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Presentation of the Content

In the first chapter we present, *Numerical analysis of the indoor climate in a Zenith-type greenhouse in the Valle de Santiago region, Guanajuato*, by MORALES-FÉLIX, Verónica de Jesús, RIVERA-ARREDONDO, Marisa, AGUIRRE-PUENTE, José Alfredo and CALDERÓN-RUIZ, Alberto, with adscription in the, Universidad Tecnológica del Suroeste de Guanajuato, as the following article we present, *Establishment of Homegardens in the State of Aguascalientes*, by LÓPEZ-LÓPEZ, Ana, ACOSTA-ZAMARRIPA, Ana, ZARZOSA-VEGA, Ricardo and DOMÍNGUEZ-LÓPEZ, René, with adscription in the, Programme in Sustainable and Protected Agriculture, as the following article we present, *Citizen Participation in the Consultative Councils for Sustainable Development (CCDS) in Southeast Mexico: An Academic Perspective*, by GÓMEZ-RIVERA, Petrona, as the last article we present, *Research on success stories of family businesses and proposal of a CANVAS business model*, by SERRANO, Ma. Guadalupe, QUEZADA-FLORES, Ma. De La Luz, MÁRQUEZ-DE ANDA, Camilo and LIPIEC, Jacek, with adscription in the, Universidad Tecnológica de León.

Content

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Article   Page

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Numerical analysis of the indoor climate in a Zenith-type greenhouse in the Valle de Santiago region, Guanajuato

Análisis numérico del clima interior en un invernadero tipo Cenital en la región de Valle de Santiago, Guanajuato

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Abstract

The objective of this project was to carry out an analysis of the indoor climate of the greenhouse located in the Valle de Santiago region, Guanajuato. It is a zenith-type greenhouse with two wings with a symmetrical face. An orthogonal mesh was made of 50 nodes (25 nodes for each height) Total Den located in the cultivable area and taking the value at the midpoint of each rectangle considering two heights 0.25m and 1.30m with respect to the ground. Humidity and temperature readings were taken in each of the nodes for three weeks and subsequently a data analysis was made and a comparison with the data collected in the different situations; also the temperature was analyzed with the double sum of Riemann and the rule of the middle point. In conclusion, it was determined that the greenhouse yields heat on warm days, while it receives heat on cold days. This behavior coincides with previous studies; however, it occurs that with the hydroponic method there is a greater growth of the crop.

Greenhouse, Indoor Climate, Temperature, Hydroponics, Heat, Mesh

Resumen

El objetivo del presente proyecto fue realizar un análisis del clima interior del invernadero ubicado en la región de Valle de Santiago, Guanajuato. Es un invernadero tipo cenital con dos alas de cara simétrica. Se realizó un mallado ortogonal 50 nodos (25 nodos para cada altura) Den total ubicados en la zona cultivable y tomando el valor en el punto medio de cada rectángulo considerando dos alturas 0.25m y 1.30m con respecto al suelo. Se tomó lectura de humedad y temperatura en cada uno de los nodos durante tres semanas y posteriormente se hizo un análisis de datos y una comparación con los datos recolectados en las diferentes situaciones; además la temperatura se analizó con la doble suma de Riemann y la regla del punto medio. En conclusión, se determinó que el invernadero cede calor en los días cálidos, mientras que en los días fríos recibe calor, este comportamiento coincide con estudios previos; sin embargo, se observó que con el método de hidroponia hay un mayor crecimiento del cultivo.

Invernadero, Clima interior, Temperatura, Hidroponia, Calor, Mallado

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Introduction

A greenhouse is a covered and artificially closed installation with transparent materials, in most cases, in order to protect the plants from bad weather conditions (low temperatures, strong winds, hail, storms, low air humidity or excessive radiation solar) (Mejía – Sáenz, 2016). Ventilation is essential in a greenhouse. Maintaining a favorable indoor climate implies evacuating the excess heat produced at times of high insolation (Montero et al., 2001). Consequently, a good design of the ventilation systems of a greenhouse must allow a better control of the climate, which affects a better development of the crop and its yield.

There are different types of greenhouses for different types of crops or to cover extreme climatic changes; The greenhouse in which the numerical study of its interior climate is carried out is located in the Valle de Santiago Region, it is of the zenith type that is characterized by having wing-shaped vents in the upper part, to regulate the degree of opening of ventilation needs when the indoor climate changes, its main function is to release the hot air that accumulates in the upper part due to different factors. The total cultivable area of the greenhouse is 720 m2 and has 7 beds of an approximate height of 0.25 m. where more than 200 plants are grown.

Materials and methods

The greenhouse in which the numerical analysis was carried out is of the zenith type, with two wings with a symmetrical face shape and are located in the highest part of the greenhouse, these can regulate the degree of opening according to the ventilation needs of the greenhouse , The main function is to release the hot air that for different factors accumulates in the upper part of the greenhouse.

The greenhouse dimensioning was carried out using an orthogonal mesh which consists of 90 ° angles that formed 25 rectangles of 3.6m x 8m, the midpoint of each one was found to determine the temperature and humidity measurement point. The greenhouse has a capacity for 10 seed beds where more than 200 seeds can be sown.

The greenhouse has 10 posts that support it and its cultivable area is 40 meters long and 18m wide. It is covered with a black cloth, the tubes that the greenhouse supports are 5 cm in diameter, it also has curtains on its sides which can be kept open to regulate the interior temperature and as protection it has a mesh that covers the curtains to avoid let in foreign matter. In addition to using the curtains for the indoor climate of the greenhouse, it has fans in the upper part, to homogenize and stabilize the temperature. The 12 fans are distributed in sections, a front and a rear along the beds. (Figure 1).

Figure 1 Indoor and outdoor view test greenhouse

Orthogonal Malled

The orthogonal meshing for the taking of parameters (Humidity and temperature) was carried out from the lower part of the greenhouse. The arable area of the greenhouse measures 40 x 18 meters, the orthogonal meshing was carried out at two heights 0.25 and 1.30 meters from the ground, forming a plate on this area, in the front part the 18 meters were divided into each 3.6m and along the 40 meters in each 8m, thus forming 25 rectangles in each of the heights obtaining 50 midpoints which were used to take the parameters to be evaluated (Figure 2).
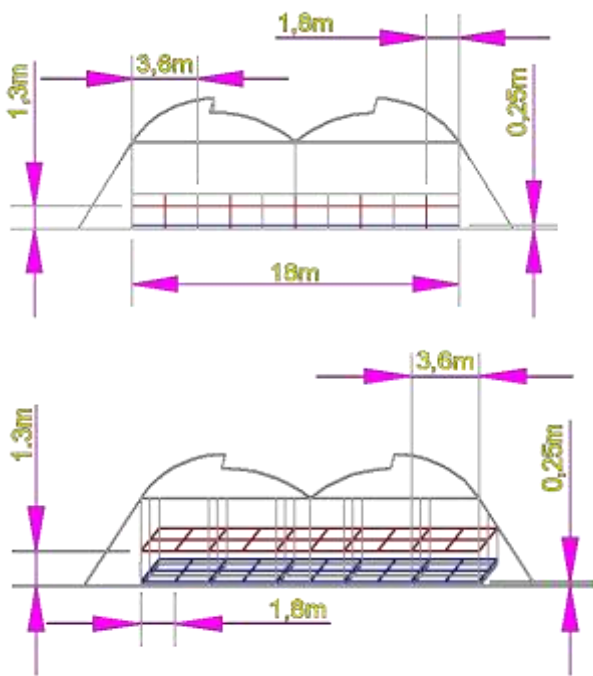
Figure 2 Front views of the orthogonal mesh of the greenhouse

As can be seen in Figure 3, the midpoints were located in each of the rectangles obtained in the orthogonal mesh of the arable area of the greenhouse, these were found at 1.8m
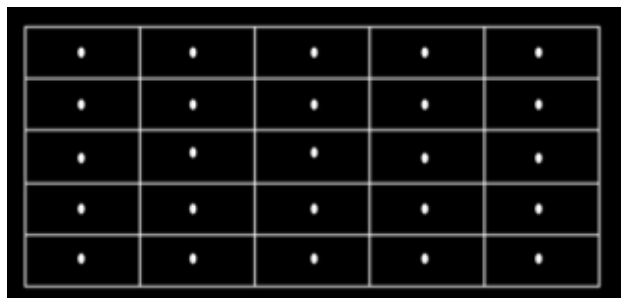

Figure 3 Top view of orthogonal meshing and midpoints

The data obtained were classified into warm days and cold days, considering the variation in temperature existing in the different days and hours; and cold days Table 1 shows an example of the data recording on a warm day and Table two shows the averages per midpoint of warm and cold days.

Day 1			Hot day		
Position 1					
Midpoint	Temperature	Humidity	Midpoint	Temperature	Humidity
1A	28.7	37	1B	30.2	40
2A	28.4	40	2B	30.1	37
3A	27.7	41	3B	30.3	35
4A	26.3	36	4B	30.9	41
5A	24.2	36	5B	31.6	36

Table 1 Temperature and humidity of midpoints of a "warm day"

Temperature averages by midpoint					
Warm days			Cold days		
Bed level	0.25 m	1.3 m	Bed level	0.25 m	1.3 m
Average	Average	Average	Average	Average	Average
30.28	30.15	30.70	22.6	23.3	23.6
30.55	30.78	30.55	23.1	23.2	23
30.45	30.50	30.78	22.7	22.9	23
30.55	31.10	31.10	23.3	23.2	23.4
30.45	30.93	31.43	23.7	23.7	23.1
30.90	30.30	30.40	22.7	23.2	23.5
30.35	30.60	30.60	23.3	23.4	23.2
30.25	30.10	29.90	22.9	25.3	23.9
29.95	30.03	29.85	24.1	24	24.1
29.55	29.58	29.58	23.6	23.7	23.6
29.43	29.65	29.73	22.6	23	23.2
29.88	29.55	29.88	22.9	22.7	**22.5**
30.15	30.25	30.30	22.4	23	22.9
30.00	29.78	29.75	23	23.3	23.3
29.33	29.18	29.30	23.2	23.2	23.7
30.15	30.38	30.40	25.4	25.8	26.1
30.38	30.53	30.83	24.5	24.8	25.3
30.98	30.80	30.65	24.8	25.2	25
30.73	30.70	30.73	24.4	24.7	25
29.55	29.68	29.70	23.6	23.9	24.2
30.38	31.13	31.38	26.4	26.6	26.7
31.40	31.78	32.15	25.6	25.3	25
31.83	31.95	32.13	24.8	24.5	24.1
32.00	32.18	32.50	24	24.3	24.3
31.88	32.30	**32.68**	23.8	23.5	23.6
30.45	30.55	30.68	23.736	23.988	23.972
	30.56			23.90	
General Average:			27.23		

Table 2 Averages per midpoint warm and cold days

Day without cultivation

To obtain the value of the average function, and the heat used, the following formulas were used, the results are shown in Table 3 and Table 4, where a comparison of previous research carried out in the same greenhouse is shown.

$$\iint_R f(x,y)dA \approx \sum_{i-1}^{4} \sum_{i-1}^{4} f(\bar{x}i, \bar{y}i)\Delta A$$

$$fprom = \frac{1}{A(R)} \iint_R f(x,y)dA$$

$$\dot{Q} = \frac{m\, Cp\, (T_f - T_i)}{t}$$

Temperature ° C					
	S1 No culture	S2 No culture	S3 No culture	S4 with culture	S5 with culture
0.25 m	27.43	27.52	29.91	30.93	24.7
1.3 m	28.14	29.27	30.24	30.94	24.86

Table 3 Average f results per week (0.25 and 1.3m)

Parameter	2017	2018
Q seized warm day	$4.83 \times 10^{-3}\ W$	$0.12\ W$
I took advantage of cold day	$6.87 \times 10^{-3}\ W$	$0.01\ W$
Evaporation	$213.1488\ Kg\ H_2O/h$	$208.22 Kg\ H_2O/h$
Growth factor	2-4 cm	2-6cm
No crop		
Cooling Q		
Warm days		
Bed	$0.49\ W$	$9.73\ W$
0.5m	$-0.40\ W$	$-1.81\ W$
1m	$0.42\ W$	$0.37\ \ W$

Table 4 Data comparison for the years 2017-2018
Source: Self Made

Conclusions

This work presents the second approach to a numerical analysis of the greenhouse climate in the Valle de Santiago Guanajuato region and studying the heat transfer that exists between each of the points that were taken with the orthogonal mesh.

The temperature distribution by nodes was not uniform due to the location of the greenhouse, since at the time of obtaining the data two walls are under the sun's rays and the other two walls are under shade.

The cultivation of the plants allowed a decrease in the temperature in the greenhouse and clearly agrees with the results since, after 1 week more cultivation, the average temperature decreased 6.16 ° C and this agrees with the bibliography that the higher the volume cultivated has a greenhouse, there is a smaller difference in temperature with the outside.

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Establishment of Homegardens in the State of Aguascalientes

Establecimiento de Huertos Familiares en el Estado de Aguascalientes

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Abstract

The state of Aguascalientes is made up of 11 municipalities, in 9 of them home gardens follows settled: Aguascalientes with 26 orchards, the town of seats with 15, Calvillo was benefited 9 gardens, sewed with a total of 26 gardens, The flat 8 orchards, the town of Jesus Maria 16, Rincon de Romos with 10 orchards, San Francisco de los Romo 13 orchards and finally Tepezalá municipality with 18 orchards. Giving a total of 140 orchards. Which they were planted to the following crops, cilantro, radishes, beets, onions, broccoli, cauliflower, cabbage, lettuce, red tomatoes, tomato shell, serrano and jalapeno pepper, watermelon, melon, cucumber, chard and spinach In the second stage It is being established vermicompost bed for organic fertilization of the same. So far the results have been favorable since 90% of orchards have been adopted and cared for by the beneficiaries, the rest have been relocated to other communities in the different municipalities of the state of Aguascalientes.

Resumen

El Estado de Aguascalientes está conformado por 11 municipios, en 9 de ellos se instalaron huertos familiares de la siguiente manera: Aguascalientes con 26 huertos, el municipio de Asientos con 15, Calvillo fue beneficiado con 9 huertos, Cosió con un total de 26 huertos, El Llano 8 huertos, el municipio de Jesús María con 16, Rincón de Romos con 10 huertos, San Francisco de los Romo con 13 huertos y finalmente el municipio de Tepezalá con 18 huertos. Dando un total de 140 huertos. Los cuales fueron sembrados con los siguientes cultivos, cilantro, rábano, betabel, cebolla, brócoli, coliflor, repollo, lechuga, tomate rojo, tomate de cascara, chile serrano y jalapeño, sandía, melón, pepino, acelga y espinaca En la segunda etapa se está estableciendo la cama de lombricomposta para la fertilización orgánica de los mismos. Hasta el momento los resultados han sido favorables ya que el 90 % de los huertos han sido adoptados y cuidados por los beneficiarios, el resto han sido reubicados en otras comunidades de los diferentes municipios de estado de Aguascalientes.

† Researcher contributing as first author.

Introduction

Today we live in a developed industrial society that is constantly evolving into a service society. The majority of the population lives in cities and along the coastline, so it can be said that this society is predominantly urban.

For many centuries agricultural ecosystems have been in perfect balance with the natural environment surrounding them, but nowadays the intensive production system has led to the disruption of this balance with the massive application of chemical fertilisers and pesticides.

This development has led to the loss and disappearance of market gardens that until a few years ago were located on the outskirts of cities, to the lack of knowledge of production processes on the part of consumers, to valuing an agricultural product not as a foodstuff but rather as a product with a size, colour, price, etc., in short, to the disappearance of an agricultural culture. Esteve (2010). For this reason, the Universidad Tecnológica del Norte Aguascalientes has been working intensively to retake the part of agricultural production, through the generation of urban spaces destined to the improvement and production of agricultural products for food purposes.

It is not about returning to the natural state, but rather about creating a humanised landscape, which is based on intensive work and care of the land: shaping the terrain, ensuring irrigation and controlling the growth of crops and, in short, guiding all efforts to a healthy and nutritious production purpose suitable for self-consumption.

Urban and peri-urban gardens are agricultural spaces linked to urban centres which combine the productive functions associated with family consumption with sustainable, social and environmental purposes. A home garden is a plot where fresh vegetables are grown intensively and continuously throughout the year, which involves staggered sowing. A home garden can be established on small plots of land in a lot near the house and is easy to tend; the produce is reserved for the food needs of the farmer's family. (Policarpo Espinoza Robles).

Ecological agriculture is the integration of the knowledge of traditional and environmentally friendly agriculture with modern biological and technological research.

The course in Sustainable and Protected Agriculture at the Universidad Tecnológica del Norte Aguascalientes uses models for the establishment, care and production of vegetables, as well as promoting care and respect for the environment.

General objective

To promote in the inhabitants of the different communities of the state of Aguascalientes a participatory sustainable ecological culture, through the demonstration, implementation, monitoring, maintenance and production of different agricultural activities using the techniques and spices appropriate to the region, to obtain organic vegetable products, which provide a nutritional and nutritional contribution to the members of the family.

Specific objectives

– To develop and implement a training plan for the members of the communities in the state of Aguascalientes in the creation, care and maintenance of family gardens.

– To promote ecological agriculture in society, through the creation of organic urban gardens producing healthy and fresh food and thus recovering the horticultural variety of the region.

– Encourage community management of home gardens, guaranteeing the active participation of the state's communities.

– Promote the social participation of the community in the self-consumption of vegetable products, thus helping to feed the family.

Methodology

This service project will be carried out in two stages. The compost will be composted for a week to make the compost suitable, then a kilogram of red Californian earthworm will be added to produce organic fertilisers and add them to the family gardens.

Results

A total of 140 home gardens were installed in 20 rural communities in 9 of the 11 municipalities that make up the state of Aguascalientes, through visits and monitoring visits in terms of installation, operation, production, detection and control of pests and diseases. Group training was provided for the production of homemade insecticides for the control of pests and diseases.

In the first stage (lasted 4 months). Where the kitchen gardens have a total area of 60 m2. Each garden consists of 6 furrows. Each furrow was planted with vegetable seeds. The home garden was conditioned with localised irrigation, and the perimeter was fenced with wire mesh to prevent damage from crawling animals, and a hoe and metal rake were provided for weeding.

In the second stage (3 months). The vermicompost beds will be established, with an area of approximately three metres, which will be fed with cattle manure.

Graph 1 Huertos Familiares establecidos en el Estado de Aguascalientes

During the second stage of the installation of the vermicompost beds, some anomalies were detected in some of the communities, such as not having adequate space for the installation of the garden, lack of interest and dedication to fulfil the needs and requirements of the garden, the presence of rodents that alter the development of the crops, as well as the lack of water for the established irrigation. The decision was taken to relocate the orchards to other communities. These are shown below.

Graph 2 Relocation of established home gardens in the State of Aguascalientes

Conclusions and recommendations

Based on the work carried out, the following conclusions can be drawn: 93% of the homegardens established in the state achieved the established objective. The 7% were not achieved due to water deficiency, neglect of the garden by the beneficiaries, and damage by cattle and goats, for this reason, they are being relocated to other communities in the state.

Recommendations

It is suggested that when allocating home gardens, the following should be considered: availability of water, appropriate soil for planting and people committed to the care and monitoring of the home garden.

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Citizen Participation in the Consultative Councils for Sustainable Development (CCDS) in Southeast Mexico: An Academic Perspective

La participación ciudadana en los Consejos Consultivos para el Desarrollo Sustentable (CCDS) en Sureste mexicano: Una visión académica

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Abstract

In Mexico, since 1995 a Citizens Advisory Council involved in the analysis of environmental policies and offer recommendations to the Federal Government was formed. The academic sector is part of these Councils, and the following research questions were raised: councils are performing the functions set out in the Regulations? Which of these functions is the incident?. With this, the objective was to measure the level of participation of these citizens advice in a state of the Mexican Southeast. The methodology consisted of applying a questionnaire to identify the areas of greatest impact and citizen participation, responses were evaluated based on a scale (Likert), the instrument was applied to 90% of pariticpantes of CCDS, it was validated with Cronbach's alpha, obtaining acceptable reliability of 0.70. As a result of data analysis, it was found that the highest incidence of involvement of the Council, is in the role of recommendations with 44.4%, determining a moderate level Likert scale. From the academic perspective, this paper contributes a qualitative measurement insturmento participation of the Council, but at the same time, will encourage others and more robust instruments and strategies for improvement in the Councils.

Civil participation, Civil advices, Environmental policy

Resumen

En México, desde 1995 se conformó un grupo de Consejeros Ciudadanos que participan en el análisis de las políticas ambientales y ofrecen recomendaciones al Gobierno Federal. El sector académico forma parte de dichos Consejos, y se plantearon las siguientes preguntas de investigación: ¿los Consejos están realizando las funciones establecidas en su Reglamento? ¿cuál de estas funciones es la más incidente?. Con lo anterior, el objetivo fue medir el nivel de participación de estos Consejos Ciudadanos en un estado del Sureste mexicano. La metodología consistió en la aplicación de un cuestionario para identificar las áreas de mayor incidencia o participación ciudadana, las respuestas se valoraron con base en una escala (Likert), el instrumento se aplicó al 90% de pariticpantes del CCDS, mismo que fue validado con el alfa de Cronbach, obteniendo una confiabilidad aceptable del 0.70. Como resultado del análisis de los datos, se observó que la mayor incidencia de participación del Consejo, se encuentra en la función de recomendaciones, con el 44.4%, determinando un nivel moderado en la escala de Likert. Desde la perspectiva académica, el presente trabajo contribuye con un insturmento cualitativo de medición de la participacion del Consejo, pero a la vez, propiciará otros y más robustos instrumentos, así como, las estrategias de mejora en los Consejos.

Participación ciudadana, Consejos Ciudadanos, Política ambiental.

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Introduction

In Inclusive Mexico, social policies that promote citizen participation, transparency and accountability are elements that foster development with statistical evidence to evaluate and feed back into social programmes (PND 2013-2018).

On the issue of environmental governance, the Consultative Council for Sustainable Development (CCDS) has had an important trajectory since 1995, in which it exercises the functions of advising, recommending, analysing and evaluating public environmental policies (LGEEPA, 2008).

Throughout its 20-year history, the CCDS has had the participation of around two thousand advisors from various sectors: academia, business, youth, indigenous peoples, social organisations, gender and women, who together have analysed specific environmental situations and have made recommendations to SEMARNAT and the corresponding bodies such as CONAGUA, CONAFOR, PROFEPA, among others (http/////). among others (http//:consejos.semarnat.gob.mx).

During 3-year cycles, each generation of Councillors issues a historical document called White Papers, in which the experiences and achievements obtained, the recommendations made, the attendance to meetings, as well as the participation in other consultative bodies, are reflected in the form of reports. In spite of having these documents and information concentrated over 20 years, it can be seen that there are a significant number of recommendations, but the significance of these works in Mexican environmental policy is unknown.

Therefore, and from an academic perspective, the trajectory of the CCDS deserves to be evaluated with instruments that make it possible to measure the level of citizen participation and its impact or incidence on environmental policies that have promoted sustainable development in our country. This work offers a semi-quantitative measurement instrument, based on the following basic research questions: Are the Councils carrying out the functions established in their Regulations? Which of these functions is the most important?

Objective

The objective of the study was to determine the level of impact or incidence of the functions exercised by a CCDS in Southeast Mexico during the period 2008-2011. This will contribute to having information to improve the management of the CCDS at the governmental level and to accurately assess the results.

Method

An instrument (questionnaire) was designed, based on the four functions of the CCDS (advising, recommending, analysing and evaluating public environmental policies), with nine items, whose response options were assessed on a Likert scale.

The dependent variable was the impact of the CCDS, and the independent variable was the applicability of the work generated by the CCDS. The target population for the application of the instrument was all CCDS councillors in southeastern Mexico.

To determine the reliability (precision or accuracy) of the measurement instrument, Cronbach's Alpha Coefficient (1) was applied, with which the variances of the items and the variance of the total score were obtained, establishing a minimum required value of 0.7.

$$\alpha = \frac{K}{K-1} \left[1 - \frac{\sum S_i^2}{S_T^2}\right] \qquad (1)$$

Donde :

K = número de ítems
$\sum S_i^2$ = varianza del total de filas
S_T^2 = varianza de las sumas de los items

In order to determine the impact of the Advisory Council, descriptive statistics and Likert scale response frequencies were used for the data on the functions of the Councillors and the impact or incidence of the work carried out by the Council under study.

Results

Application of the instrument

With the support of the President of the selected Council, and as a general subject of an ordinary meeting held in April 2015, the Councillors and authorities of SEMARNAT of the State Delegation were informed of the objective of the research project and were invited to actively participate in the process of applying the questionnaire, which was sent to them electronically, through the official mail of the technical secretary of the Council.

During the months of April to June 2015, the applied instruments were received.

The expected goal was the participation of all councillors, resulting in 90% of participating councillors.

Validation of the instrument

The results obtained were processed in an Excel 2013 spreadsheet, descriptive statistics were applied, and the frequencies of responses were calculated on a Likert scale.

Subsequently, the Cronbach's alpha formula was developed, obtaining a 0.70 level of reliability of the instrument, which is considered an acceptable correlation between the items of the instrument applied (Cortina 1993, Streiner 2003 in Oviedo 2005).

Participation of Board Members with respect to the functions performed

With regard to the indicators of the functions and impact of the work carried out by the Board members, the percentage of responses on the Likert scale (0=nil, 1=low, 2=moderate, 3=high) was analysed, and it was found that 55.6% consider the function of issuing recommendations to be moderate, the functions of evaluating specific issues to be low with 66.7% and the function of advising to be nil, with 66.7% (Table 1).

Estimating the impact of the work carried out by the Council

In reference to the impact of the Council's work, Table 2 shows that 44.4% of the Councillors are of the opinion that the applicability of the work issued is moderate; on the other hand, the administrative response time for the work issued by the Council has a low scale value, with 77.7% of the responses; and 44.4% express no participation in advisory work on specific projects (Table 2).

The results obtained do not have a reference point with which to argue, but the methodology used must be reinforced with a conceptual and analytical framework that allows for the integration of information from other primary sources in order to design robust indicators and evaluation instruments.

Item	Porcentaje de frecuencias	Escala de Likert que presento la mayor frecuencia
Asistencia a reuniones del Consejo	55.6	1= bajo
Participación en la función de asesoría	66.7	0=nulo
Participación en las función de emitir recomendaciones	55.6	2= moderado
Participación en la función de evaluar asuntos específicos	44.4	1= bajo
Participación en la función de evaluar resultados de los programas, políticas y acciones	66.7	1= bajo

Table 1 Results of Councillors' participation in specific functions
Source: Gómez R.P.2015

Item	Porcentaje de frecuencias	Escala de Likert que presento la mayor frecuencia
El esfuerzo de trabajo realizado es	44.4	1= bajo
Tiempo de respuestas administrativas para los trabajos que emitieron, es:	77.7	1= bajo
Interés administrativo hacia los trabajos que emitieron, es:	55.5	2= moderado
La operatividad de los procesos administrativos e internos del Consejo es:	55.6	1= bajo
La aplicabilidad de los trabajos que emitieron, es:	44.4	2= moderado
El número de asesorías realizadas a la fecha, es:	55.5	0=nulo
El número de recomendaciones realizadas a la fecha, es:	55.5	1= bajo
El número de evaluaciones específicas:	55.5	1= bajo
El número de evaluaciones de resultados de programas, políticas y acciones, realizadas a la fecha, es:	44.4	0=nulo

Table 2 Outcome of the impact of the work carried out by the Council
Source: Gómez R.P.2015

Acknowledgement

Conclusion

It is considered that the impact or incidence of a CCDS in Southeast Mexico on environmental policy is moderate, that of the four main functions of the Council, that of issuing recommendations is the most recurrent, and the opposite is the case of the advisory function, which is considered to be null.

On the other hand, the moderate level of enforceability of the work issued by the Council may be due to the low response of the administrative time to be expected to be enforceable.

The results provide qualitative information, which should be reinforced with other methodological and statistical instruments to strengthen the results and serve as a basis for decision-making for the improvement of the Advisory Councils for Sustainable Development.

The study is useful, considering the lack of studies that evaluate the impact of the Advisory Councils at the national level. With these data, an academic perspective is provided to measure the citizen effort added to the responsibility of environmental policies, for environmental governance.

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Research on success stories of family businesses and proposal of a CANVAS business model

Investigación sobre casos de éxito de empresas familiares y propuesta de modelo de negocio CANVAS

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Abstract

Today the family business occupies a very important place in the economy of each country to generate the most jobs and contributing to gross domestic product in a very high percentage. The objective of this research is to present relevant information of successful companies that have prevailed for over 1400 years and passed from generation to generation with unique businesses and chaos and power struggles between family, and a proposal of methods and models of business. The results show the oldest family businesses with the world and its orders, competitive advantages and business secrets. Evidence of the family chaos are presented. CANVAS business model supported with the book of Alexander & Pigneur, it has been adopted by incubators Mexico, includes every part of a business plan focuses on infrastructure, supply, customer and economic model.

Success stories, Family chaos, CANVAS model

Resumen

En la actualidad las empresas familiares ocupan un lugar muy importante para la economía de cada país generando la mayor parte de los empleos y contribuyendo al producto interno bruto en un porcentaje muy alto. El objetivo de esta investigación es presentar información relevante de empresas de éxito que han prevalecido por más de 1400 años y pasado de generación en generación con negocios únicos, así como el caos y guerras de poder entre la familia, y una propuesta de métodos y modelos de negocios. Los resultados muestran los negocios familiares con mayor antigüedad del mundo así como sus giros, ventajas competitivas, y los secretos de las empresas. Se presentan evidencias del caos familiar. Un modelo de negocios CANVAS soportado con el libro de Alexander & Pigneur, mismo que ha sido adoptado por incubadoras de México, incluye cada parte de un plan de negocios se centra en la infraestructura, oferta, cliente y modelo económico.

Casos de éxito, Caos familiar, modelo CANVAS

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Introduction

As Michel de Montaine writes "Ruling a family is almost as difficult as ruling a kingdom". Some of the keys to survival for over 1400 years are financial policy, which tends to be more conservative, low indebtedness and reinvestment of profits, while owners try to be more patient with success and profits. (sala, 2009). Page 29

Family businesses range from corner shops run by parents with or without the support of their children, to giants such as Ford Motors, Michelin, Fomento de Construcciones, Carrefur, Fiat or family groups with a wide variety of interests, such as the Wallenberg dynasties in Sweden, the Wendels in France, or the Marches in Spain. Of the 250 family companies listed on the stock exchange, 10 are Mexican companies. In this work we will reveal the administrative and financial secrets that these companies have in order to continue operating with positive results in their finances.

In this case, we will only talk about the successes of family businesses and the benefits they obtain by making business plans following an effectively functional model.

The present research starts with the background of family businesses, followed by the methodology and the respective analysis of the success stories, as well as the proposed CANVAS business model for family businesses starting or developing.

Structure of the family business, young family in the business, entry into the business, working together, handing over the baton.

This results in a controlling owner, sibling partnership and leads to a consortium of cousins. Family businesses are characterised by emotional rather than professional and rational decision making. (Rius, 2010)

Errors of grandeur

Too many titles, too much nobility, what about business? A process of deification of this type is what ended with the independence of the centenary brewery Guinness as a family company to become just another brand within the conglomerate. This is what he says (Sala 2010). Page 49

"Family businesses are those in which at least two members of the same family, both persons related by natural or legal kinship, have control over the ownership to the same degree. They have sufficient control over the ownership to influence and participate effectively in the administration and management with clearly non-personal business objectives and aims.

What makes a family business different from other companies is the setting, the ownership, the family and the company". (Sala, Family Secrets, 2009).

Change, even if it costs, or stagnation and bankruptcy, as Gerardo Mercado comments in his work Reinventing the family business: The business model. (Mercado, 2009)

In 2010 Alexander Osterwalder designed the business model canvas. A business model describes the logic of how an organisation creates, delivers, and captures value. According to the author, a business model consists of nine elements.

Customers, value proposition, distribution channels, customer relationships, revenue sources, key resources, key activities, key alliances, cost structure.

In Mexico, around 70% of new businesses do not reach their third year of life. Studies in the US show that less than 30% of family businesses successfully advance to the second generation, and only 12% reach the third generation. According to data from the Small Business Administration (www.sba.gov) and the Bureau of Labor Statistics (www.bls.gov), 53% of startups born in 2005 had disappeared by 2010, five years later. In short, the majority of family businesses 70% at least did not make it to the next stage.

The CANVAS business model

Written by Alexander in 2010, it provides input from 470 business plan and business model experts in 140 countries. This model is adopted by some incubators in Mexico, giving great results for entrepreneurs who want to apply for federal funding, as the model manages globally each part of the company, projecting financially the life of the business for more than 3 years of operation.

3 years of operation. Supporting start-ups and companies in the development stage.
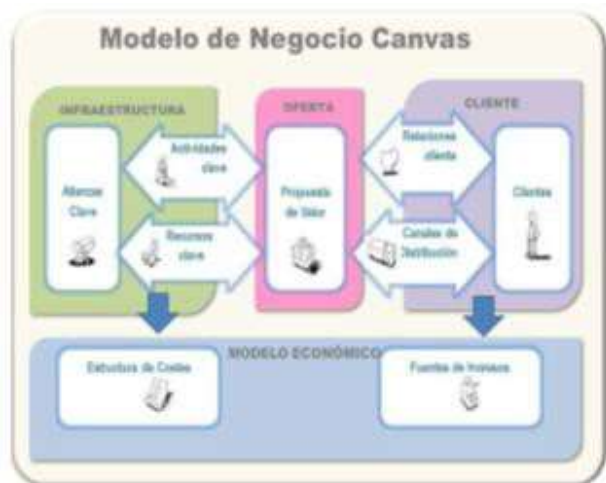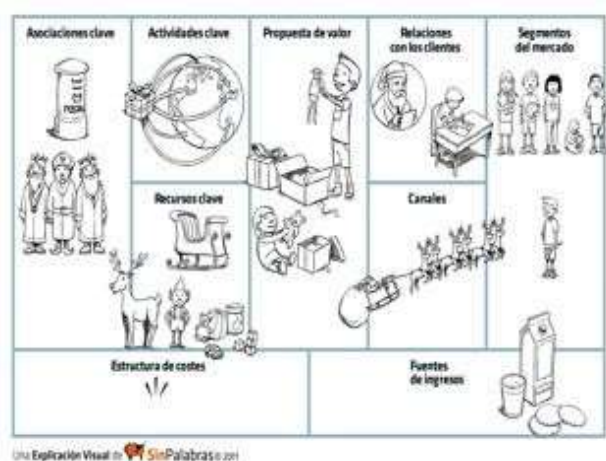
Canvas Model

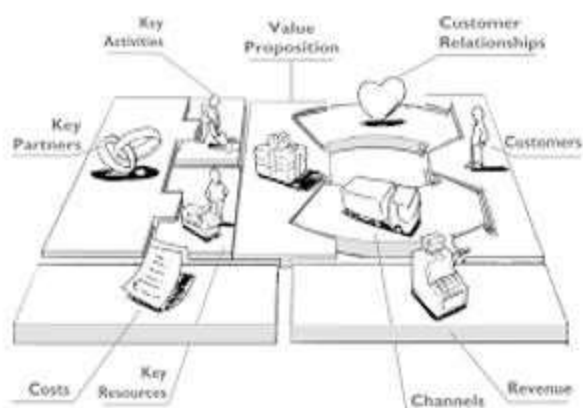
Figure 1 Canvas Model

Figure 2 Example CANVAS model

Figure 3 Example in English, http://www.chile-startups.com/modelo-canvas-en-espanol-9-paso-a-seguir/

"The model of balance between business and family, imagine a ship made up of three parts: bow, stern and cockpit. In which the captain is located, the ship must sail as long as the water does not penetrate, and for this purpose it must move in harmony with the waves of the sea". So it is with the family business, the bow represents the family, the stern the company, in the cockpit are the decision-makers, the parents represent the captain of the ship.

On the other hand, if the company receives the resources and the family only a minority of the members disagree that the company will grow and the family will stagnate. (Rius, 2010)

Methodology to be developed

For the presentation of the success stories of family businesses and the proposal of the business model, three important points were addressed.

−   Collection of success stories of family businesses in Mexico and much of the world.

−   Family chaos among the most successful companies, such as murders, people who go to jail because of their own relatives.

−   Family secrets of successful family businesses

−   Analysis of the CANVAS business model.

The business model is the plan to follow to make the entrepreneur's business idea a reality, in a company that is able to achieve financial self-sufficiency, able to pass from generation to generation and manage to live for more than 1400 years.

Results

Presentation of family business success stories

Undoubtedly the company with the longest longevity worldwide is the Buddhist temple builder, with an active life of more than 1428 years, KONGO GUMI, which disappeared in 2006, founded in 578, the cause of its disappearance is due to its millionaire debt and the downward business cycle in Japan.

This drastically depreciated the value of its assets. The volume of debt reached 343 million dollars and the firm was unable to pay it off.

The next company is BERETTA, the best bullet in the chamber, has been making guns for almost 500 years and the company's philosophy is very clear: one owner, one head. Like other family-owned companies, Beretta puts into practice a mixture of innovation and design in the production processes. This company was founded in 1526.

In third place is the company Codorniu Cava and wine from the cradle. Born in 1551 with great success in wine, the owners have been leading the way for as long as they can remember.

Santander banking in the genes, the family control is carried with an iron fist in this one-armed man. In 2006 the banker and his two sons sealed a 50-year share syndication agreement with his two sons, until 2056.

Banca March, from smuggling to big business. Juan March smuggled contraband between Morocco and the Balearic Islands. Who later helped to finance the military from these origins, a veritable empire was born, which is today managed by his grandsons Juan and Carlos March.

Loreal, Bettencourt, because Loreal is worth it. The company's stock market value is 42 billion euros. It is a veritable empire.

Exposure of the most serious family chaos collected

Guinness brewery, errors of grandeur, too many titles, too much nobility and the business? Such a process of deification is what ended the independence of the century-old Guinness beer as a family-owned company.

Adolfo Dominguez took over the business created by his father and ended up having his three brothers as competitors, a company that went from being a mere tailor's shop to a real company.

Raventós, The heir leaves Condorníu and creates his own brand. In 1982 José María Reventós Blanc, manager of the century-old Codorníu winery, based in Sant Sadurní, disagreed with the company's strategy with the rest of his brothers and cousins and joined the family business at the age of just 20.

Grupo Celsa, Rubiralta: Two brothers two destinies, the company had a turnover of 3,000 million euros, but the harmony between these brothers that has been characteristic of the company for years did not last forever and they split up.

Family secrets of success

The key to the success of the Kongo company was that for many years it was only dedicated to the manufacture of temples and when it decided to invest in real estate, its finances soon collapsed and in 2006 the world's longest-running company came to an end.

In Beretta, when the shareholders are essentially relatives, you can maintain a certain stability because they are willing to make certain sacrifices.

Codorniu, represented by the Raventos, they know almost from birth that in order to work in the family business you have to know English, have a university degree and have worked for at least five years in companies outside the clan. Finally, the board decides who are the ideal candidates to occupy the positions of responsibility.

Adolfo Dominguez, the company's real success came from franchising and marketing. The symbol of the wrinkle became more and more popular and became a real fashion statement. But in 1991 the company burned down and destroyed the main factory of the company, the loss was 90 million euros. Financial support and loans from Santander enabled the company to recover.

Christopher B. Galvin, grandson of Motorola's founder, stepped down as CEO in 2003, breaking the family tradition. Although struggling today and out of the control of the Galvin family that founded it, Motorola remains at the top of the telecommunications world, although it is not nearly what it once was. (Sala A. , 2010)

CANVAS business model

Any business model will bring added value in a very particular way to any company that makes use of them, based on them, the mission, vision and objectives of the company will be put into practice.

The CANVAS model by Alexander & Yves. It consists of nine points

- Customer segment, can be one or several segments.

- Value proposition, it is about solving customer problems and satisfying customer needs with value propositions.

–   Distribution channels and communications, value propositions are delivered to customers through communication, distribution and sales channels.

–   Customer relationships are established and maintained with each customer segment.

–   Revenue streams, revenues are the results of value propositions successfully delivered to customers.

–   Key resources are the means necessary to deliver the described elements successfully.

–   Key activities, by performing a number of key activities.

–   Partner network, some activities are outsourced and some resources are procured from outside the company.

–   Cost structure, the elements of the business model result in the cost structure. (Pigneur, 2011)

Business model analysis

–   Customer segment, who I am going to target my product with what characteristics will be my customers, what is my target market, niche market, segmented market, diversified market.

–   Value proposition, give a new product with features and advantages different from the competition and I will give that others do not offer what I know that they do not.

–   Distribution channels, internal sales team, through the web, own shop or managed by the company, partner channel, how I am going to get my product to my customer segment.

–   Customer relations, customer acquisition, customer loyalty, sales estimation, overall customer experience, how I will do it, personal support, exclusive support, more intimate and in-depth, self-service, you tube automatic services, communities and social networks, collective lego creation.

Revenue streams, the revenue must first come from my value proposition and then it could be from the distribution channel, always with positive flows and thinking of leaving or investing my profits at the beginning for a long time to help the financial growth of my company.

–   Key resources, the most important assets for a business model to work, are intellectual human resources, patents, copyrights, partnerships and databases of our customers and others who are not yet customers, physical resources such as facilities and manufacturing, as well as our fixed assets, machinery and equipment.

–   Key activities, registering my brand, optimisation and economy of scale, reducing costs involved in infrastructure, reducing risks, and uncertainty, buying certain resources, sharing a piece of the pie, making alliances.

–   Key partnerships, networking alliances with our customers and suppliers, always offer a competitive advantage of our services to negotiate and always have our captive customers and our suppliers very aware of our needs.

−   Cost structure, costs and expenses must contain each and every one of the activities necessary for our company to function, the costs will be the variables that are recovered when our product or service is sold and the expenses are the fixed costs necessary to manage and run our business and these are made and are affected by the expense and are not necessarily recovered with the sale of a product.

The financial plan contains the break-even point where we analyse the income we are showing in our budget and the costs and expenses necessary to generate that income and based on this we start to generate profit when we make a certain number of products or services provided, depending on the result this can be modified from its point one of the CANVAS business model.

This business model establishes a business plan in an integral and global way where the central axis is the customer, offering a unique value proposition and that will distinguish us from other companies, it can be analyzed that a good idea can arise from an excellent business, which requires persistence and combining it with being careful with finances and using the reinvestment of profits which results in a growth more as we started we will see our business grow faster than thought and planned by the CANVAS business model written by Alexander & Yves in 2010 that left behind many other models that also serve as a guide when we have a business idea.

The financial statements needed in the business model are the following:

−   Expense statement

−   Monthly and yearly cumulative income

−   Monthly income statement with annual cumulative

−   Balance sheet with monthly and cumulative annual breakdown

Break-even point with monthly and yearly cumulative breakdown, with product mix if more than two products are available.

−   Financial projections for at least five years.

Note: projections are requested for 5 years because according to statistical data family and micro enterprises close or go bankrupt in the first 3 years of operation.

Conclusions

The main secrets of family businesses is the reinvestment of profits and having patience in the finances of the company and not spending more than necessary to grow your family business, no doubt the business model used by each company determines the direction of the company.

The successes of the company are due to the sacrifices of each of its founders, their preparation, innovation, designs and developments in their production processes, the family chaos begins when entrepreneurs pay more interest, The family chaos begins when the entrepreneurs pay more interest to their companies than to their relatives and they get jealous wives who get to murder and jealous children of their siblings when they decide to whom they will give the head of the family business, they divide the inheritances and divide the family business, the chaos is also experienced in the case of Guinness for leaving a lot of wealth uncovered and the business is left to one side, this leads to the end of the family business.

The Canvas business model written by Alexander in 2006 replaces other models that look at the business plan separately and not as holistically as the one proposed by the author.

With these new points that take care of the client and the business idea to develop costs according to the needs of the business to generate a profit that helps the growth of the business, which helps to be subject to support from federal funding sources that are the most economical for the company and with real benefits, fulfilling each of the needs of the business model makes the entrepreneur or businessman can launch his business idea.

The results shown in this research are that the success of family businesses is due to the persistence of each of their owners and that some businesses prefer to have only one head, one director and one owner.

The captain of the ship has to know where he is going so that the wind that is blowing directs him to where he had planned in time, if there is no course there is no good air to guide him to a good destination.

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[Title in Times New Roman and Bold No. 14 in English and Spanish]

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Abstract (In English, 150-200 words)

Objectives
Methodology
Contribution

Keywords (In English)

Indicate 3 keywords in Times New Roman and Bold No. 10

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Objectives
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* Correspondence to Author (example@example.org)
† Researcher contributing as first author.

Introduction

Text in Times New Roman No.12, single space.

General explanation of the subject and explain why it is important.

What is your added value with respect to other techniques?

Clearly focus each of its features

Clearly explain the problem to be solved and the central hypothesis.

Explanation of sections Article.

Development of headings and subheadings of the article with subsequent numbers
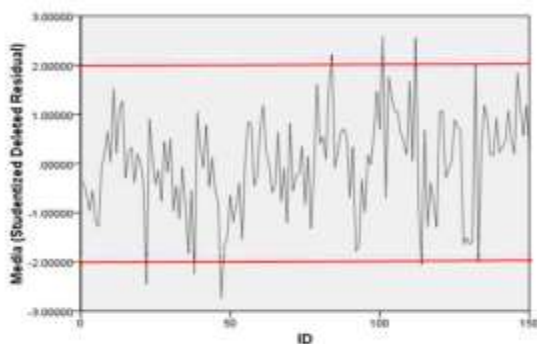
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Products in development No.12 Times New Roman, single spaced.

Including graphs, figures and tables-Editable

In the article content any graphic, table and figure should be editable formats that can change size, type and number of letter, for the purposes of edition, these must be high quality, not pixelated and should be noticeable even reducing image scale.

[Indicating the title at the bottom with No.10 and Times New Roman Bold]

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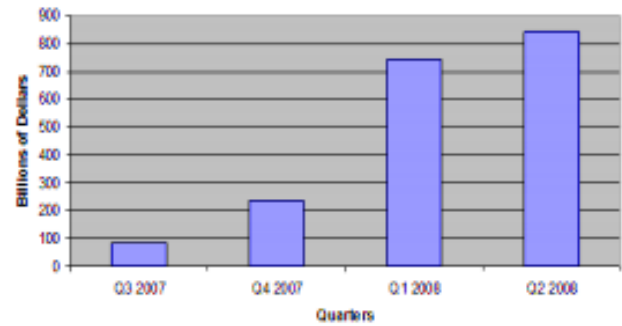
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Each Article shall present separately in **3 folders**: a) Figures, b) Charts and c) Tables in .JPG format, indicating the number and sequential Bold Title.

For the use of equations, noted as follows:

$$Y_{ij} = \alpha + \sum_{h=1}^{r} \beta_h X_{hij} + u_j + e_{ij}$$

$$(1)$$

They must be editable and number aligned on the right side.

Methodology

Develop give the meaning of the variables in linear writing and important is the comparison of the used criteria.

Results

The results shall be by section of the Article.

Annexes

Tables and adequate sources

Thanks

Indicate if they were financed by any institution, University or company.

Conclusions

Explain clearly the results and possibilities of improvement.

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Use APA system. Should not be numbered, nor with bullets, however if necessary numbering will be because reference or mention is made somewhere in the Article.

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Article sections, for example:

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2. Description of the method
3. Analysis from the regression demand curve
4. Results
5. Thanks
6. Conclusions
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