

GENDER, SUBSISTENCE FISHING AND ECONOMIC CHANGE. A COMPARATIVE STUDY IN SOUTHERN VERACRUZ, MEXICO

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Introduction

The purpose of this paper is to examine the ways in which ethnic affiliation, gender ideology, ecological restrictions and economic change determine women's roles in subsistence fishing. The setting of this research is the Sierra de Santa Marta (SSM), Mexico (see Map 1). The specific questions that we address are: how does ethnicity shape distinct gender ideologies regarding labor practices and concepts of work? How do ethnicity and gender ideology interact with restrictions posed by the ecology and economy to determine women's access to freshwater resources? And finally, how does gender get reworked in the process? In answering these questions, we expect to contribute to the feminist literature on Gender and Development (GED) which examines the role that gender plays in development processes and the way it intersects with other factors such as class, race and ethnicity to determine women's roles and status in Third World countries.

Research was conducted in Ixhuapan and Ocozotepec, two indigenous communities of the SSM, an area of 135,900 hectares located on the coastline of the Gulf of Mexico, north of the industrial cities of Minatitlán and Coatzacoalcos. While both villages are part of the same regional economy (to be described shortly), they differ in rather significant ways. Ixhuapan is inhabited by Nahuatl peoples and Ocozotepec by Popoluca peoples. Ethnic affiliation has a major bearing on differing constructions of gender and work which, combined with restrictions posed by the ecology and economy, has led to different patterns of gender access to freshwater resources.

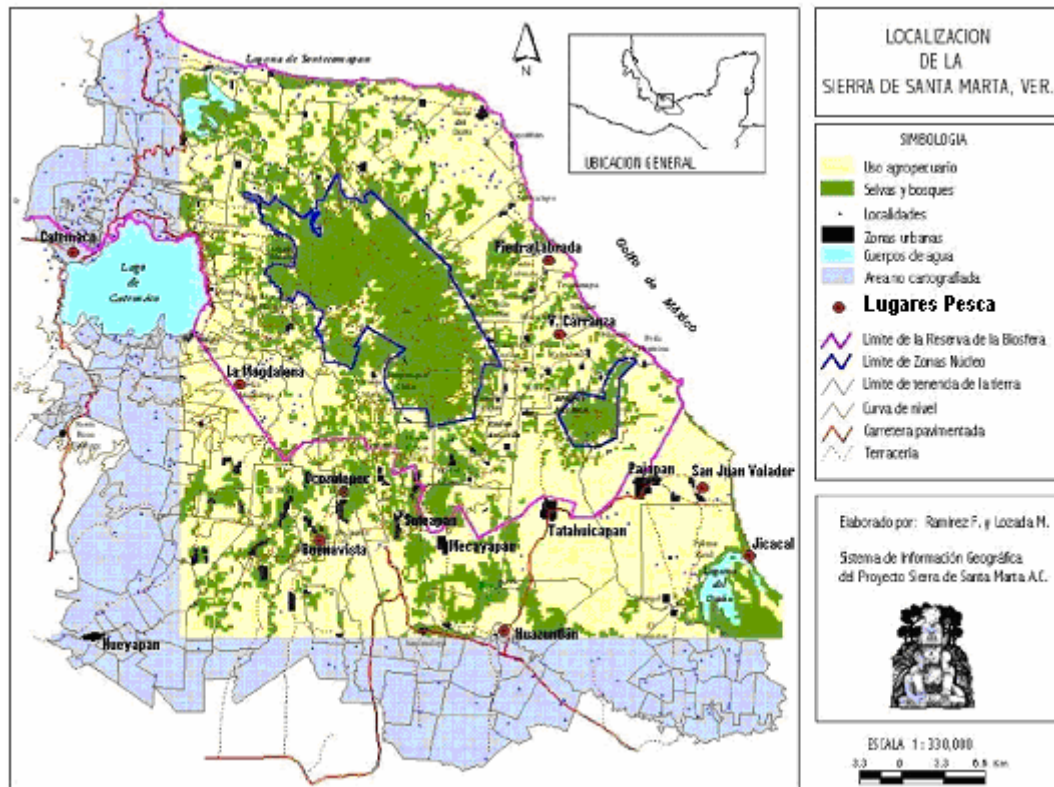
In investigating this process, we draw on a distinct body of literature produced by feminist academics, international agencies and non-governmental organizations, an approach which has been termed Gender and Development - GED (Moser, 1989; Portacarrero, 1990). One of its major contributions has been to illuminate not only the impacts of colonization and neo-colonization on subsistence economies, but also their implications for gender relations by looking at issues such as gender stratification, changes in women's work and status, the gender division of labor, patriarchal forms of control and women's access to resources (Kabeer, 1994; Benería and Sen, 1997; Young 1997; Parpart et al, 2000).

Research on women in the fisheries has been particularly relevant to the literature on GED for several reasons, according to Neis and Maneshy (2005: 246). First, the interactions between economic processes and women's lives "are unusually visible" in the fishing sector because of its community-based nature. Second, the study of fishing activities helps illuminate "the equally visible interactions between

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the gender division of labor in wage work, family production and domestic work”. Third, overfishing highlights the relationship between environmental degradation and market forces and the gendered responses to them.

Mapa 1. The Sierra de Santa Marta, Veracruz, Mexico



Source: Vázquez, 2002

As with other work on GED, research on women in the fisheries started by documenting the contribution of women’s unpaid labor to fishing families and communities. An important area of interest has been the impact of fishery restructuring on women’s work and status and the gender division of labor (MacDonald, 2005). Studies from different parts of the world have shown the great diversity in gender relations resulting from disparities in commodification processes and state policies; ecological, cultural and class differences; and variations in household and kinship structures (Neis 2005; Pratt, 1996; Medard and Wilson, 1996; Binkley, 1996, 2000; Hall-Arber, 1996; Szala-Meneok and McIntosh, 1996; Skaptadottir, 2000; Davis, 2000; Gerrard, 2000; Nadel-Klein, 2000). In many fishing areas, men catch the fish and women work onshore. However, evidence from small communities in Brittany, Galicia, Sardinia, parts of Ireland and Sweden shows that women regularly go fishing. Likewise, men learn domestic tasks such as cooking, cleaning and laundering while at sea, and some of them share these tasks at home (Cole, 1991). In some regions, women own boats and invest in fishing endeavors, while also making important decisions in household management when men are away. Female control over income and men’s absence from the household gives women “a clear practical basis for power” which makes fishing communities rather peculiar in terms of women’s power and status (Thompson, 1985).

Several case studies fit this picture of relatively more egalitarian gender relations in fishing communities compared to, for example, farming communities. The women living in coastal Ghana; Kerala, India; New Guinea; Malay; northeast Scotland; and some coastal regions of Sweden, Denmark and Spain have considerable economic and decision-making power (Thompson, 1985). More recent works, like the one conducted by Rubinoff (1999) in Goa, India, reach similar conclusions. However, these authors warn us against the idea that a fishing context necessarily produces more gender-equal societies. Again, women's power is subject to change due to macro-level conditions (e.g. increasing market competition; the closing of fisheries; the introduction of new technologies which are no longer home-based; men's involvement in fishing as wage laborers rather than as small boat operators) and by women's ethnicity, age and marital status, among other factors. For example, some entrepreneurial Goan women "have extended what was their traditional role of fish processing (salt, drying) and peddling into highly competitive and lucrative marketing businesses", but "other low caste and poor Goan women who are willing to work for low but steady wages" are being increasingly exploited by the modern fishing industry (Rubinoff, 1999:638). Similarly, Hapke (2001) shows how Christian and Muslim women living in the same region of India have different roles in fishing due to the intersection of caste-religion, gender ideology and the different options offered by the local economy, leading to a situation where Muslim women are less likely to take an active and visible part in fishing. The image of the strong and powerful fisherwoman of some regions of Scotland is presently just a tourist attraction due to the decline of the regional fishing industry (Nadel-Klein, 2000). Thus, as a social construction resulting from particular cultural and economic conditions, women's power in fishing communities is contingent on change (and decline) across time and space.

In spite of this evidence, gender issues have remained on the margins of fishery research and policy-making (Binkley, 2005; Bennett, 2004). This marginality has been attributed to three major factors. First, attention has focused on the catching sector rather than the processing and marketing sectors due to the emphasis on the over-exploitation of fishing resources. Second, researchers have failed to include women in interviews and discussions for cultural reasons, or because they believe that male family members speak for them. Third, national fishery data are often aggregated with the agricultural sector and there is no desegregation along gender lines. The lack of attention to gender issues in fishery management has resulted in policy interventions that fail to promote sustainable livelihoods for women, their families and communities (Bennett, 2004). Laws, policies and programs are often gender-blind, but not gender-neutral, and their effects tend to reinforce existing social inequalities (Neis and Maneshy, 2005).

Moreover, most research has focused on marine communities where sea fishing is the major source of income. Less attention has been paid to subsistence fishing, where women's roles are important not only in the preparation of fishing implements and fish processing, but also in the actual fishing activities, most of which are conducted in estuaries, the beach, or in the fresh waters of rivers and lakes. Some studies do mention that women harvest fish, shellfish and algae for household consumption or in exchange for other items, but none of them analyze the contribution of these harvesting practices for household and community food security (see FAO 1989, 1996; Allison et al, 1989; Cole 1991; Rubinoff, 1999; Savard and

Fraga, 2005). More research is needed in order to fully grasp the variety and complexity of gender relations in fishing.

In investigating the intersections between ethnicity, gender, ecology and economy in Ixhuapan and Ocozotepec, we draw on the notion of women's social location proposed by Zavella (1991) and further developed by Hapke (2001). Women's social location is shaped by structural factors (the regional political economy) and cultural ones (gender, ethnicity, race, caste, religion, age, marital status). According to Zavella (1991:313), the analysis of women's social location must begin "with the historically specific structural conditions constraining women's experiences" in order to "link these conditions to the varieties of ways in which women respond to and construct cultural representations of their experiences." The Chicana factory workers studied by this author enter the same labor markets segregated by race and class, but they experience them differently due to their diverse life cycles and ethnic identities. In the case of Hapke's study (2001), the regional economy creates similar experiences for women, but caste-religion and gender ideology generate important differences among them.

Both Zavella and Hapke emphasize the need to compare women from the same racial/ethnic groups in different contexts, and women from different racial/ethnic groups in the same context. This allows us to move away from the predominance of the white, middle-class woman as the normative subject, and to increase our understanding of the ways in which different women experience economic change, thus contributing to the decolonization of non-Western women in feminist research (Sachs, 1996; Mohanty, 1997).

The format of this paper is as follows: after a brief description of the methods used to gather information, we describe the structural context that constrains women's and men's lives in Ixhuapan and Ocozotepec. Next, we discuss the gender ideology of each ethnic group and the way in which it shapes the gender division of labor and women's access to freshwater resources. We then provide an analysis of the intersection between ethnicity, gender ideology, the local ecology and the local economy and the emerging outcomes of this intersection, namely the strengthening of traditional female roles in fishing activities. Finally, we conclude with some closing remarks on the significance of this analysis for research on gender and fishing.

Methodology

The data presented here are part of an action-research project on uncultivated foods (fishing, hunting, and gathering) carried out from 2002 to 2004. We used quantitative and qualitative methods to analyze the availability and consumption of uncultivated foods. This combination allowed us to identify dominant trends and processes while giving voice to individuals. Quantitative researchers believe that social reality can be comprehended through numbers, while scholars favouring a qualitative approach analyze the meanings that such social reality bears for people. Both approaches are important because all issues can be studied for their numbers and meanings (Castro, 1996). In the present study, group interviews contributed to define the content of a socioeconomic survey, which further helped identify themes for individual interviews.

Group interviews

We started with group interviews in May 2002. Two interviews were conducted in Ixhuapan, the first with 14 men and the second with 11 women. In Ocozotepec one interview was carried out with about ten women. Participants were asked to select

cards containing the types of fish and shellfish that were locally acquired. They were also asked to inform of the seasonal availability of each type of fish, the gender division of labor involved in obtaining them, and their forms of preparation.

Household socioeconomic survey

In May and June 2002, we implemented a socioeconomic survey to obtain data on the household composition by sex, age, school years, occupation, religion, patterns of land use, and forms of food supply. The survey was distributed to a random sample of 42 households from Ixhuapan and 61 from Ocozotepec, selected from a list of 438 and 666 households respectively.

Individual interviews

In July and August 2003, individual interviews were conducted with a different sample of people. In Ixhuapan we interviewed three old men, two old women, two community authorities and various members of 17 families chosen at random (nine women, six men and two couples) whereas in Ocozotepec we spoke with two old men, three community authorities and the members of 15 families chosen at random (two men, seven women and four couples). The interviews focused on certain issues, depending on the person in question. When interviewing elders, we focused on the changes in freshwater resource availability and rules governing fishing practices, whereas with the authorities we tried to analyze the prevailing status of these rules. With the members of the 32 families, we talked about their personal fishing histories and preferences for some tools and animals. In these 32 cases, we rebuilt the history of the last time a member of the family (one or more individuals) had fished: where, with what tools, accompanied by whom, which animals had been caught and in what amounts. We rebuilt a total of 54 fishing episodes (26 in Ixhuapan and 28 in Ocozotepec) that had taken place a short time before the interview.

The structural context: the SSM regional economy

The structural context in which the lives of women are situated is the regional economy of the SSM, an area of close to 60,000 inhabitants distributed in six municipalities: Pajapan, Mecayapan, Soteapan, Hueyapan de Ocampo, Tatahuicapan de Juárez and Catemaco. The first five are inhabited mostly by Nahua and Popoluca peoples (about 50,000) living in very precarious conditions, whereas Catemaco is mostly *mestizo*.

The most ancient activity of the sierra is slash and burn subsistence agriculture (the traditional *milpa* which associates corn, beans and useful weeds) combined with hunting, fishing and gathering. This food system changed dramatically during the second half of the 20th century, when the demand for beef in the national market led to the expansion of cattle production into what were previously agricultural and forest areas of Nahua communities through a system of land rentals. Since the 1960s, a few *mestizo* ranchers from nearby cities control pasture lands in Nahua communities. These pastures comprise an important part of national beef production. Popoluca communities did not take contracts with these ranchers and have relied on coffee production for income (Paré et al, 1997).

The results of these transformations are twofold. First, economic differences have been created. The SSM land base, which Nahua and Popoluca populations used to share since pre-hispanic times, was divided to create *ejidos* during the 1960s and

further divided again during the 1990s to create individual parcels of property within *ejidos*.² Men have been pushed out of agriculture and forced to seek employment in urban areas whereas women, particularly Nahua women, have engaged in petty trade to support their households.

Second, the environmental conditions of the SSM, an area well-known for its biodiversity (it hosts 2,383 vegetal and 1,149 animal species) have drastically deteriorated in spite of various attempts to reverse this process (the SSM is currently part of the Los Tuxtlas Biosphere Reserve). About 66,000 hectares of rainforest have already been lost and the remaining areas consist of primary forests, patches of secondary vegetation and coffee plantations. Deforestation has been attributed to the governmental policy of colonization of the humid tropic and the expansion of cattle-raising into rainforest areas (Velázquez, 1996; Paré et al, 1997; Ramírez, 1999).

In addition to these two elements, it is important to note the lack of food security and the conditions of poverty prevailing at the SSM. Corn production in the region dropped from 476,097 tons in 1970 to 238,050 in 1989 (Paré et al, 1993) and there are reasons to believe that this trend has continued. According to government statistics, three of the six SSM municipalities are among the 200 poorest in the country (Paré and Velázquez, 1997). The SSM was considered a case of “national emergency” by the Carlos Salinas administration (1988-1994), “priority attention” by that of Ernesto Zedillo (1994-2000) (Turati, 1998) and “immediate attention” by the Fox administration (2000-2006) (Diario Oficial de la Federación, 2001). This context, along with gender ideology, the local economy and the local ecology, shapes women’s access to freshwater resources and their responsibilities in subsistence fishing.

Gender and work in Ixhuapan and Ocozotepec

Ixhuapan has 1,868 inhabitants of Nahua origin and is part of the municipality of Mecayapan. It is located at the sub-basin of the Huazuntlán river, which is fed by three rivers: Huazuntlán, Texizapan and Tatahuicapan (Ramírez, 1999). The Texizapan is the most visited one for fishing purposes. In turn, Ocozotepec has 2,831 inhabitants of Popoluca origin and is part of the municipality of Soteapan. It is part of the Coatzacoalcos river basin (Ramírez, 1999). Local people identify five water sources: Arroyo Verde, Arenal, Piedra, Chango and Ozuluapan, although this latter is by far the most important one for fishing purposes. Compared to the Texizapan river in Ixhuapan, the Ozuluapan is shallower and carries less animal species.

Both Ixhuapan and Ocozotepec belong to two of the three poorest municipalities of the SSM. Traditional houses are made out of local materials- wood for walls and grass for roofs. Housing conditions are similar although in Ixhuapan there are more concrete houses due to male migration (to be discussed shortly). In fact, 95 per cent of Ocozotepec houses, compared to 78 per cent of those in Ixhuapan, have dirt floors. Most households have electricity and running water but more than one third in Ixhuapan (41.5 per cent) and 10 per cent in Ocozotepec do not have sanitary facilities. Corn harvests in Ixhuapan last only six months while in Ocozotepec

² The *ejido* is a social form of property resulting from the Mexican Revolution of 1910 that guaranteed individual parcels of land to family heads. The constitutional reforms of 1992 instituted the *Programa de Certificación de Derechos Ejidales y Titulación* (Program for the Certification and Issuance of Title Deeds- Procede) which granted individual title deeds to every *ejidatario/a*, thus allowing them to sell their plot of land or enter into partnerships with the private sector.

they last 8.5 months. Evidently, more money is needed in Ixhuapan to buy corn (the major food staple) and other foods throughout the year. However, money is usually spent in industrialized foods with high contents of sugar and flour that are relatively inexpensive (as compared with milk, chicken, beef) but have low nutritional values. Ramírez et al (2003) call this “dietary transition”, described as the abandonment of a traditional diet and the adoption of a new one with high energetic values and deficiencies in some essential nutrients. Studies conducted in other rural communities of the world have reported similar situations (Dewey, 1989; Politis et al, 1997).

Most adults did not finish primary school and are engaged in unpaid agricultural labor or domestic work combined with poorly paid income-generating activities (see Table 1). Yet important differences exist between the two communities. The percentage of men devoted to unpaid agricultural work (either full-time or in combination with other activities) is higher in Ocozotepec, whereas in Ixhuapan more men are engaged in full-time, income-generating activities (bricklayers, taxi drivers).

More women in Ocozotepec participate in unpaid agricultural activities and generate income, although without leaving their households: they make embroideries and sell them to a subcontractor by the piece. By contrast, one third of women in Ixhuapan are rural-urban petty traders who sell agricultural produce in Minatitlán (a large nearby city), which requires them to leave their households for at least one night. Finally, Ixhuapan has more men and women studying than Ocozotepec. This percentage includes unmarried teenagers attending the local high school.

Both Ocozotepec and Ixhuapan, but to a much larger degree the latter, are undergoing what Sampredo (quoted in Lara 1996) has called “a crisis of desagrarianization” defined by the proliferation of non-agrarian activities and the day-to-day displacement of rural populations towards medium-size and large cities. This crisis does not necessarily mean a rupture with peasant tradition but rather its redefinition under new terms. Women are important income generators and are playing a key role in creating new forms of social organization in their communities (Lara, 1996).

Table 1. Occupational profile of people 15 years and older

	Activities	% Ixhuapan	% Ocozotepec
Men	Agricultural work	37.1	36.1
	Agricultural work/income generating activities	20.1	40.9
	Income generating activities	24.2	10.8
	Students	17.7	12
Women	Domestic work	45.9	23.6
	Domestic/agricultural work	6.6	12.9
	Domestic work/income generating activities	31	53.9
	Students	16.3	9.6

Source: household socioeconomic survey, May 2002.

As can be seen, the gender division of labor is different in each community. In Ocozotepec, subsistence, unpaid agricultural activities are still predominant. Men have been constructed as the main breadwinners and are more engaged in these activities, although women's participation in agriculture may be underreported due to the locally accepted notion that women only "help out" in the fields. Popoluca men act as the household head when determining its needs and providing for them. As such, they can resort to the labor of other household members if considered necessary. These arrangements are not seen as appropriate by other people of the SSM. Nahuas and *mestizos* view Popoluca men as abusive and criticize the fact that women work in the fields, since agricultural labor is considered men's responsibility.

By contrast, both men and women in Ixhuapan are more oriented towards full-time income-generating activities. Nahua peoples have a longstanding tradition of migration and, even though they are concerned agriculturalists, trade has also been a key element for their survival. Nahua men, not only from Ixhuapan but also from other SSM communities and regions of the country, are used to their wives' engagement in petty trade activities. In Ixhuapan households, women and men handle independent income streams. As opposed to Ocozotepec, where women make very little cash from embroidering, some women in Ixhuapan earn significant amounts of money and are indeed the major income earners in their households.

The differences between Popoluca and Nahua women are expressed in other spheres as well. Popoluca women are less likely to go to medical appointments on their own or take their children to the doctor alone; men are seen as socially responsible for them and are expected to accompany the family to these and other kind of activities. In short, men are the mediators between Popoluca households and the larger society. By contrast, Nahua women are used to making medical visits on their own and to leaving their community for various purposes. They are also more fluent in Spanish than their Popoluca counterparts. These gender arrangements explain the fact that more Popoluca women use contraceptives that are locally administered (e.g. injections), as opposed to Nahua women, whose most common form of contraception is the tubal surgery usually performed in urban, state-owned clinics and hospitals (Vázquez 2002).

Research conducted in other areas of the world has identified similar differences in gender and work among women living in the same structural context, arising from ethnic or religious affiliations. In her study of fishing communities in New England, Hall-Arber (1996) shows that the wives of fishermen with various ethnic backgrounds have different levels of participation in fishery management because of the gender characteristics attributed to each ethnic group. The idea that women are the cohesive force that binds the family together among Italian immigrants has allowed for the acceptability of women's leadership in the public domain. Portuguese-born women, by contrast, see themselves as living in a very restrictive society that lacks a tradition of political participation which, together with other factors, helps explain why their visibility in public meetings regarding fishery management is very low. Similarly, Hapke (2001) points out that Christian women living in southern India are responsible for selling the fish that their husbands catch, while Muslim women do not undertake any activity outside their homes. Very similar results are reported by Rubinoff (1999) in the western coast of India among Catholic and Hindu women.

In Ixhuapan and Ocozotepec, fishing is the most commonly practiced subsistence activity after agriculture, compared with hunting and weed gathering. As

such, fishing is the most important source of wild animal protein available in these communities. Most households fish at least once a month, with higher frequencies in Ixhuapan (see Table 2).

The gender division of labor in fishing activities is similar to that discussed above. Women in Ixhuapan are more used to leaving their households while Popoluca women must do so only if accompanied by their husbands. Generally, women in Ixhuapan fish in all-female groups while women in Ocozotepec do so with their husbands and children and in all-female groups only if near the village (see Table 3).

Table 2. Frequency of fishing in Ixhuapan and Ocozotepec households

Frequency	Ixhuapan %	Ocozotepec %
3 times a week	5.3	6.8
Weekly	21.0	15.9
Every 15 days	42.1	22.7
Every month	23.7	27.3
Three times a year	7.9	6.8
No data available	0	20.4
Total	100	100

Source: household socioeconomic survey, May 2002.

Table 3. Fishing group composition in Ixhuapan and Ocozotepec

Fishing arrangements	Ixhuapan #	Ocozotepec #
Couples	0	6
Couples with children	4	5
Groups of women	11	8
Groups of men	11	1
Children	0	3
No data	0	5
Total	26	28

Source: individual interviews, August 2003.

The intersections

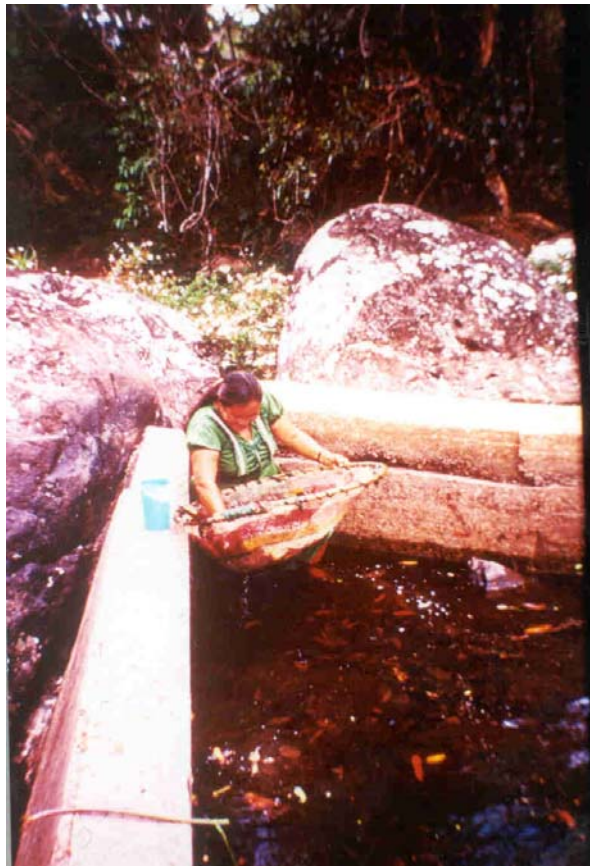
The patterns described above illustrate the significance of ethnic affiliation in informing different ideologies of gender and work that influence how women access income, public services (such as medical appointments) and natural resources (such as freshwater foods). Clear differences that stem from different ideologies of gender and work emerge between Nahua and Popoluca women. The fact that women in Ixhuapan leave their community to engage in petty trade or to attend medical appointments, and that they fish in all-female groups, is evidence of this. By contrast, in Ocozotepec there is a stronger ideological connection between men's status and their ability to support the household, which discourages women's independent activities in income-generating, public services and the commons for subsistence. However, women's social location is not informed by just one factor but rather by the intersection of several of them (Zavella, 1991; Hapke, 2001). In southern India, women's roles in fishing are informed by caste- religion, gender ideology and the economy (Hapke, 2001). In the present study, the salient factors determining women's access to freshwater resources are ethnicity, gender ideology, the local ecology and the local economy. We now turn to examine the intersections between them.

Ethnicity, gender ideology and the local ecology

Both Ixhuapan and Ocozotepec have significant levels of environmental damage, with some important differences. In Ixhuapan, cattle-raising has brought along massive deforestation, to such an extent that only 24 per cent of the vegetal cover remains. By contrast, Ocozotepec people have generated income through coffee production rather than the rental of their lands for cattle raising and approximately 46 per cent of the *ejido*'s vegetal cover still remains, an area that people locally refer to as *monte* (woodlands) (Vázquez et al, 2004). But even if Ocozotepec's landscape is much better preserved than Ixhuapan's, its rivers carry less water and, consequently, less animals that can be used as food. Whereas people in Ixhuapan can obtain shrimp and large fish, people in Ocozotepec catch shrimp and small fish. Nevertheless, it is important to note that the river animals of both communities are under threat due to overfishing and to the poisoning of fish and shellfish with agricultural pesticides. Several species, particularly of fish, have disappeared or are very hard to find. Presently only one predominates in each community: Mojarra- *Diplodus vulgaris* in Ixhuapan and Pepesca- *Bramocharax caballeri* in Ocozotepec.

Environmental conditions contribute to shape the gendered patterns of fishing described above, in that in Ixhuapan, women's access to freshwater resources is facilitated by their larger availability. The existence of both shrimp and large fish in this community has led to a gender specialization of fishing activities, where women harvest shrimp and men catch large fish.

Figure 1. Woman with a *matayahual*



The intersection of Nahua ethnicity and gender ideology with Ixhuapan's local ecology is shown in the gender construction of the fishing implements used in this community: the *matayahual* (circular net tied up to a flexible round liana, which is used to trap shrimp and small fish – see Figure 1) has been constructed as a female tool that men do not use in order to avoid being called “fags” (sic), whereas arrows (used to catch fish – see Figure 2) are mostly male. Other studies conducted in the country have identified similar gender attributes. In the Cuyutlán lagoon, fishing nets are “intended for macho men” and women do not know how to use them (Alcalá, 1992: 92). In Zirahuén, women fish and inherit fishing implements from men only exceptionally, when no sons are present (Cuello, 1986). Similarly, the natural fences made by Tarahumara women are considered improper for men: “a man will never fish like that, unless he is a child or a helpless old man” (Lartigue, 1986:205).

Interestingly, however, changes in environmental conditions produce changes in the gender construction of fishing implements in Ixhuapan. After a heavy rain and/or when the water rises sharply, both men and women go into the river at night to make a barrier across the river banks holding the *matayahual* in their hands order to trap shrimp. This activity is considered dangerous (hence appropriate for men) and the women who participate in it are seen as courageous. Accordingly, the *matayahual* loses its female attributes if only temporarily, because both men and women use it.

Although this type of fishing is not frequent (only three of the 26 fishing episodes recorded in Ixhuapan were of this kind), it clearly shows the interplay

between ethnicity, gender ideology and the local ecology, and how different environmental conditions transform the gender norms regulating fishing activities.

The intersection between Popoluca ethnicity and gender ideology with Ocozotepec's environmental conditions also informs women's access to freshwater resources. Women fish with their husbands not only because gender ideology dictates that they must do so (men are the mediators between the Popoluca household and larger society, and the woodlands have been constructed as inappropriate for women)³, but also because the amount and size of animals available near the village are negligible. Due to river animal scarcity, women must go to more distant places to fish, and they can do so only if accompanied by their husbands. Hence, some women fish with them (at the woodlands) and others do so in all-female groups near the village. However, women whose husbands do not enjoy fishing at the woodlands have stopped fishing all together because near the village "they hardly find any" river foods and what they get is "not enough" to feed their families. In other words, Ocozotepec women can fish only if their husbands are willing to take them to the woodlands, because fishing near the village does not yield enough food. In short, the interplay between ethnicity, gender ideology and the local ecology poses severe restrictions on women's access to freshwater food resources in this community.

Figure 2. Man with an arrow



³ In the woodlands lives a worm, the "*jolote* worm", which actually is a man in disguise. He "gets aroused" and "pays a nighttime visit" to the woman who sees him or laughs near him. A story is told about a woman who was impregnated by this man and gave birth to worms. "This is the reason why women don't go out...they are afraid".

The environmental conditions prevailing in Ocozotepec do not allow for a gender specialization on river animals, such as the one existing in Ixhuapan. This has led to the construction of the *matayahual*, used by both men and women to catch shrimp and small fish at the woodlands, as a gender-neutral fishing implement. An instrument with strong female connotations in one community (Ixhuapan) becomes gender-neutral when the environmental conditions of another community (Ocozotepec) force men to use it. This situation is reinforced by the fact that traditionally male fishing implements such as the *nasa* (conical basket used to catch prawns) are rarely used in Ocozotepec due, again, to the scarcity of freshwater animals.

To sum up, women's access to freshwater resources is a result of the interplay between different factors, including the restrictions posed by the local ecology, ethnicity and gender ideology. As feminist scholars have argued, people's relationship with the environment is gendered in that women and men of various ethnic backgrounds experience environmental change in different ways (Leach et al, 1995; Sachs 1996; Rocheleau et al, 1996; Braidotti et al, 1997; Rico, 1997). In the present study, Nahua and Popoluca women and men experience differently their deteriorating environment, which is expressed in the decline of fishing resources. In Ixhuapan women catch shrimp while men catch large fish, "each with his or her tool" and in same-sex groups. By contrast, in Ocozotepec men and women catch shrimp and small fish together using the same fishing implement, and women are less likely to fish on their own.

Ethnicity, gender ideology and the local economy

Another aspect that shapes women's access to freshwater resources in these two communities is the local economy, including different patterns of land tenure and male migration. The lands of Ixhuapan were parceled in the early nineties, as a result of the neo-liberal agrarian reform which allowed for the privatization of *ejidos*. Presently, only 28.6 per cent of households in this community have someone with a land title, a situation which has forced young men to migrate. Thirty three percent of Ixhuapan households have one or two migrants, three quarters of whom (73.7 per cent) are men under thirty, married and single, who work in the agricultural fields or sweatshops of northern Mexico. This is a temporary form of migration that can last several months or even years. By contrast, Ocozotepec's people did not accept the neo-liberal land reform and did not allow their lands to be parceled. Access to land is exercised on a "right to use" basis established by several generations of men who planted corn at a certain place. The percentage of households with this kind of access to agricultural land is much higher (70.5 per cent) than that of Ixhuapan. Thus, the migratory phenomenon of Ocozotepec is also different: 59 per cent of households have one or more migrants, but the vast majority of them (95.4 per cent) are married men that spend short periods (one or two weeks) in nearby cities and return to the community during the sowing and harvesting seasons.

How do these features of the local economy intersect with other factors to determine women's access to freshwater resources and their fishing activities? In Ixhuapan, landlessness and long-term male migration, together with Nahua gender ideology, has increased women's responsibility to feed their families. In other words, the Nahua tradition which allows women to contribute to the household through their own, independent ventures intersects with Nahua men's migration patterns, thus strengthening women's roles in subsistence freshwater food provisioning.

Women in Ixhuapan continue to catch shrimp in spite of the fact that the parceling of land during the 1990s reduced the areas where they can do so. Women have to get shrimp within their family's parcel or within the property of relatives or acquaintances who "will not get angry" at them for entering into their territory. Those with no access to land at all generally exchange river access for river food. A woman tells the story of an old man who used to pile up stones to trap shrimp but did not get into the water to grab them because he was "too old". A woman catching shrimp within his property always put "some shrimp in his gourd ...to give the land's owner his place". Hence, women with land access restrictions have developed strategies to overcome the barriers imposed by the local economy on their fishing activities.

By contrast, although economic need is also great in Ocozotepec, men have chosen closer destinies so that they can return to the community and attend their agricultural lands. By choosing these migration destinies, which allows them to generate extra income without neglecting their agricultural responsibilities, men continue to fulfill their roles as breadwinners, and their wives continue to stay at home unless their work is required by the male household for agricultural or fishing endeavors, something which is considered a mere "help."

Economic change, coupled with other factors such as ethnicity and gender ideology, has a major impact on the gender division of labor and women's access to resources (Benería and Roldán, 1987; Moore, 1988; Stephen, 1991; Zavella, 1991; Hapke, 2001; Rai 2002). In our study, the desagrarization process of the Mexican countryside (landlessness, peasant migration) is much more dramatic in Ixhuapan, where it has meant a larger dependency both on income-generating activities and female subsistence foods. This seems to be indicating that many women have not benefited from the monetarization of the local economy. People in Ocozotepec have managed to some extent to resist this desagrarization by refusing to parcel their lands. In so doing, they have remained a more agrarian, land-based, traditional society. Keeping women inside their homes and under male authority is part of this tradition.

Emerging outcomes: strengthening female roles

Hapke (2001) argues that the intersections between gender, caste-religion and the economy led to new configurations of gender in the fishing communities of southern India. Catholic women's fish marketing became more profitable while Muslim women withdrew from the fish economy. Something similar has happened in our study. An important outcome resulting from the intersection between ethnicity, gender ideology, the local ecology and the local economy is the strengthening of female roles, although the existence of conflicting views on the matter indicates that gender roles are always subject to change.

In Ixhuapan, women catch shrimp for household consumption quite often because the responsibility of freshwater food provisioning has fallen on their shoulders. Several factors have led to this situation: the Nahuatl gender ideology that allows for some female physical mobility; the larger availability of river foods in Ixhuapan waters; landlessness and long-term male migration.

By contrast, Ixhuapan men are more oriented towards income-generating activities and consider fishing a pastime or even a "vice". Indeed, the fish that men catch in their all-male fishing expeditions rarely make it to the house: they are either eaten at the river bank with friends or sold "to buy beer." In other words, male fishing practices presently resemble Western notions of nature enjoyment and are detached from household food provisioning. Needless to say, adult men in Ixhuapan fish less

often than their fathers and grandfathers, either because they are not at home or because income-generating activities are become increasingly important in their lives.

These outcomes are not completely positive or negative. The fact that women in Ixhuapan play a major role in freshwater food provisioning and that one third of them generate their own income increases their chances for physical mobility and their visibility at the community level. They also have large female networks for their fishing expeditions and other activities. However, some of these women feel that the Popoluca men of neighboring communities are better husbands than their own because they “look after their wives” and “husband and wife do the shopping together”. Nahua men, these women argue, have gotten used to the idea that it is always women who have to make sure that “there is food on the table.” In short, women in Ixhuapan resent their double burden and the lack of male support, but they also appreciate their freedom of movement and their relationships with other women.

In Ocozotepec, the idea that women’s major activity is domestic work and that their income-generating, agricultural and fishing activities are occasional “help” also gets reinforced. This can be attributed to several factors: the Popoluca gender ideology that constructs men as the major breadwinners; animal river scarcity; and the construction of the woodlands as a dangerous place for women; and short-term male migration patterns. Women in Ocozotepec cannot successfully fish without their husbands and some have actually stopped doing so. The interplay between ethnicity, gender ideology, the local ecology and the local economy poses severe restrictions on their access to freshwater resources and the final result is that women avoid fishing on their own and stay at home, thus strengthening the traditional roles assigned to them by Popoluca culture.

Ocozotepec men have stopped using male fishing implements but, as opposed to Ixhuapan men, they continue to fish for subsistence with their wives. Male participation in subsistence food provisioning continues to be perceived as important in a community with greater access to land, a larger predominance of agricultural activities and a much better preserved environment. Thus, men respond to the scarcity of traditionally male river animals (prawns) by fishing the most available ones with their wives, with a fishing instrument that in other communities is conceived as feminine (the *matayahual*). In so doing, they continue to act as the major household breadwinners. Men have the authority to draw on women’s labor if considered necessary and women are expected to stay at home unless their husbands decide otherwise, thus strengthening female seclusion.

However, conflicting accounts on the role of women indicate that a process of restructuring of the gender division of labor may be taking place in Ocozotepec. As noted earlier, people with a non-Popoluca ethnic background living in the SSM are critical of the ways in which men resort to women’s labor for the agricultural fields and other subsistence activities. Popoluca men defend themselves by arguing that women work “on their own will”: “if your wife accompanies you, it is up to her”. But this argument is not convincing for everyone. Apparently, some discussion is taking place in Popoluca households and the larger SSM as to what extent men can exercise authority over women’s physical labor and mobility.

Conclusions

This paper has attempted to explain the ways in which structural and cultural factors account for women’s roles in subsistence fishing in the SSM, Mexico. Drawing on the

notion of women's social location, the paper examines the role that the regional economy, ethnicity, gender ideology, the local ecology and the local economy play in informing women's access to subsistence freshwater resources. The paper compared women who share the same structural context (the SSM's regional economy) but have different ethnic backgrounds and face different environmental and economic circumstances resulting from the characteristics of each community.

This analytical strategy illuminated the diversity in women's experiences, thus departing from the notion of universality and from the mechanistic conclusion that class, race, or gender alone gives rise to differences among women. The notion of social location proved useful because it helped explore the structural constraints common to a group of women while also accounting for the cultural differences among them, which together determine their options for survival. In this sense, the paper contributes to an increasing literature on women and economic change which examines diversity within commonality.

An important effort in this literature has been to seriously explore the factors that inform women's experiences. To say that gender, class, ethnicity, race and so on play an important role in shaping women's lives means very little if this affirmation is not accompanied by research that examines the reasons as to why some of these factors become more salient than others in particular contexts. As noted earlier, the case study conducted by Zavella (1991) is an important contribution to this literature in that it highlights the predominance of ethnicity for Chicana factory workers, while in Hapke's study (2001), caste-religion and gender ideology are particularly important to explain the lives of women in southern India. Yet the exercise must go beyond identifying factors in order to examine the interplay between them, since it is this interaction and the outcomes resulting from it that contributes to a more robust understanding of women's experiences.

In the present study, the interplay between structural and cultural factors led to the strengthening of traditional female roles. Women in Ixhuapan have become the major freshwater food seekers while men orient themselves towards income-generating activities and consider fishing as a pastime. However one has to wonder whether this situation will last much longer since fishing stocks are diminishing and women are also culturally allowed to generate income through petty trade, so it is not unrealistic to believe that some of them will shift activities in the near future. Again, environmental and economic constraints (the amount of fish that can be extracted and the urban market for rural produce) together with ethnicity and gender ideology will determine the ways in which women's present roles in subsistence fishing are transformed in the future.

In turn, women in Ocozotepec continue to be perceived as their husbands' helpers in fishing and other activities such as agriculture. People in this community combine subsistence practices with income-generating activities conducted from their homes (women) or in nearby cities (men) since traditional ways of food provisioning are still considered culturally appropriate. Yet, the scarcity of fishing resources near the village has negatively affected women. If this trend continues, fishing activities at the woodlands (conducted by both men and women) may be endangered for similar reasons.

An important conclusion of the paper is that, in spite of the different ways in which women presently access freshwater resources, they play a key role in ensuring food security both at the household and community levels. Yet other issues remain to

be addressed. What are the implications of women's greater responsibilities for freshwater food provisioning in terms of household resource allocation? Does this responsibility translate into effective decision-making power and gender equality as it does when women handle the money earned through fishing activities? What is the future of subsistence fishing, given the general decrease in fish stocks? More research is needed in order to continue documenting women's present and future roles in subsistence fishing in other areas of the Third World.

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