

## Recreational Noise Management in Turkey

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### ABSTRACT

Noise is one of the inevitable environmental types of pollution especially in densely populated urban areas with the design approach including the recreational places within the residential areas. It is well known that there are lots of evidence on the health effects of environmental noise and to control this, the improvements have been carrying on in both legislative basis and scientific basis. In Turkey, during the harmonization of European Directives into national legislation as a full candidate country of European Union, 2002/49/EC of Environmental Noise Directive was one of the first ones transposed with the name of "Regulation on Assessment and Management of Environmental Noise (RAMEN)" in 2005. In the scope of RAMEN, the noise criteria and evaluation procedures are identified for the main noise sources including also entertainment places. In this paper, recreational noise management in Turkey will be explained and discussed through giving the information on what the main environmental noise criteria for entertainment places is, which authorities responsible for noise audits are, how the procedures to take the music allowance are applied, what requirements of technical staff to conduct the environmental noise measurements and preparing the noise assessment reports are needed.

Keywords: leisure noise, acoustic, entertainment place, movida

### 1. INTRODUCTION

Environmental noise is an important environmental concern especially in highly urbanized cities. The negative health effects of exposure to environmental noise have been investigated and studied broadly by from local to international bodies. The Report "Burden of disease from environmental noise" published by World Health Organization (WHO) states that at least one million healthy life years are lost every year from traffic related noise in the western part of Europe. Sleep disturbance and annoyance, mostly related to road traffic noise, comprise the main burden of environmental noise" (1). This is also clarified by European Environmental Agency (EEA)'s reports published in 2018 which is stated that due to the traffic, more than 76 million people in the EEA-33 member countries are exposed to high night-time noise level that is defined as  $L_{night}$  above 50 dB in 7<sup>th</sup> Environment Action Plan (2). The night noise guideline level set by WHO in 2009 for Europe is 40 dB (3). It is seen that these are mostly based on transportation noise due to its broader effect. Both Environmental Noise Directive (2002/49/EC) (4) and EEA Report on "Noise in Europe 2014" (5) mainly focus on the noise coming from transportation. However, the recently published WHO Noise guideline includes two new noise sources, one of which is leisure noise. In this extent, leisure noise means all noise sources that people are exposed to due to leisure activities, such as attending nightclubs, pubs, fitness classes, live sporting events, concerts or live music venues and listening to loud music through personal listening devices (6). Although such type of noise pollution affects fewer people in specified areas when compared to other type of noise sources, the local authorities have to provide great effort to manage the leisure noise due to increasing noise complaints of residents nearby such entertainment places.

In recreational noise pollution, the climatic and touristic characteristic of the cities is needed to be

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considered as the increasing factor in the magnitude of noise levels and the disturbance level of residents. The countries with coasts have challenges in this issue and researches on recreational noise pollution have been starting to be conducted more in latest years (7, 8). Most of the researches on recreational noise conducted in recent years generally focuses on the determination of the noise levels coming from the entertainment places (9, 10, 11) and the little one focuses on the control strategies for leisure noise from the point of the environmental noise management (12,13). The same situations have been encountered in Turkey especially in coastal cities with special features in terms of climatic, touristic, historical and geographical aspect. In order to protect the public health from the impact of high level of noise pollution, both administrative with legal restraints and awareness campaigns have been conducted.

This paper presents recreational noise management in Turkey and it is discussed through giving the information on what the main environmental noise criteria for entertainment places is, which authorities responsible for noise audits are, how the procedures to take the music allowance are applied, what requirements of technical staff to conduct the environmental noise measurements and preparing the noise assessment reports are needed

## **2. MAIN LEGISLATION ON RECREATIONAL NOISE AUDITS**

### **2.1 Responsible Authorities on Environmental Noise Audit**

Main legislation on environmental noise control in Turkey is Regulation on Assessment and Management of Environmental Noise (RAMEN) (date of official gazette (04/06/2010 with amended 18/11/2015) and the main authority at national level on this legislation is Ministry of Environment and Urbanization (14). As a full candidate country of EU, this regulation was firstly driven into force in 2005, harmonized with the EU Environmental Noise Directive (2002/49/EC). After 2005, this regulation was amended in 2008, 2010, 2011 and finally in 2015 in order to solve the problems faced with during the applications. RAMEN includes the definition of responsibilities and related authorities, acoustic criteria for land use planning, acoustic report format, qualifications for the organizations and agencies, which will prepare acoustic report, environmental noise assessment report, noise maps and action plans and responsible authorities for preparing noise maps and action plans, noise measurement procedures and methodology with referring to ISO standards and the limit values for noise sources as transportation (road/railways /aircraft/waterways), industrial plants, workplaces, air conditioners, electric generators and entertainment venues.

In RAMEN, entertainment venue is defined as a workplace operating within an accommodation facility independently, which offers live music to meet the entertainment needs of customers and the live music in this definition refers to the type of music made by real instruments and/or audio or videotape using electronically amplified sound source. As it is seen there is dilemma on the term of “live music” definition between the real meaning and the meaning referring at this regulation. This is mainly due to the requirement of use of the same terms in two regulations as RAMEN and Regulation on Working License.

The entertainment venues are audited in the scope of environmental noise whether scheduled or unscheduled, or to assess noise complaints within the framework of RAMEN. These shall be conducted by

- Municipalities to which transfer of authority have been made in accordance with the Environmental Law for complaints within municipal boundaries and adjacent area. These municipalities should establish environmental management department with minimum two staff who are required to participate to the training course on environmental noise provided by the institutions whose qualifications are determined by Ministry. In addition to responsibility of public noise complaint audit, Municipality with authority on environmental noise should evaluate the environmental noise level assessment report prepared for music allowance of entertainment places.
- In the case of Municipality does not have authority on environmental noise, Provincial Directorates of Environment and Urbanization (PDEU) carries on noise audits for public noise complaints and it should evaluate noise assessment reports under RAMEN. and send its official opinion to Municipality.

## **2.2 Environmental Noise Audit Procedure for Recreational Places**

The audits are mostly carried on due to public noise complaints from the neighbors living nearby the recreational places. The complaints are appealed to related authority via formal letter, e-mail, or call center of Ministry. The general approach for the assessment of public noise complaints could be summarized mainly under six titles given as following;

- a) Registration: The public noise complaint was registered formally at institution and sent to the technical staff who should audit.
- b) Election Criteria: The noise source stated in the complaint is evaluated whether it is in the scope of Environmental Noise Regulation (RAMEN) or not. If it is not in the scope of RAMEN, the formal letter is sent to the citizen to inform him/her for applying the other related public body. If it is in the scope of RAMEN, it is taken into audit program
- c) Preparation for Audit: The audit is planned with two technical staff whose qualification is available for this audit and the plan is structured based on the complaint letter including which place and at which time the citizen is mostly annoyed.
- d) Audit in Situ-Noise Measurement: The audits for the noise complaint is basically based on the environmental noise measurements and the articles defined in RAMEN regarding the music allowance document, opening-closing time of music activity, the layout of noise sources, etc. The environmental noise measurement is conducted in the place mostly at the complainant's home or in front of the building of where the person mostly annoyed. Since the evaluation of noise limit values for entertainment venues is based on the differentials of noise level measured in two conditions according to the RAMEN, mainly two environmental noise measurements are conducted. The first one includes the environmental noise level including the noise source complained is working on and the second measurement is conducted when the noise source complained is not working, which is the noise level to get the background environmental noise level.
- e) Reporting in situ: after the two noise measurements in the exposed building, the technical staff wrote the minute (official report) in the facility that was complained. The official report signed by the facility owner and the technical staff includes data on the noise measurement levels and the situations detected during the audit. One copy of the formal letter and the output of the sound level meter is given to the entertainment venue.
- f) Evaluation in the office: The noise levels measured during the audit are assessed whether it is complying with the regulation or not by the same technical staff. If the noise levels exceed the limits defined in the regulation, the administrative sanction is applied to the entertainment venue and the informative and warning formal letter is sent to the entertainment venue including the amount of administrative sanction and warning to take the necessary precautions to decrease the noise levels.

## **3. MAIN REQUIREMENTS OF RECREATIONAL PLACES**

### **3.1 Music Allowance Procedure of Recreational Places**

In Turkey, the music allowance to the entertainment places is provided by Municipalities in accordance with the provisions of By-Law on Starting Business and Work Permits entered into force by the Council of Ministers Decree dated 14.07.2005 and numbered 2005/9207.

The entertainment venues which are intended to have music activity should firstly have "Opening and Working License for Workplaces" which is provided by Municipality. In the second stage after getting opening and working license, the entertainment venue should take "music allowance document" from Municipality. In order to take this allowance, the operator of that venue makes "Environmental Noise Level Assessment Report" prepared by competent laboratories and this report assigned to Municipality which gave the working license of that venue. This report is assessed by Municipality if it has authority on RAMEN. If Municipality has not authority on RAMEN, then Municipality sends this report to Provincial Directorate of Environment and Urbanization (PDEU) and it investigates this report according to the principles of RAMEN and the formal decision letter on this report is sent to Municipality. At the end of this process, if all the situations regarding the noise levels and the other elements based on Regulation on Working License and RAMEN, Municipality give the music allowance to that entertainment place.

### 3.2 Environmental Noise Criteria for Entertainment Venues

In order to get music allowance, the entertainment venues should comply with the criteria defined under RAMEN, which are needed to be reported on “Environmental Noise Level Assessment Report” submitted to Municipality. The main criteria for entertainment places under RAMEN is given below as follows;

- The environmental noise from entertainment venue/s adjacent to the exposed building shall not exceed the background noise level in the exposed building in  $L_{eq}$ .
- The environmental noise from entertainment venue not adjacent to the exposed building shall not exceed the background noise level in the exposed building more than 5 dBA and 7 dBC in  $L_{eq}$ .
- The total level of environmental noise emitted from more than one entertainment venue shall not exceed the background noise level more than the range of 7-10 dB in  $L_{eq}$ . dB(A) and 9-12 in  $L_{eq}$  dB(C). Taking this range as basis, total level of environmental noise shall be determined by the Decision of Provincial Committee of Environment, taking into consideration the factors such as number of people in the area exposed to noise, the distance between noise-sensitive spaces and source of noise. In case of exceeding the limit values given in this sub-paragraph, each entertainment venue which contribute to the background noise level shall be responsible for exceeding limit value. After the determination of the noise contribution rate, each business shall take the necessary measures.
- Live music in open and semi-open entertainment places operating in areas where there are sensitive uses is prohibited between 24.00 and 07.00. During other time, they continue activities to ensure limit values specified in above.

These criteria are all questioned in the environmental noise level assessment report which has structured report format identified by Ministry under RAMEN. It includes mainly 5 parts as follows; General information on the entertainment place such as the noise sources; the building structure of the facility, the nearby buildings affected from its noise; Information on noise measurements such as the measured level, measurement conditions, devices and calibration information; Evaluation of noise measurements; Measures to be taken for noise control; Annexes as calibration certificates of noise devices, training certificates of staff conducting noise measurement, certificate of laboratory conducting the measurements, layout plan for noise measurement points.

### 3.3 Technical Staff Qualifications for Environmental Noise Evaluations

In Turkey, the technical staff and the measurement laboratory should have adequate qualifications in order to conduct environmental noise measurements and report preparation for music allowance document. The staff working on competent laboratory on environmental noise shall have the training certificate on environmental noise measurements. They should participate into the standardized training course given by the institution, which has protocol with Ministry on giving such training program. That protocol also includes the qualifications of the trainers who should have the prerequisites as follows;

- He/she has PhD. on acoustic and vibration and he/she is still working on this field.
- He/she has applicable studies on noise measurements/insulation/noise mitigation.
- He/she is capable of using environmental noise measurement device and of using the computational methods on this.

There are mainly 6 certificate/training programs as listed below;

- A1: Introduction to Acoustics and Field Measurements (max. 15 hours)
- A2: Engineering Acoustics (includes noise measurements and preparation of noise assessment reports) (max. 30 hours)
- B1: Noise Report and Noise Mapping for Industrial Plants (max. 36 hours)
- B2: Traffic Noise Mapping and Reporting (max 30 hours)
- C1: Building Acoustics (max. 30 hours)
- C2: Noise Action Planning (max. 40 hours)

Those who will prepare environmental noise level assessment reports for businesses and installations, factories, facilities, enterprises, entertainment venues, etc. not included in under the Regulation on Environmental Permits and Licences shall be graduates of engineering, architecture and science faculties of universities. Moreover, they shall have the level of expertise to conduct these

works. Technical staff should have certificate of A1 if they only perform noise measurement, but in order to elaborate reports they must have, at least, A2 certificate.

The laboratory carrying on these shall have pre-qualification/competency certificate to be obtained from the Ministry according to measurement standards specified for the businesses as TS ISO 1996-2 and TS 9315 (ISO 1996-1). From the point of environmental noise audits to the entertainment venues by the local authority as Municipality or PDEU, minimum two technical staff should carry on the noise audit. One of them should be four-year university degree and the other staff could be 2-year university or high school degree. At least, one of the staff should have A1 training certificate on environmental noise measurement.

#### **4. DISCUSSIONS AND CONCLUSIONS**

As a full candidate country of European Union, Turkey have been making significant progress on complying with EC Law. Environmental noise management is one of the most important achievements on this way. Environmental Noise Directive (END) 2002/49/EC was transposed to Turkish National Legislation with a name of “Regulation on Assessment and Management of Environmental Noise (RAMEN)” firstly in 2005 and this was amended in 2008, 2010, 2011 and lastly in 2015 in order to make this legislation more applicable. Although it is harmonized with END, it also includes the additional provisions like noise exposure categories for land use planning, criteria for expertise on environmental noise, criteria for evaluation of noise audits and sanctions. designation of competent authorities responsible for strategic noise maps and action plans, noise limit values for transportation and industrial sources and workplaces, facilities and also for recreational places which is not addressed in END.

This type of noise pollution has getting more apparent especially in coastal cities of Turkey with special features in terms of climatic, touristic, historical and geographical aspect. Specifically, the local authorities in coastal side of the country have been given great effort to reduce the noise pollution coming from the recreational places through the intensive noise audits. However, it is seen that the public noise complaints have been still increasing. Therefore, only the noise audits by local authorities finalized with administrative sanctions is not enough to provide healthy acoustic environment in a long period. There is need to improve more smart and sustainable solutions for this problem (15). Most of the European cities have also the same challenges due to the recreational places in city centers called as movida. Both local authorities and researchers have been trying to propose new approaches on this field. For instance, in Fimiani and Luzzi’s study, new control system based on a network of low cost sensors and on a participatory definition of limits was proposed for Bologna of Italy (10). Konya City of Turkey have been using noise monitoring system since 2015 and the main objective is to evaluate the mostly annoying sound levels in challenging areas and to provide public information and to inform the owner of the recreational places in order to take administrative precautions by itself (15). In Ottoz’s study, it is declared the need to an active city planning with a purpose of win-win solution for all the movida stakeholders. Moreover, it is recommended that the evaluation of external cost of noise pollution through cost-benefit analysis, which is required by Environmental Noise Directive, should also be applied for the recreational noise (12). This issue was also addressed in Azam’s research, which is stated that cost pricing of environmental problems may provide lots of benefits in a way that minimizing environmental pollution lead to maximizing the financial gaining for tourism sector(16). In the study focusing on Malaga’s recreational noise management, It was emphasized that conducting temporal monitoring campaign with several communication actions increase awareness among stakeholders to take their support on the planning and prioritization of further noise mitigations (13). As it is suggested in Bollesterus study, the recreational noise pollution does not only consist of the leisure or music activity in that venue but also includes the people staying the outside of that place and this study highlighted the importance of people behavior and education in silent attitudes (9). Therefore, during the recreational noise management, it has to be considered wide spectrum stakeholders including the owners of the entertainment venue who choose the technology and the type and design of the activity, its customers who are only willing to entertain, the neighbors who are exposed from that recreational noise and the local authority who should provide balance between all citizens and the city under lots of legislation applied by technical and administrative staff. At that point, the vocational skills of staff working on environmental noise management is very necessary to construct the strong bridge between the citizens and the city authorities. The Noise Training Project (NTP) financed by EC under Erasmus+ Program has been implementing in order to improve the vocational skills on environmental noise management and to develop sharing of good practices



through the partnership between European countries as Turkey, Italy and Spain. With NTP, it is aimed to develop curriculum content on environmental noise and the handbooks on legal, technical and communicative aspects of environmental noise management and the entertainment venues are specially take part on these handbooks (17).

As in the control and management of all type of environmental pollution, there is need to focus on prevention of pollution at the source. At that point, the legislation on urban planning and workplace allowance needs to consider acoustic quality of environment by integrating, cooperating and supporting each other. Municipalities as local authority having responsibility on giving working permission license to the recreational places should play role intensively in environmental noise audits. The stakeholder from the operator of recreational place to the neighbor near this premise and the customer and from the technical staff to the policy makers is needed to be aware of this type of pollution and give importance in management process in a smart and sustainable way. There is need to give necessary importance for supporting and improving the researches and the projects on this issue.

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