

RURENER

Network of small
RURal communities
for ENERgetic-neutrality



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*Case study report:
Profile of Keratea Municipality, Greece*

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1. Geographical, climatical position

Situation: Central Greece, Attica region, South-East department of Attica, known as Layreotiki. Layreotiki

Mean Altitude: The seat of Municipality is found in its north-west part in height of 200 metres from the surface of the sea, between mountain Paneio or Pani (altitude 648 m. in the place Keratoboyni) and the elevation Fanari (or Fanosi, 313 m.).

Area: The total extent of the Municipality of Keratea is roughly 12.900 hectares (129 square kilometres approximately).

Inhabitants: 13.246 inhabitants (2001 census).

Population density:

Biggest city close to Keratea: Keratea lies about 41km South-East from Athens

Surroundings environment: Keratea consists of 58 settlements. The Municipality occupies ground that is basically mountainous in all its extent. The total length of Keratea's coastlines is 21 Km. The older archaeological discoveries which testify the existence of people in the region of Keratea are dated from the Mycenaean era (1600-1100 BC). Up until the last few decades, Keratea was mainly an agricultural region, but nowadays it is developing a strong service industry as it belongs to the Greater Athens Metropolitan Area. Its location along axons on new Attica road, and its proximity to the new Athens airport aswell as the important harbour of Lavrion, is creating many socioeconomic and employment opportunities for Keratea. A part of the population is still rural.

1.1 Land use.

The region of Keratea with a total area of 12,900 ha during 1985 includes cultivated land and fallow (3,400 ha), 7,000 ha pastures, forests 2,200 ha, settlements and facilities 600 ha and areas with water or other uses of 200 ha.

By 1985 the decline in agricultural land is 4 times greater than the decline suffered in the country. On



Illustration 1: Satelit vue of Keratea, Source Google Earth

the contrary the surface of the residential areas grow.

Particular rural area inundated by scattered buildings, whose very low density is not sufficient to bring the character of the village.

1.2 Resources for energy

Natural gas grid

From the area, then main gas pipeline is passing with a length of about 14Km in order to feed the Public Power Corporation Plant near Lavrio.

CRES wind park

The Greek Centre for Renewable Energy Sources (CRES) has developed its own 3 MW demonstration wind farm. The wind farm of CRES is situated in Lavreotiki, SE Attica (Municipality of Keratea), adjacent to its older wind turbine Test Station. It operates in a complex terrain site including hills up to 120m high above sea level and coastal regions. The total budget for the project was 4.12 M€ and was wholly financed by the Operational Programme for Energy of the Greek Ministry of Development. The annual income from electricity sales amounts to 440 k€. With an annual mean wind speed of 6.7m/sec at the site, it is expected that the five wind turbines will produce 7.6 GWh of electricity per year, which is equivalent to 2000 TOE and 6,000 tons of CO₂.

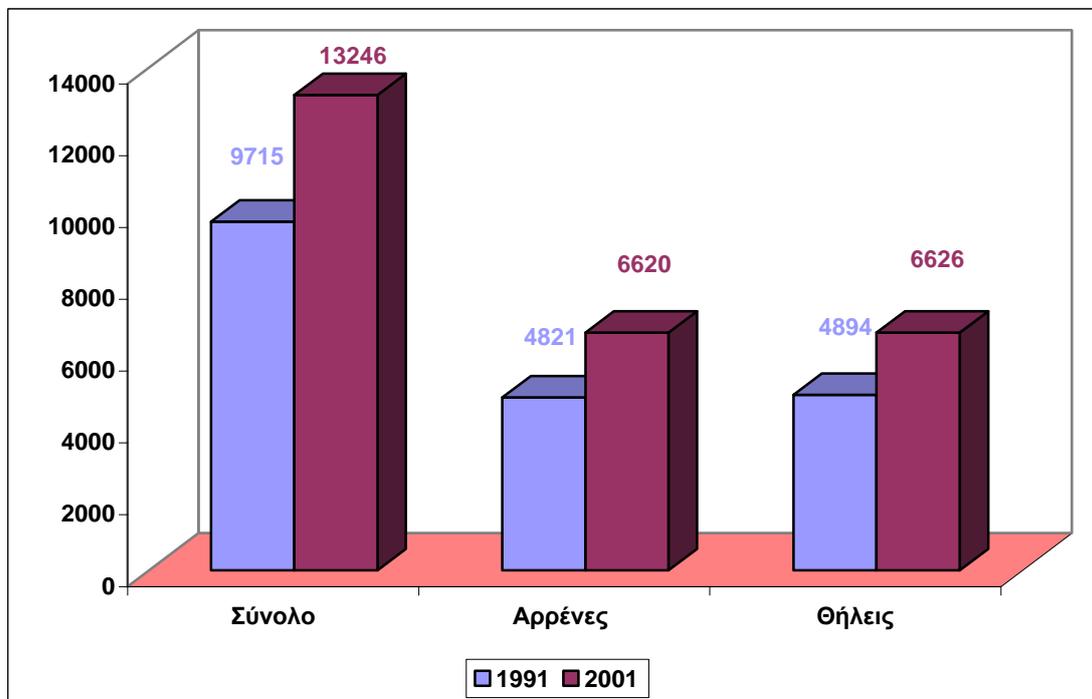
Resources for energy

- Strong sun shining and wind potential in some cases
- Low capacity for small hydro plants

The area has a potential for RES and ES applications like PV installations, bioclimatic design applications, sustainable development initiatives.

2. Inhabitants and activities

The following diagram shows the evolution of the population in Keratea Municipality during the period 1991-2001.



Data Source: General Secretariat of the National Statistical Services of Greece

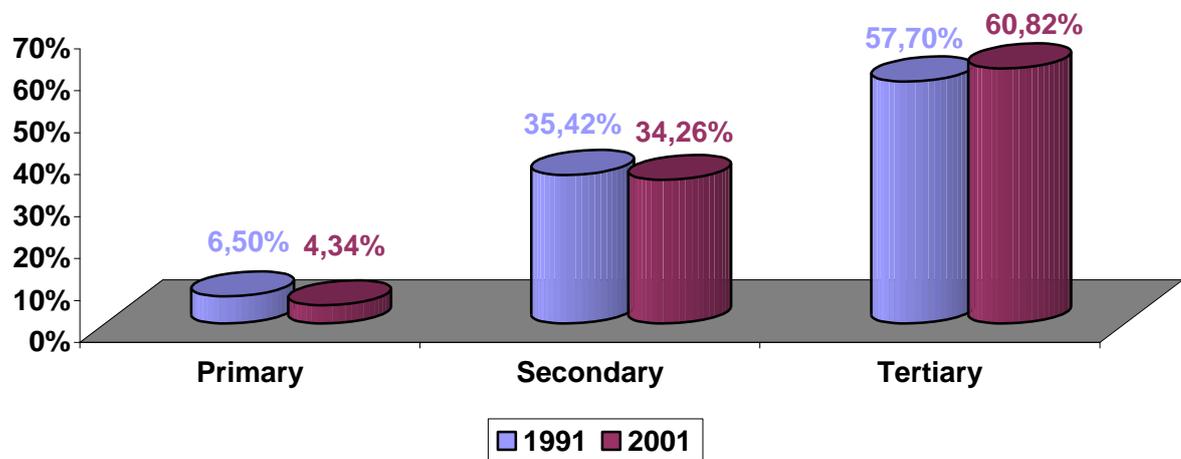
The main feature of the Region of Attica is the movement of the employment to the tertiary sector. Similar trends occur in the Municipality of Keratea as the economically active population is mainly concentrated in the tertiary sector (from 57.7% in 1991 increased to 60.82% in 2001).

The economically active population which concentrated in the primary sector is 4.34% of the total population for the year 2001. This rate is higher than in the Region of Attica (1.28%), while showing a decrease compared with 1991 figures (6.50 in 1991).

In the secondary sector involved 34.26% of the economically active population. Over time, a reduction of the participation of the population in the secondary sector occurs and from 35.42% in 1991, fell to 34.26% in 2001. The same phenomenon occurs in Attica Region too (from 23.79% in 1991 to 22.15% in 2001).

Finally, the tertiary sector showing the largest percentage of economically active population of the municipality of Keratea. Over time, employment in the tertiary sector in the municipality Keratea rise from 57.70% in 1991 to 60.82% in 2001. The upward trend in the Municipality (3.12%) can be easily explained by the growth that occurs at the regional level, which is around 1.65% at the same period.

The following diagram shows the evolution of the employment in Keratea Municipality during the period 1991-2001.



Data Source: General Secretariat of the National Statistical Services of Greece

3. Rational use of energy

Municipality of Keratea wants to work further to the direction of energy saving and energy production from RES and it is still in the beginning of undertaking such actions. The regional action plan in Keratea will focus mainly on RES, Energy Saving applications and Energy Efficiency (e.g PV installations and autonomous electricity producers using RES, Energy Saving in the Industrial, tertiary sector, public buildings).

3.1 Mobilization of the population

The Municipality of KERATEA and its representatives know every actor at a local level and have “access” and support to/from them (eg. Citizens/householders, schools, farmers, SME’s, enterprises, energy policy makers, RES developers, market actors, investors, technology providers, energy companies, NGO’s etc). CRES as the Greek National Energy Centre will support the Municipality with its networks at a local, regional and National level.

During the first project stages the different type of stakeholders will be identified mainly by the Municipality of KERATEA with CRES support. Stakeholders mobilization will be achieved with the involvement of the stakeholders from the very beginning through regular communication, exchange of ideas, knowledge and motivation and meetings at local level.

Moreover, a local Energy-day will be organized to gather and inform the stakeholders. During the first months of the project implementation the exactly time of the Energy-day will be decided and the number and place of meetings will be determined by CRES and Municipality representatives

Till now there is no specific mobilization of the population.

4. Legal framework and public policies

In Greece like in the most other OECD countries the energy sector is one of the most dynamic and important of the economy. Beyond that, the production, consumption and general the energy management at national level has become one of the most prominent issues of our times.

Even though many of the market reform laws required by the EU are now in place, the market power of the incumbent energy suppliers still continues to restrict competition. Unless this issue is addressed, a fully competitive energy market is inconceivable and the potential benefits that consumers could derive will be significantly diminished. Of particular concern are the arrangements for ownership of the electricity and gas transmission systems.

Another challenge is the rise in CO₂ emissions. As the country’s energy needs are increasing, the greenhouse gas (GHG) emissions are already very close to the 2010 Kyoto target of 25% above 1990 levels (+23.5% in 2003).

Lignite, the main domestic fossil fuel resource of Greece, will continue to play a major role in the country’s fuel mix in the future. Greek renewables development is positively affected by the country’s very good resource potential.

Greece's primary development in new renewables is in the wind sector, but care has been taken to ensure that other renewable sources are developed where they provide an economical alternative (provisions of the new Law 3438/2006).

A serious barrier encountered by renewables development in the past was a long licensing process of at least two to three years, tackled by the new law on renewables. The new law for the promotion of electricity production from RES was passed in Parliament in June 2006. The new regulatory framework provides for a simplified licensing procedure for the installation and operation of RES systems, a new set of prices for electricity produced from RES, with increased prices for power generated by photovoltaic and solar systems.

Furthermore, The Greek Minister of Development, on 4th of June 2009, signed the Joint Ministerial Decision for the free PV installation projects till 10 KWp, in houses and business buildings. The program will be last till December 2019 and the owner of the building will sell the excess electricity to the grid in a higher price than he pays for each KWh

Programme "EXOIKONOMO" (SAVE). The programme refers to the improvement of energy efficiency in municipal plants, is a 100-million-euro energy saving programme to be implemented in 228 municipalities nationwide, with a population of over 10,000 people each

5. Analysis of strength, weaknesses, opportunity and threats

In the framework of the “OPERATIONAL PROGRAMME OF KERATEA MUNICIPALITY” the SWOT analysis was applied in order to identify in the first stage the strengths, weaknesses, opportunities and threats of the region. This analysis is valuable for the purposes of RURENER project as it can be the basis for further evolution.

SWOT analysis for Natural Sources - Energy

Thematic area: Environment and Quality of Life	
Topic: Natural sources - Energy	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Presence of significant ecological sites (beaches, hills) • Good soil quality in the area • Public Power Corporation Plant • Pass of the main gas pipeline through the area • Existing recycling programmes • Composting programmes under preparation • Public acceptance and participation in the recycling programmes 	<ul style="list-style-type: none"> • Low use and penetration of RES and ES in the Municipal buildings and cars. • wastage of drinking water for local irrigation of green spaces • Adequacy of drinking water especially during the summer months • Forest fires • Pressure to the ecosystems due to arbitrary construction • dramatic reduction of agricultural land
Opportunities	Threats
<ul style="list-style-type: none"> • Use of RES in several applications (PVs). • Use of natural gas in all the settlements • Hills reforestation • Use of bioclimatic design 	<ul style="list-style-type: none"> • Forest areas burns for new housing purposes • Sea pollution from the sewage disposal of the settlements • Declining of the agricultural land

Crucial issues of local development

1. Restoration of the river banks vegetation
2. Reforestation
3. Forest protection form fires
4. Water recycling
5. Drinking water management
6. Use of RES
7. Energy Saving
8. Conservation of the agricultural land with adaptation of best available techniques
9. Building regulations and building in already urbanized settlements
10. Necessity for environmental awareness – education of the public in the meaning of energy saving, bioclimatic design and sustainable development.

Annex : position

