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EX ANTE ANALYSIS TO EXPLORE THE PROVISION TO PAY SUSTAINABLE UNIVERSITY SERVICES IN THE UNIVERSITY CITY OF AUTONOMOUS UNIVERSITY OF COAHUILA, UNIT TORREÓN, MEXICO

Abstract:

Sustainable campuses have become one of the main objectives of university agendas as a result of the impacts generated by the activities that take place there and that affect the environment. Therefore, there are environmental management systems, which are the set of practices, procedures, processes and resources needed to comply with environmental regulations in companies and are focused on the reduction of impacts on the environment and the efficiency of processes. In Universities, even when considered as companies, these systems do not work efficiently, which makes it necessary and urgent that a model of environmental management system is adequate and that, through teaching and research, society is helped to achieve the transition to sustainable lifestyles.

Universities generate an impact directly and indirectly on the environment and can be considered small cities, because of their size and population and because of the multiple activities that take place within them that can affect the environment. They are very complex structures, with numerous subcultures, styles, contrasts, experiences of all kinds, with great differences among students, faculties and community in general, which leads to rethink the decisions to be made within the system.

Given the above, one of the objectives of these educational centers should be to achieve a better use of their resources with the sole purpose of making the campus environmentally sustainable. Each university is then conceived as an institution that is concerned with mitigating the impacts generated by its activities and by generating institutional policies that are a model to be followed by other universities in the city, in each country and in other countries.

In order to know the sensitivity of the student community about the environmental problems of the university campus and their awareness to solve the environmental problems present on the campus, an experiment was designed under the theoretical framework of the contingent valuation method (provision to pay) in order to explore the possibility of accepting a special annual quota aimed at improving environmental services and expanding facilities dedicated to culture, coexistence and recreation of the university community.

The results of the field work carried out from August to November 2018 are presented, as well as recommendations for the university authorities regarding a sustainable management model for the university campus.

Keywords:

Sustainable development, environmental economics, provision to pay, sustainable campus

JEL Classification: Q01, Q50, Q59

1. -PROBLEM STATEMENT

Sustainable campuses have become one of the main objectives of university agendas as a result of the impacts generated by the activities that take place there and that affect the environment. Therefore, there are environmental management systems, which are the set of practices, procedures, processes and resources needed to comply with environmental regulations in companies and are focused on the reduction of impacts on the environment and the efficiency of processes. In Universities, even when considered as companies, these systems do not work efficiently, which makes it necessary and urgent that a model of environmental management system is adequate and that, through teaching and research, society is helped to achieve the transition to sustainable lifestyles.

The university centers have been subjected to great growth throughout the world, by public or private initiative, and the high number of students and teachers has led to these institutions have to design new ways to create and disseminate knowledge, have to rethink the teaching-learning processes and must inscribe their pedagogical practices in the multiple scenarios of society.

However, a crisis in higher education has been declared because it is far from responding to the demands of society, and the development of knowledge is sometimes limited and often inconsistent, which requires a profound reform of its normative, functional and organizational, and also the provision of ethical, ideological, praxeological and strategic keys to point to what we have called sustainability, seeking to know, solve, feel and think about environmental and social problems (Wright, 2002).

Universities generate an impact directly and indirectly on the environment and can be considered small cities, because of their size and population and because of the multiple activities that take place within them that can affect the environment. They are very complex structures, with numerous subcultures, styles, contrasts, experiences of all kinds, with great differences among students, faculties and community in general, which leads to rethink the decisions to be made within the system (Cohen, 1986).

Universities are increasingly related to environmental complexity and feel the need to internalize their problems, as well as to strategically advance in the ways of approaching situations. In this way, they can not divest themselves of socio-political and pedagogical representations that bring the principles of sustainability and development (Riojas, 2000).

The 1997 Tbilisi Conference, in its Final Report, announces that Universities, as research and training centers for professionals, must respond to the environmental problems facing society and that they must have a special responsibility in the management and protection of the environment. environment: "Universities, in their capacity as centers for research, education and training of qualified personnel in a country, must give increasing scope to research on environmental education and the training of experts in formal and non-formal education" (UNESCO, 1978).

Given the above, one of the objectives of these educational centers should be to achieve a better use of their resources with the sole purpose of making the campus environmentally sustainable. Each university is then conceived as an institution that is concerned with mitigating the impacts

generated by its activities and by generating institutional policies that are a model to be followed by other universities in the city, in each country and in other countries.

The sustainable campuses are today one of the main objectives of the agendas of the Universities.

In the last 10 years, more universities have taken part in the responsibility of managing their resources to ensure a healthy environment. This effect has been prominent in Europe, the United States, Canada, Australia, Asia, and some countries in South America and Africa (Simkins, et al., 2004). Some speak of green campuses; others refer to green buildings, to eco-universities. The ways to get there also vary from one university to another. However, three important guidelines have been used successfully on the road to the sustainability of higher education institutions, and refer to 3 strategies:

- The Green Buildings Initiative as a project that seeks the efficiency of buildings in every sense; that is, it seeks a greater use of solar energy and consequently a reduction in the use of electricity and waste production, through a concept of sustainable design.
- In this regard, it is important to point out that problems of environmental degradation do not occur only within laboratories; they also occur in administrative areas. Hence the importance of adopting a management system in every sense (Lozano et al., 2007).
- The Environmental Regulation ISO 14001 (ISO 14001, 1996) that is implemented by a large number of Universities in the United States and Europe, as an Environmental Management System that has a systematic approach to environmental activities and achieves improvement in the processes of the companies where it defines the significant environmental aspects and impacts for the organization, sets objectives and goals of environmental performance, establishes environmental administration programs, formulates the environmental policy of the company, in this case, of the University, and strengthens personal responsibility with the ambient.

ISO 14001 brings important contributions to promote and achieve a sustainable campus because it is mainly focused on environmental dimensions; but it has some limitations, especially in the social and economic dimensions. These regulations should be discussed within the institution to introduce the relevant variations and thus achieve a sustainability standard for each University (Steger, 2000).

However, starting to adopt these measures, with their strategies of public participation and social responsibility, means knowing the different dimensions and complexities of the environment, having a proactive attitude and the ability to develop or propose integrated solutions to different problems.

Management systems or environmental management known as EMS in English (Environmental Management System) or SGA in Spanish (Environmental Management System) which are the set of practices, procedures, processes and resources needed to comply with environmental regulations and are focused to the reduction of the impacts on the environment and the efficiency in the processes. This regulation is a duty of every company or institution that is subjected periodically to an environmental audit to ensure compliance with the norm

(Ridgway, 2005). In the case of Universities, it helps integrate the environment with health and safety systems, contributing to policies such as recycling and waste reduction, which is one of the most important points to be addressed in this type of scenario (Shriberg, 2002).

These environmental management systems are responsible for specific tasks such as ensuring the mitigation of negative impacts of operations, preventing pollution, managing energy in an efficient way, reducing waste, conserving resources, recycling and also ensuring that we have denominated green buildings, that is to say, to obtain that the constructions are in agreement with the surroundings and take advantage of to the maximum the means, without exploiting the resources. Without a doubt, the adoption of these systems leads to institutions having friendly practices with the environment and with society (Piper, 2002).

In Mexico, the main initiatives are in the efforts developed by the Mexican Consortium of University Environmental Programs for Sustainable Development (Complexus), which was set up in December 2000 thanks to the effort made three years before by several higher education institutions, by the Center for Education and Training for Sustainable Development (CECADESU) of Semarnat and by the National Association of Universities and Institutions of Higher Education (ANUIES).

Complexus has as objectives, among others:

1. To seek the improvement of academic work in environmental matters and sustainability of Higher Education Institutions (IES).
2. To encourage that its members establish programs that promote the development of knowledge, skills, competences, skills, values and attitudes necessary for sustainable development.
3. Promote the incorporation of the environmental dimension in higher education curricula, as well as the elaboration and exchange of theoretical and methodological proposals that have that purpose.
4. Promote the dissemination of information on sustainable development among the institutions that make up the Complexus.
5. Encourage the creation of environmental programs of institutional scope of HEIs.
6. **Promote the creation and strengthening of Environmental Management Systems within HEIs.**

This sixth point is what is sought to be explored through ongoing research, considering that an Environmental Management system in a university campus requires the informed participation of the community, in order to be efficient and successful.

2. -THEORETICAL FRAMEWORK

Environmental economics has systematically advanced in the design of new tools for interpreting reality, (Labandeira, León and Vázquez, 2007) being the subject of the valuation of environmental natural capital where interesting contributions have been recorded.

Herman Daly (Daly, 1989) is undoubtedly one of the most important theorists that has led to the breakdown of classical economic thought, which leaves the circular model of the flow of capital (Mankiw, 2004) to the environment, to claim the contribution from this to any productive activity of society, and how, through the extraction of energy from nature towards production and the loss of the quality of such energy as a result of entropy, the environment has become a great waste dump of low energy quality or frankly polluting.

According with Castañeda (2018) the Nobel Prize for Economics 2018, William Nordhaus, refers to this phenomenon of production / environment imbalance and establishes the need to develop a new model: Integrated Assessment Model, composed as follows:

1. Carbon circulation: This describes the concentration and emissions of carbon dioxide (CO₂) in the atmosphere. It reflects the basic chemistry and describes how this component circulates among three carbon stocks, which are the surface of the ocean, the biosphere and the deep oceans. The output of this module is a time trajectory of atmospheric carbon dioxide.
2. Climate: Refers to the effects derived from the concentration of CO₂ and greenhouse gases, which damage the balance of energy flows to and from the Earth. Displays changes in long-term global energy reserves. The output of this module is a time path for global temperature, which is the key measure for climate change.
3. Economic growth: Shows the economy of the global market using capital, labor and energy as inputs. A part of the energy is born from fossil fuel, which generates carbon dioxide.
4. In this section, the climate policies that impact on the GDP and on finances in general are shown.

Castañeda (2018) mentions that "Nordhaus is the pioneer of the economy of the environment: of green accounting, of taking into account the depreciation of the environment within our economic calculations. Nordhaus introduced to the growth models the negative externalities that the exploitation of natural resources has and that must be deducted from the GDP of a country. To this end, Nordhaus developed models that integrate economic dynamics with climate and allow to study the results of different public policies on climate change, perhaps the most famous of these is around the implementation of carbon taxes".

Thus, the theme of the economy / environment relationship becomes increasingly important and highlights, therefore, the efforts to value natural resources beyond their possible value chrematistic (Leff, 2012) but in its deepest sense that is the livelihood of life itself.

In this context of theoretical advance in environmental economics, the contingent valuation method (Willingness to Pay) has also been developed, aimed at granting a value to environmental resources or services that, due to their characteristics, lack a market price referent.

Riera (1994: 2) explains the meaning of this method:

"The contingent valuation method is one of the techniques - often the only one - that we have to estimate the value of goods (products or services) for which there is no market. It is extraordinarily simple in its intuitive understanding: it is about simulating a market by surveying potential consumers. They are asked about the maximum amount of money they would pay for the good if they had to compare it, as they do with other goods. Hence, the value that the good in question has for the average consumer.

The way to carry forward the contingent valuation experiment is explained by Riera as follows:

"In the contingent valuation method, the questionnaires play the role of a

hypothetical market, where the offer is represented by the interviewer and the demand by the interviewee. There are numerous variants in the formulation of the question that must obtain a price for this good without real market. A typical procedure is as follows: the interviewer asks if the maximum willingness to pay would be equal, higher or lower than a certain number of pesetas. If you get "lower" by answer, you can repeat the question by decreasing the starting price. Finally, they usually ask what the maximum price would be they would pay for the good, taking into account their previous responses "(1994: 11).

The method in question has gone through a maturation process that has withstood theoretical and empirical tests; the doubt regarding the biases of the answers of the informants, the interest in showing their preference really is perhaps the most sensitive part that the method has.

Riera (1994: 15) continues explaining the scope of the method:

"The contingent valuation method constitutes a particular case within the procedures of market construction. Said construction can be real or hypothetical. When a city council decides, for example, to put a referendum on the approval of a partial urban planning plan that contemplates the urbanization of a space of high landscape interest, it is creating a "market" where those most directly affected decide whether the income anticipated for the administration Municipalities compensate for the loss of quality of space as a public good. The same exercise can be simulated by a survey that builds that market hypothetically and thus estimate the maximum willingness to pay (or the minimum willingness to be compensated) of the citizens for the conservation (or loss) of the space in its current quality. This type of exercise is called a contingent valuation. The contingent valuation is considered a form of direct estimation, since a sample of the population is directly asked how much it values a certain environmental good "

Let us now describe the organization of field research.

3. - MATERIALS AND TOOLS

For the realization of the field research, a group of 5 interviewers, a training coordinator and a general coordinator were formed. The polling group was trained in the following points:

- Understanding of the contingent valuation method.

- Handling of the questionnaire to be applied.
- Training for the management of the electronic tool for the collection of information.
- Training for the work of gathering information.

Four electronic tablets were used, which were conditioned with the software package Quick Tap Survey, which allowed a more agile handling of the interview, as well as the processing of the information, which was deposited in a database in Windows Excel environment .

Questionnaire to apply

Based on the theoretical framework that guides the present investigation, the questionnaire was designed to serve as a source of information to determine the willingness to pay for environmental services by the community of the Autonomous University of Coahuila, unit Torreón.

Before applying the questionnaire, the interviewees were informed of the hypothetical plan on which the disposition to pay experiment is based.

HYPOTHETICAL APPROACH

Willingness to pay for environmental services by the community of the university city.

Objective: To explore the possibility of accepting a special annual quota aimed at improving environmental services and expanding facilities dedicated to culture, coexistence and recreation of the university community.

Approach:

The university authorities are designing a master plan for the sustainable management of the university campus. Said plan includes:

- Provisioning, collection, conservation and appropriate use of water in the university city.
- The transition from the use of electric energy to solar energy, through the installation of solar panels in each faculty.
- The implementation of the policy of Reduce - Reuse - Recycle (3R) for the treatment of solid waste.
- Permanent reforestation campaign based on existing endemic species and others adapted to the region.
- Care of the existing fauna in the university city through the creation of natural reserves.
- Creation of the cultural space that will include a library, cinema, cafeteria, multipurpose gym and a green area with Internet access.
- Development of the university cycling circuit.

THE RESOURCES THAT ARE OBTAINED WILL BE HANDLED INDEPENDENTLY TO THE FINANCES OF THE UNIVERSITY IN A SPECIAL TRUST, INTEGRATED BY PRESTIGE PERSONS OF THE REGION, ACADEMICS AND STUDENT REPRESENTATIVES OF EACH FACULTY.

QUESTIONNAIRE TO APPLY BETWEEN THE UNIVERSITY COMMUNITY

Part 1.- General characteristics of the observed population

1. - Gender of the interviewee

1st Female 1b male

2. - In which faculty do you study?

2nd FAFF 2b Systems 3c Economy 3d Engineering 3e Architecture 3f Chemical Sciences 3g Community

3.- In what semester are you now?

Objective: Identify willingness to pay based on gender and professional specialty.

A third question was prepared regarding the semester that is being studied, because during the pilot test a certain bias was observed in the responses of the interviewees who attended higher semesters.

Part 2. - Degree of knowledge and sensitivity to the environmental issue

4- Do you know the meaning of the concept of sustainability?

4th SI 4B NO

5Have you heard about sustainable university campuses?

5th YES 5B NO

6-Of the following topics and in descending order from 1 to 5, where 1 is NOTHING IMPORTANT and 5 is VERY IMPORTANT. What is the degree of importance of the following environmental problems of the university city?

6th Water shortage

6b Inadequate waste generation and management

6c Lack of green areas

6d Excessive use of electric light

6e Absence of coexistence facilities for the university community

6f Another problem, which one?

Objective: To know the level of knowledge about the environmental problems of the university city.

The effectiveness of the experiment depends to a large extent on the degree of knowledge that the population must observe on the specific problem to be corrected, or in this case, on the proposal to create a sustainable management of the university campus.

PART 3 Willingness to pay an extra fee

7- Would you be willing to pay a special fee applicable to the development of the sustainable campus with the projects mentioned above?

7th YES 7B NO (DO NOT go to the next question, IF YOU GO TO QUESTION 9)

8- What is the reason why you do not want to contribute with the special quota?

8th I do not have enough income 8b these works are the responsibility of the authorities 8c I do not trust this type of trusts. 8d I do not think that project could be carried out. 8e Other Which?

9- Of the following amounts, what would you be willing to pay annually AS AN EXTRA PAYMENT TO YOUR REGISTRATION to carry out the project of a sustainable university city?

GO SAYING THE QUANTITY, ONE BY ONE AND DOWNWARD UNTIL YOU ACCEPT ONE OF THE OPTIONS

9th 1,500 (77 US dollars)

9b 1,000 (51 US dollars)

9c 750 (38 US dollars)

9d 500 (26 US dollars)

9e 350 (18 US dollars)

9f another amount, which one?

END OF THE INTERVIEW

Objective: Obtain an answer about the pertinence of the creation of the trust; identify the causes of a refusal to such purpose and know the most frequently mentioned amount of the informants accepting the payment of an extra fee dedicated to the creation of the trust.

It is very important to consider what, even though the university, due to its public nature, is free, the students cover an annual fee of 5 thousand pesos (256 US dollars).

4. -FIELD RESEARCH

The research was carried out at the facilities of the Autonomous University of Coahuila, Torreón Coordination, known as the university city, and that from here we will call "the campus".

First stage: pilot test.

In order to test the designed questionnaire, as well as the tools used to capture information, a pilot test was carried out among the students of the Faculties of Fiscal and Financial Administration, Community Sciences and Systems. There were 100 interviews, which allowed to detect inconsistencies in the questions posed, as well as to incorporate some others not contemplated.

Mathematical formalization

For the calculation of the observations to be made, the following formula was chosen:

$$n = \frac{N * Z_a^2 * p * q}{d^2 * (N - 1) + Z_a^2 * p * q}$$

Where:

N = Total population

Za = 1.96 squared

p = expected proportion (5% = 0.05)

q = 1-p

d = precision

N = 3.036

Za = 1.96 squared

p = 5% = 0.05%

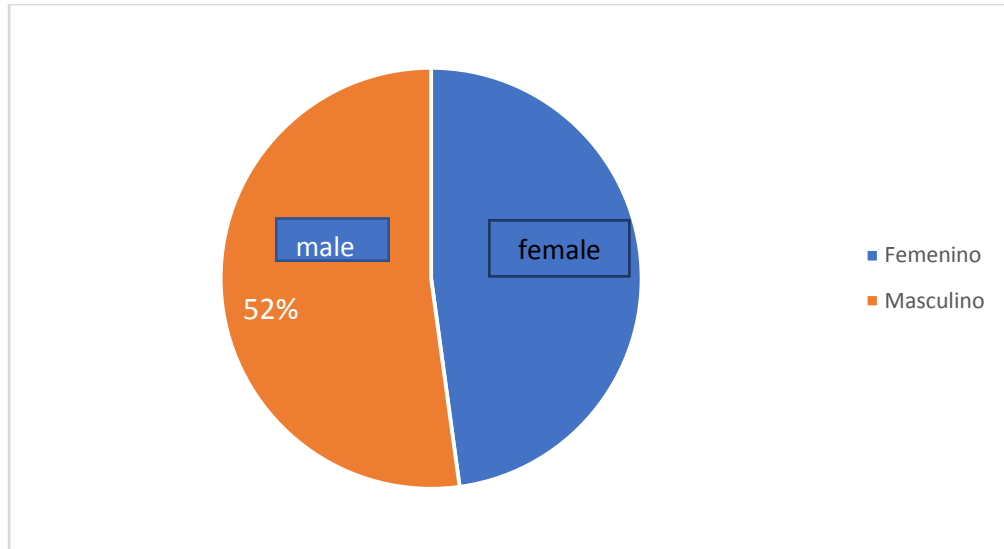
q = 0.95

d = 5%

The universe to be surveyed is made up of 3,036 students, so by clearing the formula we have that the representative population amounts to 278 observations. A total of 400 observations were made

5. -RESULTS OBTAINED

GRAPH 1 GENDER OF THE INTERVIEWER



We sought to reflect the opinion of the students by discarding some gender bias. Some authors consider that women have a greater disposition toward environmental issues, since the activities they carry out in a traditional way are closer to the environmental problem.

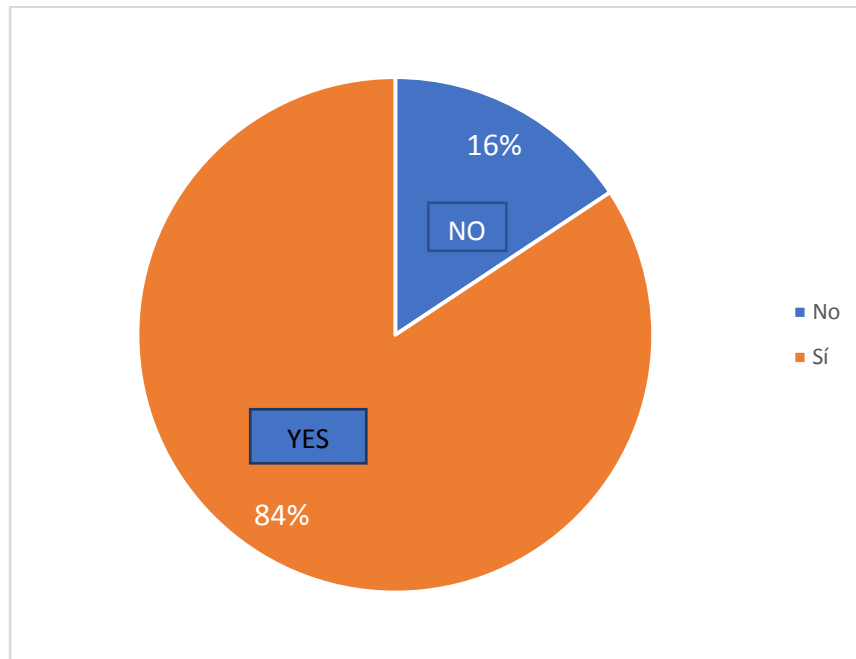
As indicated by a study by the Department for International Development of the United Kingdom ((DFID, 2011: 1):

"There is a differentiated impact of climate change on women;

"The differences between the roles and responsibilities of men and women can influence the ability of the individual to take action against the weather."

The graph shows that of the total number of observations obtained, 52% was between men and 48% among women, which makes it possible to mention that the objective of doing a joint survey between the two genders was fulfilled.

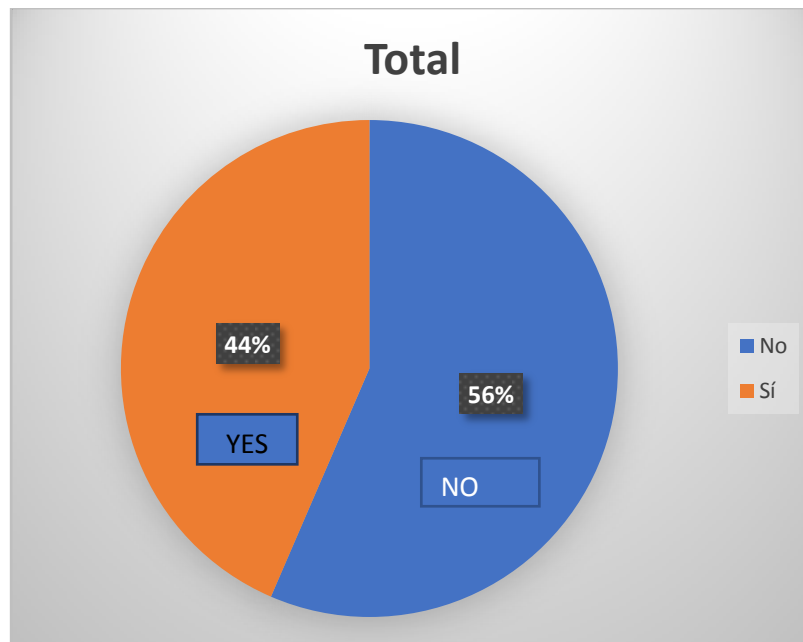
GRAPH 2: KNOWLEDGE ON THE CONCEPT OF SUSTAINABILITY



The result of 84% that if you know the meaning of the concept of sustainability, is encouraging to establish a common platform of understanding about the aspects that will be established later.

The 16% who answered that they do not know this meaning is a segment with which they must work through introductory courses at the time of entering the university and as part of the campus community, and then throughout their stay in it.

GRAPH 3: KNOWLEDGE OF THE MEANING OF SUSTAINABLE CAMPUS



By advancing more in the degree of knowledge on environmental aspects and in particular on the meaning of a sustainable campus, it was noted that knowledge about sustainability did not correspond to the concept of sustainable campus, since 56% said they did not know the meaning of this , and only 44% said that if they knew it.

The foregoing warns us of the need to design a theoretical-practical scheme of sustainable campus that is quickly put into practice, as a transversal activity in all the faculties and in all the careers.

With reference to the sensitivity to environmental issues within the university campus, the community expressed itself by pointing out the following topics:

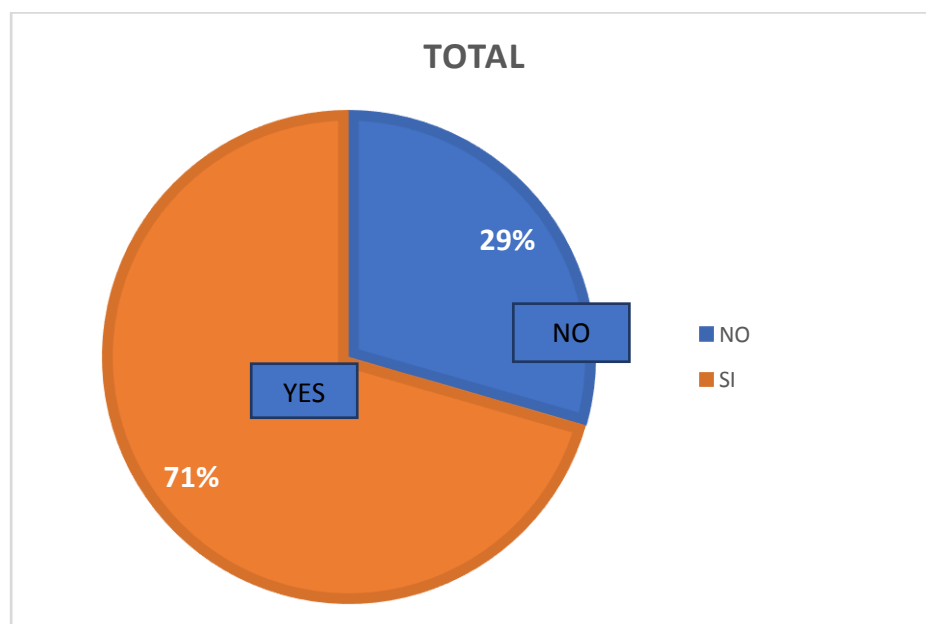
- Use of water
- Use of electric power
- Generation and management of solid waste

Two other indicators are also considered that have to do with the context in which the university activities are carried out:

- Existence of green areas
- Spaces of coexistence, beyond the traditional sports courts.

On this occasion, a question related to the governance of the campus was not elaborated, since in the present case there is no administration as such. This topic will be addressed in the conclusions and recommendations

GRAPH 4: ACCEPTANCE TO PAY AN EXTRA FEE TO CARRY OUT THE SUSTAINABLE CAMPUS PROJECT.



When implementing the contingent valuation experiment and asking the informant about their willingness to pay an extra fee to their annual enrollment to the university addressed to the sustainable campus project, 71% answered affirmatively and 29% answered negatively.

The previous figure shows us the level of acceptance very clear to the project, something that in a first instance looks like very favorable and is a good base to carry out actions that sensitize the university community on the topic of university sustainability.

Looking for the reasons why 29% of the respondents refused to pay an extra fee to their annual tuition to the university, it was found that the main cause of such refusal is the lack of sufficient resources, followed by the consideration of what this type of projects is the exclusive responsibility of the university authorities, in third place the belief of the impossibility of carrying out this type of projects and in fourth place the distrust of the formation of trusts as the one proposed.

By far, the lack of economic resources is the main cause, which tells us that there is an important sector of university students with limited economic resources, which requires their protection with a good scholarship system.

Moving on to one of the most important questions, the informants were questioned:

HOW MUCH IS THE EXTRA FEE THAT YOU WOULD BE WILLING TO PAY TO CARRY OUT THE SUSTAINABLE CAMPUS?

In addition to be a surprise the percentage of acceptance, the extra amount to pay proposed by the informants also was mostly high,

- 261 informants are willing to pay an extra fee for 350 pesos or more (18 US dollars or more)
- 153 manifested for a quota of 350 pesos, (18 US dollars)
- 74 for one of 500 (26 US dollars)
- 19 for 750 (38 US dollars)
- 10 for one of 1000, (51 US dollars) and
- 3 for 1,500 pesos of extra quota (77 US dollars)

CONCLUSIONS

University campuses are an excellent microcosm where socioeconomic experiments can be carried out with a relatively homogeneous variable. In this case, the surveyed population is distinguished by its character of being a university student. From this reality one can infer, as did Reboloso (2017) certain social behaviors regarding initiatives to correct or improve some environmental situation.

Notwithstanding this homogeneity, by going more deeply into the individual characteristics of the interviewees, there are aspects that should be considered for future research. Such is the case of

the variable income, which requires a special space in subsequent experiments in order to weigh more firmly, the degree of influence that this has on the responses of the informants.

The conclusions that are derived from the field work are the following:

1.- The application of the contingent valuation method in its modality of willingness to pay proved its usefulness. The informants understood the meaning of the experiment and gave valuable answers that will serve for future work in the design of the environmental management of the university campus.

2.- The relevant percentage (84%) of knowledge about the concept of sustainability among the student community, verifies the idea that the university population has more information on aspects of development, than that which counts the population in general. This allows us to suppose that the initiatives, projects or environmental actions that could be undertaken in the campus, will have the informed support of the students.

3.- Despite the encouraging tone of the previous point, as we got closer to knowing the level of understanding of the university community regarding the meaning of sustainable campuses, the information obtained indicates that 56% answered negatively, which owes us alert regarding the effectiveness of environmental management actions in progress (if any). In a positive sense, the 46% who know the concept of sustainable campuses is an asset that should be strengthened, since they are the natural allies of a comprehensive sustainability project for the campus.

4.- The application of the willingness to pay an extra fee to the annual tuition directed to the creation of a sustainable campus was accepted by 71% of the interviewees, a figure that indicates enthusiasm, participation and vision of change.

The positive meaning of this response, rather than the amount accepted to pay, gives a reliable basis that the university community accepts the cost of an action that is identified as beneficial for campus life.

5.- Taking into consideration that a significant percentage of the students who attend the university are of limited economic resources the amount of the extra amount accepted to pay is significant. Most of the acceptors established a quota higher than 18 dollars or more. The foregoing indicates the importance that university students attach to the sustainable campus project.

6.- The research showed that there is a slight percentage in favor of men with respect to the willingness to pay and the amount of the accepted quota, which can lead us to elaborate hypotheses about the socioeconomic characteristics of our students by gender or well investigate about the benefits regarding the distribution of scholarships taking into account this gender variable.

7.- About the causes of refusal to pay, the income factor is the main one among these, something that should be considered in the actions that protect student's permanence in the University. In addition to the above, the student's perception that authorities should act primarily in this type of project, leads us to believe that more information is needed about what the University does to have a sustainable environment on its campus.

8.- The investigation showed, although not conclusively, that there is an apparent relationship between refusal to pay and membership of certain faculties and pointed out that income is the main cause of such refusal.

The above can give a channel to a greater analysis about the socioeconomic characteristics of the students by faculty and allow, through more studies and verification of clear tendencies, towards where a greater support for the permanence of the students and the elevation of their scholar performance should be directed.

RECOMMENDATIONS

1.- The research showed that there is sensitivity of the students about the environmental problems present in the university campus; Through the interview, the students recognized to a greater or lesser extent that water scarcity, the generation of solid waste, the lack of green areas and coexistence are some of the significant problems present on campus. The first recommendation is that, based on an analysis of the impacts generated by the activity of the university community in the campus environment and taking into account the growth projection of the population, a technical committee is formed to develop a MASTER PLAN SUSTAINABLE MANAGEMENT, that shortly collect information, analyze general and particular problems, develop strategies, schedule budgets and establish a critical path to take actions for the sustainability of the university campus.

2.- The foregoing implies that, at the directive level of our University, the need to move from the current Sustainability Committee to a DEPARTMENT OF MANAGEMENT OF THE CAMPUS that works on the matters indicated in the previous point is contemplated. It is considered that only through a holistic analysis of the problems of the campus and through an institutionally coordinated action is it feasible to transcend towards a sustainable management model of the Autonomous University of Coahuila campus in Torreón.

3.- In this approach to the sustainability of the campus, this research showed the students' support for a project for a different conception of their university environment. This support was not only declarative but, the university students showed their willingness to contribute monetarily to carry out actions in favor of raising the quality of the interaction with the environment and university coexistence in the natural and material space where it takes out your schoolwork. This is a good basis for the authorities to analyze and design institutional development strategies and the management of the university campus until now not contemplated.

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