

Professional scientific sessions for art, architecture and urban planning Thursday evenings
Held in: Conference hall of Herampey Consulting Engineers
Date: 19.04.2018
Title: Tehran geotechnical classification and subterranean identification.
Speakers and panel members: Mr. M. Me'marian and Mr. B. Youssefi.

Mr. Me'marian who was the first speaker began his speech saying that he was involved in research works since 15 years ago and today he has realized that scientific fields have many common characteristics. He said that he doesn't believe that a scientific field is a closed circle and other researchers and new entries of researchers are not allowed to try to introduce their participation, on the contrary every researchers must find the connecting rings between different scientific fields, in order to improve the knowledge and results. Mr. Me'marian asserted that in the Iranian society research activities have a relatively recent history, and still we are not very familiar with teamwork. In other countries there are specialized organizations that help the interested companies and persons to be consulted for teamwork organization.

Mr. Me'marian talked about his university and professional experiences, saying that studying in different fields, without facing contradictions, indeed this kind of approach helped him to achieve better results in his studies and activities.

Talking about the argument of his speech Mr. Me'marian said the content of the speech was related to architecture, that tries to present a clear and transparent mental inclination, in order to present a teamwork that trough creativity achieves the entire content of an architectural work. Mr. Me'marian said that in our days architectural visions generally comprehend on the ground and visible factors, meanwhile and especially in the case of Tehran, invisible but existing subterranean characteristics must be considered, in order to avoid future and inevitable dramatic consequences. He explained that this year Tehran municipality has presented the maps of Tehran geological characteristics, that is the fruit of a teamwork lasted about 20 years. After Mr. Me'marian said that even though Tehran is positioned in an area at risk of damaging earthquakes, the engineers don't consider the problem seriously, meanwhile in order to reduce the possible damages and casualties it would be very useful to consult the GIS containing arguments about geotechnical characteristics.

Talking about geotechnical classification, mr. Me'marian said that in the world it has a recent history, about 50 years, meanwhile Iran has a delay of 30-40 years on the matter. He presented the cases of England, USA and Japan and the activities that they had developed.

Talking about Iranian experiences and activities on the matter he said that the works that have been realized have not a coordinated nature , but the most important and reliable documentation

has been prepared by JAICA (Japan International Cooperation Agency) ordered by Tehran municipality.

Mr. Me'marian presented the historic course regarding geotechnical studies, that goes back to the years '70-80 when the laboratory of soil mechanical analyzes was founded, becoming later part of Tehran municipality offices, changing some of its activities in order to be updated and respond to the changing demands and problems.

Talking about the accumulation and registration of data regarding the geotechnical characteristics he explained that Excel software has been adopted and different experts and specialists have been involved in the research activities. The work has been realized gradually, adding the newly studied areas to neighboring already study areas, in order to permit the creation of a comprehensive map that will include the entire region of Tehran. Mr. Me'marian explained that the actual problem is to provide urgent information and services, in order to ease he programming, reduce the costs and the possible risks regarding the urban infrastructures generally and building constructions specifically. He concluded his speech that the main goal of the research and study is to reduce and prevent the problems and damages that can be caused by geological y useful for all those are involved in the problems. This document could be very useful for all the persons and organizations involved in the construction process of Tehran.

The second speaker was Mr. Youssefi. He said that his speech was dedicated to an argument regarding the identification inside a structure impossible to be observed from the external side, in other worlds to see the hidden parts of the structure. He presented the GPR (Ground Penetrating Radar) used during the last decades in different parts of world, to identify and study the subterranean structures. Mr. Youssefi explained the manner the radar is used, transmitting the necessary data for the operators that command the GPR. The base of this system is the sending of electromagnetic ways underground to "catch" the necessary information.

Mr. Youssefi presented the different fields that the GPR is used, like geological studies, tunnels construction, urban identification studies, for excavation etc. Regarding Tehran municipality activities, Mr. Youssefi said that from 2012 Tehran municipality's technical and engineering consulting organization has realized different projects, that needed such external identifications.

Talking about Tehran municipality's activities Mr. Youssefi explained that during the last years they have experienced positive developments and transformations, in order to identify the geological and geotechnical characteristics and problems, that aim to form an information data bank, to be used for all related purposes. He explained that Tehran municipality has cooperated with CTI, a Japanese company that is specialized in the field to study the main roads and highways of Tehran for the necessary possible excavation activities. The system is able to penetrate up to 5 meters underground, but thanks to the technical achievements it will be possible to increase the reaching depth of the radar.

Mr. Youssefi presented the various activities that Tehran municipality has realized in cooperation with the Japanese company.

He concluded his speech talking about a 200 km. long project that it would study Tehran subterranean conditions. The Japanese company has declared his readiness to cooperate with Tehran municipality, through technology transfer and organization of training courses.

The necessities for the realization of the project are:

1. Subway lines plans
2. Approximate plan of the subterranean water channels(qanats)
3. Ground water collecting channels' plans
4. Tehran geotechnical classification plans 1:150000

Mr. Youssefi presented also the future achievements if the project will be realized, saying that it will permit to prepare the technical guidelines and increase personnel and consultant companies' technical knowledge.

Provision of technical equipment necessary for the realization of the project for the municipality of Tehran, encouraging the private sector to realize investments for the equipment.

Creation of a coordinating organization

Development of a comprehensive management organization of the municipality's assets.

Continuous control of Tehran's communication routs through the GPR system in collaboration with private sector's organizations that possess the necessary equipment.