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**PUBLIC GOVERNANCE AND TERRITORIAL DEVELOPMENT DIRECTORATE**
**TERRITORIAL DEVELOPMENT POLICY COMMITTEE**

**Working Party on Territorial Policy in Rural Areas**

# PLACE-BASED POLICIES FOR RURAL DEVELOPMENT
# CRETE, GREECE (CASE STUDY)

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**TABLE OF CONTENTS**



**Tables**

**Figures**



**Boxes**

## Introduction

1. Rural areas still face particular challenges that require special attention from policy makers. Three specific concerns are often identified. First, employment opportunities in primary industries (largely agriculture) are declining. Second, out–migration of young people, along with in-migration of retirees in some places, has led to significant ageing of the population. Finally, most rural areas have difficulty establishing the necessary critical mass of facilities, producer services and investments to support economic development, so that entrepreneurs have difficulty starting up enterprises in the area.

2. Additionally, the recent phenomenon of globalisation confronts rural areas both with development opportunities and with threats not previously encountered, by loosening national ties and enforcing international competition. Globalisation is expected to bring gains to economies in their totality, but it will nonetheless pose severe problems of adjustment to a good number of rural regions. On the other hand, analysis of rural areas in OECD countries shows that a series of new opportunities are opening up, requiring appropriate policy support. These include increased demand on the part of urban dwellers for rural amenities, due to improved transport links either for recreational or residential purposes. Sustained endogenous development has also been observed, reversing patterns of economic decline and out–migration. The sources of economic success include dynamic SME clusters and industrial districts, development of diversified agro-industries, and rural tourism.

3. So far rural policy is still considered by many to be synonymous with agricultural policy in spite of important evolutions in this sector. Even among the most rural regions of OECD member countries, only one out of five jobs is in the agricultural sector (including forestry and fishing). An approach extending beyond agriculture is now required given that the majority of rural citizens, increasingly depend on employment and income generated by a complex mix of interacting economic activities. In this context, a shift is taking place in most OECD countries from traditional sectoral policies to place-based policies and this is evident in policies addressing development in rural areas.

4. Policy responsibilities and in some cases revenue-raising capacities have shifted from the central government to regional and local governments in the past decade in OECD countries. Not only specific tasks have been reallocated to different agencies and the repartition of revenues revised, but more flexible institutional relationships have evolved. A wide range of governmental and non-governmental actors, including the voluntary sector and private enterprises, gradually constitutes policy networks within which solutions to common problems are jointly discussed and policy solutions developed. The functioning of these new forms of governance appears to have a number of key features.

5. First, formal mechanisms of horizontal and vertical co-operation between government bodies and partnerships with non-governmental actors are becoming more frequent. Local and regional authorities are building the necessary institutional bridges among themselves, with the central government, with social partners as well as with NGOs, so as to maximise local/regional participation in policy formulation and implementation. To facilitate these trends, central governments have, in some cases, begun to promote place-based agreements, such as inter-communal frameworks, regional platforms, territorial pacts and micro-regions. These structures promise more co–ordinated projects for local development and more coherent allocation of public resources. Given the increasingly favourable policy environment, local governments now need to further strengthen their own policy-making and implementation capabilities.

6. Second, in the context of these new partnership-based institutions, the role of citizen participation is increasingly emphasised. This permits public policies to be informed directly by representatives of the local community and grass-roots interest groups who have knowledge that can be harnessed to increase the responsiveness of public policy delivery. The bottom-up approach is increasingly anchored in the overall

system of territorial governance in member countries: the challenge is now to make it work more efficiently so as to effectively deliver more balanced, participative and inclusive governance.

7. Against this background, negotiation and contracts become central in establishing new governance structures and in creating dynamic interagency partnerships. Many OECD countries are reconsidering the importance of effective negotiation processes between sectoral government departments, between different tiers of government and between the government and private/voluntary sector actors (some of whom have a stronger bargaining position than others). The approach is based on the assumption that a negotiation process values, on the one hand, the richness of information available at the local level and on the other, the potentially wider vision of the central government. This process can then lead to a better assessment of relative need and thus to a more effective and accountable allocation of resources.

8. These shifts in territorial governance lie at the heart of the process of policy making in rural areas. These policies, present some common features such as:

- Shifting from a focus on a single sector to a new focus on rural places;
- supporting specific activities to mobilise investment in emerging opportunities, taking full advantage of local resources and capabilities;
- facilitating the shift from top-down incentives to the development of bottom-up projects targeting co-ordinated development. A bottom-up approach stresses the ability of rural citizens to identify issues, to formulate strategies and to be full partners in implementation.

9. Analysis of these changes, by means of assessments of some of the more promising recent initiatives of this type, will provide recommendations to assist member countries in improving their methods in the strategic phases of conception, negotiation, implementation and evaluation of place-based policies for rural development.

10. In this context a certain number of case studies on Place-based Policies and Rural Development have been requested to OECD. Analysis of the Mexican micro-regions strategy was followed by Spain with two case studies (Extremadura and the Basque Country) in 2004. These are to be completed by Italy (Tuscany), Greece (Crete) and Hungary (Lake Balaton) in the course of 2005. The case studies will contribute to an OECD Thematic Review for Place-based Policies and Rural Development.

11. The following case study on the Region of Crete in Greece is organised in four parts:

- The context is presented in part one with developments on regionalisation in Greece, a rapid overview of the main demographic and economic features of Crete, a profile of Cretan rural areas and of agriculture, tourism and innovation in the Region. Part two is constituted by an analysis of the evolution of regional and rural development policy in Greece with specific attention to niche Cretan products, tourism and the role of Higher Education Institutions in the local economy. Part three analyses national territorial development policy implementation in the Crete region, focusing both on financing and place-based policy governance. Part four contains an overall evaluation of regional, rural development, tourism and R&D and innovation policies as applied in the Region of Crete and of efforts to foster local initiative, with recommendations to improve their efficiency.

## 1/ Context

### *1.1 Governance in Greece*

12. Greece has a complex governance structure with impact on economic and rural development at all administrative levels. Government in Greece comprises four distinct levels: central government administration and public agencies; regional administrations (state government); prefecture authorities (local self elected government); municipalities and communes (local self elected government). The 1975 Constitution of Greece established the central government and self-governed municipalities and communes as the two essential institutions of Greek government. These "first tier" local governments are given the responsibility of local affairs with all other tiers determined by law. The prefectural (second tier) and regional (third tier) layers were created by legislation in the mid-1980s as less concentrated state authorities. Two modifications in these layers in the 1990s provided a strong impetus for decentralization.

13. Since January 1, 1995, all 51 prefectures in the country are headed by an elected prefect, whereas the prefect was appointed by the central government before that. In 1997 the 13 administrative regions were given extended governance responsibilities, by transfers from the central state services. The reform had the expressed intent of bringing the decision-making process to the level where decisions were being implemented, as well as of being more responsive to problems encountered by citizens and, notably, delegating responsibility for the planning, programming and coordination of regional development. In the current division of responsibilities and duties, the principal tasks of central government would ideally be limited to policy formulation, coordination, monitoring and evaluation.

14. This trend of decentralization from the highest level of government was accompanied by a consolidation of the first tier, with amalgamation of communes and municipalities, a process started in 1999 as a result of the Kapodistrias plan reforms of 1997. This reform was driven by the concern that extreme fragmentation of local government resulted in many small local authorities being unable to ensure their administrative and developmental missions defined in the Constitution and subsequent legislation. So as to ensure that local authorities possess a requisite minimum of human and financial resources to accomplish these tasks, the more than 5 000 local authorities were reduced to around 1 000, thus engaging Greece in a rather unique process amongst OECD countries of compulsory amalgamation. In Crete, the 575 local governments were consolidated into only 68 municipalities and 2 remnant communes, entities of a smaller size, holding lesser powers. However, the reform did not completely erase the former municipalities that were merged into bigger ones. In the new decision making process "municipal departments" were created to ensure balance and fair representation of the interests of the former communes, particularly the smallest ones.

15. These reforms are an on-going process in terms of multi-level governance practices and mechanisms. The strong centralist traditions are being dissolved, but much more rapidly with respect to service provision than with respect to revenue generation. The balance of power at the intermediate level between regions and prefectures is also changing. The problems of fragmentation of the first tier may not be wholly solved by amalgamation but innovations promoting local networking and cooperation may overcome this. Officials at all levels thus have a substantial opportunity. Pragmatically, innovations with proven success should be diffused throughout the relevant government layer. This will require experimentation with new organizational forms able to coordinate the interests and capacities of central, regional, and local government as well as the private sector (Public Private Partnerships or PPPs) in pursuing sustainable development projects.

*1.1.1 Central government*

16. There are 16 ministries in Greece today with sector jurisdiction: (Public Administration & Decentralisation; Economy & Finance; Foreign Affairs; National Defence; Development; Environment, Physical Planning & Public Works; National Education & Religious Affairs; Employment & Social Protection; Health and Social Solidarity; Development & Food; Justice; Culture; Tourism; Transport and Communications; Public Order; Merchant Marine). These ministries have territorial responsibilities for the whole of Greece, while two other ministries have a specific territorial responsibility (the Ministry for the Aegean and Island Policy and the Ministry of Macedonia and Thrace.) All, except four (Defence, Foreign Affairs, Justice, and Public Order) fund development projects. Their responsibilities include policy-making, regulation, the finance of services and development (investment) budgets, as well as the direct delivery of services from their central departments and through a decentralized structure of government departments located at the regional and prefectural levels. Other public services are delivered through the regional administrations, prefecture governments and municipalities or communes.

17. In spite of decentralisation, regional development policy steering in Greece remain rather centralised as the national government retains strong powers through the definition of broad development goals for the regions, each headed by a government appointed Secretary General, thus ensuring coherence in policy implementation. Regional and prefectural offices of ministries are the sector coordinating bodies at these government levels and the point of application for subsidies and grants. Moreover, the allocation of fiscal resources permitting deployment of programmes and realisation of projects is still very much steered from the centre. EU funding is channelled through the NUTS II programming region level, (Crete being one of these), implying, as for distribution of national funds, permanent coordination between the regions and the self governing prefectures, under the authority of the Secretary General.

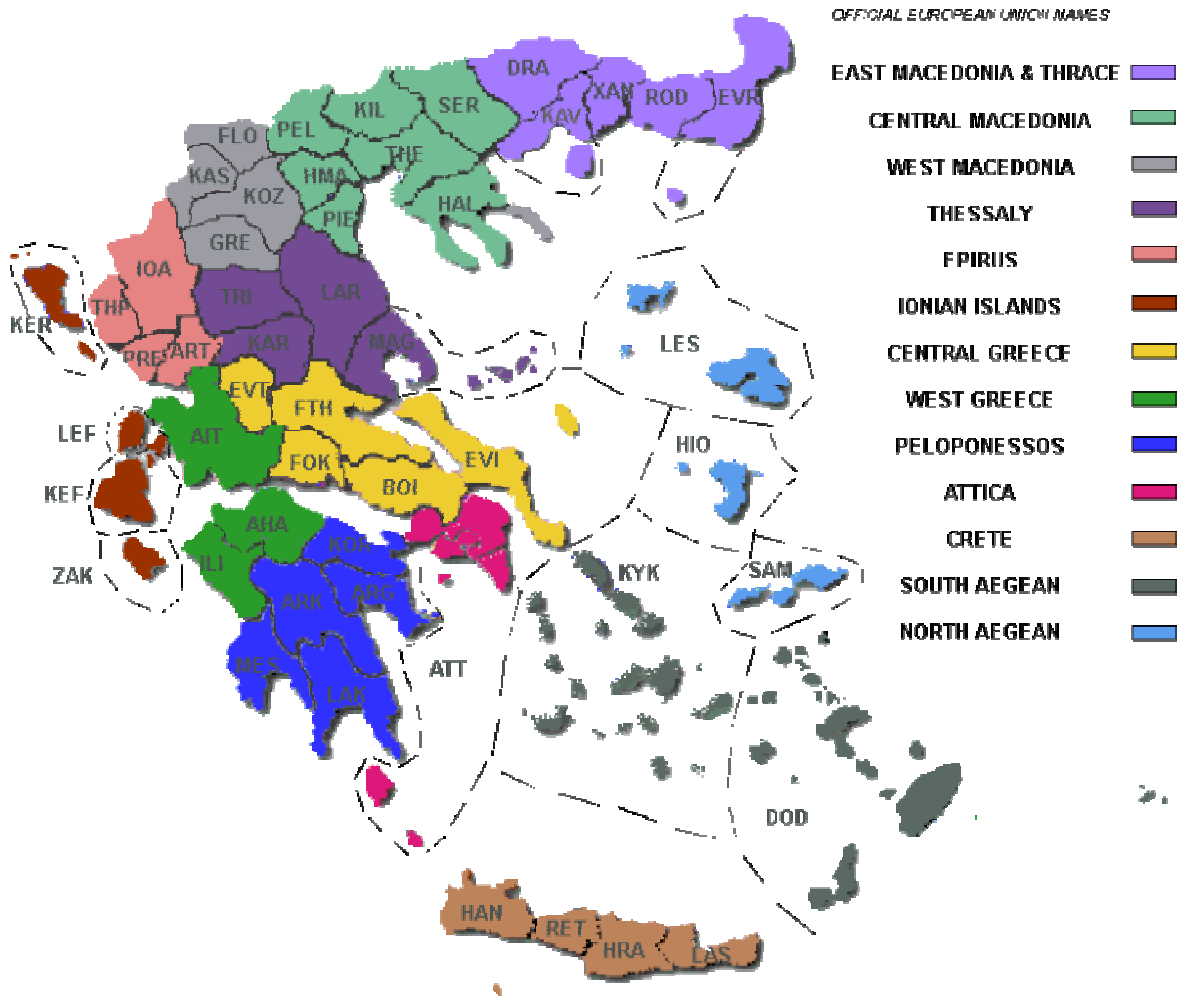
*1.1.2 Regions*

18. Greece is divided into 13 regions, each of which is a subdivision of the state[1]. Regional administrations are an extension of the central government, having territorial responsibilities for development planning and management of regional development programmes and budgets, and for the delivery of certain central government services. The Secretary-General of each region is appointed by the Council of Ministers on the recommendations of the Ministers of the Interior, Public Administration and Decentralization, to whom they formally report. The regional administrations were set up in 1986 with the main responsibility of planning and managing development programmes and budgets from the structural funds. In the last several years, regional administrations have been given certain responsibilities formerly exercised by central government departments and their political and administrative jurisdiction over central government departments at regional or prefecture level has been strengthened.

19. The region has administrative and budgetary autonomy. Its administrative autonomy derives from the management of the unit by the Secretary General disposing of an organization not dependent on the ministries with its own staff. Budgetary autonomy is derived by the provision of operational expenses (including staff salaries) through the State General Budget. Thus, each region essentially has its own budget. The Secretary General is the central government's representative and has responsibility for implementing government policy, a role reserved in the past to the appointed prefect. This power, and the presence in every prefecture of services of central government which report to the Secretary General, makes it clear that these regional authorities have important duties of coordination.

[1] …" the Region constitutes a unified decentralized unit of state administration" according to law 1622/86.

**Figure 1. NUT II Regions and Prefectures of Greece**




*Source:* National Centre for Maps & Cartographic Heritage.

20. Every Region has a Regional Council, with an advisory role referring to the programming of regional development and other matters. It consists of:

- the Secretary General of the Region, as President;
- the Representative of the Unified Prefectural Administration and Prefects of the Region;
- a representative of every Local Union of Municipalities and Communes[2] within the Region;

[2] Local Unions of Municipalities and Communities bring together at the prefectural level all senior elected officials, ensuring effective coordination, in particular for development programme implementation and realisation of infrastructure projects by the meeting at regular intervals of a General Assembly in which all mayors are represented and of an Administrative Council. The Union is headed by a President and an Executive Committee meeting frequently (once per month). There are 500 such Unions in Greece.

- a Regional representative of each of the following bodies: the Chambers of the "productive classes", the Technical Chamber of Greece, the Geotechnical Chamber of Greece, the Economic Chamber of Greece, the A.D.E.D.Y (Supreme Administration of Public Servants' Unions), the PA.S.E.GE.S (Panhellenic Confederation of Unions of Agricultural Co-operatives), the G.S.E.E. (General Confederation of Greek Workers)

*1.1.3 Prefectures*

21. Prefecture authorities are elected authorities with territorial responsibility since 1994, replacing the former centrally appointed prefects. There are 51 prefecture authorities in Greece (and four in Crete) responsible for the provision of certain public services and for the implementation of public development projects. Their responsibilities cover a range of public services, mostly of an administrative nature (planning and building control, education, welfare and health, commerce and industry, agriculture…) Prefecture authorities are responsible for prefecture level public works projects, for which they are funded by central government either through the regional administration or directly by central government ministries. In most cases regional administrations or central government departments also are involved in the provision of services at this level.

Prefectural Administration institutions:

22. Prefectural Administration institutions are public law corporate bodies, responsible for the economic, social and cultural development of the area. They manage Prefectural affairs and exercise all the powers conferred on them by law but they do not supervise the Municipalities and Communes. Prefectural Administration institutions are administered by a Prefectural Board and a Prefect directly elected for a four-year term. The Prefect executes the decisions of the Prefectural Council and Committee and is Head of services and personnel. The Prefectural Council, comprising 21 to 37 members, exercises executive and regulatory powers. The Prefectural Committees, monitoring development in different sectors comprise five to seven members appointed for two years and are chaired by the Prefect or the deputy Prefect. Its members are elected by and from the Council.

Prefecture Fiscal Resources:

23. Prefectural Administration Revenues first include the products of taxes, fees, charges and rates; they may, by council decision, impose fees, charges or rates for services or works contributing to the improvement of the quality of life, provision of public services and the development of their district. Revenue also stems from income from movable and immovable property exploitation. Revenues from immovable property can come from leasing or concessions to third parties. There are leases of various types of land for different uses, the most common being ground or subsoil usage (quarries). Special annual grants from the State Budget in order to cover the cost of state responsibilities exercised by them are another resource, of a significant importance, as are central autonomous funds, allocated at the level of the prefecture by sector administrations enjoying a certain degree of autonomy for spending.

24. The resources awarded each year by the state to prefectural administrations are in particular: 15% of vehicle duties; 10 % of transfer taxes on buildings, land and farms; 4.5 % of the tax on private cars, vans and buses circulating in the country for the first time and 2 % of VAT revenues. The criteria for allocating central autonomous funds to prefectural administrations are fixed by joint decision of the Minister of Finance and the Minister of the Interior, Public Administration and Decentralisation. Such criteria may be based on population, the extent and state of the road network, the level of social services, as well as the potential for drawing on local resources etc. Other resources are the credits of the public investment budget and fees, charges and rates of a compensatory character. Extraordinary revenues are mostly: fees on the use

of works financed by loans, loans, donations, legacies and inheritances, grants from public sector agencies and E U funds.

25. Prefectural Administrations may contract loans with the State, recognised inland credit institutions and banks in particular. They may also issue bond loans under certain conditions. Loans are contracted by decision of the Prefectural Council. In order to contract a loan for the execution of works or commissions, there must be a preliminary study or pre-study or definitive study of the said works or commissions, drawn up by the appropriate public bodies. State guarantees for contracting loans are provided on the basis of a joint decision of the Minister of Finance and the Minister of the Interior.

*1.1.4. Municipalities and Communes.*

26. The 900 Greek municipalities and 133 communes have as their primary task the promotion of the social and economic progress of their inhabitants and the protection of their cultural heritage. To achieve these aims they have responsibility for a range of services. These include administrative tasks such as civil registry, technical operations such as water supply, sewage and refuse disposal and certain planning control functions. Local authorities are also responsible for public works projects for which they are funded by central government, either through the regional administration or directly by central government ministries. The powers of municipalities were reinforced, in parallel to the compulsory amalgamation carried out at the end of the nineties, by transfer of certain competences held before by the state.

Municipal officials and bodies

27. The Municipal Council comprises 11 to 41 members elected for four years by direct universal suffrage; The Municipal Committee chaired by the Mayor or appointed deputy comprises two to six members. It draws up the budget and audits the end of year accounts. The Mayor, is required to attend council meetings but without voting rights and only implements the decisions of the council and committee. In the case of communes there is a Chairman of the Commune Council who implements the council's decisions and is head of the services. The Commune Council, composed of 7 to 11 members elected in the same fashion as municipal officials, is a decision-making body.

28. In every former Municipality or Commune abolished through merging, a Local Council or Department operates within the framework of the new Municipality, as an instrument of municipal decentralisation. Local Councils are composed of 3-7 members elected together with the members of the Municipal Councils. The Presidents of Local Councils are usually also members of the Municipal Council. Local Councils express, on issues concerning their area, views and proposals to the Municipal Councils, supervise the realisation of works and programmes, and exercise responsibilities delegated ad hoc by the Municipal Councils.

Areas of competence:

29. The administration of local affairs is the responsibility of the Municipalities and Communes and these relate to a wide array of areas:

- planning, management and execution of Building and City Planning Development Programmes. Implementation of City Planning, in accordance with the approved General Urban Plan, the Building Control Zone (Z.O.E.) and all other land management plans, and the keeping of the Land Registry, are components of this sector;

- construction, maintenance and operation of water, irrigation and sewer systems, anti-flood measures and land reclamation works, municipal and commune roads, squares, bridges, electric

lighting of public areas, public gardens and parks, pastures, open-air public spaces, cemeteries, municipal and commune sports and leisure areas, and municipal, commune and popular markets;

- construction, repair and maintenance of school buildings, stadiums, gyms and sports centres;
- set up and operation of nurseries, childcare centres and kindergartens, leisure centres for the elderly, children's homes, orphanages, centres for the support and rehabilitation of persons with special needs, and the planning and implementation of social programmes;
- construction and operation of cultural and arts centres, music, dance and art schools and vocational training centres, and the planning and implementation of cultural programmes;
- foundation and operation of libraries, museums and theatres, the repair and maintenance of traditional or historical buildings owned by local authorities, the repair and operation of archaeological and historical sites in the area;
- cleaning and waste disposal, protection of the natural and cultural environment, protection of the life and health of the inhabitants and the planning of special prevention, first aid and health programmes;
- protection, management and exploitation of local natural resources and areas, spas and renewable energy resources;
- traffic regulation and urban transport management;
- management of municipal or commune property and construction;
- planning, implementation and exploitation of centres and buildings for small industry in special industrial zones;
- planning and implementation of human resources development programmes;
- powers of control in all the above-mentioned areas.

Fiscal Resources

30. Every year the State awards resources to local authorities as clearly defined in Law 1828/89, article 25: 20 % of private and legal entity income tax, 50 % of vehicle duties and 3 % of property transfer duties. One third of the revenue derived from income tax is used to finance local authority investments, while the rest of the aforementioned revenues go to current expenses. The criteria for the allocation of central autonomous funds to local authorities are determined by joint decision of the Minister of Economy and Finance and the Minister of the Interior, Public Administration and Decentralisation. Up to now the only criterion has been based on population, but under recent law further factors are taken into consideration, such as the extent of the water supply and sewerage networks, the extent and state of the road network, the topography of the local authority area and climate conditions.

31. Revenues from immovable property come from property rents, concessions to third parties or self-usage. These are leases of various types of land suitable for different usages, e.g. urban or rural real-estate, pasture, ground usages, subsoil usages, shore usages etc. Other sources of revenues are fees and charges of a compensatory character, taxes, fees, charges and rates, Municipalities can receive loans, donations, legacies and inheritance.

32. By decision of the Municipal or Community Council grants are provided to public law legal entities based in the area of the Municipality or Commune and engaged in activities of immediate benefit to the local inhabitants. In exceptional cases and in order to cover extraordinary and serious costs for residents in financial straits, aid can be decided by the Municipal or Commune Council. By decision of the Municipal or Commune Council funding may be provided to sports and cultural associations based in the Municipality or Commune if the budget has been credited for this purpose. The amount may not exceed one hundredth of regular revenues.

33. Municipalities and Communes may contract loans with the state, recognised credit institutions, and public law legal entities. Loans are contracted by decision of the Municipal or Commune Council, determining the purpose, terms and instalments. In order to contract a loan for the execution of works or commissions, there must be a preliminary study or pre-study or definitive study of the said works or commissions, drawn up by the appropriate public bodies.

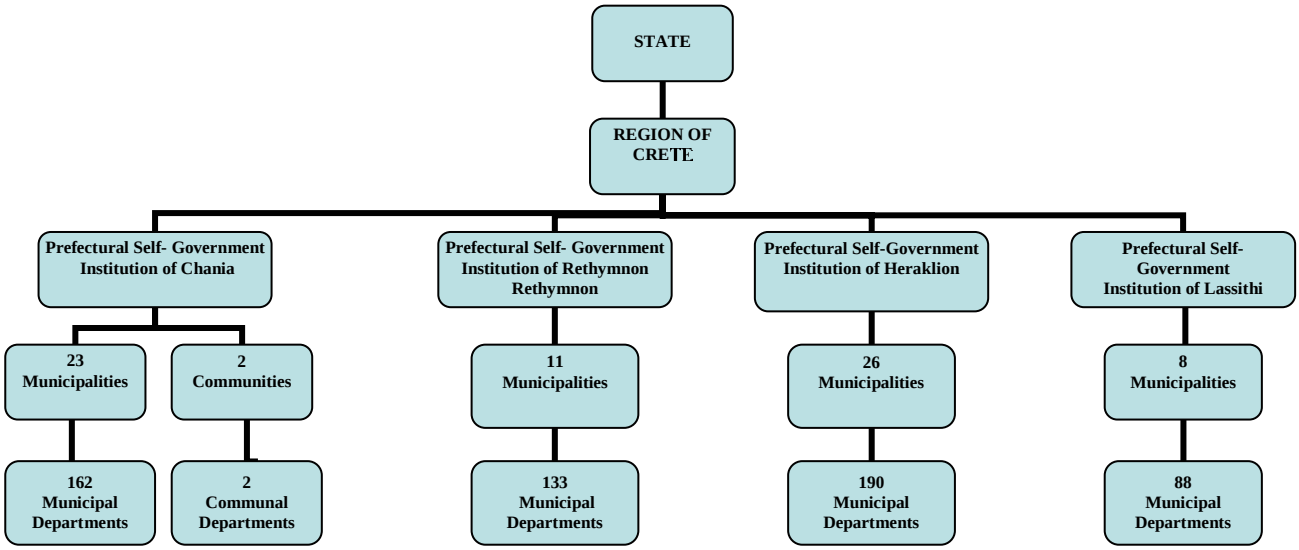
*1.1.5 Governance in Crete*

34. The Regional Government of Crete is located in the City of Heraklion, a major harbour situated on the north coast. The 4 Prefectural administrations are situated in Chania and Rethymnon to the west and in Heraklion and Lassithi to the east. The 68 Municipalities and 2 Communes, with the corresponding municipal departments are divided as follows:

- Chania Prefecture; 23 Municipalities, 164 Municipal Departments, 2 Communes and 2 Communal Departments;
- Rethymnon Prefecture; 11 Municipalities and 133 Municipal Departments;
- Heraklion Prefecture; 26 Municipalities and 190 Municipal Departments;
- Lassithi Prefecture; 8 Municipalities and 88 Municipal Departments;

The overall governance structure of Crete is presented in Figure 2.

**Figure 2. Governance in Crete**




*Source:* OANAK.

## *1.2 Crete profile*

### *1.2.1 Main demographic and economic features*

Geographical traits

35. The Region of Crete is bordered to the north by the Sea of Crete and to the south by the Libyan Sea. It has a total area of 8 335 sq. km. and covers 6.3 % of the country's total area. In its greatest East-West extension, the island measures 256 kilometres whereas the widest part of the region, in the Prefecture of Heraklion, measures 57 kilometres and the narrowest, in the Prefecture of Lassithi, 12 kilometres. Several small islands also belong to the Region of Crete, with only Gavdos in the South being inhabited.

36. The morphology of Crete is characterised by three basic zones: the high or mountainous zone at an altitude of 400 m. and above, the middle zone from 200 to 400 m. and the low zone, comprising areas rising from sea level to 200 m. The first two zones cover almost 3/5 of the island and comprise a continuous range of mountains from west to east, interrupted by small valleys and gorges. This range has six peaks over 2 000 m. These geographical traits have a strong bearing on settlement patterns and on the configuration of the regional road system. The main West-East axis follows the northern coast and serves 74 % of the total regional population. The main North-South axis connects the north central area of

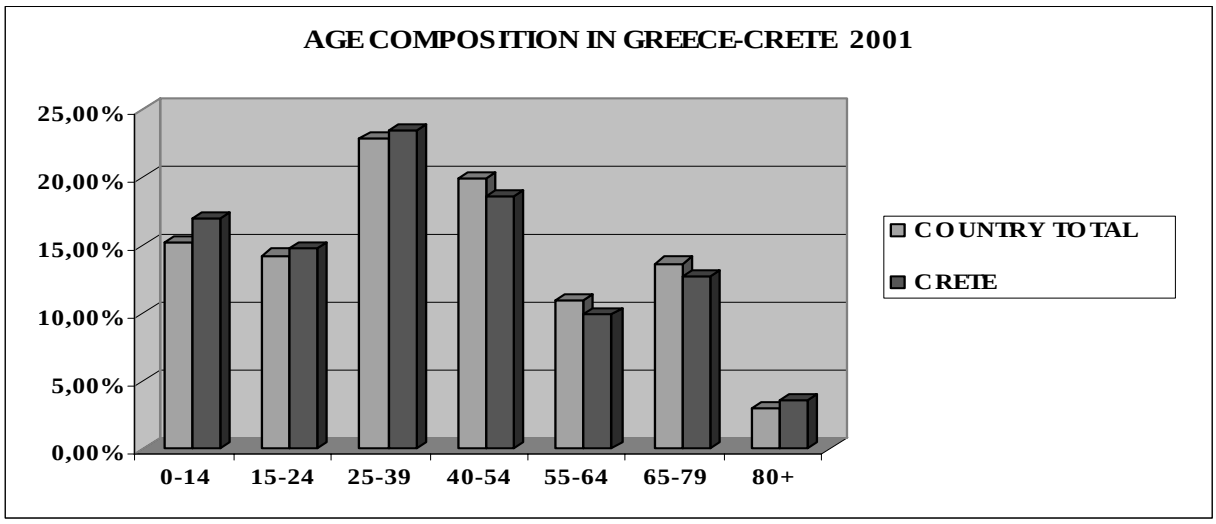
Heraklion area with the Messara valley. This means that many villages in mountainous areas are at distance from main thoroughfares and some are often cut off by winter snows.

Population

37. The population of the Region of Crete is 601 131 according to the most recent demographic census (2001) conducted by the National Statistical Service of Greece (NSSG), around 5.5 % of the country's total population of close to eleven million (10 964 020). Crete has one of the highest rates of population increase of all European Regions. From 1991 to 2001 its population increased by 11,3 %, while over the two decades 1981 – 2001 it rose by 19,71 %. This is due in part to the influx of foreign nationals (mainly agricultural workers from Albania and other Balkan states, 6.7 % of the total population, one of the highest rates in Greece). These trends are the most developed in the prefecture of Rethymnon (30.82%) than in others (around 20 % in Heraklion and Chania and 8.04 % in Lassithi) and dissimulate sub prefectural negative demographic trends (see further). On the other hand, the population density of the Region of Crete remains lower than the corresponding national level (72.1 as opposed to 84 inhabitants per square kilometre in 2001).

38. In terms of age profile, the rate of young people aged up to 39 years is higher in Crete than in the country as a whole while on the other hand the percentage of people older than 80 is higher than the national average (see figure 3): the population of Crete is both younger and longevity appears to be greater, possibly because of the beneficial effects of the famous Cretan regime (see further).

**Figure 3. Age composition Greece-Crete, 2001**




*Source:* NSSG and OANAK.

39. The urban population formed 42 % of the total population in 1991 and 57.98 % in 2001, underlining migratory patterns from rural areas within the island but corresponding also to an influx of foreign workers with some having settled in urban areas. Despite increased urbanisation, the urban population in Crete remains well below the national average of 73% in 2001 (source NSSG). The population of the major cities in Crete in 2001 is the following:

- Heraklion: 137. 711;
- Chania: 53 373;
- Rethymnon: 31 687;
- Ierapetra: 23 707, Agios Nikolaos: 19 462, Sitia: 14 338 (all three in Lassithi prefecture).

Regional GDP

*Ranking*

40. The per capita GDP of the Region corresponds to 68% of the average per capita GDP for the European Union in 1999 (EU Commission, Eurostat) and is ranked with the poor EU Regions. The per capita GDP of the Region of Crete has deteriorated over the past decade as it stood higher than the corresponding national average in 1994 (105.7%) according to NSSG whereas in 2001 it represented only 95.9% of the national average as the table 1 below indicates. The Region produced 5.7% of the total national GDP in 1994, 5.41% in 1996 and 5.2% in 2001 (see table 1 indicating 1996-2001 trends), showing a gradual deterioration of its position in the national economy. Also, the annual growth rate between 1996 and 2001 remained below the national average (3.02% versus 3.78%). Lastly, GDP growth for Crete as a whole during the period is largely attributable to population growth, the highest in Greece and high by European standards as indicated above[3].

**Table 1. GDP per capita in Greek NUTS II regions, 2001**

| | GDP 2001[1] | Population 2001 | GDP per capita 2001[2] | GDP/capita 2001 (% of the national) |
|---|---|---|---|---|
| Anatoliki Makedonia, Thraki | 1 881 099 | 599 500 | 3 137 780 | 79.6 |
| Kentriki Makedonia | 7 408 780 | 1 880 800 | 3 939 164 | 99.9 |
| Dytiki Makedonia | 1 188 028 | 294 300 | 4 036 792 | 102.4 |
| Thessalia | 2 621 575 | 741 100 | 3 537 411 | 89.7 |
| Ipeiros | 1 064 873 | 335 600 | 3 173 042 | 80.5 |
| Ionia Nisia | 740 015 | 210 200 | 3 520 530 | 89.3 |
| Dytiki Ellada | 2 236 210 | 722 500 | 3 095 101 | 78.5 |
| Sterea Ellada | 3 110 442 | 558 100 | 5 573 270 | 141.3 |
| Peloponnisos | 2 245 461 | 598 100 | 3 754 324 | 95.2 |
| Attiki | 16 318 528 | 3 903 500 | 4 180 486 | 106.0 |
| Voreio Aigaio | 736 625 | 202 200 | 3 643 050 | 92.4 |
| Notio Aigaio | 1 331 067 | 296 300 | 4 492 294 | 113.9 |
| Kriti | 2 250 794 | 595 300 | 3 780 941 | 95.9 |
| Greece total | 43 133 498 | 10 937 500 | 3 943 634 | 100.0 |

Notes: 1. Millions of national currency (Drachmas) at constant 2000 prices. 2. National currency (Drachmas) at constant 2000 prices.

*Source:* OECD Territorial database.

3 "Major changes in the placement of Crete and its prefectures as to per capita GDP", Manolis G. Drettakis (Patris, September 12th 2005).

**Table 2. Evolution of GDP of Greek regions, 1996-2001**

| | Area (km2) | GDP 1996 | GDP 2001 | GDP share 1996 (%) | GDP share 2001 (%) | Area share (%) | Annual growth rate 1996-2001 (%) |
|---|---|---|---|---|---|---|---|
| Anatoliki Makedonia, Thraki | 14 158 | 1 606 510 | 1 881 099 | 4.48 | 4.36 | 10.76 | 3.21 |
| Kentriki Makedonia | 18 811 | 6 260 091 | 7 408 780 | 17.47 | 17.18 | 14.29 | 3.43 |
| Dytiki Makedonia | 9 452 | 978 622 | 1 188 028 | 2.73 | 2.75 | 7.18 | 3.95 |
| Thessalia | 14 037 | 2 201 231 | 2 621 575 | 6.14 | 6.08 | 10.66 | 3.56 |
| Ipeiros | 9 204 | 804 297 | 1 064 873 | 2.24 | 2.47 | 6.99 | 5.77 |
| Ionia Nisia | 2 307 | 583 348 | 740 015 | 1.63 | 1.72 | 1.75 | 4.87 |
| Dytiki Ellada | 11 351 | 2 003 064 | 2 236 210 | 5.59 | 5.18 | 8.62 | 2.23 |
| Sterea Ellada | 15 550 | 2 879 402 | 3 110 442 | 8.04 | 7.21 | 11.81 | 1.56 |
| Peloponnisos | 15 491 | 1 780 652 | 2 245 461 | 4.97 | 5.21 | 11.77 | 4.75 |
| Attiki | 3 808 | 13 140 319 | 16 318 528 | 36.68 | 37.83 | 2.89 | 4.43 |
| Voreio Aigaio | 3 836 | 576 034 | 736 625 | 1.61 | 1.71 | 2.91 | 5.04 |
| Notio Aigaio | 5 286 | 1 074 249 | 1 331 067 | 3.00 | 3.09 | 4.02 | 4.38 |
| Kriti | 8 336 | 1 939 873 | 2 250 794 | 5.41 | 5.22 | 6.33 | 3.02 |
| Greece total | 131 626 | 35 827 692 | 43 133 498 | 100.00 | 100.00 | 100.00 | 3.78 |

Note: Millions of national currency (Drachmas) at constant 2000 prices. Exchange rate between ecu and drachma 1996: 1 ecu = 306.81 drachmas (average monthly rate, December 1996). Exchange rate between euro and drachma 2001: 1 euro=340.75 drachmas

*Source:* OECD Territorial Database.

41. These worrisome trends for Crete have been analysed, as the comparative performances between Greek regions presented above, by a former Deputy Speaker of Parliament and Professor at the University of Economics and Commerce in Athens, Manolis G. Drettakis[4]. In particular, the author underlines the fact that decreasing performance of the Cretan economy as a whole, in comparison to other Greek regions is linked to abrupt changes in agriculture in Crete that are not offset by the increases in tourism revenue. The rapid decline of agriculture is explained by the important reduction of certain cultivations (viniculture) combined with declining prices of certain produce and local out-migration by the traditional farming base, seeking in particular employment in tourism. The prefectures that lose in agriculture (Chania and Heraklion) are those where tourism gains are the greatest, as shown in table 3 below.

42. The comment that can be made here, in the context of this case study, is that mass tourism brings increased revenue but that it can also contribute to sub-regional imbalances: while the most developed areas along the coast continue to develop the rural hinterland suffers from this massive expansion up to the point that overall gains are not necessarily positive. This apparent paradox has been identified in other countries[5]. It shows that specific efforts to adapt agriculture and develop rural tourism are required to prevent further decline stemming in part from the negative externalities of concentration of pockets of tourism activity (see further the related developments on tourism).

43. As regards productivity, the Region was at exactly the national level in 1996 (72% of average EU productivity). It has presented continuous improvement over recent years (in 1993 the corresponding rate was 69 %, compared to 64 % in 1988).

4 "Abrupt shrinkage of the contribution of agriculture to the economy of Crete and in Chania prefecture in particular" (Patris, August 3rd 2005).

5 See Case Study for place based policies in rural development: Lake Balaton, Hungary, OECD 2005.

*GDP by sector*

44. In 1995 21.4 % of the Gross Added-Value[6] (GAV) of Crete was produced in the *primary sector*, 11.2% in the secondary sector and 67.4% in the tertiary sector. The corresponding national figures were at that date 9.9% for the primary sector, 22.4% for the secondary sector and 67.7 for the tertiary sector. In 2002, the share of primary sector GAV had dramatically fallen in Crete (11 %) and the secondary sector receded slightly (10.7-%) while the tertiary sector leaped to 78.3%, being for the latter much higher than the national average of 70.8 % (see table 3). The most striking percentage decrease is for the primary sector in Crete, dropping by close to 50% over the period, far more than the national trend of minus 30 % approximately.

**Table 3. Sector % in total Crete Gross Added Value, prefectures and country totals, 1995 and 2002**

| Area | Primary | Secondary | Tertiary | Total |
|---|---|---|---|---|
| | | 1995 | | |
| Heraklion prefecture | 22.4 | 12.3 | 65.3 | 100.0 |
| Lassithi prefecture | 20.6 | 7.6 | 71.8 | 100.0 |
| Rethymnon | 15.7 | 9.7 | 74.6 | 100.0 |
| Prefecture | 22.7 | 11.6 | 65.7 | 100.0 |
| Chania prefecture | 21.4 | 11.2 | 67.4 | 100.0 |
| Crete country total | 9.9 | 22.4 | 67.7 | 100.0 |
| | | 2002 | | |
| Heraklion prefecture | 10.7 | 11.9 | 77.5 | 100.0 |
| Lassithi prefecture | 13.7 | 11.1 | 75.2 | 100.0 |
| Rethymnon | 13.7 | 11.6 | 74.7 | 100.0 |
| Prefecture | 8.5 | 7.6 | 83.9 | 100.0 |
| Chania prefecture | 11.0 | 10.7 | 78.3 | 100.0 |
| Crete country total | 7.0 | 22.1 | 70.8 | 100.0 |
| | | % variation 2002/1995 | | |
| Heraklion prefecture | -52.4 | -3.7 | 18.7 | |
| Lassithi prefecture | -33.8 | 47.2* | 4.7 | |
| Rethymnon | -13.9* | 19.3 | 0.2 | |
| Prefecture | -62.4 | -34.6 | 27.7 | |
| Chania prefecture | -48.6 | -4.7 | 16.3 | |
| Crete country total | -29.3 | -1.2 | 4.5 | |

*Source:* NSSG and " Patris" Newspaper.

45. Despite its major contribution to macro-economic rates, the primary sector is characterised by long-term infrastructural weakness due to the small and dispersed nature of agricultural land. Also, the share of Crete's irrigated land is well below the national average. The structure of cultivation demonstrates specialization in traditional produce such as olive trees and viniculture. Market gardening covers only 3 % of the total cultivated area, but Crete contains almost 50 % of the country's greenhouses, with advantages in vegetable and flower production. Animal husbandry is dispersed in nature (mostly free-range sheep and goats), with a small number of organised farming units. There are significant preconditions for the development of hard cheese production, which comprises 25 % of national production.

46. Concerning the *secondary sector*, manufacturing is mainly connected to processing primary sector products (food and drink), and also to the construction materials and plastics sectors. Manufacturing enterprises are relatively small-scale with the exception of co-operatives. Crete only contains 1.8% of

[6] Value of goods and services produced at basic rates, not including VAT, taxes and subsidies.

heavy industry plants and only 25 units have a turnover exceeding 1 billion drachmas. Processing primary sector products presents problems of organization, quality, planning and standardization, as well as modernization of production infrastructure. There are also difficulties in organizing commercial networks for the promotion of local produce on the international market. Connections between manufacturing and services, networking, and connection to research centres are all at low levels. The land-use/urban planning organization of manufacturing is unsatisfactory, resulting in environmental damage and pressure from building expansion and the development of other sectors of the local economy.

47. In the *tertiary sector*, administrative, education and financial services, as well as transport services, are chiefly concentrated in the large urban centres. Due to the insular nature of the economy and export orientation, very powerful transport and maritime companies have evolved (7.6 % of total regional economic activity turnover in 1994). In the 1980s Crete saw the foundation of universities, polytechnics and technological institutions, as well as major research centres (Foundation for Research and Technology, Institute of Marine Biology of Crete etc.) Research activities are centred mainly in Heraklion and, to a lesser extent, in Chania and Rethymnon. Crete's participation in basic research activity indices is significantly higher than that of the country's other Regions. Based on the regional percentage rate of research centres in Greece, the Region of Crete is in second place at 14 % (1993). Tourism is the most dynamically growing sector in Crete. Increased demand over recent years has led to major investment in hotel units, resulting in a quantitative and qualitative improvement of hotel infrastructure.

*Sub-regional features*

48. The greater part of regional GDP in 2001 was produced in the Prefecture of Heraklion (46.7%), followed by the Prefecture of Chania (25.4 %), Lassithi (14.5 %) and Rethymnon (13.4 %). As compared with 1994 shares that of Heraklion has decreased (51.5% in 1994), while that of other prefectures has increased (Chania at 23.4 % in 1994, Lassithi at 13.7 % and Rethymnon at 11.8 %). These differentials show that, in spite of strong population increase in Heraklion, the relative position of the other Prefectures has improved while that of Heraklion has decreased. In terms of reduction of territorial disparities, the areas of lesser population concentration have increased their share in the regional GDP. However, these prefectural shares do not reveal sub-prefectural disparities.

Employment

*Active population employed by sector (primary, secondary, tertiary)*

49. According to the 2001 census, the majority of employees in Crete are in the tertiary sector, (55.6 %) followed by the primary sector (23.4 %) and finally the secondary sector (16.1 %), which employs the fewest people. The situation is different in the country as a whole, where the primary sector is in third place (14.4 %) as regards employment numbers, with the secondary sector in second place (21.7 %) and the tertiary sector in first (58.6 %) as tables 4 and 5 demonstrate. In 1997, the situation was somewhat different[7] as 37.8 % of the workforce in Crete was employed in the primary sector, 12.5 % in the secondary sector and 49.7 % in the tertiary sector, while corresponding national rates were 19.8 %, 22.5 % and 57.7 % respectively.

[7] It is unfortunately not possible to make other than empirical comparisons between the two years indicated and identify a trend with precision as the two data sets are not homogenous.

**Table 4. Economically active/ inactive population by productive sector, 2001**

| Greece, Crete, prefectures | Economically active population | | | | | | | Economi-cally inactive |
|---|---|---|---|---|---|---|---|---|
| | Total | Employed | | | | | Unem-ployed | |
| | | Total | Primary sector NACE A-B | Secondary sector NACE C-F | Tertiary sector NACE G-Q | Economic activity sector undeclared | Unem-ployed total | |
| Country total | 4 615 470 | 4 102 091 | 591 669 | 892 189 | 2 401 831 | 216 402 | 513 379 | 6 318 627 |
| Crete | 259 094 | 231 333 | 54 170 | 37 213 | 128 555 | 11 395 | 27 761 | 335 274 |
| Heraklion prefecture | 129 088 | 115 228 | 26 061 | 18 403 | 65 300 | 5 464 | 13 860 | 162 137 |
| Lassithi prefecture | 33 588 | 30 006 | 9 699 | 3 882 | 14 659 | 1 766 | 3 582 | 42 148 |
| Rethymnon prefecture | 33 301 | 29 680 | 7 341 | 5 270 | 15 645 | 1 424 | 3 621 | 45 656 |
| Chania prefecture | 63 117 | 56 419 | 11 069 | 9 658 | 32 951 | 2 741 | 6 698 | 85 333 |

*Source:*NSSG, population Census 2001.

**Table 5. Economically active/ inactive population by productive sector, 2001, in percentages**

| Greece, Crete, prefectures | Economically active population | | | | | Economi-cally inactive |
|---|---|---|---|---|---|---|
| | Primary sector NACE A-B (%) | Secondary sector NACE C-F (%) | Tertiary sector NACE G-Q (%) | Economic activity sector undeclared (%) | Total | |
| Country total | 14.4 | 21.7 | 58.6 | 5.3 | 4 102 091 | 6 318 627 |
| **Crete** | **23.4** | **16.1** | **55.6** | **4.9** | **231 333** | **335 274** |
| Heraklion prefecture | 22.6 | 16.0 | 56.7 | 4.7 | 115 228 | 162 137 |
| Lassithi prefecture | 32.3 | 12.9 | 48.9 | 5.9 | 30 006 | 42 148 |
| Rethymnon prefecture | 24.7 | 17.8 | 52.7 | 4.8 | 29 680 | 45 656 |
| Chania prefecture | 19.6 | 17.1 | 58.4 | 4.9 | 56 419 | 85 333 |

*Source:* NSSG, population census 2001.

*Employment trends by sector*

50. Both on a national and a regional level, there is a strong employment trend towards the tertiary sector. The tertiary sector absorbs the highest rate of employees, a rate increasing with time as the number of people employed in the primary sector diminishes. During the 2001-2004 period the rate of employment in the primary sector in Crete fell from 30.13 % to 20.68 % while the corresponding rate in the tertiary sector rose from 54.36 % to 63.59 % (tables 6 and 7).

**Table 6. Employed over 15 years of age by productive sector, 2001-2004**

| Year | Area | Primary sector | Secondary sector | Tertiary sector | Productive sector total |
|---|---|---|---|---|---|
| 2001 | Crete | 77 106 | 39 657 | 139 116 | 255 879 |
| | Greece Total | 661 315 | 945 025 | 2 496 872 | 4 103 212 |
| 2002 | Crete | 73 311 | 39 746 | 139 790 | 252 847 |
| | Greece Total | 648 252 | 954 699 | 2 587 223 | 4 190 174 |
| 2003 | Crete | 69 856 | 43 212 | 143 137 | 256 205 |
| | Greece Total | 655 510 | 965 848 | 2 665 203 | 4 286 561 |
| 2004 | Crete | 53 165 | 40 425 | 163 479 | 257 069 |
| | Greece Total | 545 158 | 973 391 | 2 811 193 | 4 329 742 |

*Source:* NSSG, quarterly labour force survey (2nd quarter).

**Table 7. Employed over 15 years of age by productive sector, in percentages, 2001-2004**

| Year | Area | Primary sector (%) | Secondary sector (%) | Tertiary sector(%) |
|---|---|---|---|---|
| 2001 | Crete | 30.13 | 15.50 | 54.37 |
| | Greece total | 16.12 | 23.03 | 60.85 |
| 2002 | Crete | 28.99 | 15.72 | 55.29 |
| | Greece total | 15.47 | 22.78 | 61.75 |
| 2003 | Crete | 27.27 | 16.87 | 55.87 |
| | Greece total | 15.29 | 22.53 | 62.18 |
| 2004 | Crete | 20.68 | 15.73 | 63.59 |
| | Greece total | 12.59 | 22.48 | 64.93 |

*Source:* NSSG, quarterly labour force survey (2nd quarter).

Employment rate trends

51. As regards employment trends during the 2001 - 2004 period (NSSG quarterly labour force survey, 2nd quarter), the situation is relatively stable. The employment rate for Crete is higher than the national rate, while employment rose in both Crete and Greece in 2003 (table 8).

**Table 8. Employment of persons 15 years and over, 2001-2004**

| Year | Area | Population | Economically active population | Employed | Unemployed | Economically inactive population |
|---|---|---|---|---|---|---|
| | | (1)=(2)+(5) | (2)=(3)+(4) | (3) | (4) | (5) |
| 2001 | Crete | 470 715 | 272 968 | 255 879 | 17 089 | 197 747 |
| | Greece total | 8 898 483 | 4 581 608 | 4 103 211 | 478 399 | 4 316 873 |
| 2002 | Crete | 473 796 | 271 131 | 252 847 | 18 284 | 202 665 |
| | Greece total | 8 957 649 | 4 652 225 | 4 190 174 | 462 051 | 4 305 424 |
| 2003 | Crete | 476 930 | 270 197 | 256 205 | 13 992 | 206 733 |
| | Greece total | 9 008 847 | 4 728 392 | 4 286 559 | 441 833 | 4 280 455 |
| 2004 | Crete | 480 326 | 273 236 | 257 069 | 16 167 | 207 090 |
| | Greece total | 9 056 873 | 4 822 759 | 4 329 741 | 493 018 | 4 234 114 |

*Source:* NSSG, quarterly labour force survey (2nd quarter).

Unemployment

52. The regional unemployment rate in 2004 was 5.9 %, a far lower level than the national average of 10.2 %. The development of the Region of Crete from 2001 to 2003 presented fluctuations, as was also the case on a national level. Specifically, the unemployment rate in 2001 was 6.3 %, rising to 6.7 % in 2002 and falling to 5.2 % in 2003 (national unemployment rates were 10.4 %, 9.9 % and 9.3 % respectively).

53. The situation in the Region is better than the national average concerning special categories of the unemployed. Youth and long-term unemployment rates are much lower in Crete. In 2004 the youth unemployment rate was 17.4 % and the long-term unemployment rate was 2.1 % (national rates, 26.5 % and 5.8 % respectively) (Table 9). However, these positive indicators should not dissimulate the fact that the intensely cyclical and seasonal nature of the basic activities of the local economy demand increased multi-specialization to increase workforce mobility and ensure continuous employment throughout the year.

**Table 9. Unemployment Indicators, 2001-2004**

| Year | Area | Unemployment rate (15 years and over in the labour force) | Youth unemployment rate (15-24 years in the labour force) | Long-term unemployment rate (unemployment lasting >1 year in the labour force) |
|---|---|---|---|---|
| 2001 | Crete | 6.3 | 20.9 | 2.4 |
| | Greece total | 10.4 | 28.0 | 5.7 |
| 2002 | Crete | 6.7 | 23.7 | 2.9 |
| | Greece total | 9.9 | 26.1 | 5.5 |
| 2003 | Crete | 5.2 | 20.1 | 2.6 |
| | Greece total | 9.3 | 25.6 | 5.5 |
| 2004 | Crete | 5.9 | 17.4 | 2.1 |
| | Greece total | 10.2 | 26.5 | 5.8 |

*Source:* NSSG, quarterly labour force survey (2nd quarter)

Level of Education

54. The level of education of the inhabitants of the Region of Crete, according to NSSG data from the 2001 census, is relatively lower than the corresponding national average (Table 10.) The great majority of the population of Crete over 10 years of age has completed only elementary education, a rate exceeding the corresponding national rate. At the same time the number of master's and higher education degree holders is lower than the national average, while the specialisation of the economy in the primary sector and tourism creates high demand for skills and specialisations.

55. There are a high number of postgraduate and graduate degree holders in Heraklion and Chania Prefectures compared to the other Prefectures. Compared to the rest of the Region, Rethymnon and Chania Prefectures have a higher percentage of people who have completed compulsory and secondary education. Finally, the highest rates of people who did not complete elementary education and illiterates are found in Heraklion and Lassithi Prefectures.

**Table 10. Level of education of actual population over 10 years of age, 2001**

| Crete, Greece, Prefectures | Master's degree holders (%) | Higher education graduates (%) | Secondary-basic education completed (%) | Illiterate-Elementary education (%) |
|---|---|---|---|---|
| Country Total | 0.84 | 15.63 | 39.13 | 44.41 |
| Crete | 0.52 | 13.77 | 37.35 | 48.36 |
| Heraklion Prefecture | 0.60 | 14.06 | 35.67 | 49.66 |
| Lassithi Prefecture | 0.18 | 12.24 | 35.98 | 51.60 |
| Rethymnon Prefecture | 0.47 | 12.51 | 38.78 | 48.23 |
| Chania Prefecture | 0.55 | 14.67 | 40.54 | 44.24 |

Source: NSSG, population census 2001

56. The vast majority of foreign nationals resident in Crete are secondary school-leavers, followed by primary and 3-year lower secondary school-leavers. A relatively high percentage of foreign nationals have left school or are in primary education. The number of foreign nationals who have completed higher and university studies, or hold master's and doctorate degrees, is very low.

Entrepreneurship

57. With a share of 6 %, Crete ranks 4$^{th}$ among other regions of Greece with regard to the number of active enterprises (Table 11). The vast majority of Cretan enterprises employ a small number of people, with a corresponding low turnover.

- On the basis of NSSG (2001) data, the turnover for 85 % of the Cretan enterprises is below 149 000 Euros.

- On average, 78 % of the enterprises in the Region employ 0-4 persons (9 600 out of a total of 12 391 in 2002), which also reflects, more or less, the average per Prefecture.

- The majority of the enterprises in the Region are located in the Prefecture of Heraklion, followed by Chania, Rethymnon and Lassithi. However, the Prefecture of Lassithi is lagging behind in relation to the other three Prefectures both in terms of the number of enterprises with large turnover volumes as well as with large number of employees.

**Table 11. Number of enterprises and turnover (in million Euros) by Region and Prefecture (2001)**

| Region and Prefecture | No. of enterprises | | Turnover | |
|---|---|---|---|---|
| | Total | % | Total | % |
| Total Greece | 795 556 | 100 00 | 200 216 85 | 100 00 |
| Eastern Macedonia and Trhace | **38 616** | **4.85** | **5 823 15** | **2.91** |
| Attica | **279 210** | **35.10** | **129 835 45** | **64.85** |
| Northern Aegean | **15 031** | **1.89** | **1 574 12** | **0.79** |
| Western Greece | **42 234** | **5.31** | **5 191 17** | **2.59** |
| Western Macedonia | **24 138** | **3.03** | **2 034 96** | **1.02** |
| Epeirus | **24 500** | **3.08** | **2 907 36** | **1.45** |
| Thessaly | **48 989** | **6.16** | **6 085 36** | **3.04** |
| Ionian Islands | **25 483** | **3.20** | **2 176 97** | **1.09** |
| Central Macedonia | **137 346** | **17.26** | **23 652 12** | **11.81** |
| Southern Aegean | **35 258** | **4.43** | **4 261 52** | **2.13** |
| Peloponnese | **40 237** | **5.06** | **5 206 42** | **2.60** |
| Sterea Hellas | **37 820** | **4.75** | **4 906 58** | **2.45** |
| Crete | 46 659 | 5.86 | 6 536 78 | 3.26 |
| Heraklion | **22 010** | **2.77** | **3 555 82** | **1.78** |
| Lassithi | **6 016** | **0.76** | **651 68** | **0.33** |
| Rethymnon | **6 513** | **0.82** | **872 01** | **0.44** |
| Chania | **12 120** | **1.52** | **1 457 26** | **0.73** |

Source: NSSG, Business Register (2001)

### *1.2.2 Rural areas in Crete*

58. The largest concentrations of settlements in Crete are found on the plains (where the main cities are located) and in the semi-mountainous zones of all the Prefectures, with densities varying between 40 to 200 inhabitants per square kilometre (fringe urban areas, up to 1000 and urban areas more than 1000). Settlements in more mountainous areas are more dispersed (densities between 0.8 and 39 inhabitants per square kilometre) and smaller. In 1991, of Crete's 1 597 settlements, only 4.4 % had a population higher than 2000 inhabitants, 10.1 % had a population of 501-2000 inhabitants, and the remaining 85.5% had a population of less than 500 inhabitants. Today, the highest concentration of rural population appears in the Rethymnon (61.56 %) and Lassithi Prefectures (50.26 %), where the rural population rates are higher than that of the Region (42.02 %) as a whole. On the other hand, in the Heraklion and Chania prefectures, the population rates (35.5 % and 39.89 % respectively) are lower than that of the Region (see table 12).

**Table 12. Urban-rural population in Crete, 2001**

| GREECE, CRETE, Prefectures | Urban population (%) | Rural Population (%) |
|---|---|---|
| Greece Total | 72.79 | 27.21 |
| Region Of Crete | 57.98 | 42.02 |
| Heraklion Prefecture | 64.50 | 35.50 |
| Lassithi Prefecture | 49.74 | 50.26 |
| Rethymnon Prefecture | 38.44 | 61.56 |
| Chania Prefecture | 60.11 | 39.89 |

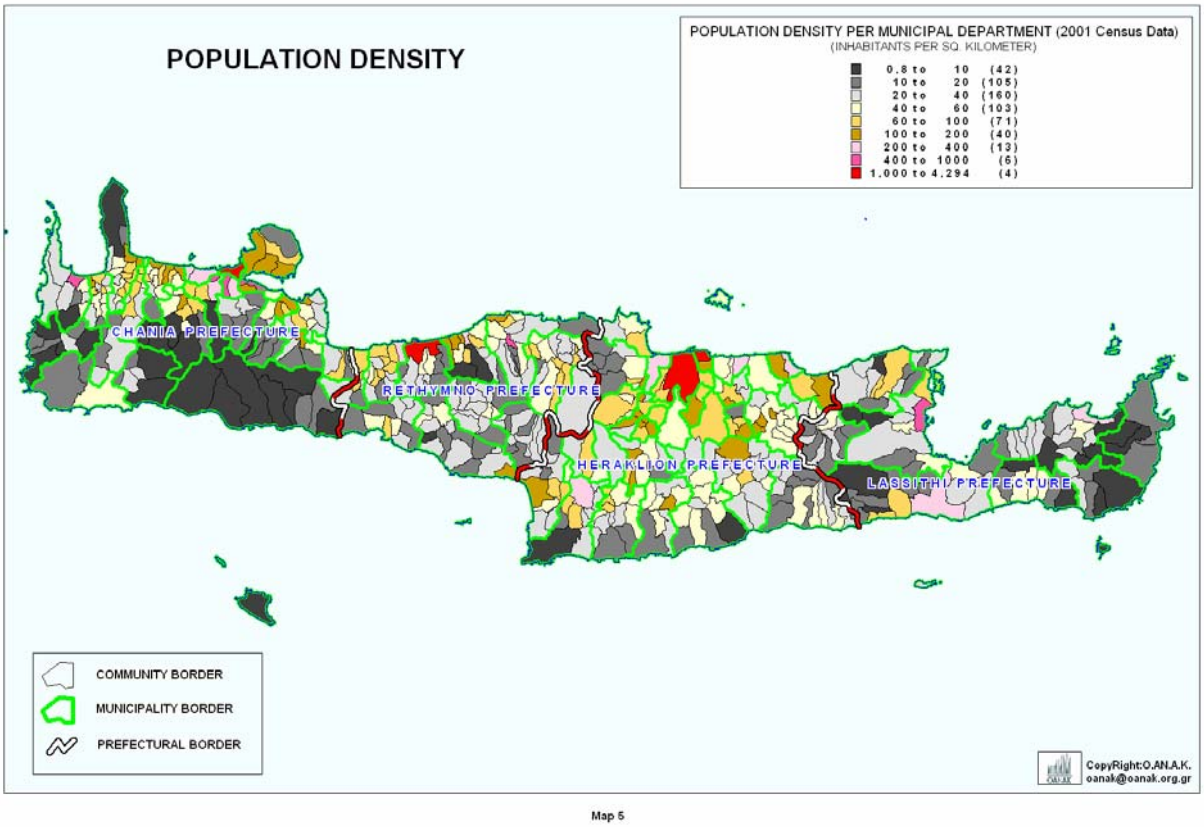
Source: NSSG, population census 2001

NSSG considers as rural municipalities those where the population is less than 2000 inhabitants whereas urban municipalities are those of not less than 2000 inhabitants.

59. These characteristics translate into development along the north axis (63.7% of the Region's population), where all the focal settlements of interregional importance (with the exception of Ierapetra) are concentrated. If the inhabitants of the fertile Messara plain, (Heraklion Prefecture), are also taken into account, together with those of Ierapetra (Lassithi Prefecture), the mountainous rural areas of the island, covering 35 % of the land mass and containing a great many settlements, are inhabited by only 21.1% of the population. These patterns are reflected by the map of population densities per municipal departments (former municipal boundaries before amalgamation) that is presented in figure 4.

60. The north axis population is concentrated in the Heraklion (27.6 % of the regional total) and the Chania Prefecture (20.9 %), with those of Rethymnon and Lassithi representing much smaller shares (7.8 % and 6.7 % respectively). The major urban areas of Crete comprise adjacent rural areas facing specific development challenges. Although they are not lacking in demographic dynamism, they do lack the necessary social and administrative infrastructure, because their population commutes daily to the large urban centre for services. Issues arising from urban-rural linkages are less acute in Lassithi Prefecture, as it contains three smaller urban centres.

**Figure 4. Population densities in Crete (2001)**




Source: NSSG and OANAK, 2005

61. If the area of the settlements with a population lower than 500 in 1991 are compared with those experiencing population decline over the decade 1981-1991, the following observations[8] emerge:

- Very few of these areas are found in the northern coastal zone, in the Messara valley or near the major urban centres in the district of Mires (southern part of Heraklion Prefecture). These areas are either urban or with a tourism oriented economic base.

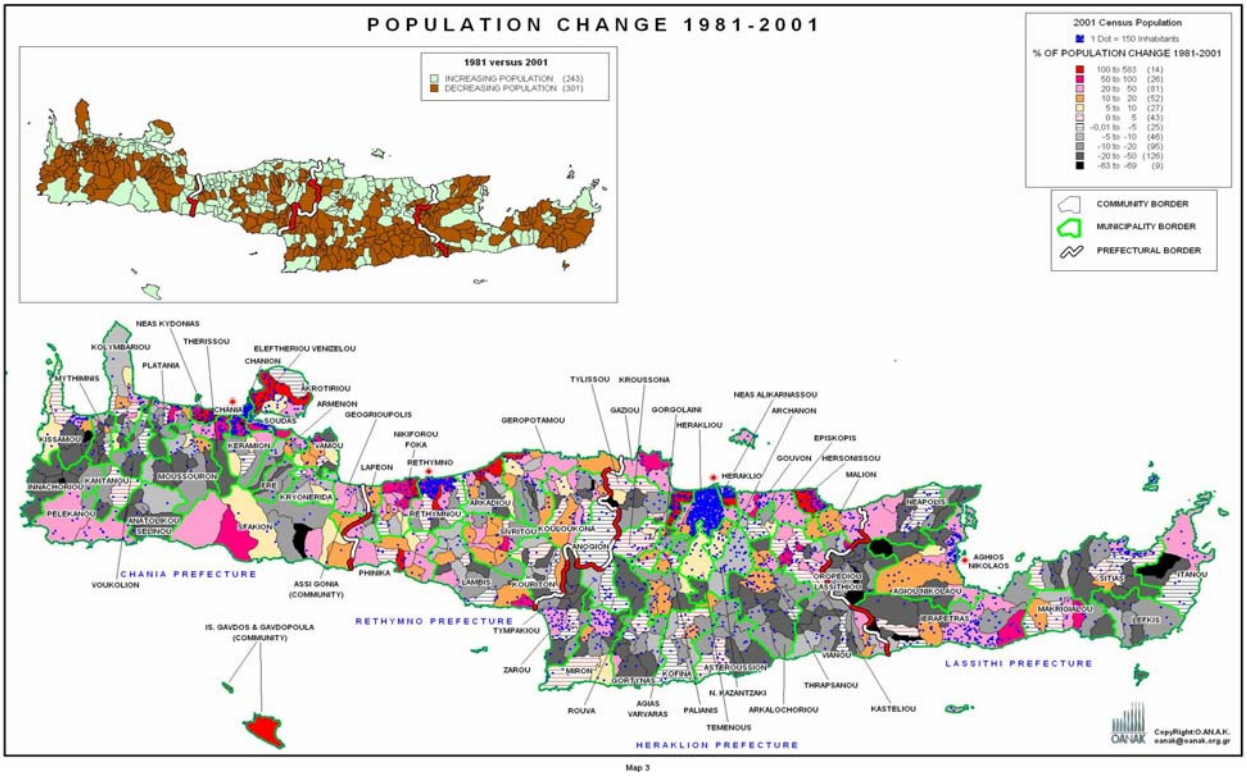
- In the wider environs of the above areas, there are zones lying along the fertile valleys and vertically to the coast, in which small settlements predominate but the population is not declining. In Lassithi Prefecture this phenomenon is impressive, containing all the area from Pahia Ammos to Ierapetra and a wide zone around Sitia. These areas are often those, as the latter where extensive agricultural activities (greenhouses) have developed.

8 From: Approved Regional Framework of Land Use Planning and Sustainable Development for the Region of Crete, 2003.

- Certain extensive areas in the mountainous zones of the Region present a worrying picture, with negative demographic and economic indices. These are particularly the areas of Arkalochori (Prefecture of Heraklion), Spilio (Prefecture of Rethymnon) and Kambanos (Prefecture of Chania). These small declining rural areas of traditional agriculture possess a very well preserved environment and noteworthy village heritage, essential ingredients of rural tourism. Besides these typical rural areas, there are also other extensive areas with negative indices in the proximity of more dynamic rural centres.

62. These trends show that there is not one unique rural picture in Crete: although most rural areas experiencing population decline and economic devitalisation are situated in the mountainous areas of the interior (and in the mountainous zones of the southern coast with poor accessibility) as figure 5 shows some rural areas, located in the vicinity of major urban settlements are at difficulty in securing the necessary bases for balanced development with settlement patterns, land use, service structures and transportation issues increasingly influenced by urban pressures.

**Figure 5. Population change in Crete between 1981 and 2001**




Source: NSSG and OANAK, 2005.

### *1.3 Agriculture in Greece and Crete*

#### *1.3.1 Profile of the farming and agribusiness sector*

Greece

Economic features

63. In terms of Gross Value Added the primary sector in Greece represents less than 6 % of GDP (see table 13) and almost 17 % of employment. This last percentage, although diminishing, remains high compared with other EU members. Greece is in surplus production of fruit and vegetables, tobacco, cotton and olive oil, while it is deficient in meat, dairy products, foodstuff, coffee, spices, animal feed and oilseeds. Fruit and vegetables, along with olive oil, traditional Mediterranean products which have been cultivated in Greece for centuries, constitute a large part of the domestic agricultural economy, expressed in terms of employment, production areas, volumes and values.

**Table 13. Share of Gross Added Value of agricultural production in GDP, 1998-2003 (million €)**

| | Agriculture** GDP (%) (Current prices) | | | Agriculture** GDP (%) (Constant prices of the previous year) | | |
|---|---|---|---|---|---|---|
| 1998 | 7 919 | 105 773 | 7.49 | 7 731 | 100 505 | 7.69 |
| 1999 | 8 047 | 112 686 | 7.14 | 8 196 | 109 391 | 7.49 |
| 2000 | 8 030 | 121 668 | 6.60 | 7 752 | 117 700 | 6.59 |
| 2001 | 8 321 | 131 024 | 6.35 | 7 728 | 126 584 | 6.11 |
| 2002* | 8 984 | 141 334 | 6.36 | 8 226 | 136 082 | 6.04 |
| 2003* | 9 252 | 152 572 | 6.06 | 8 520 | 147 387 | 5.78 |

* Provisional data

** Including hunting and forestry; fishing and operation of fish hatcheries and fish farms

Source: National Statistical Service of Greece, NSSG

64. Fruit and vegetables, along with olive oil, are also the main exporting food commodities of Greece and the ones with the largest trade surpluses. The domestic market outlook is favourable, as per capita consumption for both products is the highest in the EU-15. Nevertheless, the terms of exports for most of these products in the period 1995-2003 have worsened, indicating deterioration in Greece's competitiveness in world markets. High production costs and sales prices without systematic concern for quality explain that between 1998 and 2002 Greek shares in world markets of agricultural products decreased by 3.5-5%[9]. The number of export commodities is small and many have a stagnant demand worldwide (cucumbers and tomatoes). The number of export markets is small too. Regarding fruit and vegetables, Greece specialises in production for 'saturated' markets, hence its exporting mix is not comprised of highly-demanded products.

[9] Galanopoulos K. and Mattas K. Market and Trade Policies for Mediterranean Agriculture, the Case of Fruit, Vegetables and Olive Oil, Agricultural Situation Report, Greece, 2005.

65. Concerning olive oil, Greece holds the third global position behind Spain and Italy (see table 14), and before Turkey, Tunisia and Portugal. The main importers are Italy, the United States, France and Germany. Italy is both an importer and exporter. Greece produces extra virgin oil (85%), virgin oil (5%), lower grade *lampante* oil (5%), with mostly pure olive oil and light or extra light olive oil accounting for the remaining 5%. In this sector, as for fruits and vegetables, competitiveness is low and this can be explained by Greece's single-market orientation. Little market diversification is evident, as practically all exports are destined to a single country, namely Italy, and in fact these comprise mostly raw and not refined and standardised/labelled – let alone branded – produce, which represent both the highest added-value and the fastest growing market segment.

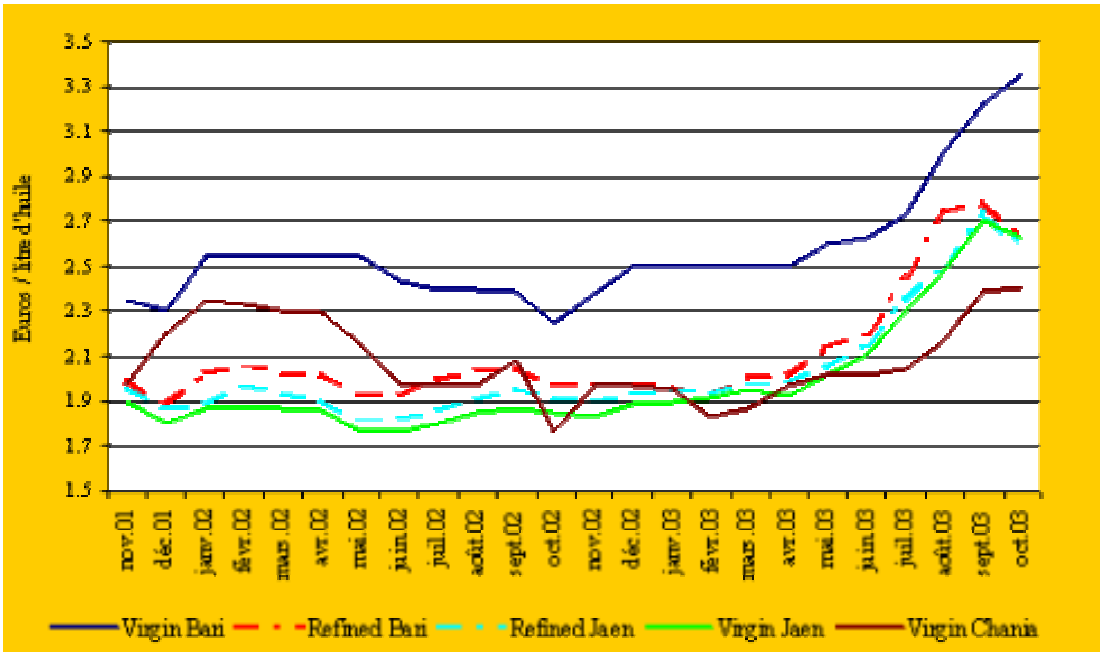
**Table 14. World olive oil production figures**

| In '000 tons | 1990/91 | 1995/96 | 2004/05 | Yearly average production increase ( yearly average of the period 2000/01 to 2004/05 compared to the average of the period 1990/91 to 1999/2000 (%) |
|---|---|---|---|---|
| World | 1 406 | 1 718 | 2 766 | 33 |
| EU | 994 | 1 403 | 2 154 | 4 |
| Spain | 639 | 337 | 932 | 65 |
| Italy | 163 | 620 | 760 | 30 |
| Greece | 170 | 400 | 420 | 9.5 |

Source: IOOC

66. Figure 6 illustrates price differentiation quite clearly. It shows that the price of Virgin Bari olive oil is distinctly above Virgin Jaen and Virgin Chania. These price differences are to a large extent explained by value added activities, in particular branding. The price difference between exported and imported olive oil in Italy is 0.70 €/kg and in Greece 0. 39 €/kg. Italy usually imports bulk olive oil and exports mainly (91%) bottled olive oil. Also Italy mixes imported oil of high quality with lower qualities from own origin. There are many Italian importing and exporting firms with both long production tradition of high quality olive oil while also having built strong export experience and relationships with supply chains exporting in the rest of Europe, the United States and Canada since many decades (some Italian firms had started exporting to North America since the 1800s).

**Figure 6. Market position of Greek olive oil illustrated by price differentiation**




Source: IOOC

67. Table 15 once again illustrates the economic position: in Greece imports are higher priced than exports: the difference is € 73 per ton on average, while in Italy export prices are well above import prices: € 778. In Spain exporting firms also add extra value, the price difference is € 324.

**Table 15. Olive oil imports and exports in Greece, Italy and Spain, 2001**

| Country | Imports in m. tons | Exports in m. tons | Imports value in 000 € | Exports value in 000 € | Import value In € p. ton | Export value In € p. ton |
|---|---|---|---|---|---|---|
| Greece | 4 402 | 178 152 | 5 446 | 207 415 | 1 237 | 1 164 |
| Italy | 492 753 | 272 230 | 802 466 | 654 924 | 1 628 | 2 406 |
| Spain | 26 611 | 253 464 | 38 326 | 799 918 | 1 440 | 1 764 |

Source: FAO

*Organisation of the sector*

68. The market of farm supply inputs is characterised by an oligopolistic structure. The market is controlled by 50 large and smaller firms, especially regarding pesticides, fertilisers and feedstuffs, but is dominated by only a handful in each category. The dominant firms are price leaders and there is a certain degree of 'market failure', which is illustrated by the comparative prices the farmers pay for their inputs. Moreover, the bulk of agricultural inputs (i.e. machinery, fertilisers, seeds etc) is imported. The structure of the agricultural *inputs* market together with the dependency on imports is reflected by relatively high prices paid for most farm inputs. In Greece, price indices for feeding stuffs increased by 16%, whereas the EU

average index rose a mere 1%, in the period 1995-2002. For fertilisers and soil improvements the price change was 30.6 % as compared to 5.9 % in the EU.

69. At the *retail* stage a very large number of private (usually small) retail outlets, located throughout the rural areas of the country, is present. Still, the most influential actors at this stage are the cooperative associations. Scattered throughout the country most of these act as procurement intermediaries of agricultural inputs from domestic industries, importers or wholesalers in order to distribute those inputs to their members. This development aims at improving the bargaining power of farmers within the supply chain and may be expected to reduce costs for farmers.

70. As farmer controlled enterprises can provide market correction, it should be noted that there are around 7 200 cooperatives functioning in Greece, with 114 Unions and 19 Central Unions of Cooperatives. The syndicated movement comprises 6 500 agricultural associations, 80 leagues and 2 confederations. Generally speaking the cooperative movement in Greece is widespread but too splintered into small units, which hinders performance to realize better terms of trade for the farmer. Instead, many cooperatives are facing severe financial problems and their share in the marketing of agricultural produce has dropped dramatically. Consequently their role in introducing countervailing power and to make markets more competitive is not effective. Only recently, at the end of 2004, the Panhellenic Association of Agricultural Cooperative Unions (PASEGES) formed a company that aims to provide all types supplies for farmers, doing all negotiations with major producing firms.

71. The food processing industry is a vital component of the Greek economy and the largest processing sub-sector. It accounts for nearly 30 % of the national industrial output, and 6.5% of the national output. The food processing industry is characterised by small sized firms (with less than 10 employees), notwithstanding that there are also some large companies. Overall, however, the food and drinks sector is characterised by low capital intensity and input costs representing almost half of total costs. Large firms active in the sector, unlike the smaller ones, rarely specialise in the production of a single product, but tend to integrate and differentiate. Vertical integration is attempted both downstream (i.e. own-produce as in meat, fish and wine sector, or contracts with farms as in dairy, tomato and sugar sector) and upstream (i.e. building solid supply chains to distribute the final product). Differentiation is established by producing various products (i.e. all dairy products as well as juices etc).

Farming and agribusiness in Crete

*Sector profile and trends*

72. Crete has 7.4 % of agricultural land in Greece. Crete is specialized in traditional cultivations such as olive and viticulture. Crete's share of national production in olive oil is 46 % (in 2004) and approximately 10 % of Greek fruit and vegetables originates from Crete (see table 16). The region has a comparative advantage in production of vegetables and flowers out of season due to the favourable climate conditions.

**Table 16. Agricultural production in Greece and Crete (indicating most significant crops and products of Crete)**

| Product | Quantity (2004) tons | | |
|---|---|---|---|
| | Crete | Greece | Share of Crete over national production (%) |
| Olive oil | 154 121 | 333 720 | 46 |
| Tomatoes (for fresh consumption) | 134 267 | 650 846 | 20 |
| Potatoes | 84 444 | 836 362 | 10 |
| Citrus fruit | 131 117 | 942 263 | 14 |
| Milk | 134 333 | 1 965 585 | 6 |
| Table grapes | 18 636 | 210 700 | 9 |
| Raisins (Soultanina) | 23 053 | 27 848 | 83 |
| Grapes for wine (must) | 56 555 | 454 051 | 12 |
| Meat | 37 164 | 446 848 | 8 |
| Cheese (hard) | 8 082 | 37 390 | 21 |
| Cheese (soft) | 3 048 | 141 281 | 2 |

Source: NSSG (National Statistical Service of Greece)

73. Olive groves are spread throughout the island, while potato and other open field cultivations are concentrated in the two plateaus (Lassithi and Omalos). Green-houses are in operation mainly in the south part of the island (Ierapetra and Messara valley in Eastern Crete and Palaiohora/Kountoura on the west coast). Vineyards are also spread throughout almost the whole island but with a greater concentration in the Heraklion area. Animal breeding and dairy are activities of the mountainous areas mainly in the White Mountains area of Chania, in the Idi Mountain area of Rethymnon and Heraklion and in the Dikty Mountain area of Heraklion and Lassithi.

74. Crete produces approximately 20% of Greek wine[10] on 50 000 hectares of vineyards, (950 thousand hectolitres). 70 % of the wine is produced in the region of Peza, in the Heraklion prefecture. The other wine producing areas of Crete are Archanes and Dafnes (Heraklion prefecture), with smaller quantities coming from the Sitia region (Lassithi prefecture) and from the Casteli region (Chania prefecture). In Crete four regions are denominated as "*Appelation d'Origine Contrôlée*" (AOC). Three are in Heraklion Prefecture**:** Peza (for white and red dry wines), Archanes (red dry wines), and Dafnes (red dry and sweet wines) while the fourth is awarded to Sitia (red dry and sweet wines) in Lassithi Prefecture. A limited number of private and co-operative (the Unions of Peza, Heraklion and Sitia) wineries is active in producing and marketing most of the wine produced in Crete

75. Wine in Crete is deeply rooted in the Minoan civilisation, and consists of four main varieties: “vilana” for white wines, “kotsifali” and “mantilari” for red and rosé, and “liatiko” for some red and sweet wines. The local variety "Malvasia di Candia" was abandoned in the past but efforts are now made for its re-establishment. Although Crete has a significant position in the Greek wine market, the “phyloxera” disease that struck Cretan vineyards in 1974, had a devastating effect, only partly recovered after extensive re-rooting and new investments. This explains the lagging of Cretan viniculture compared to national developments with a major movement towards high quality wines started in the eighties. Crete is recognised as having a great potential to develop in the high quality wine segment, provided it move away

[10] Source: Association of Greek winemakers.

from a bulk/quantity orientation, and follow the example of selected “estate type” wine producers, focusing on high quality products targeting international markets.

76. As indicated in section 1, the overall contribution in 2002 of agriculture to regional income and employment in Crete (11 %) is still significantly higher than the national average (7 %). However, important changes have occurred, in particular in the last decade, with a dramatic decrease in the share of the primary sector in Crete (21.4 % in 1995) originating mostly from the prefectures of Chania and Heraklion, where local out migration of young farmers, attracted by expanding tourism employment, is particularly pronounced. In the Prefectures of Rethymnon and Lassithi where the tourism industry is not as developed, such a reduction has not been observed.

Structure and organisation

77. Farming in Crete is characterised by major structural weaknesses. The fragmented nature of farmland is accentuated in many places by the mountainous terrain. Farms are small and widely dispersed. The average size of farm plots in Crete is 0.559 hectares (among the smallest in comparison with other Greek regions). Irrigated land in Crete is substantially below the national average. Vegetable production covers just 3 % of cultivated land, but Crete maintains about 50 % of the country’s green-houses.

78. The processing industry of agricultural products, which affects the performance of the primary sector to an important degree, is itself affected by problems of organisation. As a result there is a lack of promotion of local products on the international market. Weak organization of agribusiness also explains why processing and services are not well connected with the important knowledge and research centres not directly related to agriculture. Even in this case, linkages are often weak and leverage of local assets is not always adequate, as the example of the Mediterranean Agronomic Institute of Chania (MAICh), developed further, shows. There is also no agribusiness clustering in particular because there is not one but several trade and logistic centres. Shipping and distribution of agricultural products thus takes place from Heraklion and Chania-Souda.

79. As regards farmer-owned businesses and cooperatives by which farmers are commonly connected to consumer markets, a lack of consolidation can be observed. In Crete there are nowadays 14 Unions operating, as compared to 17 Unions existing up to 2002. Negative economic developments forced four Unions in the region of Chania to merge and form a new one two years ago, but its viability is all but secure. MAICh is currently studying the case of promoting further mergers among the Unions within each prefecture, through the submission of business plans for each of the new schemes proposed. This study, in response to the attempts by the Ministry of Rural Development and Food and the Region of Crete, is a follow-up of similar studies done already, both by MAICh and other organisations. The regional and national authorities want to encourage mergers among the Unions in order to increase their operational size and create economic conditions that will allow further investments, particularly in quality improvement, vertical integration and more aggressive marketing and promotion in the international markets.

*1.3.2 Organic agriculture: a new potential for rural development*

*Defining organic farming*

80. Organic farming first appeared in the 1920's under the denomination of bio-dynamic farming. With the Austrian Rudolf Steiner considered as its "inventor". In these footsteps, Albert Howard developed in England different organic farming techniques. During the 1940s and 1950s the third step was taken in Switzerland by the Department of Natural Science of the Goetheanum in Dornach by Ehrenfried Pfeiffer and Lilli Kolisko, contributing to the recognition of organic farming at a time when widespread use of chemical fertilisers and pesticides was fast developing. Hence, as a reaction to "industrialised farming"

with its risks for the environment and the consumer alike, during the 1970s many organizations and institutes were involved in what then began to be recognized as a trend. The great step forward occurred in the 1980s when people began to understand the importance of organic farming for human health and the maintenance of the ecological balance. Organic farming has since then developed as a fast growing new market segment, also related to rural tourism (natural and authentic local food).

81. The goal of organic production is to create a sustainable system relying on locally available resources and is based upon maintaining organic balances and developing biological processes to their optimum. Protection of soil fertility and "respecting" natural capacities of plants, animals and landscapes is key. Organic farms reduce external inputs. The use of synthetic chemical fertilizers, pesticides and pharmaceuticals are abandoned altogether. Organic farms are fully certified and comply with rules set up by specialized institutions and accept periodical control. These first rules for organic were set by the International Federation of Organic Agricultural Movements. The EU moved toward this direction by adopting two major regulations concerning organic farming issues: EC 2092/91 and EC 2078/92. The first regulation concerns the organic method of farming, the second deals with agricultural production in accordance with environmental protection and conservation of the countryside.

82. Since the 1990s organic farming has developed rapidly in almost all EU member states. In the 2000s 3.8 million hectares were managed organically by almost 130.000 farms. This acreage constitutes 2.9% of the agricultural area and almost 2% of all farms in the former EU 15. The impact of organic production in countries is different, but it is possible to see a clear prevalence in Italy, where, for instance, organic olive production accounts for 7% of total olive production, followed by Portugal (5.5%), Spain (2.9%) and Greece (0.8%). Table 17 indicates acreage and potential olive oil production in these countries.

**Table 17. Major producers of organic olive oil**

| Country | Organic cultivated surface with olive trees (ha) | Production of organic olives (tons) | Yield in olive oil (tons) | Potential organic olive oil production (tons) |
|---|---|---|---|---|
| Spain | 71 350 | 116 093 8 | 20.8 | 24 100 |
| Italy | 88 645 | 218 145 2 | 18.8 | 40 937 |
| Greece | 6 483 | 14 780 5 | 21.6 | 3 191 |
| Portugal | 19 415 | 16 261 9 | 14.0 | 2 284 |
| Total | 185 894 | 365 281 4 | 75.2 | 70 512 |

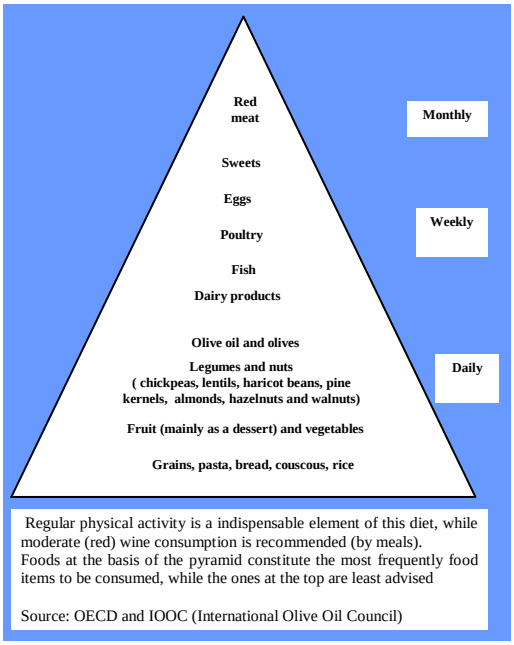
Source: MSc. Research Notes (MAICh), 2004

Crete assets and weaknesses in organic farming

83. Greece and in particular Crete, with its beautiful and varied rural landscape, healthy environment, favourable soil and climate conditions and long farming tradition, no doubt meets the basic requirements for the development of organic farming. At the same time, its inhabitants' increased sensitivity to the preservation and development of healthy farmland may lead to the promotion of organic farming as a new concept in agricultural organization and operation, fully respectful of the environment.

84. As care for environment and health are closely related it is only natural that there have been already significant efforts to take advantage of the interest for organic farming products in combination with preparing dishes based on the tradition of the local "Cretan Diet" that has acquired worldwide renown, on the basis of its low-fat intake and proven impact on longevity (see figure 7). There have been already significant efforts in Crete (developed further) to take advantage of the interest for organic farming products in combination with preparing dishes based on the tradition of the local Cretan Diet.

**Figure 7. The Cretan Diet**




85. However, Crete (as the rest of Greece) is not in the forefront of organic farming. For Greece in general, factors such as geographical relief, lack of adequate spatial organisation of land use and adherence to traditional management models (inheritance and property) have resulted in small, scattered holdings. Given an ageing population who consider land not as a production asset but as generational and considering that there is not any land property tax, land is neither conceded nor unified. This phenomenon is particularly striking in the area of Chania, where one may find small holdings which are the sum of areas measuring 200-500 $m^2$. For organic farming in particular, this fragmentation often prohibits implementation due to adjacency with conventional cultivations.

86. Most producers see organic farming as a "return" to traditional farming models, although – in reality -, this is definitely not the case. Organic farming, instead, is demanding in knowledge and awareness-intensive and, in order for it to flourish, producers must respond to these requirements. Many producers, however, do not seem to fully understand the system or are not always willing to "play the rules of the game" and avoid it. To a large extent this may be attributed to the lack of educational efforts and technical support. Another reason for slow development comes from rural inhabitants themselves, whether farmers or not. In Crete the rural home economy is still observed. Both farmers and non-farmers cultivate their small holdings for home consumption. This activity often leads to confusion between "fresh" (freshly picked) and organic produce. The prevailing view is that "produce from our garden is pure (regardless of pesticide use) because we monitor it directly, so it is also organic".

87. In addition to income elasticity of demand, lack of information may also explain why consumer demand, though increasing, is still mostly limited to certain categories. The first organic produce shops in Europe opened in economically and educationally "privileged" areas and neighbourhoods where awareness concerning food quality and the importance of traceability were more developed than average and with consumers able and willing to pay the price differential. This is also true in Greece and Crete. The Cretan home market is however very receptive to products of Cretan origin and many restaurateurs are willing to

pay an additional price for quality and authenticity, as indicated in box 1. This could provide the basis for more significant local sale of organic products, provided that prices are not out of range and that tourism development in the "upper segment" is pursued.

**Box 1. Cretan products on the Cretan tourist market**

A survey among 100 hotels and restaurants in which no frozen or fast food meals are served has provided some insight in the strengths and weaknesses of marketing Cretan products in the tourist market. It reveals that approximately 50% of the products are not labeled. Brand names and variety are not considered important by the buyers for hotels in the 5, 4 and star categories. Quality is considered as of highest importance, followed by price and area of production. In the quality attributes the following characteristics ranked highest: health, taste and nutritional value. The surveyed restaurants indicated that their main knowledge of Cretan products is via trade relationships; in particular they buy from producers (69%) and wholesalers/distributors (50%). Although quality is regarded as most important for buying Cretan products the willingness to pay up to 20% extra for Cretan olive oil is 50% of the panel. This is quite high as the willingness to pay extra for other products of Cretan origin is lower: 40%for vegetables, fresh juice and wine. For olive soap only 30% are willing to pay extra. Cretan extra virgin olive oil makes up almost 90% of the total quantity consumed in the restaurants. 65% buy Cretan vegetables exclusively. For fresh juice, exclusive buyers are 51% and more than 40% buy more than 80% of their wines from Cretan origin.

Source : Baourakis G, 2001

88. There are about 600 organic vegetable and fruit farmers in Crete, 50 % of them in Heraklion Prefecture. The main product is organic olive oil. The overwhelming majority of producers act independently, while there are few official or unofficial producers' groups. The following are active in Heraklion Prefecture: the "Agroenvironmental Group of Asimi", the "Viannos - Psari Forada Group" and the "Embaros Group". In the Lassithi Prefecture the "Organic Farmers of Sitia" and the "Ierapetra Group" are the best known. Unfortunately volumes of organic products actually produced are not recorded in Greece, thus no data exists concerning the output of organic farming in Crete.

89. Organic animal farming has not been accepted by livestock farmers in Crete at all. The financial aid programmes for "organic" farmers began in early 2005 and are still at the assessment stage. This means that there are no clear data on how many livestock farmers use organic processes. About 50 candidates expressed an interest in Heraklion, Chania and Rethymnon Prefectures, whereas there were none in Lassithi Prefecture.

*1.3.3 The Mediterranean Agronomic Institute of Chania (MAICh)*

Background and missions

90. The Mediterranean Agronomic Institute of Chania (MAICh), which started its operations in 1985, was created as a result of Greece becoming in 1962 one of the seven founding members of the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM) based in Paris, France, following a joint initiative of OECD and the Council of Europe. CIHEAM supervises the activity of other agronomic institutes, specialising in other areas, in Italy (Bari), France (Montpellier) and Spain (Zaragoza). The organisation now has 13 Member countries: Albania, Algeria, Egypt, France, Greece, Spain, Italy, Lebanon, Malta, Morocco, Portugal, Tunisia, and Turkey. CIHEAM constitutes an intergovernmental organisation aiming to promote the development of international co-operation in Mediterranean agronomic research and studies. It provides to this end through the affiliated institutes, post-graduate education (MSc level) and develops scientific cooperation between the Mediterranean, the Balkan and other developing regions.

91. The six postgraduate programs and the related research, technological and developmental activities of the Institute are in:

- Business Economics and Management;
- Environmental Management;
- Food Quality Management;
- Sustainable Agriculture;
- Horticultural Genetics;
- Natural Products and Biotechnology.

92. The important comparative advantages accruing from the activities of MAICh are due to the efficient implementation of European Union neighbourhood policy objectives, highlighted by its provision of postgraduate education to future executives and academics, thus catalyzing “overtime” cooperation contributing to common research and development projects. Up to the present, 979 scientists have graduated with the one-year D.S.P.U. diploma, and out of these, 625 have successfully completed the second year and have been awarded the Master of Science (M.Sc.). From 1986 till the present, 95 students from Crete have graduated from the Institute. More than 75% of them work in the public and/or private sector in Crete today. An overview of MAICh activities other than teaching is presented in box 2:

**Box 2. The activities of MAICh**

Contribute to the resolution of contemporary agro-food, environmental and developmental problems through its cooperation with the private and public sector.

Participate actively in the realization of the research and development policy by taking part in the actions proclaimed either by the E.U. Community Support Framework for Research or by the national implementing bodies of the Community Support Framework.

Be involved in regional and local development as well as in environmental protection through innovative actions by participation in E.U. initiatives or financial instrument such as INTERREG, LIFE, etc.

Implement Euro-Mediterranean Partnership Cooperation programs (MEDA).

Coordinate research networks in European and Mediterranean countries that address high priority topics (uses of the Mediterranean flora, endogenous production methodologies compatible with organic farming, etc.).

Cooperate constructively with the private and public sector through the provision of specialized services such as: Internationally accredited chemical analysis on a) residuals in olive oil, fruits, vegetables, b) Analysis and detection of Genetically Modified Organisms, c) Analysis of soil, plant tissues and water.

Apart from its laboratory based services, MAICh undertakes assigned projects to analyze specialized research questions and special developmental studies of local interest. Finally, MAICh provides complete support for the organization of international conferences with its' own facilities and internal services.

Source: OECD and MAICh

MAICh and organic farming

93. MAICh has co-coordinated and participated in numerous research projects related to organic farming, in particular:

- "Market and trade policies for Mediterranean agriculture: The case of fruit/vegetables and olive oil" (MEDFROL) EC: DG-Research,

- "Integration of an export market oriented Data Base supporting Decision Making", EC/ IT Society s.a, Hellenic Ministry of Agriculture (Measure 3.1).

- "Setting up and implementation of sustainable and multifunctional rural development model based on organic and competitive agriculture" (SIMOCA), EC-DG Regional Development.

94. Organic farming has a principal standing among various thematic units within its educational programs and short term seminars to groups of local farmers members of agricultural co-operatives and executives of Cretan processing and marketing firms. Information on prospects of local products (organic olive oil, organic fruits and vegetables), that MAICh has acquired through technical, market and marketing research studies; mainly in the European market, has been widely disseminated to all stakeholders and interested parties, improving thus awareness on development of organic markets.

95. MAICh is naturally a pioneer in organic farming development in Crete. Besides providing formal education programs, MAICh provides tailor made education and training to local executives who

need to develop special skills and knowledge to tap the organic market potential. Its capacities are to act on technical content (Certification Body), as service provider and marketing advisor. MAICh has also organized two European Conferences on Marketing of Organic and Quality products, in cooperation with the European Association of Agricultural Economists (EAAE).

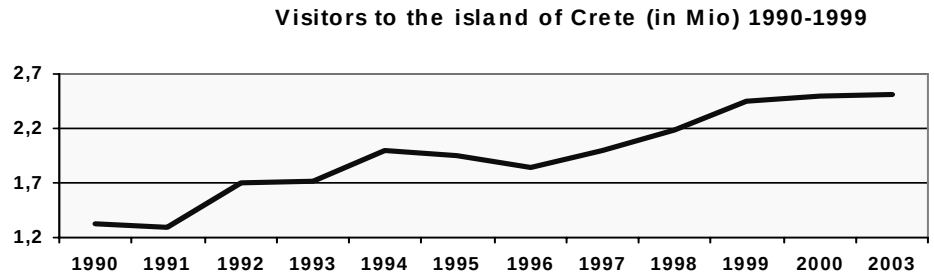
96. Among the various initiatives that MAICh has undertaken in recent years, the one concerning the formation of a business cluster to promote food products of the Cretan Diet holds a prominent place, but the outcome was hindered by organizational problems and difficulties in coordination. The effective creation of such a strategic cluster would have constituted a strong promotional platform for Cretan products in the international market. Nevertheless despite the discrepancy between the initial aspirations and the actual outcome, both MAICh and all the participating entities (all the co-operative unions and some of the leading private firms producing traditional Cretan food products) gained valuable institutional experience, which could be utilized in the future, provided that strong willingness and focused decision-making permit to overcome past difficulties in creating the correct framework.

### *1.4 Tourism in Crete*

#### *1.4.1. The tourism boom in Crete*

97. Tourism in the island of Crete is not only the main economic sector of the region, it is also of major importance for the entire tourism sector in Greece. Since the sixties the industry has been continuously growing. In 1954 there were only a modest 3.767 guest nights spent in Crete and tourism growth remained modest over the following years. In 1967 a national action plan divided the country into zones for tourism development. The north of Crete received high priority for tourism development through this zoning that sparked a building boom in the area. This increase in bed capacities and the relatively low prices in Greece, compared with the source countries, accounted for a steep increase in guest numbers in Greece, particularly in Crete, as figure 8 shows. By 1985 12.09% of Greek guest beds were in Crete. In 1999 this percentage climbed up to one third of Greek capacity (32.3%). Thus, in 2000 Crete ranked first among Greek regions in terms of guest nights. Today Crete holds a share of 25% of total foreign guest nights in Greece and ranks second in Greece tourist regions right after the South Aegean Islands.

**Figure 8. Number of tourists in Crete; 1990 -1999**




Source: Lehmann 2000 and NSSG 2005

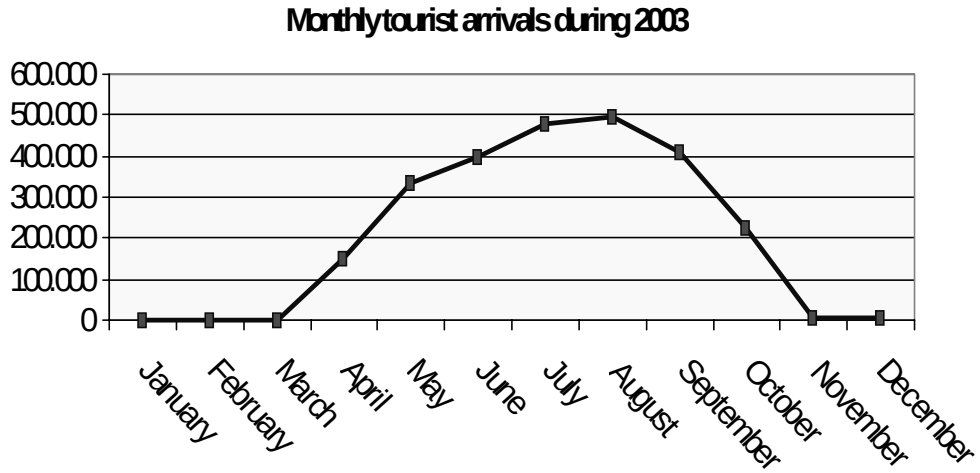
98. As other areas of rapid tourism development, Crete is vulnerable to crisis. Decline of guest numbers in 1991 were caused by developments in the Balkans and the gulf war. In 1995/96 the Kosovo conflict had a negative impact, whereas in 1999 the earthquake in Turkey favoured an increase in guest numbers in Crete. The volume of tourist arrivals by chartered flights in the airports of Heraklion and Chania increased during 2000 in relation to 1997, but no significant changes were recorded during the 2000-2003 period.

*1.4.2. Characteristics of tourism in Crete*

99. Crete is a destination for beach holidays. 1 000 kilometres of coast line and 300 days of sunshine per year have helped to create this image. This type of tourism is mainly found along the northern shore line, with the major tourism centres of Chania, Rethymnon, Heraklion and Agios Nikolaos. Along the coast in between these centres a chain of beach developments has turned many villages into holiday resorts. The Cretan tourist season is a lengthy one: it begins mid March and ends mid November. Chartered flights however only operate until October. Within this period, peaks are attained in July and August which concentrate 37 % of arrivals (74 % between May and September), as figure 9 demonstrates.

100. In 2003 the number of active hotel units in Greece was 8.689, offering a total bed capacity of 644 898. For Crete this number comes to 1.381 units offering 124.784 beds. While the average Greek occupancy rate is 64.9 %, the Cretan rate is well above with 79.9%.[11] The allocation of hotel units and beds per class in Crete, shows a share of high class Hotels (AA and A) above the national average. Class A' hotel units hold a share of 32 % in respect of the total hotel units on the island. The majority of Class AA' hotel units are found in the Prefecture of Heraklion.

**Figure 9. Monthly tourist arrivals in Crete in 2003**




Source: Department of Tourism – Region of Crete

[11]. Homepage of Greek National Tourism Organisation (2005)

101. On the basis of most recent data available a total of 12.370.325 overnight stays of foreign and national guests in hotel units and furnished flats were recorded for the year 2003. The total of overnight stays by foreign guests on Crete fluctuated slightly during the period 2000-2003 (from 12.4 million to 12.3 million). However, either figure represents a drop in relation to 1999 (13.1 million. overnight stays). In comparison with other parts of Greece, the share of Crete in domestic tourism is small, while in terms of international tourism Crete surpasses any other single domestic destination. In fact, as indicated above, one quarter of all overnight stays by foreign guests in Greece occur on Crete, as opposed to one out of twenty of domestic guests[12] (see table 18). The largest volume of overnight stays on Crete per Prefecture in 2003 was as follows: Heraklion (47.54%), Chania (20.40%), Rethymnon (19.12%) and Lassithi (12.92%).

**Table 18. Share of foreign and domestic guests in Greece and Crete, 2001**

| Year 2001 | Overnight Stays in CRETE | Overnight Stays in GREECE | Share of CRETE in the TOTAL (%) |
|---|---|---|---|
| Domestic | 815 666<br>(6.55 %) | 14 983 243<br>(24.32 %) | 5.44 |
| Foreign | 11 641 701<br>(93.45 %) | 46 636 293<br>(75.68 %) | 24.96 |
| TOTAL | 12 457 367<br>(100 %) | 61 619 536<br>(100 %) | 20.22 |

Source: SOURCE: Region of Crete – Department of Tourism

Tourism in the Cretan economy

102. In the year 1970 tourism brought foreign exchange worth 7.7 Million US$ into Crete. By 1975 this amount had increased to 17 1 Million US$ (share of Crete in Greek tourism turnover: 2.66%). In 1997 Greek foreign exchange income through tourism represented 1 49 Billion US$ with the Cretan contribution representing 58 % (as compared to 42% in 1994).[13] In 1997, 14.75% of the Greek GDP came from tourism[14], with Crete representing a sizeable share (constantly more than 20% of all guest nights spent each year in Greece). Surprisingly, no current data on the share of tourism in the Cretan GDP was made available for this report. Estimations published by the Information System for Cretan Companies come to a very high 66 % in this respect. In any case, tourism is today the most important economic sector of the region: 40 % of the Cretan employed are directly or indirectly related to tourism. Very often people work both in the agricultural and in the tourism sector, which helps to offset the effects of seasonality[15].

103. Tourism in Crete is largely dominated by big tour operators from Northern Europe: 90% of guest arrivals are all-inclusive-packages. Tour operators take their customers to the island with their own planes or foreign charter airlines, organise their holiday in Crete, rent them cars and sell excursions: this "leakage effect" actually confiscates part of the revenue that would normally go to the regional economy. However, a 2001 survey revealed that 85% of the interviewed hotel enterprises bought fresh food from local suppliers. Most of the other products were purchased from national and international suppliers. The hotel structure is characterised by a great number of foreign owned establishments. Their clientele does not

12 Region of Crete - Department of Tourism
13 Andriotis 2002
14 World Travel and Tourism Council 1997
15 Kousis 2001

always leave their resort for shopping or eating since food is „all-inclusive“[16]. This shows that there would be room for a diversification of tourism products bringing greater benefit to other sectors of the Cretan economy.

Market trends and evolution of Cretan tourism

104. The major tourism markets of Crete in 2003 are: Germany (30%) and the United Kingdom (15%) together with the Scandinavian countries (18%). These source markets represented that same year 71% of all visitors to Crete. France, the Netherlands and Eastern European Countries are fast growing markets. The market segment is that of standardised mass tourism. This is true for about 90% of all the tourist stays, concentrating along the north coast, particularly in the Prefecture of Heraklion with close to half of these. The island of Crete hosts approximately 2.500.000 tourists each year exceeding the islands population by a factor of five during the peak season. Tourism development of the island, result of the current model of mass tourism (sun and sea), led to sharp differentiation in land use and changes in social standards, activities of the inhabitants and environmental stress due to concentration of tourism in time and space.

105. The strongest regional growth up to 2020 is anticipated for eastern Mediterranean destinations like Cyprus, Israel and Turkey with growth rates more than double the European average.[17] Also Eastern Europe is experiencing strong growth with a shift away from the city towards more rural areas. Besides increased competition from other resort destinations, general trends suggest a shift in holiday habits towards shorter but more frequent stays, a spread away from coastal destinations and more personalised planning of holidays, increasingly using the Internet. In Europe and in North America, consumer habits and expectations are thus changing towards more individual and authentic choices. Also, as societies are ageing, the "senior segment" is developing.

106. Cretan tourism is beginning to respond to these emerging trends: small scale segments are being built up in yet undeveloped rural environments: Mountain hiking, coastal canoeing, nature tourism and farm holidays are promoted by a number of private enterprises and local and municipal initiatives. The demand is mainly driven by the individual desire for a genuine experience in a world of standard-mass-production. Nature, wine and agro-tourism, although still representing modest segments in many countries, is undeniably growing as they respond to these new trends, offering rural areas a hitherto unforeseen development potential. Agro-tourism developments are located inland[18]. In Crete, 94.6% of the recorded agro-tourism establishments are situated in the western part of the island (34.1% in Chania and 60.4% in Rethymnon prefectures). Only few of these operate on a regular basis, since they are often also utilised as houses today, offering only capacity during the high tourist season.[19] Trekking and mountaineering is scattered along the E4 (East-West) European Trail and mountainous zones. Large parts of the South and of the West are undeveloped and bear potential for eco-tourism (peninsulas of Rhodopos and Gorikos).

Tourism assets and infrastructure

107. Crete being the cradle of Greek civilisation offers major archaeological sites like the Minoan palaces in Knossos close to Heraklion, in Phaistos (Messara valley), with the ancient Doric town of Gortyn to the East. Architectural monuments from the Venetian era (1204-1669) include the remarkable fortifications of Heraklion, Chania, Rethymnon and Sitia in particular. A rich religious culture has left the island with numerous monasteries. These are distributed all over the island and very often located in scenic and remote landscapes such as the monasteries of Prevelli (16th century) and Arkadi (19th century). The landscape itself is one of Crete’s prime attractions but only a few inner areas now attract visitors, mostly

16 Reimelt 2004
17 World Travel Organisation – Tourism 2020 Vision
18 EU and national funding criteria exclude the shoreline.
19 Greek National Tourism Organisation (GNTO), 2003.

for day trips. Such is the case of the Lassithi Plateau (windmills and grotto of Psichro where Zeus is considered to have been born) and the Samaria and Imbros Gorges in the West. The Samaria National Park, established to protect the ecosystem of the gorge is under threat from the thousands of visitors it receives each year, while other picturesque mountainous parts of the island are virtually unvisited. Cretan village heritage, cuisine (the famous Cretan diet) and original Cretan wines are an integral part of the island's tourism assets.

108. Access to many of these rural areas by foreign tourists is not facilitated, by lack of adequate infrastructure. Most tourists arrive by chartered flights from Europe at the airports of Heraklion and Chania. There are plans for the provision of additional provincial airports in Crete, to reduce dependency on Heraklion and Chania (and to avoid peak season congestion in Heraklion). There are also proposals for a new airport near Sitia, possibly linked to a tourism village development scheme being promoted by a UK company on church lands around the Monastery of Toplou east of Sitia[20]. Car and passenger ferry services are available from six ports along the northern coast of the island[21]. The coastal motorway along the north shore links Heraklion with the Eastern and Western part of the island. The south of Crete, however, does not possess the same level of infrastructure. Some South coast beaches and villages are only accessible by boat. Only 10% of the island's bed capacity is to be found in the south[22].

*1.4.3 Tourism and regional development*

Mass-beach tourism consequences

109. As indicated above, the main actors in mass-beach tourism are charter airlines, tour operators, and hotel chains, but also local SMEs operating hotels, restaurants, car rentals and travel agencies, while many families rent rooms to tourists during the holiday season. Due to the weak position of local business and labour, foreign tour operators have largely controlled tourism development in terms of prices and wages. On the other hand the complexity of application of the 1986 Law on the Protection of the Environment (intervention of multiple ministries and agencies), resulting in the absence of an efficient land use planning system, notwithstanding possible evolutions[23], has led to deficiencies and weaknesses in Cretan tourism:[24]

- Concentration in space and time with uneven economic distribution of income and revenues.
- Seasonal water shortages, emissions and noise from traffic and aeroplanes and deficiencies in waste management creating health hazards and endangering the natural environment.
- Aesthetic downgrading of many north coast locations by half built hotel blocks.
- Competition and low prices drawing a clientele not always respectful of local culture.
- "Parahoteleria" (illegally run accommodation) downgrading quality and image.

110. The extreme concentration of the tourism industry in Crete has led to a shift of population and resources to the north, while communities of the interior suffer from depopulation and lack of human and financial resources. As elsewhere, declining profitability of small scale agriculture in mountainous regions,

20 RITTS (European Innovation programme),1999

21 Souda, Rethymnon, Heraklion, Agios Nikolaos, Sitia and Kastelli.

22 Reimelt 2004

23 The Ministry of the Environment, Physical Planning and Public Works is in the process of setting up a national coordination mechanism for sustainable development.

24 RITTS 1999

changes in family patterns, along with improved information and communication facilities have accelerated the Cretan trend towards urbanisation. Tourism in its prevalent form has intensified these developments. If a certain number of measures in favour of rural areas, such as support to rural tourism, that would create jobs, are not effectively taken and implemented, the long term sustainability of the present model in terms of managing the effects of accelerated urbanisation and population loss in the countryside is open to doubt.

Synergies of tourism with other sectors

111. Since Crete possesses a rich cultural heritage, folk art, traditional food and wine, with community life in a scenic well preserved landscape in its rural and mountainous areas, its potential for rural tourism is undeniable. Traditional agricultural technologies combined with modern ecologically friendly farming practises can help to preserve this heritage which is particularly attractive for tourists. Income through tourism can create synergies with environmental and agricultural measures pertaining to organic farming and the maintenance of terraces for instance. The same applies for handicraft and gastronomy. The textiles sold to tourists presently are mainly manufactured in China[25] while local produce can find a market with the growing segment of higher solvency tourism, if designed to market needs. "Cretan diet" and local quality wines offered in local gastronomy (with quality labelling) can support local producers and the catering sector.

112. There are already linkages between mass tourism and their suppliers for agricultural produce. But since the low price segment is mostly concerned with keeping prices down, conventional agricultural technologies and large scale intensive farming gets promoted by tourism. Only where individual hotel enterprises offer special diets or are concerned with their own positive environmental friendly image can sustainable farming be enhanced by tourism. Grecotel has launched a pilot project (Agreco) to ensure supply of fresh high quality food for its hotels. In Rethymnon where Grecotel has 3.500 beds, this initiative includes 40 varieties of fruit and vegetables[26]. Such effective linkages in the local economy can help spread the benefits of tourism revenue to parts of Crete that are at distance from the most visited areas.

*1.4.4 Rural tourism in Crete*

113. Considering the richness of Crete in cultural and natural assets the image of Cretan rural tourism is lagging behind its potential. The reasons for this are closely related to the strong emphasis on mass tourism that has generated an image of its own, actively promoted by the big European operators. Potential customers for rural holidays, people looking for something special away from the beaten track will therefore not necessarily think of Crete, even out of the peak tourist season. This image could however be modified if a specific Cretan concept for tourism development could be worked out and marketed by integrating rural tourism and other new activities within a wide array of tourism products including beach tourism catering to different customer segments.

114. Besides weakness in rural tourism product development and marketing, there are deficiencies in infrastructure, sometimes quite basic. Examples are the poor standards in rural accommodation[27], the non availability of mountain shelters and incomplete signposting (E4 hiking track). Lack of recognised quality standards for accommodation and gastronomy[28] make it difficult for potential guests and travel agencies to develop trust in Cretan rural tourism. Information on the Internet is similarly dispersed and varies in quality as in the rare brochures to be found in travel agencies and tourist information offices in Crete. This underlines the lack of a rural tourism development and marketing strategy that would require a

25 Reimelt 2004

26 Daskalantonakis 1999

27 GNTO, 2003.

28 There is now a label for restaurants offering the "Cretan Diet".

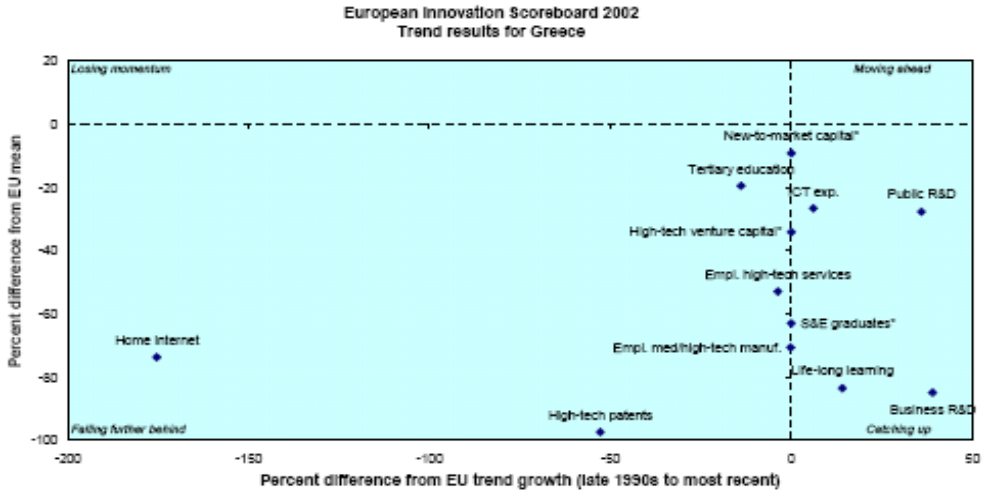
comprehensive approach to identify and support simple quality lodging and promote rural tourism concepts and products by easy access to reliable information such as can be provided through an Internet portal. There are however some innovative and good-quality rural tourism offerings in Crete that will be developed further.

### *1.5 R&D and innovation in Crete*

#### *1.5.1 The Greek innovation system*

115. The Greek innovation system is characterized by a relatively strong role for government and higher education in R&D but with low levels of R&D and innovation, especially in the private sector. Gross Expenditure on R&D (GERD), as a proportion of GDP, remains low by EU standards. A key element in this context is structural with Greece having an economy focused on small enterprises, with very few larger firms, especially in technologically demanding sectors. Consequently Greece scores low on indicators of patents and high tech venture capital investments. Figure 10 shows Greece lagging below EU averages. In some there is a degree of catching-up such as public R&D and ICT expenditure, but for some such as home Internet and high tech patents the absolute performance remains modest.

**Figure 10. European innovation scoreboard: Greece, 2002**




For indicators followed by a * either no trend data are available or these are considered to b unreliable (high-tech venture capital and new-to-market capital).

Source: EU Commission.

116. Responsibility for innovation is shared by four ministries: the Ministry of Development, the Ministry of Education and Religious Affairs, the Ministry of Economy and Finance, and the Ministry of Labour and Social Affairs. The Ministry of Development oversees the activities of the General Secretariat for Research and Technology and the General Secretariat for Industry. The former is responsible for the strategic planning of research and technology policy, for technology transfer policy, and for supervision of national research agencies. The latter provides support to industry and is concerned with environmental protection, while supervising agencies such as ELOT (National Standards Agency) and EOMMEX (Organisation for SME support). Both Secretariats are jointly responsible for the national 'Competitiveness' Operational Programme in the third CSF (2000-2006).

117. The Ministry for Education and Religious Affairs has responsibility for all levels of education and training including universities and tertiary vocational training. It has a directorate that is responsible for the Operational Programme for Education and Initial Vocational Training in the 3rd CSF. The Ministry of Labour and Social Affairs has responsibility for employment issues including the Operational Programme for Employment and Vocational Training. The Ministry of Economy and Finance provides incentives to the private sector including for modernisation and monitors the Operational Programme for the Information Society.

*1.5.2 R&D infrastructure in Crete*

118. The scale and sophistication of technological services in Crete is at a high level compared with other Objective 1 Mediterranean regions (with higher levels of public R&D in GDP than most such regions in Spain and Italy). Following twenty years of investments by the public sector, the Region of Crete boasts of significant infrastructure for research and technology, while its results have repeatedly won international acclaim, particularly through participation in EU Research & Technology programmes. Compared with other regions of Greece, Crete now has the highest level of R&D in proportion of GDP, more than 1% (see map, figure 11). However, this is mainly composed of public R&D (around 50 %) and Higher Education Institutions (approaching 50 %), so there is little business R&D. Crete has a number of international quality research institutes, state subsidised but with significant income from national and EU competitive programmes. Due to the structure of R&D in Crete and sources of funds, a push towards innovation in rural areas will suppose strong national level involvement and cooperation of Higher Education Institutions. Those having effective or possible bearing on rural development and agriculture in Crete, with potential for applications in other rural parts of the country, are the following:

119. The Foundation for Research & Technology Hellas (FORTH**)**, initially started on CRETE as the Research Centre of Crete, still has its biggest group of research centres there. There are five research institutes on Crete and the Foundation has around 1000 staff, mostly on Crete (other centres in Patras and Ioannina), more specifically:

- The Institute of Molecular Biology and Biotechnology, with products available in the Greek and the international markets, with applications in agriculture and medicine. A recent spin-off of the institute is the “Minos Biosystems”, a company in the sector of biotechnology.
- The Institute of Electronic Structure and Laser, applications in medicine and art works conservation, microelectronics and environmental technology.
- The Institute of Computer Science: the activities of this institute were conducive to the foundation of FORTHnet (major Internet Service Provider for the whole of Greece, with a market share of around 30%), the development of a tourist information database (DIABATIS), presented in the corresponding section above and a tele-health pilot that could be disseminated towards many remote rural areas in Greece and even abroad. FORTH is also at the origin of numerous spin-offs (see box 3).
- The Institute of Applied and Computational Mathematics: active in particular in the production of geographical information systems and regional development applications.
- The Institute for Mediterranean Studies: based in Rethymnon, focused on art and the humanities including archaeology, ethnomusicology, language. GIS and remote sensing R&D carried out in this centre is focused on archaeological research and heritage conservation.

**Figure 11. R&D map of Greece**


*Source:* Ministry of Development – General Secretariat for Research and Technology.

**Box 3. Spin-off activities from FORTH**

FORTH has stimulated the formation of a number of spin off activities including the FORTHnet internet provider

FORTHnet S.A. was founded in 1995 by FORTH and Minoan Lines in order to commercially exploit the FORTHnet network, historically the first, and today the largest and most advanced multi-protocol computer network providing access to advanced services in Greece. Since 2000 it has been quoted on the Athens Stock Exchange.

FORTH-Photonics (FP) was established in late 2002. FORTH-Photonics is a medical technology company active in the fields of Biophotonics and Spectral Imaging. The FORTH Photonics group comprises two companies: FORTH Photonics Ltd (FP Ltd), the holding company, registered in London, UK, and FORTH Photonics Hellas SA (FPH SA) based in Athens, Greece.

Currently plans are under way for the creation of a new company to exploit a novel integrated circuit, designed in Crete. Venture funds are being sought overseas and the expectation would be that whilst design would remain in Crete, marketing would be established in the Silicon Valley in California and production would be outsourced (currently in Germany). This illustrates the practical difficulties of developing new industries in Crete even if the design capabilities are based there.

*Source* : OECD and FORTH

120. The University of Crete (UoC) established in 1973 is based in Rethymnon and Heraklion. It has five faculties including medicine and 14 000 students. UoC has significant capabilities in new technologies. It has established cooperation with telecommunication companies with the aim to introduce new protocols to the hotel units of Crete, food quality control procedures, etc. On-going medical research offers a scope of applications, e.g. Cretan Diet, and highly specialized treatment services. The UoC supports initiatives for innovative technology transfers to the companies of Crete (A liaison office has been established to provide support to Cretan enterprises in this area). Also, the UoC makes significant contributions to the designs and strategies that promote innovation in the Region of Crete through its engagement in the formation of the FORTH institutes and programmes such as CRINNO (see further).

121. The Technical University of Crete (TUC) is a smaller and more specialist institution focused on engineering, science and management and has around 2500 students based in Chania. TUC has produced significant research results in the fields of industrial automations, computer applications, materials science, energy, biochemical engineering, environmental engineering and industrial security, mineral resources engineering, innovations management, marketing and business administration. The TUC supports small enterprises, mainly in western Crete and is active in the sectors of the economy and health services. A liaison office for this type of cooperation has been established

122. The Technical Education Institute of Crete (TEI-C) is a Higher Education establishment with a central campus in Heraklion and 5 branches spanning all four Prefectures of the island. The student population exceeds 15.000. There is a permanent teaching staff of 230 and over 500 temporary teaching staff are also employed according to annual requirements. Research and education projects also employ around 100 contract staff. TEI-C is quite active in research and applications concerning the primary sector and in renewable energy resources. The TEI offers modern education in fields that are in great demand

123. The Hellenic Centre for Marine Research (HCMR) w**as** formed in 2003 from the former Institute for Marine Biology of Crete (IMBC) and the Athens-based National centre for Marine Research. The new centre employs 400 split between the two locations and enjoys international acclaim in research and technological know-how in the niches of marine species inventory, aquaculture, sea-water quality

monitoring, depth measurements, environmental management, molecular biology to improve genetic materials, etc.

124. The research institutes of the National Agricultural Research Foundation (NAGREF). The institutes of NAGREF play a major role in the efforts of Crete for agricultural development and have developed significant capabilities in improving genetic materials, in disease control, virus-free production, soil analyses and food microbiology. The Mediterranean Agronomic Institute of Chania (MAICh), already presented in the section on agriculture, is an academic institution with an excellent record in agronomic research embracing the broader Mediterranean basin and part of an international organisation with several sites in different member countries. MAICh offers specialist postgraduate teaching and produces around 150 graduates each year.

*1.5.3 Innovative potential in the private sector in Crete*

125. Levels of innovation in the private sector in Crete are in line with national trends but the structure of local economic activity as presented above (see Crete profile), puts the region in a more difficult position. Thus, according to the 2001 census, the majority of employees in Crete are in the tertiary sector, followed by the primary sector and finally the secondary sector, which employs the fewest people. The situation is different in the country as a whole, where the primary sector is in third place as regards employment numbers, with the secondary sector in second place and the tertiary sector in first.

126. Both at a national and a regional level, there is a strong employment trend towards the tertiary sector. The tertiary sector continues to grow with a rate increasing over time as the number of people employed in the primary sector diminishes. It is useful to recall that ~~during~~ between 2001 and 2004 the level of employment in the primary sector in Crete fell from 30.13% to 20.68 % while the corresponding level in the tertiary sector rose from 54.36% to 63.59%. Also, as previously indicated, firm size in Crete is small, with 85% of Cretan enterprises having turnover of less than 149 000 Euros (NSSG 2001 data) and 78% employing less than 5 people.

127. In keeping with the general trend in Greece, the majority of enterprises in Crete are active in the "wholesale and retail trades" generating also the highest turnover volumes. The "Hotels and Restaurants" sector also has a significant presence (19 %) on the island, with a turnover of 13 %. Tourism holds the lion's share (47.5 %) of enterprises registered under different legal statuses, followed by the sectors of commerce (19 %) and industry (15 %). Enterprises active in "other services" correspond to 18.5 %[29].

128. There are two Industrial Areas in the Region of Crete, specifically in the Prefectures of Heraklion and Rethymnon: One more industrial area is operating in Chania, south of Souda municipality, where cottage industries and art creations are predominant. There is additionally a pocket of industrial activities in the area of Linoperamata of Heraklion (Gazi municipality).

129. On the basis of the Centre of Entrepreneurship and Technological Development (CETD) Annual Report (2004), the manufacturing sector in the Region of Crete is tied mainly to the processing of primary sector products (foodstuff and drinks) and with the sectors of construction materials and plastics. Only 2.8 % of large industries in Greece are established in Crete, 139 from a total of 5 016. More than half (87) of those 139 industries are established in the Prefecture of Heraklion. The average number of their employees is 31, quite below the country's average (46.6) for the same sector. The gross value of industrial production in Crete is 370.8 million Euros, corresponding to 1.3 % of the national production with gross

[29] Report of the Developmental Profile of Crete, 2004: Centre of Entrepreneurship and Technological Development.

value of 28.57 billion Euros. Similarly, the volume of sales of the former amounts to 353.3 million Euros, against 25.3 billion Euros for the total of industries in Greece, a share of 1.4% for Cretan industries[30].

130. The sales volumes of the main manufacturing industries in Crete, in relation to national production (2001 data) are: foodstuff & drinks industry: 204.3 million Euros (3.56% of national production); textiles industry: 35.1 mil Euros (3.21% of national production); iron & metals industry (excluding machinery and equipment): 32.61 mil Euros (3,76% of national production); other products from non-metallic minerals: 43.81 mil Euros (2.52% of national production).[31]

**Table 19. Main Products of the Manufacturing Sector, 2001**

| Industries | Cretan production in mil. Euros | Share of Crete in national production (%) |
|---|---|---|
| Foodstuff and Drinks | 204 30 | 3.56 |
| Textiles | 35 10 | 3.21 |
| Metallic products (excepting machinery and other equipment) | 32 61 | 3.76 |
| Non-metallic mineral products | 43 81 | 2.52 |

Source: CETD study, grouped data pooled from the HIC and NSSG

131. There is little evidence of new high technology firms being established outside of a few public sector-dependent spin offs from the research infrastructure. New forms of seed and venture capital are currently being established but as yet have made no significant impact on the region's economy.

*1.5.4 ICT infrastructure and adoption*

132. The telecommunications infrastructure of Crete has shown significant growth and level of development. This position of the island is attributed to its strategic geographical location, the important research base requiring adequate connections and the role of public actors such as FORTH mentioned above. Both the private and the public sectors have invested heavily in infrastructure to qualify the Region of Crete as an IT hub to connect Greece and the EU with the Southeast Mediterranean. This includes a significant fiber optics infrastructure connecting the island with the northern axis of Europe (France) and soon to connect Crete with Cyprus.

133. Greece is among OECD countries one of those with lowest penetration rates for ICTs, whether in households or in businesses. Greek personal PC use and Internet access remain very low: PC usage was at around 26% and less than 20% of households were using the Internet in 2003[32]. Tariffs in Greece are

30 NSSG data for 2000.

31 Data grouped by the Hellenic Investment Center and *NSSG*.

32 See OECD DSTI scoreboard.

generally higher than in other OECD country, which constitutes an obstacle to more systematic use of ICTs by businesses, particularly the smallest ones. The situation of Crete reflects this lag. Usage of Internet technologies within the private sector is low with almost all sectors in Crete running at rates of basic E-mail adoption of less than 20%[33]. Usage of more advanced technologies is heavily concentrated in the urban centres, especially access to broadband. The conclusion is that in spite of its ICT endowments and capacities, Crete is not in a very different position than that of other Greek regions, except for the capital.

134. Data provided for use of ICT in the public administration in Crete seems to show very significant variations with high levels of ICT usage in Heraklion prefecture and very low levels in all other administrations. There are national policies to support adoption of the Internet in schools, although no data are available to show the level of usage in classes. There are possibilities for extensive development of new technologies in other parts of the Cretan public sector in areas such as water supplies, sustainable energy production etc, but without benchmark data on comparative levels of usage of the newest technologies.

## 2/ Territorial development policies in Greece and Crete

### *2.1 Regional policy: EU and national strategies*

135. As in other EU Member countries, regional development aims and targets are the result of a national exercise leading to the definition of priorities organised within a detailed strategic framework that is thaen referred to in the specific context of each region. The current national development plan, covering the period 2000-2006 refers to infrastructure and sector development aims of a traditional nature while emphasizing "softer" approaches such as development of human capital and quality of life, which encompasses environmental measures. It also underlines requirements in the areas of ICTs (Information Society) and innovation in a broader sense. The Region of Crete Development Plan, debated and adopted within this framework, is presented in section 3 below. This broad national framework which permits, in particular, allocation of EU funds to the regions, is articulated with the development laws that seek to increase the level of private investment in all parts of the country.

136. From 1978 onwards, six Development Laws have been implemented with the aim of aiding and promoting private investment in Greece. The Development Law 3299 adopted in 2004 operates as the moving force in the development of the economy with the aim of regional promotion and convergence of the potential of the private enterprise sector. This is the first time that a Development Law does not copy or supplement an existing law, but creates an overall policy tool, setting the rules and conditions for private investment aid on a real basis and forming an integrated and self-contained legal framework.

137. The Development Law institutes a strong framework of incentives and simple procedures for the aid of private initiative and investment offering a wider choice of investment activity based on rational and objective procedures, with accelerated project assessment, monitoring, control and evaluation procedures. The basic axes of the new law are:

- Encouragement of entrepreneurship
- Introduction of new technologies
- Protection of the environment
- Reinforcement of competitiveness

[33] Source: ICAP Databank.

- Employment creation

138. The main changes compared to the previous law (1998) are the following:

- The opportunity to submit applications is extended throughout the year.
- The time required for service approval of proposed investment projects is reduced to two months.
- The upper limit of aid is set at 55% of the proposed investment project.
- The rate of private participation is reduced from 40% to 25%.
- The minimum amount of an investment project is set at 100,000€ for very small enterprises, which are subsidised above that amount.
- Additional aid is awarded in special circumstances, such as: relocation to Industrial Areas, new business, and for tourism, upgrading of hotel category, modification of traditional or listed buildings into hotels, modernisation of traditional or listed hotels.
- Finally, for investment projects over 250,000€, the economic and technical study must be signed by an economist and an engineer, member of the Technical Chamber of Greece.

### *2.2 Agriculture and rural development*

#### *2.2.1 National rural development policy framework and goals*

139. In recent years the focus of government policy for agriculture has changed from intensive production of agricultural produce to rural development and food, as is also indicated by the renaming of the Ministry of Agriculture, now the Ministry of Rural Development and Food. Government authorities have taken steps in line with market trends, modern requirements and the new approaches based on incentives. From this point of view, agricultural policy in Greece, having made extensive use of EU programmes, is also well tuned with general European policy evolution in the areas of agriculture and rural development.

140. In Greece, implementation of agricultural programmes remains quite centralized. The central government allocates the funds and evaluates results through its regional and local services. At the sub-regional level prefectures and development agencies pay most attention to infrastructure. Innovation is institutionalized via specialized agencies in the regions involved. Also governance structures of cooperative agribusiness are based on federations and reflect the current state of consolidation which by present standards is in need of further steps. Alliances exist between firms, between agencies and between firms and agencies. However, these are on strategic levels and less on operational and entrepreneurial levels of a territorial nature.

Rural development and agriculture

141. The Greek Ministry of Rural Development and Food has designed, and currently is applying, a framework that addresses both agricultural and rural development for the period 2000-2006. To overcome long term structural weaknesses of Greek agriculture (small scale farming, ageing of farmers, low level of education and problems related to weak marketing competencies), the plan focuses on actions to improve the viability of farms at the level of farming (by restructuring and improving production and cultivations), and also to improve product processing and marketing performance. The plan utilizes the resources of the 3rd CSF (EU funding) and mobilizes additional national and private resources.

142. The Ministry has set up special units (committees) to manage the programs at the central level. These committees have the authority to publish calls for tenders on each measure and time period, to select applicants and to grant approvals of payments. The administration of those processes at the local level is performed by the region and the prefecture authorities. Policy execution follows a three layer administrative process between: a) the Ministry; b) the Region Directorate of Agricultural Development of the Regional Authority of Crete and c) the Office of Agricultural Development in each of the four Prefectures of Crete. The aforementioned program/frameworks are designed at a central level (the ministry) but applied by administrative offices at the local level. The regional authority has a co-ordination role and the prefecture level is endowed with an administrative role.

143. Sector policy delivery is facilitated when professional organisations are in dialogue with public officials at the national level in particular. The inter-professional institutional structures in the main market sectors of olive oil (Inter-professional Organisation for Olive Oil and Olives-DOEE) and wine (Inter-professional Organisation for Vine and Wine- DOAO) have however only recently been launched, the latter in 2001 and the former in 2002. An agreement was made in 2003 to establish a regional section with an inter-professional organisation of DOAO in Crete, but it does not seem that this body has been activated. In the fruit and vegetable sector there is no comparable organisation yet. Usually, these new structures that play an important role in sector co-ordinating activities remain weak and lack resources.

Organic farming

144. The competent authorities overseeing the development of organic agriculture are the Ministry of Rural Development and Food/ Bureau of Biological Products, the Directorate of Land Use Planning and Environmental Protection and the organization for the Certification and supervision of Agricultural products. All the certification and inspection bodies are accredited by the Ministry of Rural Development and Food. The Ministry of Economy and Finance (Development Law 27602/98) supports investments for organic farmers. Such investments may include the establishment of green houses and facilities for organic production and products. Strong co-ordination between these different bodies is required to deliver policy.

145. Within this framework, Crete possesses another asset, besides the presence of MAICh. A permanent Secretariat of the Mediterranean Branch of the International Organic Farming Association (IFOAM) operates within the Directorate of Agricultural Development of the Region of Crete, since the beginning of 2003. IFOAM is the worldwide umbrella organisation of the organic agriculture movement, with about 700 members from 100 countries. The region of Crete pursued to host the Secretariat of IFOAM in Crete in order to gain better access to information, influence decision making and continuously monitor developments in the organic farming sector.

146. The major aims and activities of IFOAM are: to represent internationally the organic movement, to exchange knowledge and expertise among its members and disseminate information to the public, to guarantee organic quality and to set the standards for organic agriculture and food processing. Regional groups were established within IFOAM to improve its efficiency. AgriBioMediterraneo (ABM) is one of

these and it is through this body that IFOAM is present in the Region of Crete. ABM, established as a regional initiative in 1990, brings together in 2005 146 IFOAM members from 16 Mediterranean countries.

147. AgriBioMediterraneo has two aims: a) to promote, develop and disseminate information, knowledge and expertise related to Mediterranean organic agriculture and food production and b) development of Agri-bio tourism on family farms. Special emphasis is given to development of organic olive culture, viticulture, citrus and Mediterranean fruit, arable crops and livestock growing, but also to development of local markets, regional standards and Agri-bio tourism.

*2.2.2 Existing programmes, financial tools and mechanisms*

148. For the period 2000-2006, the implementation of four important programmes in the rural sector aim to catalyse the sustainable development of the Greek countryside. These Programmes are: the Agricultural Development Programming Document[34], the Operational Programme "Rural Development - Countryside Reconstruction"[35], the Regional Operational Programmes[36] and the LEADER + EU initiative. All four programmes are geared to solving the structural problems of Greek agriculture, while simultaneously signposting the shaping of a new development strategy for the rural environment based on the principle of ecological and economic sustainability. The basic objective of the above programmes is the improvement of competitiveness at the levels of production and distribution, the rejuvenation of the age profile of the rural population, the development of infrastructure and the introduction of support mechanisms to improve quality of life in rural areas. The programmes aim also to upgrade the environment and natural resources. Finally, the programmes are meant in particular to familiarise and sensitise the rural population to development prospects and new technologies, the reduction of disparities between urban and rural areas, and an integrated approach towards solving the problems of disadvantaged areas.

149. A national program (EPAA), with a budget of 2.69 billion euro, was designed to operate complementary to the operational programmes funded by the EU. It focuses on four axes/measures: 1) Early retirement, 2) compensatory payments (for farms in less favoured areas), 3) Agri-environmental measures, and 4) forestation of agricultural land. Table 20 provides an overview of the division of total financial support.

[34] Greek acronym: EPAA
[35] Greek acronym: EPAA-AY
[36] Greek acronym: PEP

**Table 20. Financial support for rural development in Greece 2000-2006 (4 programmes)**

| Programme | Total Public expenditure | From which EU contribution |
|---|---|---|
| 1) Rural development Programmes (Guarantee) | 1 150 | 342 |
| 2) Compensatory allowances | 955 | 286 |
| 3) Agri-environmental measures | 400 | 299 |
| 4) A forestation of agricultural land | 165 | 57 |
| 5) Evaluation | 15 | 7 |
| Total RDP (EAGGF-Guarantee) | 2 686 | 993 |
| Objective 1 (EAGGF-Guidance) | 3 140 | 2 260 |
| LEADER+ (EAGGF-Guidance) | 251 | 182 |
| Total Million euro | 6 078 | 3 436 |

Source: European Commission, Agriculture and Rural Development, 2003

150. The overall strategy for *agricultural* development can be summarized as:

- A re-organization of the countryside. The general measures that can have significant impact in the area of organic agriculture are investments in agricultural holdings, processing and trade of agricultural products, enhancement of young farmers' holdings and integrated interventions on rural agricultural space (OPAAH)

- Establishment and promotion of innovative strategies in sustainable agriculture and production of high quality products.

- Support of investments in agriculture, to finance irrigation projects and to implement integrated rural development programs of the farm sector in relation to national programs.

- Reorganization of cultivations, greenhouses etc.

The sourcing of the funds since the year 2000 is primarily (60%) from public origin, 69% being provided by the EU. Almost 40% originates from private sources (see Table 21).

**Table 21. Investment funding at farm and business levels in Greek agriculture (2000-2006) through EPAA-AY**

| | Euro | % |
|---|---|---|
| **Total cost** | 3 557 087 197 | 100 |
| Public funds : | 2 136 211 026 | 60.1 |
| EU contribution | 1 482 755 239 | 69.4 |
| National Contribution | 653 455 787 | 30.6 |
| Private contribution | 1 420 876 171 | 39.9 |

Source: Ministry of Rural Development and Food (Progress report of the Management Authority in 2005)

*2.2.3 Specific measures to stimulate innovation and organic farming*

151. Policies aiming to encourage organic farming apply to all regions of Greece and there is no special policy for Crete, in spite of its endowments, both natural and institutional, in this field. Quality improvement policies are implemented either through operational programmes or through direct aid

programmes. Investment in farms, one-off premiums and integrated programmes for the development of rural space are programmes with the most significance for organic farming.

Investment in farms (EPAA-AY: Axis 1 – Measure 1.1)

152. This measure (409 399 520 euros) absorbs 21% of the EPAA-AY budget and supports investments in all types of farms in Greece, including investments in animal production, whereas the Regional Operational Programmes (ROP) – relate to the funding of farms mainly involved in vegetable production). The support programmes are directed at all existing farmers (or young farmers under Measure 3.1) with an appropriate agricultural holding they want to improve. As with the Young Farmers programme, those involved in organic farming receive extra points on the list of final beneficiaries. This beneficial regulation (1.1) constitutes an effective incentive for the conversion towards organic farming methods, given that the total funding is insufficient to cover all candidates (eligible beneficiaries) and thus this type of regulation favours the inclusion of organic as opposed to conventional farmers (the applicants which choose to incorporate organic farming methods in their investment plan, receive higher marks and the evaluation favours them, in comparison to those who remain with conventional methods).

One-off premium for the establishment of Young Farmers (EPAA-AY):

153. The aim of the Young Farmers programme (Axis 3, Measure 3.1 of the Operational Programme for Agricultural Development and Countryside Reform), representing 285 628 894 euros (14% of EPAA-AY) is to encourage young people to enter farming, thus rejuvenating an ageing population in rural areas on one hand and reducing unemployment on the other. Within this programme organic farming receives special attention: those involved in organic farming receive extra points on the list of final beneficiaries. Despite this regulation in favour of organic farmers, the total subsidy amounts cover almost all candidate 'young farmers', so this regulation without effective incentives finally does not contribute significantly to the inclusion of organic as opposed to conventional farmers.

**Integrated Programmes of Development of Rural Space (OPAAH).**

154. The Integrated Programmes of Development of Rural Space (7th axis of EPAA-AY) are applied in isolated mountainous or disadvantaged areas experiencing out-migration. These represent a budget of 361 903 185 euros for the programming period (17.6 % of EPAA-AY), with 144 175 350 euros expected from the private sector. The amount allocated to Crete is 18 304 000 euros. OPAAH actions include the 'verticalisation' of production and the commercialisation of agricultural products. Both organic and quality products alike are awarded additional points for subsidies as compared to 'conventional' products. Three areas in Crete[37] are included in integrated programs funded by the programs of the Ministry of Rural Development and Food and four areas are funded by the PEP programme of the region[38]. Their aim is the integrated development of these areas, promoting and exploiting their advantages and thereby creating viable conditions for the inhabitants.

Direct aid programmes

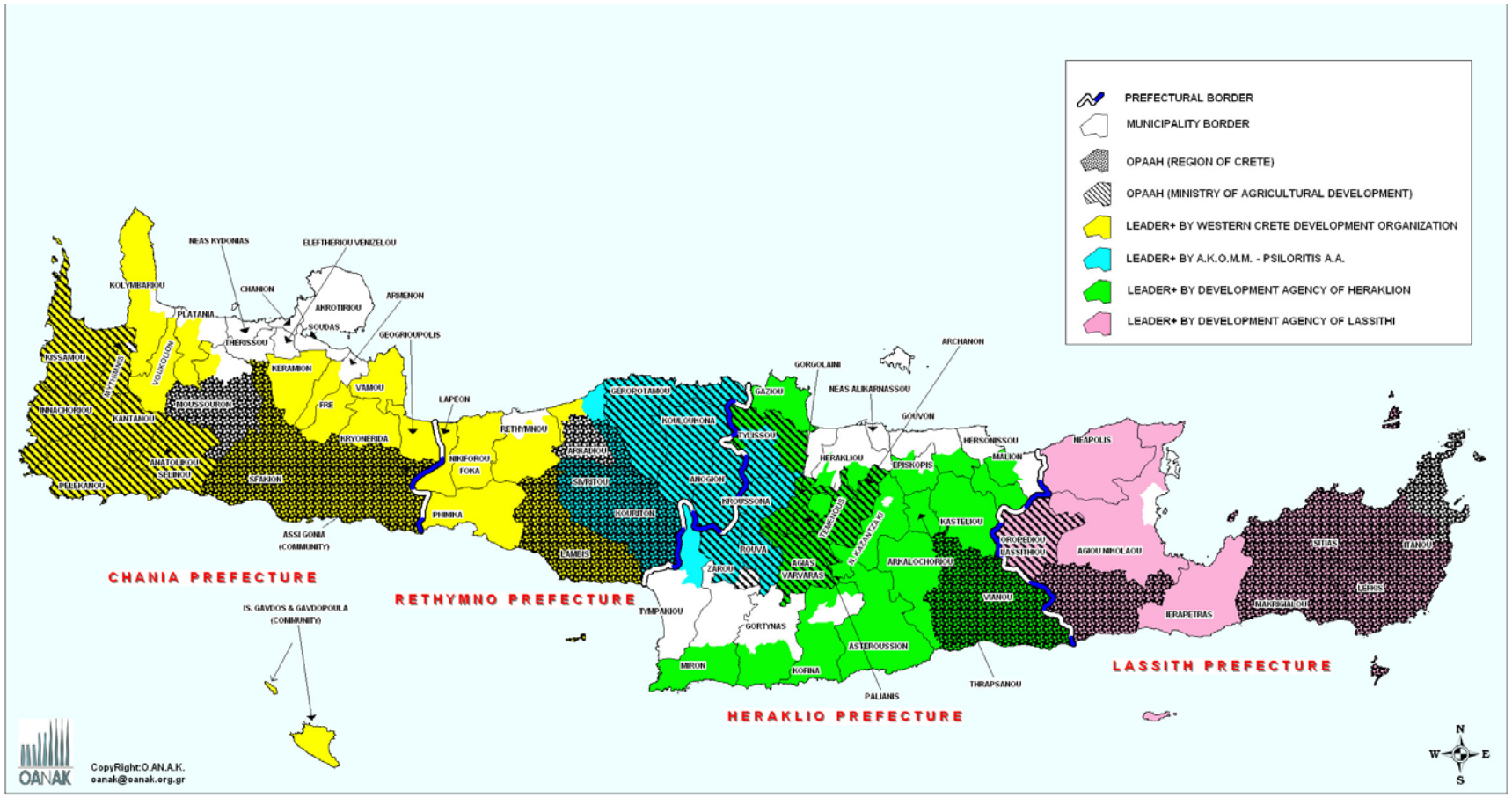
155. Measures 3.1 and 3.2 of EPAA relate to organic farming and livestock farming respectively. Measure 3.1 on organic agriculture aims to re-establish the balance between the agricultural and the natural environment and to produce competitive quality products (budget allocation for Crete in 2003-2004 of 384 754 91 euros and only 51 329.5 for 2004-2005). Measure 3.2 deals with the breeding of sheep and

[37] The southwest area of Chania Prefecture, the Psiloritis area astride the Rethymnon and Heraklion prefectures and the Lassithi plateau.

[38] District of Malevisi in Heraklion Prefecture, the southwest part of Chania prefecture, the Mylopotamos area in Rethymnon Prefecture and the Lassithi plateau.

goats, bovines of free pasturage, other types of bovine farming and swine breeding (Crete amounts: for 2003-2004, 152 612 16 euros and for 2004-2005, 44 147.98 euros. Based on current legislation, beneficiaries receive annual aid according to type and area of cultivation and type and number of animals. Measure 3.4 is directed at extension of livestock farming. This programme aims to protect soils from erosion and to preserve biodiversity. It supports cattle breeders so that they decrease animal capital in islands facing overstocking and increase pasture lands in mountainous regions sensitive to erosion. The same applies to regions of special ecological interest.

**Figure 12. Leader Areas and Areas of the Integrated Rural Development Programmes for the Development (OPAAH)**



*2.2.4 Rural development policy in Crete*

156. The Regional Directorate of Rural Development for Crete strives to promote organic farming according to the programmes mentioned above. In addition it has also taken measures to disseminate information about available support for conversion and participation in various other promotional programs resulting in a significant initial expansion of organic farms, although the trend has slowed down in more recent years. In hindsight this seems to be due to weak commercial performances, with marketing efforts training behind production expansion.

157. In Crete, support measures and programmes are differentiated. Thus there is an Olive Oil Product Enterprise Cluster of Crete in the Lassithi Prefecture. Within the framework of the LEADER II programme funding was secured for the creation of a grouping of organic farmers in Sitia Province, named "Organic Farmers of Sitia S.A." The group successfully produces and trades in organic olive oil, wine and tsikoudia (raki). Other programmes relate to farm tourism, establishment of a vertical unit for production and bottling of privately-produced certified organic wines, entrepreneurship and cooperation between organic farmers.

***2.3 Tourism and rural tourism policies***

*2.3.1 National tourism policy framework*

158. Greek national tourism policy is under the responsibility of the Ministry of Tourism and implemented by the Greek National Tourism Organisation (GNTO). Under the supervision of the former, GNTO ensures planning and implementation of broad policy guidelines as well as the international promotion of Greek tourism at the national and regional levels, while co-ordinating the initiatives of the public and private sectors in all tourism activities. In 2001 regional GNTO offices were established (Presidential decree 313/2001) when tourism was under the responsibility of the Ministry of Development. These regional structures were maintained by law when it was succeeded by the newly founded Ministry of Tourism in 2004. One of these offices operates within the premises of the Region of Crete in Heraklion.

159. The Law (3270/2004) regulates the competencies of the Ministry of Tourism and its agencies. It explicitly requires planned tourism development in island regions. However, it does not introduce or strengthen regional institutions to plan, co-ordinate and implement tourism development, but maintains the direct authority of national tourism bodies like the GNTO and its regional branches. Article 4 of the law simply demands that GNTO co-operate with organisations at the regional and local level, particularly to promote new forms of tourism.

160. At the local level, prefectures and municipalities in Greece also intervene in the area of tourism, developing their own strategies and projects, supposedly in line with national and regional guidelines. In fact, local initiative is often centred on promotional efforts that do not seem always well co-ordinated in a wider area. An interesting example is that of rural tourism in Crete where no comprehensive regional brochure seems to be available and only small area initiatives are promoted separately.

*2.3.2 Rural tourism policy*

161. The Ministry of Rural Development and Food plays an important role in the area of rural tourism. It is present at the regional and prefectural levels. On the national level two committees precisely ensure integration of national policy guidelines into these local government levels: the Rural Development Subcommittee and the Committee for horizontal Co-ordination of the ROP and LEADER+. The management authorities of the ROP and of the LEADER+ Community Initiative ensure rural area horizontal integration for the LEADER+ Program, while horizontal integration on the regional level is

reached by harmonising programs of the Ministry of the Economy and the Ministry of Rural Development and Food in consultation with the General Secretaries of the Regions.

162. AGROTOURISTIKI S.A. was founded in 2001 as a Joint-Public Stock Company, in order to contribute actively to the development of rural tourism[39]. The major shareholder is the Greek Tourism Development Co., which is controlled by the Ministry of Tourism. The company's activities comprise:

- Registry and evaluation of current conditions with regard to infrastructure and resources, both at organizational and at legislative levels.
- Promotion of the country's agro-tourism products.
- Information concerning the development of alternative forms of rural tourism, whether entrepreneurs or tourists.
- Establishment of a quality control system.
- Support to prospective investors.
- Training for rural tourism actors.
- Promotion of legislative changes in favour of agro-tourism and rural tourism.

*2.3.3 Tourism policy in Crete*

163. During the early stages of Cretan tourism development, initiative was taken mostly by the private sector, without concern for land use planning or the environmental consequences. During the 1970's when tourism became increasingly important for island development, coastal areas benefited from government incentives. Since then, the Greek government has considered Crete as a top priority area for the systematic development of tourism, offering incentives for investment projects and undertaking the construction of the required infrastructure[40]. EU funding complements national resources, by targeting regional cohesion, therefore conceptualising tourism as one of the bases for rural development. The Region of Crete as a decentralised state planning institution draws the "Region of Crete Development Plan" which integrates an important tourism component. It refers to rural tourism in one of its major targets that is: "the distribution of tourist activities through the mountainous zone and the interior with development of alternative forms of tourism"[41].

164. A particularly innovative regional initiative was taken in 1998 to foster tourism development on the island. The Cretan Tourism Company (CTC) was founded as a public-private-partnership on the basis of the recognition that the future development of tourism in Crete needed to be grounded on a clear strategy and sound environmental principals[42]. Its founding members were the Region of Crete, the four Prefectures of Crete, The Cretan Hotel Federation, the PanCretan Co-operative Bank and the Union of Tourist and Travel Agents of Crete.

The aims of CTC, funded through the EU Regional Operational Programme (ROP) were the following:

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39 AGROTOURISTIKI maintains no office in Crete but runs mobile units to register rural tourism operators for certification.

40 Andriotis 2001

41 Region of Crete Development Plan 2000-2006

42 RITTS 1999

- Co-ordination of regional private and public initiatives in the area of tourism.
- Support of the private tourism sector by providing information or data, carrying out research and affording technical assistance to tourism businesses.
- Application and promotion of new technologies.
- Piloting the development of new alternative forms of tourism.

CTC operated only four years as the company went bankrupt in 2004. This outcome deprived the region of an instrument that permitted useful coordination among actors in the area of tourism planning.

165. Aware of the strategic importance of information and reservation systems for tourism development, the Research and Development Department of Forthnet SA (see section on innovation) undertook with Cretan tourism actors[43], on the basis of national support from the Competitiveness Operational Programme (General Secretariat for Research and Technology) an ambitious data-base development called DIABATIS. This "interactive system for optimisation in tourism and historical data promotion", developed between 2003 and 2005, provides up-dated information on sights in Crete (both historical and natural), events as well as elements of Cretan traditions (cuisine, folklore). This system could usefully complete the TOURnet system funded by the EU and which presents more than 700 Cretan tourism operators and is mainly centred on lodging infrastructure information but does not present Crete as a destination comprising a variety of experiences and products. Effective leverage of local technical know-how can only occur if the organisational framework permits to deliver a unique concept and to ensure full system coordination, which does not yet seem to be the case.

2.3.4 *EU tools and funds*

166. Different EU programmes and funds seek to promote economic development in rural areas, by diversification of the local economy and support to bottom-up initiative. Rural tourism development is one of the areas concerned by these tools, namely the 3rd CSF Regional Operational Programme and LEADER, which the national OPAAH (Integrated Rural Development Programme) measures complement. While the first aims at basic and large scale infrastructure projects, the second (and third) focuses on small-scale, mostly "soft" investment: developing human resources, organising local initiative, creating a local website.

167. Measures promoting tourism under these programmes comprise the upgrading of existing accommodation, support for SMEs in mountainous areas and integrated approaches to rural tourism. Tourism management of the Samaria national park and the creation of hiking trails were supported through CSF Regional Development Programs. Under LEADER+ the four active Local Action Groups implemented tourism relevant projects in their respective integrated programs, as indicated in Box 4 below:

[43] 5 municipalities in Crete, Wintours SA and also 2 municipalities in the Cyclades.

**Box 4. LEADER+ projects for rural tourism development**

- The Agrotourism network in APOKORONAS (Prefecture of Chania) will develop into an Agrotourism network for Western Crete. It will include agrotourism enterprises (accommodation, tavernas, cafes etc.), local product processing enterprises (pastries, olive oil, wine etc.). The network will combine a stay in traditional accommodation with promotion of local products through tourism and the organisation of rural tourism with the creation of a rural tourism promotion office.

- The Agrotourism Village of MILIA (Prefecture of Chania) is funded and implemented by OADYK under Interreg and concerns the promotion of a whole settlement with traditional architecture, with no technical infrastructure such as surfaced roads, electricity etc., offering exclusively local products. Trails connected to the Milia project funded by Leader won the first international Agrotourism prize in 2004, one of the best examples of its kind in Greece.

- "TASTES OF PSILORITIS" (Prefectures of Heraklion and Rethymnon) was implemented by the LEADER+ LAG PSILORITIS AKOMM S.A. In the Central Cretan mountainous areas of Zaros, Gergeri, Kamares, Damavolo and Bali special restaurants based on the local diet were funded by LEADER + (226 000 euros, complemented by 276 000 euros from the private sector). The restaurants will form part of a group in conformity with the tradition and architecture of the villages of Psiloritis as well as a common menu of dishes prepared from local traditional products. The restaurants will be members of the network "LAND OF PSILORITIS" (local trademark) including agrotourism enterprises in the area.

- The SITIA Development Organisation covers an area in Eastern Crete with relatively little tourism along the beach and a touristically undeveloped hinterland comprising a variety of historical buildings and a strong agricultural tradition (vine and olive growing). The Sitia Development Organisation established a separate Rural Tourism Office, licensed by the National Tourism Office. The Organisation coordinates activities of 36 communities in 4 municipalities. Local people created tourism products which were packaged and sold to operators. A key success factor was the innovative role of the SITIA Development Organisation, engaging in creative marketing concepts based on bookable products, by linking small rural experiences.

Sources: European Commission and OANAK.

## *2.4 Innovation policy in Greece and in Crete*

### *2.4.1 National innovation strategies*

168. Since 2001 there has been an intensification of policy for innovation and competitiveness in Greece. New laws such as the Development law adopted in 2004, incentives to promote mergers and investment and technology parks have been promoted. A National Council for Competitiveness was created in 2004 and various regional measures have been introduced such as the Centres of Entrepreneurial and Technological Development (CETD), forming a network in the whole country. A variety of other national programmes have been implemented to support entrepreneurship in the tertiary sector and among students while developing certification to ISO 9001 (quality service standards), with possible applications in the tourism sector.

169. A key element of creating and innovation culture is the education and training system and there is a national push to modernise education at all levels. A particular dimension is the increased autonomy of universities which have been subject to tight control by the ministry. The Ministry of Education is also supporting greater investment in entrepreneurial training and basic research in the universities. There has been increased support for the liaison offices of the universities, although IPR exploitation is weak.

170. R&D orientation is supported at a national level by a "National Foresight Exercise" which feeds into the priorities of the General Secretariat for Research and Technology. There seems to be no regional equivalent though and priorities seem to be focused on the national scale with universities being seen as primarily serving national objectives rather than regional development.

*2.4.2 The regional innovation strategy*

171. The ROP of Crete makes a number of proposals for the marketing of the technological products and services, and for the promotion of research results by the Research and Academic institutions of Crete. These actions are within the scope of entrepreneurship and innovation, and focus on:

- Promotion of the technological capabilities of the Region at the international level. The aim is to attract investments for the establishment of technology-intensive enterprises in those activities (ICTs, agricultural research and applications, tourism services) where Crete has clear comparative advantages. Up to now these venues seem to have been pursued separately whereas strong synergies could be developed within a more holistic approach seeking application of ICTs to tourism and rural development and agriculture.

- Initiatives that would help recruit highly qualified people (science and business experts) to contribute to the developmental designs of the Region. A similar strategy resulted in the technological development of the island in the past,

- The practical applications of spearhead technologies,

- The restructuring of vocational training to include skills supporting innovative actions,

- The provision of assistance to research efforts in support of entrepreneurship,

The RITTS project

172. With the conclusion of the RITTS (Regional Innovation and Technology Transfer Strategies) project for Crete in May 2000, the social partners involved came to the conclusion that cooperation between the business world and Academia is key to ensuring that both will “survive” in the future, as none can sustain itself in isolation. These basic principles aim to bring together public administration, industry, and the research institutes. Therefore, significant emphasis is given to actions promoting such cooperation between social partners (public administration, research entities, private sector). The Regional Strategy for Innovation that derived from RITTS has identified two major courses of action which complement one another, at least in the medium-term. On the one hand, they aim to meet the needs of local enterprises that are capable of exploiting the research results while encouraging local industry to start activities in promising new fields on the other hand. Focus is on competitiveness and on restructuring of production.

173. Strengthening of Competitiveness aims to support local enterprises in their efforts to acquire new knowledge and expertise. Also, the initiative aims to provide initiatives for academic institutions to do research with results having practical applications. More specifically, these courses of action involve:

- increase in research budgets (of the enterprises);

- cooperation between enterprises and the academia or intermediate bodies – both in production and knowledge dissemination;

- emphasis on quality products;

- emphasis on the comparative advantages of Crete (e.g. agriculture, tourism).

174. Restructuring of production for long term prospects: this is contemplated with the aim to attract and keep long-term investments on the island, particularly in fledgling activities. Agriculture and tourism are the two major pillars of the Cretan economy, but this may not last. Hence the emphasis is to:

- Promote activities in sectors where demand is expected to rise in the next decade, particularly in new technologies. The role of the research institutes is very significant and their results are expected to attract foreign investments,

- Promote knowledge intensive activities and encourage the acquisition of niche specializations in the fields of biotechnology, medicine and IT.

175. The latter point particularly illustrates the problems facing Crete. Economic success requires the development of new knowledge based activities as the island is disadvantaged for many manufacturing activities by its insular and peripheral location, yet the learning curve is very steep for these new activities and there is intense international competition. It seems likely that only very specific niches would be achievable, but heavily dependent on success in research exploitation.

Information Society

176. As all countries today, Greece has developed a broad Information Society initiative, the features of which are the following:

- Strengthening the infrastructure in Education and Research;

- Orienting of enterprises to new technologies and promotion of Innovation;

- Upgrading the technical equipment of agricultural enterprises and provision of related services;

- Strengthening the competitiveness of the tourism sector (practical application of innovations for the development of new products);

- Developing key commercial infrastructures (e.g. e-commerce);

- Promoting of the Information Society (sensitisation and training);

- Developing Human Resources (IS-related skills-building for the employed and the unemployed).

177. The Information Society (IS) envisioned for Crete is intended to provide the island with an equal partner status in the European and global division of operations and activities. In particular the IS will seek to overcome insularity, minimize the cost of transportation, bring Crete closer to international administrative, economic and decision-making centres and bring to light new structures, services while creating new jobs. The above considerations formed the backbone of the Strategic Actions Framework for the Information Society of Crete (2000-2006). The actions included therein are the object of the "Supplement Design" for the ROP of Crete. The minimum State budget allocated to these actions amounts to 6.7 million Euros. The refining of these actions will be a joint effort among the science and research players involved so as to meet the specific needs of Crete, which are the following:

- Modernization of the educational system: these actions involve the introduction and application of new technologies for information and communication

- Economic growth of the Region: this involves the promotion of new technologies to SMEs and new methods of operation (e.g. e-commerce)

- Social growth: promoting the use and application of new technologies at all levels of local administration for the benefit of the citizens.

- Social cohesion and fight against social/labour-market exclusion: these actions involve training in new technologies of the socially sensitive groups (e.g. unemployed, unskilled labour).

CRete INNOvative region (CRINNO)

178. The CRINNO project is an ERDF Innovative action, developed with two main aims

- To promote regional cohesion and sustainability through an integrated approach to manage high risks that threaten the existence of insular and historical and cultural features, which constitute high value components of the region's development capacity.

- To create an environment accelerating introduction of private and public sectors to first class University and Research Institute's technological developments and know-how. It encourages the establishment of partnerships in both high-tech and traditional sectors.

179. With a total expenditure of 5 million Euros (including national and private funding), over 2 years from 2003, the project develops from the RITTS with a series of thirteen specific innovative projects, of which nearly all can directly or indirectly impact rural development:

- Observatory of Innovation and Entrepreneurship (OBINNE);

- Regional Network of Technology Supply (RENTS);

- Information and Technology Transfer to rural area's SMEs (YPAITHROS);

- Innovative Entrepreneurship Regional Centres (SPINCRETE);

- University Students Entrepreneurship (UNISTEP);

- Innovative production methods applied in traditional handicraft SMEs (HEI-Net);

- Best Water Use Innovative Practices towards a Sustainable Water Resources Management (BEWARE);

- Innovative methodologies for a sustainable management of marine biological resources (INNOMAR);

- Expert systems for managing and assessing high risks in the natural landscape, environmental and historical heritage resources in island of Crete (EMERIC);

- Conserving Cretan Diet (CONCRED);

- Rescue Cretan Music Tradition for next generations (MUSIC);

- Interregional networking;

- Technical assistance.

*2.4.3 Innovation in regional programmes*

180. During the period 1994-99 the development strategy of the Region focused on strategic aims, whose achievement depended on the realization of intermediate targets supported by intervention packages, financed by the Regional Operational Programme 1994-99 and other Community financing and national resources. The aims for this period were:

- The promotion of Crete to the status of an economic and research centre in the area of the Southeast Mediterranean.

- The basic intermediate targets on which the realization of the above strategic aim is based were the improvement of the research network, undertaking of research activity by private persons and networking with enterprises, improvement of secondary sector competitiveness creating conditions for extension, and stimulation of exports and transit commerce.

- Integrated development stressing the primary and tertiary sectors.

- The intermediate targets were the judicious use of human resources, improvement of local centre accessibility, and sector improvements. In the primary sector, the aim was to reinforce agricultural productivity and improve rural quality of life. In the tertiary sector, the targets were the utilization of natural and cultural resources, enrichment of the tourist product and qualitative improvement of tourist services.

- Improvement of quality of life and implementation of a rational environmental policy. Achievement of this aim was to be through protection and regeneration of the environment and improvement of urban infrastructure.

181. The following six areas of action, specialising in activities and projects according to sector, were defined in order to achieve the specified aims:

- Reinforcement of educational infrastructure at every level.

- Creation of new university campuses for student resettlement.

- Funding of investment plans in the framework of development legislation (mainly in dynamic sectors like food and drink), together with reinforcement of commercial enterprise business plans and product promotion networks.

- Implementation and reinforcement of industrial infrastructure projects.

- Support, training and service activities: support of enterprise networks, syndicates, quality assurance certification, export initiatives and purchase of organizational services.

- Reinforcement of research and technology development infrastructure and equipment (Science and Technology Park of Heraklion, Foundation for Research and Technology, Hellenic Centre for Marine Research - formerly the Institute of Marine Biology of Crete - university research centres).

- Exploitation of mild forms of energy (wind, photovoltaic systems).

182. The aims and strategy for 2000-2006 were redefined. The General Development Aim of the Region is now the reinforcement of its central role in the island area of the South-Eastern Mediterranean, showing respect for the protection of the environment and quality of life. This general development aim is subdivided into six main strategic targets, one of which is consolidation and reinforcement of the Region as a model research and technology centre point in the South-Eastern Mediterranean.

183. On this basis, the Operational Programme (OP) seeks to provide support towards developing the international character of the technological research undertaken in the region. Improvement of connections with the local production circuit and encouragement of innovation in local enterprise are also sought. This OP also refers to support of the region's research base for the promotion of innovation, the reinforcement of enterprise outreach and competitiveness. More specifically, in the tertiary sector the OP seeks to achieve qualitative improvement of all services and infrastructure relating to the supply of tourist services and wider geographic distribution of tourism activities. This concerns the development of special forms of tourism or contributory activities with the aim of prolonging the tourist season and exploiting the mountainous interior.

184. Other aspects of the programme with relevance for innovation include

- Development of modern telecommunications and communications technology infrastructure across the Region and creation of a network and linkages in the SE Mediterranean (via a system of fibre optics, Internet applications, multimedia enterprises etc.).

- Reinforcement of private investment in renewable energy sources and energy conservation and pilot actions for renewable energy sources and rational energy use.

- Completion and reinforcement of infrastructure and equipment at all levels of education.

- Application of pilot programmes for the familiarization of enterprises with modern technologies (promotion of new tele-services, utilization of research results for business innovations).

- Action to reinforce research and diffusion of improved propagative and genetic material in agriculture.

- Vocational training in new technologies.

*2.4.4 Technology transfer mechanisms and institutions*

185. The region has developed mechanisms and institutions for the wider diffusion of the technology and knowledge base. These are the following: Liaison Office of the University of Crete, Liaison Office of the Technical University of Crete (TUC) in Chania, the STEP-C Technology Park, the Hellenic Innovation Relay Centre, the four Chambers of Commerce and Industry, the Centre for the Entrepreneurial & Technological Development of Crete, Anaptixiaki Kritis (company for the Support & Development of Cretan Enterprises) and lastly the Help Forward Network (Hellenic Project for Wider Application of R&D).

Liaison Office of the University of Crete

186. The Liaison Office is a service of the University of Crete which aims at the promotion of the research activities and results that are developed at the University of Crete, and plays the role of the interface between the university and enterprises. The executives of the Liaison Office offer services to the research community as well as to local enterprises and organizations, some of which are:

- Support during the submission of proposals to National and European research programs by:
- Facilitating the preparation of proposals;
- Partner searching within Greece or abroad;
- Legal advice for contracts;
- Support on Intellectual Property Rights protection;
- Exploitation of R & D information from the University of Crete;
- Provision of information on financing research and investment activities;
- Support on the establishment of spin-offs companies;
- Organization of specialised seminars, meetings, and exhibitions;

Liaison Office of the Technical University of Crete (TUC) in Chania

187. This office plays the role of a Technology Transfer Agency. Specifically, its role is to promote the research activities and innovative results of the University Community to potential end-users. It also acts as an interface between the university and enterprises of the industrial and tertiary sector, by communicating the specific needs of the latter to the researchers. The Liaison Office supports researchers on matters of innovation and technology transfer, such as intellectual property rights and financial exploitation of their research results. It also promotes the co-operation between TUC and regional businesses and organizations of regional development and contributes in technology and know-how transfer to enterprises helping them to increase their competitiveness and expand in international markets.

Step C

188. The managing company of the Science and Technology Park of Crete, STEP-C (EDAP SA), established in 1993 by FORTH, mainly focused on three objectives: (a) to provide the significant research activities of the Foundation's Institutes with a reliable interface to the outside world, (b) to assume a specific role in the development of the region, and (c) enable members of STEP-C to exploit technology opportunities offered by Research Institutes and become key vehicles in the technology transfer process.

**Box 5. STEP-C**

Step C has taken on a much wider role in the region than merely the management of a science park and incubators. In the absence of other technology strategy bodies, Step-C has taken a leading position in the development of a regional innovation strategy through the RITTS and CRINNO, and is actively involved in the promotion and development of entrepreneurship.

Step-C's strategy has several components:

1. Collaboration with the private sector for the establishment of new technology based firms

2. Collaboration with venture capital firms for spin-off financing

3. Supporting "Institutional" Enterprises (such as FORTH Labs which sell products and offer services to the private and public sectors, e.g. DNA enzymes, biotech products, laser applications)

4. Incubator services for the establishment of new technology firms at STEP-C

5. Licensing agreements

6. Supporting students and researchers to start up new firms

The incubator has been particularly successful and provides more than 100 offices and flexible lab space (~4000 square meters). It brings together incentives offered by FORTH and by the national Government, and has 25 tenants, with over 600 new jobs created in a total of around 60 new companies, including those which have now left the incubator. Tenants have a number of services available to them

- Academic: Links with academic and research labs , participation to research projects

- Technological: Access to FORTH Institutes and to Technology Transfer mechanisms

- Business: Business planning, market research, business development

- Financial: Information and support to financial issues, links with business angels and financial organizations

- Legal : Legal support, Intellectual Property Rights (Greek Patent Office Branch)

*Source* : OECD and STEP-C

Hellenic Innovation Relay Centre

189. The Hellenic Innovation Relay Centre (IRC Hellenic) operates as a member of the European Innovation Relay Centre Network, since 1995. It is a consortium of five partners[44] coordinated by the National Documentation Centre (EKT). It has developed strong cooperation with the Technology Parks of Thessaloniki and Thessaly, the Democritus University of Thrace, the University of Crete, as well as with academic and research bodies in Greece. IRC Hellenic aims to promote innovative technologies, services and know-how, and to make the best possible use of research results in order to facilitate international

[44] EOMMEX is the Greek organisation for SMEs, MIRTEC is a metallurgical industrial research organisation, CERECO is a research organisation for ceramics, CLOTEFI is the Clothing Textile & Fibre Technology Development Company, and ETAT is a food research organisation. All are national bodies.

technology transfer agreements. IRC Hellenic is primarily targeted at SMEs, research institutes, technology centres and universities. Amongst the areas of emphasis are Agriculture, Food and Beverages, IT and Telecommunications, the Environment and Biotechnology.

Heraklion Chamber of Commerce and Industry

190. The Heraklion Chamber of Commerce and Industry constitutes an advisory and consulting organisation to the Government and its members. The target of the organisation is the representation, follow-up and promotion of local SMEs aiming for economic growth and development. The Heraklion Chamber collaborates with the University of Crete in the implementation of two major projects: “Regional Centre of Innovative Enterprises (SpinCrete)”, linked to ‘Crete Innovative Region (CRINNO)’, and PENED”, Management and implementation of the e-commerce Centre for the Island of Crete (KIEK)". It is also instrumental in the establishment, operation and administration of the following bodies: “Anaptixiaki Kritis”, Company for the Support & Development of the Cretan Enterprises, the Centre for the Entrepreneurial & Technological Development of Crete (CETD) and the enterprise “PanCretan Ventures” (see below).

The Chamber of Commerce and Industry of Chania

191. This chamber of commerce is the main organization that supports SMEs in the greater area of Chania. In Chania, there also exists a subsidiary of all four Chambers of Crete, namely the above-mentioned Centre for the Entrepreneurial & Technological Development of Crete (CETD). The Technical University of Crete signed a co-operation agreement with CETD and sustains a long-term co-operation with the Chania Chamber (in particular, exchange of information on technological developments and on SME needs, partnership to form a Regional Innovation Pole, joint market research).

The Pancretan Co-operative Bank

192. This regional bank supports local SMEs by providing the essential financial tools for the establishment, the operation and the development of enterprises. The Pancretan Co-operative Bank and the Heraklion Chamber of Commerce and Industry, in coordination with the University of Crete, established "PanCretan Ventures" S.A., with the purpose of administering the Pancretan Development Fund A.K.E.S. (investment of 6 million euros in local SMEs).

*Centre for the Entrepreneurial & Technological Development of Crete*

193. This organization provides individualized consulting services to Cretan SMEs. CETD was established by the University of Crete, the four Chambers of Commerce of Crete, the Pancretan Co-operative Bank and the Co-operative Bank of Chania. The University of Crete also participates in the administration of the organization.

Anaptixiaki Kriti, company for the Support & Development of the Cretan Enterprises

194. This company manages and supports National and European Programs and Financing Resources. It was established, like CETD, by the University of Crete, the four Chambers of Commerce of Crete, the Pancretan Co-operative Bank and the Co-operative Bank of Chania. The University of Crete also participates in its management.

Help Forward Network (Hellenic Project for Wider Application of R&D

195. This network was created to provide a bridge between Research and Industry in Greece. Since 1991, Help Forward offers technology transfer brokerage services to Greek companies and Research

institutions and provides information, mediation and advisory services to all stages of technology transfer and exploitation of research results. Help Forward operates as a non-profit organisation under the auspices of the Federation of Greek Industries (FGI), the Federation of Industries of Northern Greece (FING) and the Foundation for Research and Technology Hellas (FORTH). Since 1995 it is one of 68 Innovation Relay Centres within the European Union.

*2.4.5 Support to entrepreneurship*

196. A key issue in Crete is the retention of graduates in local industry and providing these with entrepreneurial skills. A difficulty of the Greek higher education system is the high level of mobility of particularly the best students, so many Cretan students study elsewhere in Greece, and many mainland students come to study in Crete and then return home afterwards. Such flows are rarely neutral overall and the outcome is likely to be a net migration towards Athens. According to surveys by the University of Crete[45], on average, approximately only 35% of those graduated from the University in Crete between 1998 and 2000 stayed in Crete, with differentiation among departments, ranging from 24% to 48%.

197. The Entrepreneurial Service is part of the University of Crete Careers' Service, one of the largest career services in Greece. In terms of Entrepreneurship advice, resources and seminars dedicated to the support of the student community are provided. This includes entrepreneurial consulting from experienced staff in order to meet student's requirements. Students and graduates are encouraged to define the profile of their business potential. Formal teaching of Entrepreneurship at the University of Crete started only recently, in 2003-2004. The teaching module includes courses as, "Management of Technologically-Oriented Small Enterprises" and "Business Plan, Financial and Marketing Plan." In 2003-2004, 75 students attended these classes, while in 2004-2005, 270 students participated.

*2.4.6 Assessment of mechanisms and institutions*

198. OECD was not provided with any specific indication as to the functioning of this constellation of institutions and mechanisms for technology transfer or concerning the effective impact of the entrepreneurial services presented above, so no evaluation of the performance of this complex and multi-faceted system can be provided within the scope of this case study. However, it is possible to make some general comments that could be useful for the future operation (and co-operation of these bodies between themselves) to further goals of economic development in Crete, focusing in particular rural areas. The high number of actors involved certainly does not facilitate dissemination of information on procedures and services offered to possible beneficiaries, nor does it render the application of broader strategies easy, not to mention necessary difficulties in evaluating effectiveness of support services in terms of increased performance by firms. In the present state of "splintering" of these support services between many institutions, co-ordination tasks appear paramount but it does not seem that there is an institution, whether public or private, designated for this task.

[45] University of Crete, Career Office, Study of the Graduates of the University of Crete, 1998-2000.

## 3/ Policy implementation

### *3.1 Regional development strategy and main public actors*

*3.1.1 Region of Crete Development Plan*

Assets and limitations

199. The Regional Government of Crete recognizes in particular the following comparative advantages that Crete needs to exploit to achieve the aims formulated in the Region of Crete Development Plan for 2000-2006.

- The role of the Region in South Eastern Mediterranean
- The dynamism of the large urban centres (Heraklion and Chania)
- The dynamism of the Region in the international tourism arena
- Acclaimed research and technology capabilities and track records of local Universities and Institutes
- The positive demographic changes and low unemployment rates
- The physical environment and the climate.

200. At the same time the following problems and limitations are identified:

- increased transportation costs owing to the insular character of the Region
- pockets of unplanned tourism developments and strong dependence on mass tourism,
- acute pressures on the environment resulting from over-concentration along the northern axis of population and activities,
- increased demand for infrastructure on the island, particularly in dispersed settlements,
- the low level of development of the hinterland.

Strategic development aims

201. Given these comparative advantages and the attendant problems and limitations, the Region of Crete has identified the six following strategic aims for the Region as formulated in the development plan:

- The strengthening of the geo-strategic role of the Region in the south eastern Mediterranean.
- Overall development through consolidation of the Region as a model R&D hub in the area.
- Participation of the Region in international transport networks to highlight its significance as a transit node.
- The scaling down of intraregional imbalances and trends of over-concentration.

- Improvements in economic operations and the quality of life within the large urban centres.
- Sustainable management of natural resources and protection of the environment.

Main targets

Referring to these aims the targets by sector[46] are the following:

*Primary Sector*

- Reinforcement of the competitive advantages of dynamic export products.
- Standardization of traditional local products and increased participation of appellation of origin products.
- Protection of natural resources from over-intensive cultivation.

*Secondary sector*

- Utilization of the Region's research base for the promotion of innovation.
- Reinforcement of enterprise outreach and competitiveness.

*Tertiary Sector*

- Qualitative improvement of all services and infrastructure relating to the supply of tourist services, and wider geographic distribution of tourism activities. Development of special forms of tourism or contributory activities with the aim of prolonging the tourist season and exploiting the mountainous interior.
- Improvement of commercial storage and distribution structures.
- Activation of research centres for the wider diffusion of telematics applications.

Key points impacting rural development

202. The following points[47] covered by sector programmes, cohesion funds or community initiatives complete the targets of the strategic development plan:

*Business and new technologies*

- Application of pilot programmes for familiarization of enterprises with modern technologies. Promotion of new forms of tele-services.
- Utilization of research results and action to encourage the introduction of business innovations.
- Vocational training in new technologies.

46 Only the aims relevant to this case study are indicated here.

47 Only the points relating to rural development are mentioned.

*Environment*

- Improvement - regeneration of tourist zones on the north coast.
- Action to control pollution from agricultural activities and rehabilitate the environment.

*Reduction of intra-regional inequality*

- Action to promote the Region's cultural resources (museums, libraries, traditional villages, archaeological sites etc.)
- Credit and advisory support of very small businesses and handicrafts.
- Promotion of new tourist destinations with appropriate development of infrastructure and promotional actions.
- Reinforcement of the mountainous interior with the development of alternative forms of tourism.
- Reinforcement of investment in conversions of traditional buildings into tourist accommodation.
- Attraction of new farmers and reconstruction of the vocational training and advisory support network.
- Action for certification and promotion of quality and appellation of origin products and organic produce.

203. The proposed actions in environmental and rural development policy are in accordance with EU directives[48]. Both the environmental and the land-use dimensions are incorporated in individual policies and reflected in urban centre actions (balanced multi-centric system) and in the ensuring a new relationship between town and country, through integrated interventions in rural areas and the protection of areas of special interest. At the same time, special emphasis is placed on natural resource and water management, use of mild and renewable sources of energy, and rational management of solid and liquid waste.

204. As regards R&D and innovation, the Region has included a significant number of actions which favour the development, import and diffusion of innovations in the regional economy. The importance of R&D to the development prospects of the Region is apparent from the primary aim propounded, the consolidation and reinforcement of the Region as a model research and technology centre-point in the Southeast Mediterranean. This is aided by the existing R&D service infrastructure (FORTH, Polytechnic, University, Technological Educational Institute, Science and Technology Park). Important actions are also to be undertaken within the framework for the introduction of the Information Society.

Programme Funding

205. For 2000-2006 the Strategic Development Plan of Crete targets total public expenditure of 630 961 115, 19 euros, an increase of 6.5% over the 1994-1999 Plan. Targeted per capita expenditure is at 1 121 05 euros. Approved public spending for 1994 to 1999 amounted to 558.3 million Euros.

[48] (Article 130P of the Treaty, the Community Programme of Policy and Action in Relation to the Environment and Sustainable Development approved by the Council in 1993, and the 1997 Community Area Development Plan).

*3.1.2 Main public actors*

206. Sub-national governance public actors have been introduced in section one. The following developments relate to the actors directly engaged in development planning and realization on the field, at the level of detailed project identification, financing and implementation. These public actors, essential advisors and policy implementers at different territorial levels are organized around two major organisations (OANAK and OADYK) dividing the region in two parts (see figure 12) and three smaller agencies with territorial remit covering either one prefecture or astride two (see figures 13 and 14). The Development Organisations have extensive authority granted to them by Presidential decrees and operate essentially as public services in addition to professional services provided on the basis of private law.

207. In contrast, the development Agencies have limited competencies and focus mainly on supporting local authorities and promoting various development activities. Membership in these organisations and agencies, that can be considered as Public Private Partnerships (PPPs) is not linked to administrative boundaries[49] and includes, aside local authorities, professional organisations involved in local development matters. The services dispensed by these bodies on the basis of fees are not however limited to its members. In many cases development work is carried out on a regional basis (for certain EU programmes) or at the request of non-members. Risks of overlap do exist, so this entails strong needs for multi-level coordination.

OADYK

208. The Western Crete Development Organization (OADYK), founded in 1979, covers the Prefectures of Chania and Rethymnon. It is the oldest, regional development organization in Greece, with headquarters located in Chania. It is staffed by 155 people and managed by a 16 member Board of Directors presided by the Secretary General of the Region of Crete (vice presidents: Prefects of Chania and Rethymnon). It is a semi-governmental organization operating as a non-profit company[50] with the following objectives:

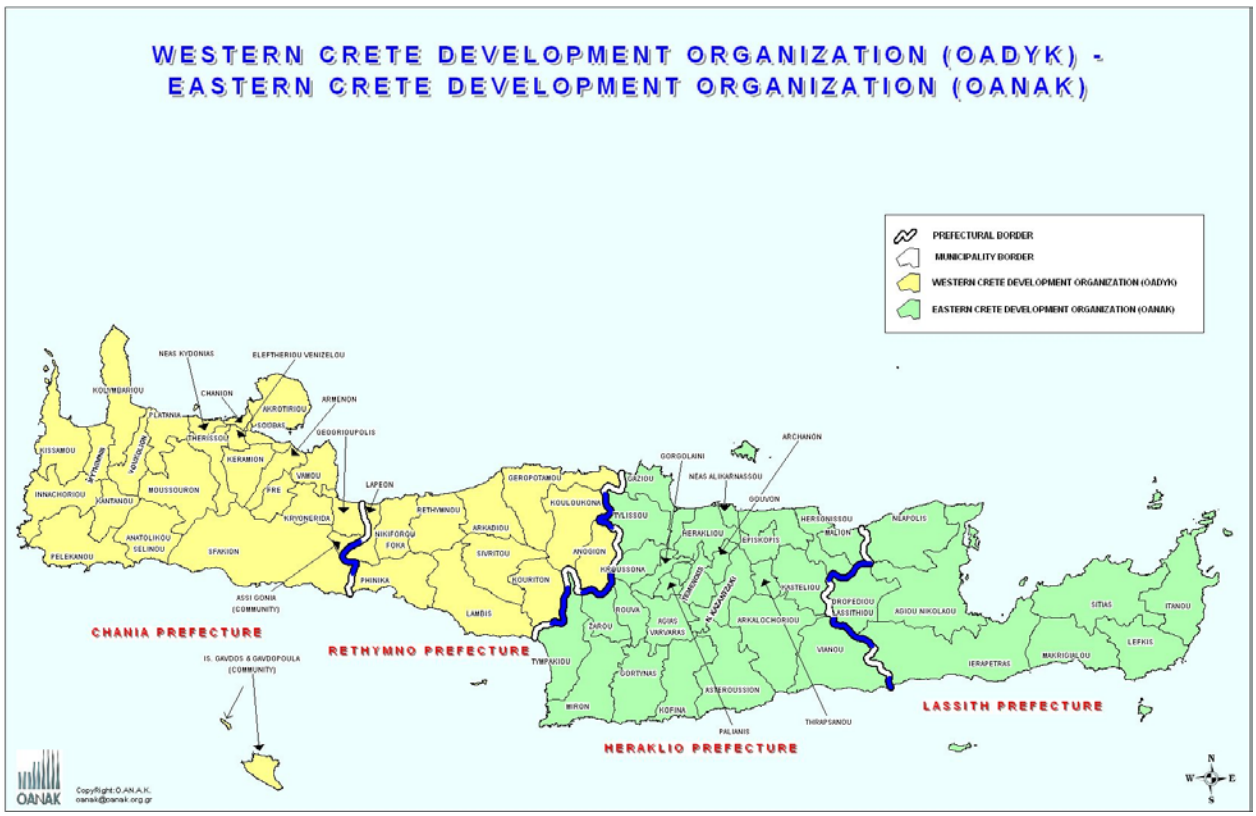
- The execution of development projects
- The design, financing, construction, operation, and utilization of public works projects.

209. One of the major activities of OADYK is precisely in the area of construction and operation of infrastructure projects for the utilization of water resources in Western Crete. Other activities include the design and execution of major infrastructure projects; the realization and implementation of environmental protection studies; the construction of public work projects for environmental protection; the provision of technical advice to municipalities; and the design, submission and execution of European Projects open to bidding. OADYK cooperates for this purpose with other Greek and Foreign agencies and collaborates in European Information and Research Networks.

[49] Except for the Prefecture of Lassithi: the Development Agency of Lassithi has, amongst its members all the municipalities and the Prefecture.

[50] Supervised, by the Ministry of the Economy & Finance and Ministry of the Environment, Planning and Public Works.

**Figure 13. OADYK and OANAK**




Source: OANAK

OANAK

210. The Eastern Crete Development Organisation (OANAK), a public interest organisation under private law, was established in 1992. It covers the two Prefectures of Heraklion and Lassithi and comprises a staff of 45 people. Its shareholders are the two Prefectural Administrations, the Local Unions of Municipalities and Communes (TEDK) and the Unions of Agricultural Cooperatives of these prefectures. OANAK is based in Heraklion with a branch office in Agios Nikolaos in Lassithi. The aim of the organisation, according to its Charter, is to bring "More efficient support of the development process and the greatest possible contribution to the sustainable and endogenous development of Eastern Crete". This is to be accomplished by "…the drawing up of every kind of development programme for its area, the study, financing, execution, operation and exploitation of utilities and public works in general undertaken by the organisation… and the undertaking of every kind of entrepreneurial activity to the public benefit…".

211. Although the main aim of OANAK was the management of water resources, the organisation became active in particular in the environment, in regional development, in the exploitation of natural resources, and the leveraging of European programmes. Its flexible and specialised staff, with significant investment in new technologies (GIS), constitutes one of its major assets for future development. To increase its scope of action and efficiency, OANAK has engaged in a fundamental re-organisation since 2004. The new OANAK Operational Plan for 2004-2010 completed, along with a new organisational chart and a new internal operating charter, both currently implemented. The main strategic tasks of OANAK are focused on the following areas:

- Effective support and technology and know-how transfer to its shareholders as well as to regional and public administrations.

- Integrated management of natural resources.

- Integrated management of solid and liquid waste.

- Rural development (tourism, local produce and organic farming export promotion).

- Coordination of local authorities and stakeholders in the fields of urban and rural development planning and infrastructure.

AKOMM-PSILORITIS S.A.

212. AKOMM-PSILORITIS S.A. is a development agency founded in 1988 and based in the town of Anogia. It is astride the limits of two prefectures, which shows concern with the concept of a "functional area", designed by local identity and access to this high altitude mountainous area. 85% of the share capital of the company is held by local governments of the region of Mount Psiloritis (Ida). It employs a total of 43 staff. The company deals with the planning and administration of European and national programs. It manages the LEADER + Community Initiative as a Local Action Group (involved with LEADER since the first programme) and the Integrated Programme of Development of Rural Space (OPAAH), a Ministry of Agriculture programme.

213. The company also acts as a partner in regional cooperation in Crete, for the "Equal" Community Initiative on the Social Economy, as well as for the Ministry of Labour and Social Welfare programme "Accompanying Supporting Services" concerning the support of disadvantaged population groups for access to the Labour Market. The company manages other social programs, such as: "Home Help", "Baby Care Centre" and "Creative Occupation for Children Centre, Daily Care". Other activities include administration of educational programmes, participation in the administration of the Labour Community Initiative (as a cooperating partner for the Region of Crete), as well as in the LIFE and INTERREG II programmes. Lastly, the company takes action on environmental issues. In cooperation with the Natural History Museum of Crete, AKOMM - Psiloritis S.A. manages the Psiloritis Natural Park, which is part of the European and Global Geoparks Network under the auspices of UNESCO.

Development Agency of Lassithi S.A

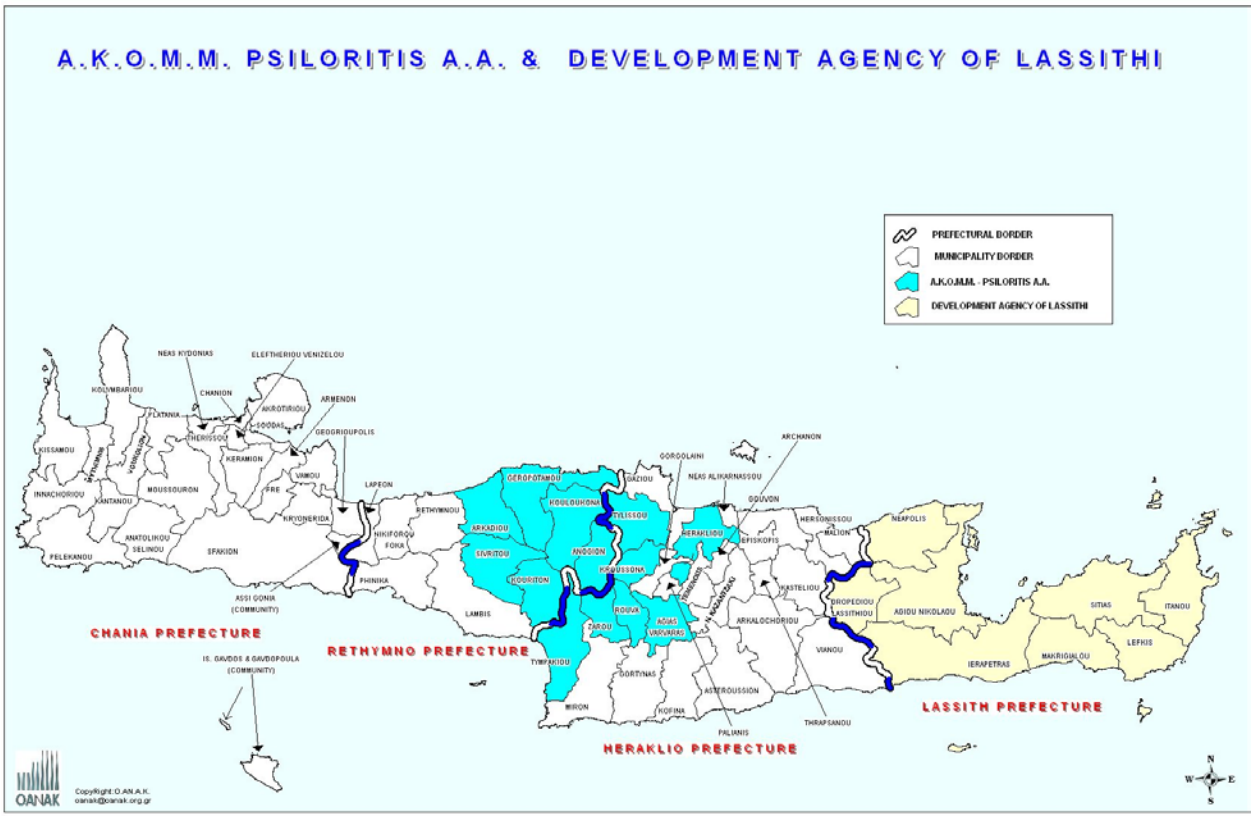
214. The Development Agency of Lassithi, based in the municipality of Agios Nikolaos, established in 1996, is staffed by 7 people. It serves the prefecture which holds almost 53 % of its capital, along with the municipalities and several of the agricultural cooperative unions of the prefecture. The aims of the agency are the planning, realisation and management of development projects and programmes, the accomplishment of development studies and programmes, information transfer and technical support to local agencies and inhabitants for the exploitation of national and European development programmes.

215. In pursuit of these aims, the Development Agency of Lassithi administers LEADER II and LEADER + programs, an integrated intervention programme in the Lassithi Plateau under INTERREG II, a renewable energy research and action program including specifically the repair and restoration of windmills[51] on the plateau, tourism promotion, administration of the prefecture's cultural development

[51] The windmills of Lassithi are a traditional feature of this area and serve for irrigation (pumping of water). Their number has been significantly reduced because of cost of repair and replacement by electric systems, thus seeing a major tourism asset progressively disappear. The present programme aims to support farmers in reintroducing their use.

program, a water supply control programme for villages in Lassithi Prefecture, the establishment of a reception centre for prefecture investors, and several programs directed at the reduction of social exclusion of women, including a vocational training and employment program.

**Figure 14. AKOMM PSILORITIS and Development Agency of Lassithi**




Source: OANAK

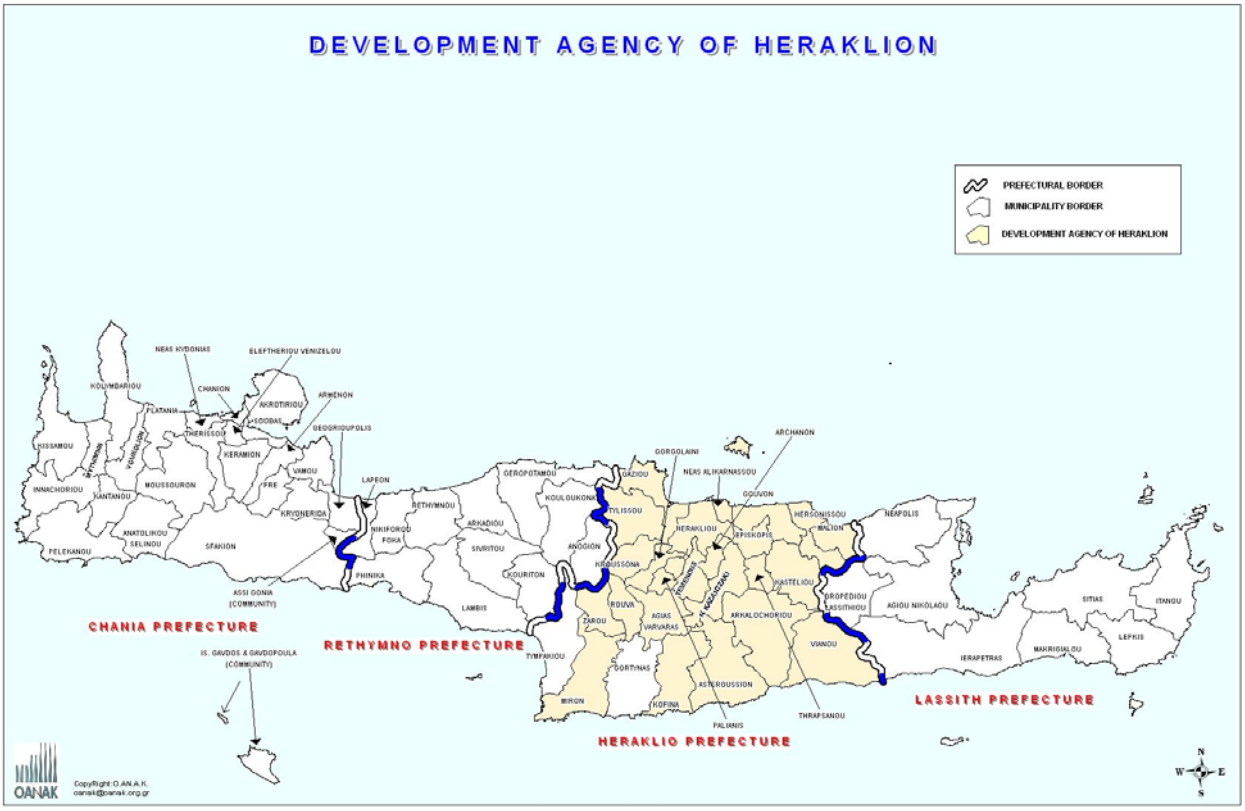
Development Agency of Heraklion

216. The Development Agency of Heraklion (ANHSA), founded in 1989, based in the town of Archanes, comprises a staff of 56 people. Its membership rose progressively to include today, as shareholders, the Prefecture of Heraklion, most of the individual municipalities of Heraklion Prefecture, the Local Union of Communities and Municipalities of Heraklion Prefecture, the local cooperatives and the Pancretan Cooperative Bank. Membership extension in three stages since its creation by four founding members (the municipality of Archanes and 3 communes) is an interesting example of voluntary cooperation, the essence of place-based policies: new members were in need of a local capacity for development project study and implementation and acquired this by integrating the agency.

217. The main activities of the company are the support of local authorities and promotion of their role in development; planning in the intervention area, leverage of national and EC funds through management of relevant programmes, technical support of inhabitants and agencies of the area in the fields of education,

improved quality of life and general socio-economic development, initiatives in environmental protection, preservation of cultural heritage and development of internal cohesion of the area. A number of initiatives have been taken to that end with the support of the agency's expertise, particularly in the field of cultural heritage, with different projects relating to training in Archanes to maintain traditional handicraft activities. Support to LEADER initiatives is particularly well represented amongst the activities of the agency.

**Figure 15. Development Agency of Heraklion**




### *3.2 Agriculture and rural development*

#### *3.2.1 Decision making and co-ordination*

218. Implementation of rural development policy in Greece is performed at three levels. The Ministry of Rural Development and Food holds the main role as it operates offices at the regional and prefecture level. These levels of government ensure co-ordination between the national level and the municipality, which is a demanding task with the intervention of both delegated authorities (Region and prefecture offices of ministries) and decentralised ones (self governing Prefecture authorities and municipalities). Within the funding framework of the 3rd CSF, management committees monitor and manage each Operational Program at the national and regional level respectively. Two committees play this role at the national level: one is the Rural Development Sub-committee and the second is the Ad-hoc committee for the Horizontal Co-ordination of the CSF and Leader+.

219. The Rural Development Sub-committee is formed by representatives of: a) the Secretary General of the Ministry of Rural Development and Food, b) the General Secretaries of the Regions and c) the

General Director of the Ministry of Economy and Finance. It is entitled to submit policy design proposals to the National Monitoring Committee of the CSF and to provide support on respective activities. The Ad hoc Committee on the other hand co-ordinates activities funded within the CSF framework and the LEADER+ community initiative. It comprises representatives of the Management Authorities of: a) the Rural Development Operational Program for the Countryside, b) the LEADER+ Community Initiative and c) the Regional Operational Programmes.

220. The Greek government strives, of course, to achieve optimal co-ordination between operational programmes performed at the national level and those performed at the regional level, as well as between the various Community Initiative programmes. Shortcomings in these processes seem to stem from excessive delays between design, announcement and actual application and financing of various measures and on complex administrative procedures with many authorities and public services intervening and co-deciding in various stages of a project. Therefore more "investor-friendly" programs which also have a greater impact on direct development of rural communities, such as Leader+, receive increased attention from NGOs, the private sector and local authorities alike. This results in many applicants and projects being rejected due to the limitation of funds, while other "low impact" measures such as early retirement schemes for farmers absorb disproportionately higher levels of funding.

*3.2.2 Financing levels and effective allocations*

221. Programmes seem to be mostly applied as the EU provides the opportunities through its various financial support frameworks, structural funds and particular initiatives. Greece is the second highest recipient of EU funding; with 3.18% of Gross National Income (GNI), just behind Portugal at 3.64%. However, Greece is the first in the category of expenditure in agriculture (including rural development) with 1.78% of GNI (followed closely by Ireland with 1.75% and ahead of Spain with less than 1%), according to EU Commission data of 2003. For this reason, Greek authorities tend to synchronise their operations with the EU framework stipulations and supplement these with national resources. The Ministry of Rural Development and Food administers long term policies to overcome major structural weaknesses of the agricultural sector and to counter rural economic decline. The ministry utilises the administrative and financial framework of the EU as a major strategic instrument.

Farming and rural development funding

Overall allocations

222. The amounts allocated to Crete within the different national programmes relating to innovative practices through the Operational Programme "Rural Development-Countryside Reconstruction" (EPAA-AY), are indicated in sub-section 2.2.3, as are the amounts corresponding to the actions undertaken in support of organic farming, as analysed below in terms of acreage receiving financial support, within the Rural Development Planning Document (EPAA).

Organic farming support

223. Concerning organic farming, maximum subsidies per hectare are quite substantial (Table 22). Yet, surveys indicate that subsidies are not decisive incentives for farmers to change to organic production. Also, the effective level of subsidies granted remains far lower. In 2003 12 422 hectares applied for a subsidy, in total € 638 103 were spent, i.e. only € 51 per hectare. This is due to the number of applicants which results in "sprinkling" of available funds rather than concentration towards recipients having the best chances of success up to the distribution of quality products or towards areas with the greatest organic farming potential or where substantial increase of the activity would have the strongest impact. In other terms there seem to be no established and clear priority or strategy for organic farming development in the

region in spite of its obvious endowments in this area. Table 23 gives a detailed overview of the total acreage of organic farms per product and per prefecture for 2002. Table 24 gives the respective figures for 2003, illustrated the continuing growth trend of organic farming development in Crete.

**Table 22. Maximum annual financial aid per cultivation for organic farmers in 2003**

| Cultivation | €/Ha |
|---|---|
| Olive oil production | 722 00 |
| Table olive cultivation | 900 00 |
| Crocus | 900 00 |
| Vines | 900 00 |
| Pomes, stone fruit | 900 00 |
| Nuts (chestnut, hazelnut, walnut) | 400 00 |
| Citrus | 900 00 |
| Vegetables, melons, asparagus, strawberries | 600 00 |
| Irrigated arable crops | 600 00 |
| Cereals, legumes, dry cultivations | 335 00 |
| Herbs - medicinal plants | 335 00 |

Source: Ministry of Rural Development and Food, 2005

*3.2.3 Innovative approaches*

224. Even if targeted support towards new farming practices and rural development projects in Crete still appears limited in scope, there is a regional potential in innovative agricultural and rural development approaches. In certain parts of Crete these are successfully developing, as in other countries, with strong foundations in dynamic local initiative or economic logic based on effective exploitation of local assets and specialised know-how. These are the venues which will permit sustainable development of rural areas in Crete. These best practices, analysed in the following developments refer first to the case of Sitia UAC cooperative, successfully producing and marketing typical Cretan products. The second case concerns cooperation between public authorities and the cooperative and private sectors in Andalusia, in Spain, that have permitted to significantly develop organic oil production while boosting exports to the United States. The third case presents a cluster type approach in the markets of fresh produce and other food products in the Netherlands.

A dynamic approach in producing and marketing Cretan products: "Sitia UAC"

225. The Union of agricultural co-operatives of Sitia (Lassithi Prefecture), Sitia UAC, was established in 1933 and since then its 8 500 members (forming 41 first level cooperatives) are collectively producing their high quality olive oil and wine. In the year 2003/2004 7 084 tons of all types of olive oil were produced in the Sitia area (14 % of Cretan production), while the respective figures were 129 444 tons for Crete and 308 000 tons for Greece.

**Table 23. Organic farming crops acreage receiving financial support in Crete in 2002.**

| Heraklion | | Lasithi | | Rethymno | | Chania | |
|---|---|---|---|---|---|---|---|
| Number of Producers: 301 Cultivation | Size (ha) | Number of Producers: 82 Cultivation | Size (ha) | Number of Producers: 114 Cultivation | Size (ha) | Number of Producers: 103 Cultivation | Size (ha) |
| Unutilized Land | 18.67 | Unutilized Land | 0.80 | Avocado | 8.15 | Avocado | 9.05 |
| Kiwi | 0.40 | Vineyards | 32.58 | Unutilized Land | 12.70 | Unutilized Land | 48.00 |
| Vineyards | 153.81 | Various | 12.17 | Vineyards | 22.41 | Kiwi | 0.10 |
| Arable | 35.50 | Olive Plantation | 261.67 | Arable | 4.15 | Vineyards | 35.02 |
| Aromatic Plants | 1.58 | Citrus Plantations | 0.05 | Grassland | 675.40 | Almond-Tree | 0.05 |
| Grassland | 0.00 | Annual | 0.05 | P. Grassland | 20.00 | Arable | 0.11 |
| Various | 86.89 | Greenhouse Vegetables | 0.53 | Cereals | 12.20 | Self-Sown | 0.50 |
| Olive Plantation | 776.44 | Open Field Vegetables | 0.08 | Various | 23.29 | P. Grassland | 0.00 |
| Citrus Plantations | 15.65 | Vegetables | 2.20 | Olive Plantation | 431.28 | Cereals | 7.00 |
| Annual | 37.95 | Banana | 7.00 | Citrus Plantations | 7.05 | Various | 70.30 |
| Nuts | 0.60 | | | Annual | 45.35 | Olive Plantation | 362.90 |
| Greenhouse Vegetables | 5.18 | | | Nuts | 0.50 | Citrus Plantations | 46.10 |
| Open Field Vegetables | 9.09 | | | Cherries | 0.15 | Greenhouse Vegetables | 3.60 |
| Vegetables | 6.14 | | | Greenhouse Vegetables | 1.72 | Open Field Vegetables | 7.19 |
| Forage Plants | 3.00 | | | Open Field Vegetables | 7.23 | Apple Tree | 0.70 |
| Banana | 3.60 | | | Vegetables | 2.00 | Fruit-Bearing | 9.05 |
| Fruit-Bearing | 15.13 | | | Locust-Tree | 0.20 | Peach-Tree | 0.35 |
| Pulses | 0.40 | | | | | Strawberry | 0.10 |
| Locust-Tree | 91.80 | | | | | | |
| **TOTAL** | **1.261.81** | **TOTAL** | **317.14** | **TOTAL** | **495.48** | **TOTAL** | **600.11** |

Source: Ministry of Rural Development and Food, 2005

**Table 24. Organic farming crops acreage receiving financial support in Crete in 2003**

| Heraklion Prefecture | | Lassithi Prefecture | | Rethymnon Prefecture | | Chania Prefecture | |
|---|---|---|---|---|---|---|---|
| Number of Farmers: 308 | | Number of Farmers : 98 | | Number of Farmers : 137 | | Number Of Farmers : 128 | |
| Farm | Size (Ha) | Farm | Size (Ha) | Farm | Size (Ha) | Farm | Size (Ha) |
| Fallow Land | 42.02 | Fallow Land | 1.25 | Avocado | 8.72 | Avocado | 10.9 |
| Kiwi Fruit | 0.4 | Vine | 34.48 | Fallow Land | 18.7 | Fallow Land | 47.29 |
| Vine | 156.11 | Olive | 317.49 | Vine | 22.81 | Kiwi Fruit | 0.1 |
| Ploughland | 34.12 | Citrus | 0.05 | Ploughland | 0.34 | Vine | 35.31 |
| Herbs | 1.58 | Annuals | 0.1 | Herbs | 0.8 | Almond | 0.05 |
| Pasture | 500.0 | Walnut | 0.03 | Pasture | 818.6 | Herbs | 0.5 |
| Cereals | 3.0 | Vegetables | 4.36 | Olive | 550.01 | Pasture | 1685.2 |
| Various Fruit Trees | 7.55 | Banana | 0.70 | Citrus | 2.65 | Cereals | 2.0 |
| Olive | 806.38 | Various Fruit Trees | 0.05 | Annuals | 26.35 | Olive | 399.5 |
| Citrus | 12.8 | Various | 12.06 | Walnut | 1.0 | Citrus | 49.28 |
| Annuals | 39.65 | | | Cherry | 0.15 | Chestnut | 0.8 |
| Walnut | 0.3 | | | Vegetables | 13.8 | Vegetables | 12.52 |
| Vegetables | 19.9 | | | Meadow | 1.2 | Other Fruit Trees | 8.75 |
| Animal Husbandry | 4.15 | | | Carob | 0,2 | Apple | 0.7 |
| Banana | 3.7 | | | Various | 76.2 | Peach | 0.35 |
| Fruit Trees | 7.73 | | | | | Strawberry | 0.2 |
| Nursery | 0.02 | | | | | Various | 69.61 |
| Sultana Raisin | 3.6 | | | | | | |
| Carob | 91.8 | | | | | | |
| Various | 103.51 | | | | | | |
| **Total** | **1838.32** | **Total** | **376.87** | **Total** | **1544.59** | **Total** | **2323.0** |

Source: Ministry of Rural Development and Food, 2005

226. For decades Greek co-operatives worked within a very protective economic environment and such conditions, along with intensive state and government intervention, still prevailed after Greek accession to the EU in 1981 and the beginning of the 1990s. Gradual intensification of competition in the world market, reflected by the decreasing level of CAP protection and increasing trade liberalisation in WTO countries,-constituted a signal for co-operative leaders of Sitia UAC. They decided that the time had come to devise a strategy for competing in the top segment of the olive oil and wine markets respectively. Before 1995, Sitia UAC was producing only 70 tons of bottled and labelled extra virgin olive oil while exporting 8 000 tons of its very high quality extra virgin olive oil to Italian blending and re-exporting firms, at relatively low prices, in comparison to bottled olive oil.

227. Between 1993 and 1995 the union invested in modern winery equipment that allowed it to produce and market 500 tons of Cretan local wine, receiving a positive reception from consumers and becoming the most favoured wine label in the majority of restaurants in Crete. The success of these first

steps encouraged Sitia UAC to also proceed more aggressively in the olive oil sector. For this purpose, the executive team was reinforced with professional business leaders and also scientists able to develop and monitor the demanding quality management procedures required for strengthening a quality product profile. In turn, investments were made to completely renovate the whole production and bottling line so as to conform with these requirements.

228. The first international award came as a result in 1998 and since then Sitia UAC gradually managed to consolidate its product quality reputation, attested by the numerous international quality awards received for "Sitia" extra virgin olive oil (also a PDO or Protected Designation of Origin product). The marketing strategy of product differentiation based on high quality paid off and bulk sales were replaced by an almost exclusive distribution of the total production in branded products. This was achieved by product placement agreements with national and international retailers. By significantly increasing its marketing budget (for advertisement and promotion campaigns in particular) and by re-enforcing its sales team with highly experienced executives, Sitia UAC has succeeded to market nowadays 3000 tons of bottled olive and 1000 tons of bottled wine, with a 50% yearly sales growth in bottled olive oil registered over the recent period.

229. In contrast to other co-operative unions which are still marketing their products in bulk (resulting in poor financial performance), Sitia UAC, has managed to secure premium prices, thus outperforming most co-operative organizations in Crete. Prospects are favourable for further expansion in the organic olive oil market. Through its extensive marketing network, Sitia UAC has created, it has successfully started to market the still limited quantities (80 tons) of organic olive that 50 of its members are producing. 70% of the organic olive oil is exported towards the European market with major recipients being specialised delicatessen, health-food and organic store retail stores in Germany and Austria, absorbing 95% of these exclusively bottled products.

230. The example of Sitia UAC is not unique. The "Union of Agricultural Co-operatives of Peza", the second largest Union in Crete in terms of turnover, located in the Prefecture of Heraklion, has experienced significant growth in recent years thanks to improved quality management (PDO olive oil) and dynamic marketing initiatives both in the world olive oil market and the Greek wine market. It has struck agreements with major marketing networks, particularly in Greece, Europe and the United States, using quality food retail outlets that are fast growing in many countries and paying adequate attention to labelling, design and packaging of the consumer product, emphasising Cretan origin and tradition.

231. Attention to quality and marketing, as these examples and others demonstrate, is paramount in developing this type of business, whether on the domestic or international markets. Such efforts can be well supported and access to new markets developed for producers of other local products when initiatives in this area are also carried out jointly by public authorities and the private or co-operative sectors. Besides, such an approach can be instrumental in the evolution of the local tourist industry, with visitors seeking guarantees in quality and authenticity when purchasing local products or tasting these during their stay. With a Regional quality label for different authentic local food products, new perspectives can be opened for small producers towards domestic and international markets, while establishing more solidly the reputation of all products labelled, facilitating recognition by the consumer, as the example of "Terroirs de l'Yonne" in box 6 shows.

**Box 6. A Quality Label in France: "Terroirs de l'Yonne"**

The association "Terroirs de l'Yonne"[52] was created in May 2000 at the initiative of the authorities of the département (Conseil Général), jointly with the consular chambers for Commerce, Agriculture and other professional sectors. The Yonne département is one of the four with the Côte d'Or; Saône et Loire and Nièvre belonging to the historical Region of Burgundy, renowned in particular for its excellent cuisine and fine wines. In spite of the excellent reputation of local food products and wine, public and private actors realized that preservation of the quality image was essential for the future producers and the tourist industry alike. Maintaining and developing quality was considered a responsibility of both public authorities and the professions involved. The original feature of the founding charter is that it seeks to promote not only the products but also all the actors, whether farmers, wine growers, hoteliers or restaurant owners. In recent years, local traditional handicrafts have also joined the movement.

The four founding members finance the association, with expenses divided between marketing and communication representing 60% and the rest, operating expenses (mostly personnel, but with a reduced full time staff of only two). An elected board and bureau ensure the functioning of the association. The main marketing tool is a yearly catalogue presenting all the selected products and producers, distributed mostly in tourist information centres and in the many food fairs that Terroirs de l'Yonne attends 585 different food products (ciders, wines, liquors, cheeses, meat and dairy products, biscuits, sweets etc.) are referenced and sold with the distinctive and now widely known blue and gold logo. To ensure that referencing is based on solid and objective processes, a jury, composed of restaurant owners, chefs and wine-tasters, notes each product and only those having received a note above the average of all notes are retained. Admittance to specific competitions for the referencing of local wines is based on wine producing areas so that similar products can be compared. For all products (food, wine, handicrafts), those selected sign a contract by which they will continue to observe specified quality procedures and criteria.

A boutique in the département capital of Auxerre, in the historical centre, contributes towards the visibility of the association's initiatives for inhabitants and tourists from France and abroad. Specific public relations operations, such as those undertaken during the summer periods jointly with the Regional Council of Burgundy in trains serving meals, develop the image of these products in a wide area and towards Paris in particular. One of the main positive outcomes of the initiative is that producers are now competing with each other for the benefit of the customer, rather than just relying on past reputation. This permits traditional products, not all necessarily well publicised or prestigious, to be better known and thus favour small business growth in all parts of the Yonne département, some of which are low density remote rural areas hit, as elsewhere, by the decline of agricultural employment.

*Source* : OECD and «Terroirs de l'Yonne ».

Market positioning of Andalusia in organic olive oil.

232. The Autonomous Community of Andalusia in Spain attained the top position of organic production in the EU over the last decade, with a total acreage of 370 thousand hectares devoted to organic cultivation, approaching a 7 % of the available agricultural land of the region with 4532 producers registered and 311 processing firms in various types of products. All the firms directly or indirectly involved in organic farming are estimated at 17 000, resulting in a 40 million euro annual sales increase for the last three years, reaching a total 250 million euros in 2004[53]. The association promoting Andalusian organic farming, "Comite Andaluz de Agricultura Ecologica", established in 1991, has been instrumental in developing organic farming in that Spanish region. The certified organic production acreage has reached 370.788 hectares, while the respective figure was only 6 445 ha in 1995. Acreage increased by the first half of the year of 2005 by 13.5 % (44.116 ha). In particular, the association has successfully promoted Andalusian organic olive oil on the American market. It is helping Andalusian organic farmers and processors to comply with US certification standards and to sign agreements with US importers, distributors and retailers. It also supports efforts to exhibit their products at the specialised American

52 A "terroir" is a small rural area with recognized soil and natural conditions that characterize local specialties, with features considered to be place-specific.

53 Sources of data and information: "Comité Andaluz de Agricultura Ecologica" (CAAE) and Organic Business Association of Andalusia (EPEA).

annual Fancy Food fairs both on the east and west coast and in organic fairs, organised by the American Organic Food Association. As a result sales have increased by 30% since the introduction of this strategy.

233. A limited number of farmers in the region which own estates of substantial size use also private processing facilities and rely on their own marketing efforts to distribute their conventional and organic olive oil. The majority though, are small scale farmers which rely on co-operative processing and marketing systems to market their produce. A successful example in the development of organic olive oil is that of the “Co-operative Society of Olive Oil Producers of los Pedroches in Andalucia" (Olivarera de los Pedroches, Sociedad Cooperativa Andaluza, OLIPE), located in the north of Cordoba province. OLIPE was founded in 1957 with 48 members, but today its 700 members cultivate 11,000 hectares of olive groves which produce on average 7 000 tons of olive oil, although production certain years reaches 10,000 tons.

234. In 1994, a small group of 25 farmers out of 443 pioneered organic cultivation with only 400 hectares out of a Pedroche Valley total of 6,400 hectares. Conversion to organic farming by other farmers came progressively by growing awareness that this constituted one of the few alternatives to declining competitiveness aggravated by the inherent limitations of small scale farming in mountainous area. As a result, by the year 2000 the majority of members (504 farmers with 8 000 hectares out of 712 with 11 000 hectares) had opted for organic production. The co-operative now has four production lines, its own bottling facilities and markets directly the olive oil for its members. The Andalusian government provided crucial support in the beginning by providing conversion subsidies and financing training for farmers and later marketing support with international promotion. Most of the organic oil is sold on the French and German markets.

235. One of the key organisations participating in the development of the organic sector in Andalusia is the “Organic Business Association of Andalucia (EPEA)”, that was established in 2001 and comprises of 42 organic food processing firms, mainly active in processing olive oil and related food products, but having also member firms active in dairy, meat, fruit and vegetables, cereals, pasta, wine and confectionery organic products. “EPEA” promotes its products in international organic food fairs.

The Netherlands “Food Valley”

236. "Food Valley", with Wageningen University and its various R&D institutes as its focal point promotes innovation and supports knowledge initiatives related to agri-food, life sciences, genomics, nutrition and health. Food Valley was established in 2 000 as a foundation with the participation of the regional authority of Gelderland, four municipalities in the region and a development agency (Oost Nederland N.V), the Co-operative Bank (Rabobank), the regional hospital, an innovation network for entrepreneurs and Wageningen University and Research Centre. These founding members (along with numerous other members of the cluster in the valley) provide financial support and/or human resource support.

237. Food Valley hosts 49 members, some of which are international food companies, such as H.J. Heinz, Nestlé, Mars, Heineken, Monsanto, Abbott Laboratories, and some are other research institutions such as TNO Food & Nutrition, Rikilt Institute for Food Safety, Plant Research International, Institute for Agrotechnology and Food Innovations, the Centre for Biosystems Genomics, the Innovation Centre for Nutrigenomics and finally the WCFS (Wageningen Centre for Food Sciences), which is an R&D alliance of European food corporations and various public research laboratories. All these food companies and institutions offer employment to 10 000 people active in sciences, technological development and related businesses.

238. Food Valley provides services such as a) **a**ssisting in establishing companies in the Food Valley, b) providing help to find suitable partners to outsource activities, c) assistance in setting up technological cooperation projects and finally d) supports the establishment of new partners by providing strategic information. The Food Valley concept is based on the Porter Theory of clustering as the major competitive power of companies. It stimulates cooperation on pre-competitive research and learning ability. The central premise behind the business concept is that every firm has relationships with surrounding firms and other stakeholders. The extent to which firms can benefit from these relationships - and contribute to building strategic strength - depends upon several factors. Among these are: the stability of the relationship, the internal capacity of the firm to share information and to learn from others, the willingness and enthusiasm to enter into a new relationship.

*3.2.4 Knowledge and making use of it*

239. Crete is a knowledge-intensive area with several high-level scientific research centres of international renown. Concerning technology, research institutions have strengthened their knowledge and human resources, through international collaborations and the increase of research funding over the last decade. However, transfer of knowledge from institutions to farmers remains limited and fragmented, for a number of reasons which are set out below.

240. With regard to farming technology it is a serious drawback that applied agronomists hardly exist anymore. Former applied agronomists were moved to administrative positions in order to ensure the management of Community funds. Their new duties are essential, but a profession, that proved particularly effective in the past, has largely been lost in the process. Centres for the Professional Training of Farmers (KEGE) are now understaffed and here are no alternative mechanisms for the transfer of knowledge to the agricultural sector. Although the need to fill the gap left by applied agronomists is clear and seems generally recognised, thus far no systematic effort seems to have been undertaken to modify the situation. Some efforts by municipalities to hire applied agronomists revealed that at the municipal level, these are chiefly concerned with the landscaping of public spaces and only rarely with production.

241. Also, links between higher education and firms have not been sufficiently developed. The same holds for the relationship of firms with R&D centres. The necessary laboratory support of farmers through agronomists, for instance, is lacking, due to frequent absence of the necessary analysis of ground water, plant tissues and or of disease identification. Neither have the relationships between centres of excellence and intermediaries been well developed. Research and educational institutions are seldom technology transfer mechanisms and remain mostly knowledge and technology creation mechanisms. The statutory framework for research institutions determines that basic research evaluation criteria are simply the existence of research activities by themselves. Transfer of knowledge or creation of business activities exploiting research results does not appear to be a major criterion for the effectiveness of applied research.

242. In recent years there have nonetheless been efforts to encourage the diffusion of knowledge through the shift of Community programmes to promotion of competitiveness. The internal regulations of institutions such as the National Agricultural Research Foundation (ETHIAGE) and the School of Agricultural Technology of the TEI of Crete have contributed to this new shift. They comprise mechanisms for the choice of research subjects based on the needs of Greek agricultural production or the particular Region.

243. There is also a lack of trust in technology transfer mechanisms. Due to the long-term absence of agronomists from the production process, farmers do not realise the need and effectiveness of agricultural applications as a technology transfer mechanism. Furthermore, they believe that the efforts made through training seminars at Vocational Training Centres are aimed mostly at improving income rather than upgrading production. Trainee selection mechanisms may result in the transfer of technology to people

who may have difficulties in assimilating it, and even if they do, are not always inclined to use it adequately. Evaluation of efforts in this area would be useful. The Development Organisations could play a significant role in technology transfer, both from a technical and legal standpoint, towards shareholders such as the agricultural cooperatives, in the areas of organic farming certification (supervision and standardisation of products), promotion (export in particular) and marketing under a common regional label as well as in the use of new technologies (GIS, weather and microclimate monitoring and modelling).

244. Concerning organic farming, both producers and agencies agree that there is no real link between research and production. In most cases producers act independently. O.G.E.E.K.A. DIMITRA (Agricultural Vocational Education, Training and Employment Organisation, under the responsibility of the Ministry of Food and Rural Development has not held training seminars exclusively aimed at organic farmers but the first ones will be organised at the end of 2005. There is no organic farming department within the Agricultural University, so service staff education is inadequate. Most have never been taught "organic farming" as there is no corresponding chair in agricultural universities, so they cannot undertake the correct guidance of organic farmers. Also, there seems to be no specific training of agronomists in organic farming.

245. In this context it is necessary to underline that MAICh is a pioneer in organic farming in Crete. MAICh is a competence centre able to develop both formal and tailor made education and training. Its capacities are to act at the level of technical content (Certification Body), as a service provider and as a marketing advisor. It has undertaken applied research, demonstration projects and innovative marketing initiatives addressed to producers and other stakeholders. Research undertaken has also given insight in the consumer acceptance of products, labelling and package design. In cooperation with the European Association of Agricultural Economists (EAAE) MAICh organized in the recent past two European Conferences on Marketing of Organic and Quality Products. Venues for cooperation with MAICh by different Cretan stakeholders whether public, co-operative or private appear both necessary and possible, as will be developed further.

### *3.3 Tourism policy implementation*

#### *3.3.1 Governance in tourism*

246. A strategic regional concept integrating the diverse tourism products into regional planning and policy implementation is lacking in Crete. Product development and marketing initiatives are often uncoordinated and in the latter area there is no Pan-Cretan concept. Mass beach tourism is the image of Crete that most operators, travel agencies and potential visitors continue to possess. Likewise, there is no regional concept to systematically integrate agricultural assets and local products in tourism marketing. Only limited initiatives, often stemming from the private sector or from prefectures and individual municipalities (sometimes municipal groupings) exist, with their impact necessarily diluted by the effects of the highly competitive environment created by direct and easy access to tourism information and reservations on the Internet by the customer himself. This major shortcoming can be explained in part by the complex functioning of the institutional framework for tourism in Crete: many crew members, but no captain.

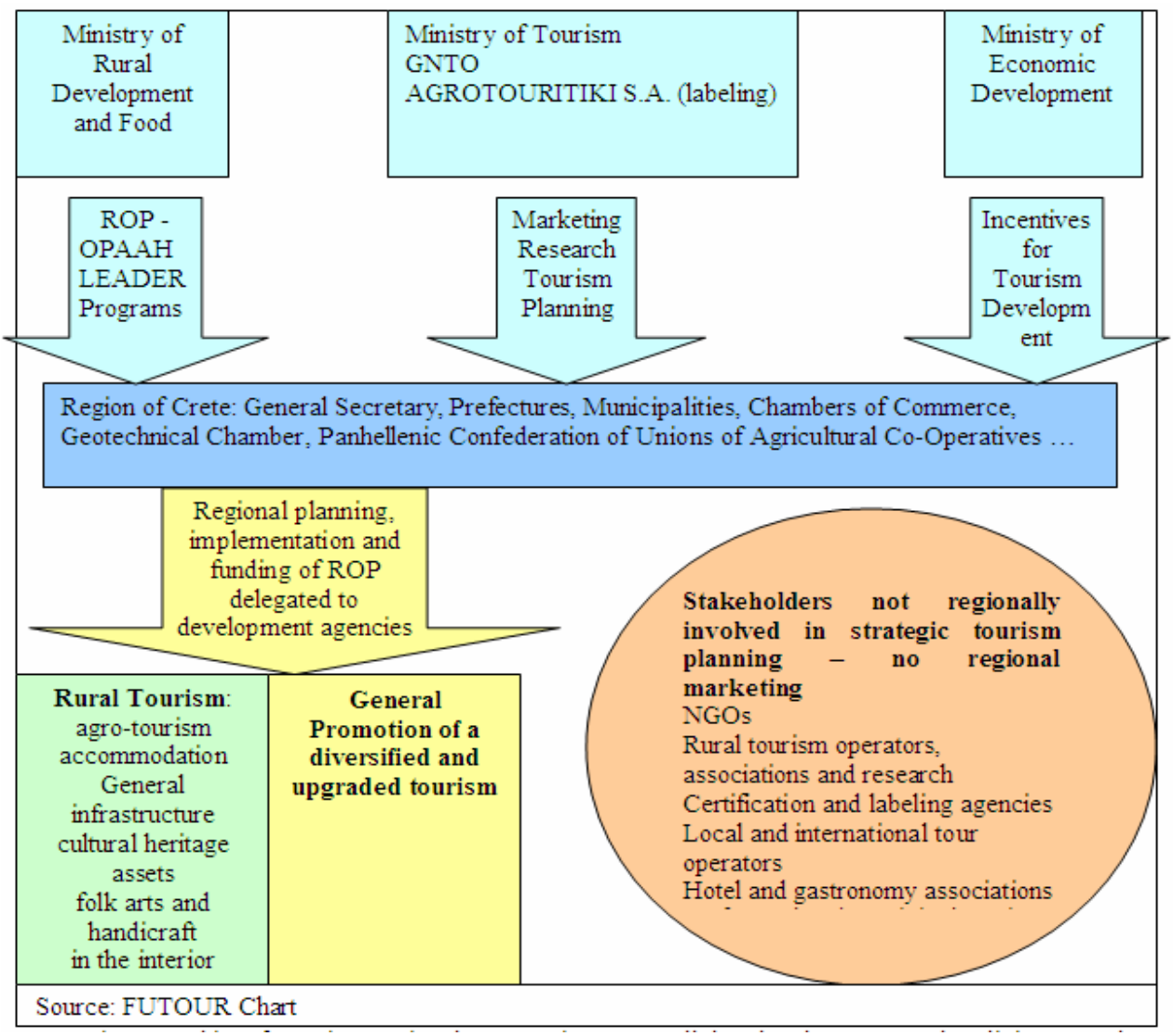
247. The Ministries involved in tourism planning draw up their programs on the basis of sector guidelines. In particular the Ministry of Rural Development and Food and the Ministry of Tourism seem to have no linkage when it come to designing rural tourism strategies. This weakness of inter-sectoral co-operation remains unsolved on the regional level, where tourism has no representation in the Regional Council except in the form of the Chambers of Commerce. The regional agency of GNTO is mainly engaged in marketing Crete within the national concept rather than actively participating in developing a regional tourism plan that it would then carry to market. In countries such as France, which is the number

one tourist destination in the world, issues of this type have been solved through decentralisation resulting in full devolution of tourism competencies (product development, strategic guidelines) to the regional level, with only international promotion and marketing carried out by a national agency ("Maison de la France") in which the regions and the private sector participate and have their say.

248. The operational complexity of the governance framework in Crete is clearly demonstrated by figure 15 below that illustrates the strong top-down approach from the national level with three main ministries intervening which requires strong co-ordination at the regional level, without the region having all the powers required to carry out this task efficiently, particularly since, at the sub-regional level, there are also multiple initiatives. This has been witnessed in the case of Crete but, the framework being the same in all regions, there are reasons to believe that similar difficulties and shortcomings exist in other rural parts of the country that are seeking to develop tourism and promote their unique assets. From this point of view, Regional Land Use Plans, the Cadastre and Special Management Studies in "Natura"[54] defined areas are important parameters for development. Timely completion of these strategic documents, is essential for infrastructure deployment, construction projects and tourism.

[54] EU Natura areas are those facing specific environmental threats justifying specific measures and support.

**Figure 16. Tourism governance in Crete**




249. Rural tourism development is linked to the planning and implementation procedures of the Ministry of Rural Development and Food. Products are suggested by the GNTO but its strategic plans for rural tourism seem to be little known by most of the regional actors. The important issue of quality standards for rural tourism has not yet been addressed by the development programs, although there are quality schemes (see box 7). Most agro-tourism funded accommodation in operation does not comply with international standards[55]. AGROTOURISTIKI S.A. has actually just started to register accommodation for certification. There are mostly isolated local initiatives (often LEADER projects) which have set up rural tourism concepts more on their own than by developing synergies. Instead of Crete being presented as a region comprising a variety of rural products, only small clusters are scattered on the Internet and there is no regional rural tourism booking system. These uncoordinated developments are largely rooted in the fragmented institutional setting that Crete Tourism Company (CTC) had sought to overcome.

[55] GNTO, 2003.

**Box 7. Certification in Greek tourism**

**Greek Agro-Tourism Network Guest Inn**

Guest Inn, the first Greek Network of Rural Accommodation displays and promotes small tourist accommodation via the Internet, and suggests and provides the traveller with accommodation which that complying with specific common quality standards, such as a friendly welcome, a comfortable stay, authentic architecture and attractive location. The common quality label is based on a thorough analysis of Greek traditional rural accommodation. The members of the Guest Inn network are selected and classified by the number of "sunflowers" (1 to 3) indicating the degree of quality of the accommodation. Criteria for quality are:

- **Hospitality :** Personal care and warm welcome by the owners of the establishments
- **Stay**: Pleasing decoration, impeccable cleanliness, comfort, amenities and a traditional home made breakfast.
- **Architecture**: Small units, which are housed in new or renovated buildings, harmonious with the architecture of the locality of each destination.
- **Environment:** Landscapes of major natural beauty which offer to the traveller, peace, serenity and rest as well as the opportunity to come into contact with the natural environment.

Source: Eurogites

**Agrotouristiki S.A.**

**Criteria for certification comprise:**

- **architectural characteristics**, construction materials, equipment, security
- **environmental management plan**, environment-friendly measures
- promotion and advertisement of the particular **cultural and physical features of an area**, utilization and promotion of local products
- **job opportunities**, training of staff
- communication, determination of the **level of satisfaction**
- Cooperation-Competition-**Networking-Innovation**

Source: Agrotouristiki S.A.

*3.3.2 Programmes and financing*

250. As indicated above, Cretan tourism development has evolved from a general and almost unrestricted state support towards a more regulated approach since 1994 based on financial incentives relating to quality and environmental standards. This move towards a "greener" tourism strategy was accompanied by a virtual freeze in construction of new units in the crowded north coast resorts but at the same time this could encourage construction of large luxury hotels in lesser developed areas, with the establishment of marinas, golf courses and thalassotherapy centres[56] that do not exactly fit into possible strategies for rural tourism development.

251. Concerning rural tourism the ROP and LEADER Programs were most instrumental since 1994. While the former aimed at supporting the necessary infrastructures like accommodation, roads and paths the latter had the objective to promote rural networking and institution building in rural tourism. The programs co-financed by the EU are based on state grants topping public or private investment. Since

[56] Andriotis 2001

LEADER criteria demand for active community participation, a significant spill-over effect in terms of training can be assumed as a further benefit.

252. The ROP is supplementary to the main Countryside Development Program (OPAAH) under the responsibility of the Ministry of Rural Development and Food. For Crete, the planning document of the Ministry of Rural Development and Food for OPAAH aims at the protection of mountainous or other weak areas and their socio-economic reintegration into the island's productive system. The following measures directly or indirectly relate to tourism development:

- Renovation and development of villages;
- Diversification of agricultural activities;
- Encouragement of tourism and handicrafts;
- Protection of the environment.

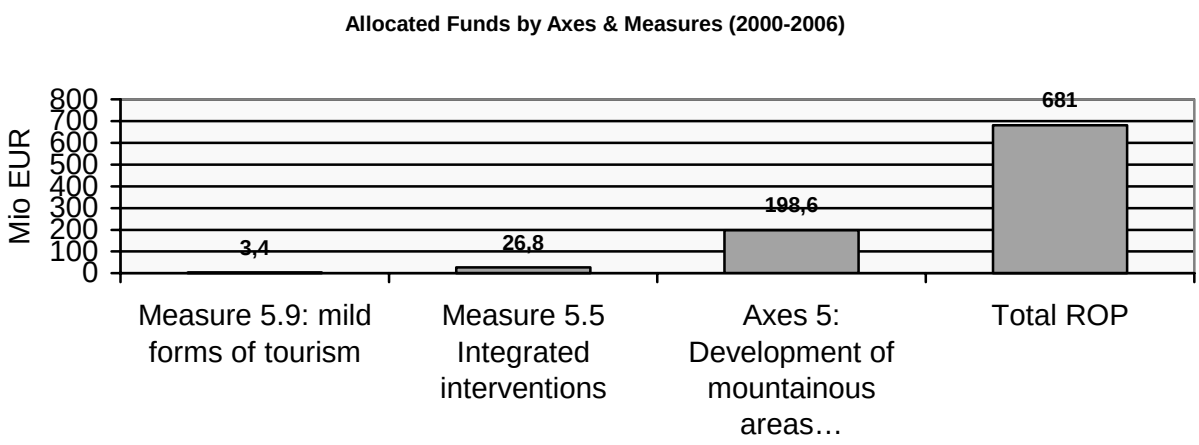
253. OPAAH is carried out at the regional level within one or more municipalities. In the case of Crete, financing comes from the Axis 7 of the OP of the Ministry of Rural Development and Food as well as additional funds shifted from AXIS 5 (Development of mountainous, disadvantaged and other rural areas) of the ROP of Crete in order to build upon the island's agricultural character. The managing authority for these integrated programs is the Development Agency of Heraklion.

254. Total public expenditure on the ROP of Crete for 2000-2006 is 681 047 802 € LEADER+ represents a 27 350 000 € contribution from the public sector. The corresponding EU contribution comes to 19 120 378 € and private investment makes up for 13.039.558. The total share of AXIS 5 within the ROP of Crete comes to 237 084 892 € which is about 26% of the total ROP. Within AXIS 5 there are 10 measures outlined and financed according to development priorities. Projects related to tourism and rural tourism in particular are statistically not separately aggregated. Only a rough idea on budget shares may be given by the example of the directly and indirectly rural tourism relevant shares within the ROP. Measure 9 (Extensive development of mild forms of tourism) has a share of 1.76 % in the total AXIS 5 expenditures[57], which is quite modest. Measure 5.5 (Integrated intervention for the development of special rural areas) received 13.55 % out of the 198 Million € from the total public expenditure on this axis.

255. As shown in figure 16 tourism development funding is taking place at different levels in different sectors: LEADER+ has a rough share of 31 % of tourism related projects (8.4 Million €) throughout Crete (highest in Chania prefecture ( 36%) and lowest in Lassithi (26 %). Tourism projects herein comprise all facilities related to tourism and also training measures. With in the entire ROP of Crete (681 Million €) the measures related to tourism in general comprise improvement of roads or airport facilities, support of SMEs, environmental management, private investment in tourism infrastructure and services etc. Since Axis 5 is targeted at rural area development, measures under this axis benefit rural tourism in different ways: environmental protection and general infrastructure provide for accessibility and general attractiveness of rural areas. More specific measures in "OPAAH-Interventions" (measure 5.5) concerning handicraft and tourism related projects get support as well as production of quality agricultural products.

[57] Regional Operational Program of Crete 2000-2006, "2004 review"

**Figure 17. Public funds allocated to rural tourism in Crete (2000-2006)**

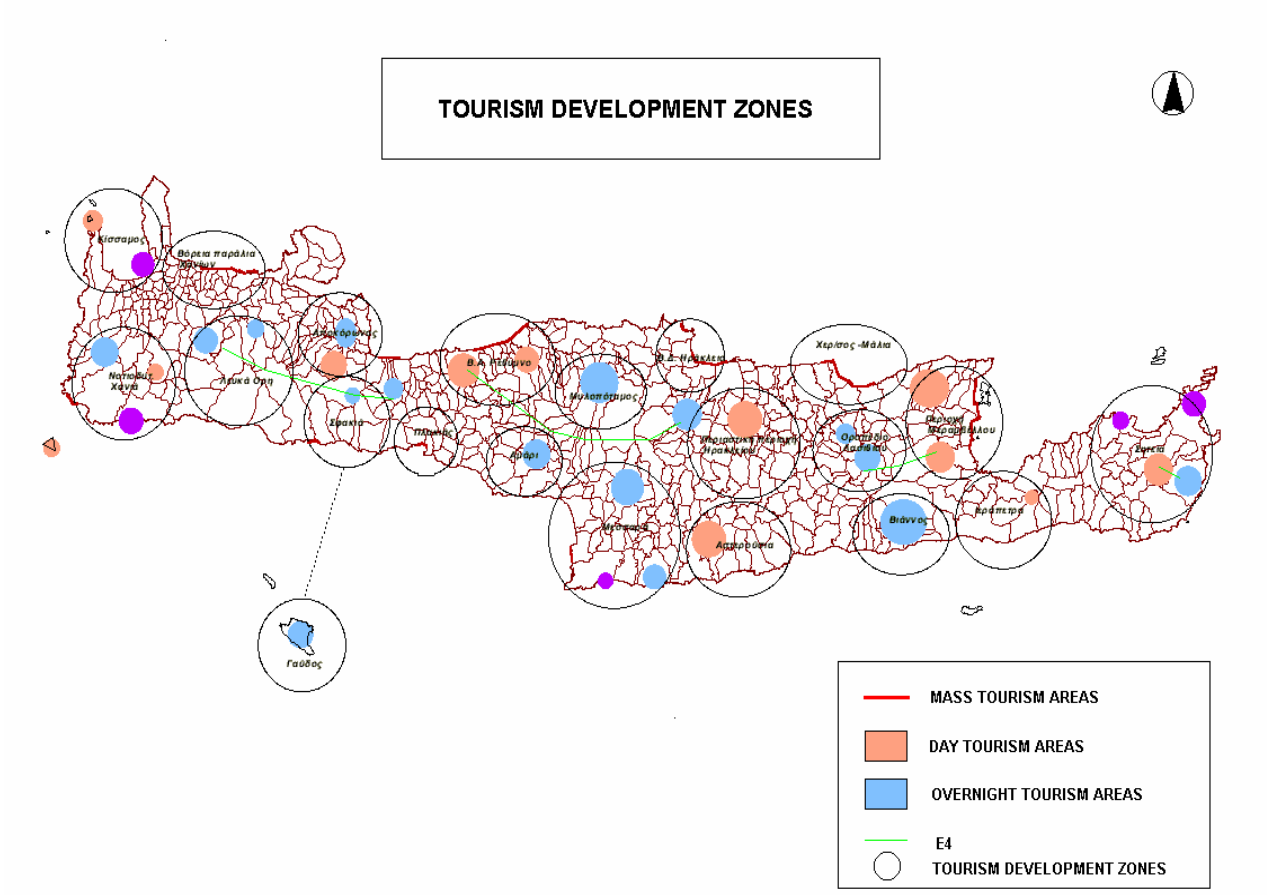



Source: Region of Crete 2005

*3.3.3 New directions*

256. The fact, that the Ministry of Tourism has not yet undertaken a market research for Cretan rural tourism is a major inconsistency in tourism policies and one of the missing starting points for strategic planning. However research on potential tourism development has been carried out by GNTO in 2003 and presented in the "Tourism development Study of Crete". The classification of 20 areas are shown in the map below, distinguishing between present mass tourism areas, day tourism areas and overnight tourism areas, which number ten. Such a presentation paves the way for a differentiation between day tourism areas and present overnight stay areas, which are those presenting the full spectrum of requisites for rural tourism, as will be developed further. However, in the absence of a regional organisation able to fully co-ordinate tourism development, translation of the identified potential of each area into strategies securing financing for product development remains problematic.

**Figure 18. Tourism development zones in Crete**




Source: GNTO, 2003

The ten overnight tourism areas suggested by the "Tourism Development Study of Crete" and their development goals are as follows:

1. South-West area of Chania: Nature-tourism and agro-tourism centred in Elafonisi and Paleochora;

2. Omalos Plateau: Nature-, eco-, and agro-tourism and adventure-tourism (Samaria and White Mountains);

3. North-Eastern area of Chania: Agro-tourism, nature- and cultural tourism;

4. Amari area: Nature-, agro- and sea tourism at Agia Gallini;

5. Psiloritis: Agro-, nature- and mountain-tourism and also caving in the geological park of Psiloritis;

6. Surrounding areas of Heraklion: Agro-, cultural- and nature tourism;

7. Messara plain (from Zaros to Matala, Phaistos, Gortyn): high-quality agro-tourism, sports-, and adventure-tourism and also culture-tourism;

8. Lassithi Plateau: agro-tourism, and eco-tourism;

9. Viannos Area: tourism, eco-tourism and adventure-tourism;

10. East-of Sitia Area: prospects for winter-tourism, cultural-, eco-, and religious-tourism (Excavation of Zakros, gorges, endemic plants).

### *3.4 Innovation policy implementation*

#### *3.4.1 The challenges*

257. A number of challenges can be identified. In spite of the significant level of technological production in Crete, actions that promote innovation remain limited, insofar as many pilot approaches or projects, even when successful, are not systematically disseminated either for lack of an overall strategy in this area, organisational and co-ordination problems or lack of financial resources. There are only a few technology-based companies with significant track records in innovation, and these are naturally predominantly situated in the more urban areas of Crete and little concerned with rural development matters. Marketing of technological products is little developed and rural areas seem to be absent from the few efforts made to introduce these in firms.

258. In terms of policy development there seems to be no clear responsibility for innovation policy within the region, as it is developed by each institution on the basis of its own agenda, without insertion into a broader regional vision. Even where support is provided from regionally administered development programmes, capacity for critical appraisal of projects is insufficient. The main potential lies with the universities but these evolve within a national policy context that has reinforced a rather traditional academic structure and maintained a series of institutional characteristics that limit flexibility to engage in local development. This issue is not specific to Greece and only a few countries up to now have tackled the matter of engagement of Higher Education Institutions (HEIs) in regional development. The United Kingdom (see box 8) is one of these, Finland[58] is another, both having specifically devised policy tools and developed procedures and mechanisms to harness the knowledge potential of HEIs for regional development, in particular by pushing these institutions to cooperate for this purpose.

259. One problem in Greece is the disconnection between areas of investment in university research and education and the labour market needs of the concerned region. In the case of Crete, the limited university resources devoted to agriculture, the environment, tourism or enterprise training are a case in point. This is not entirely surprising as HEIs have tended to pursue strategies to support their own development and the building of international excellence, and have sought to develop connections with the local community only when it corresponds with the institutional strategy. Thus the emphasis of their economic development actions has been in the application of advanced technologies and the development of spin off firms rather than in mobilising regional assets or responding to regional needs.

[58] See Territorial Review of Finland, OECD 2005.

**Box 8. University consortia in the United Kingdom**

In the United Kingdom, the development of regional level HEI consortia began in 1983 with the establishment of in the North East of England of the association, "Higher Education Support for Industry in the North" (HESIN), to meet some of the problems of the region through industrial training and technology transfer activities that gradually deepened with the support of European Structural Funds and specific networked projects during the 1990s.

This initial model was followed by the Yorkshire and Humberside Universities Association (YHUA), formed in 1993. It was built upon the foundation of the Regional Research Observatory (ReRO) set up in 1990 at Leeds University. ReRO was established as a network of social science researchers within the region to undertake regional research projects, and provided the initial secretariat for the YHUA.

Subsequently the Higher Education Funding Council for England promoted the formation of regional associations or consortia with small pump priming funds, and during 1999 and 2000 all of the remaining English regions established such consortia. The advent of the Government Regional Offices and Regional Development Agencies have encouraged the formation of consortia that map onto the regional boundaries, and in some cases the consortia have been preceded by informal grouping of vice-chancellors that met with the regional director of their Government Office.

The initial North East model was exclusively university based, and the region has no HEI colleges, but elsewhere associations have incorporated HEI colleges as well as universities. In addition to specific regional development projects, the regional consortia are now involved in ensuring an effective response from universities to the demands from the region for engagement in regional development governance.

*Source* : OECD Secretariat

260. The enterprise development agenda within the universities is little developed, limited in part by cultural and institutional barriers to this teaching in mainstream degree programmes. Besides, universities generally find engagement in rural development difficult as a result of the problems of diffuse demand and lack of scale, intensified in Crete by the gulf between local needs and HEI strategies attuned towards excellence in Greece and on an international level in a fashion often disconnected from specifically local concerns. Also, positioning of these institutions within the region is not facilitated by the fact that here seems to be little collaboration between HEIs. There even seems to be little coherence between different aspects of a single institution, such as between research support and training policies in universities. As the expressed absorptive capacity of the region is very limited, particularly within rural areas, there is little demand pull for university services.

*3.4.2 Governance of innovation policies*

261. As indicated above, Innovation policies in the region seem to be mostly characterised by "supply side capture", with little real anticipation and steering by regional actors. Fragmentation and mostly bilateral arrangements and projects prevail, with little or no effective links with regional development programmes. This is in part the result of the fact that there appears to be no clear mandate given to regional programme managers to steer support for innovation, instead driven by a combination of national programmes and initiatives and the ambitions of the universities and research institutes. Giving greater control to the region would require a corresponding effort in terms of capacitation to provide the knowledge and techniques required for this purpose, which are up to now still mostly concentrated at the national level. There seems to be room and opportunity for this, with a more spatial and regionally focused approach. Development Organisations could play here an important role as an interface between regional stakeholders and researchers in order to direct applied research towards addressing regional issues,

facilitate cooperation between the two parties during the active phase of work and finally oversee the implementation of results or even participate in new investments stemming from the applied research.

262. The greater partnership and input of regional needs through the RITTS and CRINNO seem to be developing a more creative and rurally-sensitive set of interventions than the previous rounds of technology push projects. This turnaround cannot be confirmed by push from the rural actors alone, whether public or private. As in other countries, rural areas suffering from out-migration and economic decline cannot see this trend reversed without developing their own initiative on the one hand and national/regional level support on the other. "Traditional" rural development measures do exist in Greece, as analysed beforehand and seem rather effective but these usually leave aside concerns relating to mobilisation of local knowledge in favour of development. Whether at the national or regional level, or by a conjugation of both, initiatives in this area are necessary to mobilise the excellent university and research capacities existing in Crete in favour of both regional and rural development. Also, what holds true for Crete could probably apply to other Greek regions where there is a concentration of high level research and educational capacities.

*3.4.3 Implementation issues*

263. Limited evidence on the ways in which projects are delivered and implemented was supplied but the emphasis seems to be based on a research project model, with implementation being primarily driven by the interests of the supply side actor. A key issue is the nature and distribution of beneficiaries – there are some projects that seem to be focused on the needs of the rural areas, but most are very much focused only on developing spin off firms, essentially in the Heraklion area.

264. What are the barriers limiting better targeting of the rural population? As developed above, research organisations are driven by national priorities which emphasise research excellence, international research participation and high tech spin offs having little to do with rural needs and concerns. The gulf that has developed between the internationally excellent research in electronics, lasers or biotechnology, and the economic base of the rural regions of Crete are such that real engagement is likely to be limited and slow at the beginning. A sensitisation of both the knowledge and research suppliers and the potential recipients would be absolutely necessary to create awareness of the needs and possibilities. As in the case of ICTs where the term "digital divide" is frequently used to characterise the low level of penetration in certain social groups or in certain territories, often rural, there is, in the field of innovation the same type of "divide". As in ICTs, one of the major actions to undertake to overcome this situation is to engage in sensitisation, in particular to develop bridges between actors seldom used to engage in dialogue. Had this been the case before, the afore-mentioned tele-health pilot developed by FORTH or research carried out by MAICh would probably have already reached the stage of dissemination.

265. One possible area where this type of dialogue and collaboration could develop is in tourism. A number of projects have been implemented by the research organisations and which have a benefit for tourism either through the creation of new visitor attractions that emphasise learning-based tourism, or through the enhancement of the quality of the tourism experience. "Experience tourism" is now the subject of research by academic institutions in certain countries with the aim of helping local actors develop specific products catering to the needs of new categories of tourists seeking "adventure", authentic local experience or practicing certain sports activities. This is the case of Finland which has even developed professional expertise in this area by fostering public-private partnerships established under the umbrella of the national "Centre of Expertise Programme" aiming to unleash local potential and assets[59].

[59] The Lapland Centre for Expertise in the Experience Industry, based in Rovaniemi, supported by a local public development company, Eero, develops tourism products in conjunction with local operators. See afore-mentioned Territorial Review of Finland, OECD 2005.

## 4/ Evaluation and recommendations

### *4.1 Governance of regional development*

266. While Crete has well availed itself of the EU programmes related to its development and has, to the end of more effectively utilizing those resources, developed considerable planning and development capacity, it appears that there is room for greater collaboration between the various planning and development organisations and agencies. This would require that the Secretary General of the Region convene and preside over a coordinating council of planning and development organizations with territorial responsibilities. This could be undertaken within the present territorial sharing of responsibilities between OADYK (Western Crete) and OANAK (Eastern Crete) ensuring that particular expertise, experience and knowledge bases of each are utilised throughout Crete, creating and taking advantage of economies of scale, insofar as creation of a single organisation doesn't seem to be possible for the time being. However, close cooperation and strategic development under the aegis or even the Presidency of the Secretary General of the Region of Crete could well facilitate the creation of a regional organisation in the future.

267. The engines for Crete's development will most likely be those of 1) tourism, 2) technology and IT innovation and development led by Crete's major institutions of higher education and research, and 3) development in agriculture and rural development directed as much towards social cohesion and equity for rural people as being a true engine of growth. A development coordination council, such as indicated above, would keep local development agencies well aware of new developments in tourism and technology and of the possibility to spread their benefits to the most rural areas of the island region. There is evidence that such exchanges have already occurred but need to be inscribed in a more formal and lasting process. This would also facilitate channelling of funds to the different organisations and agencies to help these in adapting to new challenges stemming from evolving needs of the public sector, new technologies, and management methods as well as from the threats and opportunities of a fast globalizing economy.

268. Both at the Prefecture and the Municipality level, there seem to be needs for more and highly specialised staff capacity to deal with planning and development project implementation. This is an issue facing all countries now involved in delegating more responsibilities to the local level. The same holds true for civil society and private actors as these are more and more engaged in partnership processes with local public authorities, as LEADER amply shows. Local development planning work must be permanently supervised by talented staff within the municipality and/or at the prefecture level. It is necessary to outsource many tasks, in particular technical design work but not the whole of operation, maintenance, and supervision work. Place-based policy implementation is necessarily a shared task-based on a common strategy.

### *4.2 Agriculture and rural development*

#### *4.2.1 Organic farming and rural development*

269. There is a great potential for organic farming in Crete and it can strongly contribute to eco-friendly practices in the countryside that permit to retain natural features that are so attractive to tourists, while building on the image of the healthy "Cretan diet". Organic production up to this day has nonetheless been pursued on the basis of mostly isolated and dispersed initiatives in the absence of a regional strategy. However successful these initiatives have been, their example will not spread alone: sensitisation and a "push" towards organic farming are required. The present structure of agriculture and agribusiness in Crete do not really favour the development of these new approaches, so it would be advisable to consider at the national level measures based on incentives that would help in achieving certain changes, particularly to help in regrouping and increasing the size of plots devoted to organic farming. A prerequisite to this would be the completion of Land Use Plans at all levels and the National Cadastre.

270. Development of organic farming can well be conjugated with innovative tourism strategies seeking to position Crete in new markets while building a new quality image that the beauty and amenities of Crete deserve. The shift from mass tourism towards rural and activities/adventure tourism would have other advantages. Mass tourism leads to depreciation of the environment and drives out other tourist categories. Thus, a policy framework designing the future of organic production in Crete cannot stand in isolation and must be linked to tourism strategies as well as to broader agricultural development. Organic agriculture is to be regarded as the top end of "ecological agriculture", a turnaround in agricultural development, focusing on environmental concerns.

271. An impulse towards organic agriculture also requires that producers be better integrated in a well-developed supply chain and better connected to sources of knowledge. Only a clear and long term market focus can assist producers' organizations in selecting suitable crops and developing best practices in production and marketing. In order to connect producers to the market, market agencies have to take on market leadership. Farmers today hardly get more market information than price information, which cannot guide in making strategic decisions. The image and awareness of the product should also be enhanced by encouraging producers to join their efforts so as to link with firms marketing for the final consumer.

272. To achieve this, a clustering of business and business oriented R&D is necessary. This could be organized around an "organic valley" concept by which business R&D and strategic marketing action are clustered. It would be advisable to have only one or at a maximum two such clusters for the whole of Crete. These would be the spearheads for market innovation and enhancing production capacities. Also, knowledge can be more readily accessed by linking product development with R&D by public institutes, as well as by adequately using the potential of ICTs. Finally, harmonising business development with government policy can be realized by the creation of a specific regional coordinating body.

273. The Directorate of Agricultural Development in Crete itself has expressed similar concerns in a special "positioning letter", submitted in June 2005 to OANAK, specifically in order to have these "on record" in view of future strategic planning. This document thus states in particular: *"that the Region of Crete must prove an organic farming pioneer and support the effort to develop and disseminate organic farming, through specific, coordinated and rational actions"*. Therefore, there are reasons to believe that efforts to develop and disseminate organic farming through specific actions would be supported on the basis of such a statement, in particular the establishment of a coordinating body recommended for the whole of Crete bringing together public and private partners as well as research centres and cooperatives.

*4.2.2 Specific proposals*

Marketing and support to organic farming

274. Market orientation of organic farming does not seem to be integrated within the Greek policy framework devised to encourage this new activity. Competition is between supply chains and not by regions or farming communities only. Rural and agricultural development policies assume that competition is based on regional conditions and farming efficiency, but the distribution chain remains strategic for market access, particularly for export. Financial support measures could stimulate organic farming more effectively if concerted with marketing activities. These need to go further than the level of individual farms at the production stage, so as to help these in gaining the knowledge necessary for adequate market access. Measures should focus on creating critical mass for competitive prices of regional quality products.

Cooperative marketing and branding

275. Co-ordination of knowledge through technical support structures (technical assistance, information dissemination) with cooperative marketing is necessary. Cooperative entrepreneurship is the

only way for farmers to create economies of scale and economies of scope to gain firm foothold in markets. In order to focus on marketing and the translation of consumer demand in the supply chain, training schemes and partnerships to this end should be more systematically developed. Branding, with the corresponding control measures, indicates that partners in the supply chain are able to ensure quality and coordinate marketing instruments successfully. Therefore, acceptance of branding and detailed plans to this end should be prerequisites for allocating government financial support to organic farming.

An organic valley for Crete

276. The first step towards consolidating and developing the positions of Cretan food and agriculture in world markets is to develop an "organic produce valley". The concept is a clustering of business, R&D activities, extension, education and cooperation. The strategy of organic supply chains relates the businesses to their environment. In the ‘valley’ each firm has relationships not only with its markets but also with surrounding firms and public organizations (research institutes, universities administrations and development organisations and agencies). This facilitates exchanging information, mutual learning and building trust. New possibilities arise within new relationships and new knowledge from new partners. Innovations are often the product of new combinations. The set-up of this "organic produce valley" (feasibility study, financing, calls for tender) could be one of the first tasks of the coordinating body indicated above.

An ICT platform

277. Effective innovation, a knowledge intensive process, supposes a solid ICT foundation to facilitate exchange of information. The creation of an Internet portal devoted to organic farming in Crete is proposed. Such a portal could provide all the technical information required (soil conditions, cultivation techniques and natural pesticides) as well as branding and marketing information. The design of the portal could be accomplished and its content validated by using know how and experience within the University and Research establishments of Crete. One of the priority axes of the Operational Program “Agricultural development – reorganization of the countryside 2000-2006” focuses on supportive mechanisms for information dissemination to rural populations based on ICTs, so financing of the portal could be sought through this channel.

Regional co-ordination

278. The creation of a “Steering Committee for Organic Food Production and Marketing in Crete” is strongly recommended, as a major proposal resulting from the analyses contained in this case study, in particular as it conditions the implementation of other recommendations. The committee should be autonomous to a large extent and represent entrepreneurial drive and capabilities. It should formally meet on a regular basis to monitor progress in terms of extension of organic farming, with a permanent working body overseeing the activity of groups specialized on certain themes (technical, marketing, branding, certification). All public decision-makers and sector stakeholders (through their respective professional organisations) should be represented in this Steering Committee".

279. Once set up, the Steering Committee for Organic Food Production and Marketing in Crete could first decide to prepare a "Regional Action Plan for Organic Farming in Crete", with action plans for each of the four prefectures, designed in close cooperation with the local stakeholders. The regional action plan as well as the prefectural ones would focus both on organic farming as an economic and commercial activity *per se* and on its insertion into the local rural economy. It would for this purpose develop adequate

synergies with rural tourism and authentic cuisine based on the Cretan diet. This Action Plan should comprise targets to be met within a certain time-frame. One of the main targets would be the set–up of the aforementioned "Organic Produce Valley" that could constitute a "Centre of Excellence" in this field for the whole of Greece.

### *4.3 Tourism*

#### *4.3.1 Assessment of policy instruments and goals*

280. Three players could together become a driving force for tourism development planning: the individual organisation (the tourism enterprise), the industry (e.g. represented by Crete hotel association or Cretan tour operators) and the government (State, Region of Crete, other local authorities). A stakeholder-based planning process shares power in rather than enforcing it on the process. For Crete, this model suggests a dominance of organisational planning. Despite the efforts to direct tourism development towards a viable and regionally integrated model covering the whole of the region, operators, hotels and other providers of tourism services tend to follow their individual and mainly short term perspectives. In the absence of a Pan-Cretan tourism concept based on a shared vision for the island's future and a regional tourism network, the limitations of the present model in terms of adaptability appear clearly.

281. The financial incentives provided through Regional Development Programs have spurred investments which are in line with pre-existing company interests. Incentives have encouraged the perceived market trends towards health and sports activities and also alternative forms of tourism. Such programmes did not however create new synergistic lines of investment (between agriculture and tourism in particular). Present achievements in tourism development are driven by largely uncoordinated private and local initiative subsidised by public funds, meaning that successful projects are not disseminated in the absence of a regional network. To achieve a more productive policy model the building of new relationships and development of integrated quality products are required.

#### *4.3.2 Governance: Cross sectoral and institutional planning*

282. So as to be able to pursue the required diversification of its tourism economy, Crete needs more institutional integration and cross sectoral and cross institutional networking. To utilise potentials and to coherently promote existing initiatives the following should be kept in mind. These broad guidelines for Crete could also apply to other rural areas of Greece where tourism is developing.

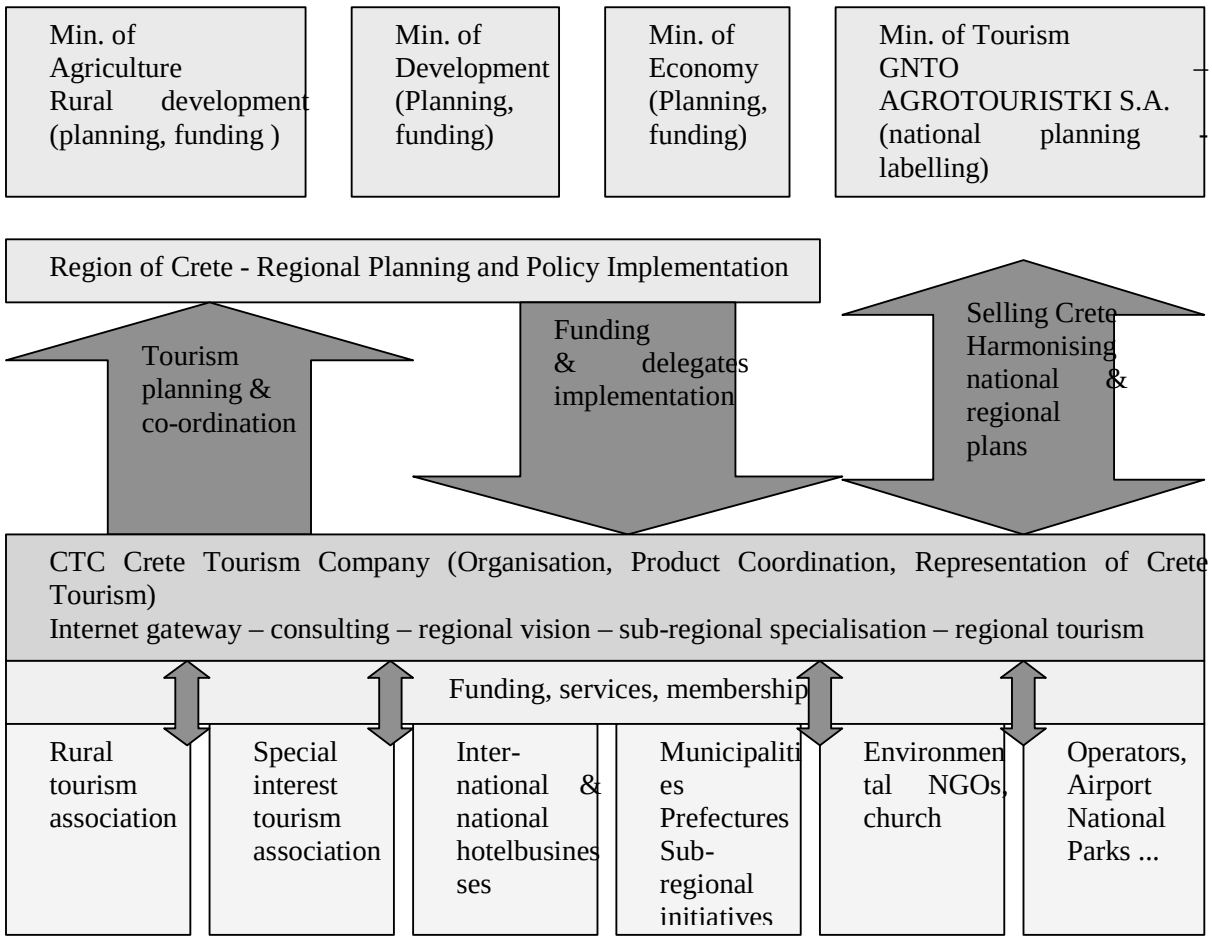
- It is necessary to clarify competencies and delegate responsibilities to the regional level. For Cretan tourism policy this means filling the gap left by the failure of CTC, by developing a Pan Cretan Concept with all regional stakeholders which could help shape regional tourism strategies, leaving to GNTO the marketing of this concept in association with local actors. Other countries such as Cyprus (Cyprus Tourism Organisation, CTO), a competitor for Crete, have successfully developed such an approach.

- It is advisable to strongly involve the sub-regional level in a coordinated fashion so as to facilitate identification and aggregation of grass-roots initiative, which is the essence of place-based policies. Legitimacy and balance of partnerships must be obvious, meaning sufficient autonomy of all players having the same stakes in a common enterprise. Creation of a regional public company would facilitate the required trust-building. Funding from the private sector (membership fees, services) and the NGO sector as well as from different levels of government would adequately express a public-private partnership status while ensuring flexibility and sustainability.

- Labelling could be left to the respective national organisations for rural tourism but the criteria need to be regionally integrated and, if necessary, supplemented by regional labels. To represent agro-tourism adequately, a Cretan association could take responsibility in labelling a national certificate and in promoting the product.

- Since rural tourism involves rural communities, the mechanisms of integration and networking need to be particularly designed to their needs. Programs need to have a stronger quality component which supposes inclusion of training requirements. The overall framework suggested to facilitate coordination, development of synergies and networking is in indicated in figure 18 below.

**Figure 19. Suggested Policy framework for Cretan tourism development**




Source: Futour

*4.3.3 Sustainability in tourism development*

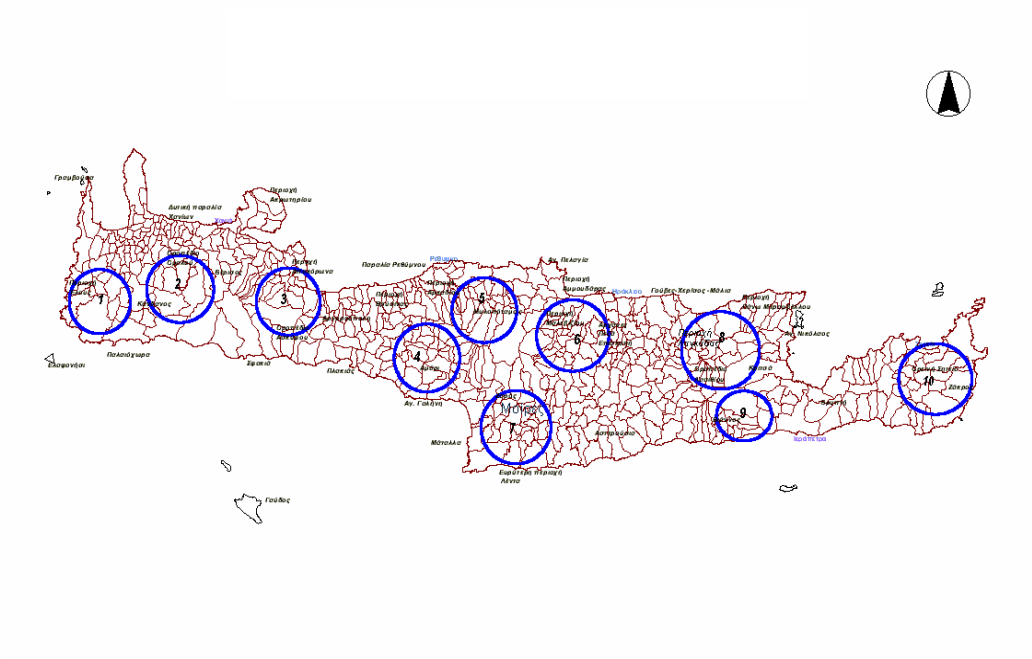
283. The lack of a consistent and specific development plan has not yet allowed for efficient marketing of the island's rural holiday destinations and in return the absence of a regional marketing

concept makes it difficult for investors and municipalities to have security for planning their business and communal development. How could sustainable rural tourism development look like for Crete?

284. GNTO commissioned a wide ranged study on the Cretan potential for rural tourism. Ten areas were identified in 2003 (see figure 19 below), as previously indicated, to develop specific themes and forms of this tourism, also suggesting facilities to be built and measures to be implemented: Prerequisites for the establishment of these diverse forms of rural tourism, capitalising on the specific features and assets of each small rural area are the following:

- Quality lodging with an authentic flavour and simple but adequate comfort.
- Special tourism infrastructure and services relating to the thematic form of tourism (mountain tourism requires mountain shelters and climbing and trekking routes and guides etc.)
- Considering synergies with day tourism from coastal resort areas.

**Figure 20. Rural tourism areas in Crete**



Source: GNTO, 2003.

285. In all of the ten areas agro-tourism and other forms of rural tourism should be developed to form a variety of sub-destinations making Crete a multiple destination as a whole. This approach utilises local potential while building on regional identity. However this requires networks to bind these places together rather than further promoting institutional fragmentation. Such a network could be established under the aegis of the public company suggested above, with due representation of rural tourism stakeholders (rural municipalities, Local Action Groups (LAGs), farmers associations and mountaineering clubs). A “one for all” Internet gateway for Cretan rural accommodation, linked to the “Eurogîtes” network would ensure access to international markets. In particular, this is a prerequisite to tap the growing markets for "green tourism" in Scandinavia, Germany and France. On-line information and booking for rural tourism in Crete could draw upon local research and technical capacities for system design and maintenance.

286. Lastly, the role of international tour operators for a turn towards sustainable forms of tourism should not be neglected. North European tour operators could contribute more directly to tourism project development, since a growing segment of their customer base is demanding destinations respectful of environmental standards, not only within hotel premises but also in surrounding areas. Thus the development of new locations on the west coast (Phalassarna) or in the Eastern part of Crete (Lassithi Plateau) should be properly planned making use of the close market contact and expertise of operators[60]. There is strong competition with neighbouring countries in beach tourism, which requires diversification. A move towards a greener image would help Crete to become more distinguishable and unique in a tight market. Rural tourism is therefore not only an additional market but also one which can contribute to changes in beach tourism patterns.

### *4.4 Innovation*

#### *4.4.1 Assessment of policy instruments and goals*

287. As regards R&D and innovation, the Region has included a significant number of actions which favour the development, import and diffusion of innovations in the regional economy. The importance of R&D to the development prospects of the Region is apparent from the primary aim propounded, the consolidation and reinforcement of the Region as a model research and technology centre-point in the Southeast Mediterranean. This is aided by existing R&D service infrastructure (University, Polytechnic, Technological Educational Institute, Science and Technology Park, NAGREF, MAICh, FORTH,STEP-C, Hellenic Centre for Marine Research…). Important actions are also undertaken within the framework for the introduction of the Information Society.

288. These policy goals seem to be appropriate for the region as a whole given the challenge of modernisation of the existing industrial base. There is a considerable tension in regional development theory and practice currently between strategies to upgrade endogenous business and modernise existing traditional industries, or to introduce new activities through exogenous investments and new enterprise. In a sense Crete's development so far has been reliant on a transformation of the industrial base through the creation of mass tourism, and the traditional agricultural base and small scale industry have not been able to provide a basis for transformation of the economy. The alternative strategy of developing high tech R&D based activities, whilst successful to some degree, has been a highly speculative venture, and one that inevitably has a concentrated effect in the urban areas where universities and research institutes are based.

289. Success to date relates to the creation of the potential for R&D and innovation, and the identification of external funding streams to support the activity. A significant and high quality infrastructure has been created, and this has had some degree of impact through a change in external perceptions, some spin off firms and the beginnings of some applications of knowledge to the wider regional economy. Given the opportunities presented by the EU through Structural Funds and Framework Programmes, R&D has provided a new economic activity in the region and created a possibility for future exploitation which did not previously exist, simultaneously helping to pull through other investments such as in ICT infrastructure (broadband) because of the sophisticated demands of the research institutions.

290. Combining a strategy for aggressive R&D based enterprise with rural development is very challenging and certainly requires the above-mentioned sensitisation prior to establishing effective regional programming partnerships geared towards rural development concerns. One possibility would be to organise a forum for this purpose so as to bring together the main education and research actors and the rural stakeholders, public and private (through their professional organisations). A conference with workshops could initiate the process of a permanent dialogue to identify needs and possible projects and

[60] Lymeropoulos, Stamatis 1999

funding sources. This type of approach is one where local initiative could fit into wider regional development concerns, by including the ingredients of "place-based policies".

*4.4.2 Institutional barriers*

291. One of the main barriers to future enhancement of innovation policy and its better application to rural areas is the cultural and institutional role of the universities and research, still focused on concerns that relate only incidentally to regional and also rural development. The universities and other research organisations, as already noted, are driven by national policy agendas, and it is only recently that greater autonomy has been proposed for the universities. The top-down nature of policy for higher education can be seen in the choice of disciplines for the University of Crete with an emphasis on classic disciplines such as chemistry or philosophy, but with limited presence of disciplines directly appropriate to the needs of the region such as management, tourism, environmental science or agriculture.

292. Given the structure of the Cretan industrial base and the reliance on spin off firms, high tech exploitation is likely to have a limited capacity to influence the main economic trends in the area, at last in the short to medium term, and this impact is likely to be concentrated in the urban areas. There are examples of where research organisations have made a contribution to tourism and agricultural development, such as the Technical Education Institute (TEI) of Crete. The Technical University of Crete (TUC) also has a more vocational focus including management education, but within an engineering focus.

293. Given the rules governing professorial contracts as public servants, universities are unable to participate directly in spin off businesses, or to engage in purely commercial activities. Researchers in public research institutions can own companies but are not allowed to receive more than 100% of their public sector salary if the company is selling services to the public sector. Such limitations on enterprise seem to prevent fully responding to new development needs. New programmes are emerging to stimulate enterprise among students (UNISTEP programme run by Step-C), but are small in scale and not really integrated into mainstream degree programmes.

*4.4.3 Recommendations*

294. This case study has identified shortcomings in the area of definition and coordination of innovation policy in Crete,-with the lack of a regional strategy and the high number of actors, and this is amplified in the case of rural development, often left behind. Specific governance measures are needed to overcome these difficulties, while a simplification of access to policy tools and mechanisms would be highly useful. Also, the RITTS report for Crete emphasises the difficulties of the region in managing the process and suggests the need for expertise and capacity to develop and manage innovation policies effectively. The emphasis of these recommendations is on capacity for knowledge building within the regional partnership. The steps towards this cannot be clearly set out *ex ante* and such developments need to emerge from discussion between regional partners and in conjunction with national authorities.

295. It is proposed to organise the "Innovation Forum" mentioned above so as to facilitate the process of identifying areas in which innovation and research could better serve the purpose of rural development. The forum, placed under the responsibility of the Secretary General of the Region and integrating the prefectures, the Union of Local Authorities, Development Organisations, University and Research Institution representatives and professional organisations would, in particular, permit to establish a necessary and permanent dialogue between al stakeholders so as to launch overarching projects.

296. It is also suggested to bring together in one single Internet portal all the information related to the numerous institutions in Crete dealing with innovation, entrepreneurship and business development, emphasising the possible rural development applications in agriculture and tourism. This measure would

improve the readability for potential beneficiaries of the complex institutional and financial framework which can constitute a barrier to implementation of broader goals by creating difficulties or delays in the effective realisation of specific projects.

297. There is a need for investment in the understanding of development models and especially the application of university knowledge to regional development. At present there is no appropriate research in the universities on this topic, or mechanisms by which the region can draw upon such external advice other than through international programmes. The regional, prefectural and municipal authorities could work with the universities to create a small research unit on applied policy development to encompass science and innovation policy and regional economic development, so that regional decision making can be better advised and supported, and training programmes can be introduced for the upgrading of skills within different local government institutions. This could be initiated with allocations from the technical assistance budget of the ROP or other O.P's. This small research unit could be established within the Development Organisations of Crete, thus ensuring a strong interface between research aims, results and final implementation and monitoring.

298. Related to this is a need for a wider consideration of the role of the universities in the region to go beyond research and technology transfer and embrace graduate employment, entrepreneurship and the role of universities in social and cultural development. Such a role is now well established in other countries and recognised by OECD. Effective implementation of such a strategy would require greater focus on collaborative activity both among the universities and research bodies as well as with regional actors.

299. A structure which has worked well elsewhere is to form some kind of regional association, whereby the universities can develop joint projects for the region. There is already some collaboration through the CRINNO projects and a wider collaboration could enhance and develop these beginnings. The senior management of the universities could arrange a conference to discuss regional partnerships and invite representatives from other regions where such university partnerships exist in order to identify the form that would be appropriate in Crete.

300. Greater emphasis should be placed on entrepreneurship and management training in the universities. The University of Crete could seek to create a Business School with a specialisation in tourism and in SME development. The universities could also look to mainstream entrepreneurial training for students in a wide range of other disciplines, but especially in engineering and applied subjects. These training courses should be credit-bearing and embedded in the mainstream curriculum. Post–graduate and post-doctoral studies could be oriented towards addressing specific regional and local needs (including those of the private sector) aiming at providing not only specific solutions but also highly trained and specialised personnel to be emplyed after completion of their studies or research work. Public and private (through the Chambers of Commerce) co-financing would be the preferred solution to implement such a measure.

301. The last proposal seeks to leverage university knowledge to develop culture–related tourism, so as to support an upgrading of the tourism industry. There are significant resources that could be turned into niche learning tourism projects focused on local cultural experiences based on music, art, history, as well as on agriculture and cuisine. Some of these developments should be concentrated in the cities to ensure economic feasibility, but some may be more logically based in rural areas and integrated with local development strategies for ecotourism and diversification. This will require tourism bodies to invite universities and research institutions to develop proposals to be financed through operational programmes.

### *4.5 Summing up*

302. Not all of these recommendations can or will be implemented on the short term, as they imply decisions both at the national and regional levels, as well as cooperation between these:

- their effectiveness supposes adequate coordination to overcome fragmentation, with a view towards better jointly defining regional strategies and implementing these in a holistic way;

- coordination tasks are also meant to facilitate emergence of local place-based initiative but in a networked fashion so as to attain critical mass;

- lastly, all efforts vying for dynamic rural development in Crete today need to capitalise on strong potential synergies between the three sectors of agriculture (with organic farming), tourism (with eco-friendly practices) and innovation (with harnessing of knowledge for rural areas);

- this logic can well be applied provided certain adaptations to specific local conditions, to other rural parts of Greece facing similar challenges and where synergies based on different local assets could well be developed.

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