

Legal Integration and Environment Upgrading of Unplanned Development

Chryssy A Potsiou, Katerina Dimitriadi

School for Rural and Surveying Engineering National Technical University of Athens

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ABSTRACT

Some countries, for the sake of well-functioning sales and mortgage/credit market and a desired economic relief, have made several major attempts to legalise informal settlements. Greece has only legalized illegal buildings after the integration of unplanned settlements into an urban regeneration project. The legal and planning tools used in Greece in order to integrate unauthorized buildings constructed illegally in the suburban, usually rural, land to a formal status are briefly described. Relevant information, examples and statistics derived from a recent research made by the authors, in cooperation with the local authorities and the private surveying company responsible for the urban regeneration of the unplanned developed areas in the municipality of Keratea, in the greater region of Athens, are provided. The difficulties, the various types of informalities, examples and lessons learnt through an analysis of the existing situation and the tools used for its upgrade are presented. Comments and recommendations useful for Greece but also for other countries facing similar problems are given.

1. ECONOMIC AND ENVIRONMENTAL IMPACT OF RAPID INFORMAL URBAN SPRAWL

Approximately 50% of the world's population lives in cities. City centers have always attracted those desiring for jobs, education, and better living conditions. Much of the world's current urban expansion is caused by migration of the poor in unprecedented numbers. This

situation is found mainly in low or middle income countries resulting in an overwhelming of the settlements' capacity. Rapid population increases lead to rapid informal urban development (UN ECE WPLA, 2007). Informal, unplanned, or unregulated urban development causes additional social and environmental problems. These problems are added to a general environmental burden caused by increased market pressure, due to the global competitiveness among countries, business and individuals in search of greater economic wealth.

Rapid urban development leads to a series of environmental issues the most important threat of which may be global climate change. Greenhouse gas emissions, one of the major factors responsible for climate change, have been increased 70% between 1970 and 2004. Much of that is due to growth in the sectors of energy (+ 145%), transportation (+120%) and industry (+ 65%), and to the reduction of forest land and land use changes (40%) (Wilbanks et al, 2007). Current sustainable development policies are directed at practices leading to climate change, and much research is being carried out to provide appropriate policy options for the sectors of energy supply, transportation, buildings, industry, agriculture, forestry and waste management.

Due to a rapid population increase, immigration or influx of internally displaced people, unplanned or informal suburban development is an increasing problem even in the European region, especially in countries in transition (UN ECE WPLA, 2007). The considerable loss of national revenue through transaction fees and real property taxation, and the economic impact due to non functioning of mortgage and credit markets (Andoni, 2007) has lead to massive legal reforms and legalization projects concerning informal urban development. For similar reasons, many developing economies in the region apply flexible or poor environmental regulations for their productive units in order to achieve competitive advantages in production, and attract international investment.

Legislation and regulations for water supply, sewage treatment, control of air, water and soil pollution from industry and traffic; control of radioactive and toxic substances storage and garbage management; garbage management, sanitarian garbage burial, and studies of the environmental impact of each large development project are in the agenda of the authorities in most areas within the European region and worldwide. Such legislation however, cannot

always be efficiently applied and relevant services cannot be appropriately planned and provided without the necessary legal framework for the provision and dissemination of reliable and updated relevant spatial information. Markets cannot function efficiently without a reliable system to secure land tenure and a zoning and planning system to define the regulations concerning private rights to use the land and natural resources. Restrictions on private rights in the use of land in terms of air, soil and water pollution have to be defined, clarified and accepted by all market participants (state, individuals, funding institutions, entrepreneurs, etc) and applied equitably. All must assume the costs of the natural resources they consume, knowing that their competitors do the same (Economic Studies Division of Alpha Bank, 2007). Otherwise, when ownership and the right to use land and natural resources are not clear, market operation is ruled case by case, with the risk for increased bureaucracy, complicated and conflicting administrative, but also judicial, decisions.

In Europe, spatial information infrastructure is provided mainly by the cadastral, planning and land development permitting authorities and it is the fundamental tool for sound decision making and provides for the management of land in a holistic way (Enemark, 2007). The most advanced countries in the region of Europe possess considerable experience in cadastre and spatial planning, and have established a close interrelationship between land-use regulations and records, using the cadastral systems (UN ECE WPLA, 2005). However, in several areas within the European region, increasing cases of unplanned urban development, squatting on private and public land and informal operation of markets have been detected. In such areas, legalization of informal ownership and land-use rights may be required to support the economies; environmental concern in such massive reforms, though, is of equal importance and of urgent significance.

2. THE SITUATION IN GREECE

Since the 1920's Greece has experienced the problem of massive migration and informal urban development for political and social reasons, mainly because Greek residents in Asia Minor were expelled to Greece, in 1923. Since the establishment of the Hellenic state the System for the Registration of Property Rights for the Transfers and Mortgages was established to secure land tenure and to support land development and the real estate market. Additional measures, like privatization and distribution of public land to the homeless and to

refugees aimed to eliminate massive squatting on public or private land, and the first Housing Law (1923) introduced the requirements and the procedures for urban planning and implementation of city plans, aiming to control informal land development due to the rapid population increase. Despite these early successful initiatives, unplanned development continued during the 1950s usually at the urban fringe of major cities and towns, due to population movement from rural to urban areas (seeking better living conditions after WW II), the lack of affordable housing policy and the general social and economic conditions in Greece. Through the following years, Greek legislation was improved with several Laws for spatial and urban planning and with several zoning regulations and restrictions related to land development and cultural and environmental protection (Potsiou & Ioannidis, 2006).

In brief, spatial planning must be regulated by the 13 General Regional Development Plans which define the zoning regulations in each one of the 13 regions of Greece, and the Regional Special Frameworks which define the special uses for the various sectors within the region, e.g., coastal zone, tourism, industry, etc (Potsiou & Apostolatos, 2006). Accordingly, urban planning for settlements larger than 2,000 inhabitants must be regulated by the Planning and Environmental Protection Plan, the “General Urban Plan”, which defines the zoning regulations within the planned urban areas of the municipality, and the detailed “city plan” for each urban area. The compilation of the above regulatory plans (including their changes or extensions) is commissioned to the private sector under the responsibility of the Ministry for the Environment, Physical Planning and Public Works, with the participation of local and regional authorities; the final control of all relevant Ministerial Decisions and Presidential Decrees has to be made by the Council of the State.

Any new land development must be planned according to the above regulations; in case such plans do not exist they must be prepared before new development may proceed. For the compilation of the city plan a cadastral survey and other auxiliary studies are also needed. For the implementation of the city plan, the land owners have to contribute with:

- land; for the creation of the necessary common use land for open space and public services such as public schools, clinics, parks, athletic installations, etc, and
- money; as a small contribution to the costs for land improvements and services provision.

For that reason a rearrangement of the land parcels in terms of location, shape and size is imposed (Potsiou & Mueller, 2007). Construction in areas outside the ratified city plans is permitted unless otherwise regulated. Since 1923 the minimum requirements are, parcel size larger than 0.4 ha and access to common-use land. Since 2003 there must be frontage on common-use area larger than 25m, land coverage (building footprint) less than 10%, building setback 15m.

Until today, environmental protection in Greek legislation is based on Article 24 of the current Constitution of 1975, as revised in 2001, and a series of relevant laws and judicial decisions of the Council of the State, European Union legislation and relevant international law and conventions (e.g., Habitat Agenda 21). The basic strict principles that rule the Council of the State's decisions are (Dekleris, 2000):

- Any development of land which may damage the environment is not considered to be “sustainable development”, and is not a-priori permitted
- All land which has been forest or areas of equal ecological value with forest vegetation (like areas with wild bushes and sporadic trees with a density of their canopy ground projection larger than 25% of the area), as of 1945, is characterized as “forest” and is protected by the Law. Control starts from 1945, which is the earliest air photo series of the country.
- A coastal zone buffer, of up to 50 m in width, is considered to be common-use, public land. The length of the coastal line in Greece is approx. 13,000 km (measured at a scale of 1:50,000) and includes the seashore length and the coastal line around lakes and rivers.

According to the Constitution “forest” land may be partially deregulated only if there is a need for another land-use of “vital importance” for the national economy. However, such needs are not clarified in the Constitution; the Court of the State does not consider residential, industrial or tourist uses as vital needs, crucial for the national economic growth. It should be noted however, that the population of Athens in 1945 was less than 1,000,000 citizens, while today it is approximately 4,000,000 (Census 2001). There are some serious weaknesses in the way the Council of the State understands and applies the above principles. Since no expert detailed cost-benefit studies are required to justify the decisions taken by the Council of the State

related to the possible environmental impact of each proposed development of land, such decisions are taken simply by judges who usually exaggerate the value of environmental sustainability for the future generations. This has resulted in a rejection of numerous proposals for investment in land; rejection of some proposed legislation and of many spatial and urban planning studies compiled by the Ministry for the Environment, Physical Planning and Public Works and / or the local authorities; and rejection of integration of many new areas into the city plans. During the last 20 years, important city plans, studies for allocation of industrial areas and sanitary garbage burial, plans for development of large tourist areas, etc, have been rejected as not complying with the Constitution, since they were planned to be located in areas which had been forest land in 1945 and /or later.

The total area size of Greece is approximately 131,000 km². According to the Statistical Service of Greece, the existing situation is: urban land 5,300 km², which includes areas with or without a city plan; rural land 35,000 km²; pastures 52,190 km²; and forest land 29,400 km². Almost all forest land and the coastal zone is considered to be public land, where development is prohibited. In addition, there is a large percentage of the privately owned land all over Greece, in various use categories, where development is prohibited due to its great cultural heritage, historic and archaeological value, or its special natural beauty.

2.1 Impacts of informal development and problems in the upgrading procedures

The difficulties and delays in expanding or making new city plans (Potsiou & Mueller, 2007) have frequently led to:

- dense use of urban areas which have city plans, and
- unplanned development of rural land at the urban fringe for the purpose of first residences, but also in areas with a high market demand like coastal areas and recreational resorts. Construction in such areas is often of good quality and on privately owned land.

The illegal nature of such construction is associated with the lack of city plans, illegal subdivision of rural land parcels, lack of building permits, or exceeding the limits imposed by building permits issued legally for rural parcels. The most common examples of informal construction where there are city plans, due to the dense use of land, are related to violations

of building and urban planning regulations, such as construction of extra rooms or excessive land area coverage (Dimopoulou & Zentelis, 2007). Such illegalities, in Greece, usually comply with the structural and other building regulations and are of acceptable quality. Recently the responsible Ministry is considering the possibility of legalization of some of such informalities within the city plans. Unfortunately similar situations in other countries have led to multi-story unauthorized constructions, which do not follow the safety standards; such constructions cannot be easily deal with (UN Habitat, 2003).

In total it is roughly estimated that there are one million informal buildings in Greece, most located in rural or “forest” land at the greater regions of major cities, e.g., Athens, Thessaloniki and Iraklion in Crete (Potsiou & Ioannidis, 2006). The economic impact created by the loss of permitting fees, loss of real property taxation revenue, problems in marketing and mortgaging projects, and the political and economic impact of a massive demolition is significant. However, the Ministry is strongly opposed to the idea of a massive legalization in such areas. International experience shows that each legalization attempt may create new generation of informal constructions (Panunzi, 2007; Cambanioli, 2007).

Although most informal buildings in Greece are of good quality and do not directly threaten the environment or the public health, the overwhelming of the cities’ capacity created by informal urban sprawl does cause an environmental impact. The most common result is the inadequate provision of services, e.g., mass transportation, and waste management services. Despite the concern and the efforts made by the authorities to provide solutions, the majority of the population in urban areas is accustomed to commuting by private cars, thus increasing air pollution. The more important problem is waste management in the greater region of Athens, and other cities. According to the Ministry for the Environment, there are still about 1,400 unregulated active garbage burial areas in Greece affecting the environment; many are not far from the urban fringe.

Despite strict legal procedures and existing regulations, it is still difficult to protect the forest or coastal public land. Much of the problem is created by the lack of reliable maps, lack of funds (since no investments on land development are usually allowed in such areas), bureaucratic public administration, and rapid population migration from rural to urban areas for employment and better living conditions. Since 1995 forest fires have destroyed

approximately 5,350 km² of forest land of which only 6% has been replaced. As recently as 2007 more than 2,000 km² of forest land were burnt and villages, causing the death of 70 people (Figures 1 & 3). Usually such fires start from dry, neglected rural land or forest land of lower ecological value. Informal development makes the risk management task more difficult since there is no spatial information available in such areas; informal construction is rarely mapped. Informal development rarely takes into consideration the geological characteristics of the land. In unplanned urban areas natural streams and temporary rivers are often build up resulting in floods and loss of properties from heavy storms (Figure 2).



Figure 1. Satellite image of fires in south Greece, August 2007



Figure 2. Flood in unplanned urban area



Figure 3. Burnt villages in Greece, August 2007

Legalization of informal settlements has been achieved in Greece only through their integration into a city plan, compiled under the responsibility of the local and central authorities, with a contribution from the private sector and accompanied by simultaneous provision of environmental improvements and services. In fact, it is a pre-requisite that the city plan will be compiled and implemented in the area before any legalization may take place.

Due to the three main Laws referring to informal development (Law 1337/1983, Law 3212/2003, and Law 9732/2004), there are three categories of informal constructions according to their construction year:

- Those constructed until 31.1.1983 (when urban regeneration projects started); these constructions may not be demolished.
- Informal buildings constructed between 31.1.1983 and 5.3.2004, must be obligatorily demolished. In addition two types of penalties are applied: the “informal construction penalty” and the “conservation penalty” which is an annual assessment paid until the year of demolition.
- New informal buildings constructed after 5.3.2004, must be obligatorily demolished, but extremely high penalties are applied; for informal buildings constructed without a building permit. The penalty is equal to the value of the building, while for buildings causing great environmental damage penalties are twice the value of the building.

Unauthorized buildings existing in areas that are to be integrated into a city plan (and according to that plan these areas are scheduled to be “built-up” areas) may not be demolished even if not in compliance with the urban planning regulations and restrictions, if they do not cause serious environmental damage or are not dangerous due to structural inadequacy. The ratio of the building footprint area to the land parcel area must be calculated; the floor area ratio must be calculated as well. The owners of such buildings must submit declarations with surveying plans of the land parcel at scale of 1:200, 1:500, or 1:1000. A plan and a cross section of the building at a scale of 1:100 with a brief technical description concerning the construction details and the use of the building and its value are also required. The owners must pay a “specific contribution for informal construction”, the amount of which is calculated to be 10% of the building’s value, and the annual “conservation penalty”. The latter

may be altered however, by a definite exemption decision, into a “once only” conservation penalty. The size of this penalty is scalable according to the percentage of excess to the construction restrictions; it may never be triple the “specific contribution for informal construction”. The exemption decision is made by the Prefect after a positive opinion of the responsible urban planning agency. Finally, the owner must follow a specific procedure in order to acquire a “building permit” to legalize these unauthorized buildings.

Unauthorized buildings can never be legalized if, according to the compiled city plan, they lie: in common use public areas (e., g., roads, squares, etc); within the safety zone of the international, national, regional or municipal road network; within the public coastal zone, as this is defined by the Law; in public lands; in forest lands; within archaeological sites; in the stream routes.

The compilation and ratification of an urban regeneration study, according to the existing legal framework for spatial and urban planning in Greece, for an area which already has informal development, is not an easy task. During the last 25 years areas with informal development have been in the process of integration into city plans. New city plans covering a total area 60,000 ha have been compiled, from which only 25,000 ha have been through the legalization process, with the owners of such illegal buildings being registered into the land registry, named as System for the Registration of Transfers and Mortgages. For that purpose, up to 700 Presidential Decrees have been ratified. Several have been rejected by the Council of the State and the rest are still in process.

One characteristic town within the greater region of Athens, with a long history of informal development, is Keratea, which is the study area for this research. More details about that area, the factors influencing the informal development, the characteristics of illegalities, statistics, examples and problems are given in the following section.

3. THE CASE STUDY IN THE MUNICIPALITY OF KERATEA

3.1. General Information

Geo-morphologically and administratively, the municipality of Keratea belongs in the south-eastern part of Attica, named Lavreotiki peninsula. Since 1951, the total area of the

municipality is 12,520 ha (125.2 km²) (Figure 4), and its total population is approximately 14,100 permanent inhabitants (Census 2001) occupied mainly in agriculture (olive trees, vineyards, vegetables and fruits, cattle raising), hotels/restaurants, services and public sector, but also in construction industry, commerce, and factories for processing of agricultural products. During the major holiday periods and the summer months population increases rapidly up to 68,000. Most of the area is mountainous and rural land with land parcels averaging 0.5 ha in area. Its eastern seashore (20 km long) is abrupt and rocky with one small harbor, four bays and five capes; its western shore (5 km long) is smooth. It consists of the city of Keratea, located at the north-western part of the municipality at 200m above sea level with 8,500 permanent inhabitants, and of 26 smaller settlements. The total number of buildings in the municipality is 15,200 (Census 2001). The first modern rapid population increase and development happened during the period 1971 to 1981, mainly due to the construction of vacation houses. Since the 2004 Athens Olympic Games, a second significant population increase and land development has occurred due to the general improvements made for the Olympics, in the road infrastructure and the construction of the new airport.



Figure 4. The municipality of Keratea in Attica

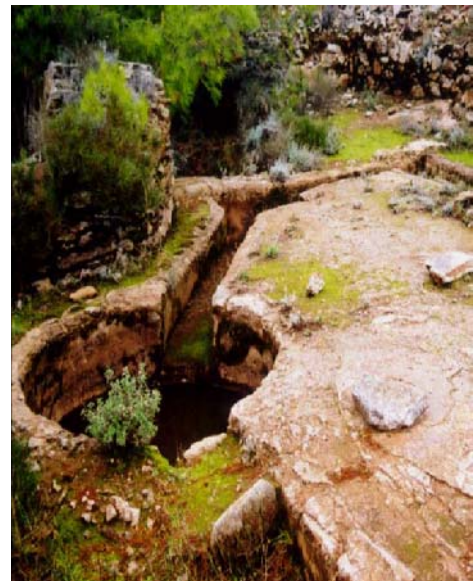


Figure 5. Ancient mines in Keratea
(source: <http://www.geo.auth.gr/miner005/apers/vavidis.pdf>)

The known history of Keratea begins at 6,000 BC. The area was initially inhabited during the first Neolithic period, with a first cultural and population peak during the Mycenaean era

(1580-1100BC), and a second during the classic times (500-100 BC) due to the operation of silver mines. A poor regeneration of some settlements occurred during the Byzantine era (9th and 10th century AD), the domination by the Franks (1205-1456), and the Turkish occupation in 1456, until 1620 when the area was totally destroyed by pirates. Keratea returned to a population peak in 1820, when it was listed among the three well known towns in Attica. Following the Turkish occupation and the establishment of the new Hellenic State in 1830, the administrative structure in Attica region was reorganized and in 1896 Keratea town had 2,543 residents, due to the activity of the silver and iron mines that operated again in Lavrion area. In 1912, Keratea municipality consisted of 17 villages. In 1940, Lavrion and these settlements were bombed, totally damaged and almost abandoned. Due to its long history the total Lavreotiki peninsula is characterized as an “archaeological complex”, which also includes the ancient municipalities of Sounio and Thoriko. The whole area includes visible ancient constructions of good condition, a network of ancient mines (Figure 5), road network, houses, temples, etc. The density, number (approximately 500) and size of ancient installations demand a unified and absolute protection.

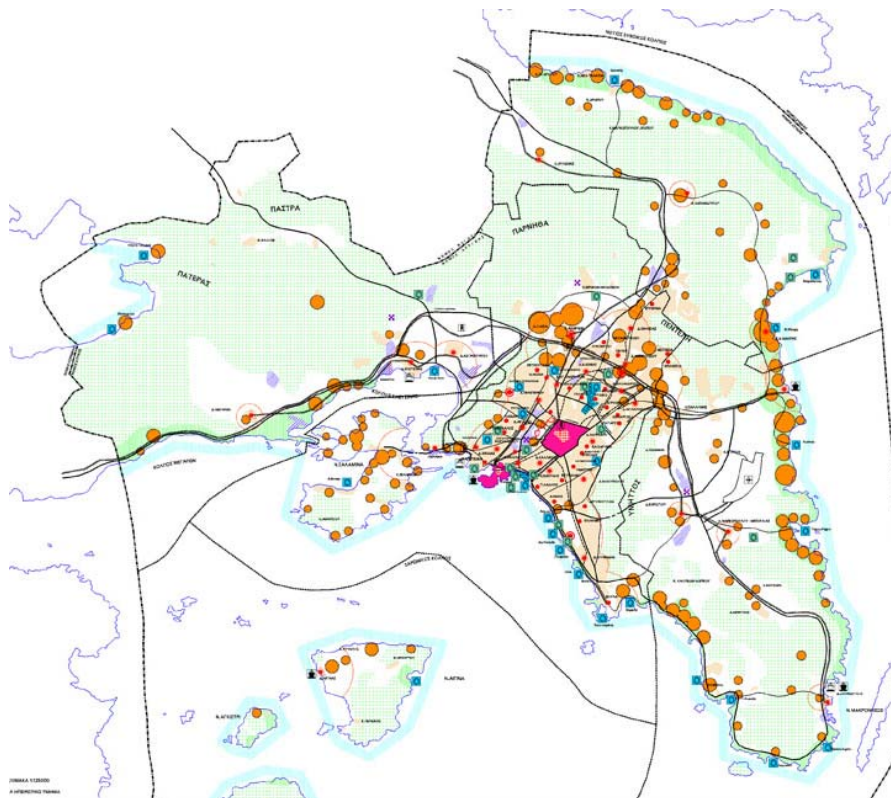


Figure 6. The Strategic Spatial Plan for Attika

3.2. Spatial Planning in the Municipality of Keratea

The series of spatial plans and other legislation regulate land development in the area, are:

- According to the “Strategic Spatial Plan”, as ratified by Law 1515/1985 and amended by Law 2730/1999 (Figure 6), the regional structure of the production sectors in the whole region of Attica (of total area 3,808 km²), the transportation network and other technical infrastructure, land policy and housing, zoning of specific interest or other special problems, environmental monitoring and protection, etc, are defined within the regulations of the “National Framework for Spatial Planning and Sustainable Development” which mapping at a scale of 1:25,000.
- The regulatory plan named “Zoning for Housing Control of Lavreotiki” (Governmental Gazette 125D/1998) (Figure 7), at a scale of 1:50,000, refers to an area of 315 km², including the 5 municipalities (Lavrio, Keratea, Kalivia, Anavissos, Saronida) and the 3 communities (Ag. Constantinos, Kouvaras, Palaia Fokea) that constitute the Lavreotiki peninsula. By this plan land-uses are regulated in suburban areas, outside the city plans, so the area is protected from unplanned development. The demand for suburban activities is channeled to specifically planned areas. Forest land, rural land and archaeological sites are protected; and free space and common land, necessary for a balanced ecology, are provided. Table 1 shows the land-use categories as defined, which are accompanied by variable restrictions in terms of allowed construction and activities. According to the above regulations, the minimum land parcel size, in suburban areas where construction is permitted, is 2 he. For any building permit a necessary approval of the archaeological authority is required. The compilation of this regulatory plan took eight years. During that period all projects for urbanization of new land (through an extension of the General Urban Plan and the compilation of a city plan) were delayed until final approval of the regulatory plan.
- The plan for “Zoning of mountainous areas”, at a scale of 1:50,000, was adopted in 2003 for the protection of the mountains in the region of Attica from urban sprawl, and for their preservation for environmental and recreation purposes. The total protected mountainous area in Attica is 425 km² while in Lavreotiki is 170 km².

- Special legislation has been enacted to protect a number of pre-historic, classical and Byzantine antiquities in Keratea. There is a special legislation which provides separation of new construction from the antiquities, according to regulation.

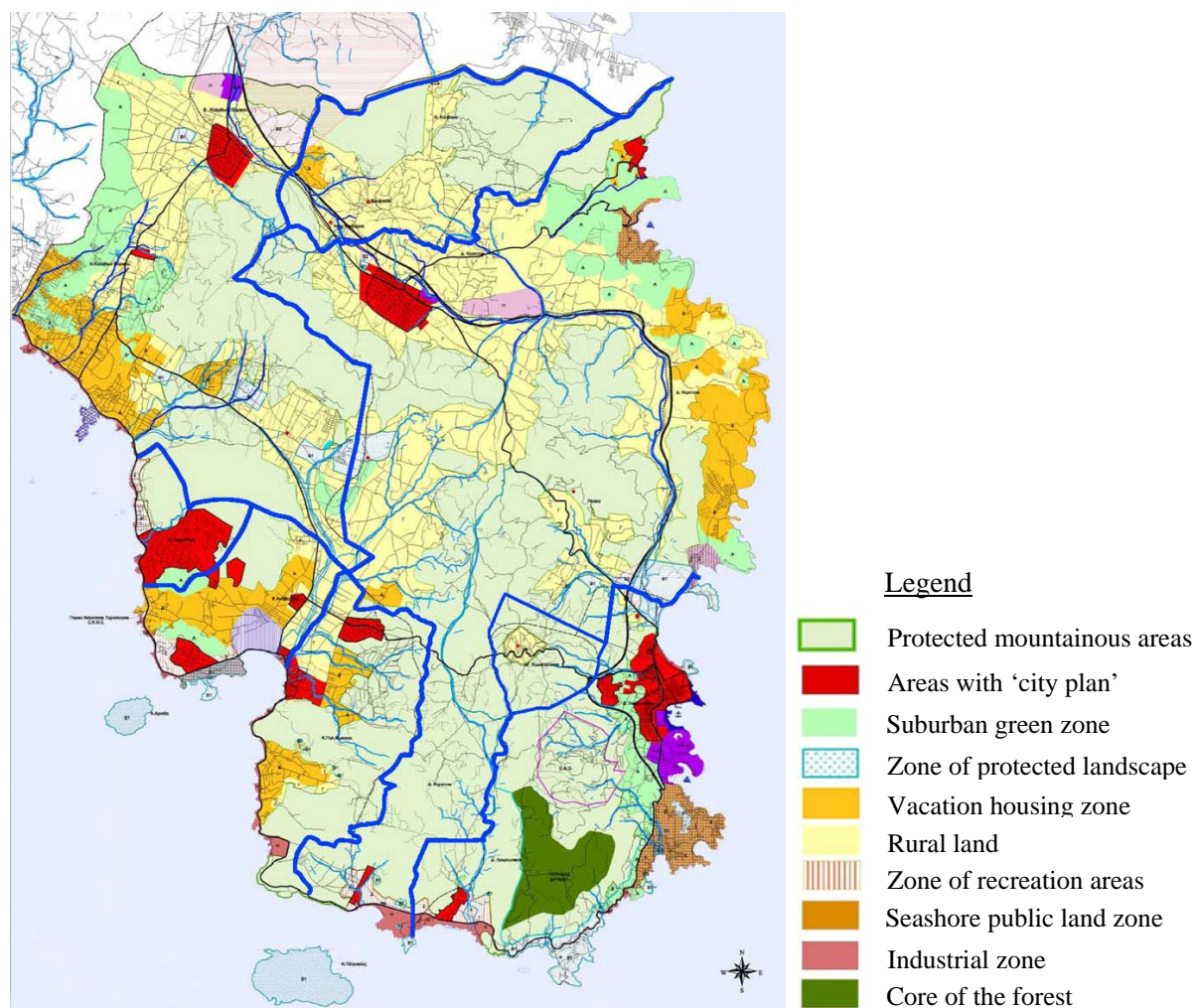


Figure 7. The plan: Zoning for Housing Control of Lavreotiki”

<i>Land use</i>	<i>Area (he)</i>	<i>Percentage</i>	<i>Land use</i>	<i>Area (he)</i>	<i>Percentage</i>
City Plans	491.06	3.92 %	Suburban green	824.17	6.59 %
Vacation zones	861.64	6.88 %	Protected areas	1193.94	9.54 %
Industrial areas	159.73	1.27 %	Rural land	4051.30	32.36 %
Recreation areas	77.19	0.62 %	Mountainous & forest areas	4859.60	38.82 %

Table 1. Classification of the defined land-use categories in the Municipality of Keratea

3.3 Urban planning in the Municipality of Keratea

The urbanization procedure requires the compilation of the “Zoning for Housing Control” in the municipal area (ratified in 1998 for Lavreotiki peninsula) and the “General Urban Plan”, with its defined areas for urbanization, the “cadastral survey”, the “city plan study”, and the “implementation of the city plan”. Figure 8 is a diagram of the urbanization process.

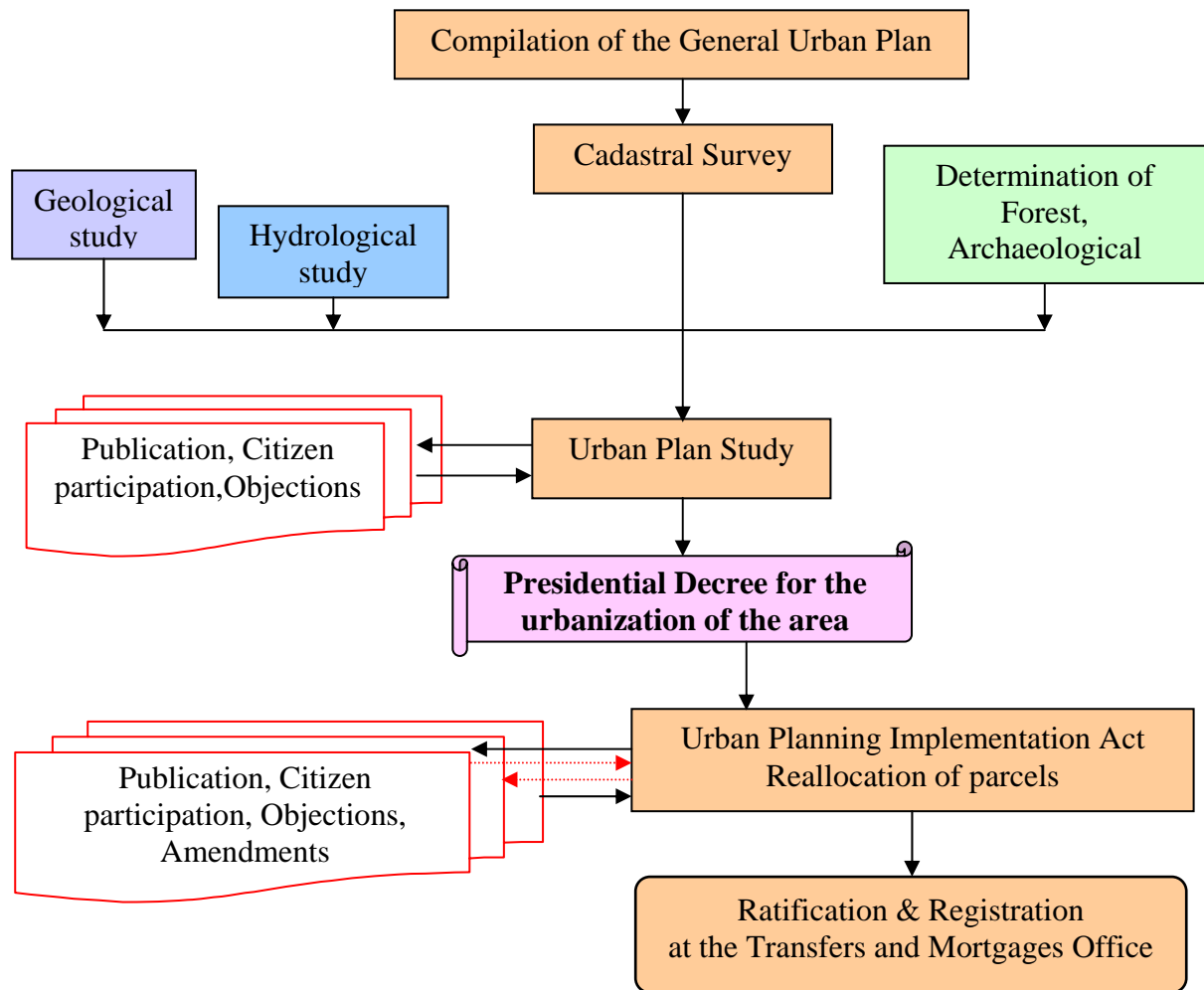


Figure 8. Flow chart of urbanization process

The General Urban Plan (Master Plan) for the municipality of Keratea, first ratified in 1987, planned for an area of 29 ha and 7500 inhabitants, with population density 42 people/ha and floor/ground area ratio 0.8. It was revised in 2002 and 2003 (for 110 ha, 15500 permanent and 55000 temporary inhabitants) (Figure 9) with additional regulations which forbid any construction within a 50m-wide buffer along the natural drainage stream network. It provides

and legislates uses including the transportation network, additional residential areas to serve the expected population increase within the next years due to the planned industrial development, city and administrative center planning to serve the permanent and temporary population, common benefit areas like public schools, churches, cultural and an athletic center, energy and telecommunication networks, green and common use areas, and so on.

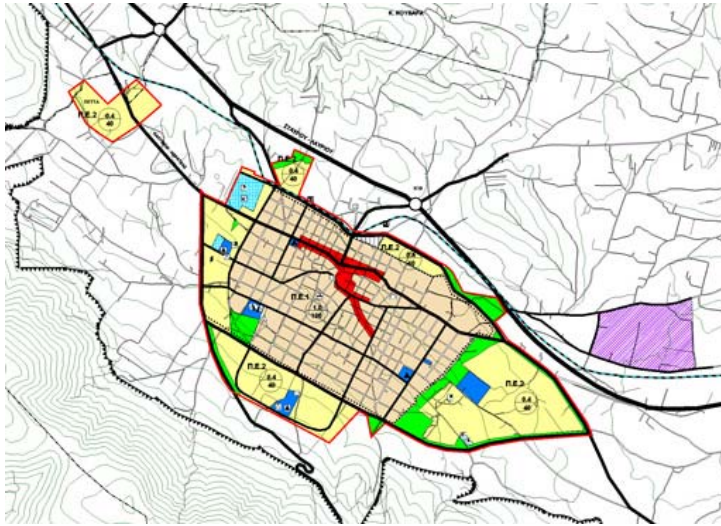


Figure 9. 'General Urban Plan' of Keratea



Figure 10. City Plan of Kaki Thalassa settlement



Figure 11. The old city plan of Keratea (left) and the extension of the city plan (right)

From all of the areas to be urbanized, according to the Zoning for Housing Control plan, only the following have accomplished ratified City Plans:

- “City plans” of Keratea city, pre-existing 1982, that is, the first “city plan” for Keratea of 1893 and its extensions in 1939 and 1989, covering a total area of 237 he (Figure 11-left).
- The extension of the “City Plan” for Keratea city of 1983, revised in 1989, covering an area of 170 he, for maximum population of 12,330 residents (Figure 11-right).
- “City plan” for Charakas settlement of 1979, for 20.31 he
- “City plan” of 1973 for Plaka settlement which pre-existed 1923, for 63.75 he.

The compilation of the “Zoning for Housing Control” plan in Lavreotiki peninsula was required before any city plan could be adopted therefore very few of such projects were compiled in the area. This resulted in unplanned development. The rest areas to be urbanized are still under urbanization process:

- A “city plan” was ratified in 1990 at the urban fringe of Keratea city for 29 he of “main residence” use, but was not implemented due to the death of the contractor. After several years of judicial procedure to terminate the contract, the municipality has now commissioned the implementation of this city plan to another contractor.
- A planning project was began by the Ministry in 1987 for a small “vacation coastal settlement” of 25 he in Plaka, but the land readjustment and the implementation phase of the city plan has never been finished. Judicial problems were arisen, related to the definition of the outline of the old Plaka settlement that pre-existed 1923.
- After the 2003 revision of the General Urban Plan for Keratea, in November 2003, a new planning project was commissioned for the urbanization of 160 he at the urban fringe of Keratea city for “main residence” use. This project is still in process. To date the cadastral survey, preliminary urban planning study, geological study (a geological study is very important for Keratea municipality due to the existence of a large underground network of ancient mine caves), survey and definition of natural drainage system network and the preliminary study of all utility networks are finished.

- The implementation of the 1986 city plan for Kaki Thalassa “coastal settlement” and an extension of this city plan, were commissioned in 2000 (Figure 10). The implementation of the 1986 city plan project refers to 25 he and has reached the stage of ratification by the Prefect. The extension of the city plan study refers to 44 he, and has been compiled. In order this project to be ratified the forest authority of Lavrion must submit its opinion, to be followed by the implementation phase.
- The total area in urban regeneration projects in “vacation coastal settlements” (Elies, Venio, Vigi, Limanaki) in north-eastern coastal area is 105 he. The study was begun in 1999, but problems in state funding arose so some information layers like the water drainage network survey and the geological survey have not been compiled, and the opinion of the forest authority is still pending. The municipality board decided to continue the project with private funds provided by land owners as funds become available.
- A cadastral survey and urban regeneration study for the south-eastern “coastal vacation settlements” (Periyali, Chonima, Trehadiera, Panorama, Ag. Marina, Tourkolimano) totaling 325 he in area (approximately 5,300 land owners) was finally commissioned in 2005 by the municipality even without state funding. The project is expected to be finished by 2009. This project will be funded totally by the land owners in the area. The research identified this as a new self-cost-recoverable approach in the urbanization process, first applied by the municipality of Keratea, and is unique for the whole Greece.
- The above self-cost recoverable procedure is in process of application for the urbanization of the remaining existing “coastal vacation settlements” with unplanned development in the municipality. It is also being applied to identify and urbanize all other scattered smaller settlements with less than 2,000 residents (as permitted by the “Zoning for Housing Control” plan), in order to legalize and permit new construction.
- The urbanization study for the “Industrial Park” of Keratea, of 112 he was ratified in 2006. This is a plan for the development of 350 new industries with 5,500 new employees during the next 20 years, aiming to reduce unemployment in the municipality. The necessary infrastructure, with environmental protection considerations, is already installed. The total cost is 14 M € 35% is subsidized by state funds.

3.4. Problems related to the Urbanization Process in the Municipality of Keratea

A research of the existing data of the municipality and private surveying company's records working in the area was made by the authors in order to identify the major problems in the urbanization process in the municipality of Keratea. The results of this research show that long delays are caused by lack of funding, time-consuming procedures, the number of land-related public authorities involved, complicated land tenure due to existing informal development, and the unclear legislative and institutional issues. In particular:

- **Funding issues.** The average costs for an urbanization project including cadastral survey, compilation of city plan and implementation of the city plan are approximately 9,000 € per he. In the municipality of Keratea it is estimated that there is a need for urbanization of 826 he of coastal land (which already has unplanned development), to be regulated as “vacation residence”; Keratea is the municipality with the largest need for such use in all Greece, and this need is already defined and ratified in the plan for “Zoning for Housing Control”. The municipality has no funds to go forward and other responsible state authorities like the Prefecture of South-eastern Attica, the Region of Attica, or the Ministry do not consider urbanization of land for “vacation residence” use among their first priorities. As mentioned above, land owners are willing to fully finance the urbanization process hoping to unblock the market and achieve legal development, according to zoning regulations.
- **Time-consuming procedures.** It is estimated that the time needed for urbanization of an area of 300 he is: for the cadastral survey (including objection periods) approximately 9 months; for the compilation of the city plan 16 months, which contains 2 stages (analysis and proposal, 12 months, and supportive studies related to the geological study and the survey of natural water drainage network, 4 months); for the implementation of the city plan the estimate is 12 months (even if 2 or 3 revisions are required, due to objections). So, the theoretical estimate is an average of 3 years for the urbanization of that area. However, in reality, in Greece it is very seldom possible to complete an urbanization project in less than 6 years, while the average time is 8-10 years. A brief research at the Ministry's records shows that for the period 1994-1995 the Ministry has commissioned 125

urbanization projects in various municipalities, of which only 10 have been completed by today.

- **Various land-related authorities involved.** The examination of objections to the city plan is one major cause of delays. Several public authorities are involved to certify that development is permitted, such as the forest authorities (forest land is public land unless there are legal titles since 1886), the archaeological authority, the public real estate authority (the seashore zone is public area), the electricity public company, the Ministry for the Environment, and so on.

Since there are no forest maps covering the whole area of Attica, a sporadic examination by the forest authorities is made on request of the municipality to certify that the area under urbanization was not a “forest” in the past. Once the area or part of it is characterized as “forest land” (Figure 12) then the owners must bring their objections to first and second degree committees in order to re-examine the case. This process may require a 6-7 years period to be resolved. It is estimated that for the north-eastern Attica alone, there are approximately 6,000-7,000 pending cases.

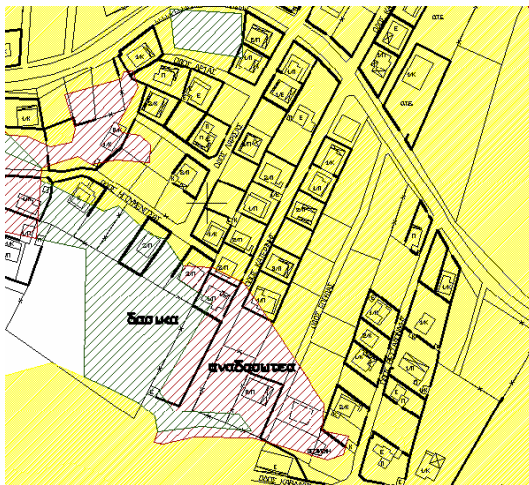


Figure 12. Unplanned urban area with illegal constructions inside forest land (green and red hatching on the plan left)

The shoreline in the municipality of Keratea is defined on maps of the Ministry of Finance, compiled in 1954 at a scale of 1:2,000. These maps are inaccurate. According to coordinate values in some cases the shoreline appears to be in the sea. This creates

conflicts between owners and the state, but also gives an argument to squatters who challenge the accuracy of the maps. Such cases are mostly detected in Daskalio, Kaki Thalassa and Vethi settlements (Figure 13 left & top right).

Another significant issue is the lack of maps defining the routes of streams and the natural water drainage network in Keratea. According to Law 3010 of 2002 all natural streams must be surveyed and their routes must be defined by coordinates. Their routes should be protected from blockage and they should remain open. Changes in the land surface due to constructions, and increased rainfall due to climate change impose a higher risk of floods in the area from increased rainfall runoff. The Council of the State has decided that, in Attica, only in very limited cases will technical drainage works inhibiting rainfall runoff be permitted. Keratea is a mountainous area with high relief; there are hundreds of small streams which must be protected and remain open and clean as the area becomes urbanized (Figure 13 bottom right).



Figure 13. Constructions in the seashore zone, between red and blue line (left & top right).
Dry streambed with debris (bottom right)

- **Informal development and land tenure.** As mentioned above, the urbanization process was blocked in the area for 8 years. Due to the high demand for building sites (in areas of great natural beauty) and to the lack of enforcement of regulations during and after

construction, there is a lot of illegal subdivision, violations of building permits, and a resulting informal or “semi-formal” land market. The most common problem in the unplanned areas of the municipality of Keratea is the complicated land tenure situation that comes to light with the cadastral surveys, where all possible versions of legal, “semi-legal”, or illegal subdivisions of land parcels exist. In fact, the urbanization process has to “wash out” such informalities in subdivisions and the following transactions based on problematic documents, legal arrangements and agreements. Otherwise, a large number of legal deeds would be invalidated with resulting legal consequences to buyers, sellers, notaries, lenders and engineers who were involved in the land and real estate markets in the area.

- **Institutional issues.** One of the most difficult issues is the institutional framework for the ratification of urbanization projects. By Law 2508/1997 a decentralization of responsibilities was attempted, by giving the authority to the Minister for the Environment, Physical Planning and Public Works or to the General Secretary of each Region, to ratify the city plans without a publication in a Presidential Decree. In 2002 however, the Council of the State declared this Law unconstitutional. According to this decision, all city plans (of their extents) must be processed by the central division of the Ministry and then must be examined and ratified by the Council of the State before the urbanization of the area.

3.5. Informal Development in the Municipality of Keratea

Informal development began in Keratea in the late 1960's, when Athenians came to spend the summers in abandoned settlements and in new settlements that appeared gradually in the 1970's. The eastern, rocky coastal area of Attica normally has strong northerly winds and wave action. As a less desirable and lower value vacation area it attracted low income Athenian families in comparison with the western side of Attica, the Saronic Bay, that attracted high income residents and developed few informal settlements. Today the situation has changed, so that in Keratea's coastal area all types of informal construction maybe detected: caravan-houses, one floor low-value small constructions, as well as luxurious constructions that fulfill high architectural and safety standards.

According to the Zoning for Housing Control plan (1998), legal constructions in areas without a city plan, in Keratea, are those build on land parcels:

- Larger than 2 he (building area $<280 \text{ m}^2$), which are very few.
- Larger than 0.4 he, pre-existing 1983 (building area $<200 \text{ m}^2$).
- Larger than 0.2 he, with a frontage on main regional roads and railway route (building area $<150 \text{ m}^2$). Issuance of such permits was stopped after 1998. The pre-existing buildings of that size are considered to be legal.

Subdivision of rural land was permitted until 1979, when by a Presidential Decree the minimum size of land parcel became 0.4 he. However, until then there was a number of small legally subdivided rural land parcels which caused the beginning of informal development in the area, since they were originally created and put in the market legally to serve the need for vacation houses; the delay of the scheduled urbanization has led to informal settlements (Figure 14).



Figure 14. Illegal building in a small rural land-parcel legally subdivided before 1979

Law of 1983, by which declared informal buildings might not be demolished (as mentioned in chapter 2.1); 6,708 informal buildings were declared by their owners in Keratea. Since then and until 2003 electricity supply was denied to new informal buildings. However, by Law 3212/2003 thousands of informal buildings have been provided with electricity connections and water supply. The pre-requisite for connection was that the informal constructions build until December 2003, should be a permanent residence of a seriously sick person, and should not be build on common-use land, stream routes, archaeological sites, seashore public lands, forest lands, or regulated zones for total protection. An analysis of the applications for

electricity connections submitted at the municipality according to the above Law, appears in Figure 15.

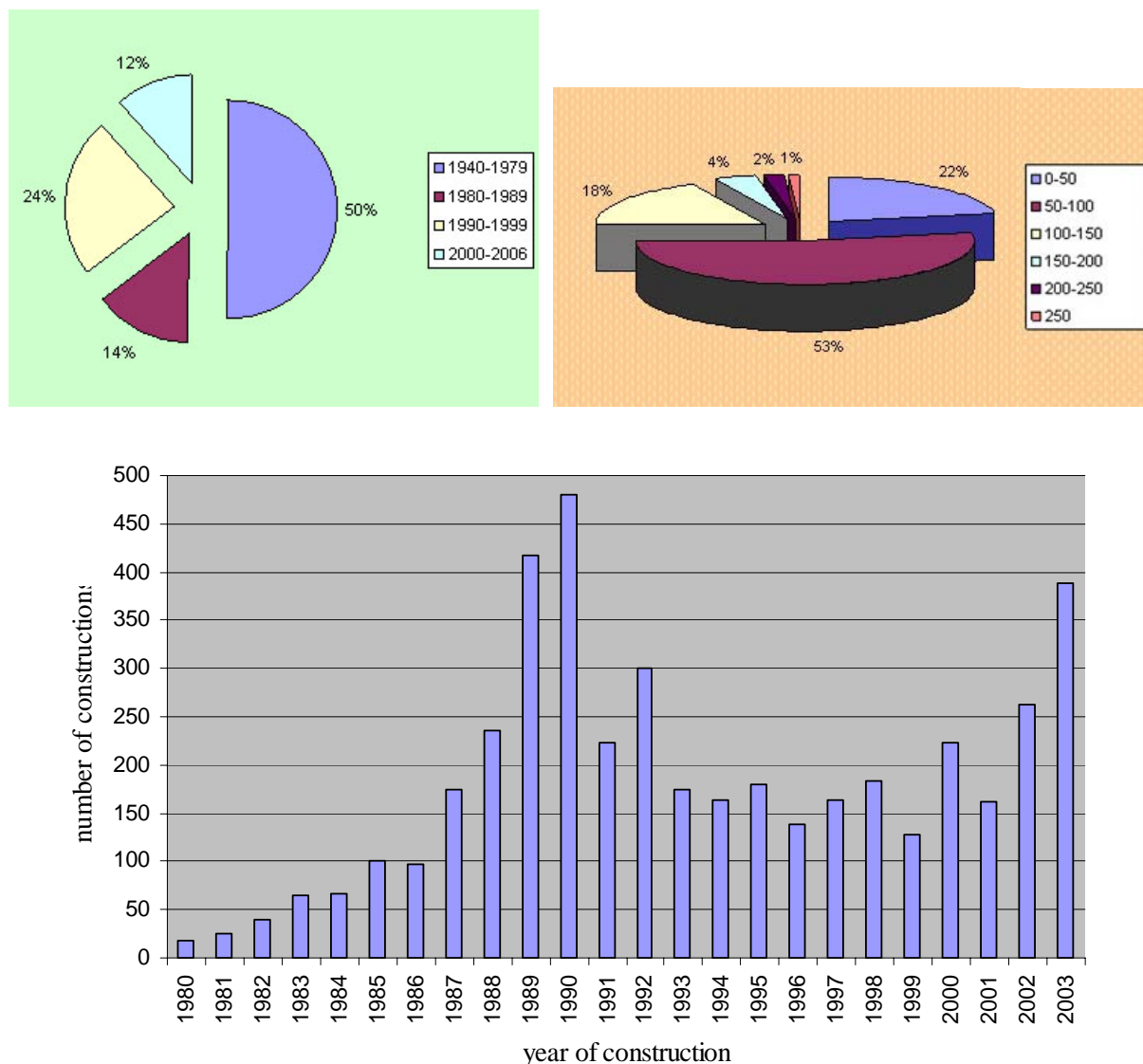


Figure 15. Informal buildings according to the year of construction (top left & bottom); according to their size (top right)

There was a large increase of informal development in years 1989 and 1990 due an unstable political situation resulting in weak control. Also, the pre-announcement of the new Law that would provide electricity connections caused another increase in informal constructions in 2002 and 2003 period. It is estimated that Law 9732/2004 has managed to reduce the rate of construction of new informal buildings in the area due to the application of extremely high penalties (see chapter 2.1). The total number of informal buildings today is estimated to be

12,000, of which 9,000 are vacation houses. Figure 15 shows that 50% of were build in the 1940-1979 period, while 24% were built between 1990-1999. Fifty three percent of the informal buildings are of an average size of 50-100 m², while those larger than 250 m² are 1% of the total. The majority (43%) were built in rural land, while another 36% was built in areas regulated according to the zoning plan as “vacation residence”, and are scheduled to be urbanized in the future. However, a significant 6.9% of them are located in mountainous areas intended to be protected by the Zoning for Housing Control plan.

A further research into the legal documents submitted by the owners of informal buildings to the municipality for the cadastral surveys in areas under urbanization process shows that there are some cases that may be characterized as “semi-legal” and some others as “illegal” constructions. Examples are given below:

a. “Semi-legal” cases:

- Co-owners of land parcels 0.4 he pre-existing 1983 have acquired individual building permits without showing the existence of other constructions on the surveying plan which accompanied the building permit application. As a result multiple buildings of total area more than 200 m² were constructed on single parcels.
- Land parcels larger than 0.8 he with existing legal building, were subdivided making new parcels of 0.4 he pre-existing 1983 to obtain permits to build, without determining the legality of the existing building after subdivision.
- Co-owners of larger parcels e.g., 1 he that could not be legally subdivided, claimed that they lost the ownership titles but had adverse possession in individual parcels of 0.5 he each before 1983 in order to obtain legal building permits.

b. “Illegal” cases after 1979, when minimum land parcel requirements became 0.4 he:

- Instead of a subdivision which was not permitted, the parcel was sold to many owners, the co-owners made legal documents for condominium ownerships, and built houses which exceeded the building permit as to floor area. Finally they constructed roads; as a result they subdivided the land parcel illegally.

- In one large parcel several buildings are constructed (exceeding the size limits of the building permit). Then individual buildings were sold to various owners which are co-owners of the total real estate (they own shares of the whole parcel and of all the constructions on it). Finally, fences and roads were installed and private agreements reached among the owners as to who owns which building. Such agreements are not legal (Figure 16).
- Buildings built in land parcels without a building permit.



Figure 16. Plan submitted for the building permit (left); the created situation on the ground - the outline of the original land parcel, in red, does not exist (right)

According to the Law, the urban planning authority must make an on site decision of illegality only by the submission of an accusation by a citizen. In Keratea, where the majority of existing buildings in areas without a city plan are illegal, no one has an interest to submit such an accusation. To date no building has been demolished in the municipality of Keratea.

Informal buildings are declared and taxed (this process is not triggered by the building permit process in which an occupancy permit is not required), but they are not recorded in the new cadastral surveys for the National Cadastre Project. The land market in such areas works in a “semi-formal” way. A purchase/sale transaction is allowed only if the informal building pre-exists 1983. Therefore, the land parcel and the informal building is surveyed and the deed is accompanied by a false declaration by the owner certifying that it was constructed before

1983. In total, there are approximately 1,500 transactions per year in the municipality of Keratea, including formal and informal constructions. Illegal buildings constructed without a building permit cannot be mortgaged. Land values in areas with informal settlements vary according to the size of the land parcel, the construction year of the informal building, the construction quality and the possibility of eventual urbanization. For single informal houses the average value is between 1,600 and 3,000 € per m². Property values have increased recently due to increased demand both for permanent and vacation houses.

4. CONCLUSIONS

The research made in Keratea has shown that informal development has increased rapidly during the recent 20 years. Most of it has occurred in the coastal areas for the construction of vacation houses. In recent years vacation houses have been improved to serve as first residences in the better environmental conditions. Unrealistic regulations, ineffectiveness of state administration, a lack of state funding and prioritization of projects, delays in urbanization procedures in spite of an increased demand, and the lack of enforcement control in constructions during and after their completion contribute to the phenomenon.

It is up to the state to solve the existing problem. The policy of legalization by integration into the city plan is the way to do it. Demolition of all existing informal buildings is unrealistic. However, the present procedure is too slow. It should not be necessary for each project to be passed on as a presidential decree. More responsibility should be given to the local authorities. Regeneration projects for areas with informal development are more time and cost-consuming than projects for “urbanization” of areas without any development. A distinction should be made in procedures and legislation.

Funding issues should be solved by an increased contribution by private property owners for all necessary environmental improvements. Priority should be given according to the market demand as determined by local authorities.

The recognition of forests which existed as long ago as 1945 is an obstacle to urban regeneration in areas where it is needed. Such projects simply cannot be completed because they are blocked by the Council of the State which interprets the Constitution and applies

restraint according to their understanding. The Constitution must be revised for clarity. The responsibilities of the Council of the State must be clarified as well.

A major cause for delays and poor decision-making and planning are often the lack of good information. A completed and comprehensive national cadastre is the foundation of a valuable spatial data infrastructure. The Greek National Cadastre Project should be brought up to date and should be complete, showing all buildings on all parcels. This information combined with an ownership history of each land parcel, will provide authorities with the information required to make correct decisions and planning.

The government also establishes policy regarding creation of new urban land or expansion of existing urban areas. These policy decisions are affected by economics, market demand, and an expansion of population centers. Unfortunately policy decisions are also affected by politics and special interests. The making of policy by government should be an open and transparent process that includes a free public participation. When a policy decision has been reached (including decisions regarding priorities and funding) to allow expansion of an area through the urbanization process described in this analysis, the next procedures should be expedited. Cadastral surveys and geological and hydrographic studies performed by the private sector can be accomplished expeditiously assuming good contract administration by the public authority. But the research for this paper shows that the greatest time loss is due to repeated objections and multiple revisions during the planning process. It is recognized that the urbanization procedure must allow for public objection and challenge by concerned citizens, but adjudication should be accomplished quickly and efficiently.

Good policy, good planning and good rules and regulations will fail to prevent illegality in construction without good enforcement. The building permit process, especially in areas without a city plan, should include periodic site visits and inspections at key junctures during construction. Survey plans showing site conditions before and after construction certifying location and compliance, should be required. The final permit to be issued upon completion of construction should be an “occupancy permit” following inspections for compliance of all elements (structural, electrical, plumbing and sewage disposal) of the construction. Only upon issuance of an occupancy permit should the owner(s) be allowed to occupy the building.

An efficient and effective building permit process serves to control inspection but also provides information for property valuation and tax assessment. At the same time completed data is provided for maintenance of the Public Cadastre.

Public policy-makers must realize that sound urbanization policy, an efficient process and honest enforcement are the answers to the illegality-of-construction issue. All the tools are available to bring these processes into the 21st century.

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