. The water produced in 2018 achieved a 99 per cent ratio of compliance with the Omani specifications of potable water, higher than 2017 by 3 per cent.

In order to ensure the quality and safety of the water for which Diam aims, there are 18 laboratories distributed across the various governorates of the sultanate, which are equipped with various analytical tools. Internal auditing of the quality of performance in these laboratories is carried out in accordance with the ISO/IEC 17025. This audit is supervised by the technicians and staff of the central laboratory. The laboratories are staffed by an integrated team of Omani human resources qualified to deal with these devices.

A tribute to Diam for her efforts to ensure water quality and safety.

**Keeping up with global quality standards**

**Diam applies best practices to ensure water quality**

In line with its vision to fully ensure water quality in Oman, the Public Authority for Water (Diam) works to deliver high quality drinking water in accordance with international standards and specifications adopted for the production of drinking water in the sultanate. Diam continuously works to follow up on these international specifications, which comes from studies and research done by international organisations and institutions in the field of quality and health.

**Strategic plans for 2019**

Humaid bin Salim al Khusaibi, acting director for water quality management at Diam said that several projects and strategic plans are underway this year in the field of water quality. These strategic plans include raising goals and performance indicators in water quality, working on water quality strategy, obtaining ISO 17025 certification in efficiency, and further developing capabilities of water quality laboratories.

Khusaibi said the objectives and ratios for water performance indicators were raised for 2019. He said, "The index of free chlorine was increased to 97 per cent. The number of samples collected from each laboratory was increased to 100 per cent. These samples are 100 per cent free of microbiological pollutants, in addition to raising the proportion of chemical elements of sources to 98 per cent. We hope to raise this percentage to 100 per cent after running the Sohar water transport line and relying on water desalination, which is an alternative to groundwater extracted from the basin."

Khusaibi said that Diam is working to obtain the ISO/IEC 17025 certification this year. "We have contracted a dedicated company to analyse the quality of performance in the central lab to obtain the certification for the central laboratory, which was recently visited by specialists. In addition to this, laboratories in the governorates are required to obtain the certificate through the rehabilitation of the laboratories, where an internal audit of the quality of performance in these laboratories is carried out in accordance with the audit of obtaining the ISO/IEC 17025."

**Water quality strategy**

Khusaibi said that their strategy is to increase the efficiency level of Diam's laboratories and the strategy is divided into two aspects. The first aspect involves the rehabilitation of laboratories and obtaining the ISO/IEC 17025 certification. In addition to this, the laboratories of Al-Dahrah will be rehabilitated in Abri, Buraimi and Jalan lab. This year, new laboratories will be established in Duqm and Khasab.

The second aspect of the strategy involves the



rehabilitation of human resources, where the number of employees in the field of water quality at Diam stood at 135. The training courses for water quality workers are carried out in form of theoretical and practical training and their involvement with local, regional and international organisations working in the same field such as the American Water Association, the Water Research Institute in Kuwait and the Oman Water Association.

There was a recent participation in water quality event at the Arab Lab Conference last March in the United Arab Emirates. This included a large number of water quality workers in the Arab as well as at local levels. For the

implementation of an effective water quality strategy, there is a provision of consultancy work and field tests by participating in many events including the celebration of World Water Day.

**Results and indicators**

On most important results and indicators of last year, Khusaibi said that ensuring the quality and safety of delivered water to subscribers is one of the most important priorities on which Diam is working. Water produced in 2018 achieved a 99 per cent ratio of compliance with Omani specifications of potable water, around 3 per cent higher than the compliance ratio achieved in previous year. Water produced last year achieved a sampling match for 96 per cent

free chlorine in addition to the continuous improvement in compliance with the criterion of chlorine. The number of samples collected in 2018 amounted to more than 83,000 samples and the system followed by Diam for sample collection is very positive compared to other institutions of production and distribution of water in the world.

**Specifications and standards**

Diam works on the basis of specifications of bottled drinking water (No 8/2012) which have been approved in accordance with the Gulf standard specifications and the World Health Organization for 2011. These specifications are approved by a number of

government agencies, most notably by directorate general of standardisation and metrology of the Ministry of Commerce and Industry, National Standardization Organization of Oman, whose functions are to prepare the Omani standards according to Royal Decree No 78/1.

The directorate general of standardisation and metrology has updated the Omani standards as per the directives of the Ministry of Health and other relevant authorities to change the focus of a particular chemical or microbial element, so that it is in line with the specifications of the World Health Organization for 2011 and the latest update to the Omani standard of drinking water (No 8/2012).

procedures shall be taken according to the type of problem so that the water conforms to the applicable specifications and standards.

In order to cover all the governorates of Oman to ensure the quality of water, there are more than 2,000 sampling and periodic inspection points for water quality checking. Around 200 such points are located in Muscat governorate. In case of any need to inform about the presence of colour, smell or change in water taste, the participants can communicate through the hotline to Diam and the communication will be forwarded to the water quality team to find out more details about the complaint and examination of the sample.

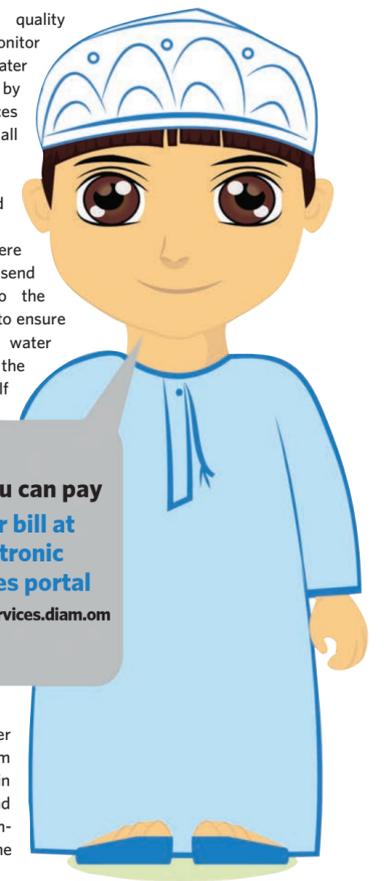
**Water quality laboratories**

There are 18 laboratories distributed across various governorates of the sultanate. All these water quality laboratories are equipped with various analytical devices, which have been linked to the system management laboratory 'LIMS' over the Internet. The system allows more than 100 users to enter all data in the system at the same time. Laboratory technicians have also been trained to use analytical instruments in the sultanate and outside the sultanate to operate the devices efficiently to obtain more accurate results. These laboratories employ an integrated team of Omani qualified to deal with these devices. Diam continuously works to develop the professional performance of these cadres within the framework of its values.

**Control programme for water collection and inspection**

Khusaibi said that a comprehensive annual monitoring programme is being set up to collect and inspect drinking water from various water sources of Diam: Desalination plants, reservoirs, ground or upper reservoirs, strategic reservoirs, main and sub water networks, filling points of tankers and wells. In case of an emergency, this programme works according to a guide to check the quality of water. The samples are collected in special packs and each pack contains a sticker that include all details of the sample such as quality of examination and the date, timing and location of the sample. It also contains a scanner to read and store the sample details using the latest techniques in the LIMS system.

The water quality supervisors monitor the quality of water on a daily basis by using the devices available at all desalination plants, reservoirs and pumping stations where these devices send the results to the control center to ensure that the water conforms to the specifications. If



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the water produced from the plant or in tanks is found to be non-compatible, the necessary