

MINISTRY OF AGRICULTURE,
NATURAL RESOURCES AND ENVIRONMENT

WATER DEVELOPMENT DEPARTMENT

ANNUAL REPORT 2012

V. WATER DEVELOPMENT DEPARTMENT

1. INTRODUCTION

1.1. The Water Development Department (WDD) is responsible for implementing the water policy of the Ministry of Agriculture, Natural Resources and Environment with the aim of providing effective protection, rational development and sustainable management of the water resources in Cyprus.

The enforcement of the Integrated Water Management Law (79(I)/2010) on 15 November 2010, opened up new horizons but also presented new challenges for the Department. According to the Law, the integrated management of water is assigned to the WDD, in the framework of the Government general Water Policy, as determined by the Council of Ministers.

The ratification of the above Law by the Parliament of Cyprus, constitutes a historical development, as it addresses the problem of fragmented responsibilities and powers regarding water management among various Departments, which resulted in waste of resources, isolated handling of problems and ultimately in the inability to exercise an integrated, rational and effective management of all water resources. For example, under the provisions of the Law, all powers regarding water management that were exercised by the District Officers and the Department of Town Planning and Housing, such as borehole drilling and groundwater abstraction permits, are transferred to the WDD.

In this context, the competencies of the Department cover a wide and varied range, including the following:

- a) Collection, processing, classification and recording of hydrological, hydro-geological, geotechnical and other data, which are necessary for:
 - i) the protection and improvement of the qualitative and quantitative status of the surface and ground water bodies and
 - ii) the study, maintenance and safety of development projects.
- b) Feasibility studies, design, implementation, operation and maintenance of infrastructure projects, such as, dams, ponds, irrigation, water supply and sewerage networks, water treatment plants, wastewater treatment and re-use plants, as well as desalination plants.
- c) Cultivation of water saving awareness among consumers.

1.2 The main objective of the Water Policy in 2012 was to secure sufficient quantities of good quality water for the benefit of the island's inhabitants and the environment, through a sustainable management of water resources.

In particular, the Department focused its efforts on the following priorities:

- a) Addressing the problems of water shortage due to the prevailing droughts and rising water demand, mainly in large urban centres.
- b) Reinforcement of the water balance in Cyprus through the use of other non-conventional water sources, such as, recycled water, desalination of seawater or brackish groundwater, as well as rainwater harvesting. The aim is to eliminate the dependence of domestic water supply from weather conditions in all urban centres.
- c) Intensification of water awareness efforts, with the aim of saving water for all uses.
- d) Harmonisation with the European acquis for the protection and rational management of water resources.

1.3 During 2012, the water situation in Cyprus was much better, compared to the previous year, due to the high rainfall levels and the increased amounts of water inflows into the dams.

The water reserves in the dams were 125 MCM, or 43% of their capacity, on 1/1/12 and reached 274 MCM, or 94.2% of their capacity, by mid-April. In 2011 the maximum amount of reserves was 182 MCM, or 62.6% of the dams capacity.

The total water inflow into the dams during the calendar year 2012 was 239 MCM, which is the greatest flow ever recorded in a single year. The rainfall was 654 mm or 131% of the mean rainfall.

The maximum storage recorded in the dams of the Southern Conveyor Project (S.C.P.) was 172 MCM. In 2012, an increased amount of water was provided to the farmers for irrigation, compared to 2011. For greenhouses, 100% of their irrigation needs were covered, for permanent crops 90% and for seasonal crops and potatoes, 50% of their irrigation needs were covered.

Details are shown in Table 9 of the Annex.

1.4 In addition to its regular operations, the Department undertook in 2012, significant activities as part of the Cyprus Presidency of the Council of the European Union in the 2nd half of the year.

The Department was able to fully respond to the particularly high demands of the Cyprus Presidency and carried out successfully various water related meetings in Cyprus, in the framework of the Cyprus Presidency, such as the EU Water Blueprint Conference in Nicosia on 26 – 27 November 2012, the Informal Meeting of EU Water and Marine Directors in Limassol on 27 – 29 November 2012 and the Working Group C Meeting on Groundwater in Limassol on 8 – 9 October 2012. The Department was also actively involved with the organisation of the Informal Meeting of Environment Ministers in

Nicosia on 7 – 8 July 2012 and worked towards the preparation and promotion of Council Conclusions on the “Blueprint to Safeguard Europe’s Water Resources”. The Conclusions were adopted at the Council of Environment Ministers on 17 December 2012, which is considered to be a great success of the Cyprus Presidency.

Furthermore, the Department took part at the 1st Pan-EU Drought Dialogue Forum, which took place in Nicosia on 30-31 October 2012, under the auspices of the Cyprus Presidency.

The activities of the Department per thematic unity during 2012 were as follows:

2. MONITORING OF WATER RESOURCES/DATA PROCESSING

2.1 The collection and processing of hydrological and hydrogeological data for groundwater and surface water resources continued, as well as the study of hydrological topics for the planning and implementation of water projects, the control of groundwater abstraction, the monitoring of water pollution and the provision of expert advice on water use.

2.2 With respect to the monitoring of surface water quantity, the activities in the field of stream-flow monitoring included measurements at 52 hydrometric stations equipped with automatic water level recorders and one station equipped with a radar type sensor. As part of the expansion of the monitoring network, the 53rd hydrometric station was erected on the river Kryos at Ayia Mavri which is also equipped with radar type sensor. As part of the modernization of hydrometric stations, five telemetry systems were put into operation in order to monitor the stations from the central offices of the WDD. Regarding the quantitative monitoring of groundwater, during 2012, measurements of groundwater levels from more than 1100 observation boreholes were taken. The frequency of measurements ranges from twice a year to six times a year. For a number of boreholes, the ground water levels are monitored continuously using data loggers.

With respect to spring flow monitoring, during 2012, 7 springs were added to the relevant monitoring network which now includes 57 springs. The spring discharges are measured with a frequency of once per month. For an additional 70 springs, sporadic measurements were taken.

2.3 Regarding the qualitative monitoring of water resources, the implementation of the monitoring programme of water (rivers, lakes / reservoirs, groundwater) in accordance with Article 8 of the Water Framework Directive 2000/60/EC (WFD) continued this year as well as the implementation of national groundwater monitoring programmes. As part of these programmes, the following were systematically monitored: 45 points on rivers, 13 reservoirs, 88 boreholes as part of the WFD monitoring programme and 44 boreholes as part of the national groundwater monitoring programmes. For monitoring within the WFD, more than 300 water samples from rivers were collected, while 60 samples were collected from reservoirs and 174 samples from groundwater. In the context of biological classification of aquatic

systems a contract for the analysis of samples of biological quality element "phytoplankton" in water reservoirs has been completed. Furthermore, 42 samples of phytoplankton were collected from reservoirs at different depths using a boat.

2.4 As part of the implementation of the Water Framework Directive 2000/60/EC, the participation of the Department in the relevant intercalibration exercise was successfully completed and all threshold values on the state of biological quality elements in rivers and reservoirs of Cyprus will be included in the relevant guidance document of the European Commission which will be published in 2013. For this purpose, a wealth of information has been provided to the EU. In addition, during 2012 three contracts related to studies on biological data (macrophytes, macroinvertebrates and fish in rivers) were completed.

2.5 In 2012, the National Monitoring Programme of the small reservoirs, continued, in collaboration with the District Offices of the Department. This network now includes 22 water reservoirs. All of these reservoirs were sampled for physicochemical parameters with a frequency of three times a year. In the ten largest water reservoirs of the island, regular (twice per week) measurements of surface water temperature are carried out, in collaboration with the District Offices of the Department, with the aim of the timely detection of stratification development in the water reservoirs.

2.6 Within the framework of both the national programmes and the programmes under Directive 2000/60EC for qualitative and quantitative monitoring of groundwater, the evaluation and revision of the monitoring network continued and 4 new boreholes were drilled and added to the network.

2.7 Regarding hazardous substances (e.g. pesticides, insecticides, heavy metals, etc.), the concentration of an average of 60 substances from 29 river sites and from 12 water reservoirs was examined and evaluated. All data were submitted to the EU in the form of a report through WISE (Water Information System for Europe).

2.8 All quantitative and qualitative monitoring results of rivers, reservoirs, groundwater and springs are imported into the Department's Hydrogeological database (CYMOS) and submitted to the Eionet-WISE network of the European Environment Agency.

2.9 The monitoring of the quality of potable water from boreholes and springs used by communities, continued. During 2012, the number of these boreholes and springs were estimated to 500. From this year's chemical analyses of potable water quality for the communities, more than 45 exceedances of parameter values, specified in the Directive 1983/98/EC, were identified. In cases where the exceedances occurred on the single water supply source of a community, the relevant authorities were notified by telephone within 24 hours from the notification of the results. In other cases (more than one source of

water supply) the relevant authorities are notified about the exceedances in writing.

2.10 During 2012, 1527 applications were evaluated nationally for a borehole drilling permit, of which 791 were for legalising non-licensed boreholes. All applications are recorded in a database that was developed specifically for this purpose in WDD. Since the Integrated Water Management Law entered into force on 15 November 2010, 2289 new applications have been received and 2828 applications for legalising non-licensed boreholes. From the 122000 borehole permits received by the District Administration nationwide, those which show activity (request for change the limit of pumping, permit to transfer water to other plots, new application for drilling in the block, etc.) are also recorded in the database. At the moment, the database contains more than 18100 applications of different types. In 2012 more than 500 checks (readings and correct operation) on water meters were carried out.

2.11 During 2012, 24 warning letters were issued regarding compliance with the terms of borehole drilling permits and water abstraction permits. Also through the Attorney General, 17 cases, of which 4 were cases involving drilling rig operators, were taken to court.

2.12 During 2012, 68 applications for granting of a drilling rig operator licence were examined nationwide.

2.13 The delineation of protection zones for water supply boreholes also continued. Specifically, 46 borehole protection zones were delineated, the approval of which is still pending by the Minister of Agriculture, Natural Resources and Environment. Furthermore, a proposal for the amendment of the relevant Act on the delineation of borehole protection zones was prepared. Overall, so far, 140 protection zones were enacted by decree of the Minister whereas the establishment of protection zones for approximately 320 boreholes, used as main or as reserve water supply sources for communities or municipalities, is still pending. It should be noted that the number of boreholes for potable water supply is constantly changing because new boreholes are drilled, others are assigned as reserve, while others are abandoned.

2.14 The delineation of protection zones for 12 potable water supply reservoirs (2 of which are considered for future use) continued in accordance with the Water Protection and Management Law N13(I)2004. After extensive deliberations with all relevant government bodies, the decree regarding the protection zones was finalised (Article 23 of Law 13(I)/2004), and 67(I)/2009).

2.15 Thematic maps concerning the activities of the Department, those of other Departments, Organisations and Consultant Engineers, were prepared, e.g. maps for the positioning of water projects, networks and monitoring stations for ground and surface water bodies etc.

2.16 Isopiezometric digital maps (groundwater levels) were prepared for the coastal aquifers of Paramali and Avdimou, Kiti-Pervolia, Kokkinokhoria, and

Akrotiri for different periods. These maps can be viewed on the Department's website.

2.17 17 hydrological/hydraulic and flood studies sent to WDD for evaluation and comments by District Offices, local authorities, other government departments etc. were reviewed and evaluation reports on them were prepared.

2.18 The representation of the Department in the Environmental Impact Assessment Committee and the Quarry Licensing Committee continued.

2.19 Within the framework of consultations with the Department of Environment, which is responsible for waste discharge permits for the implementation of the Soil and Water Pollution Control Law, applications concerning waste management were examined.

2.20 For this year the Division of Hydrometry responded to about 45 requests to prepare and provide information, data, maps and other information to design offices, consultants, students, etc. as well as intra-departmentally.

2.21 23 studies of development projects (parks, golf courses, landscaping projects, land division projects, etc.) in areas which include, or are adjacent to, rivers and riparian areas, were evaluated in accordance with Cyprus Law 79(I)/2010 which prohibits any form of intervention in rivers and riparian areas without the approval of the Director of WDD.

3. IMPLEMENTING THE EUROPEAN ACQUIS

3.1 Throughout 2012, important work has been carried out on the harmonization and monitoring of various obligations and requirements of the European Union

Directive 2000/60/EC

3.2 In the context of implementing the Water Framework Directive 2000/60/EC (WFD) in Cyprus, WDD completed the 1st River Basin Management Plan for the period 2009-2015. The management plan includes the Program of Measures (97 Basic and 56 Supplementary), the Drought Management Plan and the Revision of Water Policy Report.

3.3 WDD, in collaboration with the relevant governmental departments, continued its efforts for the implementation of the Programme of Measures. The interim Progress Report for the implementation of the Programme of Measures was submitted on time in December 2012 according to the European Commission requirements.

3.4 A public consultation campaign, regarding timetable and programme of works for the 2nd River Basin Management Plan for the period 2015-2021,

was initiated on 23rd November 2012 for a period of six months, up to 23 May 2013.

3.5 Project for Constructing the Treatment Plant for Domestic Septage, Industrial Wastewater, surplus sludge and leachate at Vati area. This project is implemented under the Cooperation Programme between Switzerland and the Republic of Cyprus.

Directive 91/271/EEC

3.6 During 2012 the implementation of the National Implementation Programme for the Directive 91/271/EEC was continued for Urban Wastewater Treatment in settlements with equivalent population over 2,000. Analytical:

3.7 The required reports were prepared and submitted to the European Investment Bank (EIB).

3.8 The drawing up of a feasibility study and a techno - economical study for the Pissouri community was completed.

3.9 Continuation of the implementation programme for sewerage projects in suburban agglomerations with population equivalent greater than 2000 by the Urban Sewerage Boards on behalf of Water Development Department. Follow up of the Contracts and payments for the sewerage works executed by the Urban Sewerage Boards under the approved governmental budget.

3.10 Also the provision of technical advice in relation to sewerage and wastewater treatment problems in rural communities with a population equivalent of less than 2000 continued.

Directive 2007/60/EC

3.11 Work on the implementation of the European Directive on Floods, 2007/60/EC, and the corresponding Cyprus Law, 70(I)/2010 continued. Work on the preparation of Flood Hazard Maps and Flood Risk Maps for the 19 areas identified as areas for which there exist significant potential floods risks has started and is on-going.

Community Initiatives

3.12 Within the framework of co-financing water related projects using European Union funds, the procedures for the co-financing of the Project: "Studies for the implementation of Articles 9, 11, 13, 14 and 15 of the European Water Framework Directive 2000/60/EC", continued under the Priority Axis "Basic Infrastructure in Environment and Energy" of the Operational Programme "Sustainable Development and Competitiveness 2007-2013".

3.13 Likewise, in the context of co-financing Sewerage Projects through European Community Resources, the Application of Major Project for co-financing by the Cohesion Fund for the sewerage projects of Kokkinochoria Complex was approved by the EU.

3.14 The implementation and management (including time and financial planning, preparation of budgets and absorption forecasts, progress monitoring and preparation of reports, observing procedures and regulations, personnel training) of four (4) co-financed sewerage projects, namely the Astromeritis-Peristerona-Akaki Cluster, Athienou Municipality, Solea Complex and Kokkinochoria Complex continued. Brochures providing information about the projects are prepared in the Greek, English, German and French language.

4. ANNOUNCEMENT OF COMPETITIONS

4.1 The Department is responsible for the preparation of tender documents, the publication of the contract notice, the provision of the tender documents, the provision of clarifications and additional information on the tender documents, the announcement of the results after the submission of the tender, the award of the contract and the invitation to sign the agreement, the preparation of the contract documents and the publication of the award of the contract.

4.2 Three (3) Mini Competitions were announced for the supply of ductile iron pipes and fittings to be used in the various projects of the Department, through the Framework Agreement signed by the Treasury of the Republic.

4.3 Tender documents were prepared and tender procedures were announced for the supply of aluminium sulfate and sodium chloride for the Water Treatment Plants of Tersefanou, Limassol, Asprokremmos and Kornos, as well as for the supply of drilling equipment.

4.4 Tender documents were prepared and the tender procedure was announced for the Provision of Services for the implementation of Article 6 of the European Directive 2007/60 EC (Article 7 of the harmonization Law 70 (I) / 2010) providing for the assessment, management and treatment of flood risks.

4.5 Tender documents were prepared and tender procedures were announced for the Provision of Services for the operation and maintenance of Alassa Wastewater Treatment Plant and Pumping Station for five years and for the operation and maintenance of the Vathia Gonia Central Wastewater Treatment Plant for five years.

4.6 Tender documents were prepared and tender procedures were announced for the Provision of Services for the analysis of samples of the Biological Quality Element "Aquatic Flora" (Phytobenthos/Diatoms) from Cyprus rivers and calculation of biological indices, - Implementation of Water Framework Directive (2000/60/EC).

4.7 Tender documents were prepared and the tender procedure was announced for the Provision of Services for the development of a techno economical and environmental design for the construction of Vati Treatment Plant of domestic waste, industrial waste, liquid sludge excess and leachate.

4.8 Tender documents were prepared and tender procedures were announced for the construction of Works, such as the sewerage collection network of Frenaros and Agios Georgios Acheritou, of Kokkinochoria complex, the construction of storage reservoir for the recycled water at Vathia Gonia and the construction of Water Tower at Frenaros.

4.9 Tender Documents and Call for Tenders were prepared for the supply of Electromechanical Equipment for the Execution of Departmental Projects, such as:

Hydraulic and other Valves, Electrical Valve Actuators, Electrosubmersible Pumps, Rotary Pumps, Dosometric Pumps, Prefabricated Sewage Pumping Stations, Electric motors, Electric Starters, Electric Panels, Electromagnetic Water Flow Meters, Generator Sets, Vehicle Lifting Prongs, Automatic Filter Washing Systems, Pipes and fittings, stainless steel fittings, flanges, galvanized grids etc. and for the lease of machinery for the execution of the various projects of the Department.

4.10 The specifications and Call for Tenders were prepared for the supply of tools for the various workshops of the Department, such as: Cutting Tools, Welding Devices, Plasma Cutting Machine and other smaller tools.

4.11 Tender Documents and Call for Tenders were prepared for the provision of Services to the Department for the manufacture of various fittings, overhaul of an Air Compressor, Motor Windings, Fabrication of Iron-Beams, Erection of Shed, Acceptance and Export of Dangerous Chlorine Gas Cylinders and for Transport of Materials and Machinery.

4.12 Tender Documents were prepared and invitations for tender submission were sent for the appropriate assessment of the construction of Dhali Dam in Gialias River and Soskiou Dam in Dhiarizos River accordingly.

4.13 The Department has trained officers of the District Offices and the Divisions of the Department on issues related to the preparation of tender documents and competition announcements using the simplified and negotiation procedures, through presentations and the publication of relevant documents, as well as on issues related to ordering materials through the electronic system of the Treasury of the Republic.

5. STUDIES AND EXECUTION OF WATER PROJECTS

Projects completed in 2012

5.1 Completion of the Contract for the Final Design of the Recycled Water Storage Reservoir at Anthoupolis.

5.2 Submission of additional information to the Department of Environment, regarding the Appropriate Assessment from the construction of the Milouri Dam at Palechori. The final assessment is pending.

5.3 Completion of the changes in the final study of the Tembria's irrigation network as agreed with the Department of Environment and site evaluation of the alternatives. A positive assessment was issued by the Department of Environment regarding the Environmental Impact Assessment from the construction of Tembria's irrigation network.

5.4 A study for the temporary supply of water from Soleas Dam to the irrigation areas in Solea was conducted.

5.5 Completion of the Appropriate Assessment for the Borrow Area at Mandres for the Soleas Dam.

5.6 Preparation of the Bill of Quantities for the Starter Room at the Vathia Gonia Pumping Station (to be constructed by Nicosia's District Office).

5.7 Completion of the revised construction drawings of the Agios Sozomenos water reservoir.

5.8 A Study on the construction of a water reservoir with capacity of 1000 cubic meters of water and pumping station in the Community Theletra in Paphos for the needs of Anadiou Government Water Project.

5.9 The Environmental Impact Study for the "Use of Recycled Water from the Larnaca Sewerage System" was submitted and presented to the Environmental Authority. A positive assessment was issued in October 2012.

5.10 Successful completion of the European Project WATERinCORE "Sustainable Water Management through Common Responsibility Enhancement in Mediterranean River Basins". In 2012, two public consultation meetings were organised with stakeholders during which the strategic water resources management plan for the Hydrological Region 8 was presented. An Environmental Agreement with Pervolia Community for potable water saving was reached.

5.11 A feasibility study for the interconnection of Paphos Area with Southern Conveyor was also completed.

5.12 During 2012 the construction of the sewerage collection network at the complex of communities of Xylophagou, Xylotympou and Ormideia are completed.

5.13 The renovation / upgrading of Wastewater Treatment Plants in the communities of Pano Platres, Kyperounda, Agros, Alassa and Palaichori is completed.

5.14 Completed project utilization of borehole 53/09 on strengthening the Water supply of the Akrounta. Also completed the construction of the works of the water tank at Prodromos.

5.15 The construction of the Solea Dam was completed.

5.16 A study for the construction of water reservoir with capacity of 1000 cubic meters of water in to the Community Kathikas in Paphos for the needs of Anadiou Government Water Project has been completed.

5.17 The construction of the Works of the Water Treatment Plant in the area of the Asproyia-Kannaviou dam, which will have a production capacity of 10.000 m³ per day with the possibility of extension to 20.000 m³ per day, was completed. The operation under the terms of the Contract shall be made by the Contractor until May 2013, when the Water Development Department will take over.

5.18 The Construction Contract management of the Kannaviou Water Treatment Plant was completed, as far as the electromechanical installations were concerned.

5.19 The renovation of Buildings Installations of District Offices Famagusta, which was restarted in November 2009, was completed.

5.20 The re-evaluation of tenders for the execution of the project “Astromeritis Sewage Treatment Station” was completed.

5.21 The works for the second phase of the renovation of the Vathia Gonia existing pumping station, were completed.

5.22 The design of the Project for the renovation of the Tersefanou Pumping Station was completed.

5.23 The installation of the perimeter fence control system at the Stavrovouni tank area was completed.

5.24 The installation of the electromechanical equipment of the Anadiou pumping stations for the water supply system of 34 communities of Paphos from the Kannaviou Water Treatment Plant was completed.

5.25 The execution of works for the installation of electromechanical equipment to over 16 government and community projects of water supply and irrigation was completed. Furthermore, the execution of works for the installation of liquid chlorination systems at 15 water supply projects of Municipalities, Community Councils and Water Supply Councils, ten of which were powered by photovoltaic energy, was completed.

5.26 The complete renovation and automation of the quadruple system of liquid chlorination of the Frenaros Pumping Station was completed.

5.27 The maintenance and repair work to over 450 chlorination systems of communities, municipalities, water supply councils and National Guard units was completed.

5.28 The installation of new Electric Panels at the Garillis, Dipotamos and Anadiou Pumping Stations was completed.

5.29 The first phase for the upgrading of Electrical Panels of the Kokkinochoria Irrigation Project pumping stations was completed.

5.30 The design and installation in various pumping stations of power factor correction systems for the purpose of saving energy was completed.

5.31 The execution of the design for the Extension of the Telemetry system was completed to include:

- (a) Western villages of Limassol District (Twenty-two points, with capability of automatic flow control), and
- (b) The Vasilikos Desalination Plant.

5.32 The installation of ultrasound systems powered by photovoltaic units at the Larnaca Sewage Council recycled water tank, for the purposes of fighting Algae, was completed.

5.33 Generator sets of 500 KVA capacity, which were conceded from the EAC, were de-assembled from four large pumping stations of the Department, with the purpose of providing some relief to the network, during the crisis period arisen as a consequence of the Mari accident.

5.34 A contract agreement was signed with the EAC for the inclusion of WDD generator sets (higher than 400 kVA capacity) to the conceptual power generating station of EAC.

Projects in progress

5.35 Coordination of the final study for the irrigation project at Solea during the construction period of the project.

5.36 Coordination of the final study for the Vathia Gonia recycled water storage reservoir during the tender and construction period of the project.

5.37 In accordance with Article 14 of LAW N.140(I)2005 an Environmental Impact Assessment Study was undertaken for the construction of two storage tanks at "Vathia Gonia" area, for the use and distribution of recycled water from Sewage Treatment Plant of Mia Milia.

5.38 An Environmental Impact Assessment Study for the construction of recycled water storage tank at the "Anthoupolis Sewage Treatment Plant" of Nicosia's Sewerage Board was commenced.

5.39 A consultation procedure has begun with involved communities / municipalities of the wider Nicosia area and various Governmental Departments, for utilization of the recycled water that will be produced by the Sewage Treatment Plants of “Vathia Gonia” and “Anthoupolis” in the near future.

5.40 The feasibility study for the water supply of the Western Nicosia Communities from Vasilikos Desalination Plant has started.

5.41 An appropriate assessment of Environmental Impact from the construction of Dhali Dam in Gialias River has started.

5.42 An appropriate assessment of Environmental Impact from the construction of Souskiou Dam in Dhiarizos River has started.

5.43 During 2012, the construction of the Limassol Permanent Desalination Plant was completed, which will have a production capacity of 40.000 m³ per day with the possibility of extension to 60.000 m³ per day. The Unit and infrastructure (pipelines, reservoirs) is expected to be ready for production in the early summer of 2013.

5.44 The construction of the Garyllis pumping station was completed with the aim to pump recycled water into the Polemidia dam. Civil works were completed in 2012. The project is expected to be completed shortly.

5.45 The installation of the main pipeline for the transfer of water from the Limassol Water Treatment Plant in Regional Moutagiaka Work to Amathus Government Water Project and the Municipality of Agios Athanasios and Yermasoyia Municipality continued in 2012.

5.46 There was continuation of installations of electromechanical equipment at Government and Community works for water supply and irrigation.

5.47 There are on-going contracts for renovation of four Sewage Treatment Plants as well as contracts of Operation and Maintenance of 16 Sewage Treatment Plants and Sewage Pumping Stations in Army Camps and Communities. Furthermore, the construction of a new Sewage Treatment Plant at Mennoyia was completed.

5.48 The Works of Anadiou Government Water Project are in progress. The main pipelines for transferring and pumping of water have been completed and the construction of the water reservoir and pumping station in the region Theletra in Paphos that will cover the Communities of Laona, is on-going.

5.49 During 2012, the construction of the sewerage collection network at the Communities of Achna-Augorou, the Municipality of Derynia and the Communities of Kakopetria and Galata continued.

5.50 The installation of the five Fast-Treatment Water Plants for the servicing of the Communities of Tamassos and Klirou area and of the related infrastructure works (bases, pumping stations, etc.) is on-going.

5.51 The management and supervision of the Contract for the electromechanical construction works of the Solea Dam continued.

5.52 The Omonia Pumping Station for the transportation of recycled water from Moni towards Ypsonas for irrigation purposes commenced and continued during the year.

5.53 The renovation of the recycled water pumping station of the Moni Sewage Treatment Plant continued.

5.54 The design for upgrading of the telecommunication system of the Kokkinochoria Irrigation Project pumping stations with the Telemetry System is progressing.

5.55 The installation of two pumping stations (desalination water) at the Ypsonas tank for the purposes of transporting water to the Southern Conveyor and to Communities of the area is progressing.

5.56 The second phase of the improvement of the automations of the Electric Panels of the Kokkinochoria Irrigation Project Pumping Stations commenced and continued during the year.

5.57 Participation to the research programme “Thermal Solar production of water and Electricity” of the inter-boundary cooperation Greece-Cyprus 2007-2013 scheme is on-going. The programme’s aim is the construction of a small scale experimental cogeneration unit which will make use of solar energy for the simultaneous production of water and electricity and will confirm the idea of cogeneration.

5.58 The transfer of water to the Government Water Sunni-Zanaja from the Limassol Water Treatment Plant continued.

5.59 The upgrading, modernisation and replacement of community water supply systems in all Districts continued during 2012 for the supply of good quality domestic water and the reduction of losses, as well as the construction new reservoirs, where necessary.

5.60 The construction works has begun for the utilization of boreholes to supply water or even strengthen different areas continued.

Projects initiated in 2012

5.61 Construction work has begun on the wastewater collection network in Communities Frenaros - Acheritou.

5.62 Preparation of Bill of Quantities for the supply of plastic pipes and fittings for Tembria's Irrigation Network through the Framework Agreement of the General Accountants Office "For the supply of plastic pipes of various grades and appropriate fittings."

5.63 Preparation of a revised design study and Bill of Quantities for the Tembria water storage tank for tender purposes.

5.64 Preparation of a hydraulic study for the irrigation networks of Korakou, Evrychou, Flasou, Linou and Katidata that will be irrigated from the Soleas Dam.

5.65 Preparation of a hydraulic study for the extension of Geri irrigation network.

5.66 Revision of a hydraulic study for Irrigation Network at Lympia consolidation area.

5.67 Execution of works for the construction of the new Pumping Station at Vathia Gonia, which is situated near the existing pumping station.

5.68 Commencement of the project to transport desalinated water desalination plant at the Vasilikos (EAC), for the supply of water to Communities of western Larnaca and eastern Limassol.

5.69 Final study of the Anthoupolis recycled water storage reservoir.

5.70 Final study of the sewage networks in the Solea area.

5.71 Commencement of Contract for Design and Construction of Wastewater Treatment Plant Astromeritis.

6. WATER MANAGEMENT OPERATION AND MAINTENANCE

6.1 The Water Development Department is responsible for the management, operation and maintenance of installations for the production and transfer of water belonging to the Government. It also coordinates all actions which are related to the management and operation of the Government Irrigation Projects and applies the Government's water policy, in cooperation with the WDD's District Offices. The Government Water Supply Systems include the Water Treatment Plants, the Desalination Plants, the government boreholes, as well as the pumping systems, the central reservoirs and the main diversion pipelines carrying water from the production points to the reservoirs of the Water Boards, the Municipalities and Communities.

6.2 Total domestic water output in 2012 reached 79,0 MCM compared to 80.6 in 2011. The production of water treatment plants in 2012 was 45.6 MCM, compared to 28 MCM in 2011. The increase in water treatment was due to the decision to operate the Desalination Plants at the lowest possible production capacity while most of the plants were set in standby mode. It is

also noted that the Choirokitia Water Treatment Plant which was held in reserve started operation in June 2012.

6.3 During 2012 the management of the BOOT contracts of the Desalination Plants continued for the two permanent Plants of Dhekelia and Larnaca, as well as for the Mobile Plants of Moni, Garyllis and Paphos. The water production from the above Desalination Plants, was 17.6 MCM in 2012, compared to 48.7 in 2011. In 2012 the Larnaca and Dhekelia Desalination plants were instructed to reduce production, while all other plants were set in stand-by mode. These instructions were according to contractual provisions which allow WDD to manage the water production taking into account the water reserves. The following are also noted: A. The contract for the Moni mobile desalination plant expired at the end of January 2012. B. After an open tendering procedure the contract for the Larnaca Desalination Plant was awarded to a new contractor, in order to renovate the plant in the next 2 years and operate it for another 25 years. C. The Limassol Desalination Unit in Episkopi was completed in 2012 and was set in Stand-by mode.

6.4 During 2012, the total irrigation water supplies in areas irrigated by the Government Water Works reached 53.8 MCM, of which 42 MCM came from water dams, 5.2 MCM from boreholes and 6.6 MCM from recycled water of tertiary treatment.

6.5 The recording of the water quantities supplied and the invoicing of these quantities using the current rates continued in 2012. All invoicing was done using the computerised water invoicing system. The payments of the accounts for the invoiced water were monitored according to the relevant laws. During 2012 the operation of the computerised Water Invoicing System continued, as were the recording and invoicing of the water quantities used for domestic and irrigation purposes from the Government Water Projects. Payments continued to be received through the web based JCC Smart service.

6.6 During 2012, the collection of arrears for both domestic supply and irrigation purposes water from the Government works continued. The arrears for domestic water supply at the end of 2012 were €97.5m plus interest. Judicial procedures against debtors continued in collaboration with the Justice department of the Republic. Legal action has been taken to recover the cost due to the disposal of industrial waste in the Wastewater Treatment Plant of Vatheia Gonia.

6.7 During the year, WDD continued various actions to address the problems encountered at the individual Irrigation Divisions due to the implementation of the State Aid Regulations.

6.8 In the framework of the implementation of the Government's policy for the development of golf courses in Cyprus, the Department continued the assessment of the various applications with respect to the water supply (domestic and irrigation) of these projects, as well as other aspects that fall under the WDD's responsibilities. In the same concept, the Department had a

considerable input in the Environmental assessment procedure related to each golf course development.

6.9 The Department was also responsible for the preparation of the water allocation scenarios, as well as for the implementation of these scenarios and the related irrigation water supply restrictions.

Daily water balances of all dams and daily reports for storage, inflow, releases and losses were prepared and distributed and also published on the WDD's website.

6.10 The maintenance of the Southern Conveyor pipeline continued and inspections carried out of the various structures and equipment of the project to maintain the proper operation and safety.

6.11 Supervision of the operation and maintenance of dams and the Major Water Works and the Wastewater Treatment Plants in Camps and Communities continued.

7. MANAGEMENT OF INFORMATION TECHNOLOGY AND TRAINING

7.1 In the context of further personnel education within the Department, 9 courses were organised with 135 participants. The educational programmes and lectures addressed mainly Technical Software Programmes and Legislative issues, as well as issues on Communication, and training for the induction of newcomers to the Public Service.

7.2 The monitoring of the Southern Conveyor Project is carried out through the use of a Telemetry System, which provides for a continuous and overall view of the functioning of Major Water Works and the possibility to take repair action. During 2012, three (3) Officers of the Department benefited from Education in USA from the supplier company HSQ Technology.

7.3 The WDD electronic infrastructure includes over 500 network appliances, such as personal computers, printers, scanners and other network peripherals. The entire scientific personnel and almost all of the technical and clerical staff have access to the internal network files of common use, as well as to the Internet and email services.

7.4 Technical support in equipment and software Programmes is provided on a daily basis at the main offices, district offices and isolated offices of the Department. In the context of technological upgrading, a partial replacement of old computers, printers and other network peripherals has taken place.

7.5 The WDD website is updated every day. The website includes information on the water resources of Cyprus, the environment, the Water Framework Directive 2000/60/EC, the Floods Directive 2007/60/EK and the relevant Cyprus legislation, water saving measures, etc. In addition, the website allows the public to communicate through e-mail. According to data from the Information Technology Services of the Department, some 12.500 persons visit the website every month.

7.6 The 1st Phase of the project “Introduction / Supply / Customisation / Development and Operation of an integrated Geographic Information System (GIS)” has been completed, and its main objective, which was the creation of infrastructure at WDD and importing of expertise in the operation of the various applications, was successfully fulfilled.

The System is a complete database management system, which supports the geographical dimension of entities and therefore it will offer to the Department the common platform for graded access to all data and an essential tool for the preparation / implementation of various studies.

Furthermore, the various (sub)systems and applications offered, will support the monitoring of water supply, irrigation and sewerage networks and will help to analyse trends affecting the future demand.

8. DEVELOPING WATER SAVING AWARENESS

8.1 In the context of intensifying efforts for the creation of water saving awareness among the public, the WDD organised various campaigns and lectures. To this end, WDD officers gave lectures at educational institutions. During 2012 roughly 50 lectures were given at educational institutions, attended by 10.000 pupils. At the end of the lectures, leaflets, stickers and other promotional material regarding water conservation were distributed to pupils and teachers.

8.2 During 2012, the WDD organised and participated in the following events:

- a) Lectures to National Guard Camps with the aim of informing/sensitising the soldiers about water saving.
- b) The annual event “**water...drops of life**” in collaboration with the Primary Education of the Ministry of Education and Culture and the Cyprus Parent Association.
- c) An event related to “**Water culture**”, in cooperation with the Srovolos Municipality.
- d) An event organised in collaboration with the astronomy organisation IPPARHCOS at Tamassos Dam.

8.3 In addition, the WDD participated in exhibitions and other events, concerning water saving.

During 2012 in cooperation with PIO, the WDD promoted a documentary film of duration of 15 minutes related to water.

9. SAFEGUARDING QUALITY

9.1 During 2012 the draft work on the accreditation of WDD laboratories continued. Accreditation is expected to take place in 2013.

Monitoring domestic water quality

9.2 During 2012, chemical tests were carried out on 1,804 water samples and bacteriological tests on 1433 samples. The chemical and bacteriological tests were performed for the needs of the following:

- a) Desalination Plants of Dhekelia, Larnaca, and Kouklia
- b) Water Treatment Plants (Tersefanou, Limassol, Choirokoitia, Asprokremmos, Kornos) and Monitoring water quality in pipelines that supply domestic water from the Desalination Plants and the Water Treatment Plants according to Directive 98/83/EC and the Cyprus Law 87(I)/2001 for the quality of the water used for human consumption
- c) Community Boreholes and Springs which were used for water supply according to Directive 98/83/EC and the Cyprus Law 87(I)/2001 for the quality of the water used for human consumption
- d) Monitoring programmes for minor dams, major springs and the Water Framework Directive 2000/60/EC

Monitoring of recycled treated wastewater quality

9.3 The collection of samples continued for Chemical and microbiological analyses, toxicity tests and metal ion analyses of samples from 28 Wastewater Treatment Plants, and from the Wastewater Treatment Plants of Sewerage Boards of Nicosia, Larnaca, Limassol, Paphos and Paralimni - Ayia Napa. Of 450 samples, in total, 3500 parameters were analysed.

9.4 Sample taking for chemical and microbiological water tests took place at the Polemidhia Dam, before and after the period recycled water was discharged in it.

9.5 Sample taking for chemical and microbiological analyses of Ovgos River before and after the discharge period of recycled treated wastewater in the river.

9.6 Sample taking for chemical analyses : **a)** from soil irrigated with recycled treated wastewater of the Wastewater Treatment Plants of Sewerage Boards of Nicosia, Larnaca, Limassol, Paphos and Paralimni - Ayia Napa and of the Central Domestic and Industrial Wastewater Treatment Plant at Vathia Gonia and **b)** from the Limassol and Larnaca coastal waters before and after the discharge of recycled treated wastewater in the sea, of soil on which sludge from the Central Domestic and Industrial Wastewater Treatment Plant at Vathia Gonia was disposed and of untreated wastewater from almost all the Wastewater Treatment Plants.

Safety and Health

9.7 In 2012, the Safety and Health Support Sector, applied the legislation on health and safety at work laws N33 (1) 1996-2011 for staff and third parties. Among others, the Sector conducted inspections in all the sites, facilities and premises of the Department and prepared reports. Furthermore, it coordinated

10 Safety Committees and organised courses on first aid and the use of a defibrillator, delivered by an approved training centre, for the training of the WDD personnel on health and safety issues. The Sector was also involved in the preparation of relevant specifications and contracts and provide the staff with all necessary personal protective equipment (PPE).

Internal Auditing

9.8 The internal auditing of works continued during 2012 with on-site visits to WDD construction projects that are carried out through the “self – supervision” method by the District Offices, as well as to Government Irrigation Projects across Cyprus, with the aim of maintaining good work standards and preventing and avoiding accounting and technical omissions or oversights.

9.9 Apart from routine checks, the auditing procedure continued, focusing on locating institutional and procedural problems and preparing proposals for their resolution. Indicative proposals include, changes to the way of carrying out the tenders for the execution of water supply projects, the enhancement of the District Offices with respect to laboratory testing, the adoption of the use of new type valves, the initiation of the preparation of modern drawings for circular water tanks, as well as the preparation of new technical specifications concerning water supply networks.