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Original Research Paper Geography

Identification of risks at the Autonomous University of State of Mexico

José Isabel Juan Pérez

Universidad Autónoma del Estado de México.

ABSTRACT

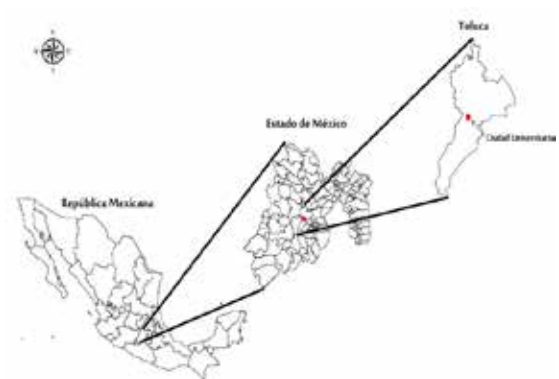
The studies of risks in the area of the universities of Mexico, are recent and scanty, in addition, they have not been approached not applied for the improvement of the environmental conditions and the social welfare of the social university actors. The universities have been characterized for realizing investigations towards the exterior and with benefits towards the people in general, but scantily in his own environment and for the benefit of his social actors.The objective of the research was to apply fieldwork techniques (direct observation, observation participant and crossed by the geographical space) to identify the risks in the Campus University City of the Autonomous University of the State of Mexico. The results showe that the social university actors are exposed to risks.This research is a modal in order that other universities of Mexico and Latin America elaborate projects to promote sure, healthy, and sustainable environments.

KEYWORDS :Identification, risks, Campus University, Mexico

Introduction

The Campus University City of the Autonomous University of the State of Mexico, is located in the portion Northwest of Toluca's City, State of Mexico (Mexican Highlands), in the geographical coordinates: 19 ° 17 ' 17 " latitude North and 99 ° 40 ' 41 " length West (figure 1). The altitude is variable, but in average it has 2 715 meters on the level of the sea. The Campus has a surface of 367 650 m^2.

Figure1.Location of the Campus University, Autonomous University of the State of Mexico, in the context of Toluca's Municipality, State of Mexico.



Source: Made by myself.

The University Campus is shaped by volcanic material and some horizons pyroclastic characterized by the presence of rocky outcrops. The University Campus presents a heterogeneous relief with inclination between 6 ° and 40 °.The predominant soil is Feozem, with thin texture, obscure color, presence of organic material, with porosity and capacity for water storage. The climate is C (w2) (w) b (i) g, humid temperate climate with rains in summer, the temperature of the coldest month ranges between 12 ℃ and 18 ℃, the average temperature of the hottest month is lower than 22 ℃.The average annual rainfall is 807.5 mm (Juan *et al.,* 2016).

The land use in the Campus is diverse, but the major coverage corresponds to the category of urban use (road infrastructure and buildings for the teaching, administrative activities and sports activities).

The vegetables predominant in the Campus are: eucalyptus *(Eucaliptuscamaldulensis)*, grevillea (*Grevillea robust*), cedar (*Cupressuslindleyi*), Willow (*Salix bonplandiana*), Pine (*Pinus sp.),*tepozan (*Buddlejacordata*), capulin (*Prunusserotina*), tejocote (*Mexican crataegus*), cempasuchil (*Tagetes erect),*nopal (*Opuntia sp*.) and aloe (*Aloe barbadensis).*

In the University Campus not exist hydrological important elements, nevertheless, during the period of rains, the superficial runoffs are frequent.

Methodology

The research was realized in the year 2015 and with two stages: work of office and fieldwork. The first one consisted of compilation and analysis of information of books and scientific articles associated with the physical components, biological components, ecological and environmental conditions, urban infrastructure and risks at the university campus.The use of cartographic material was important to represent graphically the most frequent risks. The second stage consisted of direct observation, participant observation, tours, photographic capture and record of the geographical coordinates of the spaces with risks.

The study of the risks in the universities

The Association of Pacific Rim Universities (APRU) has undertaken diverse projects to do participant to all the universities located in the Rim of the Pacific Ocean in activities directed to the prevention and mitigation of risks for natural disasters (APRU, 2004), nevertheless, there is minimal the number of universities that have programs of prevention and mitigation of risks.

Some attempts of approximation to the study, analysis, management and prevention of risks in educational institutions of Latin America are linked by the implementation of theoretical - practical actions and strategies to promote risk-free universities, nevertheless, there is minimal the number of universities that have identified and evaluated the risks in his own environment.

The absence of firm regulations and with scientific and methodological sustenance it is a factor that influences the interest of the universities to risks prevention. Many studies and investigations developed by universities, institutes of investigation and other national dependences do not provide results standardized (UNISDR, 2015).

In Mexico, the word risk is important in the academic, economic, sociocultural and political area. Diverse definitions of risk exist, but the majority they indicate that it is the probability of which a natural phenomenon or a phenomenon anthropogenic happens in a specific place and certain time (Juan, 2007). The risks can occur in any place, during the development of the human activities and provoke negative effects to the people.

The United Nations Office for Disaster Risk (UNISDR) it establishes that the risk is the probability of which some undesirable fact occur, in addition, it is linked by cultural, historical, political, socioeconomic and

environmental factors (UNISDR, 2015).

The conception of the risk is a sociocultural abstraction and has been always present in the human society. Soldano (2009) establishes that the risk is the probability of which a threat (danger) turns into disaster. The risk exists because the persons perceive it. Without the presence of people in a determined geographical space, the risk would not exist.

Different approaches and methods exist for the study of the risks: observational, systemic, qualitative, quantitative, descriptive. Juan (2007) thinks that to do a rigorous analysis of the perception of the risks is important to understand the form as an individual interprets and values the possible effects and dangers that these can provoke.

Exist many classifications and types of risks, for example, naturals and anthropogenic, all provoked by diverse factors. In the matter, Ramo-*set al*., (2014) he says that the social perception of the natural risks is a product of multiple factors.

Results

The University Campus and his physical, biological and sociocultural components determine an important urban ecosystem in Toluca's City, State of Mexico, but it is necessary to elaborate and to promote a preventive program of risks focused on social welfare university.

On the University Campus were identified and registered the following risks:

Geological - geomorphologic risks. *F*ractures, faults, removal in mass crackings, slide and fall of rocks and soil.

Chemical risks.

The chemical risks refer to the probability of which there happens an incident or accident of chemical origin where a chemical substance is involved and that generates hurts to the population, to his goods and to the environment, for example, failures in the industrial processes, mechanical failures, human mistakes, premeditated reasons, emission of toxic or corrosive gases, aerosols or particles to the atmosphere, liberation of liquids or solid dangerous, fires or explosions (SEGOB-SINAPROC-CENAPRED, 2001 and 2006).

In the University Campus the chemical risks are associated with the location of tanks of gas storage and the presence of service stations (gas station) in the streets near of the Campus. On the gas stations, gasoline, diesel and lubricants are expended.

Sanitary risks.

The classification of the National System of Civil Protection of Mexico groups in the category of sanitary risks to the events related to the pollution of the air, water and soil; epidemics; desertification and pests.

In the University Campus, the sanitary risks are associated with unpleasant odors in sites with stagnant water, disposal of solid residues in the soil, persons' massive concentrations, absence of hygiene in the toilets, pollution of the air by combustion of pyrotechnic games, presence of dogs and cats without anti-rabies control and harmful animals.

The excrement of the dogs represents a source of infection (factor of risk) of a single-cell parasite known with *Giardia duodenalis's* name, which can provoke diseases.

The sports, cultural and musical events provoke pollution of the air by burning of pyrotechnic games. The combustion of hydrocarbons in the cars that circulate along the internal circuits of the Campus, also they generate pollution of the air. The music festivals in the field generate noises and vibrations that can provoke fractures in the glasses of doors and windows of the buildings. The amplitude, intensity and frequency of the sound damage the sense of hearing.

Risks socio-organizational.

The National System of Civil Protection groups as socio-organizational risks to certain accidents and acts that are result of the human activities: industrial or technological accidents, delinquency and accidents that originate in the terrestrial transport (SEGOB-SINAPROC-CENAPRED, 2001). In the figure2 and table 1 there are represented the most frequent risks that occur in the University Campus.

Figure 2.Risks in the University Campus and his adjacent environment. Autonomous University of the State of Mexico.2015.

Source: Image obtained of Google Earth's platform. On June 8, 2015.

Table 1.Type of risks.University Campus.Autonomous University of the State of Mexico. 2015.

Type of risk	Simbology
Geological - geomorphologic	
Hidrometeorological	
Physico–chemical	
Sanitary	
Socio-organizational	

Source: own Production, fieldwork, 2015.

Discussion and conclusions

In Mexico, the study of the risks in the universities has been minimum, nevertheless, attempts of approximation have existed to his identification, evaluation and management. The study of the risks is a priority that must have immediate attention, since often in the interior and immediate boundaries of the universities usually happen risks that affect the welfare of the social university actors.

Moreno (2012) does a reflection of the importance that represents the prevention of the risks in the university environment and indicates that the university as company has obligations with the persons. The university must prevent occupational risks. The success of a quality university needs of an environment of work, also of quality.

The most important obligations of the university are: maintenance of the buildings, environmental improvement, to provide suitable lighting in the working spaces and study, to provide hygienic services, to adapt areas for the rest and human activities, to establish sufficient signs of safety, to apply emergency measures, to monitor the health of the university actors and to execute programs of prevention (Moreno, 2012).

The University of Veracruz (2011) states that the way in which every educational institution approaches the subject matter of the risk and his management is linked by his own essence, responsibility and vision towards the management of the risks.

In the University Campus new buildings must not be established,

since the available spaces are exposed to diverse types of risks, for example, some buildings are constructed on geological substrata by presence of fractures.

The Autonomous University of the State of Mexico, in his quality of Public Decentralized Organism, has full autonomy to the interior of the institution in the relative thing to his academic aspects, of investigation, technical, of government, administrative, economic and of management, but as governmental institution, the university must comply with the legislation risks (Juan *et al.,* 2016)

In the Mexican Universities it is urgent to promote politics for the prevention and management risk, applying always the current legislation.

In the University of Guadalajara (west of Mexico), Garibay, G and Curiel, B. (2002) realized a study of perception of risks in a center of investigation, the identified risks are similar to the brought ones in this investigation, with exception of which in the first one fires and plane crashes happen, while, that in the second one, these are not significant.

The culture of the prevention of risks must be promoted in all the geographical spaces of the Autonomous University of the State of Mexico, principally with actions of sensitization and awareness. The promotion of sure, healthy and sustainable environments in the Mexican Universities if it is possible, but his social actors must take part.

To guarantee the efficiency of the actions directed towards the prevention and managing of risks, as well as the promotion and management of a sure, healthy and sustainable university, it is advisable that during the audits that realize in the Campus University include rigorous observations on the managing risk (Juárez *et al.,* 2015).

The governance of the risk is an important challenge in the administrative context of the universities, since it represents a strategy of the social actors to manage the risks (UNISDR, 2015).

The universities, institutes of investigations and institutions of the government are generating and disseminating a lot of information about risks, but still there is not understood well which is his purpose and into what measure they change the levels of sensitization and the perceptions on the risk (UNISDER, 2015).

The academic culture of publication of articles in scientific magazines constitutes an obstacle for the access to the information about risks. For many university investigators specialized in studies of risks, the publication is a purpose and not a way for application and diffusion of the results toward the whole population. The scientific magazines only other scientists read them, therefore, a closed circuit is generated, in addition, the risk evaluations are realized by experts in science and engineering, in that there do not take part the end users either decision makers (UNISDR, 2015).

Bibliography

1. Association of Pacific Rim Universities. (2004). History, Objectives, StrategicFramework. Documento en Línea. Disponible en http://apru.org/news. [Consultado: 2016, febrero 2].
2. Garibay, G &Curiel A.(2002). Percepción del riesgo ambiental en una comunidad universitaria. Investigación en salud. IV (1), 1-11.Documento en Línea. Disponible en: http://www.redalyc.org/articulo.oa?id=14240103.[Consultado: 2016, febrero 2].
3. Juan, J. (2007). Manejo del Ambiente y riesgos ambientales en la región fresera del Estado de México. 162 pp. España. EUMED. Documento en Línea. Disponible en: https://books.google.com.mx/books?isbn=8469069217 [Consultado: 2016, febrero 2].
4. Juan, J.I., Olvera, J.L., Magallanes, M. C., Espinosa, L.M., Pozas, J.G., García, I.E., White, L., Ramírez, A.A., Juárez, R., Gutiérrez, J.G. (2016). Los espacios universitarios como objeto de estudio. Análisis geográfico, ambiental y ecológico del Cerro de Coatepec. Universidad Autónoma del Estado de México. Argentina. Dunken.
5. Juárez P., Juan J. & Estrada R. (2016). Gestión sostenible para el bienestar social universitario. El caso de una universidad pública del Altiplano Mexicano. España. Revista Caribeña de Ciencias Sociales. Eumed.Net. Documento en Línea. Disponible en: http://www.eumed.net/rev/caribe/2016/sostenibilidad.html [Consultado: 2016, febrero 2].
6. Moreno, B. D. (2012).Universidad y Prevención de Riesgos Laborales: Nuevos Retos. III Congreso Internacional de Prevención de Riesgos Laborales. España.
7. Ramos,R. R.,Olcina, C. J & Molina, P. S. palacios (2014). Análisis de la percepción de los riesgos naturales en la Universidad de Alicante. Investigaciones geográficas. (61), 147-157.
8. Secretaría de Gobernación (SEGOB). Sistema Nacional de Protección Civil (SINAPROC). Centro Nacional de Prevención de Desastres (CENAPRED). (2001). Diagnóstico de peligros e identificación de riesgos de desastres en México. Atlas Nacional de Riesgos de la República Mexicana. México.
9. Secretaría de Gobernación (SEGOB). Sistema Nacional de Protección civil (SINAPROC). Centro Nacional de Prevención de Desastres (CENAPRED). (2006). Manual de Organización y Operación del Sistema Nacional de Protección civil. México.
10. Soldano, A. (2009). Conceptos sobre riesgo. Síntesis temática realizada para el Foro virtual de la RIMD creado para la Capacitación en Teledetección Aplicada a la Reducción del Riesgo por Inundaciones. Argentina.
11. Universidad Veracruzana (2011). Propuesta semilla para facilitar la creación del Plan de Gestión Integral del Riesgo. Protección Universitaria. Cosustenta. UV.México.
12. United Nations Office for Disaster Risk (UNISDR). (2015) Hacia el desarrollo sostenible: el futuro de la gestión del riesgo de desastres. Informe de evaluación Global sobre la Reducción del Riesgo de Desastres. Suiza. Oficina de las Naciones Unidas para la Reducción del Riesgo de Desastres.