

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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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, Bóscues, Gobernanza, Indígenas

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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 IEEPICO-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 [IEEPICO], 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.

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.

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.

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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.

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