

Water Quality and Quantity Management

Opening of private boreholes. As is described more extensively in our previous Reports, according to the legislation in force, licenses for the opening of boreholes are issued, following the consent of the Director of the Water Development Department (WDD), by the respective District Officer, who bears responsibility for carrying out inspections regarding the pumping of water from these boreholes.

According to the records kept by the Department, 690 licences were issued in 2009 by the District Officers, with the consent of the WDD, for the opening of boreholes for irrigation purposes (1,016 in 2008) and 1,140 licences for the opening of boreholes for domestic purposes (2,174 in 2008).

The Department estimates that roughly 40,000-50,000 licensed boreholes are currently in use, while a large number of non-licensed boreholes is drilled annually. In 2010 the WDD hired services for the recording, on a pilot basis, of the licensed and illegal boreholes in the Central Mesaoria region, the ascertainment of the quantities of water pumped from these and the types of cultivations irrigated. The work began in January 2010 is expected to be completed by the end of 2010.

In view of the fact that the supervision exercised by the District Officers is very limited, the WDD, being responsible for the management and maintenance of the quality and quantity of water resources, performs a limited number of inspections to licensed boreholes, in collaboration with the District Officers. As we have been informed, the WDD does not keep data regarding the findings of the inspections performed, the timing of a follow-up inspection and the cases forwarded to the District Offices for legal action. We have suggested that, in order to exercise more effective control, a register is kept with the above information, and a field is added to the licensed boreholes database that

is being set up by the WDD to include the water body to which the borehole is classified, so that the issue of licences in areas threatened by over-pumping is monitored and restricted.

Rainwater utilisation. As part of its investigation of ways of utilising rainwater, with the objective of reducing demand for potable and irrigation water from Governmental Water Works and boosting water balance, the WDD, following a public procurement procedure, assigned to consultants the preparation of a relevant study.

The final report was submitted to the WDD on the 30.12.2009. Among the primary conclusions of the report is the segregation of responsibility for rainwater collection and drainage, and suggestions include the granting of incentives for rainwater collection at the building level and the imposition of fines for water pollution via polluted drainage.

We asked to be informed of the actions the Department is planning based on the conclusions and suggestions of the report. The Director informed us that the WDD has proceeded with consultation with the involved parties and is preparing suggestions to be submitted to the Council of Ministers. He also informed us that according to a supplementary report submitted in September 2010, the cost of utilising rainwater is estimated at €2.2 million/ km². Based on the estimations of the mean exploitable water quantities, which amount to 129,600-193,600 m³/km² for the six regions included in the study, the report reaches the conclusion that the examined measure of modifying the existing practice of rainwater drainage is not economically efficient, and the utilisation of rainwater in urban areas should be practised at the household level.

Establishment of a single Authority for Water Management. On the basis of the existing legal framework, the jurisdictions relating to the management of the water resources of Cyprus are exercised by various agencies, such as the Department of

Water Development, the District Officers and the Department of Town Planning and Housing, and are regulated by 15 different Laws. As a result, it is difficult to monitor and control the water resources, and so is the complete and detailed regulation of their management and development.

This matter was discussed by the Council of Ministers about 12 years ago, and it was decided, on 10.9.1997, to establish a single Authority for the Management of Water. For this purpose, a Bill was prepared, bearing the title “The single Agency for Water Law of 2001”, which was substituted by a new Bill, entitled “The Jurisdictions of the Management of the Integrated Water Management Law of 2008”, which was approved by the Council of Ministers on 6.2.2008.

Following reactions from Agricultural Unions and other parties which favoured the establishment of an independent water agency, on 12.6.2008 the opinion of the Attorney General was asked for, on whether the legal establishment of an independent organisation to manage water resources would contradict the constitution. The Attorney General, with his letter dated 24.6.2008, noted that the establishment by statute of such an organisation would be contrary to the constitution, however the decision of the Council of Ministers dated 6.2.2008 refers to a Governmental Department (that is, the Water Development Department), hence such a legislative regulation will be acceptable.

The Integrated Water Management Law of 2010 has already been enacted and will be put into force upon decision of the Council of Ministers in the following months. Based on the above Law, the water management is assigned solely to the WDD.

Irrigation of golf courses. As is described more extensively in our previous Reports, on 16.2.2005 the Council of Ministers approved a policy to encourage investment in golf courses, aiming to render Cyprus a high quality tourist destination.

The decision mentions explicitly that no applications to irrigate golf courses using boreholes or government dams will be approved, and defines, by order of priority, the means with which the irrigation needs of the establishments should be covered (recycled water, desalinated water, etc). We noted that based on relevant agreements signed concerning existing golf courses in Paphos District, as well as a company which had been initially approved by the interministerial committee, the government would in two of the cases provide defined quantities of water from the Asprokremmos Dam, while the needs of another two courses would be covered by private boreholes and the Ezousa water body, respectively.

With its later decision dated 5.2.2009, the Council of Ministers stated, inter alia, that no water shall be granted from governmental water works / sewage systems etc for golf courses, including existing / licensed golf courses, and irrigation of these courses will be made with water produced by a desalination plant powered with renewable sources of energy.

As we have been informed, because of the above decision, two of the investors of the existing courses who had signed agreements for water supply from government water works, have resorted to the Supreme Court to safeguard their interests. Given these developments, the Council of Ministers, with its decision dated 3.6.2009, rephrased the decision dated 5.2.2009 so that the supply of water to the licensed courses under the agreed regime is continued for a period of one year, so that the necessary time is given for the investors to conform with the provisions of the decision. As a result, during 2009, 447,200 m³ of water were supplied for this purpose from the Paphos Irrigation Project and 348,040 m³ from the Ezousa water body, which is enriched with recycled water.

On 15.6.2009 the Department of Town Planning and Housing informed the owners of existing golf courses that they should submit proposals regarding the water supply and irrigation of their courses to the WDD as per the decision of the Council of Ministers dated 5.2.2009. By the time our audit was conducted, two of the investors had applied for the construction and operation of private desalination units, one had submitted a relevant study but without providing the data required by the decision of the Council of Ministers, while the fourth investor had not responded.

Based on calculations of the Department, mainly during the winter months, significant quantities of recycled water from the sewage treatment plant in Limassol will remain indisposed since it is not expected to be absorbed by the needs of agriculture and, based on existing data, will be dumped in the sea. We suggested that the possibility of providing this water to the golf courses at the price of desalinated water is examined. In this way we consider that, on the one hand, better exploitation of the recycled water will be achieved, and, on the other, the number of polluting desalination plants in the area will potentially be limited. This solution will also yield revenue to the state from the sale of recycled water.

In our previous Reports we noted that, according to the terms of the signed agreements, biological sewage treatment plants should have been constructed in the existing golf courses, so that part of their irrigation needs is covered by the production of recycled water and we suggested that the Department investigate with the Town Planning Authority whether the above have been adhered to. The Department informed us that it did not consider necessary to be informed of the water quantities produced in 2009, since on the basis of the decisions of the Council of Ministers, the supply of water from dams to the existing golf courses will be terminated in 2010.

Quality of potable water in Communities.

(a) The control of potable water is regulated by the Law on the Quality of Water for Human Consumption (Monitoring and Control), no 87(I)/2001. According to the Law, the Director of the Medical and Public Health Services is the competent authority for the monitoring of potable water quality, while water supply institutions are defined as persons, organisations or authorities that supply water for human consumption, including, among others, the Director of the WDD and Community Boards and Municipalities. According to article 5 of the Law, “each water supply institution must take all necessary measures so that the water for human consumption it supplies to the public is kept healthy and clean”.

The Minister of Agriculture, Natural Resources and Environment delegated the responsibility of the monitoring of groundwater quality jointly to the WDD and the Geological Survey Department (GSD). The Departments in question cooperate in sample collection from the boreholes of the network defined for the monitoring of water status in accordance with article 8 of the Water Framework Directive 2000/60, however we noted that no official protocol of collaboration has been signed between the WDD and the GSD to regulate the obligation of GSD to notify the WDD with regard to the analysis results for the boreholes under the sampling responsibility of the GSD. As a result, we observed a lack of coordination between the two Departments as regards notification of results for samples collected by the GSD.

An indication of this was the incident of arsenic detected in levels above the maximum limit allowed, in a potable water supply borehole in the Mammari-Kokkinotrimithia area in October 2008, where three samples were collected by the GSD. Following notification of the results of the first two samples to the WDD, it was decided that before any measures are taken, the following planned sampling is performed in spring 2009, so that the high level of arsenic is

confirmed, since the results of the second sample were considered marginal and the WDD was not aware of the use of the borehole for potable water supply. As a result, no action was taken by the WDD to resolve the issue, until an official notification was received from the GSD on 1.7.2009 and the Director of the Medical and Public Health Services on 30.7.2009, and following receipt of the results of the third sample, on the basis of which it was decided to terminate the pumping of water from the affected borehole.

Following the above incident, a Coordinative Committee of Qualitative Water Control was established, headed by the WDD and comprising of representatives from the Ministry of Interior, the State General Laboratory, the Geological Survey Department, the Public Health Services, the Department of Agriculture, the Veterinary Services and the Department of Environment. The Committee aims at effectively utilising sampling results and involving the affected Communities in the process.

The Director of WDD has informed us that to this end, the Committee has prepared protocols of immediate notification and action-taking which have been implemented, while a list of all community boreholes used for potable water supply has been compiled. At the same time, the monitoring network set up as per the Framework Directive is being revised, with efforts being made to include potable water supply boreholes so that a parallel monitoring of community potable water is performed.

(b) Degradation of boreholes. Following a public procurement procedure, the WDD assigned the performance of a study to investigate the status of water supply networks in Municipalities and Communities outside the water supply limits of Water Boards. The study was completed in May 2010 and its conclusions include the following:

- (i)** Roughly 112 Municipalities/Communities also use natural sources for supplying water to their inhabitants. According to data mentioned in the study, 96.8% of the sources in Cyprus have a reducing output.
- (ii)** Roughly 41 Municipalities/Communities also use boreholes for supplying water to their inhabitants, while 264 Municipalities/Communities use back-up boreholes to complement their water supply due to the seasonality of the stable water sources. According to the data in the study, 69.7% of boreholes in Cyprus have seasonal output with a weighted average reduction of 6.6%, while 14.5% of the boreholes show a 23.1% reduction of output.

The above results indicate that in various Communities, particularly in the Nicosia District, the sources and boreholes used for water supply are continuously degrading due to the increased water demand on the one hand and the long-term repercussions of over-pumping on the other, combined with their insufficient replenishment as a result of climate change.

The problem of guaranteeing sufficient water supply to the affected Communities should alarm the Department, so that the necessary measures for its resolution are taken in time.

The Director of WDD informed us that the Department will proceed to carry out studies on the coverage water needs of suburban communities, particularly in Nicosia, from Government Water Works, so as to permanently resolve the problem of quality degradation and reduction of the water quantity that may be pumped from local boreholes.

Defining protection zones for potable water supply boreholes. According to Regulatory Administrative Act (RAA) 707/2004 (Delegation of Authorities/Responsibilities concerning the Law on Controlling Water and Ground Pollution), the WDD is defined as the competent Authority for the implementation of article 10 of the Decree on Controlling Water and Ground Pollution (Groundwater Protection Measures) (RAA 45/96). The article in question provides for defining three protection zones around each borehole for potable water supply, with the objective of limiting groundwater pollution.

Over the years, the WDD defined protection zones for 130 out of the roughly 350-400 potable water boreholes that are estimated to be in use today. The Department informed us that the exact number of boreholes cannot be calculated, due to the insufficient information provided to the WDD by Community Boards in cases of substitution of existing boreholes or extraction of new ones, resulting in protection zones not being defined in time, potentially endangering public health.

It was noted that the WDD does not prepare an annual plan for the control of the implementation of the Decree as to the permitted activity within the defined protection zones. We have been informed that inspections are only performed in cases where the Department is informed of a problem or violation. We suggested that, in order to achieve comprehensive monitoring, an annual plan of controls is prepared, so that the implementation of the Decree is secured in all cases of defined protection zones. The Director of the Department has informed us that efforts will be made to implement our suggestion.

Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy.

(a) Water pricing policies. According to the provisions of the Water Framework Directive, which have been incorporated in the Law of 2004 on the Protection and Management of Water, member states shall ensure by 2010 that water-pricing policies provide adequate incentives for users to use water resources efficiently and thereby contribute to the environmental objectives of the Directive, while the water-pricing policies are such that enable the recovery of the costs of water services. As per article 9 of the Framework Directive, the pricing policy should be put to force by the end of 2010 and the relevant reports should have been submitted to the European Commission along with the River Basin Management Plans, by March 2010.

(b) Consultation Services for the application of articles 11, 13 and 15 of the Water Framework Directive 2000/60/EC. In order to meet the commitments stemming from articles 11, 13 and 15 of the Framework Directive, the Department announced a tenders procedure for consultation services which would include (a) revision of water policy, (b) preparation of a measure plan for the achievement of the environmental objectives of the Directive, (c) preparation of river basin management plans and (d) preparation of a drought management plan. Due to problems that arose during the assignment of the tender, the relevant contract was signed with a delay on 8.12.2008. According to article 13(6) of the Framework Directive, river basin management plans shall be published at the latest nine years after the date of entry into force of the Directive, that is, by 22.12.2009. The European Commission issued a letter of formal notice on 3.6.2010, according to which the Republic of Cyprus has violated its obligations as per article 13 of the Directive on the preparation of a river basin management plan by 22.12.2009. The Commission also considers that the Republic has violated its obligations under article 14 of the Directive, according to which the procedure of public information and

consultation on the draft river basin management plan should have commenced by 22.12.2008. The Director of the Department informed us that, aiming to encourage the active participation of the public in the consultation process, information leaflets were distributed in about 336,000 households, four district meetings were carried out on the draft water management plan and the provisional measures plan, while the consultation among working groups of interested parties, set up by the Department for this purpose, has begun and is now in progress. The public consultation procedure will be completed by the end of 2010 and it is expected that the River Basin Management Plan and the Drought Management Plan, which supplements and supports the above Plan, will be submitted to the European Commission in April 2011, following their approval by the Council of Ministers.