INTRODUCTION –DESCRIPTION OF CHAPTERS

The purpose of this report is to depict the situation of Central Macedonia vis-à-vis innovation and its infrastructure. This is effectuated by monitoring the evolution of figures and processed indexes in the following seven modules:

1. Sectors and employment
2. Manpower
3. Potential
4. Technological resources
5. Innovation
6. Enterpreneurship
7. Infrastructures (information technologies and telematics)

Depicting the picture of the region of Central Macedonia offers the possibility to describe the efficiency of its economy and the underlying structures. The comparative monitoring of figures and indexes as to the entire Country and Attica offers the possibility to “rank” Central Macedonia in the country system. The comparative monitoring (in depth of time) offers the possibility of identifying weaknesses in innovation and its components.

The international experience

The idea began from the “Index of the Massachusetts Innovation Economy” annual report, which illustrates the basic figures of Massachusetts and ranks Massachusetts in comparison with the pioneering regions of the USA in the field of innovation.

The observation sectors

The report is based on the observation of data in what is known as “traditional sectors” and concentrate large part of the Central Macedonia economic activity, as well as data from the “new economy” sectors. Comparative observation is based mainly on the variations of the indexes from the values at the level of the entire Country for the two above-mentioned groups of sectors in Attica and Central Macedonia.

Field research

At the same time, we attempt to assess the innovation and enterpreneurship environment in the region of Central Macedonia, through a field research on a select sample of Central Macedonia enterprises.

Innovation

Many a definition has been suggested for the term "innovation" and many descriptions have been offered. For the purposes of this report we define it as “the development of new products and production processes that is linked to the management of immaterial products and services”. Innovation par excellence concerns the sectors of the so-called “new economy”, which implement knowledge management techniques in the administration, production and trading of products and utilize the networks of digital, automated and telematic applications.

Perspectives

This report is the first report ever. Therefore, it contains few comparative indexes. We hope it will become a periodic annual report for monitoring and comparative assessment that in the future will turn to the assessment of measures and policies as well.

Sources

The processed indexes are based on (mainly) published and unpublished official data from State and European sources. The reliability and functionality of the official data has been questioned from many sides. In our opinion, however, they are the most reliable from the available data and in any case they are the ones used to carve out policies.

The field research will form the initial stage of an observation panel of the Central Macedonia enterprises, monitoring the changes from the part of the cadres of the enterprises.

SECTION 1. SECTORS AND EMPLOYMENT

This module defines and describes the indexes used to present the evolution of employment in Greece per region and per employment sector. The overall picture that ensues from the individual indexes describes the predominance of Attica in the "new economy" sectors compared to Central Macedonia. The intensity of employment in the "clothing, textile, machines-appliances" sectors and the predominance of those sectors in the sectarian structuring of Central Macedonia is maintained both in the 1988, 1994 estimates and in the 1998 and 1999 employment surveys. The differentiation of remuneration between the men and the women of Central Macedonia and Attica compared to the national average of each sector reveals that the intensity sectors provide better remuneration regionally both due to higher demand and to the need of specialised employees. Finally, both Attica and Central Macedonia have a comparatively higher regional GDP as to Greece, Attica prevailing (74% of the average EU GDP) over Central Macedonia (68% of the average EU GDP), which is very close to the country average (66% of the average EU GDP). The individual conclusions for each of the index categories are mentioned in the following paragraphs in the detailed text.

1.1. NUMBER OF OUTLETS AND AVERAGE ANNUAL EMPLOYMENT

1.1.1. OUTLETS (1988)

1.1.2. AVERAGE ANNUAL EMPLOYMENT (1988)

1.1.3. ENTERPRISES (1994)

1.1.4. AVERAGE ANNUAL EMPLOYMENT

1.2. 1994 TURNOVER

1.3. NUMBER OF EMPLOYEES

1.4. REMUNERATION

1.5. REGIONAL R.D.P.

SECTION 2. MANPOWER (EDUCATIONAL INDEXES)

In this module we present the data concerning the educational level of the inhabitants of the country according to the 1991 census, as well as data concerning the specific university education specialities. The overall picture of the regional distribution as to the educational level indicates that Central Macedonia is identified with the total of the Country, whereas Attica is differentiated, displaying a generally higher educational level. This conclusion can partly be explained by the presence of a semi-urban and rural area along with the urban area of the Thessaloniki City Compound in a ratio that depicts the ratios applicable to the entire country, compared to Attica, which is dominated by the urban area of Athens and Piraeus. Out of the total of the tertiary education graduates, the graduates of "innovation"

departments, that is to say departments mainly supplying the "new economy" sectors according to the 1991 census, were close to 12% (approximately one out of eight). This percentage is the same for the total of the 2001 tertiary education freshmen. So, in practice, at the level of educational policy planning, there is no orientation toward the "new economy" sectors. At a regional level, the percentile distribution today pretty much follows the occasional founding of regional institutions. Thus, today the percentage of positions in Attica and Central Macedonia (out of the total of positions in Greece) is 50% the respective position percentage of 1991. At the same time, as far as the "innovation" departments are concerned in particular, almost the total of their graduates (90% for Attica and 80% for Thessaloniki) remained at the seat of the Institution from which they had graduated. Particularly for the Central Macedonia HEI, one out of eight of their graduates comes from an "innovation" department (much the same as for the total of the country). What is interesting is that this percentage is doubled at a Postgraduate Degree level (one out of four) and remains the same at a Ph.D. level (one out of eight). This indicates the regulatory role of the innovation departments as to the labour market demand for innovation departments specialised graduates at a Postgraduate Degree level. Finally, innovative enterprises in general do not consider the level of experience of the existing manpower adequate (95%), while they question the level of knowledge and the degree of specialisation since approximately 25% deem that the manpower is adequate as to these features. The individual conclusions for each index category are mentioned in the following paragraphs of the detailed text.

2.1. EDUCATIONAL LEVEL

2.2. TITLES OF STUDIES IN SPECIALITIES OF ENGINEERING AND INFORMATION TECHNOLOGIES

2.2.1. FRESHMEN OF 2001

2.2.2. PLACE OF RESIDENCE AND GRADUATION HEI

2.2.3. TERTIARY EDUCATION IN CENTRAL MACEDONIA

2.3. MANPOWER ASSESSMENT

SECTION 3. STRENGTHS

In this module, the strengths of the region as an environment supporting the enterpreneurial activity is expressed by illustrating the position of the enterprises as to the potentials and the investment opportunities, the investment plans of Law 2601/98 and the analysis of the imports and exports per country (intracommunitary trade) and per customs station in Greece. All in all, one third of the "traditional" sectors enterprises and one fifth of the "new economy" sectors enterprises give a positive assessment of Central Macedonia as to the funding possibilities for innovation, as to the collaboration possibilities and as to the entrepreneurial environment. The individual data as to those components are mentioned in paragraph 3.1. As was expected, 10% out of the total of the investments according to 2601/98 goes to Central Macedonia, whereas in the context of the RIP projects related to the development of innovation infrastructures have received funding.

Finally, throughout the imports – exports we see the sectarian structuring of Central Macedonia along with the structuring of employment in the same region. It is interesting to see that there is a positive balance in agricultural and clothing products, while the export to import ratio is close to 60% for Central Macedonia, 33% for Attica and 45% for the Entire Country. The individual conclusions for each index category are mentioned in the following paragraphs of the detailed text.

3.1. ASSESSMENT OF CENTRAL MACEDONIA, THE POSITION OF THE ENTERPRISES

3.2. INVESTMENTS

3.2.1. PRIVATE PRODUCTION INVESTMENTS INTEGRATED IN THE NEW DEVELOPMENT LAW 2601 / 98

3.2.2. OTHER INVESTMENTS IN CENTRAL MACEDONIA

3.3. IMPORTS – EXPORTS

3.3.1. IMPORTS – EXPORTS PER REGION

3.3.2. IMPORTS – EXPORTS FOR INTRACOMMUNITARY TRADE COUNTRIES PER COUNTRY AND PER SECTOR

3.3.2.1. PER SECTOR

3.3.2.2. PER COUNTRY

SECTION 4. TECHNOLOGICAL RESOURCES

In this module, we present the data concerning the funding of the Tertiary Education for Scientific and Technological Research, the data concerning the funded research projects conducted at the AUTH and the State Expenditure on Scientific and Technological Research at regional level. There are no notworthy variations as to the funding of tertiary education. The Institutions of Athens and Thessaloniki are above the national average per student and freshman, while the HEI of Thessaloniki display a 10% negative variation from the national average as regards their personnel. Respectively, the State Expenditure on Scientific and Technological Research displays no particular variations. Finally, the analysis of the research projects at the AUTH has indicated that the percentage that is corporate funded is minimal (2,5%). Financing comes almost exclusively by public bodies. The individual conclusions for each index category are mentioned in the following paragraphs of the detailed text.

4.1. TERTIARY EDUCATION FUNDING

4.2. STATE EXPENDITURE ON SCIENTIFIC AND TECHNOLOGICAL RESEARCH

4.3. RESEARCH PROGRAMMES AT THE ARISTOTELIAN UNIVERSITY OF THESSALONIKI (AUTH)

SECTION 5. INNOVATION

In this module, we analyse the position of the enterprises as to Central Macedonia as environments for the development of innovation, as well as the data concerning the industrial innovation patents, the expenditure on research and development (G.S.E.T.) and the data concerning the laboratories of the AUTH providing the relative services.

These four subsections present the development environment that is integrated with the respective data in module 7 concerning the electronic infrastructure for the transfer of technology and innovation, and in module 4 concerning the data for the funding of research.

In general, the enterprises of Central Macedonia believe that the infrastructures do exist (university departments, research centres, institutes, organisations), that organisations such as the G.S.E.T. and the O.I.I. should relocate part of their activities to Thessaloniki, and at the same time deem that their linking with the existing infrastructures is inadequate. This dictated the need to diffuse the outcomes of research and the need for a communication system between institutions and enterprises. As far as patents are concerned, the relative figure for Greece compared to the European Union is 2,5 (with an EU average of 111,1). The analysis of the data regarding the expenditure on scientific and technological research indicates that there is no linking or communication between the public and the private sectors. Between 1995 and 1997 there is a remarkable percentile change in this linking, a change which – if maintained – will form a trend in their communication. Finally, the above is farther supported by the fact that only 10% of the research projects conducted at the AUTH refer to the provision of services. The individual conclusions for each index category are mentioned in the following paragraphs of the detailed text.

5.1. ASSESSMENT OF CENTRAL MACEDONIA AS AN ENVIRONMENT FOR THE DEVELOPMENT OF INNOVATION

5.2. PATENTS

5.3. GROSS DOMESTIC EXPENDITURE ON SCIENTIFIC AND TECHNOLOGICAL RESEARCH (GDESTR)

5.4. AUTH LABORATORIES FOR THE PROVISION OF SERVICES

SECTION 6. ENTREPRENEURSHIP

In this module, we refer to the stock exchange indexes that monitor the course of the ASE listed hi-tech companies (6.1) and the special indexes that ensue upon analysis of the financial data from the enterprises of the sectors that are being observed (6.2).

As regards the innovation enterprises, their course was much along the same path as the stock exchange climate in Greece and the international scene.

The data for the processes conducted in module 6.2 come from the ICAP database and refer to the most powerful companies in the sectors (***at least 10 employees and at least 250 mil. GDR turnover for 1999***). In general, they verify the conclusions of module 1 (sectors and employment). The individual conclusions for each index category are mentioned in the following paragraphs of the detailed text.

6.1. ENTERPRENEURSHIP

6.1.1. GREEK INNOVATION COMPANIES AND THEIR COURSE IN THE GREEK STOCK EXCHANGE MARKET (ASE) 1998-2000

6.1.2. THE COURSE OF INFORMATION TECHNOLOGIES AND HI-TECH COMPANIES IN THE GREEK STOCK EXCHANGE MARKET

6.1.3. THE COURSE OF TELECOMMUNICATIONS AND MOBILE TELEPHONY COMPANIES IN THE GREEK STOCK EXCHANGE MARKET

6.1.4. THE COURSE OF INNOVATIVE FINANCIAL COMPANIES IN THE GREEK STOCK EXCHANGE MARKET

6.2. ECONOMIC INDEXES

6.2.1. NUMBER OF ENTERPRISES

6.2.2. SALES (Turnover)

6.2.3. PRETAX PROFITS

6.2.4. PRETAX PROFITS TO SALES TOTAL

6.2.5. PRETAX PROFITS TO OWN CAPITAL AND LONGTERM LIABILITIES

6.2.6. OWN CAPITAL TO OWN CAPITAL AND LONGTERM LIABILITIES

6.2.7. PRETAX PROFITS PER EMPLOYEE

SECTION 7. INFRASTRUCTURES

In this module, we analyse the data concerning the position of the Central Macedonia enterprises regarding the information technologies and telematics infrastructures in the region. The illustration of the relative infrastructures is presented, along with their intention of developing relative infrastructures. Approximately one out of four of those enterprises believes that the information technology and telematics infrastructures are adequate, one out of three has respective infrastructures and one out of three has every intention of developing the relevant infrastructures.

The general indexes concerning the use of information technologies and telematics by the enterprises and the general population are also recorded. The individual conclusions for each index category are mentioned in the following paragraphs of the detailed text.

7.1. THE POSITION OF THE ENTERPRISES

7.2. GENERAL INDEXES