ANNUAL REPORT OF THE MINISTRY OF AGRICULTURE, NATURAL RESOURCES AND ENVIRONMENT FOR THE YEAR 2011

ENGLISH SUMMARY

Index

1. The Ministry of Agriculture, Natural Resources and Environment .................................. 5
2. The Evolution of the Agricultural Sector during 2011......................................................... 6
   I. Department of Agriculture .............................................................................. 7
   II. Agricultural Research Institute ..................................................................... 25
   III. Veterinary Services ....................................................................................... 35
   IV. Department of Land Consolidation ................................................................. 43
   V. Water Development Department ..................................................................... 45
   VI. Geological Survey Department ...................................................................... 59
   VII. Mines Service .................................................................................................. 65
   VIII. Department of Fisheries and Marine Research .................................................. 67
   IX. Meteorological Service ..................................................................................... 81
   X. Department of Forests ....................................................................................... 89
   XI. Department of Environment ............................................................................. 99
   XII. Agricultural Insurance Organisation ................................................................. 115
   XIII. Cyprus Milk Industry Organisation ................................................................... 119
   XIV. Cyprus Potato Marketing Board ....................................................................... 123
   XV. Wine Products Council .................................................................................... 125
   XVI. Cyprus Olive Products Board .......................................................................... 131

Appendix

Organization Chart .............................................................................................. 135

Tables

Table 1 Main Indicators of the Agricultural Sector 2007 – 2011 ........................................... 139
Table 2 Gross Output by sub-sector, 2006 – 2011 at current prices ......................................... 141
Table 3 Employment in agriculture .................................................................................. 143
Table 4 Production of main agricultural and livestock products 2007-2011 ................................ 145
Table 5 Value of production of main agricultural and livestock products (At current prices) 2007 – 2011 ........................................................................................................... 147
Table 6 Fishing Output 2008 – 2011 ................................................................................ 149
Table 7 Weather Conditions during 2011 ....................................................................... 151
1. The Ministry of Agriculture, Natural Resources and Environment

- Functions and Organizational Structure

The Ministry of Agriculture, Natural Resources and Environment (MANRE) is the Government Body responsible for all matters relating to Agriculture in the wider sense. Its responsibility covers agricultural production and development, livestock production and development, fisheries development, water resources management and development, veterinary services, forestry, geology, meteorology, agricultural insurance and the protection of the environment.

Since the accession of Cyprus to the European Union on the 1st of May 2004, the Ministry of Agriculture, Natural Resources and Environment is actively engaged in the formulation of the Common Agricultural, Fisheries and Environmental Policy, by participating in the Council of Agriculture and Fisheries, the Environment Council and various committees of the EU Council and the European Commission.

The Ministry consists of the Office of the Minister who is supported by the Permanent Secretary, two Principal Officers (Division Heads) and a complement of technical, administrative, clerical and other staff.

The Departments and Services of the Ministry of Agriculture, Natural Resources and Environment are separated in Divisions as follows:

A. **Agriculture - Fisheries**

   Department of Agriculture  
   Department of Fisheries and Marine Research  
   Department of Veterinary Services  
   Agricultural Research Institute  
   Land Consolidation Department

B. **Natural Resources**

   Water Development Department  
   Forestry Department  
   Geological Survey Department  
   Meteorological Service  
   Mines Service

C. **Environment**

   Department of Environment
Four Organisations dealing with matters relating to the production and marketing of agricultural products are operating under the jurisdiction of the Ministry of Agriculture, Natural Resources and Environment. These are the Wine Products Council, the Cyprus Potato Marketing Board, the Cyprus Milk Industry Organisation and the Cyprus Olive Products Board. The Agricultural Insurance Organization is also operating under the guidance of the Ministry of Agriculture, Natural Resources and Environment.

2. The Evolution of the Agricultural Sector during 2011

The contribution of agriculture to GDP in 2011 at current prices remained the same as in 2010 (2.0%). Available statistics indicated that the total value of the raw agricultural production in 2011 at current prices was €699.7 million compared to €690.8 in 2010. The value added of the sector in 2011 at current prices was €364.5 million compared to €354.9 million in 2010.

The precipitation during the calendar year (January-December 2011) was 557.9 mm or 111% of normal. That was concentrated during the month of January. For the rest of the months the average rainfall was much lower than normal resulting in a very low inflow of water in the dams reaching only 65.5 million cubic metres (mcm) that represents 43% of total capacity.

Throughout the year, the different Departments and Services of the Ministry continued their efforts towards meeting the increased demands that arouse after the accession of Cyprus to the EU and the difficulties that emerged with the globalisation of trade and the increased competition.

A brief presentation of the main activities of these Departments and Services is given below.
I. DEPARTMENT OF AGRICULTURE

www.moa.gov.cy/da

1. Introduction

The Department of Agriculture is responsible for the implementation of agricultural policies, by preparing and implementing both development and supporting programmes and projects and by providing educational and advisory services to farmers and to rural population.

The overall work of the Department of Agriculture aims to increase agricultural production and productivity, by promoting technical or institutional changes and improvements in the broader agricultural section. Particularly, emphasis was given to increasing the competitiveness of agricultural products, to maintaining a balanced supply of products to the market and to improving farmers’ standard of living within a sustainable agricultural development.

During 2011 particular emphasis was given to the implementation the Cyprus Rural Development Programme for the period 2007-2013.

1.2 Structure and activities

The Department of Agriculture is organized into four (4) Divisions. These Divisions include 20 specialized Sections stationed, mainly, in Nicosia. In addition the Department operates six Agricultural District Offices which are sub-divided into beats. Each beat has a specific number of communities. The Department also has Government Stations and Nurseries, where various agricultural activities are carried out.

The Department’s activities during 2011 are briefly described below:


The Managing Authority is responsible for managing and implementing the RDP in an efficient, effective and correct way. The Managing Authority also had an active role in the monitoring and evaluation procedure of the Rural Development Plan 2007-2013. In this respect, it was also responsible for the collection of information and the preparation of the Annual Progress Report of the RDP for the year 2010.

The total amount of the Cyprus RDP 2007-2013 is about €329 million. During 2011, payments of about €45 million were made to beneficiaries. The Managing Authority organized on June 13, 2011 the annual Monitoring Committee of the RDP 2007-2013. During the meeting the Annual Progress Report 2010 of the RDP 2007-2013 was presented and approved by the members of the Monitoring Committee. This report was submitted to and approved by the European Commission.

The Section is also responsible for the implementation of the measure 5.1 of the Rural Development Programme (RDP) 2007-2013 which provides technical support regarding the implementation, monitoring and evaluation of the RDP and the establishment and operation of the National Rural Network. Total payments for 2011 were about €320,000 and will be fully recovered through the Rural Development Programme 2007-2013.
The Managing Authority participated in various “commitology” meetings, such as the Rural Development Committee, the Agricultural Funds Committee, the Evaluation Experts Committee and the Coordination Committee of the European National Rural Network. The Managing Authority also participated in the Council Working Party on Rural Development and Agricultural Structures.

3. Internal Audit Service of the Department of Agriculture

The Internal Audit Service of the Department of Agriculture was created in June 2007 under Article 4, paragraph 6 of Regulation 882/2004. The Service is staffed by an Agricultural Officer A', an Agricultural Officer and an Agricultural Inspector.

3.1 The purpose of the Internal Audit Service

The aim of the internal controls that are carried out by the Internal Audit Service is to determine whether the official controls related to the respective laws are effectively implemented and whether they fully comply with the Multi-Annual National Control Plan of the Department of Agriculture. The Internal Audit Service is accountable directly to the Director of the Department of Agriculture.

3.2 Legislations and Implementation Sections that are under the Internal Audit Service Control

a) Plant Health Section of the Plant Health and Quality Control Section
b) Animal Feeds Section of the Analytical Laboratories Section
c) Organic Products Section
d) Quality Products

In 2011, all inspections were conducted according to the annual control program of the Internal Audit Service, annual audits were conducted in the following three sections: Plant Health, Animal Feeds and Organic Products. Moreover, several inspections were conducted at the premises of private businesses.

3.3 Internal Audit Planning

All of the controls are scheduled in collaboration with the controlled section. After approval of the control schedule by the Director of the Department of Agriculture, the Internal Audit Service notifies the controlled section. Internal control is then carried out in the presence of competent personnel of the controlled section.

3.4 Report

In 2011, the Internal Audit Service prepared and submitted monthly and annual reports to the Director of the Department of Agriculture which included both positive and any negative findings and suggestions for improving the work of the sections under control.

3.5 Planning Internal Audit Controls in 2012
In 2012 all relevant sections will be inspected, both for assessing the degree of implementation of the recommendations of 2011 and to assess the implementation of the relevant laws and also the compliance of the controls with the new multi-annual national control plan of the Department of Agriculture for the period 2010-2012.

A. HORIZONTAL SECTOR DIVISION

The horizontal sector division consists of Agricultural Extension, Agricultural Economics and Rural Development, Plant Protection and Apiculture, Land and Water Use, Analytical Laboratories sections, Tenders office and Safety office.

4. Agricultural Extension

The Agricultural Extension Section was actively involved in the preparation and implementation of the annual Extension Programme, designed to disseminate knowledge, information, practices, and assist in the overall training of the farming population on a wide range of rural development subjects and related areas. In this context, during 2011, the staff of the six District Agricultural Offices completed 6,500 visits and organized 87 group activities. Similarly, the Home Economics staff completed 140 visits and organized 66 group activities attended by 1,070 persons, mainly rural women. In addition, 38 training courses and 5 apprentice training courses were organized, attended by 822 farmers and rural women. Educational excursions to areas of agricultural and home economics interest were also organized. Most of the training courses were conducted at the Agricultural Training Centers in Agros, Paphos and Limassol.

With regards to publicity, the Agricultural Extension Section had a primary role in the issuance of 19 education pamphlets and booklets, the publications of various articles of agricultural interest in magazines and newspapers, and in the coordination of radio and television programmes on a weekly basis.

The Section was also responsible for the promotion of the Rural Development Programme (RDP) 2007-2013, which was achieved through the issuance of information bulletins, TV promotion, seminars, articles etc.

The Agricultural Extension Section was also responsible for updating and introducing new themes onto the Department website: www.moa.gov.cy/da as well as for the coordination of personnel training of the Department of Agriculture, with 87 training courses organized during 2011.

Lastly, the Agricultural Extension Section is involved in the implementation of 4 measures of the RDP 2007-2013: Measure 1.1 - “Vocational training and information actions”, Measure 1.2 -“Setting up of young farmers”, Measure 1.3 - “Early retirement” and Measure 1.4 - “Use of agricultural advisory services”.

The Cyprus National Rural Network (CNRN) is a service under the umbrella of the Agricultural Extension Section and was established under the RDP 2007-2013, namely measure 5.1 “Technical Support”.

In 2011, the CNRN organised meetings and seminars for its members, prepared and published material about the activities of the Network, organised seminars and educational
programmes that promote rural development, developed and operated the Website of the Network (www.ead.com.cy) and participated in radio and television broadcasts on matters related to the Rural Development Programme (RDP) and the activities of the CNRN. The Operational Group of the Network collected information on Rural Development Projects and organised them in databases.

The CNRN during the same year, implemented actions that were proposed by its members in an attempt to follow the “bottom-up approach” for support of the RDP. Actions from the four Axes of the RDP were implemented. The CNRN participated in the 17th Pancyprian Rural Exhibition and people who visited the new kiosk were informed about its operations, the RDP and about general rural development issues.

5. Agricultural Economics and Rural Development

In 2011, the Agricultural Economics and Rural Development Section prepared the Annual Development Budget for the year 2012 and the Medium Term Budgetary Framework for the years 2012-2014, as regards development expenditure. The Section also redesigned and prepared a performance-based programme for the three-year budget period of 2012-2014.

The Section was also responsible for the preparation of the Annual Report on State Aid in the Agricultural Sector, the notification to the European Union of all measures providing for state aid, the evaluation of projects granting state aid and preparation of several new projects. This included projects for the compensation of farmers for damages caused to agricultural output or inputs by natural calamities, unfavourable weather conditions or other disasters and damages caused by fire.

In addition, the Section was responsible for all matters related to Euro-Mediterranean cooperation, the World Trade Organisation and EU agreements with third countries.

The Agricultural Economics and Rural Development Section was also responsible for the implementation of both the LEADER Axis (Axis 4) and the Measure 3.3 “Skills acquisition and animation” of the Rural Development Plan (RDP) 2007-2013. In 2011 the four Local Action Groups (LAGs) which had been approved in 2009, continued the implementation of their Local Development Strategies (LDSs) through the LEADER Axis of the RDP.

Throughout the year, the LAGs undertook procedures for the selection of projects eligible under the Measures 4.1 (Implementation of the LDS), 4.2 (Inter-territorial and Transnational Cooperation projects) and 4.3 (Running cost, skills acquisition and animation). The total amount allocated to these projects was €2.5 million. By the end of 2015 it is expected that this amount will be increased to €11 million.

The Agricultural Economics and Rural Development Section, apart from offering technical assistance to the LAGs, organized and supported the role of the Technical Evaluation Committee of LEADER, which is the body authorized for approving the Measures to be implemented via LEADER and monitoring the implementation of the LDSs by the LAGs.

Furthermore, the Section implemented an Aid-specific Scheme which provided, for the year 2008, compensations to farmers in the sector of agriculture, due to natural disasters or adverse weather conditions that were not covered by the Agricultural Insurance Organization according to the National Framework. This Scheme was approved by the European
Commission on the 5th of August 2009. In 2012, an amount of €876,245.87 is expected to be paid to 129 beneficiaries eligible under this Scheme.

Also, the second phase was completed of the Government Support Scheme for the Reactivation of Farmers regarding the Klonari, Vikla, Ora and Akapnou villages which had been affected by fire in June 2008. Based on the terms and conditions of this Scheme, a total amount of €4,523.00 was paid to 3 eligible applicants.

Also, the total amount of €635,269.50 was paid from the 2011 budget for the Scheme for the Financial Assistance for Enclaved Persons.

The Section was also responsible for maintaining a forecasting mechanism and collected data for estimated production of 45 crops as well as updating the edition “Crop Profile.”

6. **Plant Protection and Apiculture**

The Section aims to provide a substantial technical support to Cypriot farmers and to private and public organizations interested in plant protection issues, in order to promote sustainable agriculture with little or no negative impact on the environment and human health. For the support of the private sector, mainly farmers, the Plant Pathology Laboratory examined 270 samples in 2011 using various diagnostic techniques. Laboratory tests were also carried out for the inspection of local, EU and imported plant material for the quarantine of harmful pests and pathogens. Five hundred and twenty one samples from local and imported seed potatoes, as well as edible potatoes were tested using the immunofluorescent method for the quarantine bacteria *Clavibacter michiganensis* subsp. *sepedonicus* and *Ralstonia solanacearum*. Three hundred and eighty living cultures of the beneficial bacterium *Rhizobium radiobacter* strain K84 were provided to the governmental nurseries for control of the plant pathogenic bacterium *Agrobacterium tumefaciens*. More than 31,000 laboratory assays were conducted for the inspection of private and governmental mother plantations of citrus, grapevines, potatoes and stone fruits, as required by the national plant propagation schemes.

A potato cyst nematode survey was conducted for advisory and exporting purposes, while 1,831 soil samples were taken from potato fields and tested for the presence of *Globodera rostochiensis* and *G. pallida*. The survey covered 1.097 potato fields or 962.7 hectares, which is equivalent to 19.2% of the total land used for potato cultivation. Two hundred and twenty six soil samples were also taken and tested for the presence of potato cyst nematodes for the purposes of the national plant propagation scheme. The Section continued the mapping of infested and non-infested potato fields with potato cyst nematodes. It also continued the survey in citrus orchards for isolating and determining the population of the citrus nematode *Tylenchulus semipenetrans*. Samples derived mainly from imported wood pallets and ornamental forest trees were examined for the presence of pine wood nematode (*Bursaphelenchus xylophylos*). Laboratory assays were also conducted for isolating and identifying plant-parasitic nematodes in the governmental and private nurseries in order to fulfill the obligations of plant health and plant propagation regulations, as well as to provide advises to farmers.

In collaboration with the District Agricultural Offices, the Section continued to inform farmers about effective measures of weed control. Educational seminars were conducted for the proper use of pesticides in order to maximize their effectiveness and minimize their hazardous effects.
The Entomology Laboratory examined and identified 65 specimens for advisory purposes. The Laboratory continued to provide advice for the control of major pests, such as the leaf miner and red scale of citrus, Mediterranean fruit fly, codling moth of pome trees, grape berry moth, potato and vegetable leaf miners, potato tuber moths and fruit fly and moths of olives, etc.

In the context of integrated pest management, the right time for application of pesticides was determined by monitoring on a regular basis the populations' fluctuation of mediterranean fruit fly, citrus red scales, codling moth, grape fruit fly, etc., using pest traps located in scattered plantations.

Campaigns took place for the control of cereal leaf miner (Syringopais temperatella), locusts (Dociostaurus marrocanes, Decticus confilrons), stink bug (Dolycoris baccarum) and citrus scale insects (coccidae family). In some cases, protection measures were not necessary because of the low population density of the pests mainly due to unfavourable environmental conditions. The biological control of citrus wooly whitefly (Aleurothrixus floccosus) was successful only in the presence of high populations of its natural enemy Cales noacki.

The Section was also active in organization and supervision of measures implemented by the various Plant Protection Associations (Plant Protection Association Law 19/72 until 2007): Cereal Leaf Miner (S. temperatella) in Anarita village in Paphos, Grape berry moth (Polychrosis botrana) in Lemesos and Paphos districts and Olive fly (Bactocera oleae) in Nicosia and Larnaca districts. The Associations continued this year with control measures for the above-mentioned pests. The total governmental financial contribution for the support of the Associations in 2011 reached the amount of €146.905,20.

The rat control activity continued in order to minimize the rat population in the rural and urban areas throughout Cyprus. This activity included rat control campaigns, as well as the training and education of farmers about the use and application of rat baits and rodenticides. The factory of the Section produced 274.689 Kg rat bait in 2011, whereas 112.741 Kg was used for the rat control campaigns organized by the Department of Agriculture and other governmental bodies. The remaining rat bait was given to the farmers/public through the Central Cooperative Bank at the reduced price of € 0,26 per Kg.

Advice was given to farmers for adopting practices and tactics used in Integrated Pest Management Programmes for the control of pests and diseases in problematic plantations. The Section continued to provide spray announcements for preventing, eliminating or reducing the development of environmental based plant diseases and pests. The spray announcements were based on empirical programmes taking into account environmental conditions and the stage of the crops, and the use of pest pheromones and traps.

Another main activity of the Section is the investigation, development and promotion of pest management methods based on integrated and biological control methods. In 2011, the Section was actively involved in two research programmes undertaken by the Cyprus University of Technology. These research programmes include the validation of nine disease models for forecasting the potato late blight using weather stations and the determination of potato cyst nematodes at species and pathotype level existing in potato fields in Cyprus and the evaluation of resistant cultivars.

The Apiculture Section was actively involved in the encouragement of beekeeping through the Rural Development Project 2007 - 2013 and the Bee-Keeping Programme 2011-2013.
The three-year National Bee-Keeping Programme 2011-2013 has been approved by the European Committee of the European Union, which is expected to further improve and develop apiculture in Cyprus by providing technical and economic support to the apiculturists. Furthermore, the Department of Agriculture has signed a contract with Aristotle University of Thessaloniki for a study into the economic impact of bee-eaters (Merops apiaster) in apiculture and the investigation of alternative methods to prevent attacks on apiaries. A three year programme is running in collaboration with the same university for the determination of the physiochemical and other characteristics of honey.

7. **Land and Water Use**

In the areas of land and water use emphasis was given to enhance / upgrade the existing soil surveys and soil classification maps and other activities that aim to promote the proper application of plant nutrition, suitable irrigation practices at farm level, the use of recycled municipal water, sludge and industrial / agricultural wastes according to the Code of Good Agricultural Practices, as well as the management of agro-environmental matters. The introduction / promotion of appropriate technology and transfer of know-how to the farmers through the extension services were also within the addressed issues.

Regarding land use, during the year review, activities were concentrated on soil surveys, upgrading the island's soil maps and on plant nutrition. In this respect, soil and leaf analyses were carried out and instructions were given to farmers for the rational use of fertilizers.

The activities concerning water use were concentrated on the best utilization of available water and mitigation of the effects of water shortage on agriculture. During the year there was considerable field and laboratory work for the determination of soil solution salinity level. Work on the use of the recycled water for irrigation from municipal, agricultural and industrial effluents and the use of treated sludge, as well as, the work of hydroponics cultivation, continued throughout the year.

Additionally, efforts continued towards the improvement / development of the infrastructure of various Livestock Areas / Zones. During 2011, landscape maintenance and land improvement works took place in more than 15 livestock areas.

Efforts were also made for the promotion of further agricultural mechanization, maintenance of government agricultural machinery and the acquisition of new machinery to cover the needs of agricultural farms and nurseries of the Department of Agriculture.

Regarding the activities of the Fertilizer Control Boards, 17 fertilizer samplings took place for quality control purposes. The total amount of fertilizers imported came to 34.819,30 tons.

8. **Analytical Laboratories**

The Section's work aimed at strengthening the enforcement of the Pesticides, Animal Feeding Stuffs and Fertilizers Laws, as well as contributing to the Department’s efforts for introducing and monitoring Good Agricultural Practices and for protecting the environment.

The number of samples analyzed during 2011 concerned: 24 leaf, 886 soil and 120 water samples, 980 animal feeding stuffs, 26 fertilizers and 33 pesticide formulations. In addition a total of 178 samples of various fruit and vegetables were analyzed for the detection of pesticide residues, mainly within the Preventive Monitoring Program.
During 2011, both the Pesticide Residues Laboratory and the Animal Feeding stuffs, Fertilizers and Leaves Quality Control Laboratory have been accredited according to ISO 17025 by the Cyprus Accreditation Body (CYS-CYSAB).

9. **Tenders office**

The Tenders office is responsible to provide advisory support to the officers, in order to apply the regulations and legislations of public procurement, to submit statistics according to the legislation, to monitor and inform the e-procurement, to open and store the tenders, and to maintain archive for the public procurement.

10. **Safety Office**

The Safety Office is responsible to provide a healthy and safe environment to all employees of the Department of Agriculture. The office’s intention is to take precautionary measures for the reduction and minimization of the risks in the working area. This is achieved via regular training and inspections to all the premises of the Department.

**B. PRODUCTION SECTIONS DIVISION**

Includes Horticulture, Viticulture and Oenology, Cattle and Dairy, Pigs and Poultry, Sheep and Goats Husbandry/Animal Nutrition Section as well as the Agronomy Unit and the Seed Production Center.

11. **Horticulture**

The implementation of the School Fruit Scheme continued during 2011 regarding the school year 2010 – 2011. The main objectives of the Scheme were the promotion of fruit and vegetable consumption in children, fighting against childhood obesity and the introduction of good eating habits in children. The maximum aid for the school year 2010-2011 was €768,952, from which €384,476 was the community aid share and the remaining €384,476 come from National funds. In addition there was a budget of €101,048 for the implementation of supporting measures, in order to increase the effectiveness of the implementation of the Scheme.

The Government Farms (nurseries) produced and provided interested growers with 20,000 plants mainly olive trees, deciduous, table grapes, pistachio-trees, avocados and carobs, while approximately 95,000 grafts were produced for the private nurseries’ and growers needs. Finally 39,030 plants of grapevines were produced for the reformation of the sector.

The main activities of the vegetable section aimed to increase productivity and to improve the quality and competitiveness of vegetables produced in Cyprus. In this respect, variety trials were carried out in farmers’ fields on vegetables, watermelons and tomatoes. According to the 2011 review, the area cultivated with vegetable crops in greenhouses was 375,5 hectares, mainly comprising tomatoes, cucumbers, strawberries and beans.

The activities of the section of ornamental/cut flowers concentrated mostly on advisory work to growers, on cultivation techniques and the introduction of new plants and varieties aimed at the improvement and increase of yield and quality. According to the 2011 review, the area...
used for floriculture was 164.7 hectares. From these, 58 hectares were cultivated for cut flower production while 106.7 hectares were used for the production of pot plants.

The botanic garden in Athalassa produced and provided to interested growers around 200,000 aromatic plants. The garden is scheduled to be extended. More than 146 growers cultivate aromatic plants with an area of 273 hectares.

12. Viticulture and Oenology

12.1 Viticulture

The aim of the Viticulture Section is to contribute to the professional development of the vine growers as well as to the technological improvement of their ventures through systematic education, transfer of know-how and expertise. The main responsibility of the Section has therefore been to contribute to the further expansion of the vine nurseries in order to provide the market with healthy and qualitative vine propagation material while in parallel, special emphasis has been given to improve the anti-phylloxera infrastructure. Moreover, the central focus was further technical development of the vine growers via taught courses, on-site consulting, audiovisual programs and other means towards this direction. In addition, the Section systematically gathered empirical data out from a trial vine plot which was specially designed in order to acquire practical knowledge on Cypriot native cultivars grafted on several American rootstocks. In the same track, the Section provided the Model Winery with the necessary grape quantities for experimental wine-makings and last but not least, the Section redefined and further improved the Register of Table Grapes Varieties by adding new updated data and satellite photographic material.

12.2 Oenology

The Oenology section has played a vital role in the Department of Agriculture’s policy making in the Cyprus wine sector. Its competencies mainly targeted the professional development of the winemakers and safeguarded their interests in the framework of the Common Wine Market Organization and in the context of the International Organization of Vine and Wine (OIV). In relation to its competencies, the Oenology section carried out an extensive experimental development which based itself on grounded scientific knowledge as a way to study change, innovation and quality improvement of the Cyprus wines. Most emphasis has been given to the empirical assessment of innovative wine technologies on wines produced from Cypriot native cultivars. As such, research questions and hypotheses tested the cause and effect of cold skin contact on those wines, wine fresh lees versus commercial yeasts’ walls, as well as other experimental questions related to Commandaria quality improvement. Moreover, the central focus was further technical development of the local wine-makers via on-site consulting and problem-solving, audiovisual programs and a taught aspect. Furthermore, the Section systematically monitored the legal and technological advances shaped at the International (OIV) or European (wine Common Market Organization) decision making level, reflected upon and contributed likewise in order to directly transfer new knowledge to the local wine industry.

12.3 Oenological laboratory
The Oenology Laboratory of the Department of Agriculture is the National Laboratory for wine analysis and carried out chemical analyses of several vine and wine products in the framework of local market monitoring, production scale and experimentation. Since March 2010, its concept of functioning has been based on the principles and standards the Total Quality Management, and specifically on those prescribed by ISO 17025:2005. Hence, the Oenology Laboratory function comes under the systematic overview of the Cyprus Organization for the Promotion of Quality which is currently the national certification body. Furthermore, the Oenology Laboratory participates in various research programmes and inter-laboratory controls of high standard (EU, OIV, BIPEA) in order to maintain its competences at the highest level.

12.4 Control of oenological practices and processes

The Section of Oenological Practices and Processes implemented the European and National legal frameworks in the wine sector of Cyprus. Therefore, the Section carried out substantial checks on a systematic basis which aimed at preserving the consumers’ health from fraudulent practices and promoting greater quality assurance of vine and wine products. The checks have been carried out taking into consideration the risk assessment principle and covered the entire supply chain. Hence, several checks focused on the proper keeping of cellar registries and related documents, appropriate implementation of prescriptions and doses of oenological products used, and suitable storage conditions and labeling of raw materials and finished products. To achieve this, the checks also complemented wine sampling and relevant analyses of certain key parameters held at the Oenological Laboratory. An annual report is elaborated in order to be circulated to all wine related undertakings checked and communicated at the competent Wine Services of the European Commission for administrational reasons.

13. Cattle and Dairy Section

The Cattle and Dairy Section is responsible for applying the State Policy in matters concerning Cattle Production. The section is split into two subsections, the Cattle and the Dairy section and is also responsible for the application of two Legislations.

The Cattle section mainly deals with matters concerning nutrition, management, genetic improvement and housing of beef and dairy cattle. The primary aim is to achieve efficient, high producing, dairy units, minimising production costs. The Dairy section is responsible for organizing specialized training programs, mainly at the governments training centers, demonstrating the procedures for the production of traditional dairy products.

At the end of each year the Annual Bovine Population Survey is carried out, with the results being sent to the European Commission and Eurostat. According to the Annual Survey, which was carried out during December 2010, in 232 farms, the total bovine population was approximately 55,000 animals, out of which 23,500 were dairy cows. Milk and beef production was estimated to be 149,035 and 4,668 tons respectively. Producer prices were estimated to be €51,98/100Kg for milk and €342/100Kg for veal. The results are also processed by the Ministry of Agriculture to monitor different aspects of the Cattle and Dairy Cattle Section to make yearly comparisons and to provide assistance where specific problems are detected. For the year 2010, 15,853 bovine animals were slaughtered. The producer prices for milk are sent to the E.U. every month and the producer prices for bovine animals every week.
The Section is also responsible for the enforcement of legislation concerning the carcass classification of adult bovine animals, pigs and sheep, in accordance with the community classification scale and price reporting. For this reason, several visits are made throughout the year to the five slaughterhouses in Cyprus, to supermarkets and to butcher houses. In total for the year 2011, 39 visits were made. Furthermore, the section applies the Legislation that deals with matters concerning the breeding of pure-bred bovine animals and the establishment and recognition of the Official Breeder’s Associations.

The Cattle and Dairy Section represents the Ministry of Agriculture, Natural Resources and Environment at European Committees for the Common Organization of Agricultural Markets with regards to milk, milk products, beef and veal and also deals with European Committee concerns related to zootechnics. The section has also participated in the Working Groups of the Council, discussing matters of milk package and contractual relations in the Milk and Milk Products Section.

14. **Pigs & Poultry**

Advisory Services on various aspects were offered to pig and poultry farmers.

According to the Annual Pig Survey carried out in 2011, the operating pig units were 79 (provisional) compared to 88 units in 2010. In 2011, 681,006 pigs were slaughtered, compared to 705,552 pigs that were slaughtered in 2010.

In the poultry section a total of 91 units specializing in poultry meat and egg production, as well as hatching egg production, game birds and ostriches were in operation during 2011. At the same time 4 slaughterhouses, 19 slaughterhouses/poultry meat cutting centers and 8 poultry meat cutting centers were operating. Domestic chick production was 13.48 million broilers and 122.130 egg type pullets (compared to 14.0 million and 316.305 respectively in 2010). In addition, 352.065 broiler type and 214.350 egg type chicks were hatched from hatching eggs transferred from other E.U. member states. A number of 83,360 egg type dayold chicks and 30,000 egg type pullets, 15-17 weeks old, were transferred from Greece. Also 138.640 broiler type and 2.380 egg type reproduction chicks were transferred from other E.U. member states (compared to 188.780 and 1.725 respectively in 2010). Turkey chick placements were reduced to 32.170 (transferred from other E.U. member states), compared to 42.280 in 2010. Finally, 29,536 boxes of eggs (886,080 dozens) for direct human consumption were transferred from other E.U. member states [28,743 boxes (862,290 dozens) in 2010]. Also 2,510,640 broiler type hatching eggs were exported (399,600 transferred to Greece and 2,111,040 to Israel (3,178,800 exported in Israel to 2010).

As regards the marketing standards of eggs for hatching and poultry chicks, edible eggs and poultry meat, inspections were carried out in order to ensure the implementation of Regulations (EC) 617/2008, 589/2008 and 543/2008 respectively.

15. **Sheep and Goats Husbandry/Animal Nutrition Section**

The Sheep and Goats Husbandry / Animal Nutrition Section is responsible for implementing policy in matters concerning the husbandry of sheep and goats. Furthermore, advisory services on various aspects were offered to sheep and goat farmers.

In the education section, the program included mainly education and information to sheep and goat producers on proper management and rational diet to increase production and reduce
costs so that the sheep and goat products become more competitive. The trainings were done through various methods, including lectures, apprenticeships, personal contacts, broadcasts, articles and informative brochures.

Among the activities for 2011, the Section participated in the implementation of the Programme for the Demolition of Noisome (odor, noise, pollution etc.) Sheds for relocation purposes are also in preparation for the implementation of Measure 1.4 of the Rural Development Programme 2007 – 2013.

The activities of the Section included the conduction of the Annual Review of Sheep and Goats Section in collaboration with the Cyprus Agricultural Payment Organization.

In addition, hundred thirty six (136) architectural plans were issued to 53 interested livestock keepers for the construction of suitable sheds.

In 2011, the Section participated in the enforcement of Legislation for the implementation of carcass classification of adult bovine, pig and sheep and the reporting of prices to the European Committee.

The Program of tackling scrapie disease in Damascus goats through genetic methods was continued at Ackeleia Government Livestock Unit in collaboration with the Veterinary Services. In 2011 a total of 21 ram, 43 ewes, 150 male lambs and 74 female lambs were issued to sheep owners for breeding. Also issued were 23 bulks, 94 goats, 121 male kids and 66 female kids.

Furthermore, the Milk Recording Scheme and Action Plan for Tackling Scrapie Disease were in progress. Genetically improved animals, free from scrapie, were sold to interested breeders. Four sheep farmers were involved in the Milk Recording Scheme, raising a total of 1,394 Chios breed. The Action Plan for tackling scrapie disease involved 11 units/nuclei and raised a total of 5,749 goats of Damascus breed.

The price of sheep milk during the year was €0,65-0,97/litre and goat milk was €0,48-0,58/litre. Mean price of live weight mutton and kid was €3,03/kg.

16. Agronomy

The field of action of the Agronomy Unit includes the cultivation of cereals, legumes, fodder plants and industrial plants. The goal of the Agronomy Unit, for the crops which it is responsible for, is to reduce the cost of production and increase profit for the producers, improve quality, productivity and competitiveness, exploit comparative advantages due to climate or soil in the various regions. Another goal is the development of organic agriculture of field crops. The Agronomy Unit gathered information for arable crops and the main issues that must be dealt with. Attempts to achieve the above goals will be made inter alia through education/technical support of the farmers for the implementation of improved cultivation techniques and the dissemination of species and varieties with commercial prospects and varieties that are adapted to the soil and climate conditions of Cyprus. Also the Unit will conduct studies using pilot/demonstration fields. Furthermore, the unit will inform farmers of rural development issues in relation to the above cultivations.
The Unit is also responsible for representing the Republic of Cyprus in the Management Committee of the Common Organization of the Agricultural Markets of E.U. for cereals, sugar and industrial plants.

Data was collected on the volume of production, cultivation area, quantity of sowing seed, production value and the cost of production for the field crops. The sales prices for the principal species were gathered weekly.

17. Seed Production Center

During 2011, the Seed Certification Schemes have been continued as in previous years. The Seed Production Center achieved its objective to produce certified seeds (prebasic, basic, 1st and 2nd generation) which are intended to be sold exclusively for sowing.

Specifically during 2011, 2,162.7 tons were sold comparing to 1.841.8 in 2010, an increase of 17.5%.

The following diagram presents the slow but stable increase in the use of certified seeds.

Seed sales during 2011 compared to 2010 is as follows:

<table>
<thead>
<tr>
<th>Variety</th>
<th>2011/tons</th>
<th>2010/tons</th>
<th>Increase/Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Durum wheat</td>
<td>649,925</td>
<td>578,450</td>
<td>+12.36%</td>
</tr>
<tr>
<td>Barley</td>
<td>1,509,300</td>
<td>1,251,275</td>
<td>+20.6%</td>
</tr>
<tr>
<td>Lolium</td>
<td>2,125</td>
<td>2,650</td>
<td>-19.20%</td>
</tr>
<tr>
<td>Vetch</td>
<td>1,350</td>
<td>0,180</td>
<td>+750%</td>
</tr>
</tbody>
</table>

The value of certified seeds sold was € 1.359.904 (V.A.T. excluded).

Furthermore, one of the main strategic targets of the Ministry of Agriculture, Natural Resources and Environment, is the existence of strategic reserves of certified seeds for sowing. This is due to the unpleasant fact that Cyprus experiences the phenomenon of drought every four years. It is noted that Cypriot varieties of seeds are customized for Cyprus climate and soil conditions.
conditions concerning productivity and efficiency. For these reasons, the Seed Production Center started to save strategic reserves in its grain elevators (silos).

C. DIVISION FOR IMPLEMENTATION OF LEGISLATION

The Division for implementation of Legislation consists of Control of Animal Feedingstuffs, Agrochemicals Control- Pesticides and Biocides, Plant Health and Quality Control and Quality Products.

18. Control of animal feedingstuffs

The Department of Agriculture is responsible for the implementation of the Animal Feeds and Feed Additives Control Law and the relevant EU legislation that provides for the control of import, formulation, packing, labeling, marketing and use of all feeding stuffs except those intended for pharmaceutical uses.

A total of 206 shipments of feeds and feed additives were approved for importation following documentary checks and in many cases sampling and quality controls. Furthermore, 1,471 notifications were received for shipments of compound feeds and feed materials from EU Member States. For the implementation of the National and EU legislation on Animal Feeds in 2011, 446 visits were carried out by authorised inspectors to several establishments for the inspection of quality, labeling and use of feeds and feed additives. During these inspections, 620 samples were taken for analysis. Moreover, 918 samples were taken for analysis from the Points of Entry to the Republic of Cyprus and during official controls of the marketplace.

19. Agrochemicals Control Section - Pesticides and Biocides:

The Agrochemicals Control Section has the responsibility of enforcing legislation regarding the authorization, placing on the market, quality control, labelling and the control of use of pesticides and biocides. Furthermore, specific regulations provide for the registration and control of manufacturers, retailers and stores for pesticides.

A number of 43 plant protection products and 76 biocides were authorized this year by the Pesticides Authorization Board. The registration of 61 plant protection products has been revoked (7 due to the withdrawal of the active substance according to Dir. 91/414/EEC, 36 due to lack of support by the manufacturers and 18 due to expiry of the registration period).

A certificate has been issued for 14 salespersons and 16 stores of plant protection products. The application for granting license to 13 salespersons and 2 stores of plant protection products has been withdrawn.

In total, 334 inspections (161 for biocides) have been carried out in stores and other premises with regards to the implementation of the relevant national legislation. Furthermore, 145 samples of plant products were collected for residues control.

20. Plant health and quality control section

20.1 Plant Health Control

During the year under review, Officers continued with the registration of potato producers, vine producers and citrus producers according to EU legislation. Furthermore, checks have been
carried out on 155 registered Traders/Importers/Exporters. Applications for registration to all Official Registries is an ongoing process.

**Phytosanitary Control of plants and plant products**

All consignments of agricultural products exported from and imported into Cyprus were inspected. Further official actions were taken to consignments which were found not to conform with the relevant legislation. These included destruction, fumigation, etc.

Consignments that enter or exit the Republic of Cyprus from or to other Member States are checked randomly but systematically, based on risk analysis assessment. Due to the findings of *Seiridium cardinale* on cypressus plants from Italy, there was an increase on monitoring of consignments arriving from this country.

**Surveys**

During the year 2011, surveys were carried out on potato plants and tubers (ware potatoes and seed potatoes) for the detection of the harmful organisms *Leptinotarsa decemlineata*, *Ralstonia solacanearum* and *Clavibacter michiganensis* subsp. *Sedonics*. Samples of potatoes were taken to the Plant Protection laboratory for further analysis for brown rot and ring rot although the results were negative in all cases.

In addition, surveys were carried out in vineyards for *Dactulosphaira vitifoliae*, in citrus orchards for *Guignardia citricarpa* and *Xanthomonas campestris*, and in forestry areas for *Seiridium cardinal*, *Ips sexdentatus*, *Dryocosmus kuriphilus* and *Giberrella cincinata*.

Furthermore, surveys were carried out according to EU legislation for the detection of *Diabrotica virgifera virgifera*, *Phytophtora ramorum*, Pepino mosaic virus, *Bactrocera zonata*, *Anoplophora chinensis*, PSTVd etc.

Results of these surveys and detailed records of the surveys were notified to all E.U. Member States and the E.U. Plant Health Committee. Since the spread of the pine wood nematode, *Bursaphelenchus xylophilus*, in Portugal and Spain, there was an increase in the percentage of inspections carried out on pallets arriving from these countries.

During the year under review, a close monitoring of the status of Red Palm Weevil, *Rhynochophorus ferrugineus*, was also carried out in Cyprus and the action plan was enforced where drastic measures were taken to prevent its further spread. In particular, the action plan included application of systemic and non systemic insecticides on *P. canariensis*, a public awareness campaign and monitoring of pheromone traps. The Plant Health and Quality Control Section prepared a dossier where financial contribution of the E.U. was requested to aid the eradication campaign. The EU published a Community Decision (2011/868/EC), where a contribution of up to € 67.375 Euros for the year 2011 was approved.

**20.2 Quality control of agricultural products**

All consignments of agricultural products exported from and imported into Cyprus were inspected. The consignments traded to and from other Member States were inspected at a lower frequency.
Sampling

26 samples of fresh fruit and vegetables were collected and sent to the State General Laboratory for the determination of pesticide residues.

20.3 Seed Control

During the year, 88 samples of seeds were received from the Seed Testing Laboratory for determination of their germination, viability and purity. Within the framework of the certification of seeds, 21,353 decars of cereals have been inspected.

20.4 Plant propagating material

During 2011, 280 inspections were carried out to suppliers of plant propagating material for ornamental and fruit plants, and 132 inspections of plant propagating material for vegetables. In total 6,068 basic mother plants and 158,114 plants have been certified. Furthermore, 38 million vegetable seedlings were inspected according to EU legislation.

Regarding potato seed production, 122,3 hectares of seed potatoes have been inspected and 1,550 tons of seed potatoes were certified. During the inspections, 315 tons of seed potatoes were rejected mainly due to virus diseases.

21. Quality products

21.1 Organic Farming

Aimed at the promotion of Organic Farming, the Section has contributed to the implementation of EU Regulation 834/2007 and the national Law on Organic Farming 227(I)/2004. In 2011, the Section continued to educate growers on Organic Farming via lectures and seminars.

According to the Organic Farming Law, in 2011, the cultivated area exceeded 3,970 hectares corresponding to 3% of the total agricultural area, with more than 748 growers producing organic products. The main crops cultivated are arable crops, olive trees and vines.

21.2 Products of Protected Designation of Origin (PDO). Protected Geographical Indication (PGI) and Traditional Specialty Guaranteed (TSG)

In the framework of registration of names as Protected Designations of Origin (PDO) and Protected Geographical Indications (PGI) of agricultural products and foodstuffs, the Section of Quality Products dealt with the implementation of the relative European and National Law. The Section continued with the provision of information and training of interested parties in relation to the quality schemes on the registration of PDO/PGI through a relevant seminar and individual contacts. The Section was also involved in the examination of various pending applications for the registration of food product names. The Section also started working on coordination in relation to Codex Alimentarius issues and was also involved in the effort for the participation of Cyprus in the Mediterranean Diet, which has been registered as an element of intangible cultural heritage of UNESCO.
22. Authorisation of Payments Division

The Authorization of Payments Division contains Authorization of Payments A’ and B’, IT Unit Tests and Unit-Site Auditors.

The Authorisation of Payments Division was established in February 2004, with its main responsibility being the approval of payments for a number of Measures/Schemes of the Rural Development Plan 2004 – 2006, the Rural Development Plan 2007 – 2013 and for measures related to the Common Market Organisation (CMO) of the Fruits/Vegetables section. The Division consists of two sections responsible for authorisation of payments, an IT unit responsible for administrative computerised checks and controls, and a unit of inspectors responsible for the on-the-spot controls.

As regards the Rural Development Plan and Common Market Organisation, the Division deals with the authorisation of payments on certain Measures/Schemes providing support for investments in agricultural holdings, as well as schemes promoting agricultural production methods designed to protect the environment and to maintain the countryside. All applications are checked for conformity to the special terms and criteria of the measure for which they are submitted. In this respect the personnel of the Section carries out checks, to ensure verification of compliance with the special terms and conditions for granting support. Needless to say that there is a very close collaboration with the respective staff of the District Agricultural Offices for the reception, recording and acceptance of the applications, as well as with the Cyprus Agricultural Payments Organisation (CAPO) for the final approval and execution of payments.

During the year under review, a number of 1,628 applications requesting financial assistance totaling €18,777,555 were sent to the Cyprus Agricultural Payments Organization for payment. Also, during the years of the implementation for a number of Measures/Schemes of the Rural Development Plan 2007 – 2013, a total number of 3,044 applications have been submitted for the measures and schemes dealt with by the Authorisation of Payments Division.
II. AGRICULTURAL RESEARCH INSTITUTE  
www.moa.gov.cy/ari

1. Introduction

The Agricultural Research Institute (ARI) undertakes research within the wider domain of plant and animal production. It comprises the Research Sections of Fruit Trees and Viticulture, Plant Improvement, Vegetable and Ornamental Crops, Plant Protection, Soil Science, Animal Production, Agricultural Development and Agrobiotechnology, as well as the autonomous units of the Variety Examination Center and the Farm Accountancy Data Network. The Institute is equipped with state-of-the-art laboratories pursuing analytical work in a range of fields encompassing molecular biology, agricultural chemistry, postharvest technology, phytopathology, entomology/toxicology and tissue culture. The ARI infrastructure also includes an extensive library and modern greenhouse and cold storage facilities. The National Gene Bank and the National Herbarium are stationed at the ARI. An experimental livestock (cattle, sheep and goats) farm operates at Athalassa and outstations at Akheleia and Zygi for citrus, flowers, vegetables and field crops, at Saittas for deciduous fruits and vines and at Xylotymou and Polis for citrus, vegetables and cereal breeding. Extensive experimentation is also undertaken in cooperation with farmers on private agricultural land.

The Variety Examination Center was established by the Institute, in accordance to the provisions of the new Law on seeds aligned with EU regulations. The ARI is the National Focal Point for Food and Agriculture Organization (FAO) projects related to conservation and utilization of plant and animal genetic resources in agriculture.

Results of ARI’s research are published in international peer-reviewed journals or in its own publication series in English and Greek.

The Institute is the national AGRIS Centre collecting, cataloguing and indexing the agricultural literature published in Cyprus, and is also the national CARIS Centre collating information on ongoing research. The Institute cooperates with international and regional organizations, such as FAO, International Atomic Energy Agency (IAEA), International Center for Agricultural Research in the Dry Areas (ICARDA), International Plant Genetic Resources Institute (IPGRI), etc. and other national research organizations and institutions of the European Union.

2. Fruit trees and Viticulture

The Section’s research work comprises the study for improvement of yield and quality of fruit trees and vines. Imported varieties of citrus are tested, and rootstocks tolerant to tristeza virus and calcareous soil conditions are evaluated in order to replace the commercial sour orange rootstock susceptible to the disease. Work in viticulture included the evaluation of new table grape varieties at two locations. The table grape varieties Superior, Crimson Seedless, Black Emerald, Fantasy Seedless, Veriko and Sideritis and the local winegrape variety Maratheftiko are evaluated on five American rootstocks resistant to phylloxera. Local wine grape varieties are evaluated and data for the ampelographic description of the varieties is collected at Saittas Experimental Station.
Clones of pomegranate are studied regarding their morphological characteristics and phenological stages and evaluated in terms of yield and quality. At Saittas Experimental Station several cherry varieties are evaluated in terms of fruit quality, yield and time of ripening.

3. Plant Improvement

The main activities of the Plant Improvement Section concern the improvement through breeding of barley, forage plants (cereals and legumes), pulses, durum and bread wheat as well as the study of the genetic and environmental factors affecting their yield, quality and resistance to diseases. Also, the Section is employed in the production and maintenance of foundation seed (breeder’s seed) of all commercially grown field crop varieties resulting from the Breeding Program of the Institute. The foundation seed is used as pre-basic seed for the production of certified seed sold to farmers. Cooperation with international centers such as CIMMYT and ICARDA continue as new genetic material is received and evaluated continuously. The Section has also the responsibility for the management of the Genebank and the National herbarium. It is also responsible for the coordination of issues related to Plant Genetic Resources for Food and Agriculture. Research work is carried also on potatoes and aromatic plants.

The breeding program for bread and durum wheat continues. Two new varieties of bread wheat were promoted for registration and have successfully completed their second year of testing. Particular emphasis has been given to the improvement of productivity of forage oats and legumes by genetic purification of commercially grown varieties. and the introduction of new varieties of vetch, peas and chick peas.

The common vetch varieties ‘Kimon’ and ‘Zinon’ were registered in the National Catalogue of Cyprus. Mass selection within the local variety of alfalfa revealed the development of four new synthetic varieties with different agronomic properties, planned to be purified and crossed for hybrids.

Following request from the Department of Agriculture the ARI intensified its efforts on generating at least one new variety of triticale suitable for the climatic conditions of Cyprus. At least one of the promising lines of this program will probably be sent to the Variety Examination Centre for registration in the next cultivating season.

Three new varieties of ground nut successfully completed their examination period and are going to be listed in the National Varieties’ Catalogue in 2012.

Barley breeding represents a prominent activity, as barley covers the largest cultivated area among all cereals and is a staple for animal husbandry, both as hay and feed. Organic barley production is important for the sustainable development of organic agriculture. Crosses were performed between Cypriot lines and promising imported material from countries that possess typical Mediterranean climate type, such as Australia. Trials of promising genetic material were performed in 5 locations across Cyprus. Three barley lines have been registered in the National Catalogue and another one has entered the VCU trials. Experiments emphasize the creation of drought-tolerant cultivars, for conditions of conventional and organic agriculture. In addition, emphasis is given to “naked barley” which is suitable for human consumption, as recent medical research has proven the multiple benefits of barley to human health. Naked barley is particularly suitable for the diet of monogastric animals. A novel program on
participatory breeding was initiated, where local farmers actively participate in the creation of new, improved barley cultivars. There is ongoing collaboration with ICARDA-CIMMYT, the University of Adelaide, and the ECPGR (European Cooperative Program on Plant Genetic Resources) Working Groups for Barley and “on farm conservation of genetic resources”. The triennial Symposium of the ECPGR Working Group on Barley was successfully organized in Nicosia. In addition, there is also ongoing participation in the European Program TRITIGEN, which deals with cereal molecular markers and cereal genomics.

A new breeding program of local cowpea varieties has been initiated. First results show a great degree of genetic heterogeneity, not always beneficial, within the local traditional cowpea cultivars, testifying to the need for genetic improvement. The program continues with promising selections within local cowpea varieties and the use of GIS methods to define the crop’s irrigation requirements.

Concerning Genebank activities, priority has been given to the assessment of the germination capacity of the accessions and to the counting of seeds in stock. Accessions either with low germination capacity or with low seed stock have been regenerated. A new research activity focuses on the characterization and evaluation of durum wheat genetic material conserved in the Genebank. Concerning the Herbarium, priority has been given to the computerization of specimen data.

Seed collection has focused on material threatened by genetic erosion or extinction. In collaboration with the Department of Agriculture a new research activity has been initiated, aiming to link on farm with ex situ activities for the conservation of vegetable landraces. So far 43 accessions have been collected. In a joint collection mission with ICARDA 443 accessions of crop wild relatives were collected. A new research program started on October 2011 targeting the collection and ex situ conservation of 150 accessions of native taxa threatened by extinction or genetic erosion. The program is funded by the MAVA Foundation.

A new scientist responsible for aromatic and medicinal plants has joined the Plant Improvement Section. Research will be carried out regarding cultural techniques required for the main aromatic and medicinal plants grown in Cyprus. Research emphasis will be placed on essential oils and their properties. An experiment on the impact of deficit irrigation on spearmint (Mentha spicata L.) biomass production, oil yield and oil quality has already started.

In 2010 a new research proposal was submitted concerning the cultivation of fodder plants. The proposal titled “Optimization of hay cereal yields to feed sheep and goats in Cyprus”. In the first year, five different varieties of five agronomic species harvested at four growing stages were evaluated.

4. Vegetable and Ornamental Crops

Research activity in the Vegetable and Ornamental Crops Section concerns the optimization of crop production and the postharvest handling of fresh produce. Of particular interest is the impact of preharvest factors on quality and postharvest performance of fresh produce. Postharvest research is further focused on the evaluation of alternative, non-chemical applications for the control of physiological and pathogenic agents of postharvest quality deterioration and senescence.

Research projects in progress examine quality deterioration in summer. open-field watermelon production with respect to grafting, harvest maturity and postharvest handling. Moreover new
small-fruited and seedless watermelon cultivars grafted on different rootstocks are evaluated for yield, quality and storage performance.

Yield, quality and nutritional safety characteristics of four salad crops (lettuce, spinach, rocket, and cilantro) are evaluated with respect to the impact of nitrogen fertilization strategies in soil and soilless cropping systems. Emphasis is placed on nitrate and nitrite transitional concentrations pre and postharvest in tandem with other important biochemical and physical indices of quality and safety.

The effect of salinity is examined on hydroponic production of lisianthus (*Eustoma grandiflorum*) with respect to the type of substrate, the crop’s developmental stage at the time of stress application, and the seasonal effect. Response to salinity, induced by sodium and chloride ions in the nutrient solution, will be evaluated in terms of productive, morphological, qualitative and vase-life characteristics of lisianthus.

Further research on ornamental crops entailed work on cut-flowers and the production and valorisation of endemic species in commercial floriculture. Hydroponic production of strelitzia and agapanthus cut-flowers on substrates of local industrial by-products has been evaluated in terms of yield, quality and vase-life. Endemic, ornamental species propagated and cultivated in the context of a recently concluded research project have been promoted for commercial nursery potted-plant production and for use in landscaping.

Table grape varieties have been profiled and evaluated for their storage performance under commercial packaging with the use of sodium metabasulfide polymeric sheets. The project aimed at extending the market window for local table grape production from July to February.

Research on the potential for postharvest control of citrus green mould by means of postharvest heat treatment has been concluded. The project examined the effectiveness of postharvest hot water treatment in controlling development of green mould on ‘Mandora’ fruit (*Citrus reticulata* Blanco x *Citrus sinensis* [L.] Osbeck). The work was been published in the Journal of Horticultural Science and Biotechnology.

In an interdisciplinary project under the coordination of the Postharvest Technology Laboratory of the ARI an *ex situ* collection of 29 local pomegranate (*Punica granatum*) clones has been established at the Zygi Experimental Station. The clones will be evaluated for their pomological, qualitative and technological characteristics, their antioxidant value and postharvest performance.

### 5. Plant protection

Research activities in Plant Protection concern the disciplines of plant pathology, entomology and pesticide toxicology. Under each of these disciplines, specialized studies are conducted to address major crop protection problems associated with particular pests (insects, mites) or diseases (viral, prokaryotic and fungal). In addition, joint multi-disciplinary research projects targeting all important pests and diseases of particular crops are undertaken. All studies are governed by the considerations of sustainability in crop protection and production, food quality and safety, environmental protection and the utilization of new technologies for the development of more effective crop protection practices.

In line with the above principles, one of the main activities of the Section concerns the development of integrated pest management (IPM) strategies, based on various combinations
of ecosystem-oriented methods, i.e. biological control, cultural practices, natural products, resistant varieties, resistant rootstocks and minimal use of selected, mild pesticides. This approach ensures sustainability and minimizes pesticide risk to human health and the environment. It can be applied alone or in combination with other ecosystem-oriented production practices, in the context of an advanced system of sustainable agriculture, known as integrated crop management (ICM). Studies to develop IPM/ICM systems were carried out on citrus, grapevines and on vegetable and ornamental greenhouse crops, in cooperation with other Sections of the Institute.

Studies in Entomology concerned the biological control of Kelly’s citrus thrips (Pezothrips kellyanus) on organic grapefruits using botanical insecticides, the integrated control of phytophagous mites on vegetables, ornamentals and citrus, the control of the European grapevine moth (Lobesia botrana) on table and wine grapes using the Mating Disruption Technique, the development of IPM programmes in greenhouses and open fields, rearing and release of “beneficial” insects, the development of an automated warning system for monitoring the Mediterranean fruit fly (Ceratitis capitata) and the California red scale (Aonidiella aurantii) and monitoring and management of insect pests in pomegranates.

In line with the concept of sustainable agricultural development, long-term projects are currently implemented for the maintenance and distribution of healthy, true-to-type and horticulturally superior propagating stocks of citrus, grapevines and stonefruits. The production of these prebasic and mother plantations is fully complied with the EU directives on Plant Health. Currently, pathogen-free material of citrus, grapevines and stonefruits is maintained in insect-proof screenhouses in the form of Prebasic Plantations. These are used to provide the Department of Agriculture and the private sector with pathogen-free mother stock (basic material), for further propagation and production of certified propagating material for growers.

Work on citrus includes the project for the eradication and control of Citrus tristeza virus (CTV), implemented jointly with the Department of Agriculture since 1992. Biotechnological techniques of tissue culture, including in vitro micro-grafting and thermotherapy, were used for eliminating virus and virus-like pathogens from selected fruit tree varieties. This method was used to obtain clean stocks of valuable local varieties of citrus, including the Lapithos lemon, ‘Arakapas’ mandarin and various local clones and/or selections of sweet orange, Bergamot and other varieties.

Plant Pathology research projects include the development of innovative nucleic acid technologies for the detection and characterization of plant pathogens. Implementation of molecular techniques proves to be a sensitive and accurate tool for the identification of plant pathogenic viruses, viroids, fungi, bacteria and nematodes.

Pepino mosaic virus (PepMV) is mechanically transmitted viral disease that has emerged as a significant virus problem for tomato crops in Cyprus during the past two years. Within the context of PEPEIRA EU project, the incidence, the epidemiology and pest risk assessment of PepMV was investigated in Cyprus and other European countries and new management strategies have been proposed to farmers.

6. **Soil Science**

The activities of the Soil Science Section concern soil fertility improvement, plant nutrition, soilless culture, irrigation of crops and agricultural engineering.
Within the framework of research aimed at preventing the degradation of soils through the application of certain agricultural systems and organic additives, particular emphasis was given to the mechanism of soil improvement by incorporating legumes in rotation systems. Soil microbial respiration and nitrogen mineralization was estimated in soils mixed with plant residues of broad bean, chickpea and vetch. Using laboratory experiments an evaluation was also made on the release rate of inorganic nitrogen in soils after the incorporation of manure or compost. As regards the ongoing research related to the composting of organic waste and residues, the main methods applied in the evaluation of the biological properties of compost were tested.

Research activities in crop irrigation and integrated water recourses management in Cyprus, are focused on the possible long-term implications of wastewater reuse for irrigation, both in environmental and public health terms. A survey is underway to evaluate the long-term implication on soil physicochemical parameters, from the long-term wastewater reuse in various provinces of Cyprus.

In plant nutrition and soilless culture activity focused on both education and research. Work at the Educational Centre on Hydroponics has continued with the training of Agronomists from the Department of Agriculture for the second consecutive year, aiming at the acquisition of advanced skills in the management of hydroponic systems. Soilless culture experiments concern greenhouse vegetables and particularly strawberry and aromatic plants in order to generate up-to-date, practical and location-specific information. Different types of growing systems and substrates are tested. In parallel, the design and application of hydroponic systems adapted to Cyprus conditions taking into consideration production and water and fertilizer efficiency has been investigated. Plant nutrition aspects when nutrients in water for irrigation exceed recommended values were examined. Finally, there has been participation in two E.U. projects whose main objective is to develop and implement halophytes utilization, and to facilitate sustainability taking into consideration production and health in berry production. Finally a RPF project whose main objective was to measure the evapotranspiration of crops using satellite remote sensing techniques was successfully completed.

Research in agricultural engineering concerns the potential use of biomass for biofuel (biodiesel, bioethanol, biogas and solid fuels) and energy production under Cyprus conditions. Main scope of this effort is the selection of appropriate energy plants that produce sugars or starch or woody biomass with minimum irrigation water requirements. The studied plants are selected so that they do not interfere with the food or feed chain. An ARI Project started, in order to develop a filter to clean the fuel gases emitted from boilers burning biomass for heating of greenhouses. The European research project «Adapt2Change» (LIFE + 09 ENV/GR/000296), "Adapting farming to climate change and to limited water resources" continued this year. In this project the use of shallow geothermal energy for heating greenhouses, combined with innovative techniques for water saving irrigation in greenhouses are studied. The Program «AGROCHEPACK» (MED 2G-MED09-15), "Design of a management system for plastic packaging of agrochemicals, for environmental protection and recycling of plastic" continued with the construction of the Pilot Plant for the collection of the packages to be recycled. The aim of the project is to design a management system for the agricultural plastic packaging waste starting from the farmer up to the recycling of the material.

The “GreenFilm" Project funded by the RPF started also this year and concerns the testing of new technology greenhouse plastic covers that involve nano-particles as pigments that offer special properties to the cover.
The European ENPI Project: “MED-ALGAE”, was signed in December and involves the study of the growth of micro-algae for the production of biodiesel. ARI is the Lead Partner coordinating the Project.

7. Animal Production

The research activities of the Animal Production Section involve work on ruminant nutrition, management, animal breeding, genetic improvement and physiology of reproduction. Research is generally directed towards increasing milk and meat yields under semi-intensive or intensive systems of management in sheep, goats and dairy cattle. In addition, genetic methods and animal husbandry practices are employed, aiming at controlling and/or preventing animal diseases.

In animal breeding, the research work aims at improving the genetic stock with respect to important economic traits in livestock using within-breed selection methods. Genetic evaluations of Chios sheep and Damascus goats are based on selection indices that combine the individual capacity of young animals for growth and the milk production of female ancestors. This method is routinely used at all government breeding units for the evaluation and selection of superior breeding stock in sheep and goats. Further research in genetic improvement is directed toward dissecting the genetic aspects underlying milk production, and further characterising scrapie genotypes in goats. Research programmes in the area of reproductive physiology of farm animals aim at improving reproductive performance. In this regard, genetic and environmental factors that influence seasonal reproduction, reproductive development and puberty in sheep and goat breeds under local conditions are examined. In farm management, artificial rearing systems using automated feeders and milk substitute for lambs and kids are evaluated.

The project for combating the Scrapie disease in the Chios sheep with the use of genetic methods is being successfully implemented at ARI. The Chios sheep unit at Athalassa has been transformed into a nucleus herd of Scrapie-resistant genotypes while the number of animals suitable for reproduction has doubled (from 250 to about 500 mature ewes and rams). All the animals in the nucleus herd are of the homozygote ARR/ARR genotype, considered to be 100% resistant to the disease. A large number (202) of young rams and surplus females (134), along with adult rams (24) and ewes (48) were issued to farmers in 2011 in order to improve the genetic stock and productivity of their flocks and to further increase the frequency of resistant genotypes in the Cyprus sheep population.

In mid-2008 a research program commenced to transform the ARI Damascus goat herd into a nucleus of 300 Scrapie-resistant genotypes, through targeted matings. This program allowed ARI to issue to farmers animals that are resistant to the disease, in order to combat Scrapie in the Cyprus goat population. Specifically for 2011, 54 goats, 31 bucks, 29 male and five female kids were given to goat farmers from ARI. All the animals were of superior genetic stock and genotyped for the Scrapie locus.

Research on zero suckling systems in Chios ewes and Damascus goats continued in 2011. Results showed that such systems can be used to increase the marketable milk with no adverse effects on lamb and kid growth. Lambs and kids on zero suckling were reared artificially on milk substitute using four automatic milk feeding machines. Marketable milk of mature ewes on zero suckling was 70 kg more than ewes that suckled their lambs for 35 days and that of mature goats 85 kg more than goats that suckled their kids for 49 days. Further research comparisons of reduced suckling period, both for natural and artificial rearing (28
versus 35 days for lambs and 42 versus 49 days for kids) are in progress. It is worth noting that research results and recommendations from this nutritional and management scheme have immediate and important financial benefits for breeders.

The Animal Production Section is also active in the field of conservation of animal genetic resources. Priority is set on preserving local breeds of farm animals and on collaboration with international organisations, such as the Food and Agriculture Organisation (FAO) and the European Regional Focal Point on Animal Genetic Resources for the implementation of the “Global Plan of Action for Animal Genetic Resources and the Interlaken Declaration”. For this purpose, the aforementioned document has been translated in Greek for wider dissemination within the public. Additionally, upon request from ARI, the Ministry of Agriculture, Natural Resources and Environment has recently established a Committee for the management of farm animal genetic resources in Cyprus. ARI shall chair this Committee, with valuable contributions from representatives from the Department of Agriculture, Veterinary Services and the Cyprus University of Technology.

8. Rural Development

The Rural Development Section carries out research related to various agro-economic studies in the fields of Production Economics, Marketing of agricultural products and Rural Development through the research program “Rural Development and Trading of Agricultural Products”. The program’s website is at http://ruraldev.ari.gov.cy.

The Section coordinates the research project “Information and Communication Technologies for Rural Development”. The aim of the project is to improve the access of farmers to agricultural information (especially related to agricultural research results), by taking advantage of the capabilities of computers and the internet. Activities in agricultural economics pertained to the execution of a survey regarding the status of farmers’ access to scientific results relating to agriculture, to techno-economic analyses and the participation to EU funded projects.

Researchers of the Rural Development Section represent ARI in three EU funded programs: the Cooperation Projects “Agricultural Research in the Mediterranean (ARIMNet http://www.arimnet.net), and “Facing sustainability: new relationships between rural areas and agriculture in Europe” (RURAGRI http://www.ruragri-era.net), and, as of June 2010, in another EU funded project called “Virtual Open Access Agriculture and Aquaculture Repository” (VOA3R http://voa3r.eu). They also represent ARI in three projects funded by the Research Promotion Foundation (RPF): Supporting role of robotic technology for sustainable agriculture (Agrirobot – http://agrirobot.our.ac.cy), “Options for sustainable agricultural production and water use in Cyprus under global change”, and “Development of a system by combining the use of communication systems and space images for informing farmers about watering issues”.

Recently a Remote Sensing Laboratory has been established at the Achelia Experimental Station of ARI. The Laboratory is already collaborating with other sections and is participating in a research program regarding estimation of Evapotranspiration funded by the Research Promotion Foundation of Cyprus.

The Section’s information technology (IT) domain maintains the local area network and provides internet and email access to the ARI staff members. The ARI has implemented its own website at http://www.ari.gov.cy, through which it provides information describing the work
of the Institute and publishes news and events that take place at ARI. It also maintains the local area network (ARINET), provides internet access to all professionals at ARI, and participates in EU funded cooperation programs. All ARI publications dating from 1962 till today have being digitized and all bibliographical data including full text articles of the publications are available through the library web page at http://library.ari.gov.cy/agris.

In order to improve the dissemination of the agricultural research programs and inform the public about news and activities of the Institute, the Section has created electronic newsletter (e-Newsletter) which is published every 3 months and is mailed to subscribers. It has also created a web blog of the Institute, at http://blog.ari.gov.cy with the aim strengthening the communication between ARI researchers and stakeholders, by utilizing social networking tools.

Finally, the Section represents Cyprus at the Association of Agricultural Research Institutes in the Near East and North Africa (AARINENA) It is also a member of the Global Agricultural Research and Development Web Ring, and of the Food and Agriculture Organization of the United Nations (FAO).

9. Agrobiotechnology

The research activity of the Agrobiotechnology Section focused accordingly on molecular biology, agricultural chemistry, food science and agricultural microbiology through the submission of research proposals in collaboration with other Sections of the Institute.

Research in molecular biology is conducted on plants and animals using specialized molecular methods. Research on plants focuses on the exploitation of molecular markers for barley. In addition, quantitative and qualitative tests for the presence of genetically modified seeds in imported corn and soybean were carried out. On animals, research continued with the molecular fingerprinting among the different genotypes of goats. Sheep identification was conducted on newborn animals kept at the ARI nucleus unit which accounts of more than 500 breeding animals (ARR/ARR genotype) fully resistant to scrapie. Goat identification is a continuous procedure to establish a nucleus unit with known genotypes. Watermelon colonisation by arbuscular mycorrhizal fungi was assessed using real-time PCR. Molecular biology techniques were used for the identification of fast pesticide-degrading bacteria as well as nitrogen fixing bacteria.

The set up of the food technology laboratory has been implemented at a satisfactory level in 2011. The antioxidant and antimicrobial properties (in vitro and in vivo) of natural products such as essential oils and plant extracts are investigated. Moreover, the effect of food processing on product nutrient and anti-nutrient content is a part of a continuous research activity of the lab. Finally, the impact of treated waste water use on the microbial load of fruits and vegetables is being investigated.

Research in agricultural microbiology relates to bioremediation of pesticides used by Cypriot farmers. This was initiated by isolating bacterial strains that showed high potential of dissipation properties. The first on-farm pesticide bioremediation system in Cyprus has been established and a continuous monitoring program has been run. Moreover, research regarding the effect of mycorrhizal inoculation on watermelon production under water stress conditions was conducted. More than 100 strains of nitrogen-fixing bacteria have been isolated from various local cowpea ecotypes. In addition, diversity of mycorrhizal fungi found in the roots of those ecotypes was initiated. Research on microorganisms related to soil nitrogen cycle and
plant growth promotion was initiated in order to reduce the use of nitrogen fertilization at farmer's level.

Two new analytical methods were developed in the agricultural chemistry laboratory. The first one concerns the quantification of pesticides mainly in soil and other substrates and the second one concerns extraction and quantification of essential oils from mint using microwave radiation. The agricultural chemistry laboratory performed 6,572 chemical analyses on 1,270 samples during 2011.

10. Variety Examination Center

DUS trials (Distinctness – Uniformity - Stability): During the growing season 2010/11 two wheat varieties (BW204, and BW205) and three groundnuts varieties (Ntopia, Koukla and Nikoklia) were tested for the second year. One triticale variety (CS TCI) was tested for the first year. The results were given to the Designate Authority (Department of Agriculture). In addition, seven barley varieties were tested for one year in order to be re-registered in the National Catalogue of Varieties.

VCU Trials (Value for Cultivation and Use): During the growing season 2010/11 two wheat varieties, three groundnuts varieties and one alfalfa variety “Ntopia” were tested for the second year. The triticale variety (CS TCI) was tested for the first year. The results for the three crops were transferred to the Department of Agriculture.

11. Farm Accountancy Data Network

The operation of the Farm Accountancy Data Network (FADN) was launched in 1965, when Council Regulation 79/65 established the legal basis for the organization of the network. It consists of an annual survey, where the Liaison Office collects accountancy data from a sample of agricultural holdings. It refers to physical and structural characteristics of the holdings like the cultivated area, the number of livestock raised, the labor capital of the holding, as well as economic and financial data such as the subsidies received, costs and returns, etc. The participation of farmers in the sample is voluntary. All the information collected by farmers is strictly confidential and submitted only to the General Directory of Agriculture.

The FADN unit holds also the presidency of the FADN National Committee and represents Cyprus to the FADN Community Committee.

In 2011, reports for 468 farm returns for the accounting year 2010 were submitted to the European FADN Committee. The data were collected through personal interviews with a representative sample and processed according to the relevant regulations and procedures. Furthermore, the farm return used to collect data from farmers was modified according to the new Commission Regulation (EC) No 868/2008 and its amendments. The relevant software assisting the import and processing of data submitted to the Public Database of FADN was also updated.

In October 2011, with the approval of the National Monitoring Committee, Cyprus submitted to the EU FADN Committee the 2011 selection plan for holdings participating in the FADN sample.
III. VETERINARY SERVICES

www.moa.gov.cy/vs

1. Introduction

The Department of Veterinary Services (VS) operates at two administrative levels, central and regional. The central level is organized into two Divisions, the Animal Health and Welfare Division and the Veterinary Public Health Division. At central level there are also the State Veterinary Laboratories Section, the Veterinary Medicinal Products Section, the European and International Affairs Section, the Publicity and Education Section, Registry – Account – Store Section and Public Procurements Section. At regional level there are five District Veterinary Offices (DVOs). In addition, five Veterinary Stations, cover the most remote areas with a local office.

The aim of the Veterinary Services is the protection of animal and public health, from the stable to the table through a) the eradication and control of several contagious diseases of animals, b) the prevention of entrance in the country of other diseases and c) the controls of all food of animal origin with the exception of ice cream and honey.

2. Animal Health and Welfare Division (AHWD)

The Animal Health and Welfare Division has the responsibility to prevent the introduction and spread of animal diseases into the country, to carry out preventive and epidemiological surveillance programmes, to plan and implement Contingency Plans for contagious diseases and to run the administration of the two Border Inspection Ports (BIPs) at Larnaca Airport and Limassol Port. With regard to animal welfare, the Animal Health and Welfare Division is responsible for the transposition, as well as for the coordination of the animal welfare control system by preparing and issuing circulars, guidelines, inspection checklists and information leaflets, by training staff, farmers and transporters and by preparing reports.

The AHWD operates the central register of holdings and the database for the identification of bovines, small ruminants, pigs, dogs and horses. Furthermore, the AHWD keeps a registry for poultry, rabbit and fish farms.

In the framework of those responsibilities, in 2011 the AHWD has succeeded in maintaining the officially free status for infectious animal diseases.

Moreover, in 2011 the AHWD has coordinated the surveillance programme for Avian Influenza and the Salmonella control programmes in poultry farms.

During 2011 the AHWD continued the coordination of the monitoring programmes for Transmissible Spongiform Encephalopathies (TSEs) and the experimental protocol for the TSE resistance in goats. Artificial insemination in goats with semen from scrapie resistant
bucks was continued in 2011. Furthermore, the program for the creation of the Genetic Bank was initiated in June 2011. The Genetic Bank will be consisting of:

- Semen and embryos of the local goat breeds of Maheras and Akama.
- Semen and embryos of the fat tailed Cyprus sheep.
- Semen and embryos from Chios sheep and Damascus goats which are not scrapie resistant.

The cattle, sheep and goat Brucellosis eradication programmes has effectively been continued, succeeding in reducing to zero Brucellosis prevalence. The Avian Influenza surveillance programme for 2011 included sampling of poultry farms, wild birds and backyard poultry.

Regarding animal welfare, throughout 2011, under the supervision of the Animal Health and Welfare Division, the Veterinary Services’ personnel from the five District Veterinary Offices carried out numerous inspections of premises, vehicles and other establishments where animals are kept or handled, in order to check for compliance with the provisions of the legislation and to investigate complaints regarding mistreatment or abuse of animals.

More detailed information on the controls carried out for farm animals can be found at the Veterinary Services’ website.

3. Veterinary Public Health Division (VPHD)

The Veterinary Public Health Division (VPHD) has the responsibility for the approval and control of establishments producing food of animal origin as well as the responsibility for the processing, handling, transporting, storaging and placing on the market of food of animal origin.

Additionally to these responsibilities, the VPHD is also responsible for coordinating controls on food of animal origin entering the Cyprus market, through intra – community trade.

The VPHD also develops and supervises implementations of the National Residues Monitoring Plan.

The VPHD is also the Contact Point in the Veterinary Services for the Rapid Alert System for Food and Feed (RASFF).

In 2011, the number of approved establishments increased from 427 to 450 and 776 inspections took place, in the approved establishments. During the year, 988.943 bovine, caprine, porcine and ovine carcasses, were inspected in all five approved slaughterhouses and 10.800.053 poultry carcasses were inspected in the 24 approved poultry slaughterhouses. Also 203.850 quail and 127.833 rabbit carcasses were inspected.

Additionally, all establishments and animal holdings, that do not require approval but registration such as butcheries, farms, fishing vessels, rabbit farms and animal by-products processing plants were also inspected. For this purpose 4.495 inspections were undertaken.

Products of animal origin found not to be complying with the criteria set by the legislation were seized. The total quantity of seized meat (bovine, caprine, ovine, porcine and poultry), meat products and meat preparations, dairy products, fish and fishery products was 217.519 kg, and for raw milk 67.790 litres.
4. Veterinary Laboratories Section

The Veterinary Laboratories Section is organized into the Laboratory of the Control of Foods of Animal Origin and the Diagnostic Laboratory for Animal Heath.

4.1 Laboratory for the Control of Foods of Animal Origin

The Laboratory for the Control of Foods of Animal Origin (LCFAO) belongs to the Division of Veterinary Laboratories and it closely collaborates with the Animal Health and Welfare Division and the Public Health Division as all the examinations that are performed and the measures that are taken are related exclusively with the protection of public health.

LCFAO consists of four Departments: the ‘Department for the Control of Meat and Meat products’, the ‘Department for the Control of Milk and Milk Products’, the ‘Department for the Control of Residues in foods’ and the ‘Department for the control of pathogens’. Three additional units also constitute part of the laboratory. These are the ‘sample’s reception and recording unit’, the ‘media unit’ and the ‘sterilization unit’.

As far as the specific examinations which are carried out in the LCFAO are concerned, the laboratory carries out microbiological examinations both of general and specialized nature. Moreover, various samples (meat, food stuffs, water and milk) are tested for the presence of antibiotics and sulphonamides, while raw milk is controlled for adulteration and count of somatic cells. The parasitological examination in fish and the control for the presence of staphylococcal enterotoxin and Aflatoxin M1 in milk and milk products is also performed in the laboratory.

The LCFAO collaborates closely with other government departments and services (i.e. the Public Health Service, the Army, the State General Laboratory and the Agricultural Research Institute) on issues related to public health, foods of animal origin and animal production. There is also close collaboration with the food industry, mainly via the local veterinary stations, for the solution of problems and assistance in their exports.

In the year 2003 the LCFAO has focused its efforts to the accreditation. More specifically, on the 8th of July 2003, the LCFAO was accredited, according to ISO 17025:1999, by the Hellenic Accreditation Body (ESYD). The accreditation included the quality system of the laboratory along with seven examination methods. On the 20th of October 2006 the quality system of the laboratory was reevaluated and it was moved on ISO 17025:2005. In March 2008, four examination methods have been additionally accredited. During 2009, 8 additional methods were accredited. December 2011 the laboratory was reevaluated and one examination methods have been additionally accredited. Finally, there are 20 accredited methods.

In 2011, the laboratory participated in a number of proficiency tests of various examinations. The organizing bodies of these comparisons were the Community Reference Laboratory (CRL) for milk and milk products, the CRL-Salmonella, the CRL-Listeria, the CRL-Staphylococci, the CRL-E, coli, the CRL-Campylobacter, HPA, CECALAIT-France, DRRR and Progetto Trieste.

A total number of 18,946 samples underwent multiple examinations by the LCFAO during 2011. More specifically, 2,240 samples of meat and meat products, 15 eggs, 112 fish
samples and 1.036 water and ice samples were microbiologically examined in the laboratory. Moreover, 2.631 milk samples and milk products were also microbiologically examined. Finally, 10.914 samples, mostly meat, were examined for the presence of residues and 275 samples of milk and milk products were tested for the determination of Aflatoxin M₁.

4.2 Laboratory for Animal Health (LAH)

The Laboratory is in charge of carrying out the necessary examinations for the diagnosis and the surveillance of animal diseases. In close collaboration with the Division of Animal Health and Welfare and the Division of Veterinary Public Health programmes on animal diseases and on public health issues are planned and implemented. Furthermore, the Laboratory collaborates with other departments and Services, like the Game Fund, the Medical Services, the State General Laboratory, the Agricultural Research Institute and the Police.

In addition to the diagnostic work research is carried out on Zoonoses and on major problems of the livestock industry (genetic resistance against Scrapie in goats).


On the 7th of March 2008 the Laboratories for Animal Health were accredited to ISO: 17025:2005 by the Hellenic Accreditation System SA. The accreditation concerns all five Sections and covers their quality system and fourteen laboratory methods in all. The target which was set some years ago was accomplished.

During 2011 LAH participated in 25 interlaboratory comparison tests with very good results.

4.2.1 Virology Section

For the surveillance, monitoring and diagnosis of diseases the Virology Section tested the following: 12.190 sera from animals, 1.703 sera from birds and 357 diagnostic specimens for the isolation and/or detection of virus. In addition, 27 samples were sent to EU Reference Laboratories for laboratory examination as well as 30 samples for confirmation. In addition it participated in 14 ring trials for 13 diseases organized by OIE and CRLs. Furthermore, the section is responsible for the surveillance programmes for Bluetongue, Enzootic Bovine Leucosis, Classical swine fever, African swine fever, Aujeszky’s disease, Transmissible Gastroenteritis/Corona virus, Porcine Reproductive and Respiratory Syndrome, Swine Vesicular disease, Infectious Haematopoietic Necrosis and Viral haemorrhagic septicaemia.

4.2.2 Bacteriology - Serology Section

The Bacteriology Serology Section of the Animal Health Laboratory performs diagnostics tests for the bacterial diseases of animals. The techniques used are either serological (ELISA, Rose Bengal Test, Complement Fixation Test) or microbiological (identification of bacterial isolates with dyes, and PCR, detection of antimicrobial resistance). In 2011, 253.952 samples were examined in total.

In brief, routine samples from cows, sheep and goats submitted by farmers were examined for *Chlamydia spp*, *Mycobacterium avium sub, paratuberculosis*, *Toxoplasma gondii*, *Leptospira hardjo*. The majority of the serology samples belong to the Brucellosis Eradication Programme and concern blood samples from sheep and goats and bulk milk samples from
bovine farms. The increased numbers of negative sera for brucellosis are reaching the final target of the programme, the elimination of the disease.

Also, in order to cover the requirements of the Dir 2003/99/EC, *Salmonella* isolates but also *Escherichia coli*, *Staphylococcus*, etc isolates were examined for antibiotic resistance. The Rose Bengal and Complement Fixation Techniques for brucellosis diagnosis and the *Salmonella* MIC and *Campylobacter* MIC for antimicrobial resistance remain accredited since 2008 and 2009 respectively.

Finally, the Section participated with success in Ring Trials 2011 for antimicrobial resistance of *Salmonella*, *Campylobacter*, *E. coli*, *Staphylococcus*, *Enterococcus* organised by the Community Reference Laboratory for Antimicrobial Resistance (DTU, Denmark) and for the bulk milk iELISA test used for the diagnosis of brucellosis, organised by the Community Reference Laboratory for Brucellosis (ANSES, France).

### 4.2.3 Pathology, Bacteriology and Parasitology Section

During 2011, the section performed, 2,404 Autopsies- Post mortem examinations in mammals, birds and fishes, 1,788 Microbiological examinations in a) routine samples, b) salmonella isolations and c) abortion specimens, 850 parasitological examinations and 472 tests in feeding stuffs for the detection of animal proteins.

### 4.2.4 Histopathology Section

During 2011, the histopathology section received and examined histopathologically 1,212 sheep and goat brain (obex and cerebellum) samples of clinical suspect cases for the control and eradication of Scrapie. Other, general cases concerning mammals, fishes and birds were histopathologically examined.

In addition immunochistochemistry was performed on 1,366 samples, related to two of the experiments included in the protocol, which aims to support the resistant genotype of goats in Cyprus. So far all the results are very promising and supporting.

Also 603 brain samples (obex and cerebellum) were examined by immunochistochemistry in order to investigate any atypical cases, in which all cases were classical scrapie.

In the meantime 1,075 samples, 100 histology sections and 5 wax blocks concerning two experiments included in the protocol were sent to the CRL for further investigation.

The histopathology section participated, successfully, three times for the year 2011 in ring trials, organized by the Community Reference Laboratory for TSE.

### 4.2.5 Transmissible Spongiform Encephalopathies (TSE’s) Section

During 2011, the TSE’s Section in the framework of the surveillance programme that is implemented by the Veterinary Services in accordance with the requirements of Regulation 999/2001/EC for the control and eradication of TSE’s, performed rapid tests in brain samples of cattle, sheep and goats for the diagnosis of BSE and TSE, respectively, discriminatory testing and also PrP genotyping in sheep and goats. In addition, the TSE’s Section participated in the research of an experimental protocol, concerning the confirmation of the genetically resistance of Cyprus goats to scrapie.
The number of tested animals and the results of the rapid tests are shown in the following Table.

<table>
<thead>
<tr>
<th>Kind of animal</th>
<th>Total</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bovine</td>
<td>4,836</td>
<td>0</td>
<td>4,836</td>
</tr>
<tr>
<td>Sheep</td>
<td>303</td>
<td>4</td>
<td>299</td>
</tr>
<tr>
<td>Goats</td>
<td>366</td>
<td>22</td>
<td>344</td>
</tr>
<tr>
<td>Total</td>
<td>5,505</td>
<td>26</td>
<td>5,479</td>
</tr>
</tbody>
</table>

The TSE’s Section also participated in five ring trials organized by the Community Reference Laboratory for TSE’s (AHVLA), concerning the diagnosis of BSE in cattle, TSE in sheep and goats, the discriminatory testing and the determination of PrP genotype in sheep.

In addition, TSE’s Section in the framework of the breeding program for sheep and goats, participated in the preparation and dispatching of samples to foreign laboratories for PrP genotyping.

5. **The Veterinary Medicinal Products Section**

The Veterinary Medicinal Products Section consists of 5 units and employs 10 pharmacists. The personnel of this Section provide Secretariat support to the Competent Authority of Veterinary Medicines having the responsibility of the following activities:

a) The issue/ renewal/ variations of the Marketing Authorizations of the Veterinary Medicinal Products.

b) The controls and inspections of the manufacturers/ wholesalers of veterinary medicinal products.

c) The controls of retailers of veterinary medicinal products (Veterinary clinics and pharmacies).

d) The controls and inspections of the manufacturers/ distributors of medicated feeding stuffs.

e) The establishment/ implementation of the Pharmacovigilance System.

6. **Research Programmes**

During 2011, the Veterinary Services within the framework of the experimental protocol concerning the confirmation of the existence of TSE resistant genotypes in goats continue the experiments with the culling of a number of oral and intracerebral inoculated animals. Samples of these animals were tested by immunohistochemistry and rapid test. The experimental protocol was prepared by the Veterinary Services in collaboration with the Community Reference Laboratory for TSE’s (VLA, Weybridge) in 2009 and is 100% financed by the European Commission.
7. Training / Education/ Publicity

The Veterinary Services give a great attention to the continuous education of their staff, in order to succeed a humanization of the inspection from the District Veterinary Offices and offer a better quality of food from animal origin to the public.

Training Section of Veterinary Services created in 2009 a Training team that has the responsibility for identification of training needs of all staff, preparation of a report and action plan for the training needs, as well as implementation.
In addition, Veterinary Services participate also in all training seminars of the "Better Training for Safer Food" programme of DG Sanco of the E.U.

Last but not least, Veterinary Services inform the public for various subjects through announcements and press releases on TV, Radio, newsletters and magazines.
IV. DEPARTMENT OF LAND CONSOLIDATION  
www.moa.gov.cy/lcd

1. Introduction

The Land Consolidation Department is responsible for the co-ordination, administration and execution of measures of land consolidation, in accordance with the agricultural policy of the Government, which aims at raising the agricultural income and creating a better working and living environment for the farmers and the rural population.

It is noted that land consolidation is the main remedial measure applied so far, in Cyprus, in an effort to eliminate land fragmentation and improve the prevailing defective land tenure structure which is primarily characterized by: a small holding size, intense land fragmentation, mixed land tenures (i.e. land held in undivided form and dual or multiple ownerships), lack of farm roads and irregularly-shaped plots of land. All these features constitute a major structural and technical obstacle to the rational development of agriculture.

The end of 2011 marks the completion of 76 land consolidation schemes, of a total area of about 18.081 ha. the implementation of another 12 schemes, of a total area of about 3.966 ha and the promotion of another 31 schemes of a total area of about 3.691 ha.

2. Structure of Land Consolidation Department

The Land Consolidation Department consists of its Headquarters and four District Offices in Nicosia, in Larnaca (including Ammochostos District), in Limassol, and in Pafos.

The Headquarters comprise of two Sections: the Section of Planning, Studies and Enlightenment and the Section of Technical Works and Cartography. Each Section consists of two Branches: the Branch of Planning, Coordination and Studies, the Branch of Enlightenment and Information, the Branch of Technical Works and the Branch of Geoinformation and Cartography, respectively. Within the Section of Planning, Studies and Enlightenment operates the Internal Inspection Team that was set-up in July 2008.

Moreover at the Headquarters of the Department function the Accounts and the Registry.

3. Basic objectives

The basic objectives of land consolidation implementation are the creation of economically viable holdings and the improvement of the defective land tenure structure.

In order to accomplish these objectives the Department makes use, primarily, of the grouping-up of the fragmented and scattered land ownerships into compact holdings, the construction of a new rural road network serving all new plots, the enlargement of small holdings by purchasing private, church and state land and distributing it to the farmers, on specific criteria,
the creation of regularly-shaped plots of land, the elimination of dual and multiple ownerships and of ownerships held in undivided shares.

4. Results

The main results obtained from the so far implementation of land consolidation, in 76 areas, concern an increase in the size of ownerships by 31.58%, on average, the elimination of land fragmentation by 54.37%, the enlargement of the land plot size by 111.76% and the abolition / elimination of mixed land tenures by 89.48%.

Moreover, an increase of the farm road network by 203.21%, in 83 land consolidation areas, was effected, as until the end of 2011, about 1.330 km of farm roads were constructed / improved in these areas (the pre-consolidation total was 439 km).

During 2011, landscape renovation works (preservation of cultural heritage monuments, creation of small parks and green areas) of a total expenditure of about €87.000 were implemented.

The economically viable holding for the year 2011 was defined as the one which produces an annual gross income of €38.550.

All the above-mentioned changes led to increases in production, in capital and labour productivity and in the number of economically viable holdings, with consequent rises in the agricultural income, up to 300%.

5. Prospects

In Cyprus the application of land consolidation measures in non-agricultural areas (Development Zones/Areas) is promoted. A Draft Legislation concerning this issue has been approved by the Council of Ministers (16.12.2009) and has been submitted at the House of Parliament in January 2010.

The land consolidation scheme can be applied in many other domains offering solutions to various land ownership issues. To this respect, land consolidation measures could be implemented in areas where big projects such as highways, dams and airports are constructed, in environmentally protected areas, in areas where private ownerships are enclaved in state or forest land or in industrial zones that lack adequate infrastructure. The experience from other European countries has proved that such applications are a must and give remarkable results.
V. WATER DEVELOPMENT DEPARTMENT

www.moa.gov.cy/wdd

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 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 passing of the above Law by the House of Representatives constitutes a historical development, as it brings to an end the fragmentation of responsibilities and powers relating to water among the various Departments, which resulted in waste, 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 the issuing of permits for groundwater abstraction, are transferred to WDD.

In this context, the competences 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 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 refineries, plants for the treatment and reuse of wastewater, as well as desalination plants.

c) Protection of water resources from environmental pollution and contamination.

d) Cultivation of water saving awareness among consumers.

1.2 The main pylons of the Water Policy in 2011 was to secure sufficient quantities of water for the benefit of both the island’s inhabitants and the environment, through a viable management of water resources.
In more detail the Department focused its efforts on the following priorities:

a) Addressing the problems of water shortage due to droughts and the increased of water supply demand, mainly in the big urban centres.

b) Reinforcement of the water balance in Cyprus through the use of other non-conventional water sources, such as recycled water, water produced by the desalination method or brackish groundwater, as well as rain water. The aim is to completely eliminate the dependence of water supply on weather conditions in all urban centres.

c) Intensification of water awareness efforts, with the aim of conserving water for all uses.

d) Harmonisation with the European acquis for the protection and rational management of water resources.

1.3 The Water situation in 2011 was worse than previous year, this is due to the reduced rainfall, followed by reduced amounts of water inflow to the dams.

The maximum water storage in the dams during May 2011 was 182,2 mcm while during 2010 was 195,5 mcm. The rainfall reached 464 mm or 92% of the normal. The inflow to the dams from Jan to Dec. 2011 was only 65,5 mcm.

The water storage in the dams on 1/1/2011 was 139,3 mcm or 48% of the total storage capacity while on 1/1/2012 was 124,9 mcm or 43% of the total storage capacity. Details are shown in Table 9 of the Annex.

During 2011, restrictions were made for irrigation purposes in the Southern Conveyor Project area as follows:

For the permanent plantations the quantities given, represented an areas of 75% of their needs, and for green houses the 85% of their needs. For seasonal plantations the quantities given represented areas 40% of their needs and for potatoes 42%.

The activities of the Department per thematic unity during 2011 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 was continued, as was 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 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. Regarding the quantitative groundwater monitoring, groundwater level measurements continued on more than 1.100 observation wells. The measuring frequency ranges from twice a year to twice a month.

With respect to spring flow monitoring, 5 springs were added to the relevant monitoring network during 2011, which now includes 50 springs. The spring discharges are measured with a frequency of once per month. For an additional numbering 70 springs, sporadic measurements were taken.
2.3 Regarding water quality monitoring, the implementation of the monitoring program (rivers, lakes / reservoirs, underground water) in accordance with of Art. 8 of the Water Framework Directive 2000/60/EC was continued. In the framework of this program, 45 sites on rivers, 13 water reservoirs and 88 wells were systematically monitored.

2.4 The National Monitoring Program of the small reservoirs continued in 2011 as well, in collaboration with the District Offices of the Department. In 2011 one dam was added to the relevant monitoring network which 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 measurements (twice/week) of surface water temperature were continued, in collaboration with the District Offices of the Department, with the aim of early detection of stratification development in the water reservoirs.

2.5 Within the framework of both the national programmes and the programmes under Directive 2000/60EC for qualitative and quantitative monitoring of groundwater, the evaluation, revision and proportional modification (including the location, organization and coordination of drilling 7 new boreholes) of monitoring networks continued where considered necessary.

2.6 Regarding hazardous substances (e.g. pesticides, insecticides, heavy metals, etc.), the concentration of an average of 60 substances from 29 rivers sites and from 12 water reservoirs was examined and evaluated. All data were submitted to the EU.

2.7 More than 3.100 applications for permits to sink wells were examined nationwide, of which about 1.900 were for permits legalizing already existing wells that had been sunk without permit. As regards the Nicosia District, 1.139 new applications were received, of which over 300 were for permits legalizing already existing wells. Furthermore, a large number of files relating to the licensing of boreholes were received from the District Officers. Many of these files were pending. All applications are being entered into a dedicated database. In addition water meters were inspected at a number of wells, while 78 applications for subsidies for the drilling of boreholes for domestic use were examined nationwide.

2.8 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.

2.9 Monitoring of the water quality of wells used for public water supply of communities was continued.

2.10 In the context of the participation of the Department in the Intercalibration Exercise of the EU, the biological classification of water bodies of rivers and reservoirs of Cyprus was continued. In this framework, the Department coordinates since 2009 a contract for expert services on the biological quality element "macrophytes in rivers," and since 2010 a second contract with experts on the biological quality element "macroinvertebrates in rivers." In 2011, a third contract was signed with respect the biological quality element "fish in rivers." For the participation of Cyprus in the Intercalibration Exercise, large amounts of data, information and clarification was provided to the EU.

2.11 All the results of both quantitative and qualitative monitoring of rivers, reservoirs, groundwater and springs are imported into the database CYMOS. Monitoring results are also submitted to the Eionet-WISE network of the European Environment Agency.
2.12 The pilot project for the recording of licensed and non licensed boreholes in the Central and Western Mesaoria area was completed, with the final aim of its nationwide extension.

2.13 During 2011, 91 applications to pursue the profession of well drilling were examined nationwide.

2.14 The representation of the Department in the Commission for Environmental Impact Assessments was continued for various projects, as well the representation of the Department in the Committee for Quarry Licensing.

2.15 The study on the isotopic composition in rain and groundwater of Cyprus in relation to climate change, which had been awarded to the Greek National Center of Scientific Research “Demokritos” in the context of a contract, was completed. The study concerns the area of the Troodos aquifer and the results were presented in December 2011 in Cyprus.

2.16 The delineation of protection zones for water supply wells was also continued. Specifically, out of the approximately 450 existing water supply wells, so far around 140 protection zones have been established by Decree of the Minister while 201 protection zones were delineated within the framework of adjustment to town planning zones.

2.17 Work on the delineation of protection zones for water supply reservoirs continued, in accordance with the Water Protection and Management Law N13(I)2004. The protection zones of the Kourris and Arminou dams have been completed. A decree on the protection zones was drafted and sent to different interested bodies for comments (Article 23 of Law 13(I)/2004), and 67(i)/2009).

2.18 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.

2.19 Isopiezometric digital maps (groundwater levels) were prepared for the coastal aquifers of Paramali and Avdimou for the month of April, of Kiti-Pervolia for the months of January, March, July and September, of Kokkinokhoria for the months of March, June and September, and of Akrotiri for the periods February-March and June-July. These maps can be viewed on the Department’s website.

2.20 20 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.

3. Implementing the European Acquis

3.1 Throughout 2011, 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/EK (WFD) in Cyprus (articles 11, 13 and 15), the River Basin Management Plan was carried out, which was approved by the Council of Ministers on 9th June 2011 and subsequently submitted to the European Union. The evaluation of the Plan by the European Union is expected to take place early in 2012, along with the Plans of other four European countries.

Essentially, the River Basin Management Plan is the key planning tool for safeguarding water resources sustainability. It consists of a main document and nine Annexes which include:

Annex I: Detailed River Basin Management Plan
Annex II: Detailed Program of Measures
Annex III: Measures derived from the implementation of other EU Directives
Annex IV: Actions to deliver objectives per each water body
Annex V: Cost effectiveness analysis
Annex VI: Summary table of measures
Annex VII: Water resources strategy
Annex VIII: Drought management plan
Annex IX: Final report on consultation results

In the aforementioned Plan consists of 153 measures, 97 of which are basic and 56 are supplementary measures, to be implemented by 2015.

3.3 For the time being, every effort is made by the Water Development Department to implement the Programme of Measures effectively and in time.

3.4 During 2011, the legal framework for the implementation of Article 9 of the Water Framework Directive 2000/60/EK which is related to the water pricing policies that must be applied in accordance with the Directive, was completed.

Directive 91/271/EEC

3.5 During 2011 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.

3.6 The required reports were prepared and submitted to the European Investment Bank (EIB) and as a result of the submission the first disbursement was received as part of the Financing Agreement of the rural sewerage works.

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

3.8 Continuation of the implementation programme for sewerage projects in suburban agglomerations with population equivalent greater than 2.000 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.

3.9 Also continued to provide technical advice in relation to sewerage and wastewater treatment problems in rural communities with a population equivalent of less than 2.000.
Directive 2007/60/EC

3.10 Work on the implementation of the European Directive on Floods, 2007/60/EC, and the corresponding Cyprus Law, 70(I)/2010 continued. The preliminary floods risk assessment has been completed and the study has identified 19 areas for which there are potential significant floods risks.

Community Initiatives

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

3.12 Likewise, in the context of Co-funding Sewerage Projects through European Community Resources, it was submitted to the EU the Application of Major Project for co-funding by the Cohesion Fund for the sewerage projects of Kokkinochoria Complex.

3.13 The implementation and management was continued (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-funded sewerage projects, namely the Astromeritis-Peristerona-Akaki Cluster, Athienou Municipality, Solea Complex and Kokkinochoria Complex.

3.14 The preparations towards the Cyprus Presidency of the Council of the European Union, during the second half of 2012, continued.

4. Announcement of Competitions

4.1 Tender Documents were prepared and Competitions were announced for the Supply of Materials and Fittings used in various projects of the Department, such as, ductile iron pipes and fittings, stainless steel pipes and fittings, gate valves, butterfly valves and air valves, sodium chloride for the Department’s Water Treatment Plants, and Lease of Machinery for the execution of projects by the District Offices of the Department.

4.2 Tender Documents were prepared and Competitions were announced for the supply and installation of two mobile water treatment plants for Tamasos Dam and two for Klirou-Akaki-Malounta Dam.

4.3 Tender Documents were prepared and Competitions were announced for Engineering and Technical Engineering Services for participation in the supervision group for the construction of the project "Sewerage System of Kokkinochoria Agglomeration" and "Sewerage System of Solea Agglomeration - Phase A", etc. and Engineering Services for sampling and carrying out chemical and microbiological analyses.

4.4 Prepared documents and invitation of tenders for Construction of recycled water storage tank in Vathia Gonia, as well as upgrading and / or Operation and Maintenance of Wastewater Treatment Plants in Communities Kakopetria Platres, Agros, Kyperounta, Palaichori, Alassa, Skarinou and Military Camp of Troodos.
4.5 Tender Documents were prepared and Competitions were announced for Renovation and Operation of the Permanent Larnaca Desalination Plant.

5. Studies and Execution of Water Projects

Projects completed in 2011

5.1 The Contracts for the Provision of Consulting Services for the design of Kammitsis and Archangelos dams in Aradhippou and Idalion dam on Yialia River have been completed.

5.2 The Contract for the Provision of Consulting Services for the design of Vathia Gonia reservoir, for the storage of recycled water has been completed.

5.3 The study for widening of Achna Dam crest road has been completed.

5.4 A study for the preliminary evaluation of environmental impact for Tembria irrigation network has been completed.

5.5 The final design for the Vasilikos Desalination Pipeline – Branch to Limassol and connection to Southern Conveyor Project has been completed, material quantities have been estimated, bill of quantities and technical specifications have been prepared for the procurement of material.

5.6 A Memorandum of Understanding between the Water Development Department and the Intelligence Systems and Networks Research Centre “Kios” of the University of Cyprus was signed, with the aim of the exchanging know-how and scientific cooperation.

5.7 There was completion of the Agreement for the supply of Consultancy Services for the exploration of the possibility of hydroelectric energy production from existing dams.

5.8 There was design of the Infrastructure Works and of the Pumping Stations which will support the installation of Fast Water Treatment Plants at the communities of the Tamassos and Klirou area.

5.9 A study and design was made for the creation of two pumping stations at the Ypsonas tank (desalination) for the purposes of transporting Water to the Southern Conveyor and to communities of the area.

5.10 There was execution of works for the installation of electromechanical equipment to over 28 government and community projects of water supply and irrigation. Also, there was execution of works for the installation of systems of liquid chlorination at eight water supply projects of Municipalities, Community Councils and units of the National Guard five of which were powered by photovoltaic units.

5.11 There was completion of the first phase of the renovation of the existing Pumping Station at Vathia Gonia for the covering of the irrigation needs of the Geri, Potamia and Idalion areas.

5.12 There were studies and installations of systems for the correction of power factor at various pumping stations for the purpose of saving energy and there was installation of new
electric Panels at the Yermasoyia, Athienou and Vathia Gonia Pumping Stations, and installations of systems of wireless communication.

5.13 There were installations of ultra sound systems with supply of energy from photovoltaic frames at the recycled water tank of the Larnaca Sewage Council with the purpose of fighting Algae.

5.14 In relation to facing the energy crisis after the Mari accident there was concession and/or installation of many generator sets to many government and communal projects and to Water Supply Councils and generators 500kVA which were conceded by EAC.

5.15 The "Strategic Environmental Assessment of Environmental Impact from Desalinations Plans" was completed in September 2011 with a positive opinion of the Environmental Authority.

5.16 The "Preliminary Study of Environmental Impact Assessment" for the distribution of desalinated water from the desalination plant in Vasilikos was submitted in October 2011 to the Environmental Authority. The opinion is expected.

5.17 The feasibility study of the project for the "Use of recycled water from Limassol Sewage" was completed in August 2011.

5.18 The feasibility Study for the Supply of Eastern communities of Limassol district and Western ones of Larnaca district, from Vasilikos desalination plant (EAC) was completed.

5.19 The study "Investigation of Use of Rainwater" was completed and meetings were held with stakeholders and the public authorities for the sustainable management of rainwater.

5.20 During 2011 the construction of the sewerage collection network at the complex of communities of Astromeritis, Peristerona, Akaki and the Municipality of Athienou and community of Xylophagou was continued and completed.

5.21 The Preliminary Environmental Impact Assessment was submitted to Environmental Authority, for the use of recycled water from the Sewage Treatment Plant at "Vathia Gonia". The opinion is expected.

Projects in progress

5.22 The Environmental Impact Study of the “Use of Recycled Water from Larnaca Sewarage System" was continued. The Water Development Department funded a special study prepared on behalf of Meneou-Pervolia local authorities. The aim of the study was to comment on the results of the Feasibility and Environmental Impact Study of the use of Recycled Water from Larnaca Sewage, for the disposal of brine from further processing (desalination) of recycled water.

5.23 The Preliminary Feasibility Study for the transport of desalinated water from the desalination plant of Vasilikos (EAC) was continued for supply of semi-mountainous Communities of Limassol.
5.24 Within the framework of the use and disposal of recycled water from Anthoupolis biological treatment plant, a study was in progress for the construction of a storage reservoir near Anthoupolis treatment plant.

5.25 Intense consultations with the municipalities of Wider Nicosia Area, were conducted for future users of recycled water. Studies have been prepared in connection with the Department of Forestry, University of Cyprus, Mall of Cyprus, Koliokremmos Park and the roundabout of GSP.

5.26 During 2011 was continued the construction of the Limassol Permanent Desalination Plant, which will have a production capacity of 40,000 m³ per day with the possibility of extension to 60,000 m³ per day.

5.27 The construction is under way of the Solea Dam Irrigation Project. The construction works are expected to be completed in 2012.

5.28 Construction of the Garillis pumping station for pumping recycled water towards the Polemidhia Dam.

5.29 There is continuation of works for the second phase of the renovation of the existing pumping station at Vathia Gonia.

5.30 There was continuation of the installations of electromechanical equipment at five government and communal projects of water supply and irrigation.

5.31 There was continuation of Contract management and supervision of the electromechanical construction works of the Limassol Desalination Unit, of the Solea Dam and of the Kannaviou Water Treatment Plant.

5.32 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 Station in Army Camps and Communities. Also there is continuation of construction of a new Sewage Treatment Plant at Mennoyia.

5.33 There was continuation of preparation for the materilisation of the project of the supply and installation of electromechanical equipment for the pumping stations of Anadiou for the water supply system of 31 communities of Paphos from the Kannaviou Water Treatment Plant and Vathia Gonia for satisfying of the irrigation needs of the areas of Idalion, Geri and Potamia.

5.34 There is continuation of the participation to the research programme “Therma Solar production of Water and Electricity” of the interboundary cooperation Greece-Cyprus 2007-2013 scheme. The project’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.

5.35 A study for the connection of Yermasoyia dam and Southern Conveyor Pipeline is under preparation.

5.36 The installation of the main pipeline for the transfer of water for the Anadiou Government Water Project was continued in 2011.
5.37 The construction is under way of Water Treatment Plant with a capacity of 10,000 m³ per day in the area of the Asproyia-Kannaviou dam. Its completion is anticipated by the beginning of 2012.

5.38 The upgrading, modernization and replacement of community water supply systems in all Districts continued during 2011 for the supply of good quality domestic water and the reduction of losses.

5.39 The monitoring and coordination of the two year operation (and with optional another one) and maintenance contract was continued for Vathia Gonia Domestic and Industrial Wastewater Treatment Plant, as well as the monitoring of imposition and collection of discharge fees in the plant.

5.40 During 2011 the construction of the sewerage collection network at the communities of Xylotympou-Ormidia and the Municipality of Derynia was continued.

5.41 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 Municipality Yermasoyia, was continued in 2011.

Projects initiated in 2011

5.42 Construction work has begun on the wastewater collection network in Achna-Avgorou, Dherynia and Kakopetria-Galata.

5.43 There was the commencement and continuation of Omonia Pumping Station for the transportation of recycled water from Moni towards Ypsonas for irrigation purposes.

5.44 There was commencement and continuation of the renovation of the recycled water pumping station of the Moni Sewage Treatment Plant.

5.45 There was commencement and continuation for the full renovation of the piping of the Tersephanou pumping station with materials from ductile iron.

5.46 There was commencement and continuation of studies and works improvements of the automatic operations and of electric panels of the pumping stations of the Kokkinochoria Irrigation Network.

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 State. Also is to coordinate all actions which are related to the management and operation of the Government Irrigation Projects and to apply 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, 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 of Municipalities and Communities.
6.2 Total domestic water output in 2011 reached 80,6 MCM. The production of water treatment plant was in 2011, at 28 MCM, compared to 25 MCM in 2010. The increase in refining due to the decision to operate the Desalination Plants with minimum contractual obligation. Also during July-August following the accident in Mari all Desalination Plants operating on reduced power load savings. It is noted that during this period the Choirokoitia Water Treatment Plant which was held in reserve, was operated.

6.3 During 2011 the management of contracts for type BOOT Desalinations continued for the two permanent Plants of Dhekelia and Larnaca, as well as for the Mobile Plants of Moni and Garyllis and Paphos. The production of the above Desalination Plants was in 2011, at 48,7 MCM. In 2011 were instructed to reduce the production of more Water Desalination Plants and complete closure of Desalination Plant at Paphos.

6.4 During 2011, the total irrigation water supplies in areas irrigated by the Government Water Works reached at 47,5 MCM, of which 36,6 MCM came from water dams, 5,2 MCM from boreholes and 5,7 MCM from recycled water tertiary treatment.

6.5 During 2011, the use of the computerized “Water Invoicing System” (WIS) continued successfully, for the billing of domestic and irrigation water supplied from the Government Water Projects (GWP). In order to upgrade the WDD’s services to the consumers, the works for the connection of the WIS to the JCC’s network began, in order to provide “on line” payments facilities.

6.6 The procedure of the collection of debts for irrigation water consumption supplied by the Government water works continued, coordinated by the Division in cooperation with the Public Prosecutors Department, which undertakes all judicial measures against debtors. The arrears for domestic water by the end of 2011 was € 95,9 million.

6.7 The Irrigation Division during the year managed the problems of the individual Irrigation Divisions, to conform with 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 into 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 senarios, as well as for the implementation of these senarios and the related irrigation water supply restrictions.

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

6.11 Within the framework of measures for the conservation of drinking water the subsidization plans were continued for the drilling of boreholes, the connection of boreholes to lavatories, the installation of grey water recycling systems and the installation of hot water circulators. The total amount of subsidies granted in 2011 is € 376,640. Noted that in November 2011 these projects grants was suspended.
6.12 The installation and maintenance of grey water recycling systems in 49 schools continued in 2011. Five new systems in as many schools were installed.

6.13 Supervision of the operation and maintenance of dams and the Great Water Works and the Wastewater Treatment Plants in Camps and Communities was continued.

7. Management of Information Technology and Training

7.1 In the context of further personnel education within the Department, 16 courses were organized with 175 participants. The educational programmes and lectures addressed Technical, Environmental, Administrative and Legislative issues, as well as issues on Communication, Safety and Health at the workplace, Software Programmes 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 2011, became predictive maintenance of the System by the supplier company HSQ Technology.

7.3 The WDD electronic infrastructure includes over 450 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, Directive 2007/60/EK about flooding and the relevant Cyprus legislation, water saving measures, etc. In addition, the website allows the public to communicate through e-mail and in accordance with statistical data from the Department of Information Technology Services, some 5,500 persons visit the website every month.

7.6 The computerized Water Invoicing System (WIS) used in recording and billing the consumption of domestic and irrigation water from Government Water Projects continued to function during 2011. In order to upgrade the WDD’s services to the consumers, the works for the connection of the WIS to the JCC’s network began, in order to provide “on line” payments facilities.

7.7 Continued installation of integrated Geographical Data System (GDS) in the Department of Water Development. The GDS system will provide the Department with a common platform for classified access to all data, as well as the facility to prepare reports. The in-built tools for spatial analysis will provide support to the networks monitoring the supply of domestic water, irrigation water and sewage systems, as well as an analysis of the trends affecting future demand. The posting of the information on the database will help the Department to meet the operational challenges it is currently facing.
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 organized various campaigns and lectures. To this end, the Department hired the services of four teachers, who gave lectures at educational institutions jointly with WDD officers. During 2011 roughly 566 lectures were given at Nurseries, Primary Schools, Technical Schools, Gymnasiums and Lyceums, attended by 60,000 pupils. At the end of the lectures leaflets, stickers and other promotional material regarding water conservation was given to pupils and teachers.

8.2 During 2011, the WDD organized and participated in the following events:

a) Giving the first lecture to National Guard Camp with the aim of informing/sensitizing the soldiers.

b) “Science Fair about Water” in collaboration with Primary Education of the Ministry of Education and Culture and the Cyprus Parent Association.

c) Water Saving Week in all towns with the aim of informing/sensitizing pupils.

d) “We all care about Water,” using a stands in all towns with the aim of informing/sensitizing foreign workers who live and work in Cyprus.

e) Inauguration ceremony to Desalination Plant to Kouklia at Paphos.

8.3 In addition, the WDD participated in exhibitions and other events. Also, film showings and radio broadcasts took place concerning water saving.

9. Safeguarding Quality

9.1 During 2011 the draft work on the accreditation of WDD laboratories was almost completed. Accreditation is expected to take place in the first half of 2012.

Monitoring domestic water quality

9.2 During 2011, chemical tests were carried out on 2,277 water samples and bacteriological tests on 727 samples. In addition, tests were performed for the needs of the following:

a) Desalination Plants of Dhekelia, Larnaca, Moni, Garyllis and Kouklia

b) Water Treatment Plants of Tersefanou, Limassol, Asprokremmos and Kornos

c) WDD District Offices

d) Monitoring programmes for community boreholes, minor dams, major springs, hydrological research of ideotypical water composition, the Water Framework Directive 2000/60/EC, and

e) Monitoring water quality in pipelines that supply domestic water from the Desalination Plants and the Water Treatment Plants

Monitoring of recycled treated wastewater quality

9.3 The collection of samples was 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.
9.4 Sample taking for chemical and microbiological water tests took place from 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) of 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 Limassol and Larnaka sea 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 During 2011 the Department operates Health and Safety Unit, implementing legislation for Health and Safety Unit for WDD Personnel and third parties in accordance with the Safety and Health at the Workplace Laws N33 (1) 1996-2011. Carried out, on site visits at construction work projects, premises and facilities of the WDD. Coordinated the 10 Security Committees and continuing education and training staff in Health and Safety. Providing the staff with 5 Automatic External Defibrillators (AED) and with all necessary personal protective equipment (PPE).

Internal Auditing

9.8 The internal auditing of works continued during 2011 by on-site visits to WDD construction work projects with self – supervision, which are being carried out by the District Offices. The same held for 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, continued auditing concentrated on locating institutional and procedural problems and preparing proposals for resolving them. Proposals include changes to the way of carrying out the contests for the execution of water supply projects, the empowerment of the District Offices in respect of laboratory testing, adopting the use of new type valves and initiating the preparation of modern drawings for circular water tanks, as well as the preparation of new technical specifications concerning water supply networks.
VI. GEOLOGICAL SURVEY DEPARTMENT  
www.moa.gov.cy/gsd

1. Introduction

The Geological Survey Department of the Ministry of Agriculture, Natural Resources and the Environment is the state’s technical advisor on all geological matters, except for hydrocarbons.

In 2011, the Department was administratively structured in the following sections: General Geology, Cartography and Geographic Information Systems, Economic Geology, Hydrogeology, Engineering Geology, Geophysics and Seismology, and Drilling.

The mission of the Department is the detection and protection of groundwater, the detection and the sustainable development of mineral resources, as well as the protection of the urban environment from geohazards. In parallel, it conducts geotechnical investigations for foundations of state construction projects, studies of the seismicity of the Cyprus region, studies on the development of environmental geology with emphasis on soil and groundwater geochemical elements, and it generally promotes geological research through scientific programs in collaboration with local and foreign academic and research institutions. High in the Department’s priorities are also its obligations derived from the European Union relating to issues of its competency.

2. Regional Geology Research – Geological data

One of the main activities of the Department is geological mapping, the collection and evaluation of geological information, the preparation of maps and publications, the administration of the Survey’s Geographical Information System (GIS) and computer network.

The mapping project covering the broader area of Paralimni - Ayia Napa in 1:5.000 scale, it aims to develop a geological map of the region in 1:25.000 scale. During 2011, the area around “Phanos” hill between the cities of Ayia Napa and Paralimni was mapped.

In the framework of the neotectonic study of the broader Larnaca area in 1:25.000 scale, a new program of geophysical investigations, in collaboration with the United States Geological Survey, is ongoing with the method of electrical tomography in four places, two around the salt lakes of Larnaca and two at the Cape Kiti. The new data will provide useful information for the tectonic setting of the region.

In the framework of the European Program of cross-border collaboration between Greece and Cyprus 2007-2013, the Department participates as partner in the project of “Geotourism and Local Growth: Mountain Itanos Crete / Mountain Troodos Cyprus” (GEO.TOPI.A). During 2011, the Department has collected photographic material and bibliography for the preparation of informative leaflets.
In collaboration with the Archaeological Research Unit of the University of Cyprus, the Department produced a geomorphological map of the broader area of the ancient Kingdom of Palaipafos. The main objective of the mapping project is to help geoarchaeologists and archaeologists understand the importance of landscape evolution or the area in the last 3,500 years.

The European PanGeo program, which is a continuation of the Terrafirma project, plans to use small surficial movement satellite measurements in the Lefkosia area for mapping of geohazards. The Geothermal Energy project was completed in February with a public event which presented a temperature map of Cyprus for rocks at a 100 m depth. The OneGeology project is an ongoing attempt to create a seamless digital geological map of Cyprus. Reorganisation of the departmental library will include a digital on-line catalogue of its books, journals, reports and maps for access to citizens and local geologists.

3. Water Resources

The main activities of the Department in the field of groundwater relate to the investigation, exploitation, monitoring and protection of groundwater resources as well as the enforcement of relevant EU and national legislation.

Groundwater prospecting and investigation activities included the drilling of 31 boreholes and the execution of 22 pumping tests. Most of the water supply boreholes have been drilled in order to meet water supply needs as well as for replacing existing boreholes of relatively poor water quality that does not comply with EU standards for potable water.

The Department also operates a number of monitoring networks which relate to the enforcement of the Directive 91/676/EEC (protection of waters against pollution from agriculture activities), the Directive 2006/118/EE (protection of groundwater against pollution and deterioration) and the Water Framework Directive, 2000/60/EE. It also operates additional monitoring networks, including a network with 90 automatic loggers. So far, 81 of these stations have been upgraded to telemetric. The Department contributes substantially to the enforcement of the above mentioned Directives as well as of several Regulations and Ministerial Orders that relate to the Law on Water and Soil Pollution Control (No. 106(I)/2002). Furthermore, the department has given special attention in assigning protection zones to water supply boreholes.

4. Mineral Resources

Economic Geology covers a broad range of activities relating to the exploration and management of the mineral resources (metallic and industrial) of Cyprus within an environmentally acceptable framework. A number of research programmes in cooperation with other organizations have been carried out aiming at the broadening of the use of mineral resources, as well as the improvement of the quality of the final products.

The main research activities during 2011 were related to the physical, mechanical and chemical characterisation of decorative stones. In addition, activities of the Economic Geology Section included the rehabilitation works and the preparation of a proposal for a master plan for the Asbestos Mine, the definition of new alternative areas for the establishment of the quarrying zone for crushed aggregates and armourstone in the Pafos District, the quality control of aggregates from crushing plants and concrete batching plants, the assessment of
environmental impact assessment studies concerning quarrying and mining activities, the evaluation of applications for prospecting permits and town planning permits for industrial mineral prospecting, as well as of various new projects such as land consolidation plans, master plans for towns and villages, mining heritage conservation schemes and rehabilitation schemes in disused mines and quarries. Lastly, the European Minerals Day was celebrated with various activities such as a rock and mineral exhibition and open days in quarries and mines.

5. Geotechnical Studies - Geoprobblems

The Geological Survey Department is in charge of the planning, implementation and evaluation of the engineering geological (geotechnical) investigations carried out for the various development projects of the Government, in respect of their foundation conditions. It is also involved in the study of geohazards, such as landslides, Karstic phenomena and ground settlements. Additionally, consults on geological-geotechnical investigation reports undertaken by Private Offices that have been submitted to the Department by other Governmental Departments dealing with Construction Works.

During 2011 the implementation of surface and subsurface geological investigations for a number of technical projects, assigned by other Technical Departments and Authorities of the Government, has been undertaken. These projects were mostly related to the study of the foundation conditions of new water structures (dams -the under construction Solea Dam- or and reservoirs), roads, bridges and structures in the area of coastal zone, refugee settlements, plots for poor families, buildings and sewerage systems. Various slope stability problems, involving landslides and rock falls, which affected mountainous villages, existing or under construction roads, natural and artificial scarps, were also studied.

A number of applications for town planning and building licenses in geologically hazardous areas were examined. In this respect, preliminary hazard maps, in both digital and analog form, were prepared for several villages, as well as for villages affected by karstic phenomena (sinkholes). These maps can be used by the appropriate authorities for a better and safer town planning and development. After the completion of the research project entitled “The Study of Landslides in Areas of Paphos” by the end of 2010, the year 2011 a geological map of Paphos, which includes geological suitability zones, was prepared based on Landslide Susceptibility maps and also Landslide Risk maps of this completed project. A Seminar concerning the research project was also organized, at Paphos, by the GSD and the consultants, in order to diffuse the Knowledge gained from this Study to all participants relative with this Subject.

A GSD Study Program (without the collaboration of Consultants) of 8 months duration was completed, entitled “Ground Instability at the broaden area of Mesa Horio, Paphos”. A relative report was prepared and forwarded to the Paphos District Office, including geological-geotechnical map of the Study Area, geological sections, exploratory boreholes (12), laboratory results etc.
6. Environmental Geology

During 2011 the Geological Survey Department has been involved in various projects related to environmental and geochemical investigations regarding ground water pollution, contaminated soils, baseline geochemical mapping and management of hazardous materials. Directly involved with these projects is the Department’s chemical laboratory, the quality control laboratory and the sample preparation laboratory. The chemical laboratory undertakes chemical analysis and testing of samples related to the various programs of the department, as well as from various independent and private organizations. During 2011 the chemical laboratory of the Geological Survey Department has successfully extended its accreditation for a series of chemical parameters according to the ISO 17025 standard.

The major projects undertaken by the Geological Survey Department in 2011 were:

- Completion of the project for the publication of the Geochemical Atlas of Cyprus. As a result of this project the Geochemical Atlas of Cyprus has been published, a multipage book with thematic maps in colour which show the distribution of some sixty chemical elements and other physiochemical parameters in the soils of Cyprus. Upon completion of this project the Geological Survey Department has organized an International Symposium for the release of the Atlas with participation of experts from some ten countries in the fields of soil regional mapping, environmental, medical and urban geochemistry, soil regulatory framework and analytical perspectives in regional geochemical mapping. The Symposium was carried out under the auspices of the Minister of Environment and Natural Resources.
- The monitoring of the surface and groundwater networks as a follow up of the designation of the Nitrate Vulnerable Zones assigned by the Nitrate Directive 91/676/EEC.
- The project of compiling an updated hydrogeological map of Cyprus through the analysis of some three hundred water samples from representative ground water bodies.
- Market surveillance of the quality of construction materials such as aggregates and cements (under the CPD) organized and coordinated by the Ministry of the Interior.

7. Seismology – Geophysics

The seismic activity of the eastern Mediterranean continued to be monitored on a 24h basis, throughout 2011. Six hundred and thirty six earthquakes in total were recorded by the Seismological Network, 280 of which had epicenters within 300 km from central Cyprus. Three earthquakes were felt in Cyprus in total throughout the year.

All seismic data were processed and evaluated and the relevant information was shared on a daily and monthly basis with other regional and international seismological institutions. The relevant material has also been published on the Department’s website.

During 2011 the Seismological Centre upgrade was further continued. This involved the virtual connection of the Seismological Centre with European and International Seismological Stations and the reception of continuous seismological data from these stations in real time. Some hardware installations, necessary for the format compatibility of our seismological data with those of other institutions, have also been completed in 2011. The departmental website was restructured to accommodate daily information on all seismic events of the broader area of Cyprus, in an interactive map environment.
A number of geophysical studies were also conducted during 2011, chiefly to investigate the physical parameters of the ground. The Department has also participated in an experiment of the nuclear test ban UN CTBTO programme.

8. Drilling

During 2011, the Department operated with six drilling groups and one for pumping tests in successful hydrogeological boreholes. Fifty one boreholes were drilled using the departmental drilling rigs, while another 13 boreholes were drilled by the private sector through a contract. Out of the 51 boreholes, 18 boreholes were drilled for hydrogeological purposes and 33 for geotechnical, economic and general geological investigations. Nineteen pumping tests were carried out in successful hydrogeological boreholes.
1. **Introduction**

The Mines Service is the competent authority of the administration of the Mines and Quarries Law and Regulation and the Explosive Substances Law and Regulation.

2. **Mining and Quarrying**

The mining industry has been on the decline (practically non-existent) for the last four decades. The only mining activity is the Skouriotissa Copper Mines where by the application of the leaching - SX - EW method is succeeded the production of high purity copper cathodes (99.999%). The cumulative exports of copper cathodes is today about 49,500 tones.

Concerning the prospecting of metals a great interest was shown for copper and precious metals, especially gold.

There is extensive quarrying of rocks and industrial minerals in Cyprus. There are about 151 quarries producing of various materials. They produce for local use havara, sand and gravel, aggregates (from limestone and diabase) building stone, limestone, clay, gypsum etc. and for export building stone, gypsum, bentonite, umber and ochre etc. There is also local production and exports of quick and hydrated lime, portland and other types of cement, gypsum plasters etc.

There is also great interest for the prospecting of quarry materials and industrial minerals.

3. **Environmental Studies - Health and Safety**

The mining and quarrying operations have the obligation to submit every five years to the Mines Service, renewed environmental study taking into consideration the new conditions of the exploitation area. This was adopted in the national legislation according to the Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries. The operations have to be supervised by a Mining Engineer.

A great share of Mines Service personnel time is spent for inspection of the working conditions (health and safety) in mines and quarries and related installations. The effort is to eliminate accidents and occupational diseases. The people working in mining and quarrying are examined every two years by the Pneumoconiosis Medical Board.
4. **Explosive Substances and Hunting Ammunition**

The Head of the Mines Service is also the Explosives Substances Inspector and has the control of the import, storage, sale and use of the explosive substances and hunting ammunition.

5. **Cyprus Standard Specifications for Aggregates**

From 1/5/2004 the Ministry of Interior is the Competent Authority for checking the quality of the produced aggregates.

6. **Economics**

The total exports in 2011 for ores and industrial minerals amounted about €34,589,758 compared with €26,146,295 in 2010.

The total income of Mines Service in 2011 for rents, fees and royalties was €7,440,902. The amount of €3,992,398 was granted to the Communities, affected from the quarries operation, in order to use it for the development of their own program.
1. Introduction

The Department of Fisheries and Marine Research (DFMR) has developed activities in multidisciplinary fields concerning the sustainable use of marine resources, the development and sound management of fisheries and aquaculture, marine ecology, the protection of endangered species and habitats and the prevention and combat of marine pollution. Furthermore, within the framework of the fisheries development, the Department promotes supporting programmes for the fishermen including, inter alia, the construction/improvement of fishing shelters. It is also responsible for the enforcement of the relative legislation.

2. Division for Fisheries Support and Services

The Division for Fisheries Support and Services was established in 2011. The main fields of activity of the Division are the following:

a) Recreational (sea) fisheries: This is a significant activity in terms of number of persons involved and fishing effort. The Department of Fisheries and Marine Research issues annually around 4,500 licenses for aquatic recreational fisheries in the sea. Furthermore, it is estimated that several hundreds of people are fishing with rod from the coast without the obligation of issuing a license. The main aim of the Division is to collaborate withAssociations of Recreational fishermen and support them in terms of awareness and education on good fishing practices, state of fish stocks and protection of the marine environment. The Division is also concerned with the evaluation of the impact of recreational fisheries to the marine resources as well as with the recommendation of technical management measures and the revision of current legislation.

b) Creation of Artificial Reefs (AFs): AFS are considered to be a useful management tool for fisheries management, DFMR is implementing a strategy aiming at creating four AFs in Cyprus primarily in order to enhance fishery production. Other important objectives that are expected to be fulfilled with the creation of AFs is the protection of marine biodiversity and ecosystems, as well as enhancing research, public awareness and environmental education.

c) Reform of Common Fisheries Policy: The Common Fisheries Policy is under reform and it is expected that a new basic regulation will come into force by the end of 2012. DFMR is actively participating in the discussions taking place at EU level.
d) Participation in the programme "Coordinating research in support to application of EAF (Ecosystem Approach to Fisheries) and management advice in the Mediterranean and Black Seas ". 7th Framework Programme. This programme will establish an effective collaboration network among key role players in the Mediterranean and the Black Sea fisheries research and management. The participants in the project include national research institutes from the Mediterranean and the Black Sea countries with a long history and active participation in fisheries research and assessment, who provide advice to national, regional and international fisheries management organizations. The project will serve to establish the guidelines for the application of the Ecosystem Approach to Fisheries in the Mediterranean and Black Sea, both in EU member states and third countries.

3. Fisheries and aquaculture production

The total contribution of the sector, which includes capture fisheries, aquaculture and processing is valued at € 44 million. The capture fisheries and aquaculture production reached 6,015 tons in 2011.

4. Legislation

The intensive effort to implement the National and Community Legislation continued in 2011 in order to ensure compliance with the Common Fisheries Policy of the EU and to accomplish the best possible management of the resources.

During 2011, a new law called “the Marine Strategy Law of 2011” (N.18 (I)/2011) was published in the Cyprus Government Gazette on the 25th of February 2011. This new law is based on the EU Marine Strategy Framework Directive (2008/56/EC) which aims at achieving or maintaining a good environmental status by 2020 at the latest. It promotes the ecosystem approach to the management of human activities having an impact on the marine environment, integrating the concepts of environmental protection and sustainable use. An important point is the regional cooperation required at each stage.

Moreover, in 2011, the Akrotiri fishing shelter has been officially declared as a fishing shelter by the Sovereign Base Administration based on the Fishing Shelter Ordinance.

5. European Fisheries Fund (EFF) – Operational Programme for Fisheries 2007-2013

In 2011, the Operational Programme for Fisheries 2007-2013 continued its implementation. The fisheries programme has a budget of 39,5 million Euros (50% co-financing by the Cyprus Government and 50% by the EU - European Fisheries Fund) and is implemented by the Department of Fisheries and Marine Research in collaboration with the Ministry of Agriculture, Natural Resources and Environment and the Planning Bureau.

5.1 Priority axis 1: Measures for the adaptation of the Community fishing fleet

i) Scheme for scrapping bottom trawlers (€1.300.000 – Measure 1.1): The 1st call for proposals began in March 2009 and ended in June 2009. No proposals were submitted. The 2nd call for proposals began in March 2011 and ended in June 2011. During the 2nd call, 2 projects were approved for funding. By the end of 2011, 2 fishing vessels were scrapped and the total amount of payments made to the beneficiaries was €1.261.554.
ii) Scheme for scrapping multipurpose/ polyvalent fishing vessels – Regulation (EC) 744/2008 (€2.000.000 – Measure 1.1): The 1st call for proposals began in May 2009 and ended in June 2009. Of the 20 proposals submitted, 12 were approved for funding. The total budget for the approved proposals was €1.738.000. By the end of 2011, 12 fishing vessels were scrapped and the total amount of payments made to the beneficiaries was €1.582.389.

iii) Scheme for Investments on board fishing vessels and selectivity (€2.800.000 – Measure 1.3): Five calls for proposals were launched between October 2008 and July 2010. During the calls, 624 projects were approved for funding (for engine replacement, for fishing equipment selectivity and for modernization of fishing vessels). By the end of 2011, all the projects were co-financed and the total amount of payments made to the beneficiaries was €2.9 million.

iv) Scheme for funding young fishermen (under 40 years old) to buy fishing vessels (€50.000 – Measure 1.5): The 1st call for proposals began in May 2009 and ended in September 2009. During the 1st call, 4 projects were approved and were co-financed. The total amount of payments made to the beneficiaries was €15.776.

v) Scheme for funding fishermen early retirement (55-65 years old) (€1.100.000 – Measure 1.5): The 1st call for proposals began in May 2009 and ended in September 2009. During the 1st call 22 proposals were submitted and after the evaluation 17 were approved for funding. The budget for the approved proposals was €1.067.000. By the end of 2011, the total amount of payments made to the beneficiaries was €335.083 (€850 per month).

vi) Scheme for funding premiums for fishermen involved in small-scale coastal fishing (€2.500.000 – Measure 1.4): The 1st call for proposals began in May 2011 and ended in October 2011. During the 1st call 476 proposals were approved for funding. The budget for the approved proposals was €2.208.750. By the end of 2011, the first part of the funding was co-financed and the total amount of payments made to the beneficiaries was €1.098.750.

5.2 Priority axis 2: Aquaculture, Inland Fishing, Processing and Marketing of fishery and aquaculture products

i) Scheme for funding productive investments in Aquaculture (€3.000.000 – Measure 2.1): The 1st call for proposals began in February 2009 and ended in July 2009. During the 1st call 12 proposals were approved for funding. The budget for the approved proposals was €1.236.626. By the end of 2011, all the projects were co-financed and the total amount of payments made to the beneficiaries was €1.217.965.

ii) Scheme for funding investments in Processing and Marketing of Fisheries and Aquaculture Products (€3.000.000 – Measure 2.3): The 1st call for proposals began in June 2009 and ended in October 2009. During the 1st call 15 proposals were approved for funding. The budget for the approved proposals was €2.099.221. By the end of 2011, all the projects were co-financed and the total amount of payments made to the beneficiaries was €2.082.754.

5.3 Priority axis 3: Measures of common interest

i) Scheme for collective actions in fisheries sector (€600.000 - Measure 3.1): The 1st call for proposals began in June 2011 and ended in October 2011. During the 1st call one proposal
was approved for funding. By the end of 2011, the project was co-financed and the total amount of payments made to the beneficiaries was €13,377.

ii) Measure 3.2 (€1,500,000): Within the framework of the Cyprus Operational Programme for Fisheries 2007-2013 funds have been allocated for the protection and development of the aquatic ecosystem such as the construction of several artificial reefs that will enhance biodiversity and improve the aquatic environment. The construction of the artificial reef in Amathounta area near Limassol was completed (budget: €184,184). By the end of 2011, the total amount of payments was €171,305.

iii) Measure 3.3 (€19,848,836): The project for the construction of the Zygi fishing shelter was completed (budget: €15,307,361). By the end of 2011, the total amount of payments was €13,996,621. Also, the project for the improvement works at Pyrgos fishing shelter was completed (budget: €693,000) and by the end of 2011 the total amount of payments was €515,834. The project for the improvement works at Pomos fishing shelter was also completed (budget: €230,000) and by the end of 2011 the total amount of payments was €230,544.

5.4 Priority axis 4: Sustainable development of fisheries areas

Axis 4 (Measure 4.1 – €2,000,000) provides assistance for the sustainable development and improvement of the quality of life in fisheries areas as part of an overall strategy which seeks to support the implementation of the objectives of the Common Fisheries Policy.

The 1st call for proposals began in June 2010 and ended in September 2010. One proposal was only submitted on behalf of the Fisheries Local Action Group “Larnaca District Development Agency”. The proposal was approved on 10 December 2010. The region of intervention includes 3 Municipalities (Larnaca, Paralimni, Agia Napa) and 5 communities (Mari, Zygi, Ormideia, Xylotympos, Liopetra). The local program includes, among others, actions in fishing tourism, processing and marketing of fisheries products, advertising campaigns for the promotion of local fisheries products, educational programs, fisheries heritage museums and organization of cultural events.

5.5 Priority axis 5: Technical assistance

Axis 5 (Measure 5.1 – €700,000) co-finances a) actions that are necessary for the implementation and monitoring of the Operational Programme, b) information and publicity actions for the beneficiaries and the general public, c) attendance to meetings and seminars.

6. Fishing Shelters

The construction works for the new fishing shelter at Zygi were completed in 2011. The professional fishing vessels are already in place where as the rest of the fishing vessels will be granted berthing licence within 2012 when the anchorage system is expected to be installed. This project was co-financed by the European Fisheries Fund (50%) and the Government of Cyprus (50%).

The improvement works at Akrotiri fishing shelter have been completed and is has been officially declared as a fishing shelter by the Sovereign Base Administration based on the Fishing Shelter Ordinance.

Improvement works have been carried out at the fishing shelters of K. Pyrgos, Pomos, Agios Georgios Peyeias and Paralimni.
All the fishing shelters are constantly repaired, upgraded and maintained according to the needs and the available allocated budget.

A Waste Management Plan has been put into effect in all fishing shelters with great success.

7. Aquaculture

7.1 In 2011, there were in operation three marine fish hatcheries and one inland shrimp hatchery/farm, seven private offshore cage farms culturing mainly sea bass and sea bream and two offshore cage farms culturing / fattening blue fin tuna. Additionally, there were in operation eight small trout farms, culturing mainly rainbow trout and two farms culturing ornamental fish.

7.2 The total licensed production capacity of Cyprus aquaculture for 2011 was 8.162 tons of table size fish, 22.520.000 fingerlings / fry and 1.020.000 fish for the ornamental fish trade.

7.3 The estimated production and value of Cyprus aquaculture for 2011 is shown in the table below.

<table>
<thead>
<tr>
<th>SPECIES</th>
<th>LOCAL MARKET</th>
<th>EXPORTS</th>
<th>TOTAL</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>QUANTITY</td>
<td>VALUE</td>
<td>QUANTITY</td>
<td>VALUE</td>
</tr>
<tr>
<td></td>
<td>(tons)</td>
<td>(€)</td>
<td>(tons)</td>
<td>(€)</td>
</tr>
<tr>
<td>Seabream</td>
<td>1.245</td>
<td>6.600.000</td>
<td>1.997</td>
<td>10.600.000</td>
</tr>
<tr>
<td>Seabass</td>
<td>750</td>
<td>4.575.000</td>
<td>901</td>
<td>5.586.000</td>
</tr>
<tr>
<td>Rabbit Fish</td>
<td>0.3</td>
<td>3.000</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Meagre</td>
<td>32</td>
<td>281.000</td>
<td>10</td>
<td>50.000</td>
</tr>
<tr>
<td>Rainbow Trout</td>
<td>75</td>
<td>610.000</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sturgeon</td>
<td>4.5</td>
<td>54.000</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2.106,8</td>
<td>12.123.000</td>
<td>2.908</td>
<td>16.186.000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPECIES</th>
<th>LOCAL MARKET</th>
<th>EXPORTS</th>
<th>TOTAL</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>QUANTITY</td>
<td>VALUE</td>
<td>QUANTITY</td>
<td>VALUE</td>
</tr>
<tr>
<td></td>
<td>(number)</td>
<td>(€)</td>
<td>(number)</td>
<td>(€)</td>
</tr>
<tr>
<td>Seabream</td>
<td>12.293.000</td>
<td>2.065.224</td>
<td>3.432.500</td>
<td>583.525</td>
</tr>
<tr>
<td>Seabass</td>
<td>4.223.000</td>
<td>717.910</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Trout</td>
<td>400.000</td>
<td>12.000</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

TOTAL VALUE OF CYPRUS AQUACULTURE (€) 31.737.659
In 2011 the total value of aquaculture products (table size and fry) reached €31.7 million out of which €16.7 million were generated from exports.

Trout production in 2011 exhibited a small increase in relation to 2010. The Seabass / Seabream production though, was significantly higher than the previous year. The aquaculture product prices remained stable in 2011. As in 2010, in 2011 there was no production of Blue Fin Tuna.

7.4 During 2011 the DFMR carried out over 50 on-site inspections of the aquaculture units. The purpose of these inspections was to ensure compatibility with the terms and conditions of their operation permits and to record any problems and / or remarks associated with each unit.

7.5 The DFMR is operating two research stations, the Meneou Marine Aquaculture Research Station (MeMARS) and the Fresh Water Aquaculture Research Station at Kalopanayiotis. Both stations have been modernized during 2011 with the most important project being the construction of new facilities for the MeMARS.

7.6 The Meneou Marine Aquaculture Research Station (MeMARS) is the centre for research aiming at the development of marine aquaculture in Cyprus. The research programmes that have been undertaken at MeMARS focused mainly on new candidate species for fish farming, such as rabbit fish *(Siganus rivulatus)*, common pandora *(Pagellus erythrinus)*, common dentex *(Dentex dentex)*, greater amberjack *(Seriola dumerili)* and meagre *(Argyrosomus regius)*. The main objective of research work is the diversification of aquaculture production with new species, a task that will contribute to the sustainability of the sector. The main projects that have been running during 2011 were i) Reproduction and larval rearing protocols for the mass production of fry of the rabbitfish *(Siganus rivulatus)* and fattening in sea cages of market size fish, ii) Study of the effect of temperature and oxygen concentration on the metabolism of rabbitfish, iii) Evaluation of broodstock nutrition in *P. erythrinus* in respect to reproductive performance and quality of produced eggs and larvae, iv) Larval culture of *P. erythrinus* using the mesocosm technique and evaluation of the quality of produced fingerlings, v) The effect of dietary crude protein and fat levels on the growth of *S. dumerili*, vi) Management of amberjack broodstock, performing a trial on reproduction using LHRHa hormone implants, vii) Fattening of meagre in tanks and observation of its feeding behaviour, and viii) Evaluation of the culture of rotifers with different feeds and determination of their nutritional value. Some of the above research projects were implemented with the participation of students during their practical work or thesis project at MeMARS. Moreover, MeMARS is participating in a) the European Thematic Educational Network AQUA-TNET, which is funded from the European Commission Socrates Erasmus Programme, b) the European Network Programme COST Action 867 “Welfare of fish in European aquaculture”, c) the European Network Programme COST Action FA0801 “Critical success factors for fish larval production in European Aquaculture: a multidisciplinary network (LARVANET)”, d) the project “The future of research on aquaculture in the Mediterranean region” which was approved under the 7th Framework Programme of the EU, and e) the project “Genetic characterization and the influence of aquaculture on native European seabass populations in Cyprus” which is funded by the Cyprus Research Foundation.

Other activities of MeMARS in 2011 included the support of private fish farms and the information of students of primary and secondary education on aquaculture in Cyprus. Finally,
the plans for the improvement and modernization of MeMARS are in progress and the construction of new facilities is planned to finish into the first quarter of 2012.

7.7 The Kalopanagiotis Freshwater Research Station modernization project continued during the year 2011 with the improvement and modernization of building facilities and the water treatment systems and water supply network. The station continued with the production of trout eggs, fry and fingerlings in order to supply with seed and support the small private companies as well as for stocking the dams for recreational angling purposes. The reproduction trials of sturgeon continued with success, with the mass production of sturgeon larvae. In 2011, for the second time we were able to achieve the mass egg and larvae production of the European perch (*Perca fluviatilis*). The efforts for its larval rearing are expected to intensify during 2012.

7.8 In 2011 the DFMR issued 3,600 individual and 17 group recreational angling permits for recreational fishing in dams and reservoirs. Within the framework for the promotion and development of recreational angling, 21,000 trout and a small number of other fish were released in several dams and reservoirs.

8. Processing and Marketing of fishery products

Processing of fishery products is a relatively new sector in Cyprus which is increasing rapidly. Even though the first activities of processing started with the preparation of smoked trout during the 1960’s, there has been an increase of interest for investment in the recent years. The development of technology and the increase of investments on the sector of processing are due to the demand of a variety of fishery products as well as the development of fishing activity and aquaculture.

Currently, in Cyprus there are 4 processing companies which employ more than 40 employees, most of them full time. The production of processed fishery products is valued at €5 million.

Furthermore, there are 13 companies which deal with the processing of fishery products but without that being their main activity.

9. Evaluation and Research of Fisheries Resources

9.1 National Programme for the Collection of Fisheries Data

During 2011 the implementation of the Cyprus National Programme for the Collection of Fisheries Data (which is carried out since 2005) was continued, in accordance with the Community Data Collection Framework (Regulations (EC) 199/2008, 665/2008 and Decision 2010/93/EU). The Programme is co-funded by the Cyprus Government and the European Commission, and covers the following modules:

a) Module of Evaluation of Inputs: Fishing Capacities and Fishing Effort
b) Module of Evaluation of the Catches and Landings

For the evaluation of the catches and landings of the fisheries resources, regular sampling was carried out in order to: i. record variables from the various fishing activities (fishing effort, production by species, length composition for a total of 13 species), ii. evaluate the discard
rates from bottom trawls and iii. collect stock-related biological variables from a total of 8 species.

The scientific survey “International Bottom Trawl Survey in the Mediterranean” (MedITS), which is part of the Cyprus National Programme, was carried out successfully in July. The aim of the survey is the evaluation of the abundance and distribution and also the collection of length composition and other biological parameters of the demersal species encountered in Cyprus waters.

9.2 Stock Assessment of Fisheries Resources

During 2011, stock assessments were conducted for 4 of the most important demersal stocks (Spicara smaris, Boops boops, Mullus surmuletus, Mullus barbatus) of Cyprus (Geographical Sub Area - GSA 25), using data collected under the National Programme, covering the period 2005-2010. The assessments were presented and adopted during the meeting of the GFCM SAC-SCSA Working Group on stock assessment of Demersal species in October 2011. Based on the results, all four stocks have high fishing mortality and are in an overfishing state. A reduction of the fishing mortality from the fishing fleets exploiting the stocks is recommended. This is expected to be achieved with the measures that have been recently implemented/will be implemented in the near future (reduction on the number of licensed vessels, increase of the selectivity of nets and restriction of two areas from fishing with trawl nets on a rotational basis).

9.3 Cyprus Management Plan for Bottom Trawls in territorial waters

In July 2011 the European Commission accepted the updated Cyprus Management Plan for Bottom Trawls in territorial waters, submitted in accordance with the Mediterranean Regulation (No. 1967/2006). The plan provides for further measures restricting the fishing effort of the bottom trawlers (reduction of the number of fishing licenses, increase of the selectivity of nets and restriction of two areas from fishing on a rotational basis).

9.4 Management Plan for controlling the population of the silver-cheeked toadfish (Lagocephalus sceleratus) in the coastal waters of Cyprus

In 2011, based on the results of the study it conducted on the silver-cheeked toadfish during the years 2009 and 2010, the Department of Fisheries and Marine Research of Cyprus, prepared a Management Plan titled “Plan for controlling the population of the silver-cheeked toadfish (Lagocephalus sceleratus) in the coastal waters of Cyprus”.

The Plan aims to control the populations of the silver-cheeked toadfish in the coastal zone of Cyprus, through the application of a series of Actions. Controlling the population does not necessarily imply the complete extermination of the species in the area, rather than limiting its population to such an extent that it will no longer consist a prohibitive factor for the development of coastal fisheries, and will help improve the working conditions for those involved in the activity.

The Actions of the Management Plan have to do with the targeting of the species by collective groups of artisanal professional fishermen and also with the testing of alternative fishing methods of mass capturing of Lagocephalus sceleratus.
The Management Plan has been submitted for examining the possibility of co-financing through Operational Program for Fisheries 2007-2013.

10. **Naval Service**

The duties of the Naval Service of the Department of Fisheries and Marine research are the following:

a) Marine Patrols in order to verify the implementation of Fishing Control regulations and also EU regulations.

b) Research programs

c) Oil pollution combat

d) Co-operation with other governmental departments concerning works carried out in the sea and water reservoirs.

According to the Ministers Council’s decision dated 29/04/2011 No 72.032 for responsibilities in the case of oil pollution, the naval service of DFMR is responsible for the combat of small incidents of oil pollution at sea.

For incidents which the DFMR cannot respond, then the Department of Merchant Shipping shall take action and the responsibility with the assistance of DFMR.

The Naval Service of the DFMR is also responsible for the coordination / joining and implementing the Monthly Program stand by for oil pollution incidents.

The Naval Service of the DFMR has all the necessary equipment / material for pollution combating of up to €2.000.000.

During 2011, the oil pollution response team was summoned to 58 oil pollution cases, out of which 30 of them were beyond working hours and 25 of them were satisfactorily dealt with.

Apart from the national plan concerning the combating of oil at sea, the naval service of DFMR is participating in the national search and rescue plan "NEARCHOS" and also in the emergency plan "SEVESO II ".

This is a high speed craft built especially for the Mediterranean Sea area. It is of aluminium build, with a length of 25 m and can achieve the speed of 25 knots. The vessel’s range is about 800 NM.

The vessel is built with EU co-financing and its purpose is to join in the E.U. program for fishing control (illegal fishing) in the South East area of the Mediterranean Sea. It is manned with 6 persons (2 master mariners, 2 engineers and 2 A/B). The Vessel is berthed either at Zygi fishing shelter or at the fishing shelter of the Limassol old Port.
11. **Fishing Monitoring Center (FMC)**

11.1 **Vessel Monitoring System (VMS)**

The EU system for fisheries controls makes extensive use of modern technologies to ensure that fishing fleets are monitored and controlled in an effective way. They improve the access to good quality fisheries data and make it possible to cross-check information from different sources.

The modern technologies for fisheries control do not replace traditional control and surveillance methods, such as inspections onboard vessels or on shore. However, used correctly, the new technologies help to better target actions and therefore cut costs and increase effectiveness. By crosschecking data collected via the different systems, we may apply risk based control strategies and detect illegal activities that could otherwise go unnoticed. The wise, proper and effective use of modern technologies from the DFMR during the 2011, have reduced the cost for fisheries monitoring and surveillance.

The monitoring of fishing vessels and the crosscheck between the information recorded in the fishing logbooks and the information received from the Vessel Monitoring System (VMS) – from Inspectors of the Fisheries Monitoring Center (FMC), of the Department of Fisheries and Marine Research (DFMR), comprise an important role for controlling the fishing activities. Even more, the DFMR has installed Satellite Tracking Devices (STD) – Mini-C, on the fishing vessels with length overall more than 12 meters, as well as on the reefers that carry fish products in the north-east Atlantic Ocean. Furthermore, the DFMR has installed auxiliary power supply on the fishing vessels with Mini-C in order to eliminate the short power cut and hence the gaps in the operation of the devices.

Furthermore, in 2011 the DFMR has completed the automatic data exchange of Vessel Monitoring System – via https, with Estonia, Lithuania, Netherlands, Norway, Poland, Portugal and North East Atlantic Fisheries Commission.

Last, in 2011 the DFMR had close collaboration with the Department of Merchant Shipping, in order to exchange information received from the Vessel Monitoring System (VMS) and the Vessel Traffic Monitoring Information System (VTMIS) and to identify illegal fishing activities.

11.2 **Electronic Reporting System (ERS)**

The Electronic Reporting System (ERS) is used to record fishing activities data (e.g. catches, landings, sales) and to report them to the FMC of the DFMR. This system, is compulsory for fishing vessels above 12m length overall from the 1st of January 2012. This system replaces the paper logbooks and the paper sales notes.

Within the 2011, the DFMR has signed a Contract for the implementation of ERS. The project is under construction and lately the ERS data exchange with the EC – via the Data Exchange Highway, has been completed.

Also, within the 2011, the EC has discovered that the existing Catch Reporting System is very complicated and it is not compatible with the Regulation (EE) 1224/2009. For this reason, the EC decided to replace the existing Catch Reports, as well as the method these reports are submitted to the EC. The DFMR, has signed a new contract for the extension of the ERS, in order to include the Catch Report System according to the new requirements of the EC.
12. Marine Biology and Ecology

The main activities in this field refer to the research programmes on marine biodiversity, ecological relationships among marine macrobenthos and the ambient environment, including studies on the effects of environmental disturbances on marine macrobenthos, simultaneously with studies on nutrient and chlorophyll dynamics of coastal waters.

The turtle conservation project at Lara continued in 2011. The aim of the project is: a) the protection of turtles b) the protection of their eggs and hatchlings from predators and human activities, c) the protection and conservation of the remaining reproductive biotopes d) monitoring of the population dynamics of the turtles and their reproductive activity in Cyprus and e) public awareness for the protection and conservation of turtles, their biotopes and in general the marine environment.

A comprehensive monitoring programme of the coastal waters continued within the framework of Article 8 of the Water Framework Directive (WFD) 2000/60/EC. This programme is focused on the monitoring of 4 Biological Quality Elements - BQEs (Phytoplankton, Macroalgae, Angiosperms and Benthic Macroinvertebrates), together with the relevant physicochemical parameters in order to assess the ecological status of the coastal waters. During 2011 the monitoring of the angiosperm Posidonia oceanica, phytoplankton (chlorophyll-α), macroalgae and benthic macroinvertebrates continued. Moreover, monitoring of P. oceanica in coastal areas near fish farms continued, in order to detect the effects of fish farming on the species.

In 2011, the DFMR continued with the activities for the implementation of the Marine Strategy Framework Directive (MSFD. 2008/56/EC) of the EU, which was published on 25 June 2008, and aims at achieving and maintaining good environmental status in the marine environment by the year 2020. The DFMR continued to participate in the implementation activities at EU level, including the Marine Directors’ meetings, the Marine Strategy Coordination Group and the Working Groups for Good Environmental Status, and for Data, Information, and Knowledge Exchange. Furthermore, the DFMR has awarded through a public procurement competition a contract for the implementation of Articles 8, 9, 10, 19a and 19b of the MSFD in the marine waters of Cyprus. The contract includes the initial assessment of the marine waters of Cyprus, the determination of the “Good Environmental Status” of these waters and the determination of environmental targets and indices. The project is expected to be completed in 15th of July 2012.

A monitoring programme on the quality of the coastal waters, including the assessment of pollutants (heavy metals etc.) in fish, which is implemented within the framework of MEDPOL/UNEP, continued effectively. The same also applies for the project on the Assessment of Radionuclides in the Marine Environment, which is implemented under the project “RER/7/003 Environmental Assessment of the Mediterranean Region” of the International Atomic Energy Agency.

In late 2011 the project titled “Provision of services for the mapping of the marine angiosperm Posidonia oceanica meadows in the coastal waters of Cyprus, within the Operational Fisheries Programme (OPF) 2007-2013” was launched. The DFMR awarded the contract after a public procurement competition. The project is included in the OPF 2007-2013, under Priority Axis 5 (Technical Assistance), Measure 5.1 and will be co-funded with 50% national and 50% European contribution. The successful completion of this 18-month pioneer project is expected to contribute remarkably to the protection of the marine
environment and biodiversity, to the coastal zone management and to the sustainable development of fisheries in Cyprus.

The project titled ‘‘Development of a prototype computer-aided system for semi-automatically identifying key species of the marine benthic macrofauna of Cyprus’’ was successfully completed in early 2011. This research project was funded by the Research Promotion Foundation (RPF’S FP 2008) and implemented with the collaboration of the University of Cyprus, the Democritus University of Thrace and the DFMR.

In addition, during 2011, the ecological monitoring studies on Larnaca and Akrotiri Salt Lakes complexes continued regularly as in previous years.

13. Implementation of National and Community Law

13.1 Patrons

Within the duties of the Department for the implementation of the National (Fisheries, Aquaculture and Fishing Shelters Legislation) and Community Legislation relating to fisheries. DFMR Inspectors performed regular patrols and inspections and reported cases of infringements.

During 2011, DFMR inspectors made 2,068 patrols by car along the coast, in harbours and fishing shelters, 175 patrols at sea, 313 patrols in areas of inland waters and 61 patrols at fish markets. The total number of patrols conducted during 2011 was 2,617.

Within the framework of the Joint Deployment Plan for the conservation of Bluefin tuna fisheries DFMR Cypriot Inspectors participated in joint operations abroad with community patrol vessels. In addition, during the JDP program a Cypriot Inspector participated in a 19 day patrol in the Eastern Mediterranean region. Also 41 inspections were performed at ports regarding polyvalent vessels that fished using longlines.

13.2 Inspections

During 2011 DFMR carried out 563 inspections on professional vessels without including the inspections on recreational anglers, 497 inspections were focused on the small scale inshore fishery, 25 inspections were focused on the trawlers that are fishing within the territorial waters of Cyprus, 41 inspections were conducted on polyvalent vessels and 186 inspections were conducted in fish-markets.

13.3 Infringements

Within the year 2011, DFMR reported 318 infringements, 142 infringements occurred in inland waters, 20 infringements were market related and 13 were related with the failure of anglers to submit the logbooks and the prior notice of landings and transhipments. Furthermore, 14 infringements were related to interference in the vessel monitoring system, 2 cases of violation of protected area conditions, 4 infringements regarding illegal mooring in fishing shelters and finally 4 infringements for not complying/cooperate with the competent authorities.

In order to control the operation of recreational fishing in the sea and apply the relevant Legislation, DFMR reported 74 infringements, 49 cases are related with infringements of recreational angling from boat and 25 cases are related with spear-gun infringements.
Regarding spear-gun infringements, 14 cases were reported due to the absence of the relevant fishing license, 2 were reported because the method was combined with light apparatus, 8 were reported for spear gun fishing in conjunction with underwater breathing apparatus (aqualung) and the last one concerned fishing with spear gun during closed season.

### 13.4 Control of imports of fishery products from third countries

From January 1st 2010 within the framework of the implementation of the Council Regulation (EC) 1005/2008 “establishing a Community system to prevent, deter and eliminate illegal, unreported and unregulated fishing”, a control mechanism for imports of fishery products from third countries was established. This Regulation aims to prevent and combat Illegal, Unreported and Unregulated (IUU) fishing and its provisions lay down a system of control so that trade with the Community of fishery products stemming from IUU fishing is prohibited.

During 2011, a total number of 1,049 consignments of fishery products from third countries have been imported in Cyprus. Of these, 333 consignments of processed /frozen fishery products originating from 22 different countries were imported through the port of Limassol and 716 consignments of fresh fishery products originating from 10 countries were imported through the airport of Larnaca.

In order to implement this Regulation, the Department of Fisheries and Marine Research performed almost on a daily basis, both administrative, and physical checks/controls on imports of consignments of fisheries products, without detecting any cases that can be characterized or linked to IUU.
IX. METEOROLOGICAL SERVICE

www.moa.gov.cy/ms

1. Introduction

The Meteorological Service of Cyprus handles matters that concern the weather and climate. Its mission is to provide information related to weather and climate to all economical and social activities of the country in order to achieve high quality of services, the general welfare of the public and the protection of life and property of its citizens. In order to achieve the aforementioned goals, the Meteorological Service uses a network of 110 rain-gauges, 35 climatological stations, 2 synoptic stations, one station performing radiosondes for observations in the upper atmosphere, one actinometric station and a land-based meteorological satellite station. At the same time, a network of 35 Automatic Meteorological Stations is in use which includes a telemetry system for the immediate collection of measurements and their incorporation into a special database.

The Meteorological Service is a member of EUMETNET and the World Meteorological Organization. Collaboration with the Hellenic National Meteorological Service (HNMS) allows the Meteorological Service to distribute its weather reports through the Global Telecommunications System (GTS).

The main activities of the Meteorological Service include the following:

- The operation of the network of meteorological stations for the collection of essential meteorological data.
- The quality control of meteorological data collected and their storage in a special database.
- The issuances of general weather forecasts for Cyprus which are uploaded on the official web page, in the Service’s Voice Response System and are distributed to the local media.
- The issuance of weather forecasts and warnings for the needs of nautical and aeronautical operations.
- The publication of reports and studies on weather and climate.
- The systematic observation of climate change in Cyprus.
- The provision of meteorological information and advisory services for the needs of various sectors of economy; in agriculture, in the development and management of water resources, in tourism and industry, in technical studies and constructions, in renewable sources of energy and in environmental studies.

Apart from the Central Offices in Nicosia, the Meteorological Service maintains Meteorological Offices at the Airports of Larnaka and Paphos where synoptic meteorological stations operate and the employees work on shifts on a 24-hour base. Furthermore, the Meteorological Service maintains offices at Athalassa where observations of the upper atmosphere are carried out and at the same time, an actinometric station operates for measuring solar and earth radiation.
In order to achieve its set goals, the Meteorological Service is organized in the following three sections:

**Section of Climatology and Applications of Meteorology** is accommodated in the Central Offices in Nicosia and is in charge of the collection and qualitative control of data, their digitalization and their archiving in the aforementioned databases. Furthermore, the Section processes meteorological data, prepares reports and studies on weather and climate and provides information to the public. At the same time, the systematic follow-up of climatic changes in Cyprus constitutes a basic responsibility of the Section of Climatology. This is achieved by the statistical treatment of climatic data collected by the Section and the comparison of the results of a statistical analysis with the equivalent results of countries that are located in the region of Eastern Mediterranean. In addition, with the aid of a mapping unit, the Section prepares climatic maps using a special software (ARCGIS).

**Section of Synoptic and Aeronautical Meteorology** functions as a centre of weather forecasting and as a provider of aeronautical and nautical services.

The two above sections are supported by the **Section of Technical Support** which is in charge of the operation of the network of meteorological stations, the maintenance and calibration of various instruments and the preparation of Public Conventions.

In short, the three Sectors include the following branches:

**Section of Climatology and Applications of Meteorology**
- Database of meteorological elements
- General Climatology and Hydrometeorology
- Agrometeorology
- Computerization

**Section of Synoptic and Aeronautical Meteorology**
- Weather forecasting and Synoptic Meteorology
- Aeronautical Meteorology
- Marine Meteorology
- Radiosonde
- Meteorological Telecommunications
- Education Unit

**Section of Technical Support and Computerization**
- Meteorological Stations and Instruments
- Maintenance of Meteorological Instruments and Equipments
- Public Conventions
- Supplies and Deposits.

2. **Activities during 2011**

During 2011, all activities of the Meteorological Service were conducted as usual. The Section of Synoptic and Aeronautical Meteorology provided services related to weather forecasting, as well as nautical and aeronautical operations. In the Section of Climatology, various activities related with the collection of meteorological data were performed including quality control, computerization and utilization of the data; also the preparation of reports and studies on
weather and climate, follow-ups on climatic changes, the issuance of monthly bulletins and providing information and advisory services to the public. The Section of Technical Support was active in the maintenance of the network of the meteorological stations and the installation of new Automatic Meteorological Stations in various regions of Cyprus.

The activities of the Meteorological Service with regards to the development of skills of the personnel and the activities and services that were provided by each Section are presented below:

2.1 Personnel

During 2011, Meteorological Officers of the Service attended the following programs and activities that were held both in Cyprus and abroad.

- Two Meteorological Officers attended a seminar related to public conventions.
- Two Meteorological Officer attended seminars on Public Health and Safety.
- Four Meteorological Officer attended seminars on Computer Science.
- Five Meteorological Officers attended various courses in computing.
- One Meteorological Officer attended a seminar held in Cyprus on the WRF Climatic Model.
- One Meteorological Officer attended a workshop in Belgrade on seasonal weather forecasts for the area of Eastern Mediterranean.
- One Meteorological Officer attended a training course entitled “The use of Satellite data for Climatic Applications” in Langen, Germany.
- Four Meteorological Officers were trained on the new AERONETWEB system which involves training on the provision of web based services on flights.
- Three Meteorological Officers attended courses on the subjects of “Smooth induction of newcomers in the public service” and “Learning Needs Assessment in Organizations” in the Cyprus Academy.
- Two new Meteorological Assistants were trained on basic matters within the Meteorological Service.
- Meteorological Officers participated in meetings of various Actions of the European COST Program, while one Meteorological Officer who represents Cyprus in ESSEM attended the aforementioned meetings.

2.2 Section of Climatology and Applications of Meteorology

In the Section of Climatology various activities continued: the collection of meteorological data, their quality control, computerization and utilization of the said data, preparation of reports and studies on weather and climate, follow-ups of climatic changes, the issuance of monthly bulletins and the providing of information and advisory services. The public sectors which benefited from the offered information were (among others): the agriculture, water resources, the trade and industry, the technical studies and constructions, the road transportation sector, tourism, health services, the renewable sources of energy, the environmental studies and the insurance industry.

Based on the findings of the highest intensities of rainfall which were obtained from the stations that are equipped with a rain-recorder a new study was conducted for the development of the intensity-duration-frequency curves for all the stations equipped with rain gauges. These curves combine the intensity, the duration and the return period of rain and
constitute a useful tool for hydrologists and civil engineers. The study will be completed in the beginnings of 2012.

The initial work for the quality control and statistical analysis of the solar radiation and sunshine duration data in Cyprus has begun. The study will be completed within the first half of 2012.

Furthermore, the creation of a unified database for the Automatic Weather Stations was continued this year. A proposal of the Department of Information Technology Services for the extension of the Central Database of Geographical Information of the Ministry of Agriculture, Natural Resources and Environment based on the Water Development Department was accepted. Within 2012, the EDAMS software will be operational and all meteorological data will be automatically submitted to the new unified database for use by the Ministry’s Officers.

2.3 Section of Synoptic and Aeronautical Meteorology

The Section provided uninterrupted services in the aeronautical and nautical sectors, agriculture, and to the economic factors of the country as well as to the general public. Weather forecasts are provided via the official web page, or via the service’s Voice Response System, or via the mass media to which forecast bulletins are readily made available. Specialized forecasts are provided directly by the Sections personnel to every interested party.

Proper measures were taken in and, since February 2011, the NAYTEX bulletin is uploaded to the official webpage (http://weather.gmdss.org/). This bulletin concerns forecasts for open seas.

The Sector participated in the sigmet monitoring for the European area aiming at the minimization of problems and errors in the issuance and distribution of bulletins that cover phenomena which consist hazards for aeronautical services, such as volcanic ash, storms, turbulence, etc.

2.3.1 Quality Management ISO 9001:2008

The Meteorological Service of Cyprus, in accordance with the European Convention, the International Civil Aviation Organization (ICAO) and the World Meteorological Organization (WMO) has implemented a system of quality management for aeronautical information and has acquired the relevant certificate since 2007. This certificate, which expired on November 2011 was renewed up to November of 2012 after a successful inspection by the Cyprus Certification Company which evaluates on a constant basis the effectiveness and application of the said System. Furthermore, the System was internally inspected by the Meteorological Service’s own internal quality control team. Such a strategic decision by the Meteorological Service provides a multitude of benefits since now is in the position of providing certified Aeronautical Services to users while other Meteorological Services of other, bigger countries, are unable to do so and are facing their exclusion in the field of providing the said services to users.

2.3.2 Networks of Electrometers (Lightning and Thunder)

Two independent sensors of Electrometers are installed and operated at Larnaka International Airport enhancing the information concerning the shower activity of the clouds. The first sensor is part of a wider network, supervised by the National Observatory of Athens, which
collects data related to storm activity from all over Europe. The Service receives and uses processed data from this network during forecasts. The second sensor, installed for the needs of the European Project FLASH, covers the area of Eastern Mediterranean and provides data of storm activity. It is used mostly for research and has the capability of becoming a part of a wider network consisting of the same type of sensors operated by other countries in the area.

2.3.3 Forecasting Centre

Along with the other operational systems on line at the Forecasting Office of the Meteorological Service at Lannaka Airport, a computer network is operational and used for the computerized management of weather forecasts. The Meteorological Officers prepare weather forecast bulletins in specified areas of the network and from there these are disseminated to various users. The use of such network prevents human dissemination errors and also helps in the immediate storage of the said bulletins for future use. The network is constantly updated, monitored and protected from malicious software in order to remain operational at all times.

Furthermore, in Larnaka Airport Offices of the Service, numerical models of weather forecast characterized by a high spatial resolution are maintained and operated. Numerical predictions are used in both the daily operations as well as in research by the Meteorological Officers. These numerical models allow the regulation of the influx of data. Thus, forecasts of wind speed and direction for use in the wind farms can be readily available to the Energy Transmission System Operator in order to achieve optimum working conditions and efficiency of the wind farms.

2.4 Section of Technical Support and Computerization

The Section of Technical Support is in charge of the optimum operation of the network of meteorological stations and, in particular, for the purchase, installation and the maintenance of various meteorological instruments and the supply of consumables.

During 2011, 13 competitions were announced and granted for the purchase of spare parts and consumables for meteorological instruments and for purchase of services that result from the participation of the Meteorological Service in various European programs. Inspections of the network of the meteorological stations were continued this year.

2.5 Publicity

Within the framework of informing the public on matters of meteorological and climatic interest, as well as informing the public of the work performed by all branches of the Meteorological Service of Cyprus and their aims, a number of seminars, presentation in schools and private and public universities as well as organized groups of citizens about meteorology in general and the activities of the Meteorological Service were organized by the staff of the Meteorological Service on various occasions. Also, several publications were made in the Journal Agrotis published by the Ministry of Agriculture and Natural Resources and Environment. Various presentations and analyses were also presented to the public through television programs and the Internet.
3. Participation in Research Programs

Meteorological Officers of the Service participated in various research programs that are financed by the Institution of Promotion of Research or by various European Programs. The personnel participated in the Urban Heat Island Research Program, and new proposals were submitted for competitions during 2011.

3.1 European Project URBAN HEAT

European Program URBAN HEAT began during 2008 and was sponsored by the Research Promotion Foundation within the Framework Programme of the European Union for Research and Technological Development. The duration of the program is 3 years. Participants include the Meteorological Service of Cyprus, the National Observatory of Athens, Cyprus University of Technology and private company WEBBY.

Urban Heat is intended to provide an innovative, reliable and economically efficient system in order to monitor thermal comfort in a way which utilizes in the greatest degree the current and future infrastructures in the areas of computing, meteorology and remote sensing. Using both ground and remote sensing techniques and the implementation of neural networks algorithms the system will be able to detect the urban heat points within the city and transmit the resulting data with the aid of modern methods to the user’s cell phone, providing a groundbreaking method of processed information diffusion.

The program’s webpage can be found at: http://www.urbanheat.com.cy/

3.2 Research Project E-WAVE

The Project began in January 2011 and was funded by the Research Promotion Foundation of Cyprus and coordinated by the Oceanography Center of the University of Cyprus. The duration of the program is 24 months. Participants include the Oceanography Center of the University of Cyprus, the Atmospheric Modeling and Weather Forecasting Group, University of Athens, Greece, the Ocean Analysis Laboratory of Naval Postgraduate School, USA, the Cyprus Energy Agency and the Meteorological Service of Cyprus.

The program aims to develop a complete, high resolution atlas which will depict the energy potential from sea waves as well as climatological characteristics of the wind and sea waves within the Exclusive Economical Zone (EEZ) of Cyprus and the wider Eastern Levantine Basin. Also, novel models for the prediction and quantification of wave energy will be constructed for the short and long forecasts and quantification of the wave energy of the area. The webpage of the program can be found at: http://www.oceanography.ucy.ac.cy/ewave

3.3 European Project EWENT

The European Program EWENT is a program funded by the European Union and its objective is to assess the impacts and consequences of extreme weather events on EU transport systems (all nodes, including land, sea and air transport) as well as the consequences to sectors adjacent to these nodes (such as infrastructure, personnel, indirect consequences to services). These impacts will be monetized.
Participant countries are Finland (VTT Technical Research Centre of Finland, Foreca Consulting Ltd, Finnish Meteorological Institute), Germany (German Aerospace Centre, European Severe Storms Laboratory), Norway (Institute of Transport Economics), Cyprus (Meteorological Service), Austria (Österreichische Wasserstraßen GmbH) and WMO.

The program’s duration is 36 months and the program’s webpage can be accessed at: http://ewent.vtt.fi/

3.4 SATFLOOD Project - An integrated use of satellite remote sensing and hydraulic modeling for flood risk assessment at catchment scale in Cyprus

The Project begun on November 2010 and is funded by the Research Promotion Foundation of Cyprus. The program is coordinated by the Cyprus University of Technology and partners include the National Observatory of Athens, the Cyprus Meteorological Service, the Water Development Department and the Technical University of Crete. The duration of the project is 36 months.

The main goal of the SATFLOOD project is the digital mapping of the urban sprawl in the island of Cyprus with the application of digital image analysis techniques to high spatial resolution satellite images as well as the use of advanced radar satellite images in order to record in detail the past flood zones of the local drainage network. Algorithms describing the change in land use and the percentages of construction development will be utilized. Different kinds of spatial and attribute data such as geological, cadastral, urban planning, aerial photos and multi-temporal rainfall data will be also utilized and will be inserted and analyzed in a GIS environment. Through this multidisciplinary approach, the present and the past regime of a pre-selected catchment area will be assessed along with flooding hazard and potential damage. Concerning hydraulics, dominant 3D features of the studied channel such as depth, water perimeter, hydraulic radius and slope are calculated through the use of sophisticated hydraulic–hydrological models. A Digital Elevation Model of high spatial resolution is created through the use of Laser Scanner and Global Positioning System (GPS). All these will provide a better understanding of the present and future condition of the catchment area and will help to evaluate human induced alterations.

The target is to develop predictive flood risk assessment maps in order to indicate the possible flood high risk zones and the development of models that can be utilized by the local authorities as road maps for a future sustainable urban planning and to prevent hazards for people, their properties and the environment after such an event. Such a project will serve as a guideline for the development of a unified strategy to prevent floods in Cyprus.

The Pre-selected catchment basin is located at Potamia. The Cyprus Meteorological Service has provided necessary rain and rain intensity data for different time periods for the aforementioned catchment basin. The webpage of the project can be found here: http://www.cyprusremotesensing.com/research-grants/78-the-satflood-project.html

3.5 Research Project AGWATER – Options of sustainable agricultural production and water use in Cyprus under global change

The project was approved in November 2011 and is funded by the Research Promotion Foundation of Cyprus. The Project is coordinated by the Cyprus Institute and partners include the Geological Survey Department, the Cyprus University of Technology, the Agricultural
Research Institute and Cyprus Meteorological Service. The duration of the project is 24 months and is expected to begin within the first months of 2012.

The project’s main objectives are the following:

- Preparing proposals for the adaptation to climatic change of the agricultural sector in Cyprus.
- Development of an agrometeorological database and creation of a digital climatic atlas of Cyprus.
- Creation of a digital soil map of Cyprus.
- Estimation of agricultural output of Cyprus.
- Analysis of the impact of climate on wheat and potato yields based on experiments.
- Estimation of the economic impact of climatic change on agricultural output.
- Estimation of the water needs of different crops based on climatic change scenarios.

4. Weather Conditions during 2011

The total rainfall in the free area of Cyprus during this year (from January up to December 2010) was 557.9 mm or 111% of normal (1961-1990) (Table 7). Rainfall above normal was recorded in January, during the period of March-June, in September and during the period of November-December. In the remaining months, the amount of rainfall was below the normal value.

The mean air temperature for the year as a total was 1.3 °C higher than normal. With the exception of November, where mean temperature was slightly lower than normal, all other months presented a higher than normal temperature. The mean temperature for the months of January, July, August and September was higher than normal by more than 2°C. In the remaining months, the differences from the normal temperature were smaller. Temperatures over 40 °C were recorded on three occasions during July and August at Athalassa meteorological station.

The mean daily sunshine duration for the year as a whole was slightly below normal. During the year, various extreme or extraordinary meteorological phenomena occurred locally: heavy rains, floods and severe storms (January), severe hail storms (March, June, September and November), strong winds (June), tornadoes (February, March and November) and lightning activity in the atmosphere (December).
X. DEPARTMENT OF FORESTS

www.moa.gov.cy/forest

1. Summary of targets and objectives

Progress in forestry development continued at a high rate during the year under review. All the targets set for the year, of which the main are the following, were achieved:

- Protection of the forests against fires and other biotic agents and abiotic factors.
- Adaptation of forests to climate change.
- Maintenance, conservation and appropriate enhancement of biological diversity in forest ecosystems.
- Expansion of forests through afforestation of new areas, especially in lowlands.
- Establishment and tending of forest stands.
- Provision of public recreation opportunities through the creation of National Forest Parks and the establishment, expansion and maintenance of picnic sites, camping sites and nature trails.
- Sustainable management of forests through management plans.
- Silvicultural treatment and improvement of forests.
- Maintenance and appropriate enhancement of protective functions of forests, notably soil and water.
- Production of timber, other forest products and forest reproductive material.
- Provision of employment and income to the inhabitants of forest villages.
- Promotion of forest education and research.
- Raising of public awareness and promotion of public enlightenment.
- Development and improvement of forest infrastructure (forest buildings, forest roads, vehicles, machinery, telecommunications etc.).
- Expansion of computerised methods of data recording and processing.
- Strengthening of administrative and institutional framework.
- Harmonisation with Acquis Communautaire, implementation of forest related international obligations and implementation of various plans and projects, which are co-financed by the European Union and the European Economic Area (EEA).

With a view to achieving the above targets, the amount of €43,445,270 was approved as the Budget for the year 2011. The total amount of the Budget utilised was €36,414,026 (i.e. 83.82%). Reforestation, thinning and felling operations, maintenance and improvement of forest roads and forest telecommunication, forest management, nature conservation, forest recreation and forest protection, were the main projects on which most of the expenditure was incurred. Protection of the forests received the lion's share of the budget.

Apart from the many non-wood benefits derived from the forests that their monetary valuation is difficult, a revenue of €4,916,855 was realised. An additional amount of €2,660,156, which represents lease of forest land, was outstanding at the end of the year. It is noted that the value of indirect benefits from the forests are multiple to the above direct income and cannot be attributed with economic terms.
Of the above targets, Forest Protection, Afforestation and Reforestation, Nature Conservation, Forest Recreation, Timber Production and Disposal, Sustainable Forest Management, Silviculture/ Forest Nurseries, Forest Engineering and Forest Education are dealt with in greater detail below:

2. Protection against fires

The year under review is considered as a good year regarding the protection of Cyprus forests from fires. Specifically, the total number of fires, in which the Department of Forests participated in their firefighting during the year under review, amounts to 183 and analysed as follows:

- 18 fires with starting point within State Forest Land
- 41 fires with starting point in the zone of one kilometer from state forest delimitation line
- 124 fires with starting point outside the zone of one kilometer from state forest delimitation line

The total state forest land burnt in 2011 was 63,78 ha. Only 25,28 ha of this burnt area had starting point within State Forest Land (18 fires). From all the fires in which the Department of Forests participated in their firefighting, an area of 1,910,57 ha of haliland and private land also burned.

The largest fire which burnt state forest land occurred at Fterikoudi area at Agia Marina Chrysochous on the 11th of July and burnt an area of 80,3 ha. out of which 38,5 ha were state forest land.

The causes of fires that the Department of Forests participated in their firefighting were as follows:

- Malicious 34,43%
- Agricultural operations 22,40%
- Unknown causes 15,30%
- Visitors/ travelers 8,20%
- Country or permanent stay houses 7,65%
- Natural Causes (lightning) 3,28%
- Military operations 2,73%
- Burning of rubbish 1,64%
- Other causes 1,64%
- Short circuit of high voltage electric wires 1,64%
- Hunting 0,55%
- Works in the forest 0,55%

The protection of existing forests against fires, especially during the prolonged dry and hot summers, is the principal concern of the Department of Forests. For prevention, the following measures were taken:

- The stand-by duty of the Forest Officers continued during the summer period, at the three Forest Districts and at the Forestry College.
Department of Forests

• Recruitment of a Fire Fighting Task Force as well as the operation of fire lookout stations/observation points. Particular reference should be made to the development of 3 Rapid Intervention Fire Fighting Units, one in each Forest District. The 12-hour shift system continued successfully in all forest stations and lookout stations. The total number of staff was 464 compared to 461 during 2010.

• During 2011, the newly established Flight Unit of the Department of Forests continued functioning successfully. During the summer period, the Flight Unit was strengthened by recruiting 2 firefighters. Additional services for the operation of the aircraft "Air Tractor AT-802" were purchased during the summer period, from two pilots from a Spanish company. Also for the maintenance of "Thrush 550" and "Air Tractor AT-802", services were purchased from two aircraft engineers. During the year under review the two airplanes of the Department were used for the fighting of 6 forest fires and 25 rural fires.

• About 5.95 km of new forest roads were constructed out of which 5.15 km were vehicle tracks and 0.8 km extraction roads. In addition, existing forest roads were improved.

• About 8.72 km of fire breaks were built and 945 km were maintained.

• Six new hydrants were installed, two at Troodos District, one at Nicosia District, two at Pafos District and one at Forestry College Forest.

• Five new water tanks were constructed, one at Troodos District, two at Pafos District and two at Forestry College Forest. Another water tank, at Pafos District is under construction.

• Mobile patrols in the forest, especially along the delimitation line, were carried out throughout the summer months for prevention, detection and early intervention.

• The mechanisation of the extinguishing of fires continued successfully. At present, the Department has at its disposal 49 fire engines, 37 fire-patrol vehicles and 76 water pumps. In addition, the Department purchased other secondary firefighting equipment such as water tanks, portable water pumps, fire hoses, nozzles, appliances for foam preparation, water launcher systems, etc.

• The network of automatic meteorological stations which has been installed in various regions of Cyprus, provided data for the estimation and the extrapolation of fire risk indices around Cyprus.

• The automatic Fire Detection System which was installed at Akamas forest during 2009 continued its operation on a pilot basis.
• A new fire protection system consisting of 9 fire hose cabinets installed at Kionia picnic site. Also the installation of another one fire protection system which will consist of 11 fire hose cabinets began at Xerargaka picnic site.

• The “Save our Forests Week” was celebrated from 6th to 13th May. During the week, a press conference was given by the Minister of Agriculture, Natural Resources and Environment. In addition, a campaign for voluntary blood donation by the personnel of the Department took place.

• Lectures on prevention and suppression of fires were given to the National Guard, the Police and the public.

• Training of Forest Officers, the Fire Fighting Task Force, the Rapid Intervention Fire Fighting Units, the Department of Forests labour force and the National Guard took place.

• Extensive publicity was made through the mass media.

The Department takes all precautionary measures against forest fires and uses all possible efforts to minimize the number of fires. However, this is not feasible without the cooperation of the public. Therefore, the Department of Forests invests in the enlightenment of the public, forest visitors and especially farmers. However, offenders are usually prosecuted.

Furthermore, the Department continued the implementation of the Fire Protection Plan for rural areas which started in 2001. During 2011, 0,35 km of vehicle tracks were constructed. In addition, roads and fire breaks were improved or maintained.

The works in total carried out since the inception of the Plan were as follows: 82,08 km of new vehicle tracks, 451,79 km of fire breaks, 12 water tanks, 4 observation points, 4 helispots and 56 hydrants.

3. Afforestation and Reforestation

An area of 34,4 ha was afforested and an area of 55,5 ha was reforested during the year under review including burnt or stressed state land and Haliland. According to the new practice, artificial reforestation using mechanical means is carried out only in special cases.

Enrichment planting at an area of 100 ha. Which was stressed or had insufficient regeneration and beating up to an area of 21,4 ha. Was also carried out.

In addition, the works concerning the reforestation/ restoration of the environment at Amiantos (Asbestos) mine, initiated in 1995 continued. The hydroseeding method used for the first time in 2003 continued with very good results.

In 2011, the Department of Forests in its efforts for greening areas outside forests and adopting of a uniform policy for the management of these areas continued with the landscaping of school gardens and other public places.
During 2011, a guide was published, recording the official policy of the Department of Forests regarding the production and establishment of forest plants in the state forests and other public lands taken over by the Department. The purpose of this publication is to keep the forest staff informed in order to act within a defined policy in these important sectors. At the same time, it informs public and other involved agencies about the public policy on these issues.

After the devastating explosion on 11th of July, 2011 at Mari area, the Department of Forests prepared a plan for the re-establishment of vegetation in the area. The plan includes restoration works, selection of plant species, maintenance of the plantation, implementation period and total cost of the project. The part of the project concerning the Power Station area will be executed by the Electricity Authority of Cyprus while the part concerning the military base, will be executed by the National Guard.

4. Nature Conservation

During 2011, the Department contributed significantly towards the efforts undertaken by the Ministry of Agriculture, Natural Resources and Environment for nature conservation.

The Department of Forests intensified its efforts through the organization of lectures, voluntary work, ceremonies, speeches through radio and TV and issued new enlightening and informative material for expansion of tree planting and protection of nature.

Both Athalassa and Troodos Environmental Information Centers continued their operation successfully. A total of 12,350 and 7,021 visitors, mainly from Pedagogical Institute, schools and other organized groups, visited Troodos and Athalassa Environmental Information Centers respectively. As from September 2008, in close collaboration with the Ministry of Education, Athalassa Environmental Information Center is operated as an Environmental Education Center.

The construction of the Environmental Information Center at Cape Greko was awarded after an open competition to a private construction company. The construction works began in 2010 and the project should have been completed by October 2011. Due to serious delays in the execution of the project by the contractor (completed only the 25% of the work until June 2011), the Department of Forests on 11/7/2011 proceeded to the solution of the contract. The issue is subjected to arbitration handled by the Legal Service.

The effort for the study, protection and systematic recording of the Cyprus indigenous and endemic plant species continued as did the completion of the botanical collection of the Department.

In November 2011, the LIFE+ program entitled “Improving the conservation status of the priority habitat type 9560* (Endemic forest with Juniperus spp.) in Cyprus”, was approved. The content of the program is the study and especially the implementation of actions in NATURA 2000 areas in state forests in relation to the priority habitat “Juniperus Endemic forests (9560*)”. The Department of Forests launched a competition in 2011 for the provision of related services and management of the natural and economic content of the work program.
The production of the film “The Cape Greko National Forest Park” continued by shooting scenes in the field. The production of the film began in January 2011 and is expected to be completed in April 2012.

The maintenance and expansion works at Troodos and Akamas Botanic Gardens continued with collection of propagating material for installation at the Botanic Gardens.

The efforts to identify, protect and maintain tree monuments continued.

As in previous years, particular emphasis was given to the protection and reproduction of the Griffon Vulture, (Gyps fulvus), the wild population of which numbers approximately 8 – 10 individuals. In addition, the work for the study of Cyprus bats, started in 2006, continued.

5. Forest Recreation

Cyprus forests provide recreational opportunities because of the variety of flora and fauna, the geomorphology, the climate and water conditions in combination with the accessibility, the short distances from towns as well as the existence of historical, archeological and other places of interest inside or near the forests.

Within the framework of the policy for the development of National Forest Parks, the Department continued the implementation of the development plans, as well as the maintenance works in all Forest Parks.

The creation of new and the development and maintenance of existing, picnic and camping sites continued. Different works including the development of infrastructure, the configuration of the ground, the construction of wooden tables, sheds, fire places, playgrounds, toilets, rubbish disposal places, signposts etc. were carried out.

During the year, 45 picnic sites with a capacity of 22,960 persons and 3 camping sites with a capacity of 290 tents were available to the public. Also another 2 camping sites which are located in state forests and managed by other private agencies were available to public. These sites were fully occupied during the summer high season.

During 2011, the construction works at “Dasaki Achnas” picnic site were completed and the works for the construction of a new Nature Trails “Monashillaka – Moutti ton Anemon” began.

In September 2011, the Department of Forests called for tenders for the provision of services for planning the upgrade of four nature trails and for the preparation of models and technical specifications of various constructions in the nature trails in the state forests. In December 2011, the contracts for the project were signed.

Under the Operational Programme regarding Cross Border Cooperation between Greece – Cyprus 2007 – 2013 “i4WALKer”, during the year under review, the Department of Forests prepared a guide for the construction and management of Nature Trails in state forests. This guide describes all important data and parameters that should be taken into consideration during the planning and establishment of a Nature Trail from choosing the route until the construction, signaling, maintenance and management. Main objective of the guide is to standardise operations and formulate rules governing the planning and maintenance of Nature Trails.
Trails for better achievement of the objectives and policies of the Department. The guide will also set the Department of Forests as the Competent Authority in Cyprus for the Nature Trails.

During the reporting year, various works for the maintenance and improvement of nature and hiking trails in the state forests were carried out. Great interest was shown from local and foreign visitors for the trails.

6. Timber Production and Disposal

During the year under review, timber extraction and supply to local sawmills continued in a satisfactory way. A volume of 4,130 m³ timber was extracted from state forests. Also a volume of 1,719 m³ timber was extracted from private forests and another 329 m³ timber was extracted from haliland and other areas.

In addition to the above, timber from state forests, equivalent to 3,106 m³, was extracted as firewood. From the above volume, 82 m³ were extracted from burnt areas. Also a volume of 1,042 m³ of firewood was extracted from private forests and another 264 m³ of firewood was extracted from haliland and other areas.

During 2011, the Department issued 16 sawmill permits.

7. Sustainable Forest Management

The management of forest resources is done on a sustainable basis with main aim the maximisation of social and economic benefits from the forests through their multiple use, maintaining, at the same time, the naturalness and improving their composition and structure.

In 2011, the works for the preparation of the management plans for Rizoelia, Stavrovouni, Machairas and Pafos forests, completed. Also the works for the development of a Management Plan for Lemesos, Agios Mamas and Akapnou forests began and are expected to be completed by the end of 2012.

Also during September 2011, an inventory for Pinus brutia forests in productive, non productive forests and reforestations began. The inventory is expected to be completed by the end of 2012.

The collection of field data concerning the cedars spreading area completed in early 2011. All the data were recorded to a database and the processing and analysis of data started.

8. Silviculture – Forest nurseries

During the year under review, emphasis was given in tending of forest stands. Tending operations were carried out in 1,560.2 ha of young plantations. The seed collected during the year, together with the stock of last year, was adequate to cover the Departmental needs. A total quantity of 1,479 kg of seed was collected. A small fraction of this quantity was exported.

The production of seedlings at the departmental nurseries was adequate. A total of 162,115 seedlings were raised compared to 166,683 in 2010. The seedlings produced in 2011, plus the stock of 2010, amounted to 644,670. Out of this quantity, 51,493 were used departmentally, 106,336 were sold to the public, 13,789 were sold to other Government Departments, and
41,631 were donated to schools, village authorities and other organizations and institutions for planting on public or communal lands.

9. **Forest Engineering**

a) **Forest Roads**

The construction of new forest roads and the improvement of existing ones, constitutes an important aspect of the work of the Department, as roads serve on the one hand for the systematic management, forest protection, reforestation, tending, exploitation and on the other hand for tourism and communication between forest villages.

During the year under review, 1.1 Km of the Spilia – Saranti road and 1.69 km of Selladi tou Petrou – Selladi tis Rizas road were improved and asphalted. Also the maintenance, widening and improvement of existing roads continued and 5.15 km of vehicle tracks and 0.8 km of extraction roads were built.

The total mileage of the forest road network by the end of 2011 was 1,433.49 km of main forest roads (out of which 189.89 km are asphalted), 1,013.18 km of vehicle tracks and 1,218.51 km of extraction roads.

b) **Forest Telecommunications**

The Department maintains telecommunications network for proper forest protection and management. This telecommunication system at the end of 2011 included the following:

- 454 telephone handsets
- 13 cellular telephones
- 2 telephone switch-boards
- 1 VHF, control station
- 523 mobile radiotelephones
- 602 portable radiotelephones
- 6 radiotelephone repeaters

c) **Forest Buildings**

During the year under review, the following works were carried out:

- Construction of a garage at Gialia forest station
- Construction of a new forest station at Panagia at Pafos District.

Also the expansion works of the store and offices of the Forest Engineer Sector at Athalassa were completed. In addition, usual repairs and maintenance works were carried out to various forest buildings.

After the initial approval of the Ministry of Finance, the Department of Forests appointed a three-member committee in order to find a suitable building to host the Headquarters of the Department in Lefkosia. After the evaluation of all proposals submitted from those expressed their interest, the committee focused its interest on the best – under the current circumstances- proposal and carried out negotiations with the owners of the project. By the
end of 2011, the negotiations collapsed. Therefore, the committee turned its efforts to investigate other available options.

10. Forestry Education

In 2011, the Cyprus Forestry College completed its 60th academic year (2010 – 2011). Four students, all Cypriots graduated during 2011.

The 61st academic year (2011 – 2012) began on October 3rd with a complement of 31 students out of whom 25 were Cypriots and 6 from other countries, Seven (7) out of 25 Cypriot students were recruited in 2011 and will begin their studies at the Forestry College in early 2012.

Based on the positive position of the Department of Forests and the Ministry of Agriculture, Natural Resources and Environment for covering Forest Science under the Cyprus University of Technology, the Governing Board of the Cyprus University of Technology submitted a proposal to the Ministry of Education and Culture, for the establishment of a new Department on Natural Resources with two directions, one of which will be in Forestry. During 2011, the Department of Forests, participated in several meetings regarding this subject and submitted its opinions. The University of Technology is expected to submit the economic analysis of the proposal with additional information for the final evaluation by the Ministry of Education and Culture.

During the year under review, the Learning Unit of the Department of Forests functioned successfully. The learning activities materialized in 2010 were evaluated. A plan for the learning activities of 2011, and a report for the learning needs of 2012 were prepared.

Through the Learning Unit activities of 2011, a number of officers participated in training courses in Cyprus and abroad.

After the training of four officers of the Department on the correct and safe use of chainsaws, to an educational institute in Germany during 2010, a training group was created which is based at the Cyprus Forestry College and provides training and certification to individuals who attend the relevant training program and succeed the relevant written and practical exams. During 2011, two trainings courses were materialized on a pilot basis.

Also a number of officers of the Department participated in various international conferences and seminars.
XI. DEPARTMENT OF ENVIRONMENT

www.moa.gov.cy

1. Introduction

1.1 The primary purpose of the Department of Environment is to advice the Government on issues of environmental policy and to implement the majority of environmental legislation in place. Moreover, it coordinates the implementation of environmental legislation and policy for which the collaboration of various Ministries and other public departments is required.

1.2 One of its most important functions is to preside over the Committees for the Assessment of Impacts on the Environment from Certain Projects, and Certain Plans and Programmes. The Department of Environment consists of five Sectors, dealing specifically with Sustainable Development and Horizontal Issues, Nature Protection, Control of Water and Soil Pollution, Waste Management, and Climate Change.

1.3 The functions of the Department of Environment are not restricted to its activities at the national level, but also at the European and international levels. It is the National Focal Point to a number of intergovernmental organizations, including the UN Commission on Sustainable Development (CSD), the Mediterranean Commission on Sustainable Development (MCSD), the Mediterranean Action Plan under the Barcelona Convention and UNEP, as well as the Convention on the International Trade in Endangered Species (CITES), the Bern Convention on the protection of European wildlife and natural habitats, the Basel Convention on the control of transboundary movements of hazardous wastes, the Vienna Convention and the Montreal Protocol on substances that deplete the ozone layer, the Biodiversity Convention, the Biosafety Protocol, the Convention to combat desertification, the Climate Change Convention, the Ramsar Convention on the protection of wetlands, the Convention on environmental impact assessment in a transboundary context and the Aarhus Convention on access to information, public participation in decision-making and access to justice in environmental matters.

1.4 A significant part of the activities of the Department of Environment during 2011 focused on the implementation of the various legislative acts and policies aimed at ensuring the protection of the environment.

2. Sustainable Development and Horizontal Issues

2.1 Sustainable Development

2.1.1 The Revised EU Sustainable Development Strategy was approved by the European Council in June 2006. Based on this, the National Sustainable Development Strategy was approved by the Council of Ministers in 2007. The National Strategy was revised in 2009, in accordance with the obligations of Cyprus as an EU member state, and the completed Revised National Sustainable Development Strategy 2010, was approved by the Council of Ministers on October 8th 2010, covering the areas of:
− Climate change and clean energy.
− Sustainable transport.
− Sustainable consumption and production.
− Conservation and management of natural resources.
− Public health.
− Social inclusion, demography and migration.
− Global challenges.
− Urban development.
− Sustainable tourism.
− Education and training and
− Research, technological development and innovation.

2.1.2 The final revised document adopted by the Council of Ministers has been submitted to the EU Directorate General for the Environment.

2.2 Aarhus Convention

2.2.1 Cyprus has signed and ratified the Aarhus Convention on access to environmental information, public participation in decision-making and access to justice in environmental matters. The Law on Public Access to Environmental Information (No. 119(I)/2004) has been in force since 2004. Regarding the second pillar of the Convention, which provides for public participation in decision-making, a number of laws have been amended to transpose the relevant EU Directive 2003/35/EC, incorporating provisions which ensure that the public is appropriately informed during all stages of the decision-making process, and that there is timely and effective public participation, including the participation of associations, organizations and groups which promote the protection of the environment, in the preparation, amendment or review of relevant plans and programmes. Similar provisions are incorporated in the laws on the assessment of the impacts on the environment from certain projects (N. 140(I)/2005), and plans and programmes (N. 102(I)/2005), as well as all new environmental legislation.

2.2.2 Law 10(III)/2009 has been in force since 2009 amending the law ratifying the Aarhus Convention (33(III)/2003), thus harmonizing the national legislation with Decision 2006/957/EC. The Amending Act implements provisions regarding public participation in decisions concerning the deliberate release into the environment and placing on the market of genetically modified organisms.

2.2.3 The Department of Environment is currently in the process of amending the Law on the assessment of the impacts on the environment from certain projects (N. 140(I)/2005) and the Law on integrated pollution prevention and control (N. 56(I)/2003) to ensure public access to justice.

2.3 Green Public Procurement

2.3.1 The European Commission, in its Communication (COM(2003)302) on Integrated Product Policy, has invited the Member States to prepare, by the end of 2006, a 3-year Action Plan for Green Public Procurement. In order to participate in these efforts to promote Green Public Procurement, Cyprus has developed its national Action Plan for the period 2007 – 2009, which was approved by the Council of Ministers in 2007.
2.3.2 In 2011, efforts focused on promoting the Plan and ensuring its implementation by the contracting authorities. Furthermore, guidance was given regarding the implementation of Green Procurement by public bodies, including Local Authorities, which, according to the provisions of the Action Plan, have to develop and implement their own action plans. At the same time, the publication of the newsletter continued, which provides information on Green Public Procurement developments at the European Level, as well as the experience gained in Cyprus from their implementation. The electronic newsletter is send to all contracting authorities of the public and broader public sector, as well as stakeholders, and is also published on the Department of Environment website to ensure wider public access.

2.3.3 During the year, a number of market researches have been conducted in order to identify Green Products on the Cyprus market. Two catalogues with green products and ecolabeled products have been posted on the Department of Environment website.

2.3.4 The new revised National Action Plan on Green Procurement has been prepared which includes the product groups and environmental parameters suggested by the European Commission, through the Educational GPP Toolkit. The new revised National Action Plan on Green Procurement has been submitted to the Council of Ministers for approval.

2.4 Eco-management and audit scheme

2.4.1 The Law on the voluntary participation by organizations in the Community Eco-Management and Audit Scheme (No. 122(I)/2004) has been in force since 2004. In 2009, the new Regulation on the voluntary participation by organizations in a community eco-management and audit scheme (1221/2009/EC) was adopted, replacing Regulation 761/2001/EK, with the purpose of enhancing the effectiveness of the system and raising its appeal to organizations. The new Regulation is now in force and the verifications and registrations of organizations are carried out in accordance with the new provisions.

2.4.2 The Department of Environment has prepared a bill to replace Law 122(I)/2004, which sets out a process for the evaluation of applications for EMAS registration by the Department of Environment, in accordance with the provisions of Regulation 1221/2009/EC. The bill currently awaits its passing by the House of Representatives.

2.4.3 In 2011, 23 companies were registered in the EMAS register and have received the relevant funding according to the EMAS Funding Scheme which has been designed to cover part of the expenses incurred by companies for establishing and verifying the environmental management system. By the end of 2011, a total of 52 companies had been included in the EMAS Register.

2.5 Ecolabel

2.5.1 The Law regarding the Community Ecolabel Scheme (189(I)/2004) has been in force since 2004, in accordance with the relevant EU Regulation. As the competent authority for the Ecolabel, the Department of Environment promotes the Scheme among organizations and provides all the necessary information and guidance.

2.5.2 In January 2010, the new EU Regulation (66/2010/EC) for the EU Ecolabel came in force. For compliance purposes with the new regulation, a bill has prepared and currently awaits its passing by the House of Representatives.
2.5.3 On the Department of Environment website a list of products that have been awarded the European Ecolabel in Cyprus has been posted.

2.6 Environmental Awards

2.6.1 The Business Awards for the Environment 2011 competition was announced, for the third time in Cyprus, by the Department of Environment in July 2011. The organization and functioning of the institution is based on the corresponding European institution, whereby the awards are granted every two years, and refer to achievements during the two year period prior to the call for the competition. Applications are evaluated by the Committee which has been established to advise the Department of Environment and the Minister of Agriculture, Natural Resources and Environment in selecting the applicant companies that have been distinguished in the areas of environmental protection and sustainable development.

2.6.2 The awards are classified into 5 categories: Environmental Management, Product or Service, Technology or Production Process, International Cooperation and the Award for Small Enterprises, 3 awards are assigned in each category for the amounts of €8,550, €4,275 and €1,171 Euro respectively. Applications for the competition may be submitted by legal persons and public organizations and companies active in Cyprus. It was considered particularly important to create an award for very small enterprises of up to 10 employees, so that the institution could constitute a motive for the voluntary transition of these organizations towards environmental protection.

2.6.3 A total of 11 applications were submitted and 7 companies have been awarded in the categories of technology or production process, product or service, environmental management, and small enterprises.

2.7 Environmental awareness

Under the environmental awareness programme, the funding of environmental campaigns and other awareness-raising events organized by non-governmental organizations, municipalities and schools, continued in 2011. Also, under the NGO support programme, a total annual funding of €77,895 was given to the 27 applicant organizations which were assessed to have fulfilled the relevant criteria. In June 2011 the Department coordinated the celebrations for the World Environment Day and the European Green Week. In September the European Mobility Week was organized in cooperation with the major municipalities, with the funding of the Department of Environment.

2.8 Environmental noise

2.8.1 The control and management of environmental noise in Cyprus is effected through the Law on the Assessment and Management of Environmental Noise (No. 224(I)/2004) which has been in force since 2004. The Law addresses the environmental noise to which people are exposed, especially in densely populated areas, public parks, quiet urban and rural areas, hospitals, and other land uses which are sensitive to noise.

2.8.2 Within this framework, the Department of Environment has completed the preparation of Strategic Noise Maps for major roads, with more than 6 million movements per year, located in urban centres. Following the completion of these maps, the Department of Environment, in cooperation with the Public Works Department and other competent departments and bodies, has prepared measures and actions for the mitigation of transport noise for the mapped areas,
giving emphasis on the management of noise resulting from roads associated with more than 6 million movements per year.

2.8.3 Focusing on minimizing noise through the management of road traffic, the Department of Environment is promoting the following measures:

- Reduction of heavy vehicle traffic on certain roads during the night hours.
- Reduction of the permitted vehicle speed on 3 roads included in the strategic mapping.

2.8.4 In cooperation with the Public Works Department, noise barriers are being installed in areas sensitive to noise. Furthermore, for the effective implementation of Law 224(I)/2004, regulations are currently being drafted through which transport noise threshold values will be determined.

2.8.5 The objective is to complete by 2014 the second noise mapping phase which will cover residential areas of more than 100,000 residents and roads associated with more than 3 million vehicle movements per year.

2.8.6 Although in accordance with Law 224(I)/2004 noise mapping is not required in the case of airports with less than 50,000 aircraft movements per year, as is the case for the Cyprus airports of Larnaca and Pafos, the Hermes company has completed the preparation of Strategic Noise Maps for the two airports.

2.9 Noise emissions by outdoor equipment

The Regulations on Noise Emissions in the Environment by Equipment Used Outdoors (No. 535/2003) have been in force since 2004. The main requirement is the measurement of the noise levels emitted and the appropriate labeling of all outdoor equipment.

2.10 Law on the Assessment of the Impacts on the Environment from Certain Projects

During 2011, the implementation of the Law on the Assessment of the Impacts on the Environment from Certain Projects (No. 140(I)/2005) continued successfully. The Law is based on the European Directives 85/337/EEC. 97/11/EC (amendment) and 2003/35/EC on the assessment of the impacts on the environment from certain public and private projects before the granting of consent. Since 2001, over 1028 projects have been examined, 184 of which in 2011. Progress has been made in the preparation of a Decree regarding the qualifications of the consultants signing the EIA study. The Decree will be complementary to the one that has been in force since 2008 defining the details of preparing an EIA study, and is expected to be completed in 2012.

2.11 Law on the Assessment of the Impacts on the Environment from Certain Plans and/or Programmes

The Law on the Assessment of the Impacts on the Environment from Certain Plans and/or Programmes (No. 102(I)/2005) came in force in 2005, having transposed the relevant European Directive (2001/42/EC) to the national legislation. Since the Law came into effect, 26 plans and / or programmes have been examined by the Committee, 6 of which in 2011, including renewable energy schemes, and land redistribution and development plans.
2.12 LIFE Programme

The LIFE+ Programme, which is the main funding instrument of the E.U. for the environment, came in force in 2007 with duration until 2013. Nature and biodiversity, environmental policy, and education and awareness form the three pillars of the Programme. The Department of Environment, as the National Focal Point for the Programme, is responsible for providing guidance to those interested in submitting proposals following the annual call for proposals. A Life+ seminar is carried out on an annual basis in cooperation with the E.C. regarding the participation in the Programme and the call for proposals. In 2011 a total of 7 proposals were submitted which await funding approval by the evaluation committee. The European Committee has prepared a proposal for a new regulation covering the areas of environment and climate change for the period 2014-2020.

3. Nature and Land use

3.1 European Natura 2000 Network

3.1.1 In May 2008, the European Union adopted the first updated list of Sites of Community Importance (SCI) to be included in the European Network «Natura 2000». To ensure the protection and management of these areas, 25 Management Plans for the 25 areas of the Natura 2000 Network have been completed. Additionally, four new Sites of Community Interest have been approved by the European Committee and included in the Natura 2000 Network, specifically the sites of «Faros Kato Pafou», «Limni Voroklinis», «Limni Paralimniou» and «Chersonisos Akama».

3.1.2 After finalizing the list of SCIs, Member States are required, within a six year period, to declare these as Special Areas of Conservation (SACs) within 6 years at the latest and establish priorities for the conservation of the habitat types and species of community interest, in accordance with Article 6 of Directive 92/43/EEC. Within these areas. The Republic of Cyprus has proceeded with the declaration of three areas of the Natura 2000 Network, namely, «Koilada Diarizou», «Xeros Potamos» and «Vouni Panagias», as SACs and Decrees have been prepared in accordance with the provisions of Law 153(I)/2002, which define the allowed, restricted and prohibited activities in these areas.

3.2 Alien species

Flora and fauna species introduced artificially by human intervention in an area are considered non-native (alien) and may negatively affect the natural environment. In 2011, the Department of Environment with the collaboration of competent departments worked towards the finalization of the list of non-indigenous species, while efforts to address this matter are in line with the preparation of a European legislative tool by the European Commission.

3.3 Biological Diversity

In 2010, the Tenth Conference of the Parties to the Convention on Biological Diversity (COP10), was held in Nagoya, Japan, in which Cyprus was represented by the Permanent Secretary of the Ministry and Officers from the Department of Environment. The Parties discussed various issues critical to the protection of biodiversity, the most important of which were the adoption of a new protocol on access to genetic resources and the sharing of the
benefits arising from their exploitation, the adoption of a new strategic plan for the period 2011 – 2020, and securing the necessary financial resources for the implementation of the Convention's objectives.

In 2011 Cyprus signed the Cartagena Protocol and the Nagoya-Kuala Lumpur Protocol on liability and compensation for damages that may result from living genetically modified organisms, and on access to genetic resources and the fair and equitable sharing of benefits arising from their use (Access to Benefit Sharing), respectively.

3.4 Trade in Endangered Species

Cyprus, which ratified the CITES Convention (No. 74/2004), is under obligation to control the trade of the endangered species included in a commonly accepted list. During 2011, the systematic control of the fauna and flora species imported or exported from the Republic continued and the Department assessed several applications for the import of species potentially covered by the Convention.

3.5 Combating Desertification

Recognizing the dangers to the environment and biodiversity from desertification, the Government has ratified the UN Convention to Combat Desertification (No. 23(III)/1999), while in 2008 the National Action Plan (NAP) to Combat Desertification in Cyprus was completed. In October 2011 an agreement was signed for the “Plan to Combat Desertification in Cyprus”, which is essentially a continuation of the National Action Plan, for the prioritization of the measures proposed in the National Action Plan and the preparation of a proposed implementation plan to address the phenomenon of desertification in Cyprus.

3.6 Programme for the Protection and Management of the Larnaca Salt Lakes

The Committee for the Monitoring and Management of the Larnaca Salt Lakes continued its work, which aims at the protection and management of the sensitive ecosystem of the salt lakes. Regarding the construction of the Environmental Information Center, the tender documents have been prepared and approved based on the terms of the competition that was launched in 2008. In addition, the Department of Environment, in collaboration with other competent departments, proceeded with the implementation of maintenance measures in the area.

3.7 Management of the Akamas Peninsula

The Council of Ministers, through its decision dated 23 of February 2010, approved the boundaries of the Akamas Peninsula for its inclusion in the European Natura 2000 Network. Based on the aforementioned decision, on the 26th of March 2010, the Department of Environment forwarded to the European Commission the boundaries and relevant data for the area to be included in the Network as «Chersonisos Akama». The European Commission with its decision of 18.11.2011 has approved the inclusion of the Akamas area in the Natura 2000 Network. In 2011 the tender was launched for the Project Manager, who will be responsible for the implementation of the actions postulated in the Management Plan that will govern the Akamas region. Also, in November 2011 there was a call for tenders for the preparation of a Management Plan for the designated NATURA 2000 area. The tender is expected to be assigned by February 2012 and the final Management Plan will be submitted in 2013.
3.8 Genetically modified organisms

3.8.1 The Law on the Deliberate Release of Genetically Modified Organisms into the Environment entered into force in May 2004. Regarding the import of Genetically Modified Organisms (GMOs) into the European Union, at the EU decision-making level Cyprus expresses negative positions to applications examined by the European Commission for the placing in the market of such products.

3.8.2 Based on the policy of Cyprus for the protection of the environment and public health from GMOs, the Council of Ministers adopted a decision for conducting a scientific analysis on the coexistence between Genetically Modified and conventional and organic crops in Cyprus. The objective of this study is the analysis, based on scientific data, of the coexistence of specific GM crops with conventional and organic crops. Given that Cyprus, at the EU decision-making level regarding GMOs, invokes specific circumstances and particularities for its negative stance, the study is expected to provide the necessary evidence to scientifically confirm such reservations.

3.8.3 In 2010, the European Commission introduced a new package of proposals on the legislative framework on Genetically Modified Organisms (GMOs), including a communication, a legislative proposal to amend Directive 2001/18/EC and a new recommendation for the coexistence of genetically modified organisms and conventional and organic crops. The legislative proposal is to amend the Directive with the addition of a new Article which will provide each Member State the right to restrict or prohibit completely the cultivation of genetically modified organisms which have been approved in the European Union, partially or throughout its territory. Cyprus supports this proposal, however there are some legal ambiguities which need to be overcome for the proposal to be accepted.

4. Pollution Control

4.1 Control of water and soil pollution


4.1.2 Based on the provisions of these laws, in 2011, a total number of 70 Waste Discharge Permits were issued by the Department of Environment for industrial, animal husbandry and other operations. Furthermore, over 100 inspections of licensed installations were carried out.

4.1.3 In Cyprus, 81 installations have to comply with the provisions of the Laws on Integrated Pollution Prevention and Control of 2003 to 2008. These Laws comprise the transposition of Directive 2008/1/EC Directive (codified version of 96/61/EC), known as the IPPC Directive, to the national legislation. The IPPC Directive applies to installations that contribute significantly to pollution. For this purpose, the Waste Discharge Permits issued for these installations, include all necessary provisions to ensure that appropriate preventive measures are taken to minimize their environmental effects, through the application of Best Available Techniques.
4.1.4 To ensure compliance with the above Laws, 10 piggery units have proceeded with the installation of anaerobic and aerobic treatment for slurry, while another 11 are in the process of installing such treatment plants. The environmental benefits from the latter consist not only in the prevention and control of pollution of soil and water, but also in the use of renewable energy from animal biomass for the production of electricity.

4.2 Nitrate Pollution

4.2.1 The Department of Environment, in cooperation with the Department of Agriculture, the Geological Survey Department and the Department of Fisheries and Marine Research, is responsible for the implementation of the Nitrate Directive.

4.2.2 The Nitrate Directive requires the implementation of an Action Plan and Code of Good Agricultural Practice, as well as, the monitoring of surface, ground and coastal water quality. Implementation of these provisions continued during 2011.

4.2.3 The inspection of farms (such as piggeries, dairy farms, and poultries) within the Nitrate Vulnerable Zones continued to be carried out, in order to monitor compliance with permit provisions.

4.2.4 Following a decision by the competent departments, part of the Orounda area was declared as a Nitrate Vulnerable Zone. The relevant Ordinance (PI 41/2011) was published in the official government gazette on the 4\textsuperscript{th} of February, 2011. After a long period of bilateral discussions with the European DG Environment, regarding the implementation of the Nitrates Directive in Cyprus, the final draft of the revised Action Program was finalized and submitted to DG Environment in November 2011. The revised Action Program will apply to all areas of Cyprus which have been designated as Vulnerable Zones, while implementation will commence following the evaluation of the relevant Strategic Environmental. Until the final approval of the revised Action Program, the existing Action Plan applies.

4.3 Bathing Water Quality

4.3.1 The new European Directive concerning the management of bathing water quality (2006/7/EC) has been transposed to the national legislation with the Law on the Management of Bathing Water Quality (No. 57(I)/2008) which came into force in 2008.

4.3.2 For the 2011 bathing season, Cyprus has implemented the requirements of Directive 2006/7/EC regarding the review and updating of the list of bathing areas. Furthermore, the monitoring of the quality of bathing waters continued successfully with the objective of protecting public health and the environment. Once more, the results for the 2011 bathing season indicate 100 % compliance with the mandatory values, as well as, with the more stringent guide values defined by the Directive. The bathing water quality was classified as “excellent” in the 2011 bathing season in all coastal bathing areas.

4.3.3 Based on the obligations of Cyprus as a EU Member State, the “Profiles for the Bathing Waters” were prepared and reported to European Commission, in March 2011. In order to enhance public awareness and participation in the implementation of the legislation, posters were prepared for each of the listed bathing areas. The posters summarize the characteristics of the bathing area, current classification, satellite imaging and contact information with the Competent Authority. The main objective of this effort, is to maintain the
classification of the bathing waters of Cyprus as “excellent quality”, since it is beneficial for the environment, the tourist industry and the local economy.

4.4 Urban Sewage and Sludge Treatment

4.4.1 The Department of Environment has the responsibility for the control and prevention of water and soil pollution arising from the operation of wastewater treatment plants and the discharge of the treated urban wastewater according to the Urban Wastewater Treatment Directive 91/271/EC.

4.4.2 A monitoring programme has been established for the facilities falling under the scope of the above Directive, in order to ensure compliance with the quality requirements defined in their Waste Discharge Permits. In cases of non compliance, legal measures are taken according to the Water Pollution Control Law.

4.4.3 In October 2011, the Department of Environment in cooperation with the Health Services organized in Cyprus the EU «Workshop on Safe Drinking Water and Sanitation in Cyprus».

4.4.4 The Department of Environment, in cooperation with the Water Development Department, submitted to the European Committee the Report under Article 15 of the Directive 91/271/EC in December 2011 and is currently preparing the Report under Article 16 of the Directive that is expected to be submitted to the European Commission at the beginning of 2012.

4.5 Protection of Water Boreholes

The implementation of Act 45/1996, which provides for the creation of Protection Zones for drinking water boreholes, continued during 2011. From its entry into force until the end of 2010, Protection Zones have been defined for 110 drinking wells in several communities.

4.6 Priority Substances

4.6.1 Decision 2455/2001/EC sets out the first list of 33 substances or groups of substances that have been prioritized for action at the Community level. Among these priority substances, certain substances have been identified as priority hazardous substances for which Member States should implement the necessary measures with the aim of ceasing or phasing out emissions, discharges, and leakages.

4.6.2 The new Directive 2008/105/EC regarding Environmental Quality Standards in the field of water policy was published in December 2008. For the transposition of the Directive, the following legislation came into force in 2010:

(a) Amending Law for the Protection and Management of Waters (No.113(I)/2010),
(b) Regulations for the definition of quality standards in the sector of water policy (Act 4884/2010), and
(c) Ministerial Decree for the definition of quality standards in the sector of water policy (Act 500/2010).

In 2011, Working Group E on “Chemical Aspects / Priority Substances” of the European Commission, discussed the revision of the Priority Substances list. The new list is expected to
a) include new substances, b) revise the status of existing substances (e.g. some substances that are classified as priority substances, will be classified as priority hazardous substances and vice versa) and c) change the Environmental Quality Standards (EQS limits) of existing substances.

4.7 Pollutant Release and Transfer Register

4.7.1 In accordance with the provisions of the European Regulation No. 166/2006/EC for the establishment of a European Pollutant Release and Transfer Register (E-PRTR Regulation), the Department of Labour Inspection and the Department of Environment have developed a national inventory containing specific information on releases of pollutants to air, water and land and off-site transfers of waste (hazardous and non-hazardous). Cyprus submitted on March 2011, the 3rd annual Report referring to data developed in 2009.

4.7.2 Furthermore, an online database has been created and is in operation, in order to facilitate reporting processes for both operators and competent authorities, as well as to enhance public access to environmental information and participation in the permitting process. The database is available online in the website: http://www.prtr.dli.mlsi.gov.cy.

5. Waste Management

5.1 Implementation and Enforcement of the Solid and Hazardous Waste Legislation

5.1.1 During 2011, the Department of Environment received a total of 74 applications from establishments / operators to license the management of hazardous and non-hazardous waste. Of these, 57 were applications for new permits, while the remaining 17 were for the renewal of existing licenses.

5.1.2 So far, a total of 103 permits for waste management facilities / operators have been issued. Of these, 35 are for waste management (19 for non-hazardous waste and 16 for hazardous waste management), while the remaining 68 permits are for the collection / transport of waste (53 for the collection and transport of non-hazardous waste and 15 for hazardous waste).


To facilitate access to information by interested parties and the general public, a list of licensed waste management installations has been uploaded on the website of the Department of Environment (http://www.moa.gov.cy/environment).

5.2 Non Hazardous Waste Management

5.2.1 Management of Packaging Waste

The Ministry of Agriculture, Natural Resources and Environment, following a Ministerial Decision for the financial support of the Green Dot campaign, continued the supervision of the programme and its financial support for the sum of € 512,000. According to the report prepared in 2011 by the Department of Environment, increased rates of recycling / recovery of packaging waste were reported compared with previous years. Specifically, total recovery
amounts to 42.5%, while overall recycling has reached 42.2% with a material breakdown of 19.9% for glass, 18.2% for plastics, 78.9% for paper/cardboard, 98% metal and 24.6% for wood.

5.2.2 Management of Electrical and Electronic Waste

WEEE is the fastest growing stream of municipal waste produced (with a growth rate three times higher than that of other waste in the EU). Currently there is a requirement for the separate collection of at least 4 kg/person/year or a total of 3000 tonnes per year at the national level. The approved collective scheme (WEEE Electrocyclus Cyprus Ltd) is not fully operational and the quantities of WEEE collected annually are steadily rising. Informal results show that for the year 2011, the collective scheme collected about 1200-1500 tonnes of WEEE or 40-50% of the target. The remaining quantities are estimated to have been collected directly by approved waste management facilities.

It seems that larger quantities are actually collected than those officially declared, the reason being that many large household appliances are collected and dismantled by illegal dealers selling them to metal scrap yards as metal waste and not as WEEE.

The Department of Environment, in cooperation with the collective scheme and the local authorities, aims to promote public awareness regarding the separation of WEEE from other household wastes and their appropriate disposal in approved collections points in order to achieve the separate collection target and environmentally sound management of WEEE.

5.2.3 Batteries and Accumulators

Under the waste batteries and accumulators collective scheme, 1815 collection bins had been placed by the end of 2011. A preliminary estimate for 2011 shows that over 33 tonnes of portable waste batteries were collected in 2011 compared to 22 tonnes in 2010. These quantities are expected to increase significantly in 2012, probably reaching the target of 75 tonnes per year.

In 2011, more than 90% of car batteries placed in the market (5.682.77 tonnes) were collected and exported to licensed waste management plants in the European Union.

5.2.4 Management of Waste Tires

On 25/2/2011 the Solid and Hazardous (Management of Waste Tires) Regulations 2011 were approved by the House of Representatives. The regulations oblige importers of tires to formulate individual or collective management schemes for waste tires. The ultimate goal is to avoid the uncontrolled disposal of tires and to promote recycling or energy recovery.

To comply with these regulations, the tire importers were required, within six months following their entry into force, to create individual or collective management systems which ensure the collection, transportation and use of waste tires in an environmentally acceptable manner. For this purpose the consumer will bear the corresponding environmental tax.

Currently, a Collective Management System has been approved for the collection and appropriate management of tires. The system has over 60 members, representing nearly 100% of importers.
5.2.5 End-of-life Vehicles (ELV)

The End of Life Vehicles Law 157(I)/2003 regulates the management of end-of-life vehicles and the operation of installations for their management, and provides for the obligations of vehicle importers. The Department of Environment is responsible for licensing facilities that manage this type of wastes. Currently, there are 13 licensed processing plants for end-of-life vehicles.

5.3 Hazardous Waste Management

5.3.1 Regarding the management of hazardous waste, currently several waste streams are comprehensively managed (waste electrical and electronic equipment, clinical waste, used machine oil and petroleum residues ships, vehicles end-of-life vehicle batteries, laboratory wastes, photographic wastes, etc.) and several management solutions (licensed facilities and waste management systems) have been initiated.

In 2010, the Department of Environment, following the instructions of a Ministerial Committee, evaluated the current status of hazardous waste generation in Cyprus and the need for public management and investment. The report was presented at a meeting of the Ministerial Committee in July 2011 by the Department of Environment and assessed the need for the establishment of a hazardous waste management facility and landfill site in Cyprus. Taking into consideration the fact that the hazardous waste quantities produced in Cyprus have decreased over the past few years and implementation of effective control measures, and both the operation of private hazardous waste treatment facilities and the planning of new ones, the Ministerial Committee decided that, at present, there is no need for the establishment of a hazardous waste management facility and landfill site in Cyprus.

The Ministerial Committee also decided to intensify and closely monitor the measures for the control of the disposal, management and export of hazardous waste. The Ministerial Committee will reassess the available data in 2012.

5.3.2 Asbestos Waste Management

A specific procedure has been established for the transportation and burial of additional quantities of asbestos in the Asbestos mine, once or twice a year, depending on the quantities accumulated. The transportation and burial process are the result of the successful coordination efforts of various public authorities and private companies.

5.4 Law on Management of Waste from Extractive Industries

In 2009, the new Directive 2006/21/EC on the Management of Waste from the Extractive Industries was transposed into the national legislation by the Law on the Management of Waste from Extractive Industries (No. 82(I)/2009).

In December 2010, the Department of Environment signed a contract (No.6/2010) for the assessment of existing waste from the extractive industries and the preparation of waste management plans. The study was completed in December 2011, with the preparation of a database of all existing extractive waste treatment facilities and waste management schemes for each waste category that will assist the competent authority in evaluating treatment facilities.
6. Climate Action

6.1 United Nations Framework Convention on Climate Change and the Kyoto Protocol

The United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol provide the international framework to combat global climate change. The UNFCCC was adopted in May 1992 and came into force in March 1994. So far it has been ratified by 194 countries. The UNFCCC provides the global institutional framework to address climate change and its primary objective is to stabilize concentrations of greenhouse gases in the atmosphere at levels that would prevent dangerous anthropogenic interference with the climate system. Such levels will be achieved within a time frame appropriate to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable continued economic growth in a sustainable manner."

When governments adopted the UNFCCC, they knew that the commitments would not be sufficient to effectively address climate change. On December 11, 1997 the governments moved one step further and adopted the Kyoto Protocol which came into force on February 16, 2005. The Protocol sets legally binding targets for emissions of greenhouse gases for 37 industrialized countries including all EU Member States except Cyprus and Malta and the European Union as a single international entity. So far the Protocol has been ratified by 193 countries. In 2009 Malta requested change as its status under the Convention and to be included in Annex I. In 2011, Cyprus also applied for change of status under the Convention to be included in Annex I. The request was accepted by the plenary of the Convention in December 2011 and it is expected to be confirmed if no objections in January 2013. Parties in the Annex I of the Convention are the parties that have to implement policies and measures for the reduction of greenhouse gases.

With the Kyoto Protocol, the developed world agreed to reduce their national greenhouse gas emissions by 5% compared to 1990 levels during the period 2008 to 2012. The EU committed to reduce emissions by 8% compared to 1990 during the same period.

Considering that the Kyoto Protocol period ends in 2012, during 2011, the Parties to the Convention United Nations Framework on Climate Change and the Kyoto Protocol met four times. The Ministry was represented us in all four meetings. The biggest meeting of the year was the 17th Conference of Parties (COP17) to the UN Convention on Climate Change and the 7th Conference of Parties (MOP7) for the Kyoto Protocol, held in Durban, South Africa. At the meeting, the delegation of Cyprus was led by the Minister of Agriculture, Natural Resources and Environment.

6.2 European Developments

The European Union notes that it is ready to lead the world to mitigate climate change and the challenge of ensuring safe, sustainable and competitive energy. The European Union has committed through legislative acts on a target to reduce greenhouse gas emissions by 20% compared to 1990. Politicians are also willing to set a reduction target of 30% compared to 2005 if other major countries undertake commitments to reduce emissions, similar to those of EU.
Cyprus has consistently supported the above positions of the EU. However, for the issue of increasing the reduction target for the EU from 20% to 30%, Cyprus, like other States, is very troubled, and believes that before any decisions taken the reduction efforts by other developed countries as well as actions to reduce the rapid growing economies should be assessed. If after the assessment will be considered for such reductions and actions comparable to those of the EU then and only then will we be able to support the assumption of the reduction target for the EU 30% and is provided at the internal allocation of additional commitments to be made in the bodies of the EU will take into account the specificities of the Member States.

6.3 Activities, Programs and Measures

In 2011 the following were realised:


6.3.2 A draft law transposing Directive 2009/31/EC on the storage of carbon dioxide in geological formations was prepared which has been approved by the Council of Ministers and submitted to the House of Representatives.

6.3.3 Prepared draft framework law on climate change through which to achieve the objectives of reducing greenhouse gas emissions which have been placed on Cyprus by Decision 406/2009/EC (5% by 2020 compared to 2005).

6.3.4 In 2011 the estimation of national greenhouse gases emissions was improved.

6.3.5 Through a LIFE program, a scientific workshop was held to collect available data and to establish scientific working groups on the impacts of climate change in Cyprus.

6.3.6 The Environment Department also participates in three research program related to climate change impacts and greenhouse gas emissions.

6.4 Implementation of National and EU Legislation

The Cyprus as all Member States of the European Union has the obligation:

6.4.1 To report annually on greenhouse gas emissions according to the Decision 240/2008/EC. The report submitted in 2011 was for 2009.

6.4.2 To report annually any changes in the National Emissions Trading System, according to the requirements of Directive 2003/87/EC. The necessary report for 2010 was prepared and submitted in June 2011.

6.4.3 To prepare an annual report concerning data collection and monitoring pursuant to Regulation 443/2009 concerning performance standards for emissions from new passenger cars as part of the integrated approach to reduce CO2 emissions from light vehicles.
6.4.4 Implement provisions of the Law 110 (I) / 2011 for aircraft operators. Specifically:

6.4.5 Assessment approval of monitoring plans submitted by aircraft operators required for the determination of measures for monitoring emissions and tonne-kilometer data.

6.4.6 Examination of reports on emissions and tonne-kilometer data.

6.4.7 Submission to the Committee of the above reports and applications for rights to be distributed free.

6.4.8 Calculation and publication of the total allocation of allowances to be allocated for free.

6.4.9 Inform aircraft operators on establishing a European Registry and in particular the rights of the aviation industry to be allocated through auctions that were created for the marketing year from 1 January 2012 to December 31, 2012 and subsequent periods beginning on January 1, 2013.

6.4.10 Opening of accounts for aircraft operators in the European Registry by the National Manager after submitting the required information by aircraft operators.

6.5 Substances that Deplete the Ozone

In 1992, Cyprus ratified the Montreal Protocol on substances that deplete the ozone layer and subsequently all its relevant amendments. Based on this and the relevant Law (No. 16(I)/2011) on the substances that deplete the ozone layer, the import in Cyprus of equipment containing substances that deplete the ozone layer has been prohibited. Moreover, in accordance with EU regulations, the import of such substances from third countries has been reduced to the minimum. Controlled substances may be produced, placed on the market and used only in certain cases with license from EC. Regular inspections are conducted at customs and by the Environment Service throughout Cyprus.

6.6 Fluorinated Greenhouse Gases

Regulation 842/2006/EK regulates the containment, use, recovery and destruction of certain fluorinated greenhouse gases, as well as the labeling and distribution of products and equipment containing such gases. In 2008, the Regulations 303/2008/EC, 304/2008/EC, 305/2008/EC and 306/2008/EC were adopted by the European Commission, for the accreditation of companies and personnel handling equipment containing certain fluorinated greenhouse gases.

In late 2010 Cyprus legislation harmonized the above european regulations and the House of Parliament voted a new series of Cypriot Regulations.

Meanwhile, technicians are keep certified in the appropriate institutions, and the number of the certified technicians exceeds 1400 for personnel and 400 for companies.

Regular inspections are conducted by the Environment Service throughout Cyprus.
XII. AGRICULTURAL INSURANCE ORGANISATION

www.oga.org.cy

1. Introduction

Agricultural Insurance Organisation (AIO) is a semi-governmental institution, operating under the supervision of the Minister of Agriculture, Natural Resources and the Environment.

It is operating since 1978, on the basis of the relevant legislation enacted in 1977, providing compulsory insurance to farmers and indemnifying them in the case their insured agricultural products suffer losses from inevitable natural hazards which are included in the scheme.

Basic objective of Agricultural Insurance, a progressive social tool for rural policy, is the farmer`s welfare which is achieved by stabilizing their income due to the indemnification mechanisms. By achieving this goal, economic stability is enhanced and further investments in the farming sector are encouraged, which lead to rural development and the improvement of national economics.

The target of the AIO since its establishment, was to develop a comprehensive agricultural insurance scheme, to cover all the agricultural products against all insurable natural hazards. Following this, the initial legislation which was only covering a few agricultural products against limited natural hazards, was progressively improved to cover new products and additional hazards to the already insured ones, as well as expanding and enriching the coverage already offered.

2. Spectrum of Coverage

Agricultural Insurance Organisation is today covering a huge spectrum of products and hazards. The beginning was in 1978 with a completely simplified scheme, covering cereals, grapes and deciduous over a limited number of hazards. Under continuous improvements, the scheme evolved to its current form covering 9 products and 13 hazards.
The Organisation despite having achieved some important goals, is still attempting to include all crop production to the scheme and insure it against the most severe and frequently-appearing hazards.

### 3. Activities

AIO’s main activity throughout 2011, like every other year was inspecting and assessing damages occurring in the insured crops. The most severe damages were due to adverse weather conditions and hail in deciduous trees during spring, and in the same period drought in cereals of Nicosia district. Unlike the previous years, 2011 was a year of mild weather phenomena, and relatively low compensations.

To compensate these losses, some €2,521,834 have been paid to farmers as indemnities. On the same time a total of €4,207,761 was raised from the farmers as premium payments with the government subsidy equaling that amount.
Other main activities of the Organisation in 2011 were:

- Undertaking the role of Implementing Authority for the National Framework of Granting State Aid in the Agricultural sector, for the period 2012-2013. During 2011, all the actions necessary were undertaken, so that AIO will be able to respond adequately and immediately to the commitments due to the National Framework.
- Putting forward an Amending Legislation, through which AIO provides: the improvement of the frost compensation coefficient in all crops from 70% to 80%, the improvement of the cereal’s drought compensation coefficient from 80% to 85%, and the inclusion of forceful wind and persistent rainfall in the insured hazards for potatoes.
- Carrying out actuarial studies on the performance of each insured crop. Based on these, the Organization is shifting the premiums upwards or downwards, in order to have a viable scheme.
- The collection and evaluation of data and information on non covered crops (olives, bananas, vegetables etc) aiming to include them in the crop insurance scheme.
- Based on a certain request submitted through the Board, an insurance scheme for leaf-vegetables is in the last stages of elaboration, and will soon be presented to farmers and their unions for consultation.

Hail damage in peaches (Pitsilia area, Limassol district)
Drought in barley fields (Peristerona area, Nicosia District)
1. Introduction

The Cyprus Milk Industry Organisation (CMIO) is responsible for the implementation of the Milk Quotas which is a CAP measure in Cyprus. It is governed by the EU Regulations 1234/07 and 595/04 and also by National Law.

2. Milk Quotas

The milk quota year runs from 1\textsuperscript{st} April each year to 31\textsuperscript{st} March of the following year.

The total National Reference Quantity for Cyprus for the milk year 2011/2012 is 148,15 million litres which is divided into two categories:

a) “Delivery” Quotas: 147,37 million litres with reference fat content 34,60gr/kilo. This category of milk is sold to Purchasers of milk and the processing is carried out either by the latter of by other milk processors.

For the 9-month period of April – December 2011, the production of milk was 76,22% against the total annual National Reference Quantity “Wholesale Quotas” or 112,32 million litres.

b) “Direct Sales” Quotas: 0,78 million litres. This category of milk, is produced, processed and sold directly to consumers by the cow milk producers.

For the 9-month period of April – December 2011, the milk equivalent of dairy products sold, was 51% or almost 0,40 million litres.

3. Inspections on the spot

The Cyprus Milk Industry Organisation has the responsibility to control the national reference of Milk quota determined by the European Commission of 145.228.194 litres for the year 2010-2011. For this purpose CMIO’s Inspectorate Department carried out for the year ending 2011, inspections in:

1. 176 producers (72 for daily milk production)
2. 5 direct sellers
3. 55 hauliers of cow milk
4. 3 purchasers
5. 1 processor’s laboratory
6. 7 milk processors
7. 1 milk destruction inside the producer’s premises
8. 7 special inspections to producers and purchasers.
Slaughter's subsidy of sheep and goat
74 inspections for sheep and goat applicants.

Milk & milk products subsidy – school milk
13 inspections at applicant’s premises.
39 inspections at schools/food suppliers.

4. CMIO’s Laboratory

CMIO’s laboratory is responsible in carrying out tests for several government services and individuals, concerning the quality of milk and milk products.

The main parameters in quality control are the composition and the hygiene of milk. The composition is vital for payment scheme purposes. The hygiene of milk is vital for payment scheme purposes, as well as keeping in accordance with EE Reg 853/04.

CMIO’s laboratory, cooperates on a daily basis with the Veterinary Services, in verifying the hygienic quality of the total quantity of milk delivered to the industry.

Tests carried out for cow’s milk:

Tests carried out for sheep and goat’s milk:

5. Sampling department of CMIO

The department is responsible for the sample taking, for or from the customers of the Organisation, and the collection and transportation of routine samples, received during the daily trade of raw milk, to the laboratory of CMIO.

In 2011 the department performed, on behalf of the Veterinary Services, 5,163 samplings from the milk produced in 216 bovine herds. For the same purpose another 11,015 samples were taken from 905 ewes’ and goats’ herds around the island. All samples have been analysed by the Laboratory for Total Bacterial Count, Somatic Cell Count, Antibiotics and Aflatoxin M1.

6. Accreditation of CMIO’s Laboratory

In May 2011, a team of two experts from the Hellenic Accreditation System S.A., performed the routine annual maintenance assessment for the following seven, already accredited, fields:

- Determination of freezing point - ISO 5764 (IDF 108:2009)
• Enumeration of microorganisms - ISO 4833:2003
• Detection of antibacterial substances-Brilliant Reduction test

Successful extension of the field for the following tests:

• Determination of Fat, Protein and Lactose - IDF 141C: 2000

The assessment was successful and the Hellenic Accreditation System S.A renewed the accreditation certificate No. 276-3.
1. Introduction

The Cyprus Potato Marketing Board (CPMB) was established by Law No. 59 in 1964 in order to promote and safeguard the interests of the producers, by securing the best possible terms and conditions regarding the production, grading, packing, transportation, export and sales of potatoes. As from 1/5/2004, Cyprus became full member of European Union and potato market became completely free, CPMB however still export approximately 50% of the total quantity. As from 1/4/2004 the CPMB was transferred from the Ministry of Commerce and Industry under the auspices of Ministry of Agriculture Natural Resources and Environment.

2. Activities

Based on the marketing prospects, the Cyprus Potato Marketing Board programmed timely the production for the coming two crops, the Winter Crop 2010/2011 and the Spring Crop 2011.

(a) Winter Crop

Marketing prospects were expected to be good. Production is always constraint by the limited water availability and the high cost of production. Total production of CPMB growers for the Winter Potatoes was estimated to reach appr. 120.000 tons, out of which half for export and half tons for the local market.

Deliveries to the Board reached 11.387 tons, out of which 11.375 tons have been exported.

Prices paid to the growers by CPMB are considered very good partly mainly due to a very good demand from Greece and less competition from Israel, Egypt and other Mediterranean countries. A total sum of €4.355.712 was paid to CPMB growers with an average net price €382/ton.

(b) Spring Crop

The marketing prospects for the Spring Crop 2011, were estimated to be very good due to the very small production of Russia. The Board programmed a production of 38-40.000 tons potatoes, out of which approx. 30.000 tons for export and the balance for the local market. The marketing result was not satisfactory due to the fact that European production was extremely early.

Deliveries to the Board have reached only 29.230 tons out of which 28.222 tons have been exported as compared to 12.231 tons and 12.115 tons respectively for the year 2010.

Prices paid to growers are considered low. The total amount paid to the CPMB farmers for the spring crop was €5.500.911 with an average net price €188/ton.
(c) Local Certified Potato Seed

The CPMB received and packed 1.494 tons of local certified seed potatoes out of which 1.450 tons were exported to Greece and the balance remained for the local market.

The exports of Cyprus potatoes by country of destination for the Winter Crop 2010/2011 and the Spring Crop 2011 are shown on table 1.

Table 1: Exports of Cyprus Potatoes by Country of Destination in Kilos

<table>
<thead>
<tr>
<th>DESTINATION</th>
<th>WINTER CROP 2010/2011 KILOS</th>
<th>SPRING CROP 2011 KILOS</th>
<th>TOTAL KILOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNITED KINGDOM</td>
<td>2.520.535</td>
<td>6.419.140</td>
<td>8.939.675</td>
</tr>
<tr>
<td>IRELAND</td>
<td>204.250</td>
<td>379.310</td>
<td>583.560</td>
</tr>
<tr>
<td>BELGIUM</td>
<td>450.725</td>
<td>4.766.455</td>
<td>5.217.180</td>
</tr>
<tr>
<td>GERMANY</td>
<td>1.768.670</td>
<td>6.754.600</td>
<td>8.523.270</td>
</tr>
<tr>
<td>HOLLAND</td>
<td>48.900</td>
<td>1.565.640</td>
<td>1.614.540</td>
</tr>
<tr>
<td>NORWAY</td>
<td>88.100</td>
<td>975.000</td>
<td>1.063.100</td>
</tr>
<tr>
<td>SWEDEN</td>
<td>302.275</td>
<td>490.825</td>
<td>793.100</td>
</tr>
<tr>
<td>AUSTRIA</td>
<td>103.100</td>
<td>105.300</td>
<td>208.400</td>
</tr>
<tr>
<td>SWITZERLAND</td>
<td>100.075</td>
<td>45.150</td>
<td>145.225</td>
</tr>
<tr>
<td>GREECE</td>
<td>4.466.575</td>
<td>4.545.420</td>
<td>9.011.995</td>
</tr>
<tr>
<td>ITALY</td>
<td>282.500</td>
<td>334.575</td>
<td>617.075</td>
</tr>
<tr>
<td>CARARY ISLANDS</td>
<td>600.000</td>
<td>300.000</td>
<td>900.000</td>
</tr>
<tr>
<td>SLOVENIA</td>
<td>42.000</td>
<td>147.500</td>
<td>189.500</td>
</tr>
<tr>
<td>SLOVAKIA</td>
<td></td>
<td>63.000</td>
<td>63.000</td>
</tr>
<tr>
<td>CROATIA</td>
<td>189.000</td>
<td>168.000</td>
<td>357.000</td>
</tr>
<tr>
<td>POLLAND</td>
<td>165.140</td>
<td>1.141.360</td>
<td>1.306.500</td>
</tr>
<tr>
<td>CHECH REPUBLIC</td>
<td>40.850</td>
<td></td>
<td>40.850</td>
</tr>
<tr>
<td>DISCREPANCY</td>
<td>2.645</td>
<td>21.080</td>
<td>23.725</td>
</tr>
<tr>
<td>EXPORTS</td>
<td>11.375.340</td>
<td>28.222.355</td>
<td>39.597.695</td>
</tr>
</tbody>
</table>
1. Introduction

Wine Products Council (WPC) is a semi-government organisation, formed in 1968 in accordance with the provisions of the Vine Industry Products Law of 1965 and was under the supervision of the Ministry of Commerce, Industry and Tourism. WPC represents the outcome of the institutional background shaped in 1949 with the introduction of the “Vine Products Plan” formed by the government. The abovementioned implementation was vital in order to overcome the problems of indisposed “Zivania” drink and raisins. The successful solution to the problem of excess production led to the establishment of the WPC, an organization with a vital role in regulating and supervising the vine and wine sectors.

The accession of Cyprus in the European Union emerged the importance for institutional reforms within the organization. These reforms were realized through the enactment of the Wine Products Council Law (61(I)/2004), ratified by the House of Parliament on the 31st of March 2004. As a result, the already called “Vine Products Council” was renamed into “Wine Products Council” and is currently under the supervision of the Ministry of Agriculture, Natural Resources and Environment. Nevertheless, WPC continues to be a semi-government organization, which is governed by a Board of Directors appointed by the Council of Ministers.

2. Mission

The WPC plays a fundamental role in the formation of policy and in overseeing the implementation of the Common Market Organisation of Wine and the Spirit Drinks regulations. The planning and implementation of structural measures that fall within the scope of governmental policy to enhance the sector’s competitive performance and to stipulate awareness of Cyprus wines in the local market were, among other activities, major policy priorities of WPC during the year in question.

3. Legislative framework in the wine sector

3.1 Current Legislative Framework

Since 1st August 2009 the wine sector is regulated under Regulation (EC) 1234/2007 establishing a common organisation of agricultural markets and on specific provisions for certain agricultural products (Single CMO Regulation). The integration of the wine sector (Regulation (EC) 479/2008) in the Single CMO has been ratified with the adoption on the Council Regulation (EC) 491/2009. At the same time, the provisions of the obsolete Regulation (EC) 479/2008 are still in force.
3.2 Alignment of Current Legislative Framework with the Treaty on the Functioning of the European Union (TFEU)

During 2011 the discussions for the harmonization of the current Single CMO Regulation (EC) 1234/2007 with the TFEU commenced on the basis of the proposal of the European Parliament and the Council of the European Union. The alignment of the current legislative framework (Regulation (EC) 1234/2007) with the provision of the TFEU is concerned with the distinction between delegated and implementing acts of the European Commission.

3.3 Reform of the Current Legislation

The technical examination of the proposed legislation regarding the Common Agricultural Market and the Common Agricultural Policy for the period 2014-2020 has commenced during 2011. The main aims of the reform are enhanced competitiveness, improved sustainability and greater effectiveness in EU’s agricultural industry.

3.4 International Representation

Officers of the WPC participated actively in meetings of the Management Committee for the Common Organisation of Agricultural Markets, in the Working Parties of the Council of the EU, as well as the scientific groups and General Assemblies of the International Organisation of Vine and Wine (OIV).

4. Cyprus Presidency of the Council of the European Union

During the year under review, officers of the WPC have attended seminars organized in the context of the forthcoming Cyprus Presidency of the Council of the EU.

Further, by the end of 2011 Cyprus entered into discussions with Danish Presidency regarding a proposal to Cyprus to undertake the presidency of the Working Party of the Council of the EU “Wine and Alcohol - OIV” during the Danish Presidency. The WPC, being the authority responsible for issues discussed in the context of the abovementioned Working Party, may chair the meetings as from January 2012 and will continue till the end of Cyprus Presidency, in December 2012.


The support schemes during the financial year 2010-2011, constitute a comprehensive and cohesive pack aiming at enhancing quality production and improving techno-economic performance of the vine-wine sector.

Having to cope with a highly competitive environment, the implementation of these measures is expected to have a positive feedback in the medium and long run and will provide a turning point, one which the industry was looking forward for quite a time. The schemes are expected to contribute substantially in recovering the competitiveness of the wine sector and in creating new dynamics of sustainable growth.

Cyprus is one of the six Member States who have allocated 100% of the budgeted amount to eligible applicants. During the third financial year (16/10/2010 – 15/10/2011) the available community budget of €3.801.000 was allocated among successful applicants of the
restructuring and conversion of vineyards scheme, the green harvesting scheme, the investment in enterprises scheme and the harvest insurance scheme.

5.1 Restructuring and Conversion of Vineyards
The scheme aims to adapt production to market demand, accelerate structural improvement, improve vineyard management techniques and strengthen competitiveness by switching from low quality to high quality vines.

The submission of applications commenced November 15, 2010 and completed on November 26, 2010. In total, 217 applications were approved, corresponding to an area of 1.498 decares. During the period under review an amount of €2,473,543, has been paid to eligible applicants.

5.2 Green Harvesting
The green harvesting program aims in eliminating excess grape production of the following grape varieties: Mavro, Xinisteri, Sultana, Carignan noir and Ofthalmo, Cabernet Sauvignon/Franc and Alicante Bouschet.

Interested parties submitted their applications from May 2, 2011 until May 13, 2011. Eventually, 394 applications have been approved, with a total area of 2,939.5 decares. Total funding paid to eligible applicants reached €522,849.

5.3 Investments in Enterprises
The investments in enterprises program aims to improve the economic performance of the enterprises and to upgrade their technological infrastructure. Further, it helps to enhance the competitiveness of the local wine industry by encouraging the investment in advanced technology, capable of yielding higher product quality.

The third call for applications commenced on December 13, 2010 and completed on February 25, 2011. During the third call, 16 applications have been approved and the financial aid paid to applicants reached the amount of €689,500.

5.4 Promotion of Wine in Third Countries
The promotion scheme aims to underpin marketing strategies, endorse ambitious promotion policies and to exploit the new opportunities provided by the emerging markets specifically in Third countries. The application of the scheme may achieve valuable and durable outcomes, once promotion succeeds to stimulate a fresh awareness among wine professionals and high end consumers of the value and distinct quality of Cyprus indigenous wines.

This scheme may constitute an important promotion and marketing tool of Cyprus wines, taking into consideration the fact that total funding can reach up to 80% of the eligible expenditure.

The third invitation to interested parties started on August 29, 2011 and ended on January 25, 2012, but no interest was shown, probably due to the current economic uncertainty and the ongoing financial crisis.

5.5 Harvest Insurance
During the year under review, 100% of the budgeted €115,040 has been paid as harvest insurance. This amount is paid to insure the vineyards against potential unfavourable weather conditions that may affect their production.
6. **Permanent Abandonment of Vineyards Scheme**

This scheme provides a generous grubbing-up premium, financed exclusively by the Union. The main objective of the scheme was to reduce excessive demand in order to attain equilibrium in the market.

WPC commenced receiving applications on July 12, 2010 and the procedure completed on July 30, 2010. In total, 746 applications have been approved, giving a total area to be grubbed-up of 3,669.6 decares, while the financial support reached €2,349,454, out of the budgeted amount of €2,405,145, reaching a disbursement rate of approximately 98%.

7. **Cyprus Vineyard**

According to the Vine Register held by the WPC, by the end of 2011 an area of 9,058.47 hectares has been covered with vineyards. Cyprus viticulture is characterised by its small vineyards. The vine growing area in Cyprus declined during the last years reflecting, in part, the large scale of agricultural activity abandonment, the application of subsidised uprooting schemes and the use of generous incentives aiming to concentrate the vineyard within the specified regions of quality wines.

Despite the trend, there is a noticeable effort from the producers to switch away from wine varieties of limited potential for adapting to current market trends, towards quality varieties for premium wine production.

8. **Production Yield and Destination**

The harvest reached 308,077 hectokilos, out of which 55,000 hectokilos have been harvested prematurely under the Green Harvest scheme. Following the completion of the Green Harvest scheme, 40,577 hectokilos were destroyed because of Plasmopara viticola, the causal agent of grapevine downy mildew. The disease affected mainly the vineyards in the district of Paphos.

9. **Wine Market**

In 2011, a drop in sales of wines in the internal market was inevitable due to ongoing financial crisis and subsequent loss of domestic demand.

On the other hand, an increase in wine exports in 2011 in comparison to 2010, marks the beginning of a new era with foreseeable prospects for the Cyprus wine industry. It partly reflects the intensive efforts of Cyprus wine producers in search of new markets, as well as maintaining current market shares.

The value of Brandy, Zivania and juice/must exports increased in 2011. Particularly, a sharp increase of 41% has been recorded regarding the value of Brandy. Zivania exports also increased to €128,900, or by 36% compared to 2011, while the value of juice/must exports for 2011 rose by 24%.

Exports of bottled wines without geographical indication increased by 22%, (96,062 litres) in 2011, compared to 78,505 litres in 2010. Growth in exports of bulk wine was 33%, while exports of wines in Tetra Pak packaging recorded an increase by 8%.
10. **6th Cyprus Wine Competition**

The Cyprus Wine Competition, conducted annually, is a significant event which communicates the value and growing popularity of Cypriot wines. It received extensive media coverage and proved to be beneficial in creating awareness wine and its modern renaissance.

The Competition was seen as a cornerstone of the emerging new era of Cyprus wines. It provides a challenge to the local wine makers and a mean to enhance the competitive performance of the sector, whereas at the same time it stipulates the awareness of the quality advances in wine-making during the last years. As international trends and needs have changed, the Cyprus wine industry began to evolve.

The 6th Cyprus Wine Competition was held between 13-16 April 2011, in Limassol, under the auspices of OIV (International Organization of Vine and Wine). In total, 163 wines coming from 34 producers participated in the competition covering all the spectrum of wine categories.
XVI. CYPRUS OLIVE PRODUCTS BOARD

1. Board’s Status

In 1968 Cyprus Olive Products Marketing Board was created via legislation, under the Law No. 24/68 and 60/68 with the main task of marketing Cyprus Olive Products, namely olive oil and table oils.

In 2004 Cyprus joined the European Union and a new Law, the 26(I)/2005, came into force, whereby the Board kept its status as a legal entity, but is not allowed to trade in olive products, only to provide services to olive oil producers with competitive prices.

2. Services to Olive Oil Producers

In the frame of its new role the Board provides the following services at a price:

1. Gather olive oil, chemical analysis, quality classification and storage of olive oil.
2. Olive oil bottled and packaged for the local and international market.
3. Provide information and other materials about the current demands of olive oil in the home market and abroad.
4. The Board issues payments upon request of the committee of co-operative.
5. The Board provides advisory services to the producer groups and individual ones regarding the current affairs within the European Union and the International Olive Oil Council developments about olive oil.
6. The Board advertises and promotes olive oil.
7. The Board takes steps for the retraction of stocks of olive oil from the market according to the guidance of the person in charge, on behalf of the European Union.
8. The Board proceeds with research and studies in relation to reduction of cost production and disposal, in relation to the increase of productivity, technology exploitation and other matters of promotion in olive cultivation.


Since April 2008, the Board has been granted the certificate CYS EN ISO 22000:2005 for the Assessment and Certification of Food Safety Management System. For this reason in April each year the Board is assess by the Cyprus Certification Company (C.C.C.) for conformity of the requirements of the standard ISO 22000:2005. Up to now the Board successfully completed the assessments by the inspectors of the C.C.C.

4. Training of the testing panel

According to E.U. regulation No. 2568/91 and No. 1019/2002 regarding the organoleptic characteristics of the virgin olive oil and the package labeling of olive oil, the Board set up the olive oil testing panel. In collaboration with the International Olive Oil Council, the Board organized two educational seminars for the testing panel.

In July 2009 again in collaboration with, and all expenses covered by, the International Olive Oil Council, two members of the panel were trained as panel leaders in Madrid. Returning to Cyprus the panel leaders organize regularly meetings for the training of the panel. The samples used for the training have been sent by the International Olive Oil Council for this purpose.
In order for the panel to be accredited by the International Olive Oil Council and Cyprus Authorities the Board constructed laboratory to be used by the testing panel.

Already the Board submitted application for accreditation of the laboratory.

Unfortunately the Department of Agriculture asked to postpone the process of accreditation in view of the fact that a decision has been taken to cease the operation of S.E.P.

5. The decision by the Government to terminate the operation of Cyprus Olive Board

Despise the efforts by the Board in cooperation with the Ministry of Agriculture, Natural Resources and Environment to change the decision which was taken by the Government Cabinet on the 28 February 2007 to terminate the operation of SEP, nevertheless the fiscal report on SEP didn’t alter that decision.

In the meeting which took place on the 10th January 2011, at the Ministry of Agriculture, Natural Resources and Environment it has been decided to implement the Cabinet decision during the year 2011.
APPENDIX
### Table 1
**Main Indicators of the Agricultural Sector 2007-2011**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Unit</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010 (a)</th>
<th>2011 (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GROSS OUTPUT AND VALUE ADDED</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross Output</td>
<td>€ mn.</td>
<td>642.5</td>
<td>682.1</td>
<td>673.7</td>
<td>690.8</td>
<td>699.7</td>
</tr>
<tr>
<td>Value Added</td>
<td>&quot;</td>
<td>294.8</td>
<td>349.3</td>
<td>345.3</td>
<td>354.9</td>
<td>364.5</td>
</tr>
<tr>
<td>Share of GDP (%)</td>
<td>%</td>
<td>1.9</td>
<td>2.0</td>
<td>1.9</td>
<td>1.9</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>At constant prices (1995)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross Output</td>
<td>€ mn.</td>
<td>490.4</td>
<td>432.8</td>
<td>437.1</td>
<td>456.7</td>
<td>467.5</td>
</tr>
<tr>
<td>Value Added</td>
<td>&quot;</td>
<td>234.9</td>
<td>134.5</td>
<td>145.0</td>
<td>149.2</td>
<td>155.1</td>
</tr>
<tr>
<td>Share of GDP (%)</td>
<td>%</td>
<td>2.2</td>
<td>2.0</td>
<td>1.9</td>
<td>1.9</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>INDICES OF AGRICULTURAL PRODUCTION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantity index</td>
<td>1995=100</td>
<td>87.4</td>
<td>75.9</td>
<td>80.2</td>
<td>76.3</td>
<td>77.6</td>
</tr>
<tr>
<td>Price index</td>
<td>1095=100</td>
<td>123.8</td>
<td>156.7</td>
<td>147.7</td>
<td>160.2</td>
<td>163.0</td>
</tr>
<tr>
<td><strong>EMPLOYMENT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of persons (fulltime equivalent)</td>
<td>000’s</td>
<td>26.319</td>
<td>25.800</td>
<td>20.754</td>
<td>18.867</td>
<td>18.343</td>
</tr>
<tr>
<td>% of total economically active population</td>
<td>%</td>
<td>6.6</td>
<td>6.3</td>
<td>5.1</td>
<td>4.9</td>
<td>4.8</td>
</tr>
<tr>
<td><strong>EXPORTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value of raw agricultural products exported</td>
<td>€ mn.</td>
<td>120.9</td>
<td>116.7</td>
<td>82.7</td>
<td>86.2</td>
<td>n.a.</td>
</tr>
<tr>
<td>% of total domestic exports</td>
<td>%</td>
<td>23.8</td>
<td>21.3</td>
<td>17.3</td>
<td>15.2</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

(a) Provisional  
Source: Agricultural Statistics, Statistical Service, Ministry of Finance
Table 2
Gross Output by sub-sector, 2006-2011
At Current prices

<table>
<thead>
<tr>
<th>Sub-sector</th>
<th>€</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2006</td>
</tr>
<tr>
<td>Crops</td>
<td>278,8</td>
</tr>
<tr>
<td>Livestock</td>
<td>288,1</td>
</tr>
<tr>
<td>Forestry</td>
<td>3,4</td>
</tr>
<tr>
<td>Secondary production (b)</td>
<td>29,2</td>
</tr>
<tr>
<td>Other (c)</td>
<td>27,9</td>
</tr>
<tr>
<td>Total Gross Output of</td>
<td>627,4</td>
</tr>
<tr>
<td>Agricultural Sector</td>
<td></td>
</tr>
<tr>
<td>Value added of agricultural</td>
<td>300,7</td>
</tr>
</tbody>
</table>

(a) Provisional Data.
(b) Milk and grape products (cheese, raisins, zivania etc.).
(c) Own account fixed capital formation and insurance compensations.

Source: Agricultural Statistics, Statistical Service, Ministry of Finance
Table 3

Employment in agriculture\(^{(a)}\)

<table>
<thead>
<tr>
<th>Year</th>
<th>(000's)</th>
<th>% of total economically active population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1977</td>
<td>38.0</td>
<td>18.9</td>
</tr>
<tr>
<td>1978</td>
<td>37.0</td>
<td>18.1</td>
</tr>
<tr>
<td>1979</td>
<td>37.1</td>
<td>17.5</td>
</tr>
<tr>
<td>1980</td>
<td>36.9</td>
<td>16.8</td>
</tr>
<tr>
<td>1981</td>
<td>37.1</td>
<td>16.4</td>
</tr>
<tr>
<td>1982</td>
<td>36.3</td>
<td>15.8</td>
</tr>
<tr>
<td>1983</td>
<td>36.2</td>
<td>15.3</td>
</tr>
<tr>
<td>1984</td>
<td>36.6</td>
<td>15.1</td>
</tr>
<tr>
<td>1985</td>
<td>36.3</td>
<td>14.6</td>
</tr>
<tr>
<td>1986</td>
<td>35.4</td>
<td>14.1</td>
</tr>
<tr>
<td>1987</td>
<td>35.7</td>
<td>13.9</td>
</tr>
<tr>
<td>1988</td>
<td>35.0</td>
<td>13.5</td>
</tr>
<tr>
<td>1989</td>
<td>35.9</td>
<td>13.2</td>
</tr>
<tr>
<td>1990</td>
<td>35.4</td>
<td>12.8</td>
</tr>
<tr>
<td>1991</td>
<td>34.4</td>
<td>12.3</td>
</tr>
<tr>
<td>1992</td>
<td>35.0</td>
<td>12.2</td>
</tr>
<tr>
<td>1993</td>
<td>34.6</td>
<td>12.0</td>
</tr>
<tr>
<td>1994*</td>
<td>30.4</td>
<td>10.3</td>
</tr>
<tr>
<td>1995</td>
<td>30.9</td>
<td>10.7</td>
</tr>
<tr>
<td>1996</td>
<td>30.1</td>
<td>10.4</td>
</tr>
<tr>
<td>1997</td>
<td>29.7</td>
<td>9.7</td>
</tr>
<tr>
<td>1998</td>
<td>30.6</td>
<td>9.8</td>
</tr>
<tr>
<td>1999</td>
<td>31.7</td>
<td>9.9</td>
</tr>
<tr>
<td>2000</td>
<td>31.1</td>
<td>9.6</td>
</tr>
<tr>
<td>2001</td>
<td>30.6</td>
<td>9.3</td>
</tr>
<tr>
<td>2002</td>
<td>30.1</td>
<td>9.0</td>
</tr>
<tr>
<td>2003</td>
<td>31.0</td>
<td>8.7</td>
</tr>
<tr>
<td>2004</td>
<td>30.9</td>
<td>8.4</td>
</tr>
<tr>
<td>2005</td>
<td>29.1</td>
<td>7.8</td>
</tr>
<tr>
<td>2006</td>
<td>27.7</td>
<td>7.2</td>
</tr>
<tr>
<td>2007</td>
<td>26.3</td>
<td>6.5</td>
</tr>
<tr>
<td>2008</td>
<td>25.3</td>
<td>6.3</td>
</tr>
<tr>
<td>2009</td>
<td>20.8</td>
<td>5.1</td>
</tr>
<tr>
<td>2010(prov.)</td>
<td>18.9</td>
<td>4.9</td>
</tr>
<tr>
<td>2011(prov.)</td>
<td>18.3</td>
<td>4.8</td>
</tr>
</tbody>
</table>

\(^{(a)}\) Number of persons (fulltime equivalent)

*Revision of data based on agricultural census, 2003

Source: Agricultural Statistics, Statistical Service, Ministry of Finance
Table 4
Production of main agricultural and livestock products
2007-2011

<table>
<thead>
<tr>
<th>Products</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010*</th>
<th>2011*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A.Crops</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.Barley</td>
<td>52.007</td>
<td>3.496</td>
<td>40.092</td>
<td>41.520</td>
<td>41.185</td>
</tr>
<tr>
<td>3.Potatoes</td>
<td>155.500</td>
<td>115.000</td>
<td>112.500</td>
<td>82.000</td>
<td>109.559</td>
</tr>
<tr>
<td>4.Carrots</td>
<td>1.879</td>
<td>1.899</td>
<td>1.874</td>
<td>1.988</td>
<td>1.968</td>
</tr>
<tr>
<td>5.Orange</td>
<td>42.113</td>
<td>37.847</td>
<td>34.441</td>
<td>42.060</td>
<td>25.750</td>
</tr>
<tr>
<td>8.Grapes**</td>
<td>33.892</td>
<td>32.381</td>
<td>29.688</td>
<td>27.860</td>
<td>30.045</td>
</tr>
<tr>
<td>13.Pears</td>
<td>1.138</td>
<td>1.230</td>
<td>1.300</td>
<td>1.700</td>
<td>1.640</td>
</tr>
<tr>
<td>14.Almonds</td>
<td>668</td>
<td>432</td>
<td>332</td>
<td>460</td>
<td>420</td>
</tr>
<tr>
<td><strong>B.Livestock</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.Milk</td>
<td>183.358</td>
<td>194.981</td>
<td>193.511</td>
<td>191.908</td>
<td>193.770</td>
</tr>
<tr>
<td>3.Pork</td>
<td>54.978</td>
<td>59.173</td>
<td>58.102</td>
<td>57.057</td>
<td>58.970</td>
</tr>
<tr>
<td>5.Sheep</td>
<td>3.094</td>
<td>3.335</td>
<td>2.747</td>
<td>2.526</td>
<td>2.644</td>
</tr>
</tbody>
</table>

*Provisional Data
(a) Wine and table grapes
Source: Agricultural Statistics, Statistical Service, Ministry of Finance
Table 5

Value of production of main agricultural and livestock products
(At current farmer’s prices)
2007-2011

<table>
<thead>
<tr>
<th>Products</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010*</th>
<th>2011*</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Crops</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Wheat</td>
<td>2.027</td>
<td>1.112</td>
<td>5.435</td>
<td>4.560</td>
<td>3.886</td>
</tr>
<tr>
<td>2. Barley</td>
<td>7.603</td>
<td>8.23</td>
<td>5.372</td>
<td>5.866</td>
<td>6.034</td>
</tr>
<tr>
<td>3. Potatoes</td>
<td>51.210</td>
<td>42.222</td>
<td>37.960</td>
<td>32.310</td>
<td>41.012</td>
</tr>
<tr>
<td>4. Carrots</td>
<td>1.174</td>
<td>1.052</td>
<td>1.076</td>
<td>1.177</td>
<td>1.188</td>
</tr>
<tr>
<td>8. Grapes (a)</td>
<td>8.448</td>
<td>8.705</td>
<td>7.701</td>
<td>7.665</td>
<td>8.240</td>
</tr>
<tr>
<td>12. Melons</td>
<td>4.746</td>
<td>5.172</td>
<td>3.950</td>
<td>4.009</td>
<td>4.320</td>
</tr>
<tr>
<td>13. Pears</td>
<td>1.165</td>
<td>1.943</td>
<td>1.638</td>
<td>2.257</td>
<td>1.870</td>
</tr>
<tr>
<td>14. Almonds</td>
<td>488</td>
<td>412</td>
<td>225</td>
<td>446</td>
<td>418</td>
</tr>
<tr>
<td>16. Carobs</td>
<td>1.261</td>
<td>1.688</td>
<td>1.121</td>
<td>1.487</td>
<td>1.990</td>
</tr>
<tr>
<td>B. Livestock</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Milk</td>
<td>86.135</td>
<td>105.584</td>
<td>106.222</td>
<td>105.062</td>
<td>112.307</td>
</tr>
<tr>
<td>3. Pork</td>
<td>80.189</td>
<td>87.951</td>
<td>88.896</td>
<td>89.752</td>
<td>93.467</td>
</tr>
<tr>
<td>4. Poultry</td>
<td>64.643</td>
<td>72.019</td>
<td>65.517</td>
<td>67.685</td>
<td>75.912</td>
</tr>
<tr>
<td>7. Eggs (000’s dozens)</td>
<td>12.628</td>
<td>16.845</td>
<td>16.590</td>
<td>17.559</td>
<td>17.860</td>
</tr>
<tr>
<td>8. Live animals exported</td>
<td>1.446</td>
<td>921</td>
<td>163</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

*Provisional Data
(a) Wine and table grapes
Source: Agricultural Statistics, Statistical Service, Ministry of Finance
## Table 6

Fishing Output 2008 - 2011

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th></th>
<th>2009</th>
<th></th>
<th>2010</th>
<th></th>
<th>2011</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quant.</td>
<td>Value</td>
<td>Quant.</td>
<td>Value</td>
<td>Quant.</td>
<td>Value</td>
<td>Quant.</td>
<td>Value</td>
</tr>
<tr>
<td><strong>SEA FISHERY</strong></td>
<td>1.997</td>
<td>13.2</td>
<td>1.900</td>
<td>11.8</td>
<td>1.109</td>
<td>7.79</td>
<td>1.000</td>
<td>7.34</td>
</tr>
<tr>
<td>Inshore Fishery</td>
<td>1.031</td>
<td>8.3</td>
<td>1.000</td>
<td>8.0</td>
<td>710</td>
<td>5.96</td>
<td>700</td>
<td>5.67</td>
</tr>
<tr>
<td>Trawl Fishery (National Waters)</td>
<td>264</td>
<td>0.90</td>
<td>169</td>
<td>0.58</td>
<td>173</td>
<td>0.62</td>
<td>71</td>
<td>0.25</td>
</tr>
<tr>
<td>Trawl Fishery (International Waters)</td>
<td>269</td>
<td>1.9</td>
<td>269</td>
<td>1.9</td>
<td>16</td>
<td>0.12</td>
<td>16</td>
<td>0.12</td>
</tr>
<tr>
<td>Sword Fish and Tuna</td>
<td>433</td>
<td>2.1</td>
<td>263</td>
<td>1.25</td>
<td>210.8</td>
<td>1.09</td>
<td>213</td>
<td>1.10</td>
</tr>
<tr>
<td><strong>MARINE &amp; FRESHWATER AQUACULTURE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>33.5</td>
<td>17.3</td>
<td>21.91</td>
<td>31.76</td>
</tr>
<tr>
<td>Aquaculture fish and Prawns</td>
<td>3.600</td>
<td>31.5</td>
<td>3.390</td>
<td>16.00</td>
<td>4.077</td>
<td>20.01</td>
<td>5.015</td>
<td>28.36</td>
</tr>
<tr>
<td>Fry and Decorative fish</td>
<td>13 m.</td>
<td>2.0</td>
<td>11.8 m.</td>
<td>1.3</td>
<td>12.2 m.</td>
<td>1.9</td>
<td>20.3 m</td>
<td>3.4</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>46,700</td>
<td></td>
<td>25,100</td>
<td></td>
<td>29,700</td>
<td></td>
<td>39,100</td>
<td></td>
</tr>
</tbody>
</table>

\(m = \text{million}\)

Source: Department of Fisheries and Marine Research
Table 7: Weather Conditions during 2011

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>106.0</td>
<td>102.4</td>
<td>103</td>
<td>15.2</td>
<td>13.2</td>
<td>-2.0</td>
<td>6.7</td>
<td>4.8</td>
<td>2.1</td>
<td>5.3</td>
<td>5.5</td>
<td>9.6</td>
</tr>
<tr>
<td>February</td>
<td>73.6</td>
<td>81.8</td>
<td>90</td>
<td>15.5</td>
<td>13.7</td>
<td>-1.8</td>
<td>6.3</td>
<td>4.9</td>
<td>1.4</td>
<td>8.3</td>
<td>6.4</td>
<td>9.8</td>
</tr>
<tr>
<td>March</td>
<td>86.8</td>
<td>61.9</td>
<td>111</td>
<td>17.7</td>
<td>15.2</td>
<td>-2.0</td>
<td>7.1</td>
<td>5.0</td>
<td>2.0</td>
<td>7.8</td>
<td>7.2</td>
<td>10.8</td>
</tr>
<tr>
<td>April</td>
<td>42.8</td>
<td>29.8</td>
<td>143</td>
<td>20.4</td>
<td>20.4</td>
<td>0.0</td>
<td>10.1</td>
<td>9.1</td>
<td>1.0</td>
<td>7.7</td>
<td>8.8</td>
<td>8.7</td>
</tr>
<tr>
<td>May</td>
<td>24.3</td>
<td>19.6</td>
<td>124</td>
<td>24.7</td>
<td>24.5</td>
<td>-0.2</td>
<td>13.7</td>
<td>12.5</td>
<td>1.2</td>
<td>9.5</td>
<td>10.4</td>
<td>9.2</td>
</tr>
<tr>
<td>June</td>
<td>9.5</td>
<td>6.0</td>
<td>158</td>
<td>29.7</td>
<td>28.3</td>
<td>-1.4</td>
<td>18.0</td>
<td>16.1</td>
<td>1.9</td>
<td>11.6</td>
<td>12.0</td>
<td>9.7</td>
</tr>
<tr>
<td>July</td>
<td>0.0</td>
<td>2.6</td>
<td>0</td>
<td>33.3</td>
<td>31.1</td>
<td>-2.2</td>
<td>20.8</td>
<td>16.9</td>
<td>3.9</td>
<td>12.0</td>
<td>12.2</td>
<td>9.6</td>
</tr>
<tr>
<td>August</td>
<td>0.6</td>
<td>2.9</td>
<td>21</td>
<td>33.4</td>
<td>31.0</td>
<td>-2.4</td>
<td>21.1</td>
<td>18.7</td>
<td>2.4</td>
<td>11.3</td>
<td>11.6</td>
<td>9.7</td>
</tr>
<tr>
<td>September</td>
<td>20.2</td>
<td>4.5</td>
<td>449</td>
<td>30.9</td>
<td>23.7</td>
<td>-2.2</td>
<td>16.8</td>
<td>10.4</td>
<td>6.4</td>
<td>9.7</td>
<td>10.3</td>
<td>9.4</td>
</tr>
<tr>
<td>October</td>
<td>14.5</td>
<td>32.7</td>
<td>44</td>
<td>25.0</td>
<td>24.3</td>
<td>-0.7</td>
<td>14.1</td>
<td>13.1</td>
<td>1.0</td>
<td>8.1</td>
<td>8.6</td>
<td>9.4</td>
</tr>
<tr>
<td>November</td>
<td>80.5</td>
<td>53.0</td>
<td>151</td>
<td>13.4</td>
<td>13.0</td>
<td>-0.6</td>
<td>6.5</td>
<td>9.3</td>
<td>-3.0</td>
<td>5.5</td>
<td>7.0</td>
<td>9.3</td>
</tr>
<tr>
<td>December</td>
<td>117.2</td>
<td>105.6</td>
<td>111</td>
<td>15.4</td>
<td>14.3</td>
<td>-1.5</td>
<td>8.8</td>
<td>8.3</td>
<td>0.5</td>
<td>5.2</td>
<td>5.6</td>
<td>11.1</td>
</tr>
<tr>
<td>Total/Mean</td>
<td>557.9</td>
<td>503.0</td>
<td>111</td>
<td>23.4</td>
<td>22.1</td>
<td>-1.3</td>
<td>12.7</td>
<td>11.3</td>
<td>1.4</td>
<td>9.5</td>
<td>6.8</td>
<td>9.7</td>
</tr>
</tbody>
</table>