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INTRODUCTION

1. Responsibilities

The State General Laboratory (SGL), a Department of the Ministry of Health is the official Laboratory used by the Government to fulfil requirements embodied in the laws and cover the following areas: analysis of foodstuffs, pharmaceuticals, cosmetics, food supplements, water, environmental samples, police exhibits, narcotics, biological samples from poisoning cases and unnatural deaths, goods purchased by the Government Stores and industrial products through customs, for tariff classification, children's toys, articles in contact with food and agricultural products for export.

Within the framework of its responsibilities it co-operates with all Ministries, Municipalities and Organisations. It participates in Boards/Councils covering the following areas: Food, Pharmaceuticals, for Human use, Cosmetics, Agricultural Medicines, Veterinary Medicines, Food Safety and Cancer.

It participates also in the National Committee of Nutrition, National Committee in Fighting Cancer, National Centre of Information on Narcotics, and the National Committee on Environment and Children's Health.

2. Priorities and Objectives of the SGL

The following could be highlighted:

- (a) Developing integrating and transforming scientific knowledge and laboratory data into strategic planning and policy setting in the areas of food and water safety so as, to safeguard consumer health and interests, support environmental protection and administration of justice.
- (b) Supporting areas and policies that are related to socioeconomic development such as commerce and industry and fair trade and strengthening the competitiveness of Cyprus products.
- (c) Maintaining and expanding SGL's Accreditation fields based on the ISO/IEC 17025 standard so as to encompass, in a fruitful manner, its increasing responsibilities emanating from Cyprus discussion to the EU.

- (d) Implementing mechanisms, which target towards the representativeness, effectiveness of quality control while enhancing efficiency and productivity.
- (e) Fulfilling its role within the European Union, by harmonizing all its activities with EU Acquis as well as by contributing to the various networks organized by European Bodies/Authorities, to the implementation of EU-level functions and research programmes.
- (f) Provision and evaluation of laboratory data concerning the use and trafficking of narcotics in Cyprus.
- (g) Preventing and solving problems related to the safety and quality of food, environment and drugs.
- (h) Securing the long term safety, sustainability and multifunctionality of the island's water resources based on chemistry and ecotoxicology .
- (i) Facilitating the Police in crime investigation and combating drug trafficking/use as well as courts in the judicial process by providing expert witnessing.
- (j) Using Integrated and Holistic evaluation schemes based on scientific information and data to upgrade Laws and Regulations.

3. Means of reaching objectives

3.1 Implementing and Maintaining a Quality Assurance programme

The SGL has put in place, within all its laboratories a quality policy and a QA programme based on the standard ISO/IEC 17025 to build mutual confidence, foster recognition of their quality of work and to comply with European and international guidelines and standards. Its quality policy forms an integral part of its response towards the responsibilities it has been given, in terms of reliability, safety and confidence. All areas, therefore, of scientific, technical and managerial work are subject to the quality provisions. The ISO/IEC 17025 is the valid quality standard for calibrating and testing laboratories and includes the application of standard methods, as well as non-standard methods in combination with an adequate level of calibration based on a clear concept of validation procedures. To date, 13 laboratories (all 10 Food Laboratories - 01, 02, 05, 06, 08, 12, 13, 14, 15 and 16), the Laboratory for the Quality Control of Pharmaceuticals and Cosmetics - (04), the Forensic Chemistry and Toxicology Laboratory (03) and the Ecotoxicology Laboratory (07)) (see organogramme) have received

accreditation by ESYD (the Greek Accreditation Body) which accredited the first 11 laboratories in 2002 and the last 2 in 2003.

The Quality System covered both intra and inter laboratory controls while implementing official procedures (internal audits, reviews, corrective actions etc.) Interlaboratory controls have been implemented through Proficiency Tests (80 tests overall, in 2004) with official Organisations/Agencies in Europe and USA. The SGL has always rated among the top and showed a high professional level of its personnel and its competence. This resulted in enhancing the confidence, dedication, self-development and zeal of the personnel.

During 2004, a reorganisation of the SGL was completed (see organogramme) and there was a reallocation of Quality Managers. The latter changes and amendments were included in the new edition of the Quality Manual and Forms.

Efforts were also focused towards strengthening the co-operation of the SGL with the Greek National Metrology Foundation and other Accredited Labs.

3.2 Accreditation

In 2004, 13 labs in the SGL were audited by the Greek Accreditation Body ESYD and extended their scope of accreditation in new methods and techniques (14 in all) (Annex 1 shows the Accredited Labs). Details of the accredited methods/techniques can be found at the web site of the SGL: www.sgl.moh.gov.cy.

Prompted by its long experience in QA programmes and Accreditation procedures the SGL undertook with the approval of the Ministry of Health to train scientists of the public and private domain in these topics. The training covered an intensive programme called "DIAMETROS" given in 3 parts with 25 participants.

3.3 Premises

The extension of the SGL was also completed housing the Microbiology

section, Ecotoxicology lab and the Safety of Toys. Efforts were targeted towards initiating the planning for the construction of a new SGL and towards the completion of construction changes on the current premises.

3.4 Planning and implementing Monitoring Surveillance/Research programmes

To achieve cost effectiveness and the best possible outcome of all the activities integrated and well coordinated monitoring surveillance programmes are drafted in cooperation with the Competent Authorities. These national programmes are planned and implemented so as to

- (a) confirm that products comply with national laws and regulations and
- (b) provide preventive measures to existing local problems through target oriented and applied research and
- (c) respond to evolving problems that arise through official channels.

The SGL implements applied research in its areas of responsibilities incorporating it in the challenging fields of method development, surveillance and problem solving programmes. While doing so, it achieves more effective utilization and management of results.

The results from this research can be utilized for policy making and supervision. The SGL has also succeeded in incorporating part of its responsibilities in European Research Programmes. A number of such research results have seen the light of publication in international journals.

3.5 Enhancing Human Resources

a) The learning unit organised lectures for the staff and provided training programmes on management, communication skills, as well as other programmes related to the EU functions through the Cyprus Academy of Public Administration and co-ordinated all education programmes locally and internationally.

b) SGL's wide range of analytical work is covered by 22 Laboratories as shown in the organogramme under six sections with the support of a registry, stores, library, IT and QA Unit, secretariat, accounts. During 2004, the staff comprised 40 chemists and microbiologists - grade one and two - in the positions of the Director, Senior Chemists and Chemists, 42 Chemists in the positions of senior technicians and technicians and 21, in all,

clerks, receptionists, telephonists, cleaners, messengers, store keeper, sterilization and laboratory attendants. Chemists and Microbiologists (35 in all) were also employed on a one-year contract.

3.6 National and International Co-operation

The SGL co-operates closely with the Ministry of Health and the other Ministries as well as the Consumer Association in educational programmes such as the one on Food Supplements organised this year for school doctors/nurses.

It has also close co-operation with European networks and this year a symposium of network of the European Forensic Science. Institutes was organised for Fire Investigation Specialists by the SGL, in Larnaca.

4. Laws and Regulations

The SGL has contributed substantially towards the updating of Laws relevant to its responsibilities as well to the preparation of new Regulations harmonized with the European Acquis.

5. Financial Resources

Expenditures incurred by the SGL in 2004 amounted to £3,613.197 (compared to £3,407.245 in 2003) as provided by the Ordinary and Development Budget. Revenue amounted to £65,923 compared £72,342 in 2003, an amount that reflects to fees charged on analysis. There was also an external fund, which amounted to £36,323 from European Projects, £718,865 from Preaccession support from EU and £28,120 from Research Funds of the Research Foundation.

6. WORK CARRIED OUT BY LABORATORIES

SECTION A

Food Composition and Nutrition Laboratory (01)

The laboratory analysed 1221 samples during 2004 which were collected according to national food laws.

The Lab has been accredited since 2003 in 8 methods. Also the Lab participated in proficiency tests with excellent performance.

During 2004 the laboratory organized the congress COST 922 on Biogenic Amines and participated in the following procedures:

- 1) Validation of the method of TVB determination,
- 2) A survey for determining the presence of histamine in fishes of the Cyprus market.

Specifically the lab carried out the following control programmes:

- a) Monitoring of the quality and adulteration of olive oil and seed oils.
- b) Control of histamine levels and Total Volatile Bases in fish.
- c) Monitoring of the quality and adulteration of honey.
- d) Monitoring of the quality of dairy products.
- e) Monitoring of the quality and adulteration of fruit juices.

In 2004 a high technology Isotopic Ratio Mass Spectrometer was installed in the laboratory with which a specific adulteration of honey and fruit juices as well as the authenticity of glucose was possible to be determined.

SNIF-NMR Lab (20)

The Nuclear Magnetic Resonance laboratory uses spectroscopic (NMR, FT-IR) and other isotopic techniques (IR-MS) to discriminate authentic and non authentic foodstuffs (wines, alcoholic beverages and honey). In the area of food authentication the measurement of isotopic characteristics by SNIF-NMR, can provide an insight into the geographical and / or botanical origin of

a product. The results are processed using multivariate chemometric techniques.

Since 2003 the laboratory participates in the following research programmes:

1. Establishing a databank with the analytical results of the deuterium NMR of wines at a European level with the co-ordination of the Joint Research Centre. The technique is used to check for adulterations such as the addition of sugar from different sources prior to fermentation. Furthermore, SNIF-NMR can provide information about the geographical origin of wines and wine products in accordance with Reg. No 2729/2000.
2. Studying the authenticity of the Traditional Cypriot Wine Commandaria A research programme, in collaboration with other partners (financially supported by the Cyprus Research Promotion Foundation). A lot of different variables are analyzed to compare the chemical and isotopic composition of Commandaria samples with that of other comparable wines produced in other countries, to prove its geographical uniqueness and to pursue a set of standards for its production. The lab has submitted and successfully coordinated this proposal with the Food Additives and Special Analysis of Food Laboratory, the Department of Chemistry of the University of Cyprus, the Viticulture and Oenology Section of the Ministry of Agriculture and the Vine Products Commission. Given the proven national and commercial value of Commandaria, it is necessary to scientifically support the authenticity of this product as a traditional wine with unique characteristics and support the producers from the 14 villages in Commandaria area.

The NMR lab participates in the Scientific Committee at a European level for establishing the European Data Bank on isotopic analysis (SNIF-NMR and IR-MS techniques) of wine-sector products, in the production of national data and the establishment of new rules for the investigation of problems (e.g.fraud) in the wine-sector analysis and monitoring of the performance of the NMR laboratories, by participating in an international proficiency testing on isotopic analysis of wines and alcohol (FIT-PTS).

SECTION B

Forensic Science and Toxicology Laboratory (03)

The laboratory has the responsibility for the analysis of police exhibits from cases involving controlled drugs namely their use, dealing and trafficking, cases of arson and explosives, and of murder, malicious damages etc. Its aim is to provide an independent scientific support to the police as well as unbiased evidence to the justice system as a whole. During 2004 the laboratory received 2747 exhibits, with narcotics being the predominant class (1467 exhibits). The tremendous increase observed in ECSTACY tablets in recent years (5268 tablets in 2004 and 5725 in 2003 compared to 2967 in 2001) as well as in heroin exhibits (135 exhibits in 2004 and 130 in 2003 compared with 50 exhibits in 2002) is cause for particular concern. During the year, the laboratory began the quantitative analysis of controlled drugs and also gunshot residue analysis, with the installation of the Scanning Electron Microscope, in cases involving shootings.

In 2004, the Forensic Science and Toxicology Laboratory organized the annual ENFSI (European Network of Forensic Science Institutes) Fire and Explosion Investigation Working Group meeting in Cyprus with great success.

The laboratory also carried out toxicological analyses in criminal investigations involving unnatural deaths, drink/driving offences (blood alcohol) and poisonings as well as in hospital emergency cases involving namely drugs and pesticides. The laboratory also periodically monitored drug addicts on detox programs as well as prisoners from the Cyprus Prison. In 2004, there has been an exceptionally high number of drug-related deaths; 13 cases in 2004 compared with 1 death in 2003.

The laboratory implements a strict Quality Assurance program and has been accredited with the ISO/IEC 17025 since 2002. In 2004, the laboratory expanded its scope of accreditation in the field of drug analysis, specifically in heroin analysis and is in the process of being accredited in the detection of ignitable liquids in arson cases. The laboratory has participated in external proficiency testing in arson.

Laboratory for the Quality Control of Pharmaceuticals, Cosmetics and Food Supplements (04)

The aim of the laboratory is to contribute towards the following:

To protect human health in relation to the quality, safety and effectiveness of the prescribed drugs and purchased cosmetics until their expiry date, to assist in the advancement of trade and pharmaceutical and cosmetic industries and the competitiveness of their products through their analysis and the assessment of the pharmaceutical manufacturer's dossiers, and to provide reliable laboratory data to the Drug Council and Cosmetics Council for the support and implementation of government policies.

The responsibilities of the lab during 2004 have covered distinct areas by monitoring/surveillance programs for Pharmaceuticals of human use and Cosmetics. During 2004 the laboratory given the responsibility to take over the quality control of Food Supplements started also the analysis of Food Supplements according to Food Supplement harmonized Regulations of 2004 enforced in April 2004. The Food Supplements Regulations cover only vitamins, trace elements but since some of these supplements have been used as a means to illegally promote the use of anabolic steroids and stimulants focus was given on the latter. The strict control of such products provides a tool to protect youth involved in recreational and professional sports. The Laboratory carried out a pilot program with 43 single samples for 12 Anabolic Steroids and 3 Stimulants.

The Laboratory has achieved to expand its accreditation scope (by ISO/IEC 17025) by covering other techniques for the pharmaceuticals and also in the field of cosmetics. In the proficiency tests that has participated in, within the European Official Medicines Control Laboratory network, it rated among the first.

Laboratory for Veterinary Residues (05)

Based on EC Directive 96/23, the Laboratory of the Veterinary Drug Residues has the responsibility to fulfil 80% of the overall national monitoring program for the control of veterinary drug residues in meat and

samples of animal origin. Unfortunately only 35% of the expected number of samples to be analysed (3210) were tested. Out of the 1057 samples that were submitted by the Veterinary Services, 63% were meat samples, 13% milk, 3% fish, 4% eggs and 6% water samples. A total of 1792 parameters were covered that focused on drugs such as anabolics, antibiotics, thyreostatics, tranquilizers. Sulphadiazine was detected in a pork sample which was above the maximum residue limits (MRL) and Malachite Green, a forbidden drug was detected in aquaculture fish.

During the year an increase in the use of prohibited substances was noted. These substances were found in rabbit meat (nitroimidazole), fish (malachite green/chicken (Nicarbazine) and bovine urine (a-Nortestosterone). Out of 20 samples of honey that were submitted for analysis, 11 contained Sulfonamides (55% of the total) which are not allowed to be used in honey production.

The laboratory initiated with the co-operation of the Veterinary Services a residue programme covering samples of animal origin from third countries, as required by the EU. The number was 235. Within this programme, chloramphenicol, which is a prohibited drug was detected in samples of honey imported from India. Analysis of 215 samples (11% of the total) was carried within the QA programme.

The Laboratory participated in proficiency testing schemes organised by the 3 community reference Labs, (AFSSA/France, RIVM/The Netherlands and BVL/Germany, as well as the FAPAS (UK) scheme. As a National Reference Lab it has developed new methods e.g. sulfonamides in honey and a multiresidue method for anabolics in meat.

The Laboratory has still a lot of methods to develop especially confirmatory methods that will be able to implement upon installation of a new LC-MS/MS during 2005.

Putting more multiresidues methods in place with the LC MS/MS will facilitate the Lab to fulfil its obligations both as NRL and as a routine Lab that should cover 80% of the national residue plan.

SECTION C

Laboratory of Environmental Chemistry I (Lab 06)

The Lab of Environmental Chemistry I undertakes almost exclusively monitoring and research activities in the field of water pollution investigation and control. It supports the competent authorities in implementing the EU legislation and it has been accredited by ESYD since 2002.

During 2004 it has participated successfully in the International Proficiency Testing for Chemical Analytical Laboratories - Aquacheck- for 4 different groups of micropollutants in water such as Pesticides and PAHs.

Throughout 2004 the laboratory has analyzed 180 water samples for 5-8 different groups of parameters. Testing is carried out either for purposes of specific surveillance and monitoring or for investigation of pollution incidents. The main activities are summarized as follows:

- 1) Monitoring and applied research Program on potential pollution of (i) the Surface waters according to the directives 75/440/EE and 79/869/EE as well as the Water Framework directive 2000/60/EE where 41 samples were analyzed and (ii) the Drinking water, according to directive 98/83/EE and the respective Law N87(I)/2001 under which 47 samples were analyzed.
- 2) "Integrated Monitoring and Early Warning System for the Nicosia Sewerage Treatment Plant -Safe Reuse of Effluents " financed by UNOPS under which treated effluent as well as water samples from the river into which the treated effluent is discharged were examined. The project lasted 3 years and was completed in August 2004 (1/4/01-31/8/04)
- 3) "Monitoring the Environmental impact of Acrotiri aquifer after its enrichment with treated effluent from the Amathous-Limasol treatment plant". Implementation of this program started in 1998 for the determination of the background pollution before the discharge and was continued during 2004 with 8 more samples. So far 34 samples were examined. The investigation will continue during 2005.
- 4) Investigation of pollution incidents:
 - (i) Pollution by petrol of the aquifer in the Limassol seaside area. 40 ground water samples and 5 sea water samples were examined during 2003 and the investigation was continued until early 2004 with extra 14 ground water

samples. The results were evaluated and reported to the Geological Department.

(ii) Pollution by hydrocarbons in the seaside area of Vasiliko in Limassol where 15 water and sea samples were analyzed. The results were evaluated and reported to the Fisheries Department.

(ii) Pollution of the ground water by petrol in the area of Likavitos in Nicosia where 12 samples were analyzed.

5) For the implementation of the Directive 78/659/EE the laboratory undertook the analysis of 20 samples for the presence of the metals Copper and Zinc.

Ecotoxicology Laboratory (Lab 07)

The Ecotoxicology laboratory constitutes an essential part of the integrated monitoring and surveillance program in accordance with the international and European practice and legislation. It will support the implementation of the EU Framework Directive 2000/60. Toxicity testing is carried out on environmental samples using bacteria, algae and daphnia. The samples include water, soil, sediments industrial and other wastes and chemical substances. The laboratory has been accredited by ESYD in 2003.

During 2004, 135 environmental samples were tested for 3-4 different toxicity tests. The total number of tests carried out was 438, 39% of which were quality control samples. Testing is carried out either for purposes of specific surveillance and monitoring or for investigation of pollution incidents. The environmental samples analyzed include:

- a) treated effluents from the treatment plant at Mia Milia under UNOPS financed program "Integrated Monitoring and Early Warning System for the Nicosia Sewerage Treatment Plant -Safe Reuse of Effluents",
- b) treated effluent under the Monitoring program for the Waste Treatment Plants like SALA Limassol, SAL Larnaca, Paralimni and Ayia Napa carried out by the Water Development Department,
- c) samples under the Integrated Monitoring program for surface waters of Cyprus which are monitored for additional parameters according to directives 2000/60/EC and 74/440/EC,
- d) ground water samples which were investigated for pollution by petrol.

The Lab also participated in the project "Reduction of environmental risks, posed by Emerging Contaminants (e.g pharmaceuticals), through advanced treatment of municipal and industrial wastes" EMCO 2004-2006, funded through FP6.

The Lab initiated the process (expertise and infrastructure development) for biological testing of Dioxins and DL -PCBs in food and Endocrine Disruptors in environmental samples.

Pesticide Residues Laboratory (Lab 08)

The Pesticide Residues Laboratory of SGL is the Official Laboratory for monitoring and surveillance of pesticide residues in Foodstuffs. It has been accredited by ESYD since 2002.

In 2004 the lab analysed 334 samples of plant origin (including 9 samples of organic farming) and 281 QC samples. 8,6% of the samples were exceeding MRLs (8.6% of the analysed fruit samples and 6.8% of vegetables). 5.5% of the analysed samples were characterized as «critical». The term "critical" refers to samples which are likely to exceed the MRL, which however cannot be considered as real legal violations when uncertainties are included in the calculation.

The monitoring program of samples of animal origin for pesticide residues and PCBs was not fully covered due to lack of personnel (23% of meat samples, 77% fish samples, 100% of milk and honey samples were analysed for a wide spectrum of parameters covering the 96% of the required parameters in the program).

During 2004, 20 samples of meat, 10 samples of fish, 9 samples of milk, 12 samples of honey and 75 quality control samples were analyzed.

Milk samples were analyzed for organochlorine and organophosphorus pesticides and PCBs. In two milk samples traces of hexachlorobenzene were determined in concentrations much lower than the MRL. None of the samples were non compliant for PCBs. Honey samples were analysed for organophosphorus, organochlorine, organonitrogen and pyrethroid pesticides and PCB's. None of the samples were non compliant.

The Lab has participated in a MEDPOL program for testing fish samples for organochlorine pesticides and PCBs as indicators for Mediterranean Sea pollution. In the framework of this program 18 samples of *Mullus barbatus* were analyzed for organochlorine pesticides, PCBs and the Arochlors 1254 and 1260.

Radioactivity Laboratory (Lab 09)

The radioactivity laboratory is the official laboratory for monitoring radioactive nuclides in food, water and environmental samples. During 2004 a project "CYP/O/002 Sustainability of Nuclear Institutions and Knowledge Management Project", aiming to upgrade the Lab in terms of equipment and expertise has been approved for funding by the IAEA.

During 2004 the control was focused on the determination of γ -radionuclides in food samples. 30 samples of meat and fish (locally produced and imported) and 12 quality control samples were analyzed 3 samples were positive for Cs-137 (two with activity 1.0 Bq/kg and one with activity less than 0.6 Bq/kg). The maximum permitted level, in terms of Cs-134 and Cs-137 for milk and milk products including infants food is 370 Bq/kg (EC Regulation 737/90 EC, 1661/1999 EC, 1621/2001 EC) and 600 Bq/kg for other products.

Environmental Chemistry II and Treated wastes (Lab. 10)

The overall objective of the laboratory is to contribute to the protection of the environment and public health from contaminants entering the environment from industrial, agricultural or other sources. The laboratory carries out analyses of air samples, soil sludge, industrial wastes and treated domestic wastes.

During the year 2004 the laboratory analyzed 725 samples for the determination of 4438 parameters. The samples included 387 air filters analyzed for seven heavy metals, 152 samples of treated wastes analyzed for 1033 parameters, 18 industrial wastes analyzed for 93 parameters and 100 other samples analyzed for 224 parameters. The Laboratory took part in the AIRMEX project for air pollutants in kindergartens, coordinated by Joint Research center of the European Commission.

The laboratory, has, according to the Quality Manual of the State General Laboratory and the EN ISO/ IEC 17025, issued all the necessary documents and applied for Accreditation. Within the framework of the Accreditation procedure the laboratory proceeded with the validation of the method for the determination of Chemical Oxygen Demand in waters and waste waters. The laboratory participated successfully, with excellent results, in the Interlaboratory Quality Scheme Aquacheck for the determination of BOD₅, COD, suspended solids, total organic nitrogen, nitrates, total phosphorus, chlorides, N-Kjeldalh and phosphates. It also participated in the WMO program for the determination of anions, cations and heavy metals in acid rain samples and in the Interlaboratory program organized by the Quality Consult Association for the determination of metals in sludge.

The laboratory implemented, in cooperation with the Water Development Department, a monitoring program for the control of the quality of the treated domestic wastes from biological treatment plants in rural and urban areas. The wastes were analyzed for BOD₅, COD, suspended solids, nitrates, phosphorus, chlorides, N-Kjeldalh, ammonia, calcium, magnesium, potassium, sodium and boron.

Other monitoring programs covered the control of dam waters according to the Directives 78/659, 75/440 and 2000/60 implemented in cooperation with the Lab 06 of the SGL, the Fisheries Department and the Water Development Department.

SECTION D

Water General Analysis Laboratory (02)

The Laboratory is responsible for the official control and monitoring of drinking water (tap water), borehole water intended for drinking, bottled water (table and mineral water) and water from rivers and dams.

The samples are from monitoring and compliance programmes carried out in cooperation with the Health Inspectors of the Ministry of Health, the Municipalities, the Water Development Department, Fisheries Department and Geological Department of the Ministry of Agriculture, Natural Resources and Environment.

During 2004 a pilot monitoring program (which had covered selected points throughout Cyprus) was implemented, based on the requirements of the law 87(I)/2001. During 2005 the program will be continued on a regular basis covering all towns and villages. The programme covers a large number of parameters including, Fluoride, Boron and trace metals.

Industrial & Tobacco Products Laboratory (11)

A wide spectrum of tests is performed within the laboratory including liquid fuels, detergents, glass, cigarettes, paints e.t.c.

During the year 2004, 390 samples were analysed for 1668 parameters. 60% of the samples were liquid fuels and about 37% of them were detergents.

The collaboration with the Public Health Inspectors of the Ministry of Health regarding the market control for boron in detergents, the control of liquid fuels, continued through 2004.

The laboratory is also responsible for analyzing products, purchased by the government, in order to check their conformity to specifications.

SECTION E

Food Contact Materials and Children Toys Laboratory (12)

The Laboratory has the responsibility of the testing for the chemical safety of:

- a) Materials and articles that are intended to come in contact with foodstuffs (harmonized to the E.U. relevant legislations: "Materials and Articles in Contact with Food Regulations R.A.A 450/2004."), and
- b) Children Toys according to "The Essential Requirements (Toys) Regulations R.A.A 384/2002".

The laboratory is accredited according to EN ISO/ IEC 17025. The main objective of the testing is the protection of the consumers from substances that can migrate in foodstuffs from food package materials and from substances that can migrate from children toys and affect children's health in any way.

a) Testing Program for Articles and Materials in contact with foodstuff

Through 2004 the laboratory in collaboration with the Health Office of the Ministry of Health, continued the implementation of the program regarding market control. The following were examined within the framework of this program:

- i. 122 ceramic articles (local and imported) for released quantities of lead and cadmium. 28% of the examined samples from the local market were not in compliance with the Regulations and the Directive 84/500/EEC with respect to their lead and/or cadmium levels.
- ii. 57 plastic articles (containers for food and water storage, plastic packs and baby feeding bottles). The above samples were examined for the identification of their material, overall and specific migration.
- iii. 8 cans with coating for aqueous and acetic foods. The samples were examined for the identification of the coating, the overall migration and the specific migration of Bisphenol A and BADGE.

The results of the testings referred in ii and iii didn't show any infringement of the respective regulation.

- iv. 22 feeding bottle teats and 6 soothers for the identification of their material. The results of the testings revealed that more safe materials, such as silicone, replaced rubber/caoutchouk materials.

b) Testing of Children Toys and Articles for General Use

In 2004 no samples of Children Toys and Articles for General Use were brought to the laboratory for testing by the competence authorities.

Food Additives and Special Analysis of Food Laboratory (13)

The laboratory is responsible for the official control of foodstuffs for food additives and special analysis of food related to quality and adulteration. It has been accredited by ESYD since 2002.

The National Coordinating Programme (NCP) concerning all the activities of the laboratory was drafted for 2004 on the basis of surveillance approach in cooperation with Public Health Services, Ministry of Health, taking into account:

- the harmonized Cyprus Legislation according to EU Legislation
- information concerning violated samples
- relevant information from Rapid Alert System for Food and Feed (RASFF) e.g. sulfur dioxide in dried fruit, Sudan dyes in chilli
- food consumption data, with emphasis to the food consumed by children and other vulnerable groups of population.

The main parts of NCP are:

- Compliance control and Monitoring programme for Food Additives
- Compliance control and Monitoring programme on dairy products

A number of 945 samples were analysed (2170 tests) for food additives and special analysis of food (e.g. dairy products, adulteration).

11.3% of the samples analyzed for preservatives and 5.7% of the samples analysed for colours and 4.5% of the samples analysed for the non-permitted Sudan dyes were found to be non compliant with the legislation. 7.6% of the dairy products analysed for cow's milk detection were found to be non compliant as well.

The laboratory is taking part in a research programme for the "Identification of the characteristics of Cyprus wine Commandaria", along

with SNIF-NMR lab (SGL), the Cyprus University and Ministry of Agriculture, Natural Resources and Environment. The program started in April 2004 and will be completed in April 2006.

During 2004 the scope of an already accredited method: " Benzoates and Sorbates in foodstuff by HPLC (NMKL No. 124, 2nd ed., 1997)" was expanded.

Environmental and Other Food Contamination and Natural Toxins Laboratory (14)

The laboratory is responsible for the official control of food contamination such as mycotoxins, heavy metals (Pb, Cd, Hg), nitrates etc and is accredited according to ISO/IEC 17025.

In the framework of the relevant *Acquis Communautaire*, National monitoring, control and surveillance programs have been drafted and applied. The programmes are based on the information from: non compliance samples, Rapid Alert System (RASSF) of EU, increased food consumption by consumers and especially by higher risk population groups (e.g. children). The most frequent violative samples are imported peanuts and pistachio for aflatoxins. The programs shown below are prevention oriented:

- National Monitoring Programme for the Prevention and Control of Aflatoxins in foodstuffs. Samples are taken at critical control points i.e. import, primary storage, processing etc. Target samples are: nuts, cereals, oily seeds, spices, milk and their products.
- National Control and Monitoring Programme for Heavy Metals in foodstuffs (Pb & Cd and Hg) especially plant origin.
- Compliance Control and Monitoring Programme for nitrates in vegetables and baby food.
- Monitoring of other Mycotoxins (OTA, ZEA, DON, Fumonisin, etc.) in cereals, their other products and coffee (OTA).
- Programme for the Monitoring and Control of Residues (toxic metals, mycotoxins etc.) in meat and animal products (according to relevant E.U. legislation).

SECTION F

Water and Pharmaceuticals Microbiological Control Laboratory (15)

The laboratory is responsible for the official microbiological control of all water categories for the protection of public health, consumer interests and the environment. 9123 samples from all water categories (drinking, bottled, mineral, swimming pool, sea, surface and sewage effluent) were analysed in 2004, according to existing legislation. The parameters analysed include coliforms, *Escherichia coli*, enterococci, *Pseudomonas aeruginosa*, sulphite-reducing clostridia, total bacterial count (all with accredited methods), salmonellae, *Legionella pneumophila*, intestinal parasite eggs, yeasts and moulds.

A Quality Assurance System is implemented which includes intralaboratory schemes for bacteriology, legionella and enteroviruses and the laboratory is accredited for 6 methods.

The laboratory has been participating, along with the Environmental Virology Laboratory, in the research programme:

"Integrated monitoring and early warning systems for the Nicosia Sewage Treatment Plant at Mia Milia- Safe reuse of effluents" WSE-FS-4049, funded by UNOPS, since 1/4/2001.

Both laboratories will also participate in the European 6th Framework research programme:

Methods for the concentration and detection of Adenoviruses and Noroviruses in European Bathing Waters with reference to the revision of the Bathing Water Directive 76/160/EEC (VIROBATHE), 2005-2006

114 pharmaceutical samples were examined in 2003 for sterility, biological activity of antibiotics and/or endotoxin detection (LAL test). In addition, 27 cosmetics products were analysed for microbiological parameters.

Food Microbiology Laboratory (Lab 16)

The Food Microbiology Laboratory (FML) is responsible for the official microbiological control of all types of foodstuffs for quality and safety assessment so as to protect public health, consumer interests, fair trade

practices and to promote hygiene and GMPs in the food and catering industry.

The laboratory implements an annual monitoring program of foodstuffs in collaboration with the Health Inspection Services of the Ministry of Health and the municipalities in accordance with the Food (Control-Sale) Laws of 1996-2004 and other relevant regulations.

Sampling of foodstuffs and the design of the monitoring program is mainly based on vulnerability to spoilage, consumption frequency with emphasis on high -risk population groups, new products, known microbiological safety/quality problems and recommendations by the Annual EU Coordinated Food Program. In addition, the laboratory examines a variety of foods for the needs of the Cyprus National Guard, imports/exports, investigates all cases of food poisoning, examines consumer's complaints, etc.

The FML examines a wide range of microbes including *Salmonella* spp., coliforms, *Escherichia coli*, Enterobacteriaceae, *Staphylococcus aureus*, *Bacillus cereus*, *Listeria* spp./*Listeria monocytogenes*, *Vibrio* spp., *Campylobacter* spp., *Cl. perfringens*, total bacterial count, yeast and molds, etc. Analytical procedures within the laboratory are carried out in accordance with a quality assurance program that ensures the quality of the results. The FML is accredited according to ISO/IEC 17025 and participates successfully in the FEPAS external quality assessment scheme organized by the CSL, UK.

The total number of samples examined in 2004 was 1690: Milk and milk products (19.3%), cured and processed meats (10.1%), sandwiches (8.9%), spices (7.5%), juices (6.9%), coconut (6.7%), confectionary products (6.4%), salads (5.9%), ice creams (5.6%) etc.

The bacteriologically satisfactory samples amounted to 84.4%, the marginally acceptable samples to 4.4%, the sup-optimal quality samples to 5.6 and the unsatisfactory/not in compliance samples to 5.6%.

Media Preparation and Sterilization Laboratory (Lab 17)

The Laboratory prepares all culture media, reagents and utensils required for the sampling and bacteriological examinations of samples of the Microbiology Department: Food Microbiology, Water Microbiology, Pharmaceuticals and Cosmetics Microbiology, Virology, and GMOs. In 2004, the laboratory prepared sterilized and quality controlled 1400 batches of 100 different types of culture media and reagents.

Environmental Virology Laboratory (18)

The laboratory's scope is the protection of public health and the environment by monitoring the effectiveness of sewage treatment plants and the quality of effluents discharged into the environment as well as the quality of surface waters and natural mineral waters.

It performs analyses for enteroviruses and somatic, F-specific and *B. fragilis* bacteriophages. Molecular biology methods have also been introduced such as hybridization, PCR and RFLP for genotyping of the above viruses.

The laboratory participates in the same research programmes as the Water Microbiology Laboratory and has established a collaboration with the Hellenic Pasteur Institute.

Genetically Modified Foods Laboratory (GMO) (Lab 21)

The GMO Laboratory was established in 2003 and is involved in the analysis of foodstuffs for the detection of genetically modified organisms and in protecting the right of the consumer for correct labeling of foodstuffs. The laboratory designs and implements, in collaboration with the Medical and Public Health Services of the Ministry of Health, a National Control Program for the detection of Genetically Modified Organisms (GMOs) in foods (mainly Roundup Ready Soya and Bt-176 Maize) in accordance with the relevant Cyprus and EU Regulations.

In 2004 the GMO Laboratory analyzed 57 samples that consisted of or contained soya or maize: Drinks, flours, baby foods, confectionary products,

sauces, snacks etc. Forty two samples (73.5%) were not found to contain genetically modified organisms while for 3 samples (5.4%) it was impossible to multiply/extract DNA. Twelve samples, however, (21.1%) were found to contain genetically modified Round up Ready Soya.

IT Unit

During 2004 the IT Unit upgraded various in-house systems and replaced a large number of computers and printers with new ones. It has managed the network and updated all the databases that are common to the labs as well as the SGL web-page. It also installed a Videoconferencing equipment donated by the European Food Safety Authority (EFSA).