

Environmental Noise as a design parameter in urban tourist areas in Greece

A social, technical & legal approach

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Le bruit, facteur important de la dégradation de l'environnement urbain, est la cause principale d'une contradiction fondamentale entre le tourisme urbain et la qualité de l'environnement sonore. La pollution sonore excessive produite par le désir de répondre aux besoins touristiques pressants a comme résultat la dégradation de la qualité de vie des résidents permanents ainsi que des visiteurs de la ville. Les quartiers traditionnellement résidentiels sont peu à peu vidés de leurs habitants ce qui entraîne un changement radical de leur caractère historique.

Une étude psychosociale récente (1999) auprès des habitants de la ville de Rhodes montre que 47% des personnes interrogées ont une opinion négative de la qualité de l'environnement sonore même après la réalisation de mesures de réhabilitation de l'espace sonore (60% en 1993) et 59% d'entre elles déclarent qu'elles n'accepteront plus une dégradation supplémentaire de leur environnement. Même si le contexte législatif grec prévoit assez d'outils pour la lutte contre le bruit, l'usage extensif et arbitraire de l'espace touristique en vue de permettre plusieurs activités touristiques augmente considérablement le niveau de gêne de jour comme de nuit.

Des mesures de réhabilitation de l'environnement sonore sont devenues indispensables dans les villes touristiques grecques et déjà quelques unes engagées dans des villes de Grèce comme la cité médiévale de Rhodes, l'île d'Hydra ou le quartier de Plaka à Athènes, ont prouvées leur nécessité. La délocalisation des activités touristiques nocturnes a eu donc comme résultat le changement de la dynamique urbaine en évitant le danger de créer une nécropole.

Noise is an important environmental factor affecting all problems related to the degradation of the urban environment and the quality of life. One of tourism's effects in the urban areas is the degradation of the acoustic environment, which is associated to transportation and recreational activities and their implications in the local land uses [1].

As a result, several noise pollution problems have been identified in tourist areas and numerous abatement measures have been already implemented by local and regional administrations in various countries for the rehabilitation of the acoustic environment and the quality of life. In Greece, quality of life has been established as a legal conception protected by the Constitution (Article 24: "The Protection of the natural and cultural environment is an obligation of the state and examined by the judge"). Quality of life is characterized by the sound environment, which contributes to the spaces' aesthetic determination. The existing Greek legislation deals with noise in a basis of a quantitative approach i.e. max. permissible levels per source,

and does not take into account a wider conception of the acoustic environment. Regulations regarding urban planning, do not implement noise as a design parameter, except certain cases (i.e. protection of special buildings) [2]. This is mainly due to the fact, that some necessary administrative decrees and directives, for which the relevant legal authorization already exists, are still not implemented. Therefore, important administrative actions remain inactive and noise protection ineffective.

The structure and life rhythm of each European city, are very important factors effecting the city's dynamics, and with the behavior of people living in the city and the climatic conditions, requires an objective approach of the existing acoustic environment introducing the noise factor as a psycho-social and design parameter of urban planning. In the Mediterranean countries of the South Europe, the open space is dominated by urban environmental noise corresponding to the 'rhythm' of the diurnal, and primarily nocturnal, life & recreation activities of urban centers. It is

the principal cause of resident dissatisfaction as far as the environment and quality of life are concerned. This lifestyle characteristic of the inhabitants of Mediterranean countries invades the vast majority of open spaces and private spaces, thus causing a significant annoyance.

Consequently, the struggle against urban noise necessitates a different approach from the one that has already been employed these last years in other European countries. The causes of urban noise are firmly linked to the structure and operation of the city and the consideration of noise as an urban planning parameter in order to introduce an “ecological” way of interventions to the city dynamics. Under this perspective, the assertion of an elected city official who stresses the importance of the struggle against noise and, at the same time, the danger of creating a “necropolis”, could be the defining course [3]. To reach this goal, it is necessary to act on the dynamic of the city and hence on the actual rhythms of modality; to act on the quality and quantity of transportation whilst introducing non-polluting means of transport; to act on the norms of individual and collective behaviour with the help of the above stated performance tools.

Tourism and environmental quality

The debate as to whether or not tourist related activity is beneficial or detrimental to the host country is often discussed within the context of “sustainability” where the emphasis is on carrying capacity, long run viability and the general avoidance of “soiling one’s own nest”. The impact of tourism on the Maltese islands was shown that, like many other small island developing states [4], Malta depends heavily on tourism and therefore the economic and environmental impacts of tourism activity are relatively high. It was argued that the objective of sustainable tourism is therefore not very easy to attain, and it often involves walking on a very tight rope. A factor in the development of tourist activities is environmental quality, bearing in mind that its good state is a lever for the development of tourism and an attraction point for tourist movement.

The Greek Ministry of Planning, Environment and Public Works assigned in 1997 to the Department of Transportation, Planning and Engineering, of the National Technical University of Athens, the research project “Programme for Noise Abatement in Tourist Areas” [1].

In order to investigate the causes of noise in tourist areas, to develop guidelines and general specifications for planning and implementing a programme of short and long-term anti-noise measures and projects and to carry out a pilot application in Greek tourist cities. During the relevant social survey executed both to inhabitants and foreign tourists visiting the city it was revealed the magnitude of the role of the environmental noise to the appreciation of the quality of life & vacations in the city. A fact that is of interest is that the largest percentage of people with a very negative viewpoint on the quality parameters of the city of Rhodes was found as far as pedestrian traffic, and hence, noise was concerned. Correspondingly, the largest percentage of cumulative statements of negative and very negative opinions was for the city noise parameter and therefore, for pedestrian traffic. It is apparent that the tourist population

now seeks contact with a city on a human scale, while, as far as the acoustic environment is concerned, its negative reaction is less focused on entertainment activities noise and more on road traffic noise. In the total sample of the social study, the general evaluation of “a very pleasant stay at the city of Rhodes” was made by the majority of those interviewed (around 70 % of the sample), while only 35 % of the sample – approximately- phrased a positive viewpoint on the quality of sleep. From the analysis of relevant answers, it was established that people who stated that they were less than satisfied in general by their stay in the city, also exhibit the largest percentages as far as quality of sleep dissatisfaction is concerned.

Environmental acoustic, degradation acts as a counter-motive and leads to the reduction of tourist numbers. It should be noted that the contribution of mass tourism to the phenomenon known as the “environmental crisis” was recognized and noted in the Global Conference for Development and the Environment in Rio (1992), as was the necessity to take measures for actions dealing with the degradation phenomena.

Factors associated to noise pollution phenomena in tourist areas

The degradation of the acoustic environment in areas with developed tourism activities is associated to:

- transportation (road, air, rail and boat)
- recreational activities
- implications of the above on the land use patterns

The seasonal tourist transportation needs affects the acoustic environment of the areas when considerably increased road traffic flows are forced to be accommodated



in often inadequate local infrastructure. This affects primarily the permanent residents that are not habituated enough but at times affects the tourists as well due to the proximity of some lodgements (especially in small and medium size villages) to the principal road system. Similar effects can be experienced with air transport which is preferred for long-distance travel. A typical example for Greece -where over 70 % uses air travel- is presented for tourist islands, where normal flight number increases during the summer months by approximately twenty-fold in Rhodes, tenfold in Mykonos, etc.

Road traffic noise, according to the results of the research for Rhodes [1] & [5], is the primary cause of tourist annoyance compared to other noise sources and other annoyance factors, especially for those residing close to busy roads. Motorcycles and mopeds represent a particular annoyance parameter because of their often neglected maintenance, tampering etc. The number of people using such vehicles in the warm Mediterranean climate during summer period is increasing posing a lot of noise disturbance problems.

The population sensitivity to motorcycle noise was recorded in a relevant survey by the Greek Ministry of the Environment, Planning and Public Works (1988) in Athens [6], where more than a fifth of the total urban sample expressed annoyance, with a 50 % identifying traffic as the principal noise source and 25 % naming motorcycles as the worse source of traffic noise emission. The number of motorcycles in some places (i.e. in the Greek islands) is particularly large since these vehicles are offered for rent as a convenient -and not expensive- means of transport.

Sea sport and leisure boats, such as jetskies, motorboats etc., are becoming more noisy since they are relying on even more powerful motors for their movement. Residents in the coastal Mediterranean areas are experiencing acute

annoyance from these vessels especially during siesta time periods. National and international legislation should deal with this problem as soon as possible. The effects of recreation and other service establishments (such as restaurants) on the acoustic environment can be classified according to spatial (proximity to residences, hotels etc.) and functional characteristics (open or closed spaces, with or without music, large or small number of guests etc.). These effects influence the immediate area, as well as the access roads. In some places, nightlife occasionally forms the principal attraction (i.e. Mykonos, Ibiza etc) so bars, discos and other similar shops which emanate noise from music that can be extremely loud, coupled with other noise problems such as shouting, cheering, laughs etc as well as occasional fights from heavy drinking. Since these places are close to residential premises and hotels they can affect both tourists and inhabitants. In a considerable number of European tourist areas, community authorities have taken particular noise abatement measures aimed at recreational establishments (contracts of 'good acoustic behaviour', noise abatement for clubs, etc.).

Noise annoyance management was exercised for Laval and Strasbourg, in Mimizan, Ondres, Capbreton, Bisacrosse, Leon and Sanguinet, in Monaco and a number of Greek island villages. Traditional traffic management measures aiming to improve the acoustical environment through traffic restraint schemes were introduced within the old town of Rethymno (Crete), the traditional neighbourhood of Plaka (in Athens), the old town of Rhodes, the traditional village of Ia (in Santorini), in the whole of the island of Hydra etc. These measures -if planned properly- can reduce noise and enhance the environmental (and tourist) quality of an area, for example in tourist areas of the South of France similar traffic management has been implemented for noise abatement (in the town of Monaco – through the diversion of traffic through a tunnel, in Menton, St. Tropez, Biarritz – through measures for motorcycle traffic, etc.

Basic directions for proper urban planning in Mediterranean historical centres, taking into considerations the acoustical environment, are already known for some time. Such set of rules should be properly disseminated among all the Mediterranean countries and local administrations initiatives should be assisted both technically and financially. As early as 1975, the Mediterranean countries and the EEC adopted the Mediterranean Action Plan (MAP) and in 1995 a new phase of MAP was approved and was renamed "Action Plan for the Protection of the Marine Environment and the Sustainable Development of the Coastal areas of the Mediterranean" taking into consideration as well the results from the recent developments such as the UN Conference on Environment and Development (Rio de Janeiro, 1992). In the meantime, MED POL (Mediterranean Pollution Programme) a major component of MAP has entered a new phase shifting emphasis from pollution assessment to pollution control by means of action plans, programmes and measures for the prevention and control of pollution, for the mitigation of impacts and for the restoration of systems already damaged by pollution. Unfortunately, none of the above deals with the noise problems although this could be feasible and within the targets and mission of the UNEP. However, international collaboration can be achieved through the preparation for the new EU Noise Policy as well.



Noise : An Environmental Quality Parameter & a Planning Tool

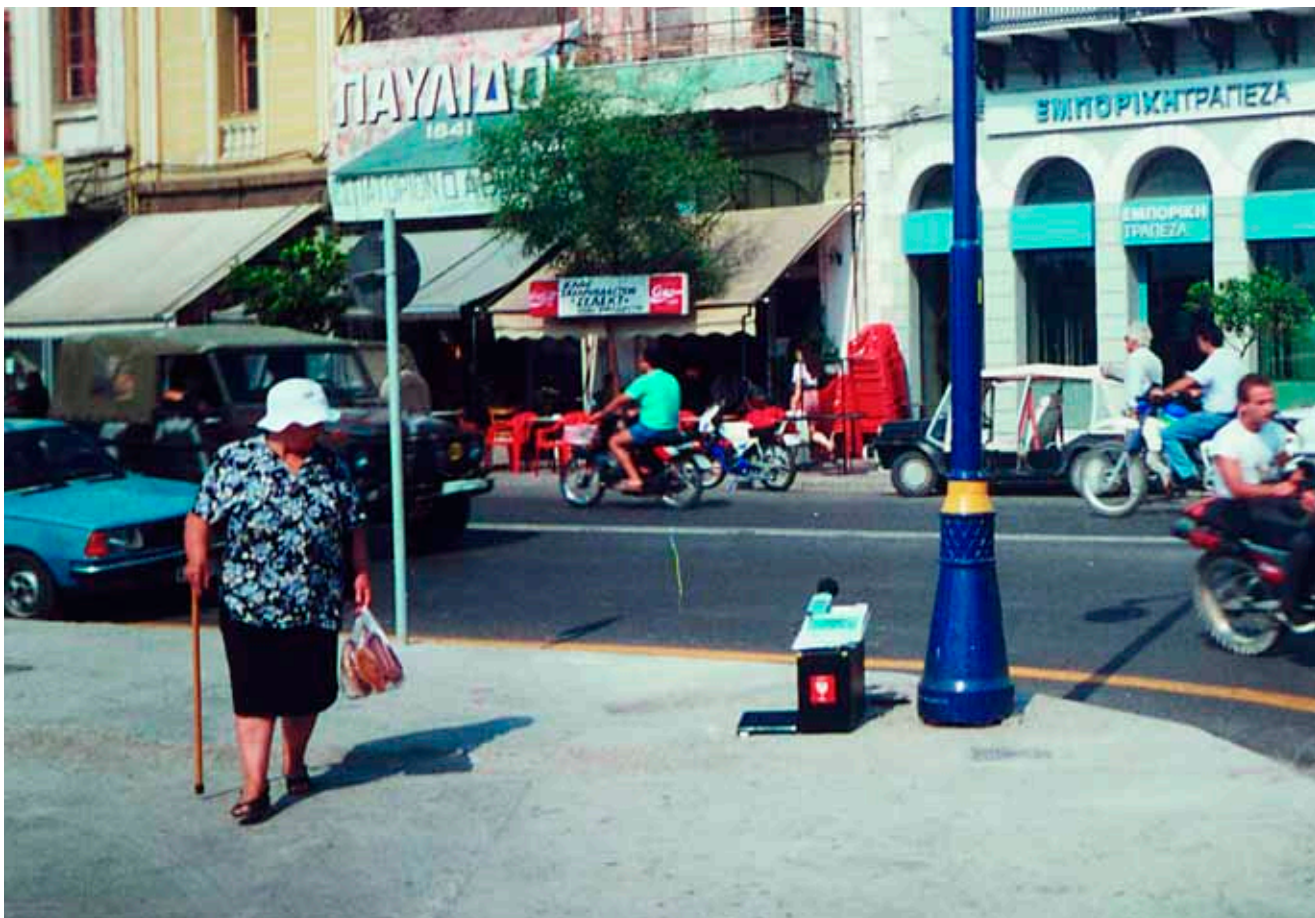
A fundamental contradiction between urban tourism and the quality of the acoustic environment is formed by the desire to meet tourist needs, resulting in influencing the environmental characteristics. Excessive noise pollution degrades the life quality of permanent residents and, in some cases, makes them abandon traditionally residential areas which has as a result changes in the historical character and use of these areas.

In contrast, noise pollution can certainly be connected to what makes an area attractive as a vacation spot. For example, recreation with loud music and the 'happenings/parties' context were an essential advertising idea for some tourist regions of Spain. The advertisements

According to the Psychosocial Study in the city of Rhodes [1] & [3] :

- noise is a principal cause of annoyance people
- expressing a negative opinion for the acoustic environment had a relatively bad opinion of the holiday area itself (60 % in 1993, 47 % in 1998 after the noise abatement measures).
- the level of annoyance is not correlated with age
- 59 % of the permanent residents interviewed said that they were not prepared to make further quality of life concessions and to tolerate higher noise levels so as to accommodate more tourism activities.

This fact is of great importance considering that this sample resides in an area which significantly depends on tourism for income and employment.



were primarily directed to specific tourist types (the slogan of a recent advertising campaign was based on the offer of entertainment until the early morning hours for young people, while parties in Ibiza attract a lot of people). Relevant phenomena of loud and noisy recreation can be found in tourist areas of Greece, such as the island of Ios, Mykonos, etc. Abatement measures such as the closure or prohibition of tourist entertainment activities from a region can lead to its isolation. This can be detrimental especially for small islands or remote areas since the competition is fierce. Prohibition of all entertainment areas, within the medieval castle of Rhodes, by the community authorities had a negative local economic impact which had to re-examine the relevant decision.

Furthermore, according to a study dealing exclusively with the effects of noise on hotels in tourist areas of France (Vincent 1992) [4], which also catalogued the quality of French hotel equipment, concluded that:

- the choice of residence is significantly affected by the quality of the acoustic environment and, more specifically, 4 in 5 people will not return to a hotel if they found it noisy (80 %).
- 1 in 5 people expressed the desire to complain to the hotel management for noise issues in hotels with a degraded acoustic environment (25 %).



However, experience gathered through surveys on the levels of awareness regarding the environmental impact of tourism seen in the areas of Caparica Coast and Setubal Peninsul in Portugal identified that there are significant problems in the ways people (especially children) perceive the local environment, and that the degree of awareness and perception about some of the environmental problems caused by tourism is sometimes relatively low. Information materials prepared with a view to addressing the information needs were considered necessary.

The increase of the number of cars and motorcycles in urban circulation, mostly rented in tourist areas, combined with the inadequate road network, have made traffic the

main source of noise in tourist areas. A comparison of the traffic composition and flows and the simultaneous noise data resulting from relevant traffic & noise maps studies conducted for Rhodes in the last 20 years with the results of the recent researches (1998-1999) carried out within the context of this research project, showed that the percentage of motorcycles has greatly increased (up to doubling in certain roads), especially during the period 1984-1998 as well as the various noise indices [7]. After examining the existing methods to control traffic noise at the source or its dispersion and to reduce its effects through proper protective measures, and the possibilities of reducing noise from recreational activities using planning actions, the following specific proposals were made for the pilot city of Rhodes and other tourist urban areas of Greece [5]:

Bars & Discos: Operation schedule for bars & discos (especially for open air installations) in the city centre with time limitations concerning their operation with or without music was proposed.

Relocation of important noisy night tourist activities: in the basis of strong motives such as: the ensuring of a prolonged time limit of operation with music in areas that are not characterized by residences and where the annoyance factor does not exist, the determination of a limited and strict time schedule of 2-3 years, of bar and discos relocation from areas with severe annoyance problems and the ban on open-air activities in noise sensitive areas.

Motorcycles. "On the road" control of motorcycle noise. Implementation of the "Noise Control Card for Motorcycles" considered by the Ministry of Transport. Training and Information of motorcycle drivers.

Pedestrianisation. Extensive pedestrianisation carried out in the central areas of various cities in Greece had positive effects both in reducing noise as well traffic accidents, especially those involving pedestrians. In the city of Larissa, Greece (population 150 000 inh), where 5 km of pedestrian streets were constructed, a reduction of the percentage of pedestrian accidents in the whole city from 37 % to 22 % was observed. In Katerini, another Greek city (60.000 inh) a similar reduction from 38 % to 20 % was observed. Until a new traffic study is conducted for the city of Rhodes, specific pedestrianisation proposals were made in this research.

Encourage Public Transportation, Walking and use of Bicycle.

Proposals were made to reduce the use of motorcycles and passenger cars by improving public transport and encourage organized tours by tourist buses. Also, taking advantage of the good weather, encourage trips with human energy (walking, bicycle) through building pedestrian and cycle facilities

Other traffic management measures. Other traffic management, measures that reduce traffic noise, could be implemented following the anticipated new traffic study of the city such as improvement of traffic flows (one way streets, coordination of traffic lights, prohibition of conflicting movements etc.) to reduce the frequency of stops, accelerations and decelerators, Speed reduction. In low traffic urban roads elsewhere, where humps and cushions were constructed, parking Management (Construction of off-street parking, parking fee policy, control of on-street parking, park & ride etc.) to improve the distribution of traffic flows and encourage the use of public transport & even traffic Restrictions (discouragement of through traffic, prohibition of traffic or of certain categories of vehicles at certain critical periods and/or sensitive areas etc.).

Continuous monitoring by the means of appropriate tools such as continuously updated environmental noise maps which constitutes a factor of reinforcement of the necessary coordination of public services and a good tool of analysis, decision making and sensibilisation, and have multiple uses, from a particular study of a restricted zone (in the case of an impact study of a new noise source), to a presentation of an existing situation at the scale of an entire city, or even of an agglomeration.



Basic Greek Legislation - Regulation Problems – Proposals & Recommendations

The realization of the need for legal cover of environmental protection has led to the creation of an autonomous branch of law, that of environmental law, whose primary purpose is the all-encompassing legal approach of the environmental problem. The basic characteristics of this type of law are its intense pragmatic and empirical character, its great dependence on E.U. legislation and on jurisprudence and its close relationship with economic growth and technology. Environmental protection is part of the concept of public interest and, as far as its systematic classification is concerned, it belongs to the field of the manifestation of government intervention.

In Greece [2], environmental protection is constitutionally established with article 24 par.1 of the Constitution, which states: "Environmental protection is a State obligation. The State is obligated to take special preventative or rehabilitation measures for its preservation." The environment that requires protection is the natural, cultural and constructed one, for which two stages of design are predicted, physical and urban planning and organization. Hence, the primary recipient of the environmental right is the State and all of its authorities: legislative, administrative and judicial ones, which should not act in a way that mistreats the environment or its protection, while protecting it, either preventatively or curatively.

As the Constitution authorizes, laws and regulatory administrative decisions have been published which deal





with the protection of the natural environment, with physical and urban planning, and with the protection of architectural heritage.

The principal law dealing with the natural environment is law 1650/86 "on environmental protection", which classifies projects and activities under three categories :

- a) Projects with a high environmental annoyance factor, for the execution of which a physical planning license and an Environmental Impact Assessment study is required.
- b) Projects with a medium annoyance factor which do not have such grave consequences on the environment.
- c) Projects with a low annoyance factor.

For projects of a lower importance (as b and c above) an approval of environmental protection conditions by submission of basic documents is sufficient. Additionally, this law calls for Special Environmental Studies for objects of special protection, like forests. The content of each EIA is specified by the Joint Ministerial Decision (69269/1990), which has been published according to the corresponding EU directive 85/337/EEC. The topics of these studies are the consequences from the realization of the project or activity on the environment (direct-indirect, long-term - short-term, positive-negative, rectifiable or not). This law considers noise as a component of environmental pollution production (article 14) and rules that with an administrative act it is possible to determine :

- Limiting values of noise levels in private and public spaces and buffer zones around existing or new areas of industrial installations, roads, ports, airports, archaeological or historical areas & landscapes and residential areas, as well as the limits of the noise levels at them.
- The limiting values of noise and vibration levels for all types of vehicles, machines and instrumentation that are produced, introduced and circulated in the market or are used and create a noise annoyance.
- The prohibition of the circulation of materials and components that are directed towards the prevention of noise and vibrations, when they do not meet certain conditions.

Furthermore, all noise producing projects and activities are identified i.e industry, factories, quarries etc and classified according to the noise annoyance that they causes, under one of the previously mentioned categories. EIA's contain special articles dealing with noise and, more specifically, with whether the construction of a particular project contributes to the increase of the existing noise level or with whether people are exposed to higher noise levels. In these studies the following have to be assessed :

- The expected noise levels during the installation's operation, day and night.
- The noise characteristics (whether it is continuous or not, and its duration).
- The projected measures of noise control.
- Secondary causes of possible noise levels increase.

Environmental noise is a factor which affects and is affected by urban planning, therefore, urban planning stipulations, town plans, land uses, terms and manner of building

construction as well as building materials, significantly contribute to noise combating [2]. Hence, the lattice of all these stipulations is in short the general institutional framework for noise combating. Furthermore, a significant contribution to environmental protection is made by the jurisprudence of the Supreme Administrative Court, based on which the State Council controls the administration and interprets comprehensively the relevant provisions. Additionally, in noise protection, administrative authorities, their responsibilities and law enforcement procedures, hold an important role. In Greece the general responsibility in matters of environmental noise protection and urban planning is held by the Central Government and, more specifically, by the Ministry of the Environment, Physical Planning and Public Works and by its decentralized regional services. Recently, with the restructuring of the Regional & Local Government, several responsibilities were given to its Departments; however, the complete and effective organization, for the implementation of these responsibilities have not yet been created. At the same time, an overlay of responsibilities is observed between various Ministries and Authorities, resulting in the creation of confusion and in incomplete implementation of the existing directives and decrees. Despite the fact that the legislative framework is sufficient enough, its application presents shortcomings, primarily for the following reasons:

- a) The principal law for environmental protection and, specifically, its regulations for noise are insufficiently applied, because the necessary relevant regulatory acts have not yet been issued...
- b) The acoustic scenery, either in the form of 'sound', in which case it has to be protected, or in the form of 'noise', in which case it is a pollution parameter, is not taken into account during the process of urban planning and in the determination of land uses.
- c) The stipulations are distributed across various laws and have non-coherent characteristics, furthermore, an overlay of duties exists between various authorities, leading to the creation of confusion.
- d) The Local Government Authorities, to which many responsibilities have recently been transferred, especially as far as noise from bars & discos is concerned, have no specialized personnel, or the appropriate material and technical infrastructure.

For the comprehensive investigation of the acoustic landscape, but also for other goals derived from urban planning, it is essential for environmental impact studies to precede the two phases of urban planning i.e. "General Urban Plans" and "Specific Urban Studies" (Urban Plans, Local Plans) and before their approval, in order to identify, assess and propose measures for dealing with environmental impacts which will be brought upon by these plans on the impacted area, as well as on neighbouring areas [2]. In this environmental control, primarily at the level of General Urban Plans and Urban planning studies, where a land use distribution is made, where building regulations are imposed etc., the protection of the acoustic environment, has to be taken into account. More specifically, as far as an area is concerned, it is necessary to decree max. permissible noise levels (per noise source and per land use), to foresee buffer zones by using as a standard the reduction of annoyance and the residents'

health protection as well as the protection of the acoustic landscape, to correlate land uses according to annoyers and annoyed from a noise viewpoint, to regulate maximum noise levels for annoying uses according to the current legislation and to introduce rules, if necessary, of temporal noise management using the reduction of noise pollution as the principal standard.

Conclusions

The often unplanned and extensive use of space in order to accommodate more tourist activities will eventually degrade the physical environment which is one of the primary attraction points, in simple words: too much tourism will kill tourism anyway. In fact, for some places the necessity for immediate introduction of tourism/environment sustainability indicators is more than obvious. Tourism should contribute to sustainable development and environmental protection, and provide the necessary means for that. Financial contributions are being made for a limited number of initiatives by the tourism industry and this trend should be further developed. However, for sustainable tourism, there is a need to better understand not only the benefits but also the costs of tourism. Additionally, there is a need to develop both a more systematic analysis of direct and indirect costs and benefits from tourism as well as green accounting approaches including the acoustical environment.

Actions are needed at all policy & legal levels, international cooperation which should involve European Community bodies should therefore play a fundamental role in the field of policy, research and information gathering through adequate resources directed to activities in the region. There is a need for reassessing conventions, framework agreements, procedures and protocols; financial mechanisms, such as taxes on the environment, tourism taxes, requirements to reinvest profits in regions with tourism installations, fines for non-compliance, subsidies for the environmental upgrading of facilities, development of eco-tourism, technical assistance and advice, and land use planning and protective laws for the whole of the Mediterranean region to take into consideration the noise abatement needs.

Better integration of Mediterranean tourism with sustainable development demands major efforts on training, awareness raising, and exchange of experience and best practice information, as well as organisation of the strong participation of the local population. Noise abatement and protection should be compulsory included in all environmental considerations and action is also needed on [4]:

- financial mechanisms to enable the tourism sector to contribute to the quality of destinations
- network of pilot projects and establishment of a "Mediterranean eco-label" for environmental quality of destinations and installations
- capacity building for states, regions and tourist destinations to bring about successful integration of tourism with sustainable development, together with
- measures to support tourism in the Mediterranean island regions

Sustainability Reference Values (SRVs) for noise in tourist places needs to be developed and established on a pan-European scale, agreed mainly on a scientific basis to be either safe or acceptable or tolerable for human health and welfare of the inhabitants and visitor population. Targets associated with the SRVs should be identified on the driving forces, the pressures and the state of the impact variables which are the mainly politically determined feasible steps along the way to achieve the above mentioned SRVs [4]. The acceptability of the noise level should be developed on the basis of the outcome of the existing working groups set for the new EU Noise Policy preparation and agreed by both EU and non EU member states in the Mediterranean region.

The use of environmental noise mapping and action plans for major roads, railways and airports is a very practical way to include rural areas at one hand and to include major noise emitting systems at the other hand. It is also providing the possibility to exclude the smaller agglomerations, which may not have the proper staff and experience to develop noise maps and action plans [3]. However the diversification of the urban characteristics of the European cities requires a more in depth analysis of the currently operational tools used in different types of applications. The sensitive social and cultural differences between the reactions to noise by inhabitants of the North and by those of the South is a fact that underlines the necessity of the introduction of urban ecology, according to which the acoustic environment is taken into account in the framework of the reorganization of the urban environment. Furthermore, for the comprehensive investigation of the acoustic landscape, but also for other goals derived from urban planning, it is essential to assure the application of the above noise planning tool within the two phases of urban planning i.e. "General Urban Plans" and "Specific Urban Studies" in order to identify, assess and propose measures for dealing with environmental impacts. With this integrated acoustic

environmental procedure, we can act not only on a "quantity" level but also on the "quality" level i.e. annoyance, developing a much more cost-effective tool and is stimulating noise climate improvements. Further more introducing simultaneous methods of psychosocial analysis in order to analyse with precision the effects of noise in the population, the degree of annoyance by noise source type permitting to describe with clarity public opinion and evaluating day & night annoyance and sleep disturbance is crucial to noise abatement, or better, to the management and rehabilitation of the urban acoustic environment and the preservation of the typical "acoustic landscape" especially in the Southern European cities.

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