

Volume 8, Issue 22 — July — December — 2022

ISSN 2414-4835

Journal of Social Researches

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Journal of Social Researches, Volume 8, Issue 22, July – December 2022, is a journal edited sixmonthly by ECORFAN-Nicaragua. Southwest Avenue, San Sebastian – LeónNicaragua. WEB:

www.ecorfan.org/republicofnicaragua, journal@ecorfan.org. Editor in Chief: VALLE-CORNAVACA, Ana Lorena. PhD, ISSN On line: 2414-4835. Responsible for the latest update of this number ECORFAN Computer Unit. ESCAMILLA-BOUCHÁN, Imelda. PhD, LUNA-SOTO, Vladimir. PhD, last updated December 31, 2022.

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Journal of Social Researches

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The works must be unpublished and refer to topics of history, economics, geography, tourism, history, anthropology and sociology and other topics related to Social Sciences.

Presentation of Content

In the first article we present *Territorial planning and the functionality of urban development in cities. The case of Oaxaca, Mexico*, by MIGUEL-VELASCO, Andrés Enrique, ROMERO-RODRÍGUEZ, Karina and GARCÍA-CRUZ, Lizbeth Fabiola, with adscription in the Tecnológico Nacional de México/Instituto Tecnológico de Oaxaca, in the next article we present *Forest governance alternatives: sustainable practices with a gender perspective, Juan Evangelista Analco, Oaxaca, Mexico*, by ACEVEDO-MARTÍNEZ, Jorge Antonio S., PÉREZ-RIAÑO, Tania Valentina, MORALES-JUÁREZ, Hugo and ACEVEDO-FLORES, Ursula, with adscription in the Instituto Tecnológico de Oaxaca, in the next article we present *Adolescent motherhood, reminiscence of an archaic inheritance; the case of a suburban neighborhood in Mérida, Yucatán, Mexico*, by ANDUEZA-PECH, Guadalupe, RODRÍGUEZ-ANGULO, Elsa, OJEDA-RODRÍGUEZ, Ricardo and LENDECHY-GRAJALES, Ángel, with adscription in the Universidad Autónoma de Yucatán, in the next article we present *Appellation of origin in Mexico*, by ZAPATA-AGUILAR, José Apolinar, with adscription in the Universidad Tecnológica Metropolitana.

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Territorial planning and the functionality of urban development in cities. The case of Oaxaca, Mexico

La ordenación territorial y la funcionalidad del desarrollo urbano en las ciudades. El caso de Oaxaca, México

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DOI: 10.35429/JSR.2022.22.8.1.12

Received July 10, 2022; Accepted December 30, 2022

Abstract

Objective: To analyze the impact of territorial planning and functionality on the urban development of the cities of Oaxaca, Mexico, during the years 2018 to 2022. Hypothesis: in the state of Oaxaca, an unbalanced urban development predominates derived from the existing urban planning and functionality, causing weaknesses and threats to its development to prevail in its cities. Methodology: the analysis is longitudinal, uses networks, SWOT analysis, Euclidean distance, and the statistical technique of simple correspondence analysis with qualitative and quantitative data. Results: The cities have a very high imbalance in their urbanization. The best positioned in functionality and urban development are the small ones, in territorial planning the metropolitan areas, the large and the small cities. Conclusion: Although they show an urban development with very high imbalances, in the analyzed cities opportunities and strengths predominate over weaknesses and threats, particularly in small and medium-sized cities.

Resumen

Objetivo: Analizar el impacto de la ordenación territorial y la funcionalidad en el desarrollo urbano de las ciudades de Oaxaca, México, durante los años 2018 a 2022. Hipótesis: en el estado de Oaxaca predomina un desarrollo urbano desequilibrante derivado de la ordenación territorial y la funcionalidad urbana existente, ocasionando que en sus ciudades prevalezcan las debilidades y amenazas en su desarrollo. Metodología: el análisis es longitudinal, utiliza las redes, el análisis FODA, la distancia euclidiana, y la técnica estadística del análisis de correspondencias simple con datos cualitativos y cuantitativos. Resultados: Las ciudades poseen un muy alto desequilibrio en su urbanización. Las mejor posicionadas en funcionalidad y desarrollo urbano son las pequeñas, en ordenación territorial las zonas metropolitanas, las grandes y las pequeñas ciudades. Conclusión: Aunque manifiestan un desarrollo urbano con desequilibrios muy altos, en las ciudades analizadas, a la inversa, predominan las oportunidades y fortalezas sobre las debilidades y amenazas, particularmente en las pequeñas y medianas ciudades.

Territorial, Functionality, Urban

Territorial, Funcionalidad, Urbano

Citation: MIGUEL-VELASCO, Andrés Enrique, ROMERO-RODRÍGUEZ, Karina and GARCÍA-CRUZ, Lizbeth Fabiola. Territorial planning and the functionality of urban development in cities. The case of Oaxaca, Mexico. Journal of Social Researches. 2022. 8-22:1-12.

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Introduction

A "city" is an urban area with intensive land use constructions with a high density of socially heterogeneous population and permanent settlement, mostly not dedicated to agricultural activities, where there are services, infrastructure and equipment aimed at the accumulation of capital and social welfare. In territories such as Oaxaca, where there is an outstanding bioculturality, there are "multicultural cities" (Miguel et al., 2016), i.e. collective spaces where native and other cultures coexist, which facilitate the creation of knowledge, technological innovation and artistic-cultural production based on the mixture of modern knowledge with traditional knowledge. Common elements of a city are spatial planning, urban functionality and urban development.

In this respect, spatial planning is understood as the spatial distribution resulting from the location and arrangement of facts in geographical space (Zoido, 1998) such as population, facilities, infrastructure and services, as well as the daily actions of the citizens who use and require them. The management process that derives from this is complex for any type of city, as different actions are manifested in each of them. Some of these social actions correspond to aspects of health, education; adequate housing, with information and communication technologies, the use of firewood in homes, public management, the economy, tourism, the intensity of social conflicts and the incidence of crime; climate change, inequalities, participation, or those corresponding to sustainable local development. The interaction of these actions is reflected in the centralisation, density and centrality of city networks.

Similarly, according to the Royal Spanish Academy, functionality is the quality belonging to "function", understanding by function the "task that corresponds to an institution or entity, or to its organs or persons" (Royal Spanish Academy [RAE], n.d., definition 2). In this sense, urban functionality is understood as the strategic disposition in the geographical space of public, private and family actions based on the task that corresponds to their institutions, bodies or persons in cities.

Its manifestations are reflected in the strengths, opportunities, weaknesses and threats derived from the socio-economic and environmental dynamics of the population that inhabits them.

Linked to the above, urban development is understood as the process of transformation and structural change of localities and cities to improve social welfare and capital accumulation with technically feasible, economically viable, socially acceptable and environmentally adaptable actions, and is the result of the spatial, socio-economic and environmental amalgamation resulting from the juxtaposition of spatial planning and urban functionality.

Urban development in cities can be regulated, planned or balancing; or unplanned, chaotic or unbalancing. Balancing urban development is associated with sustainable local development, well-being, optimal urban health and social equity, as it facilitates the favourable development of these social dimensions. Conversely, unbalanced urban development is associated with low levels of well-being, inequality, vulnerable urban health, lack of economic activity and/or poor socio-political-environmental actions (Figure 1).

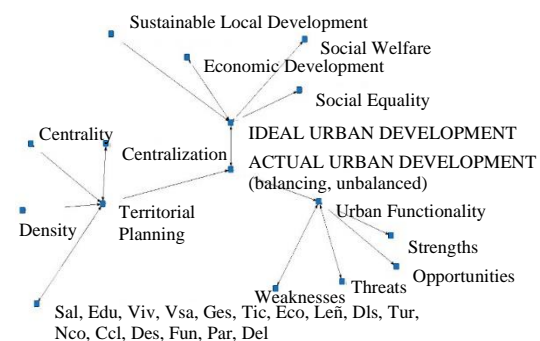


Figure 1 Theoretical model of city planning

Source: Own Elaboration

NOTE: Sal: Health; Edu: Education; Viv: Living Place; Vsa: Healthy housing; Ges: Public management; Tic: Housing with Information and Communication Technologies; Eco: Economy; Leñ: Firewood; Dls: Sustainable Local Development; Tur: Tourism; Nco: Few Conflicts; Ccl: Climate Change; Des: Inequalities; Fun: Functionality; Par: Participation; Del: Low Crime Rate

Taking these dimensions in the urban sphere as a reference, the purpose of this article is to analyse the impact of spatial planning and functionality on urban development in the cities of Oaxaca, Mexico, during 2017-2022.

The hypothesis proposed is that in Oaxaca there is a predominance of unbalanced urban development derived from the existing spatial planning and urban functionality, causing weaknesses and threats to prevail in its cities.

Methodological procedure

The analysis model proposes that urban development is the result of the amalgamation of spatial planning and urban functionality (Figure 1); and its association is manifested through the correspondence of the SWOT values (strengths, weaknesses, opportunities and threats), and the centrality, centralisation and density of the networks of the real cities with respect to the ideal network, which is deduced from the optimal conditions of the real cities considered. Methodologically, urban development tends to be balanced if there is a smaller distance between the real model and the ideal model.

The Oaxacan cities analysed are classified as: small cities, those with a population of up to 15,000 inhabitants (Cuicatlán, Ixtlán and Teotitlán); medium cities between 15,000 and 50,000 inhabitants (Huatulco, Ixtepec, Loma Bonita, Matías Romero, Miahuatlán, Ocotlán, Pinotepa Nacional, Puerto escondido and Tlaxiaco). Large cities between 50,000 and 100,000 inhabitants (Huajuapán, Juchitán, and Tuxtpec). And metropolitan areas with more than 250,000 inhabitants (Metropolitan Area of Oaxaca, Metropolitan Area of Tehuantepec).

The analysis carried out has a mixed longitudinal approach, based on the qualitative perception of the analysis of articles of the problematic of the territorial context of the mentioned cities during 2018-2022, in order to know and understand the impressions (Baron and Byrne, 1998) existing in them, taking as a guide the themes of the articles, which are considered categories for the present analysis, namely: Sal: Health; Edu: Education; Viv: Housing; Vsa: Healthy housing; Ges: Public management; Tic: Housing with information and communication technologies; Eco: Economy; Leñ: Firewood; Dls: Local sustainable development; Tur: Tourism; Nco: Few conflicts; Ccl: Climate change; Des: Inequalities; Fun: Functionality; Par: Participation; and Del: Low incidence of crime.

The qualitative analysis of the articles used the hermeneutic technique. This can be defined as "the science and art of interpretation, especially of texts, to determine the meaning...of the words by which a thought has been expressed", and today "it is used in the analysis and interpretation of philosophical, historical, literary, scientific and other texts and contexts" (Virguez, 2015). The references of the qualitative analysis were selected from articles related to the cities of Oaxaca, Mexico, during the period 2017-2022 (López-Villanueva et al., 2018; Martínez et al., 2020, 2021, 2021a, 2022; Martínez-García et al., 2019; Miguel et al., 2017, 2017a, 2017b, 2019, 2019, 2021, 2021a, 2021b, 2022, 2022a; Moncada et al., 2018; Moreno et al., 2020; Pérez et al., 2019).

The quantitative conversion of the qualitative analysis is carried out through the assignment of values to the selected references of the topics of the indicated articles, based on an ordinal scale related to the SWOT analysis: strengths: 4, opportunities: 3, weaknesses: 2; threats: 1. For this purpose, symmetrical SWOT matrices of the cities were created (Table 1a and table 1b), in which in each box the SWOTs of the different categories of the analysis were indicated. Each box of the matrix contains five numbers: the first one corresponds to the ideal city, the second to small cities, the third to medium-sized cities, the fourth to large cities, and the fifth to metropolitan areas. For each city, the corresponding number and order is selected, "4" or "3" for example, and the rest are assigned the value of zero, a procedure that yields the matrix for each city.

Categories	Dls	Sal	Viv	Vsa	Edu	Eco	Tur	Ges
Dls	42333	42333	42322	42322	43333	42333	43444	42222
Sal	42333	4200	4230	4230	43333	42333	40300	42200
Viv	42322	4200	40000	0	40000	40000	00000	00000
Vsa	42322	4230	40000	42000	0	40000	00000	00000
Edu	43333	43333	40000	40000	40000	0	43000	40000
Eco	42333	42333	40000	40000	00000	43000	0	40303
Tur	43444	40300	00000	00000	00000	40000	40303	0
Ges	42222	42000	00000	40000	40000	40000	40300	40000
Tic	42322	40322	00000	40022	40000	40000	40300	40000
Leñ	42211	40200	00000	00000	00000	40000	40200	40000
Nco	44211	44300	00000	40000	00000	40000	44300	44000
Ccl	01111	00000	00000	00000	00000	00000	10000	00000
Des	01211	00200	00000	00000	00000	00000	00100	00000
Fun	42344	40340	40000	40000	40000	40000	40200	40000
Par	44322	40300	40000	40000	40000	40000	40200	40000
Cul	44444	44444	40000	40000	40000	40330	40444	40004
Del	44322	40000	0	0	0	40000	40000	40000

Table 1a Matrix of the dimensions of the cities

Source: Own Elaboration

NOTE: Sal: Health; Edu: Education; Viv: Living Place; Vsa: Healthy housing; Ges: Public management; Tic: Housing with Information and Communication Technologies; Eco: Economy; Leñ: Firewood; Dls: Sustainable Local Development; Tur: Tourism; Nco: Few Conflicts; Ccl: Climate Change; Des: Inequalities; Fun: Functionality; Par: Participation; Del: Low Crime Rate; Cul: creative economy

Categories	Tic	Leñ	Nco	Ccl	Des	Fun	Par	Cul	Del	
Dls	42333	40322	40200	44300	00000	00200	40340	40300	44444	44322
Sal	42333	00000	00000	00000	00000	00000	40000	40000	40000	0
Viv	42322	00022	00000	40000	00000	00000	40000	40000	40000	0
Vsa	42322	40000	00000	00000	00000	00000	40000	40000	40000	0
Edu	43333	40000	40000	40000	00000	00000	40000	40000	40330	40000
Eco	42333	40300	40200	44300	00100	00100	40200	40200	40444	40000
Tur	43444	40000	40000	44000	00000	00000	40000	40000	40000	40000
Ges	42222	40000	40000	44000	00000	00000	40000	40000	40000	40000
Tic	42322	0	40000	40000	00000	00000	40000	40000	40000	40000
Leñ	42211	40000	0	40000	00000	00000	40000	40000	40000	0
Nco	44311	40000	40000	0	00000	00000	40000	40000	0	0
Ccl	01111	00000	00000	00000	0	00000	0	40000	0	0
Des	01211	00000	00000	00000	00000	0	0	0	0	0
Fun	42344	40000	40000	40000	0	0	0	0	40000	0
Par	43222	40000	40000	40000	40000	0	0	0	40000	40000
Cul	44444	40000	40000	0	0	0	40000	40000	0	40000
Del	44322	40000	0	0	0	0	40000	40000	0	0

Table 1b Matrix of the dimensions of the cities

Source: Own Elaboration

NOTE: Sal: Health; Edu: Education; Viv: Living Place; Vsa: Healthy housing; Ges: Public management; Tic: Housing with Information and Communication Technologies; Eco: Economy; Leñ: Firewood; Dls: Sustainable Local Development; Tur: Tourism; Nco: Few Conflicts; Ccl: Climate Change; Des: Inequalities; Fun: Functionality; Par: Participation; Del: Low Crime Rate; Cul: creative economy.

With the corresponding matrices, the indicators of centralisation, centrality and density of the networks are obtained using the UCINET 6 for Windows, version 6.572. In this case, the centralisation index (CEN) shows the level of hierarchy or dominance of an element over all the elements of the network. The centrality index (CON) refers to the concentration of actions at each central location. Network density (COH) is a measure of cohesion that refers to the number of interactions in the set of possible relationships in the network" (Miguel et al., 2022).

To test the hypothesis, the existing connection between the values of the city networks is detected by calculating the Euclidean distance between the real cities and the indicators of the ideal city, according to the following procedure:

1. The ranking and obtaining of SWOT values (SWOTs) was performed by reference: strengths: 4, opportunities: 3, weaknesses: 2, threats: 1. The urban functionality index (FUN) results from the average of the SWOTs derived from the references of the categories, dimensions and type of city:

$$FUN = \text{average (VFs)} \quad (1)$$

2. Obtaining the network by city type, with the values of its centrality (CON), centralisation (CEN) and density (COH) indicators.

3. The values of centrality (CON), by category (Vcat) of the cities were standardised to obtain the corresponding standardised value (Vest), and facilitate the comparison between the types of cities:

$$VestCON = 4*(Vcat)/(\text{Maximum value of the network by city type}) \quad (2)$$

In particular, the centrality index (CON) of the categories was obtained, and results from the average of the Vest:

$$CON = \text{average (Vest)} \quad (3)$$

4. From the network of each type of city, the values of centralisation (CEN) and density (COH) of the cities were obtained.
5. The spatial planning index (OTE) results from the average of the VFs of centrality (CON), centralisation (CEN) and density (COH):

$$OTE = \text{average (VestCON, VestCEN, VestCOH)} \quad (4)$$

6. The Euclidean distance between the real cities and the ideal city indicators were calculated:

$$Dij = ((OTEi - OTEcdsi)^2 + (FUNj - FUNcdsj)^2)^{1/2} \quad (5)$$

Where D, D1,2,3: Euclidean distance; OTEi: index of the territorial organisation of the ideal city; OTEcds: index of the territorial organisation of the real city; FUNi: index of the functionality of the ideal city; FUNcds: index of the functionality of the real cities; i = values of the ideal cities, j = values of the real cities (small, medium, large, metropolitan areas).

7. The results are evaluated with the scale of statistical distances of the data obtained in the cities (Table 2). It is considered that the lower the value of the distance (D), the closer the cities are to the ideal urban development, and that a value higher than 0.9 indicates that urban development is unbalanced.

8. The statistical technique of simple correspondence, which makes it possible to compare the relationships of dependence and independence of a set of categorical variables based on data from a contingency table (De la Fuente, 2011), is used to visualise the connection between the indicators analysed. The frequency of the variables is taken into account, and the comparison is made to determine the corresponding assessment.

9. For hypothesis testing it is expected that:

$$D > 0.90 \quad (6)$$

$$\Sigma(D,A) > \Sigma(F,O) \quad (7)$$

i.e., that the Euclidean distance is greater than 0.9, and that the sum of the frequencies of weaknesses (D) and threats (A) is greater than the sum of strengths (F) and opportunities (O).

Results

When analysing the networks obtained for the cities of Oaxaca, it was found that the small cities (up to 15,000 inhabitants), show a network with a high centralisation (0.838), and a low density (0.255). They are relatively isolated cities with little interaction between their dimensions and categories. The image they provide is that of a territorial mosaic with high cultural activity and social participation with low conflict. They show poorly managed urban interactions, with a large proportion of unserved and unhealthy housing, a shortage of ICTs and use of energy resources such as firewood; they are routinely threatened by social problems arising from inequality and climate change which is increasingly affecting them.

Small cities behave as multicultural systems with a predominance of indigenous peoples, territorial, sectoral and economic opportunities (the average value of their FODAS is 3, the value assigned to opportunities), with tourism, education and the infrastructure required for sustainable development standing out. In Oaxaca, these are the cities that can achieve sustainability in the medium term. The city of Ixtlán is the most central, followed by Cuicatlán (figure 2).

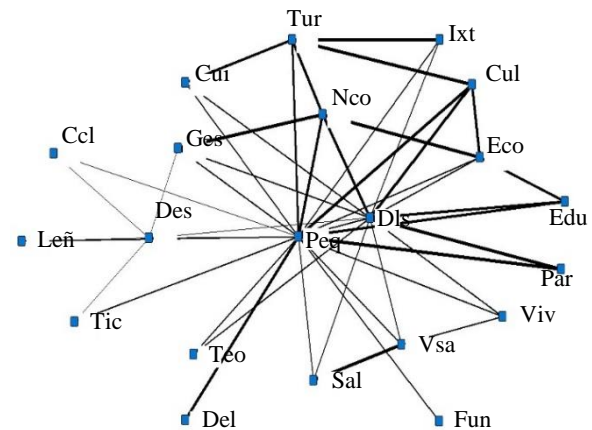


Figure 2 Small Towns Network

Source: Made with data from table 3

NOTE: Sal: Health; Edu: Education; Viv: Living Place; Vsa: Healthy housing; Ges: Public management; Tic: Housing with Information and Communication Technologies; Eco: Economy; Leñ: Firewood; Dls: Sustainable Local Development; Tur: Tourism; Nco: Few Conflicts; Ccl: Climate Change; Des: Inequalities; Fun: Functionality; Par: Participation; Del: Low Crime Rate; Cul: creative economy; Ixt: Ixtlán; Cui: Cuicatlán; Teo: Teotitlán; Peq: Small Towns. In darker color the strongest interactions of the network are shown

Medium-sized cities (between 15,000 and 50,000 inhabitants) form a network with high centralisation (0.794), and low density (0.294). They also show isolation with little interaction between their dimensions and categories. The image they provide is that of a territorial mosaic in consolidation. Their opportunities are their functionality, their economic dynamics, their cultural and tourist activities, with weaknesses in their urban spaces derived from deficient management, inequality, abundant unserved and unhealthy housing, with a shortage of ICTs; threatened daily by the problems derived from climate change that increasingly affect them.

The medium-sized cities are territorially multicultural systems in the process of consolidating their strengths through the opportunities they offer in their development and sustainability process (the average value of their FODAS is 3, a value assigned to opportunities). The cities of Huatulco, Puerto escondido, Tlaxiaco, Miahuatlán and Pinotepa Nacional stand out (figure 3).

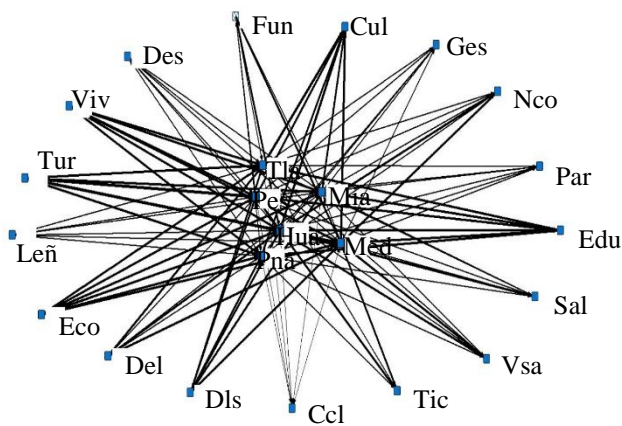


Figure 3 Network of Medium-sized cities

Source: Made with data from table 3

NOTE: Sal: Health; Edu: Education; Viv: Living Place; Vsa: Healthy housing; Ges: Public management; Tic: Housing with Information and Communication Technologies; Eco: Economy; Leñ: Firewood; Dls: Sustainable Local Development; Tur: Tourism; Nco: Few Conflicts; Ccl: Climate Change; Des: Inequalities; Fun: Functionality; Par: Participation; Del: Low Crime Rate; Cul: creative economy; Hua: Huatulco; Pes: Puerto Escondido; Tla: Tlaxiaco; Mia: Miahuatlán; Pna: Pinotepa Nacional; Med: Medium-sized cities. In darker color the strongest interactions of the network are shown.

The network of large cities (between 50,000 and 100,000 inhabitants) has a high centralisation (0.993), and a very low density (0.118). Despite being dominant in their territory, they show relatively little interaction with dependent localities. The image they provide is that of a territorial mosaic consolidating its strengths through the opportunities offered by its functionality, its economic dynamics, its cultural and tourist activities, with weaknesses in its urban spaces coming from poor management, inequality, abundant unserved and unhealthy housing, with a shortage of ICTs; regularly threatened by social conflicts, crime and the problems arising from climate change that increasingly affect cities.

In summary, despite their multiculturalism, population size and territorial expansion, large cities are still territorially and strategically weak systems, given that the average value of their FODAS is 2 (value assigned to weaknesses). The cities of Huajuapán, Tuxtepec and Juchitán stand out (Figure 4).

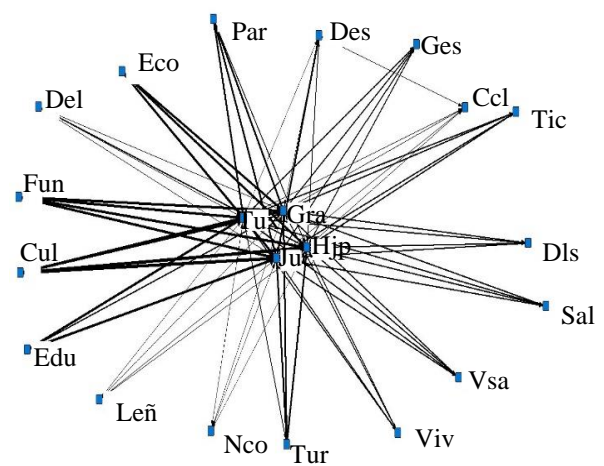


Figure 4 Big Cities Network

Source: Made with data from table 3

NOTE: Sal: Health; Edu: Education; Viv: Living Place; Vsa: Healthy housing; Ges: Public management; Tic: Housing with Information and Communication Technologies; Eco: Economy; Leñ: Firewood; Dls: Sustainable Local Development; Tur: Tourism; Nco: Few Conflicts; Ccl: Climate Change; Des: Inequalities; Fun: Functionality; Par: Participation; Del: Low Crime Rate; Cul: creative economy; Gra: Big Cities; Tux: Tuxtepec; Juc: Juchitán; Hjp: Huajuapán. In darker color the strongest interactions of the network are shown.

The network of the Zm (more than 250 thousand inhabitants) is highly centralised (0.858), with a low density (0.224), i.e. it is a network that, despite being dominant in its territory, shows a centralising dominance with the dependent localities. The image they provide is that of a territorial multicultural mosaic with high functionality, economic dynamics and cultural and tourist activities, surrounded by poorly managed urban spaces, with inequality, abundant unserved and unhealthy housing, with a shortage of ICTs; regularly threatened by social conflicts and problems arising from climate change that increasingly affects them. In these cities, the problem of population mobility also stands out.

They offer opportunities in the field of health, economy and infrastructure required for sustainable development. Due to their population and territorial size, MCs behave as strategic but economically weak political-administrative territorial systems (the average value of their FODAS is 2, a value assigned to weaknesses). In these cities, their association with climate change (Ccl) and inequalities (Des) is increasingly prominent (Figure 5), indicating that the manifestation of problems derived from these aspects tends to be more and more permanent in these cities.

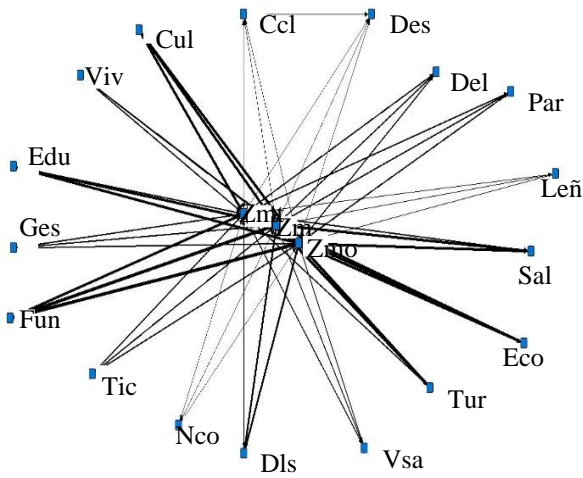


Figure 5 Metropolitan Areas Network

Source: Made with data from table 3

NOTE: Sal: Health; Edu: Education; Viv: Living Place; Vsa: Healthy housing; Ges: Public management; Tic: Housing with Information and Communication Technologies; Eco: Economy; Leñ: Firewood; Dls: Sustainable Local Development; Tur: Tourism; Nco: Few Conflicts; Ccl: Climate Change; Des: Inequalities; Fun: Functionality; Par: Participation; Del: Low Crime Rate; Cul: creative economy; Zmo: Oaxaca Metropolitan Area; Zmt: Tehuantepec Metropolitan Area. In darker color the strongest interactions of the network are shown

Comparatively, Oaxaca's ideal city network shows that all the dimensions it contains interact with each other, with the exception of climate change (Ccl) and inequality (Des), categories that are present but isolated. It is a network of low centralisation (0.279), and high density (0.634), i.e. there is sufficient interaction between its dimensions and with the rest of the cities. In the ideal city the average FODAS is 4. The ideal Oaxacan city behaves as a territorial system of opportunities and strengths.

The image provided by the ideal city through its network of interactions is that of a multicultural territorial mosaic in which native peoples coexist with others, consolidated through its strengths, and which provides security and opportunities offered by its functionality, its economic dynamics, its cultural and tourist activities, it has urban spaces with efficient management, without inequality, serviced and healthy housing, sufficiency of ICTs; which can face social conflicts, crime and threats derived from climate change (Figure 6).

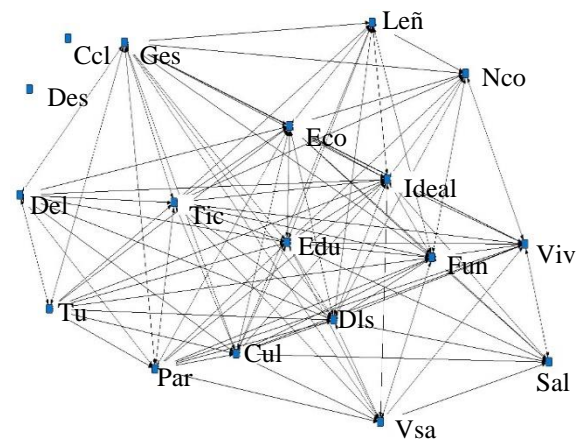
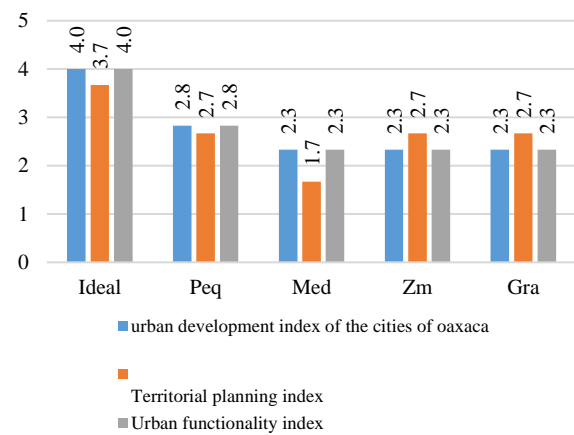


Figure 6 Network of interactions of an ideal city

Source: Made with data from table 3

NOTE: Sal: Health; Edu: Education; Viv: Living Place; Vsa: Healthy housing; Ges: Public management; Tic: Housing with Information and Communication Technologies; Eco: Economy; Leñ: Firewood; Dls: Sustainable Local Development; Tur: Tourism; Nco: Few Conflicts; Ccl: Climate Change; Des: Inequalities; Fun: Functionality; Par: Participation; Del: Low Crime Rate; Cul: creative economy; Ideal: Ideal City. In darker color the strongest interactions of the network are shown

Viewed as a whole, the best positioned real Oaxacan cities in terms of urban functionality are the small ones. The furthest away from the ideal model are the metropolitan areas, large and medium-sized cities (Graphic 1). The best positioned in spatial planning are metropolitan areas, large cities and small cities. Medium-sized cities are the weakest in this respect.

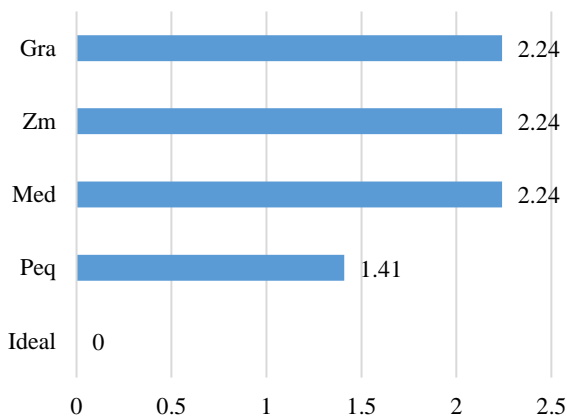


Graphic 1 Urban functionality of cities

Source: Made with data from table 3

In the case of urban development, and according to the analysis of Euclidean distances, the cities furthest away from balanced urban development are large cities, medium-sized cities and metropolitan areas (with a very high distance, 2.24 Euclidean distance). Small cities are the closest to ideal urban development in Oaxaca (Graphic 2), but still at a high distance (1.41 Euclidean distance). This indicates that all cities are immersed in unbalanced urban development (their value is greater than 0.90, according to the parameter that delimits the level of imbalance, as per equation 2 in point 2 of the article).

In summary, the best positioned towards a balanced urban development are the small cities, those with the strongest roots in the original cultures. The other cities, medium-sized, large and metropolitan areas, which are multicultural, show an unbalanced urban development. In all cases, Oaxacan cities are located at a level far from the ideal model.



Graphic 2 Euclidean distance of urban development index of the cities of Oaxaca
 Source: Made with data from table 3

Complementarily, the correspondence analysis shows that the main strengths of Oaxaca's cities as a whole are their functionality, culture, tourism, participation, as well as their relatively low conflict and low crime (6). Their main threats are climate change and inequalities (2). Its most important weaknesses are health, governance and household use of firewood (3). Its outstanding opportunities are its housing, healthy housing, boosting its education, tourism and sustainable urban and local development (5), especially of small and medium-sized cities. In quantitative terms, opportunities and strengths (11) predominate over weaknesses and threats (7) in the cities analysed (Figure 7).

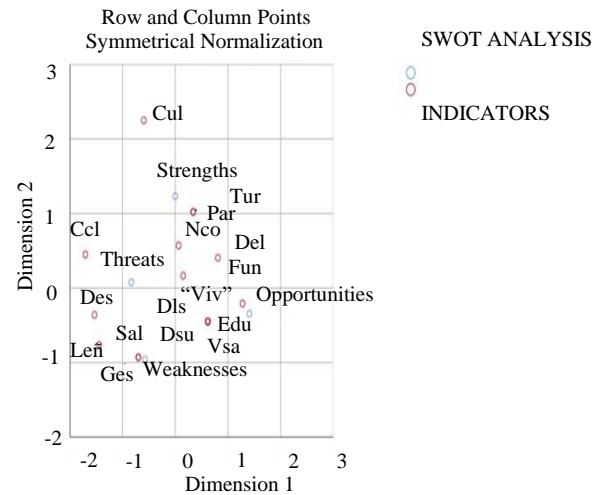


Figure 7 Swot Analysis of Cities
 Source: Made with data from table 3
 NOTE: Dimension 1: indicators; Dimension 2: Swot Analysis

Indicators	Ideal City	Small towns	Medium cities	Big cities	Metropolitan areas
1. Cul	4	4	4	4	4
2. Par	4	4	4	3	3
3. Nco	4	4	3	3	1
4. Del	4	4	3	3	3
5. Edu	4	3	3	3	3
6. Tur	4	3	3	4	4
7. Dsu	4	2	3	3	3
8. Dls	4	2	3	3	3
9. Viv	4	2	3	3	3
10. Vsa	4	2	3	3	3
11. Eco	4	2	3	3	3
12. Tic	4	2	3	3	3
13. Fun	4	2	3	3	4
14. Sal	4	2	2	2	3
15. Ges	4	2	2	2	3
16. Leñ	4	2	2	2	1
17. Des	0	1	2	2	1
18. Ccl	0	1	1	1	1

Table 3. Summary of city indicators
 Source: Made with qualitative data from López-Villanueva et al., 2018; Martínez et al., 2020, 2021, 2021a, 2022; Martínez-García et al., 2019; Miguel et al., 2017, 2017a, 2017b, 2019, 2021, 2021a, 2021b, 2022, 2022a; Moncada et al., 2018; Moreno et al., 2020; Pérez et al., 2019
 NOTE: 4: Strengths; 3: Opportunities; 2: Weaknesses; 1: Threats. Sal: Health; Edu: Education; Viv: Living place; Vsa: Healthy housing; Ges: public management; Tic: Housing with Information and Communication Technologies; Eco: Economy; Leñ: Firewood; Dls: Sustainable Local Development; Tur: Tourism; Nco: Few Conflicts; Ccl: Climate Change; Des: Inequalities; Fun: Functionality; Par: Participation; Cul: creative economy; Del: Low Crime Rate.

Discussion and conclusion

The hypothesis of this article that in Oaxaca there is a predominance of unbalanced urban development derived from the existing spatial planning and urban functionality, and that in this context in its cities, weaknesses and threats prevail in its development process, is rejected, because although all the cities manifest an urban development with very high imbalances, conversely, in the cities analysed, opportunities and strengths predominate over weaknesses and threats, particularly in their small and medium-sized cities. This contradictory behaviour of the cities, that of having an unbalanced urban development that generates strengths and opportunities, may be due to:

- a) That in cities, even with centuries of their foundation as is the case of the Metropolitan Zone of Oaxaca, the existence of their imbalances and opportunities shows an urban development in constant transformation, due to the fact that they are immersed in both internal and external territorial-demographic and economic-social-environmental growth processes, which exceed the public management of the cities, which finally contribute to the asymmetries in their internal and external interactions, for example, the high population growth, especially in metropolitan areas;
- b) That despite the existence of opportunities, these are more realised in large cities and metropolitan areas, and are not taken advantage of in most small and medium-sized cities, where they fail to be transformed into concrete possibilities, among other things because, although these cities offer opportunities for development, they do exist, For example, basic problems such as land regularisation and land tenure, in which, in addition, projects are managed by agreements derived from the uses and customs of the native peoples, which makes it difficult to manage private resources, and collective initiatives are not promoted for the projects that can be carried out. In general, in all cities there is a lack of initiatives, projects and investments from business, social collectives and governments that can turn existing opportunities into real possibilities.
- c) The development decisions that are made do not take into account the real territorial organisation of the cities, which "is based on multirationalism, and institutional actions do not manage to adapt to this behaviour: this is shown by the existing marginalisation, poverty and social backwardness. The territory of Oaxaca is organised as a mosaic of activities and micro-regions: it has a geography that not only reflects the diversity of its flora, fauna and culture, but also of the social rationalities existing within it". In this context, it is evident the lack of effectiveness and vision that its territorial planning has to be based on a "public management with centralising decisions that distort its economic, environmental and even political dynamics, without taking into account the opinion of the local population" (Miguel et al., 2022). They are not attractive for capital accumulation, except in sectors such as tourism or gentrification, especially in the historic centre of the Oaxaca City Metropolitan Area, but there is a scarcity of projects based on solidarity and collective rationalities.

d) Opportunities could be seized by planning the urban development of cities towards a more balanced process, not only to cover the bureaucratic requirements to access public resources, but to really move forward both to complete their equipment and services, and to take advantage of the cultural strength of cities as a way to ensure their economic growth. In this regard, "the creative economy can be considered as a strategy to promote inclusive and balanced development", as it considers "the cultural potential of regions and cities as a strategic axis, which has also shown to have a positive and significant effect on the reduction of social backwardness in Oaxaca". In this sense, although it is convenient to "counteract the concentration of the infrastructure of the cultural industry in large cities such as the Metropolitan Zones of Oaxaca and Tehuantepec, as this hinders the improvement of the economy in small and rural localities" (Martínez et al., 2022), it is these and the large cities where there is more openness to develop new projects, which can combine private and public initiatives for a better balance.

Acknowledgements

The authors of this article entitled "Spatial planning and the functionality of urban development in cities. The case of Oaxaca, Mexico" are grateful to the National Council of Science and Technology (CONACYT) for the financial support for the development and submission of this article.

Funding

This work has been funded by CONACYT [grant number 807626, 779878].

References

Barón, R. A. y Byrne, D. (1998). *Psicología Social*. Madrid: Prentice-Hall.

De la Fuente, S. (2011). Análisis de correspondencias simples y múltiples. *Universidad Autónoma de Madrid*, 1-56.

<http://www.fuenterrebollo.com/Economicas/EC ONOMETRIA/REDUCIR-DIMENSION/CORRESPONDENCIAS/correspondencias.pdf> (17 de agosto de 2022)

López-Villanueva, M. A., Miguel, A. E. y Martínez, K. A. (2018). Ciudades: análisis de sus desigualdades inter e intraurbanas. El caso de Oaxaca, México (2000-2015). *Bitácora Urbano Territorial*, 28(3), 27-38. Universidad Nacional de Colombia. DOI: 10.15446/bitacora.v28n3.47448 <https://doi.org/10.15446/bitacora.v28n3.47448> (16 de agosto de 2022)

Martínez, C., Martínez, K. A., Martínez, L. A., y Miguel, A. E. (2020). Relación entre la gestión pública y el desarrollo local sustentable de las ciudades de Oaxaca, 2000-2017. *Revista iberoamericana de estudios municipales*, (22), 155-187. <https://www.scielo.cl/pdf/riem/n22/0719-1790-riem-22-155.pdf> (17 de agosto de 2022)

Martínez, C., Ken, C. A., y Miguel, A. E. (2021). Economía creativa y rezago social. El caso del estado de Oaxaca, México, 2000-2020. *Economía Creativa*, (16), 151 – 187. DOI: 10.46840/ec.2021.16.06 [https://doi.org/10.46840/ec.2021.16.06_\(16 de agosto de 2022\)](https://doi.org/10.46840/ec.2021.16.06_(16 de agosto de 2022))

Martínez, C., Martínez, K. A., y Miguel, A. E. (2021a). Incidencia delictiva y subsidio para la seguridad pública local. Caso de estudio de Oaxaca, México, 2008-2019. *Revista Iberoamericana de Estudios Municipales*, (24), 93-118, DOI:10.32457/riem24.1414 <https://doi.org/10.32457/riem24.1414> (16 de agosto de 2022)

Martínez, C., Martínez, K. A., y Miguel, A. E. (2022). Ciudadanía, participación electoral y desarrollo humano. El caso de 17 Municipios de Oaxaca (México). *Investigación y Desarrollo* 30(1), 69-98. DOI: 10.14482/indes.30.1.323.042 <https://dx.doi.org/10.14482/indes.30.1.323.042> (16 de agosto de 2022)

Martínez-García, K. A., Miguel, A. E. y Martínez, C. (2019). El papel de la vivienda y las tecnologías de la información y comunicación en el desarrollo de las ciudades de Oaxaca, México [conferencia]. *Edunovatic 2019 conference proceedings: 4th Virtual International Conference on Education, Innovation and ICT: 18-19 December, 2019*, Redine (Ed.), Madrid, España. <http://www.edunovatic.org/wp-content/uploads/2020/03/EDUNOVATIC19.pdf> (16 de agosto de 2022)

Miguel, A. E., Torres, J.C., Hernández, L. y Moncada, M. (2016). El desarrollo sustentable y la centralidad de las localidades en una microregión de pueblos originarios. El caso de la Sierra Sur de Oaxaca, México. *Revista DELOS: Desarrollo Local Sostenible*, 9(25), s/p. <http://www.eumed.net/rev/delos/25/centralidad.html> (16 de agosto de 2022)

Miguel, A. E., López, M. A., Moreno, J. y Pérez, M. (2017). Análisis del impacto de las pequeñas y medianas ciudades en el cambio climático. El caso de Oaxaca, México 2000-2015. *Sociedad y Ambiente*, (14) 99-118 El Colegio de la Frontera Sur Campeche, México <http://www.redalyc.org/articulo.oa?id=455752575006> (16 de agosto de 2022)

Miguel, A. E., Martínez, K. A., Pérez, M. y Moncada, M. (2017a). Las redes de la vivienda y el desarrollo sustentable en la centralidad de las ciudades de Oaxaca, México, 2000-2015. *Estudios demográficos y urbanos*, 32(3), 2017, El Colegio de México, DOI: 10.24201/edu.v32i3.1729 <https://doi.org/10.24201/edu.v32i3.1729> (16 de agosto de 2022)

Miguel, A. E., Martínez, K. A., Pérez, M. y Moreno, J. (2017b). El problema de la vivienda en las pequeñas, medianas y grandes ciudades de Oaxaca, México, 2000-2015. *Quivera Revista de Estudios Territoriales*, 19(1), 61-84, Universidad Autónoma del Estado de México. <https://quivera.uaemex.mx/article/view/9702> (16 de agosto de 2022)

Miguel, A. E., Martínez, K. A., Moncada, M., López, R. C. y Martínez, C. (2019). Los conflictos sociales y su impacto en el turismo. el caso de las ciudades de Oaxaca, México. *Investigación y Desarrollo*, 27(1), 107-136. http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S012132612019000100107&lng=en&tlng=es (16 de agosto de 2022)

Miguel, A. E., Miguel, C. A., Martínez, K. A., Martínez, L. A., y García, L. F. (2021). Estructura territorial de las ciudades multiculturales y salud urbana en Oaxaca, México: un análisis bayesiano. *Estudios demográficos y urbanos*, 36(2)2021:107, 445-491. DOI: 10.24201/edu.v36i2.1952. <https://doi.org/10.24201/edu.v36i2.1952> (16 de agosto de 2022)

Miguel, A. E., López, R. C., Martínez, K. A., Martínez, L. A. y García, L. F. (2021a). Leña, sustentabilidad, desigualdad y ciudades multiculturales. *Perfiles Latinoamericanos*, 29(58). DOI: 10.18504/pl2958-005-2021. <http://dx.doi.org/10.18504/pl2958-005-2021> (16 de agosto de 2022)

Miguel, A. E., Martínez, K. A., Martínez, L. A. y García, L. F. (2021b). El ordenamiento urbano como estrategia del desarrollo sustentable. *Andamios*, 17(43), 291-318. Colegio de Humanidades y Ciencias Sociales, Universidad Autónoma de la Ciudad de México. DOI: 10.29092/uacm.v17i43.776. <https://doi.org/10.29092/uacm.v17i43.776> (16 de agosto de 2022)

Miguel, A. E., López, R. C. y Miguel, C. A. (2022). Vivienda saludable y estado de salud en las ciudades. El caso de Oaxaca, México. *Región y Sociedad*, 34, e1514, 1-36. DOI: 10.22198/rys2022/34/1514 <https://doi.org/10.22198/rys2022/34/1514> (16 de agosto de 2022)

Miguel, A. E., Martínez, C. y Santamaría, E. I. (2022a). Las racionalidades sociales en la ordenación territorial de las ciudades. El caso de Oaxaca, México. *Revista Territorios y Regionalismos*, (6), 1-19. Universidad de Concepción. DOI: 10.29393/RTR6-6RSAE10006. <https://doi.org/10.29393/RTR6-6RSAE10006> (16 de agosto de 2022)

Moncada, M., Miguel, A. E., Guadarrama, E., Martínez, K. A. y Pérez, M. (2018). El turismo y el desarrollo sustentable de las ciudades. El caso de Oaxaca, México, 2000-2015. *Revista Internacional de Turismo, Empresa y Territorio. RITUREM*, 2(1), 55-80. <https://dialnet.unirioja.es/servlet/articulo?codigo=6684338> (16 de agosto de 2022)

Moreno, J., Miguel, A. E., Pérez, M., Martínez, C. y Martínez, K. A. (2020). Desigualdades territoriales de las ciudades multiculturales. El caso del estado de Oaxaca, México. *Economía, Sociedad y Territorio*, 20(64), 601-631. DOI: 10.22136/est20201570 https://doi.org/10.22136/est20201570__ (16 de agosto de 2022)

Pérez, M., Miguel, A. E., Moreno, J., y Martínez, K. A. (2019). Educación media superior y desarrollo sustentable en las ciudades del estado de Oaxaca, México. *Perfiles educativos*, 41(163), 69-87. https://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0185-26982019000100069&lng=es&tlng=es (16 de agosto de 2022)

Real Academia Española [RAE]. (s.f). Función. En *Diccionario de la lengua española*, 23.^a ed., [versión 23.5 en línea]. Recuperado el 26 de julio de 2022, de <https://dle.rae.es/función>

Virguez, C. (2015). *Métodos de investigación cualitativa. Características, aplicación, técnicas de obtención de información*. Universidad Yacambú, Barquisimeto, Junio de 2015. https://es.slideshare.net/VirguezCristina/tarea-3-cualitativo_ (16 de agosto de 2022)

Zoido, F. (1998). Geografía y ordenación del Territorio. *Íber, Didáctica de las ciencias sociales. Geografía e Historia*, Nuevas fronteras de los contenidos geográficos (16), 19-31. Barcelona. <http://www.ub.edu/geocrit/sv-77.htm> (17 de agosto de 2022).

Forest governance alternatives: sustainable practices with a gender perspective, Juan Evangelista Analco, Oaxaca, Mexico

Alternativas de gobernanza forestal: Prácticas Sustentables con enfoque de género, San Juan Evangelista Analco, Oaxaca, México

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DOI: 10.35429/JSR.2022.22.8.13.29

Received July 15, 2022; Accepted December 30, 2022

Abstract

This article is the result of a transectional descriptive research with which the benefits and solutions generated by the appropriation practices developed from society were identified. As well as the problems faced by women in the forest of San Juan Evangelista Analco, Oaxaca, Mexico. An analytical framework was designed that examines elements of forest governance in socio-environmental appropriation with a gender perspective. The information was obtained from a mixed methodological process, where casual and technical talks conditioned a space of trust that resulted in a process closer to the co-search and development of a workshop designed under a participatory learning model. The results showed the role of indigenous women in the existence of other processes in the relationship between society and nature, which emerge as a community solution and not as prescriptive policies that contribute little to the development and care of forest assets, and which are central issues in discussions about the environmental crisis and its relation to collective action.

Resumen

Este artículo es resultado de una investigación descriptiva transeccional con la cual se identificaron los beneficios y las soluciones que generan las prácticas de apropiación gestadas desde la sociedad. Así como las problemáticas que enfrentan las mujeres en el bosque de San Juan Evangelista Analco, Oaxaca, México. Se diseñó un marco analítico que examina elementos de la gobernanza forestal en la apropiación socio-ambiental con perspectiva de género. La información se obtuvo a partir de un proceso metodológico mixto, donde las pláticas casuales y técnicas condicionaron un espacio de confianza que diera como resultado un proceso más cercano a la co-investigación y el desarrollo de un taller diseñado bajo un modelo de aprendizaje participativo. Los resultados evidenciaron el papel que tienen las mujeres indígenas en la existencia de otros procesos en la relación sociedad naturaleza; los cuales emergen como solución comunitaria y no como políticas prescriptivas que poco aportan al desarrollo y cuidado de los bienes forestales y que son temas centrales en las discusiones sobre la crisis ambiental y su relación con la acción colectiva.

Appropriation, Forest, Governance, Indigenous

Apropiación, Bósques, Gobernanza, Indígenas

Citation: ACEVEDO-MARTÍNEZ, Jorge Antonio S., PÉREZ-RIÑO, Tania Valentina, MORALES-JUÁREZ, Hugo and ACEVEDO-FLORES, Ursula. Forest governance alternatives: sustainable practices with a gender perspective, Juan Evangelista Analco, Oaxaca, Mexico. Journal of Social Researches. 2022. 8-22:13-29.

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Introduction

Forests cover more than four billion hectares of the world's land area, are an important carbon pool and make major contributions to the ecosystem balance that go beyond the borders of the country in which they are located (Maini, 1992; Percy et al., 2003; FAO, 2019). According to the World Bank (2019), forests contribute an important "hidden harvest", thereby preventing many people from falling into extreme poverty. Despite their importance, forests have been subject to various pressures resulting in increased deforestation. This problem of desertification and loss of forest biodiversity has serious implications for the environment and for the security of hundreds of thousands of communities that live in and depend on forest areas (Economic Commission for Latin America and the Caribbean [ECLAC], 2016).

In Mexico, 30-35% of the national territory is covered by forests and jungles (Comisión Nacional para el Conocimiento y Uso de la Biodiversidad [CONABIO], 2019; Torres, 2004). The majority of its territory is structured by indigenous property, ejidos or agrarian communities; sectors that have historically presented accentuated situations of poverty and vulnerability in the country, which has remained constant in recent years (Consejo Nacional de Evaluación de la Política de Desarrollo Social [CONEVAL], 2010). In addition, forest territories face a complex situation regarding the regulation of the type of property, since under the assumption of social benefit, protected areas are violated by changes in land use when they acquire a commercial character. Factors such as this have been the usual references to explain why Mexico is one of the nations with the highest rates of deforestation worldwide (FAO, 2018). However, it is often ignored that this situation is affected in a transactional way by problems of governance and institutional development, which means that regional development and conservation projects are also drivers of deforestation (Torres, 2004).

In the specific case of Oaxaca, most of its biodiversity is found in its forest areas, so its destruction or transformation constitutes a direct threat to its integrity and subsistence. The state is considered a key biocultural site in Mesoamerica: a) for the enormous biodiversity it hosts; b) for the important environmental contributions it makes to the state, the country and the world; and c) for being the refuge of an important number of indigenous communities. Despite this, Oaxaca is the state with the third highest loss of forest cover (Alan et al., 2016).

In Oaxaca specifically, community-based natural resource use has been a productive option in localities in the state for the last 30 years. Several municipalities of indigenous origin and mestizo tradition have undertaken collective ways to use their forest territories since the early 1980s. Their forms of forest exploitation are established on the basis of agreements reached in an Assembly - considered the highest governing body of the community, attended by representatives of each family and through consensus, community decisions are taken - and in ten-year management plans, the latter in accordance with the times and quotas established by federal legislation on the matter and the authorisations of the Ministry of the Environment and Natural Resources (SEMARNAT) and managed by the community forestry company. It is important to note that the social rationality of community enterprises promotes, in most cases, processes of redistribution of the surplus (Gasca, 2014). The community forestry management of these Mexican indigenous communities is very similar to other indigenous communities in Peru and Bolivia, where biocultural tourism has served as an alternative for community development. This has been a better response to the autonomous demands of indigenous peoples, under the awareness of strengthening their ethnic identity as subjects of collective rights. These community organisations dialogue with a network of diverse economic activities based on reciprocity, redistribution and even recovery of territorial control, expanding their levels of autonomy (Basoalto & Mella, 2022 p.77).

However, despite the maturity in organising for the social appropriation of forest nature in indigenous communities in Oaxaca, they still face a number of problems. Among them is that the policies promoted by forest governance do not consider women's needs as essential, so that "in theory" their participation is limited (Vázquez, 2015); although there are studies that show how women use forest resources or services in a sustainable way. On the other hand, there are problems of access to land. Mexico's rural areas are home to around 27.5 million people, 50.4% of whom are women. However, in the composition of the population, only 26% of the people with ejido property rights are women. These figures clearly demonstrate the lack of balance in access to land, which results in restrictions on decision-making and enjoyment of the benefits derived from resource management (Consejo Civil Mexicano para la Silvicultura Sostenible [CCMSS], 2018). Situations that come to be perceived as a problem with a gender perspective.

Forests in Oaxacan communities have often been a male-dominated sector, which has made it difficult for women to participate in forest management and decision-making. Women are often excluded from decision-making due to social and logistical barriers, the rules governing community forestry, and men's prejudice towards such initiatives (Center for International Forestry Research [CIFOR], 2013). Moreover, within community management, the conditions do not exist to claim that forest management is representative and inclusive of women. Given that in most community asset meetings there is a greater male presence and participation, as if this embodies and represents all the needs of the family, women's participation is excluded.

Within the same community, gender discrimination can also be observed in: a) the ownership and holding of land titles; b) the gender segmentation of family work, where women are generally assigned a passive role within the family; and c) the singular male support in the distribution of social benefits for the countryside (Horbath and Gracia, 2014). In addition, official policies endorsed by SEMARNAT have a market sense, which together with the aforementioned conditions hinder the incorporation of women, as they do not take into account their needs (Vázquez, 2015).

In contrast, there are references that have shown the contradiction of limiting women's participation in decision-making on the management of forest services or resources, but when communities face processes of land dispossession and plundering of natural resources, women's initiative in resistance or struggle movements stands out, because in this area they are not seen as the weak gender, but when it comes to establishing rights, they are not recognised as equal (Federici, 2013).

In addition to the above, it is important to point out that the three levels of government do not have policies that encourage and regulate the sustainability of social appropriation by women in forest communities, due to the fact that the market use of forests has been consolidated rather than an approach of shared and sustainable use among its inhabitants. Therefore, it is fundamental for this work to make visible that within forestry policies and community practices there is systematic discrimination against women, who despite this, have managed to carry out actions that help to conserve and protect the forests within their community and therefore, to demonstrate the need to design public policies that take into account these local governance processes. In this sense, this work suggests that the social appropriations of nature carried out by women are concrete actions developed from below, from society; within a community environment and with the motivation to solve everyday needs that the forestry policies promoted by the government have not been able to solve. These actions are evidence of the - unrecognised - intervention that women develop within forest governance, as their management is an example of governance forged and created by the community itself. Therefore, the central question is: What are the processes of organisation (governance) that exist in the social appropriation practices of women in the forests of the Sierra Juárez de Oaxaca and how do they develop?

The aim is to respond by identifying and analysing the processes of social appropriation of women in the forests of the Sierra Juárez of Oaxaca from the perspective of analytical governance, and to demonstrate that in communities such as San Juan Evangelista Analco, Oaxaca, the processes of social appropriation of forests by women form part of a socially-generated governance, and that there are tensions between the processes of appropriation of the forests by women and the normative policies of the State, which dispute the control, dominion and management of forest resources.

This work seeks to contribute to the recognition and visibility of women who are part of the organisational processes for forest appropriation practices. It also seeks to identify, analyse and determine the implications of their participation in the appropriation of forests, serving as a reference to demonstrate the existence of other processes in the relationship between society and nature, which emerge as a community solution and not as prescriptive policies that contribute little to the development and care of forest goods. From the theoretical perspective, a theoretical model is proposed to explain the relationship between forest governance and forest appropriation practices carried out particularly by indigenous women. This model makes visible the processes of women's social appropriation within the Forest Governance approach, and shows that despite the difficulties they face due to their social condition, gender and race, women have the capacity to defend, control and use forest resources, granting a value of use to their forests, as an alternative to the processes of social appropriation of nature. Methodologically, it shows the importance and success of the researcher's relationship with the community as a method of co-research in fieldwork for the development of shared knowledge.

1. San Juan Evangelista Analco

Located in the Sierra Norte region of the state of Oaxaca; belonging to the micro-region of the district of Ixtlán de Juárez, 83 km from the capital of the state of Oaxaca (National Institute of Statistics and Geography [INEGI], 2020). San Juan Evangelista Analco is a municipality with a diverse climate and microclimate that gives rise to an extensive variety of flora and fauna species.

The average annual temperature varies according to the altitude of the terrain, but on average the temperature range is 12 to 22°C with a rainfall range of 600 - 1000 mm, which conditions a temperate sub-humid and semi-warm climate with rainfall in summer (INEGI, 2019). It has different orographic conditions, altitude above sea level and types of vegetation, which contribute to the fact that it is characterised by a vast natural ecosystem (Municipal Development Plan [PMD], 2019).

According to information from INEGI (2020), the population of San Juan Evangelista Analco is 407 inhabitants (47.2% male and 52.8% female). Compared to 2010, the population grew by 0.74%. Of the total population aged 3 years and older, about 41.5% speak at least one indigenous language, in which Zapotec stands out. A detailed review of the average age of the population shows that 64% of the population is concentrated in people over 35 years of age, which can be characterised as an adult-elderly population (INEGI, 2020). The municipality has 135 dwellings; of which, censuses on housing conditions show that it is a municipality of low social backwardness (INEGI, 2020).

Most of its territorial surface is governed under communal land use. According to INEGI (2015), land use is divided into: urban (3.07%), for agriculture (41.67%), and vegetation 55.26% (jungle 31.3% and forest 23.96%). For forest management, SEMARNAT (2017) mentions that the forest area of San Juan Evangelista Analco is 12.74 km² (1,274.7 hectares); which according to the total area of the municipality (17.55 km²), is equivalent to 72.59% of the municipal territory.

The government structure of the municipality is governed by the system of uses and customs; also known as the indigenous normative system, which based on the agreement IEEPCO-CG-SNI-33/2018, recognises the capacity of San Juan Evangelista Analco to exercise its full right of self-determination to elect its authorities in accordance with its norms, procedures and traditional practices (Instituto Estatal Electoral y de Participación Ciudadana de Oaxaca [IEEPCO], 2018) and where two types of authorities are recognised: the Municipal Administrative Authority and the Communal Property.

The first serves as a link between the community and the federal or state authorities and is in charge of the general administrative management of the community. In the case of the Bienes Comunales, it is the body in charge of executing and enforcing the agreements taken by the Assembly, as well as of the representation and administrative management of the ejido, it is the legal representative of the agrarian nucleus before third parties based on the agreements taken by the legally constituted Assembly, which is considered as the highest governing body of the community.

In terms of tertiary activities, various ecotourism activities are developed to complement the economic income of the community's inhabitants (Estudios Rurales y Asesoría, A.C. [ERA], 2005; PMD, 2019). Currently, the forest area of the municipality of San Juan Evangelista Analco corresponds to the communal property regime; that is, it belongs to the 170 community members registered in the National Agrarian Registry (RAN, 2020). In 2005, the community began to manage its forests through the elaboration of the Community Land Management Plan and the development of sanitation and restoration work in areas affected by pests between 2006 and 2011 (SEMARNAT, 2016).

In 2010, the community obtained authorisation from SEMARNAT for its timber forest management programme, in which four important aspects of the forest were addressed: orderly forest harvesting, water protection, conservation of flora and fauna species, and restoration of degraded areas. The forest area was 1,274.738 hectares (ha), which was divided into the following types of zones: production (1095.9 ha), conservation and restricted use (117.1 ha), restoration (61.6 ha), and mixed use (385.4 ha). Based on these data, it can be seen that forest profits are invested in social and environmental development, as community members benefit through community infrastructure works and direct jobs generated by forest management (SEMARNAT, 2016).

2. Social Appropriation of Nature with a Gender Perspective

The design of the analytical framework shows elements that made it possible to identify, from the perspective of forest governance, the processes of social appropriation of women in the San Juan Evangelista Analco forest. In this sense, two fundamental categories were analysed: the social appropriation of nature and ideological creation through feminist environmentalism. For both there are abundant proposals for their analysis, but few are those that incorporate in their study elements to address the socio-environmental justice factor (Martínez-Alier, 2009). In the case of social appropriation, Social Metabolism (SM) provides elements that allow us to focus on the commensurability of physical units of exchange with nature. Where work is conceived in two dimensions: a natural, concrete and particular form and another supranatural, abstract and general form. In other words, the SM allowed the process of appropriation of nature to be approached from the perspective of a dual understanding of material exchange: ecological and economic. It facilitated the investigation of its origin, historicity and dynamics; it also contributed to building a model that integrated flows of money, labour, matter, energy, goods and services based on an interdisciplinary and multi-scale methodology (Toledo, 2008).

The next category that needs to be examined is that of feminist environmentalism. In this sense, Agarwal (2004) argues the need to not only identify ideological creations of the form of gendered relations of domination and ways of acting in the non-human world, but to question these creations it is necessary to go further and that this requires a theoretical understanding of what might be called "the political economy of ideological creation" (p. 244). In this sense, Agarwal (2004) proposes "feminist environmentalism". A critical-theoretical proposal that allows one to examine the basis behind women's relationship to the non-human world at levels other than ideology (such as through the work that women and men do and the gendered division of property and power) and to address how the material realities in which women of different classes (castes/races) are rooted may affect their response to environmental degradation (p. 244).

From this perspective, environmental feminism assumes that "women" cannot be considered as a unitary category (as feminist discourse characteristically does), even within a single country, let alone the peripheries or the world as a whole (Villoro, 2003, p. 25). Second, the negative class and gendered effects of these processes are manifested in the erosion of the livelihood and knowledge systems on which poor rural women depend. Third, the nature and impact of these processes are rooted in ideology on the one hand (in notions of development, scientific knowledge and appropriate gender division of labour, etc.), and on the other hand, in the economic advantages and political power proclaimed above all by the differences between family property and between men's and women's property. Fourth, there is growing grassroots resistance to this kind of inequality, to the destruction of nature and the underlying processes, products, people, property, power and profit orientation (Agarwal, 2004).

In this study, adopting the perspective of feminist environmentalism involves identifying the dominant groups that have the ownership, power, and privilege to control resources, and these or other groups that control what is thought about them through the media, educational, religious and legal institutions (Agarwal, 2004, p. 250). In this way, the analytical framework of feminist environmentalism makes it indispensable to consider class-gender effects. Therefore, the processes of degradation, stylisation and privatisation of nature and the erosion of traditional systems of knowledge and resource management were identified and how these factors impact on women and girls. Agarwal argues that there are three key elements where these class-gender differences can be distinguished. First, in the division of labour that can be identified within the institutional ownership model in the market category. Second, the systematic gender differences in the distribution of livelihood resources, which can be distinguished in normative and institutional appropriation at the level of the household and organisations. Third, in women's and men's access to agricultural land and associated productive technology (Idem).

In addition to identifying the key elements, one must consider what Agarwal (2004) proposes as critical aspects of class-gender effects: time, income, nutrition, health, social survival networks and indigenous knowledge. It is important to be aware that the intensity with which these occur and the interrelationships differ from region to region, with differences in ecology, agricultural technology, land distribution, social structures, and associated differences in gender division of labour, social relations, livelihoods and kinship systems.

3. Community forest governance

The social appropriation of nature from a gender perspective can be analysed in different social spheres: normative, institutional, identity and symbolic. When looking at the appropriation of nature from an institutional approach, the main objective is to problematise the society-nature relationship from a perspective that questions the different types of regimes that control the different natural elements of an ecosystem, as well as the property rights they grant to the society that governs them. To achieve this objective, it was necessary to delimit the following concepts: property regimes, common appropriation of natural resources and governance.

An institutional property regime is characterised according to the type of subject that attributes to itself the possession of a certain good, territory, service or social feature. Therefore, institutional ownership examines the different social relations around natural goods (society-nature relationship), highlighting the capacities that a certain social structure has built to claim or appropriate a good in a "legal" or recognised way.

From the perspective of the common control of natural resources, Hardin (1968) alluded to the destruction of nature through the common use of its goods and resources, describing a metaphor of the English pastures collectively occupied by multiple shepherds. With the theory of "The tragedy of the commons", he alludes to the particular interest that each shepherd has in increasing his profit from the multiplication of his herd, with the growing consumption of pastures that causes a detriment to the meadows used in common.

This theory mentions that this type of "rational" behaviour leads to the destruction of nature, since individual interest exerts pressure on limited resources, so that an increase in their common use irremediably causes devastation to the natural element (Ostrom, 1990; Merino, 2014).

In her 1990 work, Ostrom pointed out the importance of avoiding the tragedy of the commons, however, she went further, as she considers that there are other elements with the same importance, so she also argues that a tragedy of the communities that depend on the subsistence of the commons must be avoided. To this end, the author carried out an analysis of the various experiences around the world on the management of common pool resources, showing from disagreements to successful cases of community cooperation (Idem; Janssen and Ostrom, 2010).

In accordance with what has been gathered, Ostrom proposes the importance of the community as systems of governance of the commons with great potential for creating processes of conservation of natural resources for shared use. The importance of this approach lies in the fact that this community governance leads to rational self-organised decision-making in a horizontal manner, where the ownership regime of a natural element is shared; avoiding the biases of government authoritarianism, where management is based on vertical decisions, or the exclusion of access to the commons by private control, which is fostered by various market appropriation schemes (Merino, 2014).

Theoretically, Vincent Ostrom refers to a "polycentricity" in the community management of a common good or service, thus referring to community governance as a concept that encompasses the existence of diverse voices, opinions and arguments in central/point decision-making. Since nowadays, in the most advanced societies with a certain environmental rationality, common-use goods or services are shared among beings that inhabit communities that are embedded in different ecological contexts (Ostrom, 2008).

In this way, community governance is characterised by collective action, with the inclusion of cooperative actors within a community. According to Elinor Ostrom (1990), five elements can be mentioned that make it possible to configure an institutional construction of social appropriation from a community governance: 1) shared vision, on the use and pressure of the common goods used, 2) joint valuation of what is appropriated, recognising the importance of generating rules that help its long-term care, 3) regulated behaviours on the provision of goods and the level of appropriation allowed of these, 4) trust between the members and important actors of the community, 5) equality of the members, so that economic differences between the social capital - the community subjects - do not generate an abuse on the use of the common goods.

Today, forest governance is a normative concept that refers to an organisational process that seeks to implement sustainable mechanisms for the conservation and use of the resources and services contained in forests. In Mexico, this type of governance is based on a political vision that understands this type of ecosystem as a factory that offers diverse environmental elements and resources available for the "correct" use of the government and society. However, under the idea of sustainable coordinated management, a pernicious process of land dispossession and plundering of natural resources is concealed, promoted by policies that benefit the structure of large industrial conglomerates, often to the detriment of sustainable actions by local actors or organisations that care for and protect their forests.

Among the paradigms that are held on governance is the analytical perspective; on the one hand, there are those who say that possible answers can be found if action is considered to be the product of the intention of the actors or, on the other hand, a result of structural constructions (Cruz, 2015).

It is in these approaches to types of social organization that we locate the appropriation processes carried out by women in the communities of the Sierra Juárez in Oaxaca, Mexico. These communities have developed sustainable actions that have helped to conserve their forests, but which are invisible in the face of the current extractive policy that prevails in the country. This type of social appropriation by women represents a practice of forest governance, as it contributes directly to the use and enjoyment of the community's natural elements, while their actions can help to safeguard and protect the community's forests.

Methodology to be developed

This work is a descriptive cross-sectional research that seeks to identify the processes, benefits and solutions generated by appropriation practices, as well as the appropriation problems faced by women in the forest of San Juan Evangelista Analco. To analyse the processes and benefits, the tangible appropriation of nature was used as a basis. With regard to the identification of solutions, we based ourselves on intangible appropriation, both of which are based on Social Metabolism. It should be noted that based on what Toledo (2013) mentions, this work only explores "fractions focused on certain portions of the socio-metabolic process" (p. 45). The two types of appropriation were analysed with a transversal axis, which is the gender perspective, for which the theoretical basis is Feminist Environmentalism (Agarwal, 2004). This analytical framework makes it possible to identify the differences that exist around the social appropriation of nature as part of their self-governance in the management of natural resources and which of them contribute to the incorporation of women in the social appropriation of the forest.

The collection of empirical information was obtained in three moments during the months of November 2021 to April 2022. The first consisted of an approach that arose from a planning need that the community had from its Municipal sphere (not from the agrarian community). In this mixed methodological process, casual and technical talks conditioned a space of trust that resulted in a process closer to co-research (Fuente et al., 2018).

In the second, information on the historical development of forest management in the community was collected and complemented with secondary sources. Finally, the forms of behaviour and attitudes of people in the community towards forest ownership practices were obtained by conducting a community workshop and semi-structured interviews. The workshop aimed to reflect on the issues of self-perception, territorial identity, processes of social appropriation of nature and organisation for the care of the forest, and to identify their impacts on personal, family and community life, designed with a participatory learning model. This type of workshop recognises that all people are bearers of knowledge, which generates conditions for learning new knowledge and that through reflection and analysis, learning can be built collectively. The most important thing is that this learning is appropriated not only through reason, but that it becomes part of people's lives (Red2Red, 2008).

The design of the workshop consisted of three sessions, each of which began with a dynamic of integration and contextualisation of the topic to be developed, so that the new information would initially generate a reaction with respect to their beliefs. Once this stage has been completed, the basis for appropriating the new knowledge, which is related to their experiences, is obtained. This combination of their previous experiences, plus the new information was confronted, reflected upon and appropriated by each woman through a series of questions that they answered in a questionnaire.

The questionnaire was designed to analyse descriptively the women's perception of the social appropriation of nature in their community and the structural gender differences they perceive; to this end, a series of questions were structured that considered the intangible and tangible appropriation of nature, the type of rules, rights and design of rules for the use of nature and the gender differences they perceive around each of these elements, and thus identify the nodal points that are emerging as spaces for women's governance of the forest.

Results

The design of the analytical framework made it possible to analyse and contrast the results obtained in the fieldwork. To this end, we examined factors such as: the socio-metabolic flows of the relationship between women and nature; the problems that hinder their access to common-use forest resources; and the criteria for organisation and participation that women create and develop from their community position. All of these categories contributed elements that made possible the descriptive analysis that made it possible to identify that the processes of social appropriation of forests by women form part of a form of governance created by women themselves, despite the restrictive tensions and the normative policies of the state.

Gendered dynamics of appropriation

In this research, women were the key element of the study. They ranged in age from 20 to 67, with an average age of 38 years. Sixty per cent of the respondents mentioned being married, while 83% of the participants reported being mothers of 2 children on average. As for their level of education, 51% have a secondary school education. For Feminist Environmentalism, it is important to consider self-perceived health as one of the critical aspects of the effects of class and gender, as it contributes to characterising the situation or condition of women in their context. The results of the study indicate that 57% consider themselves to be in good health. Of the total number of women surveyed, 90% are housewives; of which 65% are housewives as their main activity. Of the women who combine their domestic activity with some other activity, 69% work in agriculture, 25% in commerce and 6% are day labourers. Of the women who work in agriculture, the majority receive economic support from the "Sembrado Vida" social programme.

The first step was to investigate self-perception in order to get an overview of the capacity of Analco women to perceive themselves and, thanks to this, to understand their emotions, their state of mind and their sentimental situation, which are fundamental to identify the potential they have in the different spheres of appropriation: normative, institutional, identity and symbolic.

The results showed that the woman from San Juan Evangelista Analco describes herself as: a happy or contented family person. A friendly, supportive woman who likes to be supportive, a hard worker who likes to improve herself and wants the best for her children and gets angry when they do not obey her. The Analco woman would tell someone like her to: Have patience, be willing and don't worry so much.

Regarding the value of nature, the results show that the value that women place on nature is more related to the value of family subsistence. Of the 94% of the people surveyed, 94% use some element provided by nature to carry out some kind of domestic or work-related work. It stands out that more than half of them consider that what is appropriate from nature is not enough for their subsistence. This reflects the importance of nature for the family life of the women surveyed.

In order to understand how the woman-nature relationship develops, the socio-metabolic flows were reviewed. For this, it was taken into account that the appropriation process will have a "hard", visible and tangible part, which takes into account the flows of matter and energy, and another part that is conceived as a supranatural, abstract and general form (the intangible part). Regarding the tangible part of appropriation, in the case of Analco two levels were identified from the intensity of appropriation, on the one hand, there is the forest management and on the other the family nucleus, as the research work showed that it is very difficult, in this case, to identify relationships that human beings establish with nature on an individual level.

The analysis of the conditions of women's time includes the distribution of time for household activities and other activities such as: productive activities, community activities, family leisure activities, religious and artistic activities, etc. The results showed that women in Analco dedicate around 4 to 6 hours a day to household chores, while they dedicate around 1 to 3 hours a day to other activities. As for the perception of the difficulty involved in carrying out all their activities, 65% considered it to be average.

Regarding the support or participation of other family members in household chores, 58% of those surveyed received support from all family members and 13% received support only from their partner. As for the perception of differences in remuneration for what they produce, 65% of the women surveyed perceive that there are no differences.

This leads us to analyse class-gender differences in decision-making. In San Juan Evangelista Analco, as in other communities in the region, ownership is related to the possibility of making decisions. In this regard, the women in the workshop expressed, in general, that the differences in terms of decision-making about the forest are because everyone has a different way of thinking and seeing things, because men see things in broad strokes and women in more detail. In the words of one participant: "Because a man and a woman have a different way of thinking about forest care and traditions". (I. Reyes, personal communication during the workshop, 26 February 2022).

Also, 75% consider that there is no difference between the decisions that men and women have access to. This is because they explain that they all have different ways of seeing and doing things, for example, the meals at parties are taken by women (A. Sosa, personal communication during the workshop, 26 February 2022) and decisions and agreements are made in the Assembly. Many of them specify that it is a matter of reaching agreements as a family on what is considered right, since the decisions taken in the family are taken by the man as a representative to reach agreements with the village, the citizens and the villagers.

Regarding the impact of these agreements in common, most of the women commented on their effectiveness, given that, as their needs and petitions are attended to, the community authorities are aware of their access and follow up on the problems that have arisen. According to the interviewees, most of them feel support from the community, which is why, for them, the agreements in common have provided joint solutions for the benefit of both family livelihoods and community forest care.

When we delved deeper into this type of participation, the older women commented that this openness is recent, as in the past, women were relegated to a secondary role, specifically in the care of the home and domestic service. However, they have noticed a change in community awareness, as they are now the ones who promote not only the wellbeing and sustenance of the family, but also a sense of community unity within the community.

It is worth noting that in San Juan Evangelista Analco, there are also women community members, as many of them have had access to land as a result of inheritance from their parents or because they have been widowed. Not only that, but they are also considered for the obligation to hold positions or appointments that are assigned to them to represent the community in the Town Council Government. This is an activity that has become part of custom and usage for several years now. In an interview with a citizen of the community, he commented that Analco was the first municipality in the Sierra Norte de Oaxaca to have women councillors and a municipal president (Maricela Buatista Manzano 2013-2014), he said:

"My mother was a councillor, in fact I think my mother was the first woman to hold a position in the community, and that's a good thing. Women are smarter and better at doing that kind of work. What's more, before works were put out to tender, as they are now, the architects gave a percentage to the president and he decided what to do with the money. But when we had a woman president and she received the money, she used it to make improvements in the community, which was a good example of transparency and the community was very happy. (R. Santiago, personal communication, March 7, 2022).

In the review of results, the information on traditional knowledge systems stands out. In this regard, the women surveyed consider that knowledge plays a fundamental role in the process of social appropriation of nature, as is the case of the knowledge required about the nutritional properties of what they collect in the forest.

Regarding the performance of rituals as part of the process of appropriation of nature, something that was surprising during the workshop was that when the subject of rituals was introduced, many of the participants showed an expression that made them look as if they did not understand what we were talking about. However, after some contextualisation and the participation of some of the participants who exemplified what they did as rituals, the majority understood what we were talking about, which is why it is not surprising that of the people surveyed, only 35% carried out some kind of ritual, which they perceived as the act of asking permission from the earth through an offering that could consist of a meal or bringing mezcal, a cigarette or a soft drink that is shared with the place where you work. In the words of one respondent: "More than a ritual, it is a way of life. We thank God for providing, so that there is never a lack of bread on the table" (E. Sosa, personal communication during the workshop, 26 February 2022).



Figure 1 Participatory workshop with the women of San Juan Evangelista Analco
Source: Own photograph

Gender forest governance

Once the dynamics of gender forest appropriation in San Juan Evangelista Analco had been addressed, an analysis was carried out from the governance approach in the municipality, since, behind the appropriation actions, a series of practices of participation and community female association are also developed, which result in the use and care of the resource contained within the community.

In San Juan Evangelista Analco, based on organisational and productive strategies, women have developed sustainable practices of appropriation of forest elements. These experiences represent new forms of community forestry. The analysis of the results made it possible to identify the organisational factors that have positioned women as those who use, transform and protect the community's forest resources. With regard to gender governance processes, four organisational elements stand out: 1) the issues that motivate women to organise themselves in order to access forest resources in their community, 2) the actors that influence their participation, 3) the norms that govern their actions and 4) the organisational processes, as governance spaces - meeting points - where actions are organised and implemented to access gender forest ownership in the community.

Among the different problems and needs that motivate women to carry out forest ownership actions. The first constraint they face is a duality between their obligations and needs. Because of a deeply rooted gender role, women are in charge of carrying out domestic and family activities within their homes. Meanwhile, the same economic necessity obliges them to look for (outside their family nucleus) forestry elements that support them in a material or economic way to sustain family life or development. In this case, the historical allocation of gender tasks imposes a double labour representation on them. It was found that almost all women need to use some element provided by nature to complete their domestic work, work or exchange activities.

Three types of actors were found to have a direct impact on the process of gender appropriation. Based on the experiences of the women interviewed, we detected the existence of two spheres of participation, one from outside and the other from within the community. Intervention from the outside is carried out by both the federal government and the state government of Oaxaca. Participation from within the community takes place through two formalised institutions in the community.

The first is the municipal community authority, represented by the members of the town council, who are assigned the task of administering, regulating and organising different activities that help both the population and the community environment of the municipality; they are therefore encouraged to occupy the town council as a form of retribution for everything that the community provides to its inhabitants. The other institution detected is the commissariat of communal property, represented by the community members, who are in charge of granting permits to access the community's forest resources.

When looking at the list of the Commissariat of Communal Property, the vast majority of right-holders were men, so from this aspect they felt restricted in their access to natural resources.

For the informal norms, most of the women stated that it is a common agreement not to burn trees, as well as to avoid the use of any chemicals for planting vegetables. They also mentioned their participation in previous reforestations, so that they could detect some kind of pest, and if it was detected, they would notify the authorities so that they could take charge of controlling it. Broadly speaking, the women are aware that they live in a space with a fragile environmental balance, so they care for and respect the areas of common use, understanding that the restrictions are for the benefit of both the community and the forest environment.

In the process of organising for access to forest resources for common use, there are meeting points, scenarios and agreements that the women of San Juan Evangelista Analco make to generate norms, rules, consensus and actions. With the aim of being able to access the use of forest resources in an organised way. The existence of two meeting points was detected. The first is the meetings held together with the municipal council and the commissariat of communal property. It is in these meetings that the problems they face in accessing forest resources are addressed, and possible solutions are developed in this scenario. The second scenario is the assemblies held by the municipal council, since in this space for action they present their concerns to the majority of the community with the aim of making joint decisions that allow them free and regulated access by the community authorities.

Issues and needs	1. Duality between their obligations and needs 2. Economic need 3. Historical allocation of gender roles	
Actors	Community participation	1. Members of the City Council 2. Commissariat of communal property 3. Women (gender organisation)
	Institutional participation	4. External actors (state and federal governments)
Standards	Formal: 1. Rules of operation in community forest management (Despite not being communal, they follow and respect the rules applied by the Commissariat of communal goods).	
Forest governance process -Meeting points-	Informal: 1. Unwritten and customary rules (No burning of trees, no use of chemicals, support in forest care).	

Table 1 Organisational elements of gender forest governance in San Juan Evangelista Analco
Source: Own elaboration

With respect to the norms, it became evident that it is the community organisation (composed of the Commissariat of communal goods and the municipal council) that has the most influence in the provision and regulation of access to forest resources for common use. In this case, neither the federal nor the state government has more influence within the municipality, since the implementation of norms regulating women's access comes from the municipal community organisation. During the workshop, they were asked which restrictions they felt affected their access. The majority responded that it was necessary to be a community member in order to have free access to the assigned plot of land.

Thanks

Special thanks to the Tecnológico Nacional de México, since this research project was made possible thanks to the support and funding granted through the 2021-2 Call for Scientific Research Projects with code 13142.21-P.

Funding

Funding: The present work has been funded by CONACYT [grant number 2018-000068-02NACF-11850, 2019-000037-02NACF-29163].

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Conclusions

All that has been developed so far allows us to conclude that the symbolic and material link between the women of Analco and the environment in their concrete forms of interaction is to be found in the subsistence of the nuclear family. As far as the class-gender differentiation is concerned, in the case of Analco, we suggest that it is rather a class difference. At present, the community has adapted the incorporation of women as a strategy for community subsistence and, unbeknownst to the community, also for community integration and cohesion. In other words, the community does not perceive a complex process that distinguishes gender differences, but it does distinguish an empirical or intuitive process of the non-existence of human characteristics considered "feminine" acquired as an impediment to the incorporation of women into community participation activities. It seems that the context of the Analco community has led to the need to incorporate women, and in the process, to realise that women are also capable of participating in decision-making.

Finally, to try to explain how this empirical or intuitive phenomenon of women occurs, we find two proposals that make it possible to explain it: the concept of embodied communalism (Garibay, 2008) and empowerment. On the one hand, it is important to be clear that communities such as Analco have a structure based on their uses and customs for decision-making, which focuses on the subsistence of the family nucleus and the integration of this nucleus into the community. In other words, the community is not made up of individuals but of family nuclei; therefore, the structure will operate according to the needs of these nuclei and the resources that can be appropriated for their subsistence and family development. Garibay (2008) allows us to explain how communities adapt the entire community structure (knowledge, education and work) towards the appropriation of a resource, such as forest management. If we add to this the factor of the small population of men, it becomes evident that the community needs to adapt all human resources to this activity, including the incorporation of women. Although it should be pointed out that prior to the introduction of forest management as a primary activity in the community, women in Analco were already being incorporated in positions such as health and education councillors.

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This leads us to empowerment, as this concept allows us to identify how these isolated integrations of women into management and decision-making positions have contributed to women beginning to balance their power with that of men. In other words, this access has opened up spaces in Analco that allow women to have equal opportunities. But not only this, issues such as the differentiated access to land distribution that women in Analco have, in contrast to other communities, has contributed to the current normalisation of the importance of women's work and the need for their incorporation into management spaces, decision-making and their rights. Demonstrating that this does not necessarily reduce the power of others; but it is implying changes in relationships (Crespo, De Rham, and Gonzales, 2007) and in community structure (Garibay, 2008).

With regard to the management and common care of forest goods, the use of the concept of gender forest governance allowed us to make visible the actions of appropriation of nature by women, as well as the regulation mechanisms that they carry out with the community of San Juan Evangelista Analco. The dynamics observed in the appropriation of natural elements by women is based on exhaustive work - from 9 to 12 hours a week - which implies not only attending to the basic needs of the household, but also establishing negotiations with the authorities in order to have access authorisation and thus be able to develop appropriation, collection and transformation actions. Regarding the analysis from a gender perspective in relation to market exchange, it was observed that most of what is collected and transformed (60%) is used to be marketed; however, a large part (40%) is used for self-consumption.

Two dimensions of governance were also identified in the women's appropriation process. On the one hand, there is the forest management that is carried out jointly with the community, and on the other hand, the family nucleus; showing that this appropriation process is carried out in an associative manner and not individually. Regarding community forest management, it was observed that the process of degradation of nature is controlled, as it is done under technical supervision, while in the family unit this is done with traditional techniques that have a low impact on nature.

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Therefore, the rate of deforestation in Analco is relatively low in relation to the amount and management of forest area in the community.

In terms of gender governance processes, four organisational phases were identified. The first has to do with the food and economic issues that motivate women to organise in order to access forest resources in their community. The second has to do with the actors that influence their participation; in this case, it is the community authorities and the nuclear family who intervene in the process of women's participation. The third phase is the norms that organise their actions within the community, whether in family meetings or community assemblies, women make themselves heard. The fourth phase is the organisational process itself, understood as governance - meeting points - which are the physical and communication spaces - auditoriums, town halls, multi-purpose rooms and forest areas - where actions are organised and implemented to access gender forest ownership in the community.

The dynamics of women's forest ownership are relevant because they help to highlight the relationships and associations generated by women with their community, which are the basis for generating inclusive community development. Therefore, the relevance of such women-generated ownership actions within the community can help mitigate various problems such as lack of food, monetary resources, dispossession and inequality that exist in most rural communities in the country.

The elements of gender forest governance described in the project, which helped to understand the appropriation of nature by women, come from actions whose objective is to obtain both a family livelihood, as well as greater access to the forest area that, together with the members of the community, is obtained and a series of agreements and decisions are reached that help in the conservation of the community territory.

In this way, women are not only inserted as members of the family nucleus, but also as protectors of the natural diversity existing in the community. The result has been that San Juan Evangelista Analco is an example of women's participation within the communities with the highest concentration of forest area in the Sierra Juárez of Oaxaca. For this reason, it is important to identify the gender forestry governance structures that are developed in this type of community, as currently the capitalist vision of the state is inconsistent with the communities that defend their natural elements, which do not allow the dispossession of their resources. This type of gender forestry governance represents a tool of community vitality and adheres to the actions of resistance that the communities implement in the face of the economic policies promoted by the federal government.

References

- Agarwal, B. (2004). El debate sobre género y medio ambiente: lecciones de la India. En: V. V. García & M. Velázquez (Eds.), *Miradas al Futuro: Hacia la construcción de sociedades sustentables con equidad de género* (pp. 240-285). UNAM. <https://biblio.flacsoandes.edu.ec/libros/digital/45849.pdf>
- Alan, E., Romero, J. A., Hernández, I. U., & López, J. (2016). *Determinantes de la deforestación en el estado de Oaxaca*. Rainforests Alliance, The Nature Conservancy, Alianza México REDD+. https://www.researchgate.net/publication/312653088_Determinantes_de_la_deforestacion_en_el_estado_de_Oaxaca
- Banco Mundial, BM (2019). *Entendiendo la Pobreza*. Bosques. <https://www.bancomundial.org/es/topic/forests>
- Basoalto, E., & Mella, M. (2022). Turismo comunitario; defensa y construcción de paisajes culturales. *Cuadernos de Sociología*, (10), 76-84. Disponible en: <https://cusoc.ucm.cl/article/download/990/960>
- Center for International Forestry Research, CIFOR. (2013). *Bosques y Género. Lo que deberían los formuladores de políticas*. https://www.cifor.org/publications/pdf_files/factsheet/4178-factsheet.pdf

Comisión Económica para América Latina y el Caribe, CEPAL. (2016). Agenda 2030 y los Objetivos de Desarrollo Sostenible Una oportunidad para América Latina y el Caribe. https://repositorio.cepal.org/bitstream/handle/11362/40155/24/S1801141_es.pdf

Comisión Nacional para el Conocimiento y Uso de la Biodiversidad, CONABIO. (2019). Ecosistemas de México. Extraído de <https://www.biodiversidad.gob.mx>

Consejo Civil Mexicano para la Silvicultura Sostenible, CCMSS. (2018). Las mujeres de los bosques, una agenda pendiente. https://www.ccmss.org.mx/wp-content/uploads/2018/03/Las-mujeres-del-bosque_agendapendiente_marzo2018.pdf

Consejo Nacional de Evaluación de la Política de Desarrollo Social, CONEVAL. (2010). Informe Anual Sobre La Situación de Pobreza y Rezago Social. https://www.gob.mx/cms/uploads/attachment/file/34890/Oaxaca_554.pdf

Crespo, P., De Rham, P., & Gonzales, G. (2007). Empoderamiento: Conceptos y orientaciones. Retrieved from <https://www.shareweb.ch/site/Poverty-Wellbeing/resources/Archive%20files/Empoderamiento%20-%20Conceptos%20y%20Orientaciones%202007.pdf>

Cruz, E. (2015). La teoría marxista y los dilemas de la acción colectiva. *Revista Pensamiento Americano*, 8(1). https://www.researchgate.net/profile/Edwin_Cruz_Rodriguez/

Estudios Rurales y Asesoría, A.C, ERA. (2005). Plan Comunitario de Uso del Suelo de San Juan Evangelista Analco “Latzia-Duni”. <https://docplayer.es/92207889-Plan-comunitario-de-uso-del-suelo-de-san-juan-evangelista-analco-latzia-duni-diciembre-de-en-colaboracion-con.html>

Federici, S. (2013). Mujeres, luchas por la tierra y globalización: una perspectiva internacional. En: S. Federici (Ed.), *Revolución en punto cero. Trabajo doméstico, reproducción y luchas feministas* (pp. 223-242). *Traficantes de Sueños*. <https://traficantes.net/sites/default/files/pdfs/Revolucion%20en%20punto%20cero-TdS.pdf>

Fuente, M. E., Barkin, D., Esquivel Ayala, A. L., & Ramos Morales, M. F. (2018). La coinvestigación en comunidades zapotecas de Oaxaca. Reflexiones hacia un diálogo intercultural. *Sinética*, 50. <http://www.scielo.org.mx/pdf/sine/n50/2007-7033-sine-50-00008.pdf>

Garibay, C. (2008). Comunalismos y liberalismos campesinos: identidad comunitaria, empresa social forestal y poder corporado en el México contemporáneo. *El Colegio de Michoacán*. <https://www.eumed.net/rev/cccsc/06/rgj.pdf>

Gasca, J. (2014). Gobernanza y gestión comunitaria de recursos naturales en la Sierra Norte de Oaxaca. *Región y sociedad*, 26(60), 89-120. http://www.scielo.org.mx/scielo.php?pid=S1870-39252014000300004&script=sci_arttext

Hardin, G. (1968). The Tragedy of the Commons. *Science*, 162(3859), 1243-1248. <http://www.jstor.org/stable/1724745>

Horbath, J. E., & Gracia, A. (2014). Discriminación laboral y vulnerabilidad de las mujeres frente a la crisis mundial en México. *Economía, sociedad y territorio*, 14(45), 465-495. <https://www.redalyc.org/articulo.oa?id=11130276005>

Instituto Estatal Electoral y de Participación Ciudadana de Oaxaca, IEEPCO. (2018). Catálogo de Municipios Sujetos al Régimen de Sistemas Normativos Indígenas 2018. <https://www.ieepco.org.mx/sistemas-normativos/municipios-sujetos-al-regimen-de-sistemas-normativos-indigenas-2018>

Instituto Nacional de Estadística y Geografía, INEGI. (2015). Prontuario de información geográfica municipal de los Estados Unidos Mexicanos, San Juan Evangelista Analco, Oaxaca. Clave geoestadística 20196. https://www3.inegi.org.mx/contenidos/app/mexicocifras/datos_geograficos/20/20196.pdf

ACEVEDO-MARTÍNEZ, Jorge Antonio S., PÉREZ-RIAÑO, Tania Valentina, MORALES-JUÁREZ, Hugo and ACEVEDO-FLORES, Ursula. Forest governance alternatives: sustainable practices with a gender perspective, Juan Evangelista Analco, Oaxaca, Mexico. *Journal of Social Researches*. 2022

- Instituto Nacional de Estadística y Geografía, INEGI. (2019). Compendio de información geográfica municipal. San Juan Evangelista Analco. Oaxaca. https://www.inegi.org.mx/contenidos/app/mexi-cocifras/datos_geograficos/20/20196.pdf
- Instituto Nacional de Estadística y Geografía, INEGI. (2020). DataMéxico. <https://datamexico.org/es/profile/geo/san-juan-evangelista-analco>
- Janssen P. C. y Ostrom E. (2010). Working Together: Collective Action, the Commons and Multiple Methods in Practice. Princeton: Princeton University Press. <https://press.princeton.edu/books/paperback/9780691146041/working-together>
- Martínez-Alier, J. (2009). El ecologismo de los pobres: conflictos ambientales y lenguajes de valoración. *Icaria*. <https://icariaeditorial.com/antrazyt/4179-el-ecologismo-de-los-pobres-conflictos-ambientales-y-lenguajes-de-valoracion-6a-ed-ampliada.html>
- Maini, J. S. (1992). Desarrollo sostenible de los bosques. *Unasylva*, 43(169), 46-49. <http://www.fao.org/3/u6010s/u6010s03.htm>
- Merino, L. (2014). Perspectivas sobre la gobernanza de los bienes y la ciudadanía en la obra de Elinor Ostrom. *Revista mexicana de sociología*, 76(SPE), 77-104. http://www.scielo.org.mx/scielo.php?pid=S0188-25032014000600004&script=sci_arttext&tlng=pt
- Organización de las Naciones Unidas para la Alimentación y la Agricultura, FAO. (2018). Anuario Estadístico de los Productos Forestales. <http://www.fao.org/3/I9987M/i9987m.pdf>
- Organización de las Naciones Unidas para la Alimentación y la Agricultura, FAO. (2019). Los bosques y el agua. <http://www.fao.org/sustainable-forest-management/toolbox/modules/forest-and-water/basic-knowledge/es/>
- Ostrom, Elinor (1990). *Governing the Commons. The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press. <https://www.cambridge.org/core/books/governing-the-commons/7AB7AE11BADA84409C34815CC288CD79>
- Ostrom, V. (2008). *The Political Theory of a Compound Republic: Designing the American Experiment*. Lanham: Lexington Books. <https://biblioteca.ufm.edu/library/index.php?title=1071491&query=@title=Special:GSMSearchPage@process=@field1=clasificacion@value1=321.02@mode=advanced&recnum=10>
- Percy, K. E., Jandl, R., Hall, J. P., & Lavigne, M. (2003). El papel de los bosques en ciclo, la captura y el almacenamiento de carbono. *Unión Internacional de Institutos de Investigación Forestal*, 1, 1-5. http://www.academia.edu/download/8646396/issue1_march31_spanisch.pdf
- Plan Municipal de Desarrollo, PMD. (2019). Plan Municipal de Desarrollo 2020 -2022 de San Juan Evangelista Analco. http://sisplade.oaxaca.gob.mx//BM_SIM_Servicios/PlanesMunicipales/2019_2021/196.pdf
- Registro Agrario Nacional, RAN. (2020) Padrón e Historial de Núcleos Agrarios. PHINA. <https://phina.ran.gob.mx/index.php>
- Red2Red, C. S. L. (2008). *Guía de Coeducación. Síntesis sobre la Educación para la Igualdad de Oportunidades*. Instituto de la Mujer: Observatorio para la Igualdad de Oportunidades. https://www.inmujeres.gob.es/areasTematicas/AreaEducacion/MaterialesDidacticos/docs/Guia_de_coeducacion_2020_.pdf
- Secretaría de Medio Ambiente y Recursos Naturales, SEMARNAT. (2016). *Desarrollo local con conservación de biodiversidad en San Juan Evangelista Analco, Oaxaca*. https://www.gob.mx/cms/uploads/attachment/file/197013/10_San_Juan_Evangelista_Analco__Oaxaca.pdf

Secretaría de Medio Ambiente y Recursos Naturales, SEMARNAT. (2017). Caso de éxito 10, Desarrollo local con conservación de biodiversidad en San Juan Evangelista Analco, Oaxaca. Proyecto Biodiversidad en Bosques de Producción y Mercados Certificados (CONAFOR-GEF-PNUD)
https://www.gob.mx/cms/uploads/attachment/file/197013/10_San_Juan_Evangelista_Analco__Oaxaca.pdf

Toledo, V. M. (2008). Metabolismos rurales: hacia una teoría económico-ecológica de la apropiación de la naturaleza. *Revibec: Revista de la Red Iberoamericana de Economía Ecológica*, 7, 1-26.
https://ddd.uab.cat/pub/revibec/revibec_a2008v7/revibec_a2008v7p1.pdf

Toledo, V. M. (2013). El metabolismo social: una nueva teoría socioecológica. *Relaciones. Estudios de historia y sociedad*, 34(136), 41-71.
http://www.scielo.org.mx/scielo.php?pid=S0185-39292013000400004&script=sci_arttext

Torres, J. M. (2004). Estudio de tendencias y perspectivas del sector forestal en América Latina al año 2020. Informe Nacional México.
<http://www.fao.org/3/j2215s/j2215s00.htm#TopOfPage>

Vázquez, V. (2015). Manejo forestal comunitario, gobernanza y género en Hidalgo, México. *Revista Mexicana de Sociología*, 77(4), 611-635. DOI:
<http://dx.doi.org/10.22201/iis.01882503p.2015.4.52673>

Villoro, L. (2003). De la libertad a la comunidad. Fondo de Cultura Económica.
http://proveedorcientifico.com.mx/res/1_propuesta_de_la_libertad_villoro.pdf

Adolescent motherhood, reminiscence of an archaic inheritance; the case of a suburban neighborhood in Mérida, Yucatán, Mexico

Maternidad adolescente, reminiscencia de una herencia arcaica; el caso de una colonia suburbana de Mérida, Yucatán, México

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DOI: 10.35429/JSR.2022.22.8.30.36

Received July 20, 2022; Accepted December 30, 2022

Abstract

Objective. Explore and show the similarities and differences between the discourses of adolescent women and their respective parents about pregnancy and motherhood as a social imaginary. Methodology. Qualitative research. In-depth interviews were conducted with adolescent women and their respective parents; In some cases, the adolescents preferred to conduct the interview outside their homes. Informed consent was requested for both the interview and its recording. Discourse analysis was used. This work contributes to understand the phenomenon of motherhood, through the observation of two generations to explain the phenomenon from the perspective of the same social actors, the meaning that they give it and not in the interpretation from outside of those who are dedicated to research in this field. This position from within will generate new veins for research projects that consider the cultural history of the Maya in the organization of their natural environment and the conduct of their spiritual and family life.

Resumen

Objetivo. Explorar y mostrar las semejanzas y diferencias entre los discursos de mujeres adolescentes y sus respectivas progenitoras acerca del embarazo y de la maternidad como imaginario social. Metodología. Investigación cualitativa. Se realizaron entrevistas a profundidad a mujeres adolescentes y sus respectivas progenitoras; en algunos casos, las adolescentes prefirieron realizar la entrevista fuera de sus casas. Se solicitó el consentimiento informado, tanto para la entrevista como para la grabación de esta. Se utilizó el análisis del discurso. Este trabajo contribuye a entender el fenómeno de la maternidad, a través de la observación de dos generaciones para explicar el fenómeno desde la visión de las mismas actrices sociales, el significado que ellas le otorgan y no en la interpretación desde afuera de quienes se dedican a la investigación en este campo. Esta posición desde adentro generará nuevas vetas para proyectos de investigación que tomen en cuenta la historia cultural de los mayas en la organización de su ambiente natural y la conducción de su vida espiritual y familiar.

Maternity, Mayan culture, Adolescence

Maternidad, Cultura maya, Adolescencia

Citation: ANDUEZA-PECH, Guadalupe, RODRÍGUEZ-ANGULO, Elsa, OJEDA-RODRÍGUEZ, Ricardo and LENDECHY-GRAJALES, Ángel. Adolescent motherhood, reminiscence of an archaic inheritance; the case of a suburban neighborhood in Mérida, Yucatán, Mexico. *Journal of Social Researches*. 2022. 8-22:30-36.

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Introduction

Mayan culture is an example of what human beings are capable of doing. Capable of creating and recreating the world in which they live and in which the sum of wills makes their existence and survival possible. Studies such as that of Flores J. S (2012), Arias Reyes (2012), Montañez Patricia et al. (2012) show the modes of production of the Maya, the importance of the gardens in food, the resources that make possible the mode of production of these social groups, the value of the Maya gardens in the east of the state, as well as the meaning of the offerings as a practice that aims to reconcile man and his activity through responsible and respectful management of the environment that surrounds him.

The reproductive cycle becomes an important cultural element not only in the daily life of the Maya, but also in their modes of production and work organisation (Ortega 2010). Reproduction is not only a biological phenomenon, but also a social and cultural issue, since the behaviour of individuals is determined by the society in which they live and their conduct is governed by established norms; on many occasions, daughters are educated for the home, to assume the roles of good mothers and wives, elements that make up the axis of female subjectivity.

Normally the plot is considered a space where the determination of the existing relationships between a set of factors such as the physical and biological environment are important, also the activities developed in the plot and its temporality are part of a scheme in which the members of the family and the community itself participate and are involved in a plan of solidarity, cooperation and reciprocity (Cabrera 2014); In the same way, it could be affirmed that the organisation for work is ecosystemic, with an existential coherence in which the cognitive refers to the objective, i.e. the Mayan garden, and the subjective refers to the affective, i.e. the reproductive cycle (Ortega 2010).

Studies such as Jordan's in 1993 describe that, in rural Yucatán, pregnancy takes place in a state of pressure, even though it constitutes a normal stage of family life; even in the imagination of Mayan language speakers, pregnancy is conceived as an illness, since when referring to a woman who is pregnant, they express themselves by saying: "she is sick" ("K'oha'an ti' chan paal", in the Mayan language). However, pregnancy is a natural event in women's daily lives; childbirth takes place in a known, familiar environment, which is their own home, with the presence of some family members (husband, mother and/or mother-in-law) and attended by a midwife from their community who is known to the family. Ortega's study (2010) shows that the event of pregnancy favours a support network in family relations (again the husband, mother and/or mother-in-law) or a sister, but always in a known environment.

Likewise, the study by Rodríguez et al (2012) has shown that during the three stages of the reproductive process: pregnancy, childbirth and postpartum, women assume complementary practices; on the one hand, they receive care from the doctor and, on the other hand, they go to the midwife to find out if they are pregnant, to know the position of the baby in the womb and for the sobada.

Regardless of the disciplinary approach to pregnancy, it is a fact that adolescent pregnancy occupies a special place in the field of research on a daily basis. Thus, the possibility of giving women a voice in the reconstruction of their reality makes it possible to know and understand the meaning that an event such as pregnancy has in their particular lives and in that of the community to which they belong, that is, what pregnancy and the experience of motherhood mean for women and their immediate social environment.

The phenomenon of motherhood is a social construction that takes shape mainly through pregnancy, childbirth and breastfeeding and whose meaning is transmitted between generations, as well as through the network of social relations, with a predominance of female knowledge, however, in addition to being a biological event, pregnancy is produced within a society, therefore, women experience it differently depending on the social, cultural, economic, political and ideological context in which they move.

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Nevertheless, and as shown in the work of Díaz García Luis (2022), the personal experiences between mother and daughter are elements that show the importance of a special connection and a bond of continuity in these relationships that could maintain or transform the social meanings of motherhood.

Barrantes and Cubero (2014) point out that motherhood is a determining element in women's lives as a characteristic of women. However, this concept has not been understood, practised or felt in the same way throughout history, but has depended on multiple social and cultural factors. Pregnancy does not mean the same thing or have the same implications for a woman living in the city as it does for a woman living in a community. For rural women, it is very clear what their role in this world is and they assume it, they do not question it, unlike women in the city who face the fact of being mothers or women and who have to face a series of fears: losing their personality in front of the child, their beauty and erotic value, their professional and intellectual faculties, among others (Flores-Estrada 2014).

The study by Serrano Escobar (2022) refers to a self-fulfilling prophecy, which is a psychological process that results in an intentionality or action provoked by the expectations that others have of people, in this case, adolescent girls, and which can influence their social imaginary with respect to the notion of being a woman and motherhood.

As Flores-Valencia (2017) points out, adolescent pregnancy is considered a public health problem that requires urgent attention due to its increase and the risk to the health of mother and child. Hence, deepening the understanding of motherhood is a challenge given its complexity. It implies a revision of the conception of women at different stages of human development and today. There is evidence that research on the subject is abundant, but it is difficult to think that one discipline alone can explain this dimension of life in its entirety. It is important to consider that, if we really want to better understand this event of human life, we need flexibility in research, different approaches, theoretical approaches and empirical forms from the viewpoint of different sciences, without favouring any of those that have traditionally been used to explain it.

Methodology

This paper presents the results of a qualitative research conducted in a suburban neighbourhood in the city of Mérida, Yucatán, with the aim of exploring and showing the similarities and differences between the discourses of adolescent women and their respective parents about pregnancy and motherhood as a social imaginary. In-depth interviews were conducted with six teenagers and six adult women, mothers of the teenagers, from a suburban neighbourhood in the city of Mérida; the interviews were conducted in their respective homes according to the time of each of the women; in some cases, the teenagers preferred to conduct the interview outside their homes. The objective of the research was explained, and informed consent was requested, both for the interview and for the recording of the interview. Discourse analysis was used to analyse the information.

Results

What happens among adolescent girls in a suburban area

In the discourse of these adolescent girls, motherhood is perceived as an essential attribute of femininity and still characterises female existence. It constitutes a primordial event in their lives as they perceive it as intimately linked to the notion of being a woman. In this way, they organise and structure their lives with motherhood in mind in the short term, but at the same time they give themselves the possibility of postponing it, although not cancelling it.

They identify motherhood with satisfying experiences obtained through children and construct representations around it that encourage them to assume it as a dimension of their lives that they cannot imagine not experiencing; this, together with the idea that it is a divine gift that not all women possess; thus, enjoying this "power" is internalised as of great value. The value placed on motherhood is related to the satisfaction of having a child and being a mother, which translates into pride in possessing the ability to procreate.

These adolescents associate having a child with life as a couple within a formal commitment; this is manifested at the level of representations and not necessarily in practice. This dissociation between representation and practice is due to the fact that on the one hand they support the construction of the ideal, which they all forge, of having a child within marriage as a way of strengthening the bond of union, and on the other, they assume the idea of being mothers even without the marriage bond; that is, at times marriage can take a back seat to the longing to live the experience of motherhood.

The economy is referred to by these adolescents as another important factor to take into account when deciding to have a child; they relate the number of children to the cost they represent and express their preference to have few children.

The close mother-woman relationship constantly seeps into the discourse of adolescent girls; it is impossible to conceptualise women without the idea of being mothers. While it is true that they express other attributes that identify women and provide them with satisfaction, they also assure, at sublimation levels, that being a mother gives meaning to feminine existence and a sense of fulfilment. The other attributes referred to, of an affective nature, are intelligence, responsibility, sensuality of the body, visual attractiveness and the need to feel desired.

Although motherhood is still considered fundamental to female existence, closely linked to the meaning of being a woman and seen as a gift, it is possible to perceive transformations in terms of considering it as a non-immediate expectation in the lives of these adolescents. Thus, the desire to explore life as a couple and to initiate premarital coital relations begins to gain ground in their expectations, without detracting from the aspiration to marry.

Having a partner without a marital commitment may be pleasant and enjoyable, but at the same time, they do not deny the desire to formalise a union and show it as such to society; therefore, they express the pretension of organising and structuring their life in such a way that they can live and exercise their sexuality satisfactorily before the experience of motherhood, but at the same time, they let their longing to be a mother and to get married be glimpsed.

It should be noted that, for these adolescents, sexual relations do not necessarily have to be legitimised by marriage in the name of motherhood; for them, the marriage contract will rather allow sexual relations to be lived and enjoyed without fear of being questioned by society.

Without leaving aside the sublimation of motherhood that exists in these female groups, sexuality is filtering into their representations and practices; expressly in the desire to enjoy the couple's relationship and achieve sexual satisfaction through pleasure or love. However, for some of them, after the beginning of their life as a couple, the desire to satisfy their desire to be mothers is stronger. Another element that they incorporate as important in their lives and that affects the notion of motherhood is the personal expectations of life, expressed in the desire to finish a professional career and to work.

What is said among adult women

In the analysis of the discourse of these women, it is common to observe the conception of motherhood as a fundamental aspect of gender identity. The close mother-woman relationship is clearly evident, and they show that the purpose and importance of female existence lies in having offspring, together with the satisfaction it provides; thus, motherhood is seen as a vital expression of the feminine. The meaning of having a child is that of the continuity of the family; a notion which they see as closely linked to life as a couple and which, for this reason, becomes a longed-for event after the union is consummated. In this way, having a child confirms the aptitude for motherhood, that "divine gift given to women".

It is clear that motherhood constitutes the fulfilment of a woman, therefore, to be a mother is to feel fulfilled. The value of motherhood is related to the ability to procreate; giving life is seen as a power of divine origin that makes women feel fortunate. In addition, there is the idea that having children constitutes the security of having company and protection in the future. These women live motherhood as an essential dimension in their lives, so their representations define that being a woman means being a mother.

They maintain the idea that being a mother must take place within the framework of a marriage contract that legitimises sexual relations. While they seek to emphasise the latter, it is also clear that they are willing to accept that a woman can be a mother before marriage on the chance that one of their daughters might be involved. Motherhood, according to the aforementioned conception, also vindicates the woman who has a child without being married.

Life as a couple is seen as an expectation as soon as they reach adolescence. In this way, women are given the opportunity to exercise not only motherhood, but also the possibility of having a partner and satisfying sexual desire. Despite the fact that sexual desire appears to be limited in terms of the expression of one's own desire, they emphasise that it is considered natural in a couple's relationship. They also recognise that the expression of desire is more freely expressed by men. On the other hand, they assert that sexual desire decreases in the couple as the years go by and also as an effect of infidelity and/or alcoholism of the male partner.

This group of women have incorporated into their discourse the idea that sexual desire is permitted as long as the purpose of the sexual relationship is a possible pregnancy. They also affirm that sexual desire manifests itself in both women and men; although the attachment to religiosity permeates this vision of sexual desire when on occasions they deny the possibility of female enjoyment in the couple's relationship; for them, having had a child is the way to have fulfilled their reproductive function.

The way these women perceive men shows their clarity about the established gender differences of the past. They refer to the subordinate role of women and that men have more rights to express their sexuality and enjoy freedom. Moreover, in some of these women, the lack of knowledge of their own bodies, their physiology and their eroticism may be the motives that prevent them from perceiving their bodies as a mediator of the expression of their sexuality.

Pregnancy is registered as a physiological process that manifests itself and is experienced as a pleasurable stage for women. It is a process that causes physical and emotional changes, and in which the support received from the man is acknowledged; some of them refer to this support as comforting and gratifying both during pregnancy and after childbirth. For others, the absence of their husbands at this stage of their lives is common.

According to their knowledge, these women experience their lives as partners during pregnancy in terms of their efforts to protect their baby. While they affirm that having sex during the first months is not bad and they consent to it, it is also true that for them it is better to avoid it; they resort to evasions based on the possibility of harming the baby.

Conclusions

The analysis of the information allows us to obtain a first approximation of the reality in which we recognise that the ideas and notions of adolescent girls about motherhood have not changed with respect to those of their parents, at least at the level of discourse. The latter continues to reflect a strong link between being a woman and being a mother or the notion of motherhood as a gift given to women and to be proud of. Thus, for adolescent girls, being a woman is related to the task of being a mother and female existence is organised around motherhood as a reference point. It is evident that from the point of view of these actors, motherhood does not constitute a problem in their lives.

The transformations or differences between adolescents and their parents appear at the level of practices in the sense that adolescents can postpone the experience of motherhood in order to make room for other youthful expectations, such as sexuality, which is increasingly filtering through and beginning to occupy a preferential place. Thus, experiencing life as a couple becomes a strong desire, in which the pleasure associated with love acquires a personal and intense meaning that legitimises the initiation of sexual relations before marriage.

Adolescent girls initiate sexual relations with the intention of exploring their sexuality and not with the immediate idea of motherhood. Their female parents, on the other hand, initiate sex for the purpose of fulfilling their role as women, that is, as mothers. These women value motherhood more as a primary or even the only life goal. In this sense, the exercise of sexuality is tinged by the representations regarding motherhood, since for these adolescents motherhood may be postponed, but not cancelled. Hence the desire not to use contraceptive methods before a first child, based on the belief that they could cause sterility and prevent them from demonstrating their reproductive capacity.

It is evident that these adolescents maintain an interest in differentiating themselves from the model of mothers around them, and strive to be different by questioning norms and identifying with their peers. Undoubtedly, traditional patterns of behaviour are no longer acceptable or useful for them to guide their relationships with their own children; they are in search of a different type of family relationship to the one they had at home, they are trying to overcome the authoritarian model, in which women had a subordinate role to men.

The body, besides being perceived as a source of life, is also lived as a space, which has a cultural value that is consolidated and transformed according to the demands of current life and the satisfaction of daily needs, precisely like the plot of land for the Mayas, as an inherent unit of Mayan culture where cultural elements are lost or gained or refunctionalised to be used again and which are reflected in the patterns of behaviour of the peasants today.

Thus, in the 21st century, it is possible to find women who seek to break with the woman-mother binomial and fulfil expectations other than this. It seems that this is what is happening with motherhood, sexuality and the meaning of being a woman in these family groups; they certainly share some cultural elements, but these are adapted to the different scenarios and are related to other local ones.

It is worth mentioning that these results are applicable to the group studied, perhaps they cannot be applied to a larger population but the richness of the information obtained allows for a better and deeper understanding of the adolescent women and their parents, who in different ways and from different perspectives participated in this research and who still today do not cease to amaze us with all the wisdom contained in their words, learned truths that they share with people when they allow entry to their homes.

Social representations undoubtedly play an active role in people's daily lives, and therefore constitute a fundamental element in understanding the phenomenon of motherhood. People permanently construct and reconstruct their representations in order to give meaning to their own experiences. In this sense, the diachronic study focused on the observation of two generations in order to explain the phenomenon from the point of view of the social actors themselves, the meaning they give it and not on the interpretation from the outside of those who dedicate themselves to research in this field. This position from the inside will generate new avenues for future research projects that take into account the cultural history of the Maya in the organisation of their natural environment and the conduct of their spiritual and family life.

Acknowledgements

To the Universidad Autónoma de Yucatán for the permissions granted to allow the fieldwork to be carried out.

References

Arias Reyes L. M. (2012). El huerto familiar o solar maya-yucateco actual. En: El huerto familiar del sureste de México. Ramón Mariaca (editor). Secretaría de recursos naturales y protección ambiental del estado de Tabasco y Colegio de la Frontera Sur. https://www.researchgate.net/profile/Leopoldo-Medina-2/publication/236870993_El_huerto_familiar_d_el_sureste_de_Mexico/links/02e7e519c0b4aa7874000000/El-huerto-familiar-del-sureste-de-Mexico.pdf

Barrantes Valverde Karla, Cubero Cubero María Fernanda. (2014). La maternidad como un constructo social determinante en el rol de la feminidad. *Wímb lu, Rev. electrónica de estudiantes Esc. de psicología, Univ. Costa Rica.* 9(1): 29-42. <https://dialnet.unirioja.es/servlet/articulo?codigo=4942668>

Cabrera Pacheco Ana Julia. (2014). Estrategias de sustentabilidad en el solar maya yucateco en Mérida, México. *GeoGraphos.* [En línea]. Alicante: Grupo Interdisciplinario de Estudios Críticos y de América Latina (GIECRYAL) de la Universidad de Alicante; Vol. 5, nº 56, p. 1-32 [ISSN: 2173-1276] [DL: A 371-2013] [DOI: 10.14198/GEOGRA2014.5.56]. <https://web.ua.es/es/revista-geographos-giecryal/documentos/ana-cabrera.pdf>

Díaz García L. (2022). Todo sobre mi madre y yo: Género, memoria e identidad en el cine de Chantal Akerman. *Latente; Revista de Historia y Estética del Cine, Fotografía y Cultura Visual.* Domingo Sola Antequera (director); Núm. 20, p. 9.52. DOI: <https://doi.org/10.25145/j.latente.2022.20.01>

Flores Guido J. S. (2012). Diversidad florística, usos y origen de material genético de las especies de los huertos familiares de la Península de Yucatán. En: *El huerto familiar del sureste de México.* Ramón Mariaca (editor). Secretaría de recursos naturales y protección ambiental del estado de Tabasco y Colegio de la Frontera Sur. https://www.researchgate.net/profile/Leopoldo-Medina-2/publication/236870993_El_huerto_familiar_del_sureste_de_Mexico/links/02e7e519c0b4aa7874000000/El-huerto-familiar-del-sureste-de-Mexico.pdf

Flórez-Estrada Pimentel, María. (2014). La maternidad en la historia: deber, deseo y simulacro. *Cuadernos Inter.c.a.mbio sobre Centroamérica y el Caribe* [en línea]. Disponible en: <https://revistas.ucr.ac.cr/index.php/intercambio/article/view/16585>

Flores Valencia Margarita, Nava Chapa Graciela, Arena Monreal Luz. (2017). Embarazo en la adolescencia en una región de México: un problema de Salud Pública. *Rev. Salud Pública* 19 (3): 374-378. <https://scielosp.org/article/rsap/2017.v19n3/374-378/es/>

Jordan, B. (1993). *Birth in four cultures: a cross-cultural comparison of childbirth in Yucatán, Holland, Sweden and the United States.* Wareland Press Prospects Heights, Illinois. <https://www.waveland.com/browse.php?t=174>

Montañez Escalante Patricia y cols. (2012). El huerto familiar o solar maya-yucateco actual. En: *El huerto familiar del sureste de México.* Ramón Mariaca (editor). Secretaría de recursos naturales y protección ambiental del estado de Tabasco y Colegio de la Frontera Sur. https://www.researchgate.net/profile/Leopoldo-Medina-2/publication/236870993_El_huerto_familiar_del_sureste_de_Mexico/links/02e7e519c0b4aa7874000000/El-huerto-familiar-del-sureste-de-Mexico.pdf

Ortega Canto Judith (2010), Género, generaciones y transacciones; reproducción y sexualidad en mayas de Yucatán. *El Colegio de Michoacán; Zamora, Michoacán.*

Rodríguez Angulo Elsa, Andueza Pech Guadalupe, Montero Carvantes Landy. (2012). Un abordaje cualitativo de las defunciones maternas en Tizimín, Yucatán, México. *Alteridades; 22 (43).* Págs. 145-158. https://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0188-70172012000100010

Serrano Escobar M. (2022). Profecía autocumplida, melancolía y suicidio: simbología acuática en la obra de Karoline Günderröde, Alfonsina Storni e Ingrid Jonker. *CIESE-Comillas-Universidad de Cantabria.* <https://repositorio.unican.es/xmlui/handle/10902/25562>

ANDUEZA-PECH, Guadalupe, RODRÍGUEZ-ANGULO, Elsa, OJEDA-RODRÍGUEZ, Ricardo and LENDECHY-GRAJALES, Ángel. Adolescent motherhood, reminiscence of an archaic inheritance; the case of a suburban neighborhood in Mérida, Yucatán, Mexico. *Journal of Social Researches.* 2022

Appellation of origin in Mexico**Las denominaciones de origen en México**

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Received July 25, 2022; Accepted December 30, 2022

Abstract

Mexico has an ancient culture, admired by the world and rich in traditions, from which innumerable agricultural and man-made products emerge, which due to their characteristics are not compared with other equivalents. When an agricultural or man-made good is also linked to a particular territory and is made by expert hands using artisanal techniques, that product is a candidate to be recognized with a Denomination of Origin. The purpose of this research is to analyze the areas of opportunity presented by appellations of origin in Mexico, highlighting common challenges and risks identified in their operation, which are holding back their efficient performance, as a driver of the social and economic development of regions in Mexico. The study consisted of a theoretical analysis of the current situation of denominations of origin in Mexico, to contribute to the dissemination of their knowledge as a trigger for development in the country.

Regions, Appellation of origin, Trade**Resumen**

México posee una cultura milenaria, admirada por el mundo y rica en tradiciones, de la cual se desprenden innumerables productos agrícolas y elaborados por el hombre, que por sus características no se comparan con otros equivalentes. Cuando un bien agrícola o elaborado por el hombre, se vincula además con un territorio en particular y es elaborado por manos expertas empleando técnicas artesanales, ese producto es candidato a ser reconocido con una Denominación de Origen. La presente investigación tiene como fin hacer un análisis a las áreas de oportunidad que presentan las denominaciones de origen en México, resaltando retos en común y riesgos identificados en su operación, que están frenando su eficiente desempeño, como un impulsor del desarrollo social y económico de las regiones en México. El estudio consistió en un análisis teórico de la situación actual de las denominaciones de origen en México, para contribuir a la difusión de su conocimiento como detonador de desarrollo en el país.

Regiones, Denominación de origen, Comercio**Citation:** ZAPATA-AGUILAR, José Apolinar. Appellation of origin in Mexico. *Journal of Social Researches*. 2022. 8-22:37-44.

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Introduction

México has an incomparable cultural richness, which fuses traditions, colors, aromas, and products with unique regional characteristics that are not found in other parts of the world, due to factors such as the territory in which these goods are grown or produced. Having a differentiated product allows producers to charge a premium for them, becoming a great opportunity for those agri-food and man-made goods that, being associated with a región that includes: climate, temperature, soil, water, among others, have with specifications, which are not achieved when grown or processed in other parts of the world.

When the aforementioned differentiation is associated with the materials used to make the good, the natural conditions with which the product is grown or made, the labor that shapes the satisfier, and the environment that surrounds the entire process, the satisfier is a candidate to be recognized with a Appellation of origin. Mexico has a large number of agricultural and man-made products in the different regions of country, wich have unique qualities that deserve to be known and consumed in the national and international markets.

For Molina (2015) Achieving the connection fo a product with the region in which it is made, as well as having the protection of its use, gives the Appellation of origin a differentiating and respectful sign, contemplated in terms of industrial property law (p. 47)

The appellation of origin es a distinctive that declares the Mexican Institute of Industrial Property (IMPI) to products with special characteristics that differ from goods of the same type, which usually bear the name of the place where they are produced. Appellation of origin are not acquired or granted, they are first used, recognized by consumers, and then protected (Government of Mexico, 2015).

According to Perez, Gonzalez and Picado (2018, as cited in Barham, 2003; Rang-nekar, 2004; Vandecandelaere et al. 2010; Barjolle et al. 2011; Belleti, Marescotti and Touzard, 2015) “The Appellation of origin, known generically as Geographical Indications, they are on of the territorial revaluation strategies that has caused the greatest interest in recent years to promote rural development” (p.17).

For Perez and Perez (2011) geographical indications are referents of geographical origin, with particular qualities and reputation in products. Traditionally, geographical indications are linked to agricultural products and alcoholic berevages, although it should not be forgotten that human intervention with knowledge and traditional manufacturing techniques give originality to said goods.

According to the Ministry of Economy (2016) “the appellation of origin promotes the formation and conservation of local resources, helps the development of viable technologies for sustainable production and generates trained human capital by teaching techniques to the new generations” (p.12) The designation of origin promotes the conservation of the traditional means of production, so that the good preserves its orinality.

The purpose of this research study is to expose the areas of opportunity of the appellation of origin that exist in Mexico. The study is justified because designations of origin promote regional economic development, through the promotion of employment, income to the marketing chain of the product with designation of origin and related tourist services. However, there are áreas of opportunity in the operation of appellation of origin that are worth analyzing. The study will benefit all those interested in Knowing how an appellation of origin works and the problems that exist around its implementation.

Steps to obtain a appellation of origin:

Cited by the Ministry of Economy (2016, p.16) producers who consider making use of a appellation of origin:

- 1) Submit a request for a declaration of appellation of origin in writing, accompanied by the evidence that supports the request.
- 2) Indicate the full name, address and nationality of the aplicant. If it were a moral person, it must also indicate its nature and what it does.
- 3) Indicate the legal interest of the applicant. Individuals and legal antities that are directly engaged in the extraction, production or elaboration of the product to be protected by the appellation of origin;

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the chambers or associations of manufacturers or producers, and the dependencias or entities of the Federation,

- 4) Describe in detail the finished product that will be covered by the designation of origin, contemplating its characteristics, components, method of extraction and production or preparation processes. When it is decisive, include the official standards to which the product must be subject, its extraction method, its elaboration or production processes, and the forms of packaging, and packaging.

Explain the place of extraction, production or processing that is sought to be protected with the designation of origin and the delimitation of the territory of origin. It is relevant to highlight the links between the denomination, the product and the territory that the DO will cover.

Methodology

The present research consisted of four phases: in the first, official pages of the Federal Government and IMPI were consulted, as well as publications related to the subject of the institutions involved and Higher Education Institutions, which have carried out research on Appellation of origin. In the second phase, each of the 18 denominations in force in Mexico were described. In the third phase, the general current situation of denominations of origin of the products recognized with this distinctive was analyzed and in the fourth phase, conclusions were presented regarding the findings found in the theoretical analysis carried out.

Results

Mexico has 18 denominations of origin where the Mexican state is the owner of the rights to these products, these are: Tequila, Mezcal, Olinalá, Raicilla, Charanda, Yahuallá, Bacanora, Talavera, Sotol, Pluma, Cacao, Grijalva, Coffe Chiapas, Chiapas Amber, Ataulfo Mango from Chiapas Soconusco, Habanero Pepper, from the Yucatan Península, Veracruz Coffe, Morelos State Rice and Papantla Vanilla.

Tequila

According to Olmedo (2010) tequila is an alcoholic beverage made from agave of a variety called Tequilana Weber Blue, originally made using artisanal processes, and since the 19th century it has been produced industrially, maintaining ancient procedures. It has a denomination of origin since 1974 and the Official Mexican Standard (NOM) since 1994. In 2006, UNESCO declared the “agrave landscape” a World Heritage Site, which includes fields, distilleries, farms and towns.

Mezcal

According to Hernandez (2018) mezcal is an alcoholic beverage produced from one or several agaves, among which *Agave angustifolia*, *Agave cupreata*, *Agave salmiana*, *Agave potatorum* and *Agave inaequidens* stand out. The production process includes: agave cooking, grinding, fermentation and distillation (p. 405).

Olinalá

They are handicrafts made from linaloe Wood that has an intense, slightly citrus fragrance, where the most recognized pieces are boxes, in which decoration is its main attraction and in which techniques such as scratching and gilding are used. Artisans can also make other decorated wood products such as furniture, headboards, among others (Ministry of Economy, 2016).

Raicilla

For Nuño and Navarro (2021) Raicilla is distilled beverage from the Costa-Sierra Occidental region of Jalisco whose elaboration responds to the biocultural practices of the inhabitants of said region, among which the use that is given to it stands out. Raicillero artisans have been recognized by UNESCO in 2021 after Universal Declaration of Cultural Diversity, which promotes human diversity, local heritage and the appreciation of all cultural heritage trades.

Charanda

It is a brandy made from sugar cane, which alludes to the color of the nearby Charanda hill. The charanda has a different production process from that of other cane distillates, by adding fifty percent cane juice and fifty percent molasses (Ministry of Economy, 2016).

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Yahualica

For Fuentes (2018) the Yahualica pepper is the second Jalisco product to obtain a designation of origin. Consumers recognized that the Yahualica pepper has a characteristic flavor, texture and spiciness that support the quality of the dishes made with this variety, such as tortas ahogadas, birria, and bottled sauces, among others. The differences in flavor with other chilies are due to factors such as the type of soil, weather, fertilization, and the drying process.

Bacanora

The bacanora is a distillate made from 100% roasted, fermented and distilled wild agave, similar to tequila and mezcal, differing by the characteristics of the plant used, by the climate of the Sierra de Sonora, the wild yeast used in its production elaboration (Gutierrez, Acedo and Valenzuela, 2017, p. 394).

Talavera

It is ceramic produced in the Valley of Puebla and its surroundings, consisting of different types of clay, which is used to make pieces of different volumes, to which enamel and pigments are added (Gamboa, s.f.).

Sotol

Madrid, García and Valles (2021, p. 108) point out that Sotol is an alcoholic beverage made from the Sotol plant, which grows in desert scrub and grassland ecosystems, with a surface dominated by a dry semi-arid climate.

Pluma

Pluma coffee owes its name to the municipality of Pluma Hidalgo located in the southern highlands of Oaxaca. The coffee grown in Linneo arabica, cared for from its origin, based on the conditions of the region, the height and quality of the soil, as well as the little use of chemicals used in its cultivation (Flores, Espitia and Alonzo, 2017, p. 103).

Cacao Grijalva

It is cocoa produced in the Grijalva region of the state of Tabasco, one of the most important due to its quality and the production process involved. The appellation of origin was granted to protect the green, roasted or ground cocoa of the *Theobroma cacao* species (Creole, Trinitario and Forastero), with the Trinitario genetic group being the most cultivated in the Grijalva region, the product of natural hybridization between the native creoles and foreigners (Tadeo and Toletino, 2020, p. 5).

Coffee Chiapas

The coffee that is most produced in Mexico is the so called "arabico" (coffee arabica), which is grown under shade trees, to which a limited number of agrochemicals are applied, whose characteristics make it an environmentally green crop. The production of Chiapas coffee allows the capture of foreign currency generated from exports, as well as from the jobs generated by its cultivation, processing and commercialization (Barrera and Parra, s.f., p. 4).

Ambar of Chiapas

Amber is a fossilized resin of vegetable order, it is considered the gem of Mexico. In the case of amber from Chiapas, its firmness added to the particular characteristics of the surface in which it is found, led to its being found, led to its being gradually enclosed and forming veins of variable size (Ministry Economy, 2016).

Ataulfo Mango from Soconusco, Chiapas

The Ataulfo mango is a variety native to Mexico that is distinguished by its sensory characteristics, highlighting the taste, smell and texture. This fruit is distinguished by being succulent, fleshy, oval in shape, with a thin seed and abundant pulp, which contains a high amount of vitamins A and C, is rich in minerals, fibers and antioxidants such as ascorbic acid, carotenoids and phenolic compounds, while that its calorie, fat and sodium content is low (Ma, Liu, Yao, Wang and Zhan, 2011).

Habanero Chile from the Yucatán Peninsula

The habanero pepper (*Capsicum chinense* Jacq.) is one of the emblematic commercial crops of the Yucatan Peninsula, Mexico. The organoleptic characteristics that distinguish the fruits of habanero chili are the particular aroma and flavor, as well as the spiciness, coming from its high concentration of capsaicinoids (López, Rodríguez, Ramírez, and Rodríguez, 2020, p. 4).

Coffee Veracruz.

The State of Veracruz has been characterized by its long history as a coffee producer and by the good quality of its product. Veracruz coffee has become renowned due to the altitude and climate conditions in which it is grown, distinguishing the Coatepec coffee basin (Mavil, Ricardez, Sangabriel and Sangabriel, 2008, p. 76).

Rice from the State of Morelos

The rice produced in Morelos is a food with physiological characteristics of the region, which has allowed producers to continue the sowing and harvesting process in an artisanal way, without any modification, since the region was introduced. It is necessary to mention the link that has existed between producers and researchers in the region, which has allowed addressing the problems that have arisen in the cultivation of the grain (Tolentino, 2013, p.53).

Vanilla from Papantla

Vanilla is grown in plots of three to five hectares. Producers must seek shade for the plantation, the pods are odorless and tasteless. In order for vanilla to acquire the characteristics that provide it with value, it is necessary to dry and cure the pods to later benefit them. Vanilla prices are volatile (Ministry of Economy, 2016).

Opportunity Areas in the Appellation of origin

Regarding the DO of coffees, Perez and Perez (2011, p. 107) point out in a study carried out on coffees with DO Veracruz, Chiapas and Pluma, that the credibility of the producers is very low, since few have knowledge of what that it is a strategy to improve living conditions and much less to transform production regions. There is little organization of the producers around the DO.

Added to these problems are the problems of forming the Regulatory Councils, as entities in charge of validating the production processes to provide certainty to the markets.

For Velazquez (2017, p. 204) the living conditions of coffee producers would improve if the consumer were integrated into the consumer were integrated into the processes, and there was a closer connection with them. This could be achieved through recreational activities around the coffee.

Regarding the DO of habanero pepper from the Yucatan peninsula, Zapata, Perez and Moo (2019, p. 122) indicate that the DO is not being used in the commercialization of habanero pepper from the Yucatan peninsula. Most of the habanero pepper producers in the Yucatan peninsula are not fully aware of the regulations for growing the vegetable according to the specifications required by the DO and thus being able to harvest and market using this important distinctive.

About the rice of the State of Morelos, Tolentino (2013, p. 155) point out that the representatives of the mills that profit from rice, go into the expenses of the productive process and transportation to be sold, adding the loss of rice that occurs when the product is taken to the drying field, since 22% of the production is lost in this field.

As for cacao of Grijalva, Tadeo y Tolentino (2020, p. 20) state that due to the recent certification of cacao de Grijalva, there is no reliable evidence of economic, productive, and organizational changes in the cocoa sector. There are problems around the DO that are repeated in almost all Mexican DO, the main one being the fact that they are made up of technical regulations, which leaves aside the relationship of the product with the place and with the knowledge of the producing community, which gives rise to the product ending up being industrialized in search of its standardization, opposing its essence. In an interview with the producers, it was found that several of them were unaware that their products already had an appellation of origin, evidencing the arrangement of the local government and representative of the private initiative, without representation of the rest of those involved.

Regarding the Ataulfo del Soconusco Mango from Chiapas, Mendoza, Rosas, Vazquez and Galvez (2020, p. 1642) indicate that among the challenges faced by the Ataulfo mango product system are: establishing a commercialization chain of the federative entity, that avoids triangulation between the different actors, that is objective, that maintains the price of the product and that the producer is the one who benefits the most. Another is to lower the cost of labor and inputs for production. One more challenge is to regulate the local cooperatives that receive mangoes in the region so that the producer receives a fair payment for his work and prevents the coyote from keeping the best profits. Some researchers propose that greater profitability could be achieved if there were a strategic organization that unites the efforts of the different links in the marketing chain to bring order while waiting for a greater socioeconomic impact for the State of Chiapas and the country (Ruiz and Muñoz, 2016).

Regarding Sotol, Madrid, García and Valles (2021, p. 114) criticize that each sotol producer has a fermentation procedure according to their experiences; as a result, a diversity of native microorganisms that affect the reducing sugars is originated, which gives rise to different organoleptic characteristics of the drink between the regions that make up the DO.

Regarding tequila, Reyes, Velazquez y Perez (2018, p. 248) point out that despite the large results of the large tequila industry and knowing that it generates direct jobs that support thousands of families, it cannot be affirmed that there is an appropriation of this good by local actors in decision making processes and less to speak of an equitable distribution of benefits among the actors in the marketing chain. In the economic field, more transnational companies are acquiring the main tequila companies, turning it more and more into a subfield of the international field of alcoholic beverages, giving rise to many of the decisions responding more to the interests of these groups than to those of the industry as such (Macias and Valenzuela, 2009).

Gratitude

To CONACYT and Metropolitan Technology Institute for the facilities received in the development of this research study.

Conclusions

The DO are an important asset protection tool, their original conception is laudable, since it seeks the socioeconomic boost of the regions and the traditional preservation of production processes, linked to the physical conditions of the territory where the products are made, added with trained skilled labor from generation to generation.

However, the standardization of a good, although it offers certainty to the consumer, in terms of greater control in the cultivation and elaboration of a product, also moves away from the artisanal processes that give originality to said good. The DO present problems in common and individually, one of the main ones is the integration of the productive chains, which allows all the links to know what a DO is, how it benefits them and how they can be integrated into the productive chain that corresponds to them.

The natural conditions of the territory, especially when it comes to agricultural products with DO, are another risk factor, since pests, climate, rainfall, can create adverse conditions to achieve agricultural goods in the conditions demanded by the markets, which they can raise the costs of production and transport, and with this make these products uncompetitive in the markets.

The weak integration of the main link in the productive chains that are the producers, is being a real challenge, for the operation of the appellation of origin, in some cases due to the geographical dispersion in which they are located, and in others, due to the fact that producers often have different interests, and see their peers as competition, rather than trading partners.

Although the tequila DO is being one of the most used, after achieving not only the successful commercialization of the product internationally, and the link with the tourism sector for the use of the agave landscape, as a travel experience. The reality is that the transnational companies are the main beneficiaries of the DO, leaving aside the essence of the DO, which is the regional development of communities at a social and economic level.

References

- Barrera, J. y Parra, M. (s.f.) El café en Chiapas y la investigación en ECOSUR.
https://ecosur.repositorioinstitucional.mx/jspui/bitstream/1017/978/1/0000350701_documento.pdf
- Flores, F., Espitia, J. y Alonzo, R. (2017) Prospectiva del Café Pluma Hidalgo: Orígenes, Crisis Varietal del Producto, Actores, Estrategias de Solución. En Ramos, A., Martínez, R. y Trejo, G. (2017) Políticas Públicas de Desarrollo Sustentable. Gasca.
https://www.academia.edu/en/39901160/Prospectiva_del_caf%C3%A9_Pluma_Hidalgo_or%C3%ADgenes_crisis_varietal_del_producto_actores_estrategia_de_soluci%C3%B3
- Fuentes, J. (2018) Chile Yahualica recibe denominación Gamboa, F. (s.f.) Talavera.
http://catarina.udlap.mx/u_dl_a/tales/documentos/ldg/capasso_g_es/capitulo3.pdf
- Gobierno de México (2015, 14 de Septiembre) Denominaciones de Origen #OrgulloDeMexico www.gob.mx/se/articulos/denominaciones-de-origen-orgullodemexico#:~:text=El%20Instituto%20Mexicano%20de%20la,registros%20de%20marca%3B%20entre%20otras
- Gutiérrez, M., Acedo, F. y Valenzuela A. (2007) Industria del bacanora y su proceso de elaboración. *Ciencia y Tecnología Alimentaria* 5 (5) 394-404
<https://www.redalyc.org/pdf/724/72450511.pdf>
- Hernández, J. (2018) El mezcal como patrimonio social: de indicaciones geográficas genéricas a denominaciones de origen regionales *Em Questao* 24(2) 404-424
<https://www.redalyc.org/journal/4656/465655178022/465655178022.pdf>
- López, G., Rodríguez, J., Ramírez, M. y Rodríguez, I. (2020) Metabolómica y cultivo del chile habanero (*Capsicum chinense* Jacq) de la península de Yucatán.
https://ciatej.mx/files/divulgacion/divulgacion_5f05dd8bb2e1a.pdf
- Ma, X., Wu, H., Liu, L., Yao, Q., Wang, S. y Zhan, R. (2011) Polyphenolic compounds and antioxidant properties in mango fruits. *Sci. Hortic.* 129 (1) pp. 102-107 DOI: 10.1016/j.scienta.2011.03.015.
- Macías, A. y Valenzuela, A. (2009) El tequila en tiempos de la mundialización. *Comercio Exterior*. Vol 59 (6) 459-472
<http://revistas.bancomext.gob.mx/rce/magazines/127/3/RCE3.pdf>
- Madrid, J., García, J. y Valles, D. (2021) La producción de sotol: revisión de literatura sistémica. *Mundo Fese* 11(2) 107-117
<http://cathi.uacj.mx/bitstream/handle/20.500.11961/22071/917-Texto%20del%20art%C3%ADculo-2257-2-10-20220611.pdf?sequence=1&isAllowed=y>
- Mavil, J., Ricardez, J., Sangabriel, I. y Sangabriel, C. (2008) Modernidad en la organización cafetalera roma de la región Coatepec, Veracruz. *Administración*. 14 (19) 77-84
<file:///C:/Users/JOSE%20ZAPATA/Downloads/4295-Texto%20del%20art%C3%ADculo-23153-1-10-20210205.pdf>
- Mendoza, C., Rosas, R., Vázquez, A. y Gálvez, D. (2020) Retos y controversias del mango Ataulfo. *Revista Mexicana Ciencias Agrícolas*. 11 (7) 1633-1645
<http://cienciasagricolas.inifap.gob.mx/index.php/agricolas/article/view/2199/3553>
- Molina, M. (2015) La protección de la denominación de origen, indicación geográfica e indicación de procedencia. *Revista Iberoamericana de Viticultura, Agroindustria y Ruralidad*, 2 (16), 46-69
<https://www.redalyc.org/pdf/4695/469546447004.pdf>
- Nuño, M. y Navarro, A. (2021) El oficio del raicillero. *Mercator*.
<https://doi.org/10.4215/rm2021.e20011>
- Olmedo, B. (2010) El tequila: de su origen a su desnaturalización ¿A quién le pertenece su conocimiento? Una aproximación. *Revista CENIC. Ciencias Químicas*. 41 (1) 1-13
<https://www.redalyc.org/pdf/1816/181620500061.pdf>
- ZAPATA-AGUILAR, José Apolinar. Appellation of origin in Mexico. *Journal of Social Researches*. 2022

Pérez, P., González, A. y Picado W. (2018) Saberes de Origen. Experiencia de México y Centroamérica. UNAM.

https://www.academia.edu/36321008/Saberes_de_origen_Experiencias_de_M%C3%A9xico_y_Centroam%C3%A9rica

Pérez, P. y Pérez, M. (2011) Las denominaciones de origen del café mexicano y sus cuestionamientos como modelo de desarrollo regional. *Perspectivas rurales. Nueva época.* 10 (9) pp. 97-110

https://www.academia.edu/en/74311015/Las_denominaciones_de_origen_del_caf%C3%A9_mexicano_y_sus_cuestionamientos_como_modelo_de_desarrollo_regional

Reyes, G.; Velázquez, M. y Pérez, P. (2018) Denominación de Origen Tequila. Crecimiento e inequidad alrededor de la primera Denominación de Origen mexicana. En Pérez, P., González, A. y Picado W. (2018) Saberes de Origen. Experiencias de México y Centroamérica. UNAM.

https://www.academia.edu/36321008/Saberes_de_origen_Experiencias_de_M%C3%A9xico_y_Centroam%C3%A9rica

Ruíz, E. y Muñoz, M. (2016) Análisis de la competitividad sistémica de la red de valor mango Ataulfo. *Revista Mexicana de Ciencias Agrícolas* 7 (15) 3039-3049

https://www.researchgate.net/publication/322694414_Analisis_de_la_competitividad_sistemica_de_la_red_de_valor_mango_Ataulfo

Secretaría de Economía (2016) Orgullo de México. IMPI

<https://bpo.sep.gob.mx/#/recurso/3267>

Tadeo, J. y Tolentino, J. (2020) El cacao Grijalva de Tabasco: dinámicas socio territoriales en torno a su

producción. *Revista de Alimentación Contemporánea y Desarrollo Regional.* 30 (56) 1-25

<https://www.scielo.org.mx/pdf/esracdr/v30n56/2395-9169-esracdr-30-56-e201002.pdf>

Tolentino, J. (2013) La producción de arroz del estado de Morelos: una aproximación desde el enfoque

SIAL. *Estudios Sociales* (44) pp. 39-61

<https://www.scielo.org.mx/pdf/estsoc/v22n44/v22n44a2.pdf>

Velázquez, M. (2017) Consumo y comercialización del Café en México. Tesis Doctoral. UNAM, FES Acatlán.

https://repositorio.unam.mx/contenidos/consumo-y-comercializacion-del-cafe-en-mexico-72234?c=rVnENZ&d=false&q=*&i=2&v=1&t=search_0&as=0

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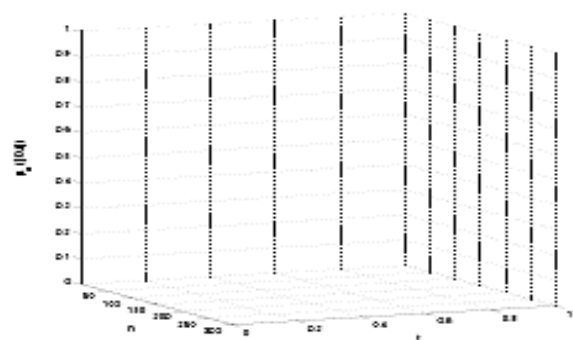
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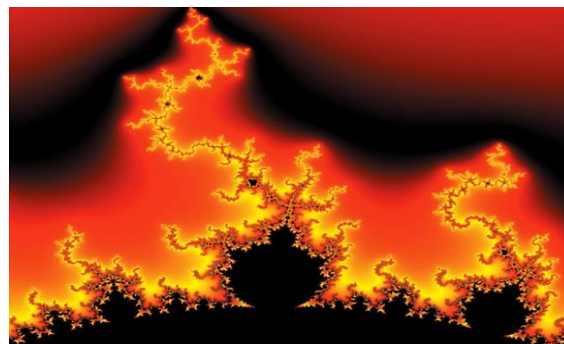


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