AGRO*plan*

Title: VOCATIONAL TRAINING IN FARM MANAGEMENT AND ENTREPRENEURSHIP

Country Report and Training Needs Assessment for CYPRUS

Developed by
:
Agricultural and Research Institute of Cyprus
Mitsingas RTI

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Abstract
Country Background

The Cyprus population in the census year 2001 was estimated to be 689.565. The total gross output of the broad Agricultural sector increased by 12,1% at current prices and reached £375.2 (million pounds) in the year 2001, compared to £ 334,7 mn in 2000. The increase of the agricultural sector at constant prices in 2001 resulted in no change to its share of GDP and was amounted to 3.7% for the year 2001.

Exports of Agricultural products recorded a 27,4% increase in value terms reaching £43,8 mn in 2001 compared to £34,4 mn in the year 2000. This was attributed to the expansion in the volume of exports of potatoes and vegetables. The European Union countries absorbed 78,7% of Agricultural exports in 2001 in comparison to 80,7% in the year 2000. Major products exported in 2001 were Potatoes, Vegetables, Mandarines, Grapefruit, Lemons and Oranges.

Employment in the Agricultural sector recorded a marginal increase to 23.400 persons in 2001 compared to 23.966 in the year 2000. In 2001 18.595 persons were employed in Agriculture were Holders and Family Members, while 4.805 were Employees. The share of employment in Agriculture in relation to the total labour force was 7,1% in 2001 compared to 7,4% in 2000, 8,0% in 1998 and 9,0% in 1996.

The average size of SME's in Cyprus (Including Agriculture) in the Year 2000 was 3,6 persons employees.

The current level of knowledge, skills and qualification levels across the sector in Cyprus related to Agriculture is the Following: Of all farmers 9.6% received higher (college) education, 31.9% received only secondary education, 54.6% received only elementary education and 3.9% have received no formal education. Education level is lower in the vines zone and the mountain zone.

The use of ICT technologies in agriculture is rather limited. Farmers are increasingly aware of the potential advantages of ICT technology and most young farmers have access to a personal computer.

The Agricultural Research Institute undertakes applied and basic research within the wider domain of plant and animal production. Its mission is to provide high quality scientific research using methods that are financially, environmentally and socially sustainable. Its contribution to the solution of actual problems and to the introduction of new technological methods and approaches in agricultural production is greatly valued, both locally and abroad.

The Department of Agriculture offers vocational training to farmers through Agricultural Training Centres in three different localities on the island, *in situ* consultation and training to farmers by the Department's extension personnel, seminar presentations held in rural communities, simplified technical bulletins on particular aspects of crop and pest management, popularised journal publications, radio and television programmes.

1.1. Key issues related to Agricultural or Rural Development.

As of May 2004 the main challenges facing the Agricultural sector of the country during and after the accession process are related to its alignment with the European

Union's common agricultural policy. The scheme of public agricultural subsidies is undergoing radical restructuring with deep-reaching influences on the whole spectrum of agriculture. To that effect a new Rural Development Plan has been launched by the Ministry and implemented through the Department of Agriculture for the period 2004-06.

The major measures encompassed by the Plan are the following:

a. Modernization of agricultural holdings
b. Reorganization and adaptation of agricultural holdings
c. Development and support of small scale processing units and marketing networks for agricultural produce
d. Formation of Producers Organizations
e. Vocational training and extension service to farmers
f. Development of organic crop production
g. The formation of Producers' Organizations is a crucial and essential step in the process of harmonization with E.U. directives, enabling absorption of developmental financial incentives offered by the E.U.

2.Specific Project Issues

Current level of training in 2.1 Farm Management, 2.2 Production Planning and 2.3 Entrepreneurship & Innovation.

2.1 Farm Management

a. Planning and decision-making, Monitoring and control, Financial Accounting and Analysis, Insurance and Risk, Marketing, Human resources.

For the training Subjects mentioned under (a.) Training programmes are available in Cyprus in Vocational Centres and Colleges but they are not necessarily focused on Agriculture. The Training Programmes available are for SME's Development and one may safely say that basic knowledge may transferred from this Sector to that of Agric culture.

b. Quality assurance, Environmental issues, Use of ICT and software applications.

For all subjects mentioned under (b.) Training Programmes exist and are addressed to Farmers and Agronomists but the Training Material in the Greek language may be considered that it needs substantial improvements. Taking into consideration the small production Quantities by the Individual Farmers in Cyprus one may safely say that Subjects (b.) are of vital importance to Cypriot Farmers.

2.2 Production Planning

a. Production approaches, trends and strategies, Approaches to production scheduling, Raw materials supply approaches (fertilisers/chemicals etc.), Use of land, buildings and other assets.

All Subjects mentioned under (a.) are practiced by the Ministry of Agriculture Employees but there are No Training Programmes available in Greek. Innovative Production approaches are considered necessary in order to assist productivity, taking into account that already one out of 10 employees in Cyprus are foreign workers.

b. Use of ICT and software tools.

Software Tools Exist in recording Production & Prices of Fresh Produce but the Software tools that are used may not be considered up to what contemporary technology offers. Cooperative-farms and or associations of Fresh products producers are in the Process of Preparing & Introducing contemporary Software tools to facilitate mainly their Logistics Systems.

2.3 Entrepreneurship and Innovation

a. General culture of entrepreneurship across the sector
b. Main encouragement/forces of change to encourage entrepreneurship and innovation (credit/tax relief, markets etc.)
c. Key areas developing e.g. farm diversification, tourism, niche markets etc.

Matters related to the above three areas (a. to c.) are practiced and or encouraged by the Cyprus Government policies. Several schemes Exist by the Cyprus Tourism Organisation, the Cooperative Banks but there seems to be No Training material available in the above-mentioned Subjects in Cyprus.

d. Future prospects for change.

The 2004-06 Cyprus Development plan that actually stared since January 2004. The creation of Cooperatives as well as the abolition of monopolies will definitely stimulate farmers for better Quality, production practices as well as cost reductions aiming at the production of Competitive products.

e. Key support agencies. The Cyprus Public Authorities and the Cooperative Banks.
f. Examples of good practice (if available).

During the last 10 years several Examples of Good Practices were spotted in Cyprus aiming at Quality as well as the production of Agricultural products coming from organic cultivations. Limassol Metropolis farm, Morphou Biological Farm and Lanitis Biological Olive Plantation are only few examples.

3.Training, Training Materials and Certification

Specifically in relation to farm management, production planning, entrepreneurship and innovation outline:

a. The current training materials available.

Current Training Material Focused in Agriculture Especially in Greek seems not to be available in Cyprus. It exists as Trainers notes and in the form of transparencies, in the hands of few young Agronomists but not in all subjects that the AGROplan Project aims to produce Training material.

b. The main training and extension organisations delivering in these areas.

a. The Agricultural Research Institute b. The Department of Agriculture c. The Human Resource Development Authority of Cyprus and d. Private Training Institutes.

c. The use of ICT approaches in training covering these areas.

The Use of ICT approaches is at a very low level in Cyprus, that one may safely say that it is at the stage of Non Existence. The majority of Young People and Especially Agronomists are able to use the Internet, prepare Word documents and or introduce Production data in their cooperatives data bank.

d. The main certification bodies, procedures for certification and list of certified materials or courses.

There are no Vocational Training certification bodies in Cyprus as it is the Case of NVQ in the U.K. and or the Existence of Professional Bodies that may certify such training Products like the AGROplan Project.

e. Financial or other Institutions supporting training in agriculture.

The Institutions that are supporting Training in Agriculture in Cyprus are: a. The Agricultural Research Institute b. The Department of Agriculture c. The Human Resource Development Authority of Cyprus.

4. Recommendations for the AGROplan Project

Recommendations for AGROplan to develop specifically in relation to:

a. The main issues that will have to be addressed by the project in relation to farm management, production planning, entrepreneurship and innovation.

Environmental issues: This is an area of increasing interest and relevance to the EU policy makers and markets. Environmental protection is becoming a crucial constraint to the application of conventional agricultural practice. It is critical to highlight the importance of adopting environmental standards in the management of agricultural holdings with respect to the local and global agro-ecosystem, public health and placement in the European markets. Key area s of environmentally sound agricultural practice is Organic (Biological) Farming and Systems of Integrated Crop Management.

Farm Diversification: Alternative farming and farm diversification is an important chapter particularly for peripheral communities that need to supplement their agricultural income. Sources of additional income might include specialized crops or compatible combinations of crops and livestock or beekeeping, promotion of local handicraft industry and local processed agricultural products or products of designated geographical denomination and agro-tourism. Case studies from each project partner country highlighting successful farm diversification would serve as valuable examples of progressive entrepreneurship.

Quality assurance: The importance of quality as a concept and as a set of objective, measurable indices needs to be promoted as a fundamental criterion for securing entrance and enjoying rewarding prices for agricultural produce in the European markets.

Use of ICT and software applications: The promotion of ICT applications must highlight the potential contribution of ICT in establishing good bookkeeping of agricultural practice, in maintaining communication channels with other producers, in the context of Producers Organizations, with public and private extension services and finally with the markets themselves.

Planning and decision-making, monitoring and control: This area of training needs to develop the principles of market research, technical and financial planning, and financial monitoring of the entire chain of production, harvest, post harvest handling and marketing .

b. Proposed contents and approaches to training workshops and training materials.

The contents of the training workshops should be narrowed down to one or two of the issues described in paragraph (a). Rather than addressing very broad agricultural policy issues or very specialized technical issues within the domain of public or private extension service, it would be more effective and interesting to the trainees to focus the training sessions on particular subjects of planning and management such as environmental standards in agricultural practice and diversification of farming in peripheral communities. The use of ICT might be promoted as a tool in the pursuit of success in the former two fields. Emphasis on successful case studies of farm diversification should be the highlight of the training in view of the ethnographic and ethnobotanical importance placed by the EU on the support of peripheral rural communities. The issues of quality assurance, planning and decision-making could be encompassed as subheadings of the environmental protection and farm diversification main issues.

Depending on the Number and proposed Duration of the Final AGROplan training Product it may be better, if workshops are delivered One by One on Specific afternoons Convenient to Trainees. Training Programmes Presentation followed by Group discussions seems to be a convenient approach to Training in Cyprus. In the case of Training material, Case studies and Pictures from cases of Good practices of a specific Training Programme are usually of great interest to Trainers.

c. Presenting proposals for certifying materials.

Once the Final AGROplan Training Material is developed, in the Case of Cyprus its adoption by the Ministry of Agriculture and the Approval for subsidisation by the HRD Authority in Cyprus could be an indirect way of Material Certification.

d. Proposals for encouraging greater use of ICT technologies.

Producers Organisations may be encouraged for establishing electronic communication with their members and or Cooperatives thus reinforcing the Use of ICT Technologies. At the same time analysis of existing production dada and correlation to prices may a factor for reinforcing greater use of ICT technologies.

e. Presenting proposals for enabling access to learning on these areas to remote locations and particularly amongst young people, women and disadvantaged.

In the case of Cyprus, regional Agricultural Cooperatives may offer their establishments for Training by visiting Agronomists for disadvantage groups, women & young people by the availability of eLearning facilities.

f. Bodies or training centres interested (or likely to be interested) in using the AGROplan training material once it is developed.

The Cooperative Movement, The Agricultural Research Institute, The Department of Agriculture, as well as Private Vocational training institutions would be interested in using the AGROplan Training Material under preparation.

g. Presenting ideas for linking with other organisations for training / materials development or dissemination.

Apart from the Institutions mentioned in paragraph g. dissemination in Cyprus will be taking place through the Cyprus Agronomists Association and the Human Resource Development Authority that subsidises Vocational Training Programmes.

1. Introduction

1.1 Location

Cyprus is the third largest island in the Mediterranean after Sicily and Sardinia with an area of 9,251 sq. kilometres of which 1,733 are forested. It has a maximum length of 240 kms from east to west and a maximum width of 100 kms from north to south. It is situated at the north-eastern end of the East Mediterranean basin at a distance of 380 kms north of Egypt, 105 kms west of Syria and 75kms south of Turkey. The Greek mainland is some 800 kms to the west. The nearest Greek islands are Rhodes and Carpathos, 380 kms to the west.
The latitude of Cyprus is 34 33' - 35 34' north and its longitude 32 16' - 34 37' east.

1.2 Natural Vegetation

Notwithstanding its small size, Cyprus has a variety of natural vegetation. This includes forests of hardwood, evergreen and broadleaved trees such as pinus latepensis, cedar, cypressus and oak. According to Eratosthenes (3rd Century BC), a Greek botanist, most of Cyprus, even Messaoria, was heavily forested in antiquity, and considerable remnants of these forests survive on the Troodos and Keryneia (Kyrenia) ranges, and locally at lower altitudes. About 17% of the whole island is being classified as woodland. Where the forest has been destroyed, tall shrub communities of arbutus and rachne, pistacia terebinthus, olea europea, quercus coccifera and styrax officinalis may survive, but such maquis is uncommon. Over most of the island untilled ground bears a grazed covering of garigue, largely composed of low bushes of cistus, genista sphacelata calycotoime villosa, lithospermum hispidulum, phaganalon rupestre and, locally, pistacia lentiscus. Where grazing is excessive this covering is soon reduced, and an impoverished batha remains, consisting principally of thymus capitatus, sarcopoterium spinosum, and a few stunted herbs.

1.3 Climate

Cyprus has an intense Mediterranean climate with the typical seasonal rhythm strongly marked in respect of temperature, rainfall and weather generally. Hot, dry summers from mid-May to mid-September and rainy, rather changeable winters from November to mid-March are separated by short autumn and spring seasons. In summer the island is mainly under the influence of a shallow trough of low pressure extending from the great continental depression centred over southwest Asia. It is a season of high temperatures with almost cloudless skies.
In winter Cyprus is near the track of fairly frequent small depressions, which cross the Mediterranean Sea from west to east between the continental anticyclone of Eurasia and the generally low pressure belt of North Africa. These depressions give periods of disturbed weather usually lasting for a day or so and produce most of the annual precipitation, the average rainfall from December to February being about 60% of the average annual total precipitation for the island as a whole, which is 500 mm.

Precipitation increases from 450 millimetres up the south-western windward slopes to nearly 1.100 millimetres at the top of the Troodos massif. On the leeward slopes amounts decrease steadily northwards and eastwards to between 300 and 400 millimetres in the central plain and the flat south-eastern parts of the island. The narrow ridge of the Kyrenia range, stretching 160kms from west to east along the extreme north of the island produces a relatively small increase in rainfall of around

550 millimetres along its ridge at an elevation of 1.000 metres. Statistical analysis of rainfall in Cyprus reveals a decreasing trend of rainfall amounts in the last 30 years.

Rainfall in the warmer months contributes little or nothing to water resources and agriculture. Autumn and winter rainfall, on which agriculture and water supply generally depend, is somewhat variable from year to year. The average annual rainfall as a whole over the part of the island under government control, is about 500 millimetres but it was as low as 213 millimetres in 1972/73 and as high as 800 millimetres in 1968/69. Statistical analysis of rainfall in Cyprus reveals a decreasing trend of rainfall amounts in the last decades.

Snow occurs rarely in the lowland and on the Northern Range but falls every winter on ground above 1,000 metres usually occurring by the first week in December and ending by the middle of April. Although snow cover is not continuous, during the coldest months it may lie to considerable depths for several weeks especially on the northern slopes of Troodos.

Temperatures are high in summer and the mean daily temperature in July and August ranges between 29 C on the central plain to 22 C on the Troodos mountains, while the average maximum temperature for these months ranges between 36 C and 27 C respectively. Winters are mild with a mean January temperature of 10 C on the central plain and 3 C on the higher parts of the Troodos mountains and with an average minimum temperature of 5 C and 0 C respectively.

Relative humidity of the air is on average between 60% and 80% in winter and between 40% and 60% in summer with even lower values over inland areas around midday. Fog is infrequent and visibility is generally very good. Sunshine is abundant during the whole year and particularly from April to September when the average duration of bright sunshine exceeds 11 hours per day.

Winds are generally light to moderate and variable in direction. Strong winds may occur sometimes, but gales are infrequent over Cyprus and are mainly confined to exposed coastal areas as well as areas at high elevation.

2. Economy

Throughout the post-Independence period, Cyprus has had a record of successful economic performance, reflected in rapid growth, full employment conditions and external and internal stability. The underdeveloped economy, inherited from Colonial Rule in 1960, has been transformed into a modern economy, with dynamic services, industrial and agricultural sectors and advanced physical and social infrastructure.

Cyprus is classified among the high-income countries, with a per capita income currently estimated at US $14.342 (2002). It has a standard of living that is even higher than some European Union member-states and the performance of the economy compares favourably with that of most EU countries. Cyprus holds 16th place worldwide in terms of per capita income. The average annual rate of growth in the past five years was about 3,8%, while inflation stood at 2,9% and unemployment at 3,4% over that period.

These achievements appear all the more striking, bearing in mind the severe economic and social dislocation created by the Turkish invasion of 1974 and the continuing occupation of the northern part of the island by Turkey. The Turkish invasion inflicted a serious blow to the Cyprus economy and in particular to agriculture, tourism, mining and quarrying: 70 percent of the island's rich producing resources were lost, the tourist industry lost 65 percent of its hotels and tourist accommodation, the industrial sector lost 46 percent, and mining and quarrying lost 56 percent of production. The loss of the Port of Famagusta, which handled 83 percent of the general cargo, and the closure of the Nicosia International Airport, in the buffer zone, were additional blows.

The success of Cyprus in the economic sphere is attributed, inter alia, to the adoption of a market oriented economic system, the pursuance of sound macroeconomic policies by the government as well as the existence of a dynamic and flexible entrepreneurship and a highly educated labour force. Moreover, the economy benefited from the close cooperation between the public sector and the social partners.

During the last decade, Cyprus has intensified its relations with the European Union, its largest trading partner. In July 1990, the Cyprus Government submitted an application for full membership of the European Union. Substantive accession negotiations between Cyprus and the EU began in November 1998 and drew to a successful close on 3 December 2003. The Copenhagen European Council (12-13 December 2002) invited Cyprus, along with other nine candidate states, to accede to the EU on 1 May 2004.

The economic benefits to Cyprus as a whole from membership of the EU are quite substantial. Cyprus goods and services will have access to a huge single market consisting at present of the 15 most economically advanced countries in Europe. Cyprus' participation in the Union's internal market, an area where free movement of goods, services, persons and goods is ensured, will lead in the long term to a more efficient allocation of factors of production towards activities in which Cyprus possesses comparative advantages. This will have positive repercussions on growth and employment.

Cyprus will have a share in the growth and development of the EU economy. It will attract investment from the EU in activities in which Cyprus possesses comparative advantages, thus accelerating the transformation of Cyprus into a regional business centre. Moreover Cyprus will benefit from increased EU financial assistance.

In the new age of globalisation and world economic integration, in an era marked by a technological revolution, which encompasses all sectors of the economy, the key to success is competitiveness coupled with high quality manufactured goods and services and the ability to adjust quickly to the ever changing preferences of the consumers.

In its effort to meet the challenges of the new century, the Cyprus Government has chosen the course of competitive economy and social cohesion, in which the state acts as a regulator and protector of its weaker citizens, while ensuring at the same time conditions of competition to the benefit of consumers.

In view of the forthcoming challenges stemming from the globalisation of economies and the liberalisation of trade, the rapid technological changes as well as the envisaged accession of Cyprus to the European Union, the Government has formulated a Strategic Development Plan, which covers the years 1999-2003.

Three main factors were taken into consideration in formulating the plan's strategies:(a) the changes in the external environment that have a decisive effect on small open economies, such as Cyprus, (b) the recent trends and the growth potential of the economy and (c) its comparative advantages and constraining factors.

The main strategic objectives of the plan are the following:
· The acceleration of the harmonization process with the conditions prevailing in the European Union
· The achievement of the highest possible rate of growth while at the same time maintaining conditions of macroeconomic stability and social cohesion
· The restructuring of all sectors of the economy, the modernization and technological upgrading of the productive units, the exploitation of the economy's comparative advantages with a view to enhance the competitiveness of the Cyprus economy.
· The upgrading of the role of Cyprus as an international business centre and a high quality service centre.
· The improvement of quality of life and the upgrading of the environment
· The adaptation of the Cyprus economy to the emerging information society
· The reform and modernization of the public sector
· The macroeconomic quantitative targets of the Plan take into account the commitment of the Government to satisfy all Maastricht Convergence Criteria. More specifically the plan aims at achieving an average annual growth rate of 4% in real terms, maintaining the unemployment rate at around 3%, containing inflation in the range of 2% and gradually reducing the deficit of the current account of the Balance of Payments to levels that would allow its financing by autonomous non-debt flows. It also aims also at restraining the fiscal deficit at 2% of G.D.P.

2.1 Rate of Growth

The rate of growth is expected to vary between 2-2,5% in 2003, which is an improvement compared to the more pessimistic predictions made during the war in Iraq.

Construction (cement sales went up by 9,4% for the period January-April and building permits went up by 10% during the first two months of 2003) and exports of services, excluding tourism, are expected to be the main drivers of economic growth in 2003.

Private consumption remained subdued during the first months of the year (retail sales showed zero growth in January-March compared to the same period in 2002) but an acceleration is expected in the next few months, due to the anticipated increase in disposable income, the Government measures to boost the economy and the tourism sector in particular, and the cut in interest rates.

2.2 Tourism

Exports of goods and tourism will remain subdued, despite the improvement expected during the course of the year.

Tourist arrivals recorded a 34% decrease in March and a further decrease of 6% in April. Revenues from tourism also seem to suffer, according to some early indicators, such as a fall in credit card spending by foreigners of 9,4% in April compared to the same month last year.

It should be noted, that tourism showed encouraging signs before the Iraqi crisis, as depicted in the increase in tourist arrivals of 10% for the period January-February and the increase in revenues of 13%. The beginning of military conflict in Iraq had a negative effect on tourism. At the present stage, nevertheless, there are indications of a gradual improvement, which will, however, depend on the

process of stabilisation of the situation in Iraq.

Positive indications on tourism include:

· Renewed tourist interest, especially from the UK and Russia after the end of the Iraqi war.
· Positive impact of the boosting measures adopted by the Government.

Despite the above, 2003 is expected to be a difficult year for the tourist sector because of the following reasons:

· The war in Iraq took place in March-April, at a period, when a significant number of bookings are made.
· Implications on the scheduled flight capacity towards Cyprus.
· Depreciation of the UK sterling against the Euro and hence against the Cyprus pound, which may have adverse effects on tourist arrivals from the UK.
· Problems with the German economy which constitutes an important market for Cyprus.
· Tendency of European tourists to opt for cheap tourist destinations in periods of relative economic slow down.

Indicatively, it is noted that a Survey carried out by Nielsen Research on behalf of CTO, shows a 6% fall in bookings from the UK market to Cyprus compared to a 3% overall increase in total bookings of the UK market. The shrinking of revenues from tourism according to the same Survey is bigger. Furthermore, the survey confirms that the impact of the Iraqi war on tourism was greater for Iraq's neighbouring countries.

Based on the same survey a positive trend for the coming months is confirmed. More specifically, the fall in bookings in May-June is more than 10% while from August onwards there is a significant increase in bookings, suggesting a positive rate of increase in tourist arrivals.

Using all the above information, it is deduced that tourist arrivals for 2003 will be in the area of –5% with the possibility of reaching last year's levels while revenues from tourism are estimated to vary between –2 to -7% compared to 2002.

2.3 Unemployment

The unemployment rate is expected to reach 3,5-3,7% in 2003 compared to 3,1%, which was the Ministry of Finance's original projection before the war in Iraq. More specifically, the unemployment rate in April was 3,5%, compared to 3% in April 2002. The largest increase in the number of unemployed was registered in the hotels and restaurants sector. At the present stage, unemployment is influenced by the problems in the tourist industry. We expect a gradual improvement of the labour market in the next few months, as activity in tourism picks up.

2.4 Inflation

Inflation is expected to rise to 5% in the first half of the year and decline to 4% in the remainder of the year, while the average for 2003 is expected to be around 4,5%. A number of one-off factors influence the outcome of inflation this year, such as the increase of the VAT rate from 10% until June 2002 to 15% on January 1, 2003, the increase of other indirect taxes, the rise in petrol prices, etc. In contrast, the subdued economic growth in conjunction with the real effective depreciation of the dollar and sterling vis-ΰ-vis the Cyprus pound, exercise a dampening effect on inflation.

2.5 Excluding one-off factors, the core inflation rate continues to remain around 2%.

The core inflation rate is expected to remain at relatively low levels and within the Maastricht Criteria in the forthcoming years, under the precondition that wage increases will be contained within the range of the improvement of productivity, and the budget deficit is substantially reduced.

2.6 Balance of Payments/GDP

The deficit of the current account of the balance of payments is estimated at approximately 5% of GDP for 2003 compared to 4%, which was the original projection before the war in Iraq. This deterioration is a reflection of the expected decrease in tourist revenues coupled with the depreciation of the dollar and sterling vis-ΰ-vis the Cyprus pound. The relative containment of private consumption and the subsequent containment of imports limit the adverse effect on the balance of payments. The relatively high current account deficit will, most probably, create the need for external borrowing. It is, thus, stressed that current account deficits above 2% of GDP create the need for additional foreign borrowing from abroad, over and above the level necessary for refinancing the existing debt.

2.7 Budget Deficit

The budget deficit, according to the current trend and with unchanged policies, is expected to rise above 5% of GDP in 2003 compared to 2,7%, which was the original projection before the Iraqi crisis. The Government is committed to take corrective measures with the view to contain the deficit below 5%. The rise in the deficit is partly attributed to the downward trend in the economy affecting revenue growth while at the same time the implementation of the tax reform was less favourable than expected for public finances. In addition to the above, the discretionary measures implemented such as the contractual salary increases given to civil servants retrospectively as from 1.1.2001, the introduction of the new payroll scheme and the employment growth, led to an accelerated growth of wages and salaries. Furthermore, the growth in defence outlays contributed to the deterioration of public finances. As a result, there will be a considerable divergence from both the relevant Maastricht criteria as well as the targets submitted to the EU concerning public finances within the Pre-Accession Economic Programme.

Budget deficits continue to constitute the most important structural problem faced by the Cyprus economy at present.

2.8 Public debt/GDP

The deterioration in the budget deficit is expected to lead to an increase of public debt to 62,5-63% of GDP in 2003, compared to 58,5% which was the original projection before the war in Iraq.

2.9 Exchange Rate

Both the dollar and sterling have depreciated in real effective terms against the Euro and hence against the Cyprus pound. In particular, the exchange rate of the Cyprus pound against the dollar changed from an average of 1,64 in 2002 to an average of 1,87 for January-May 2003 with the average exchange rate for May being 1,97. In relation to the UK sterling, the exchange rate vis-ΰ-vis the Cyprus pound went from an average of 1,09 in 2002 to 1,17 for January-May 2003,with the average for May being 1,21. This development coupled with a higher inflation rate for 2002 and 2003 has an adverse effect on the short-term competitiveness of the economy.

2.10 Economic Policy Issues

Events in 2003 have highlighted the strong dependency of the Cyprus economy on exogenous factors, resulting in a continuous revision of economic prospects depending on developments abroad. Public finances continue to constitute the most important structural problem for the Cyprus economy. Another important issue is the low rate of improvement of productivity and the danger of a deterioration of the economy's competitiveness. Based on the above analysis, the Cyprus Government has decided in shifting away from short-term measures to boost the economy towards structural policies to tackle the long-term underlying problems that exist.

In view of this approach the following policies will be implemented:

· Continuation of the systematic monitoring of the Cyprus economy so as to enable the Government to act swiftly and proactively according to the circumstances that arise.
· Adherence to stability-oriented macroeconomic policy through control of the budget deficit, further convergence of Cyprus interest rates with those of the Eurozone, the continuation of the exchange rate policy to peg the CY pound against the Euro, and control of inflationary pressures.
· Intensification of the advertising campaign in our major tourist markets.
· Concentrated effort to avoid major cuts in the prices of tourist packages, as this would hamper the quality of our tourism product both medium and long-term.
· Policy measures to reduce the dependency of the economy on tourism and utilising Cyprus competitive advantage in the services sector and the new economy.

3. The Strategic Development Plan, 1999-2003

The new Development Plan will cover a very important period for the Cyprus economy, in view of the worldwide trend towards globalisation and further trade liberalisation, the rapid technological changes as well as the envisaged accession of Cyprus in the EU. The basic elements that were taken into consideration for the formulation of the Plan's strategy are (I) the changes in the external environment that have a decisive effect on small open economies, such as Cyprus, (ii) the recent trends and the growth potential of the economy and (iii) its comparative advantages and constraining factors. Taking into account all the factors affecting the Cyprus economy, the Planning Bureau of the Government of Cyprus proceeded with defining main strategic objectives of the new Plan.

3.1 Harmonisation with the EU

The harmonisation process will be intensified during the period of the new Strategic Development Plan. At the same time, sectoral plans will be formulated and implemented, aiming at the restructuring of all sectors of the economy, with a view to enable them to meet the challenge of intensified competition within the EU. In this context, Cyprus will utilise its participation in various EU programs, such as Leonardo da Vinci, Socrates, Youth for Europe, Fifth Framework Program, COST, INTERREG, and KAROLUS.

3.2 Growth-Stability-Social Cohesion

Social cohesion, the optimum allocation of economic resources and the fair distribution of income, constitute, also according to the White Paper of the EU on "Growth, Employment and Competitiveness", necessary preconditions for the attainment of a sustainable development. The maintenance of a stable macroeconomic environment is indeed a necessary prerequisite for the flourishing of private initiative. Recent experience has confirmed that high inflation rates and large current account deficits lead, nearly always, to economic crises. This has been the case in a number of economies during the last few years, including economies that were considered robust, such as the economies of Southeast Asia.

The attainment of social cohesion and the maintenance of conditions of macroeconomic stability are not sufficient, on their own, to safeguard economic growth. Consequently, within the framework of the new Plan, the development aspect remains high on the agenda.

3.3 Restructuring - Modernisation - Enhancing Competitiveness

The irreversible process of globalisation and trade liberalisation and the gradual dismantling of trade barriers within the framework of the newly established World Trade Organisation and the envisaged accession of Cyprus to the EU, necessitate the restructuring of all sectors of the economy, the modernisation of the productive units and the strengthening of their competitiveness. In order to achieve the above, it is considered necessary to improve overall productivity and efficiency of the business units, through the utilisation of advanced technology, modern methods of management, organisation of production and marketing, as well as the adaptation of the educational and training systems to current requirements.

3.4 Upgrading the Role of Cyprus as an International and Regional Services Centre

International trade in services exhibited accelerated growth during the past decades. Cyprus managed to exploit the arising opportunities and achieve noteworthy progress, particularly in transit trade, tourism, shipping, telecommunications, banking, business services, tertiary education and tertiary health.

Cyprus has the potential to upgrade its role as an international and regional service centre of high quality by further exploiting its comparative advantages. This is considered important, with a view to reducing the dependence of the economy on tourism and its vulnerability on exogenous factors.

The proposed policy measures attach emphasis on setting up the necessary institutional framework, extending the signing of bilateral agreements for the mutual protection of investment and avoidance of double taxation, which have proved beneficial for the export of services, improving incentives, upgrading training and promotion abroad.

3.5 Improvement of the Quality of Life-Upgrading the Environment

Another main objective of the new Plan is the prudent use of natural resources and the preservation of the environment, elements that contribute to the upgrading of quality of life in Cyprus.

3.6 Adaptation to the Information Society

The revolution in telecommunications and information technology facilitates the rapid expansion and transmission of knowledge and lead to radical changes in the production systems, organisation of work, consumer preferences and the society in general. The structure of production tends also to change in favour of the knowledge intensive activities, whilst, investment in human resources is gaining importance.

The Government of Cyprus has prepared an action plan, aiming at facilitating the adaptation of the economy to the emerging information society, which will be incorporated in the new Development Plan, 1999/2003. This action plan attaches emphasis on promoting the awareness of the population to the significance of information technology, reforming the education and training systems and adapting them to the requirements of the information society, promoting the concept of life-long learning, improving the infrastructure in telecommunications, utilising information technology systems for the modernisation of production units and encouraging enterprises engaged in information technology to expand their operations abroad, given the small size of the domestic market. The medium and long-term vision of the Government is to establish Cyprus as an international and regional centre for information technology, taking advantage of the strategic geographical location of the Island.

3.7 Reform of the Public Sector

A necessary precondition for Cyprus to cope successfully with current and forthcoming challenges is the modernisation of the public sector. The main objectives of the Government in this area is to improve the productivity of the civil service, upgrade the quality of services offered to the public, simplify procedures, combat bureaucracy and restrain the growth of employment in the public sector.

3.8 Quantitative Targets

The macroeconomic quantitative targets of the Plan take into account the commitment of the Government to satisfy all Maastricht Convergence Criteria during the period covered by the Plan. In specific terms, the Plan aims at achieving an average annual growth rate of 4% in real terms, maintaining the unemployment rate at around 3%, containing inflation in the range of 2% and gradually reducing the deficit of the current account of the Balance of Payments at levels that would allow its financing by autonomous non-debt flows. The Plan aims also at restraining the fiscal deficit at 2% of G.D.P.

1 Final data, which are currently being processed, indicate that the deficit would be below 2,8% of GDP

4. Economic Developments

The PEP provides an analytical description of the Cyprus economy and reviews recent economic developments.

Recent economic developments are characterised by rabid growth within conditions of full employment and relative macroeconomic stability. Real GDP increased at an annual average rate of around 4,2% over the five-year period 1997 to 2001. This rate was higher than the respective one of the EU and contributed to real convergence with the EU member- countries.

Per capita GDP in Euro in purchasing power parity terms, rose to 78% of the EU average in 2000, according to the latest Eurostat data.

Rapid economic growth has been accompanied by satisfactory increases in employment and labour productivity. Employment growth averaged around 1,5% per annum over the period 1997-2001. The private services sector accounted for the greater part of the employment growth. The rapid growth rate led to a fall in the unemployment rate to 3% in 2001, while in 2002 this is estimated to rise slightly to 3,3%. Labour productivity growth averaged 2,7 % per annum over the period 1997 to 2001, thus contributing further to the real convergence with the economies of the member states.

In the period 1997-2001, the underlying or core rate of inflation was in the 2% - 2,5% annual range. However, in 2000, exogenous and transitory factors, caused the rate to rise to 4,1%. In 2001, the inflation rate rebounded to its medium term trend, falling to 2%. During the period January-August 2002, inflation rose to 2,7% and core inflation to 2,3%, compared to the corresponding period of the previous year. For the whole of 2002, inflation is forecast to rise to around 3%, due to the rise of the VAT and the altering of various indirect tax rates.

Over the period 1997-2001 the current account deficit averaged 4,5% of the GDP. The improvement observed in 2001 when the deficit was reduced to 4,3% of GDP, was followed by a deterioration in 2002. The worsening trend in 2002 is due to the fall in tourist revenues.

The fiscal deficit ranged around 2,8% of the GDP in 2001 and is forecast to decline further to 2,7% in 2002. The public debt (excluding the sinking fund) is estimated to be around 56% of the GDP in 2001. The fiscal deficit and the public debt fulfil the Maastricht criteria.

4.1 Macroeconomic Targets

According to the projections of the Programme, the rate of economic growth during 2002 – 2005, will be about 4,2% in real terms, resulting in a further convergence with the average standard of living of the EU member countries. Export of services will continue to be the main lever of growth.

The percentage of registered unemployed is expected to be contained to about 3% by 2005. The service sector will continue to absorb the largest part of additional employment. With the movement of the labour force to the more productive sectors, productivity is forecast to improve to 3,4% during the last three year period 2003-2005 covered by the PEP.

Over the medium term the PEP aims at continuing the convergence with the average inflation rate in the EU. Specifically, over the period 2002-2005 the rate of inflation is projected to be around 2,7% or 2%, if the temporary effects from the increases of indirect tax rates, are excluded.

The current account balance is expected to exhibit a favourable trend, recording a steady improvement from a deficit of 5,2% of GDP in 2000 to 1,4% in 2005. The anticipated improvement of the current account deficit is associated with the implementation of the ambitious fiscal consolidation plan, which foresees a balanced budget by the year 2005.

According to the projections of the Pre-Accession Programme, the satisfaction of the convergence criteria as set by the Maastricht Treaty is considered to be both realistic and feasible.

Public Finance
Fiscal policy in Cyprus has always been an integral part of economic policies aiming at promoting sustainable economic growth and upgrading the socio/economic role of the state, in favour of the lower income groups. The role of fiscal policy was entranced with the successful implementation of the Fiscal Consolidation Programme over the period 1999 to 2002. At the beginning of 2001, this Programme was revised, updated and extended through to 2005, with the adoption of more ambitious targets in
order to sustain the achieved progress and ensure the compatibility of fiscal policies with the structural changes adopted for harmonisation purposes. The Programme calls for a further reduction of the government fiscal deficit so as to achieve a balanced budget by 2005. Furthermore, the ratio of general government debt to GDP is forecast to, fall from 56% of GDP in 2002 to 52% by 2005.

4.2 Structural Measures

The major objective of structural reforms is to adapt to the acquis communautaire. The structural reforms comprise the competition policy, the liberalisation of the public utility sectors, the financial system, the labour market, the public administration, agriculture and other sectors such as the health system, environment, regional policy etc. In this respect, Cyprus has adopted the Lisbon strategy, which aims at transforming the EU into the most competitive and dynamic economy based on technology and the information society.

The main aim of the structural changes is the strengthening of efficiency and the functioning of the market mechanism, so as to reinforce the viability and competitiveness of the Cyprus economy and enterprises and face successfully the challenge of the pending accession of Cyprus to the EU.

5. Agriculture Introduction

The broad agricultural sector, despite the reduction of its contribution to the Gross Domestic Product and total employment, continues to be a fundamental sector of the Cyprus economy, both with respect to the production of essential food items for the population and exports and with respect to the employment of thousands of rural residents and the containment of the depopulation of the villages.

During the period 1960-1974, the agricultural sector expanded rapidly, but in 1974 it was severely affected by the Turkish invasion and occupation of part of Cyprus. The Turkish forces occupied and displaced non-Turkish population from an area which accounted for 46% of crop production and much higher percentages of citrus (79%), cereals (68%), tobacco (100%), carrots (86%) and green fodders (65%), while 47% of livestock production also emanated from the area.

Despite the concentration of population in the less productive part of the island, it was possible through concerted efforts and heavy investment in land improvement and irrigation to reactivate the agricultural sector and to reach the pre-1975 production levels. Nevertheless, the occupation of a great part of Cyprus is still causing problems in the agricultural sector, particularly with respect to the difficulties faced by displaced farmers, the shortages of fodders, the rational development of water resources, the spread of plant and animal diseases and many others.

Despite the blows incurred by the Turkish invasion, the broad agricultural sector contributed, in 2000, at current prices, some C£201,0 mln or about 4,0% to GDP and employed approximately 27 400 persons or 8,7% of the total economically active population. Agricultural exports (raw and processed) reached C£62,6 mn, constituting 28,0% of total domestic exports, compared to C£61,8 mn or 29,9% of total domestic exports in 1999.

Cyprus agriculture may be divided into two major sub sectors, namely crop production and livestock production, which, in 2000, contributed 56,1% and 31,3% respectively to the value added of the broad agricultural sector. The contribution of the other sub-sectors was as follows: Ancillary production (milk and grape products processed on-farm) about 3,8%, fishing 2,4%, forestry 0,7% and others 5,7%.

Development policy aims at restructuring and upgrading the agricultural sector in order to be able to successfully cope with the conditions prevailing in the European Union and international competition and for exploitation of the opportunities created by European Union orientation and the General Agreement on Tariffs and Trade (GATT).

The most important elements or development policy are improvement of productivity and competitiveness, further development of comparative advantages, improvement of quality and structural and institutional modernization.

Gradual harmonization with Common Agricultural Policy (CAP) of the European Union and the Acquis Communautaire in general has started and will be the basic objective as regards the Agricultural Sector, during the coming years. As regards fisheries, the basic reference point is the Common Fisheries Policy.

More specifically, the main objectives were:

a. Improvement of productivity of the broad agricultural sector, taking into consideration balanced development of agricultural sub-sectors, with emphasis on competitive sub-sectors and products, under accession conditions.

b. Approaching agricultural holdings/areas/zones as integrated units and preparation and implementation of integrated development programmes based on common socio-economic, soil and climatic characteristics, development targets, capabilities and prospects.

c. Improvement of farmers' standard of living and development of rural areas.

d. Improvement of marketing mechanisms for agricultural products.

e. Sustainable agricultural development, taking into consideration preservation of environment and minimization of negative effects from agricultural activities on environment.

f. Harmonization with the European Union.

In order to attain the above objectives and support agriculture, the Government implements support measures to agricultural and livestock products, which provide for cash subsidies, projects for restructuring cultivation, as well as various other programmes and projects. An essential component of many of these projects is the provision of agricultural credit, cash subsidies, and other assistance for the purpose of encouraging the development of the agricultural sector while supplementing agricultural incomes. Cash subsidies include also subsidization of interest on loans issued by banks and other financial institutions for capital investment in agriculture / animal husbandy.

According to the results of the 1994 Census of Agriculture, the area of agricultural land on agricultural holdings is about 178 thousand hectares out of which about 118 thousand hectares is cultivated land (under crops or fallow), as compared to 179 and 126 thousand hectares respectively of the 1985 census.

Reduction is mainly attributed to the abandonment and destruction of certain crops, such as vines, olives, carobs and some species of deciduous fruit. Fallow land was considerably reduced by using that land for the cultivation of temporary crops, which showed an increase.

Cyprus agriculture is characterized by two main features namely:

Irrigated agriculture, which includes mainly citrus, potatoes, other vegetables and melons, deciduous fruit, table grapes and bananas.

Rainfed or dryland agriculture, which includes mainly creals, fodders, olives, carobs, almonds and wine grapes.

Marketing of agricultural commodities is undertaken mainly through private merchants, cooperatives and the producers themselves, though potatoes, wine grapes, milk, carrots, beetroots, olives and cereals go through marketing organizations.

5.1 Crop Production

Thanks to the diversity of topography and climate, a wide range of microclimatic conditions exist permitting –4-diversified crop production. In the central plain the main crops are wheat and barley grown under winter rainfall. Potatoes, vegetables, legumes and fodders are widely distributed all over the island, while citrus orchards are generally concentrated along coastal areas. In narrow valleys at higher elevations of the Troodos mountains deciduous fruits, nuts, vines and a wide range of vegetables are grown. Viticulture is very important in the hilly areas of Paphos and Limassol districts, and the grapes are mainly used for wine making, while table grapes are grown in the south-west areas near the coast. Bananas are cultivated in the Paphos district.

Systematic measures are undertaken by the Ministry of Agriculture, Natural Resources and Environment for the further development of Cyprus' agriculture. These measures have concentrated mainly on the improvement of productivity through the introduction of new and improved varieties of crops, improved cultural practices, expansion of irrigation and modern irrigation methods and means, mechanization of farming activities (cultivation, harvesting etc.), plant protection and soil conservation in mountain and hilly areas.

5.2 Livestock Production

Livestock production constitutes an important component of Cyprus' agriculture. Cattle, sheep and goats, swine and poultry constitute the main sub-sectors of the livestock industry. Also ostrich farmers for commercial purposes have been established during the last few years.

Fresh pork, poultry meat and edible eggs satisfy fully local demand and no imports of these items are realized. On the contrary, surpluses of fresh pork are occasionally exported. However local production of beef / veal, mutton and lamb satisfy the local demand by 81% and 92% respectively and they are supplemented by imports.

The demand for pasteurised cow's milk for liquid consumption is fully satisfied while the demand for cheese and other products made from cow's milk as well as sheep and goat's milk is met by 85% and supplemented by imports.

All the required quantities of evaporated milk, condensed milk, sweetened or not, whole milk powder, S.M.P. milk for infants etc. for local demand are imported. In parallel, traditional dairy products are exported.

The efforts of the Ministry of Agriculture, Natural Resources and Environment in this field are mainly concentrated on the improvement of animal productivity through improved breeding and management practices, upgrading veterinary services for animal disease control and cure, local production of feeding stuffs, better nutrition of animals, and modernization of farms through mechanization and upgrading the managerial capability of farmers.

5.3 Fisheries and Marine Research

The Cyprus production of fish during 2000 was 4097 tons valued at C£13.4 million, compared to 3679 tons in 1999 valued at C£13.7 million. Fish production is mainly derived from the inshore and the trawl fishery, territorial and international waters as well as from aquaculture.

The Department of Fisheries and Marine Research is responsible for the sustainable management of living marine resources, the development and research of aquaculture and the protection and research of the marine environment.

As far as fisheries resources are concerned, a number of management measures are being applied and relevant legislation is being enforced. In addition, technical and financial aid is granted to fishermen in order to develop fisheries.

By 2000, there were in operation four private marine fish hatcheries and one shrimp hatchery farm on land, as well as eight private offshore cage farms. In 2000, the production of market size fish reached 1735 tons valued at about C5.533 million, while 25.5 million marine fish fry were produced, out of which about 14.4 million valued at about C£1,568.000 were exported. Sixty-five tons of shrimps were also produced. Five trout farms were in operation in the Troodos area, which produced 78 tons of trout in 2000 valued at C£304.000, compared to 66 tons in 1999.

The construction, improvement and maintenance of fishing shelters are among the major activities of the Department of Fisheries and Marine Research. In 1995 a new Law for the management of fishing shelters was enforced. There are twelve fishing shelters in operation-at Paralimni, Ayia Triada, Ayia Napa, Potamos, Xylophagou, Ormidhia, Dhekelia, Larnaca, Ayios Georgios, Latsi, Pomos and Pyrgos. Fishing vessels are also harboured in the ports of Paphos, Limassols and Larnaca.

The Department's activities also focus on research and study of the marine environment in the sea around Cyprus and the Eastern Mediterranean covering inter alia the following:

Research, monitoring and control of marine pollution, including the prevention and combating of oil pollution.
Research in physical oceanography – understanding the hydrodynamic features of the Eastern Mediterranean Sea.
Studies of fish population dynamics and stock assessment.
Research in marine ecology with a particular interest in the distribution of benthic organisms (phytobenthos and macro fauna) in relation to their environment.
The preparation and assessment of Environment Impact Assessment studies on marine environment in relation to coastal development plans such as sewage, aquaculture, construction of breakwaters etc.,
Conservation of endangered aquatic species and habitats and protection of endangered marine ecosystems.

In relation to the last item the Department continued its project to save the green and loggerhead turtles breeding on the island's beaches. For this purpose the Lara-Toxeftra area has been declared a nature reserve

6. Major Country dada in Agriculture

6.1 Agricultural Sector Land Use and Output

The sector's contribution to the Gross Domestic Product declined from 8.3% in 1983 to 3.6% in 2001 (Table 1.1). As depicted in Figure 1.1, according to 2001 data, the most important sub-sector in terms of contribution to total value added of the sector is crop production (63.0%) followed by livestock production (29.7%). In terms of land use, annual crops cover 92,300 hectares with cereals being the most expansive (56,000 ha). Permanent crops cover 41,300 hectares with vines being the most expansive (18,200 ha). Pork and poultry remain the most important livestock production in terms of quantity and economic output.

Out of a total area of 925,100 ha utilized agricultural area represents 148,872 ha or 16.1% of the total, which compared to the EU-15 average (40.6%) is very low. 18.7% of the total land is covered by forest. The fertile costal zone accounts for 34,5% of the total utilized agricultural area and for 37.8% of the total number of holdings. Dryland covers 46.3% of the land and 40.6% of the holdings. The vines zone accounts for 12.3% of the land and 9.4% of the holdings while the mountain zone accounts for 6.9% of the land and 12.2% of the holdings. Average agricultural holding size ranges from 2.0 ha in the mountain zone to 4.4 ha in the dryland zone.

6.2 Agricultural Employment and Farmers Profile

Employment in agriculture has been on the decline as indicated in Figure 1.2 and Table 1.1. In 1983 employment in the agricultural sector amounted to 15.3% while in 2001 it only counted for about 7.1% of total employment in terms of full-time working equivalent. Distribution of employment in agriculture across sex and between farm holders versus employees is shown in Table 1.2. Distribution across all categories during the five-year span between 1996 and 2001 remained relatively steady. In 2001 holders and family members accounted for 79.47% of employment with 50.26% male and 29.21% female. Employees accounted for 20.53% of employment with 12.52% male and 8.01% female. It is apparent that among both holders and employees sex distribution remains relatively constant with about 61-63% male and about 37-39% female.

Part-time farming is one of the most important characteristics of the agricultural industry of Cyprus (Figure 1.6, Table 1.7) Only 28.8% of all agricultural holdings provide the holders' full income. About 7% of the holdings provide more than 50% of the holders' income, 32.6% provide between 10-50% of the holders' income and 31.6% of the holdings provide 10% of the holders' income. Evidently 64.2% of all agricultural holdings support less than half their farmers' income. The small surface of the holdings, owing largely to the natural topography of the island and the hereditary nature of agricultural property, is an important factor defining agriculture largely as a source of supplementary income. Average holding size ranges from 2.0 ha in the mountain zone to 4.4 ha in the dryland zone.

6.3 Age Distribution and Education Level in the Agricultural Sector

Age distribution in the agricultural sector is rather normal (Figure 1.4, Table 1.5). 62% of farmers are over 45 years of age while 50.3% fall between 35-54 years of age.

Full time farmers are the oldest in the profession with an average age of 62 years. Younger farmers support their farming income through alternative types of employment or simply pursue farming as a supplementary source of income.
All other categories of farmers (as per their percent farming income) except full-time farmers represent an average age range of 46-48 years.

Of all farmers 9.6% received higher (college) education, 31.9% received only secondary education, 54.6% received only elementary education and 3.9% have received no formal education. Education level is lower in the vines zone and the mountain zone (Table 1.6).

6.4 Current level and use of ICT technologies in agriculture

The use of ICT technologies in agriculture is rather limited. Farmers are increasingly aware of the potential advantages of ICT technology and most young farmers have access to a personal computer. The application of ICT in production programming, technical monitoring of the production process and in production accounting systems is rather limited to large corporate farms, cooperative farms and innovative farmers cultivating higher revenue crops. The latter category encompasses mostly growers of high-value ornamental crops and out-of-season crops grown under cover particularly on inert hydroponic media. Highly specialized applications of ICT technology include monitoring and control of greenhouse environments (temperature-humidity), irrigation and fertilization scheduling and even pest control applications.

Wide application of ICT technologies is found in packing operations, sales and exports management. All privately owned or cooperative packinghouses apply various levels of ICT in central operation control and quality monitoring. Large farms maintain statistical and export databases. Software applications are common in most produce wholesale and retail sale establishments.

6.5 Vocational, training, consultancy and extension departments

Within the domain of the Ministry of Agriculture Natural Resources and the Environment the Department of Agriculture and the Agricultural Research Institute offer agricultural training at various levels. The Department of Agriculture offers mostly vocational, applied training while the Agricultural Research Institute offers both vocational and scientific training.

6.6 The Agricultural Research Institute

The Agricultural Institute of Cyprus ,was established in 1962 as a cooperative project between the Government of Cyprus and the United Nations Development Fund, with the Food and Agriculture Organization of the United Nations acting as the executive agency. It was entrusted to the Government of Cyprus in 1967 as one of the Departments of the Ministry of Agriculture, Natural Resources and Environment.

ARI undertakes applied and basic research within the wider domain of plant and animal production. Its mission is to provide high quality scientific research using methods that are financially, environmentally and socially sustainable. Its contribution to the solution of actual problems and to the introduction of new technological methods and approaches in agricultural production is greatly valued, both locally and abroad.

The Institute is organized into two divisions. The production division includes the disciplines of crop breeding and genetics, fruit tree and vegetables production, viticulture, floriculture, animal production, biotechnology and tissue culture. The support division provides services and scientific support to the production division. Among its disciplines are plant protection (entomology, plant pathology, nematology and weed science), insect toxicology and pesticide residues, soil fertility, plant nutrition, irrigation, environmental impact, experimental statistics and agricultural economics.

The Agricultural Research Institute is well equipped with specialized laboratories (chemistry, toxicology, molecular biology, tissue culture and radioisotopes), an insectary, cold rooms, glasshouses, the national herbarium, the national gene bank and other research facilities.

ARI employs 40 scientists, most of them PhD and MSc holders, specialists in various disciplines of plant and animal production, 70 technicians, 14 administrative and financing personnel and a permanent labour force.

Its work is publicized through the Institute's Biennial Review and three local publication series (Technical Bulletin, Agricultural Economics Report and Miscellaneous Reports). Research work of international interest is published in international journals. Transfer of research results and of new technology to the farming community is also effected through various other venues. The Institute holds annual series of open seminars on both applied and basic subjects emanating usually from research carried out at the Institute itself but also encompassing current developments in agriculture from the wider international scientific community. Other venues include demonstration plots, field days, radio and television programs, popular articles in local magazines and the daily press. The Institute maintains an extensive official website at http://www.ari.gov.cy. The purpose of the website is to inform the public on the ongoing activities of the Institute and provide access to the researchers profiles. It is linked to the Institute's library and provides access to the library's titles including the Institute's own publication series.

Within its educational role the Institute holds short-term training courses along various disciplines such as:

Irrigation/ Fertilisation/ Fertigation, Ruminant Production, Integrated Pest Management, Postdoctral, PhD, MSc Fellowships

Since its establishment, the Institute actively cooperates with regional and international organizations and research networks, including the Food and Agricultural Organization of the United Nations, the International Atomic Energy Agency, the International Centre for Agricultural Research in Dry Areas, the International Potato Centre, the CIHEAM, etc. Its cooperation with the EU and the pre-accession countries is expanding rapidly.

6.7 The Department of Agriculture

The Department of Agriculture in Cyprus, offers vocational training to farmers through Agricultural Training Centres in three different localities on the island, *in situ* consultation and training to farmers by the Department's extension personnel, seminar presentations held in rural communities, simplified technical bulletins on particular aspects of crop and pest management, popularised journal publications, radio and television programmes.

7. Key Issues Related to agricultural and rural development

As of May 1st, 2004 Cyprus will become a full member of the European Union. The main challenges facing the agricultural sector of the country during the accession process are related to its alignment with the Union's common agricultural policy. The scheme of public agricultural subsidies is undergoing radical restructuring with deep-reaching influences on the whole spectrum of agriculture. To that effect a new Rural Development Plan has been launched by the Ministry and implemented through the Department of Agriculture for the period up to 2006. Some of the measures encompassed by the Plan are the following:

- Modernization of agricultural holdings
- Reorganization and adaptation of agricultural holdings
- Development and support of small scale processing units and marketing networks for agricultural produce
- Formation of Producers Organizations
- Vocational training and extension service to farmers
- Development of organic crop production

The formation of Producers' Organizations is a crucial and essential step in the process of harmonization with EU directives, enabling absorption of developmental financial incentives offered by the EU. Producers' organizations will act as a catalyst for the restructuring of agricultural holdings, which shall necessitate a closer technical, environmental and financial monitoring of agricultural activity. Through the new scheme of organization, agriculture in Cyprus may partially overcome one of its main inherent disadvantages, that is the small scale of agricultural holdings that inevitably raises the cost of production.

Other important challenges confronting Cypriot agriculture in its process of alignment with the EU common agricultural policy are the adoption of comprehensive environmental and safety standards paying particular attention to the issues of public health and safety, water quality and preservation of biodiversity. In addition to the EU policy enforcement, farmers are confronted with an increasing set of standards set by the trust of European supermarkets, which absorb almost the entire volume of Cyprus' agricultural exports. This set of standards known as EUREPGAP superimposes strict monitoring and control measures throughout the production and handling procedures which essentially act as criteria for producers whishing to export. Not least, during recent years farmers have also come under increasing pressure from local non-governmental organizations (NGOs) such as consumers associations and ecological movements. All these pressures tend to curtail the array of materials and methods so far employed in a rather uncontrolled fashion by farmers and introduce an era of strict documentation of agricultural practice in Cyprus. As a result, part-time farming that has characterized Cypriot agriculture in recent decades is at threat since all the above measures require an entirely professional engagement and standard of practice as well as serious financial investment on behalf of farmers. On the other hand, the social aspects of the EU agricultural policy, evident in many of the measures of the Rural Development Plan, support in various ways the rural population of peripheral or impoverished areas (ex. mountainous communities) thus maintaining the ethnographic pluralism of the continent, by offering significant incentives to small and medium agricultural enterprises in such areas. In the case of Cyprus, characterized by constant drifting of the population toward the urban centers such measures may prove particularly beneficial.

Once a significant productive sector of the island's economy and a major source of foreign exchange, agriculture now represents a small fraction of Cyprus' GDP (Table 1.1) but continues to employ roughly 7% of the work force. The disproportionate enlargement of the service sector and primarily of the tourist industry has brought the agricultural sector under severe competition with regards to land use and water consumption. The price of land has dramatically risen over the past two decades owing largely to the growing tourist industry and particularly to the real estate market catering to foreign nationals wishing to establish a second home on the island. Moreover the tourist and real estate industry now competes with the agricultural sector for another limited resource on the island, namely water. Critics of the massive deployment of water to agriculture through the extensive system of water dams on the island point out that the revenue generated by agriculture per unit volume of water is far lower than the corresponding revenue generated by other sectors of the economy, most notably tourism.

With reference to all the above, the future of agriculture in Cyprus lies in the swift adoption of environmentally sound systems of production, in the upgrading of quality and food safety in order to gain consumer confidence and the promotion of agriculture's role and image as a caring steward of the land and as the main deposit of the island's popular folk tradition.

Figure 1.1: Value added of the Agricultural Sector by sub-sector, 2001

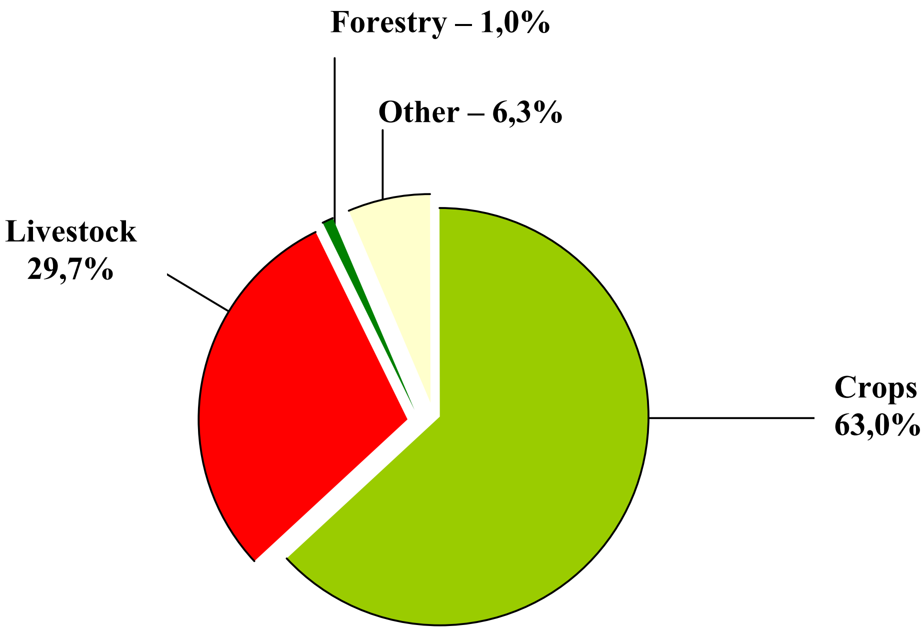
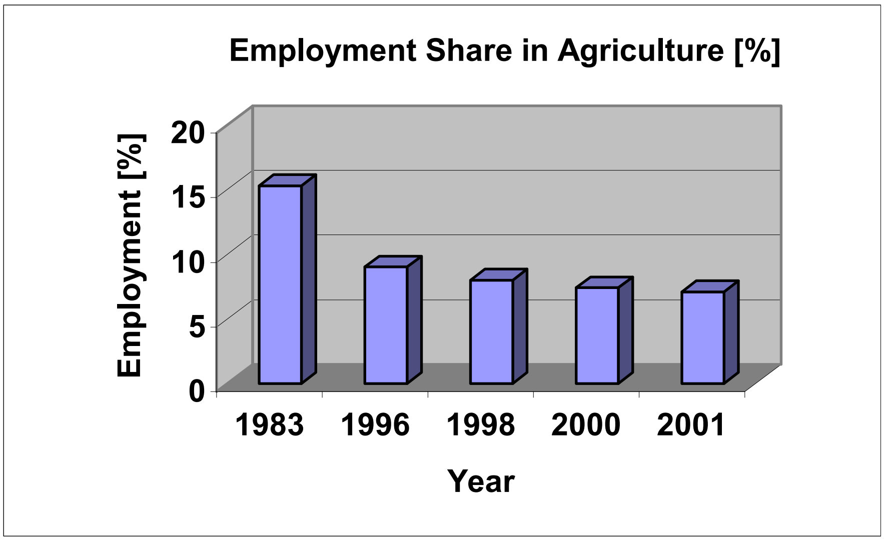


Table 1.1 Agricultural Productions and Employment Comparative Statistics Between Cyprus and The EU Countries

Country	Agricultural Production (%GDP)		Employment in Agriculture (%Total labor force)*	
	1983	2001	1983	2001
Cyprus	8.3	3.6	15.3	7.1
Belgium	3.0	1.5	3.4	1.4
Denmark	5.6	2.7	7.3	3.4
Germany	2.1	1.2	5.7	2.6
Greece	18.0	7.0	30.0	16.7
Spain	6.0	3.4	18.8	6.3
France	5.0	2.8	8.4	3.9
Ireland	12.0	3.6	17.5	6.8
Italy	6.0	2.7	12.0	7.8
Luxembourg	3.0	0.7	4.8	2.4
Netherlands	4.3	2.6	5.5	2.9
Austria	5.0	2.2	9.9	5.8
Portugal	8.4	3.7	26.7	12.2
Finland	9.0	3.4	13.1	5.7
Sweden	4.0	1.7	5.6	2.9
Un. Kingdom	2.0	0.9	2.5	1.3

Full-time working equivalent (Source: Agricultural Statistics 2001, Statistical Service, Republic of Cyprus)

Figure 1.2 Employment Share in Agriculture*



*Full-time working equivalent
(Data Source: Agricultural Statistics 2001, Statistical Service, Republic of Cyprus)

Table 1.2 Employment Share in Agriculture by Sex (1996-2001)

Holders and Family Members	1996	1997	1998	1999	2000	2001
Male	46.88	50.54	50.20	50.11	50.28	50.26
Female	30.04	29.43	29.18	29.14	29.21	29.21
Total	76.92	79.97	79.38	79.25	79.49	79.47
Employees						
Male	12.98	12.18	12.65	12.72	12.50	12.52
Female	10.10	7.85	7.97	8.04	8.01	8.01
Total	23.08	20.03	20.62	20.76	20.51	20.53

(Source: Agricultural Statistics 2001, Statistical Service, Republic of Cyprus)

Table 1.3 Agricultural Land Use (Thousands of hectares)

Crop	1990	1995	2000	2001
Annuals	***90.6***	***92.0***	***93.4***	***92.3***
Cereals	57.5	60.9	51.5	56.0
Fodder	19.4	16.4	30.2	25.3
Vegetables and Melons	11.4	13.2	10.5	9.7
Permanent Crops	***50.9***	***42.4***	***41.8***	***41.3***
Vines	25.2	19.3	19.2	18.2
Citrus	7.5	7.2	5.5	5.4
Fresh Fruit	3.3	4.0	3.6	3.6
Nuts	4.6	3.7	3.9	3.9
Olives and Carobs	10.3	8.2	9.6	10.2

(Source: Agricultural Statistics 2001, Statistical Service, Republic of Cyprus)

Table 1.4: Production of main livestock products, 1996-2001

Product	Quantity (tons)					
	1996	1997	1998	1999	2000	2001
Meat						
Beef	4,900	5,400	4,000	3,950	4,450	3,900
Mutton	860	1,070	1,170	1,250	1,220	1,240
Lamb	2,810	2,760	3,420	3,200	3,000	3,000
Goats	900	1,180	1,180	1,450	1,450	1,450
Kids	3,170	3,070	4,070	4,850	4,850	5,300
Pork	45,600	46,100	47,200	49,150	52,250	50,700
Poultry	29,800	31,800	31,000	33,150	32,300	33,800
Rabbits	820	830	845	830	800	845
Pigeons	200	200	180	180	180	180
Quails	170	160	185	140	126	156
Milk						
Cows	138,000	133,200	134,000	132,500	146,600	141,500
Sheep	18,500	19,500	17,500	17,000	18,000	21,800
Goats	23,800	25,100	26,400	28,500	29,200	36,200
Eggs	10,206	9,223	10,584	10,622	10,584	11,190

(Source: Agricultural Statistics 2001, Statistical Service, Republic of Cyprus)

Table 1.5: Farm holders by age and zone

Farmer's age - Mean area (ha/holding)	Coastal	Dry land	Vines	Mountain	All zones	
<25 years (%)	**43.0**	**35.2**	**11.9**	**9.9**	**335**	**0.8**
Mean area	2.1	3.2	2.3	2.4	2.5	
25-34 years (%)	**45.7**	**38.9**	**7.1**	**8.3**	**5,344**	**12.1**
Mean area	2.4	3.7	2.9	1.1	2.8	
35-44 years (%)	**42.7**	**44.1**	**5.4**	**7.8**	**11,042**	**25.1**
Mean area	3.0	3.6	4.7	1.4	3.2	
45-54 years (%)	**40.4**	**43.4**	**7.1**	**9.1**	**11,124**	**25.2**
Mean area	3.4	3.8	5.2	2.0	3.6	
55-64 years (%)	**35.0**	**40.2**	**10.6**	**14.2**	**8,151**	**18.5**
Mean area	3.2	4.5	4.4	2.3	3.7	
65-74 years (%)	**27.2**	**34.2**	**16.9**	**21.7**	**5,694**	**12.9**
Mean area	3.0	4.0	4.3	2.3	3.4	
>75 years (%)	**20.8**	**32.5**	**20.5**	**26.2**	**2,384**	**5.4**
Mean area	2.8	3.4	3.9	2.2	3.1	
Total number of	**16692**	**17894**	**4122**	**5366**	**44,074**	**100.0**
Total area (ha)	**51323**	**68892**	**1832**	**10329**	**148,87**	**100.0**
Mean area (ha)	**3.1**	**3.9**	**4.4**	**2.0**	**3.4**	
% Holdings	37.9	40.6	9.3	12.2	100.0	
% Total area	34.5	46.3	12.3	6.9	100.0	

(Source: Papayiannis C. and M.Markou, 1999)

Table 1.6: Holders by level of education and zone

Level of Education	Coastal (% Total)	Dry land	Vines	Mountain	All Zones (%)	
None	3.3	2.9	7.8	5.8	1712	3.9
Elementary	49.8	51.6	70.5	67.6	24086	54.6
Secondary	35.0	34.8	18.5	23.1	14066	31.9
Higher	11.9	10.7	3.2	3.5	4210	9.6
Total number of holdings	**16692**	**17894**	**4122**	**5366**	**44074**	**100.0**
(%Total)	**37.9**	**40.6**	**9.3**	**12.2**	**100.0**	

(Source: Papayiannis C. and M.Markou, 1999)

Table 1.7: Percent Income from Farming

	Total	Percent Income from Farming			
		100	>50	10-50	<10
Number of Holdings	**44802**	**12905**	**3145**	**14589**	**14163**
Operator's Age	51	62	48	48	46
Land Surface (ha)	3.6	5.3	10.1	3.2	1.2
Temporary Crops (%)	64.1	73.5	85.2	53.6	42.8
Permanent Crops (%)	35.9	26.5	14.8	46.4	57.2
Coastal	**16897**	**4157**	**1747**	**6281**	**4712**
Dryland	**18306**	**4446**	**1070**	**5239**	**7551**
Vines	**4180**	**2019**	**180**	**1395**	**586**
Mountain	**5419**	**2283**	**148**	**1674**	**1314**

(Source: Papayiannis C. and M.Markou, 1999)

Figure 1.3: Age Distribution in the Agricultural Sector

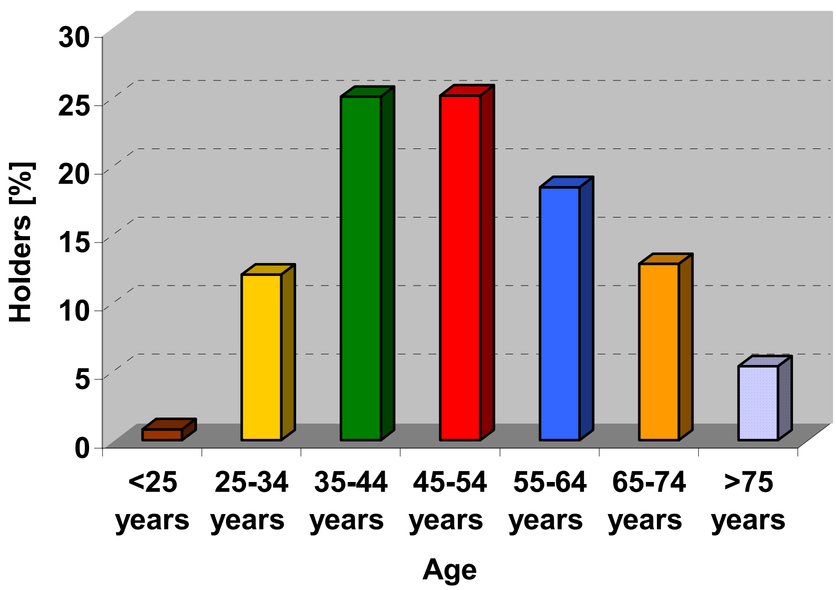


Figure 1.4: Distribution of area and holdings among Agricultural zones

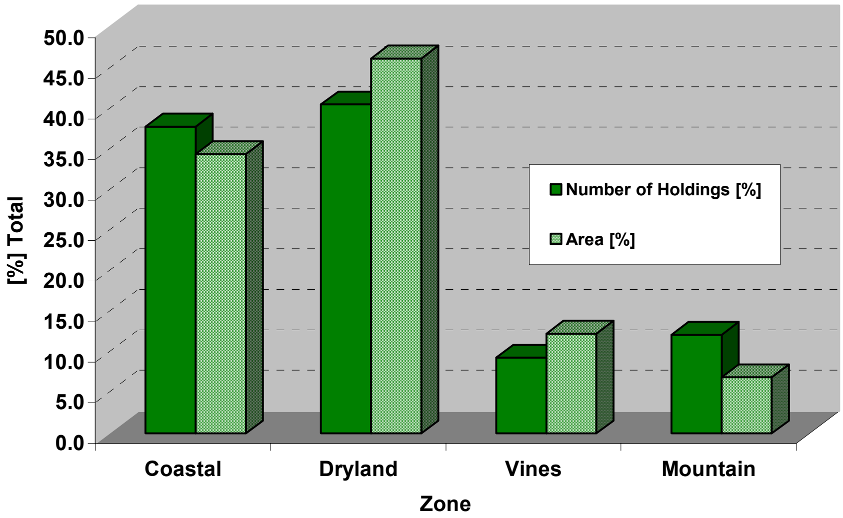
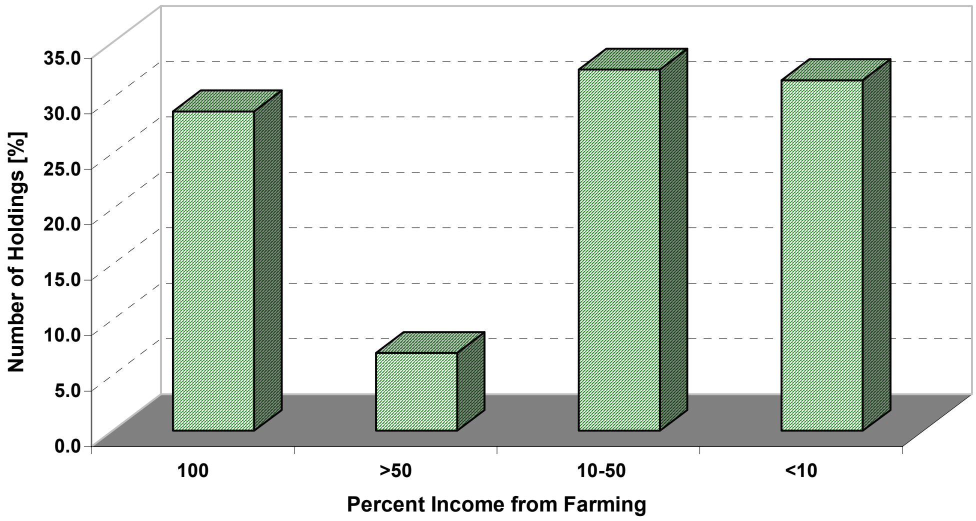


Figure 1.6: Percent income from farming among Agricultural holdings



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