

Achievements, Challenges and Experiences of Mexican Women in Wildland Fire Management

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ABSTRACT – In Mexico, the participation of women in paid positions is still far below that of men due to many factors such as discrimination in hiring practices, compensations, opportunity and promotion; inflexible work requirements; insufficient services such as childcare, as well as inadequate distribution of family tasks at home, among others. In the forestry sector, this is further accentuated, particularly in the area of wildfire protection and ecosystem fire management. Faced with this situation, government, academic and civil society organizations in Mexico and the United States have made an effort to strengthen the technical and leadership capacities of women in Mexico and Latin America to promote their inclusion. This path has challenges, but it has been possible to improve visibility of women working on fire issues, to provide an opportunity for training on the subject, to generate a space for reflection and exchange of knowledge and experiences for women in Mexico and Latin America, and expand the network of women working on fire in the region. One of the main obstacles identified in this analysis continues to be the retention and promotion of the women who were initially trained. Remaining institutional, cultural and budgetary challenges have limited further progress. The objective of this document is to describe the advances and challenges that have been identified for women in fire management in Mexico.

Keywords: Training; gender; capacity building; women in fire; official and community crews.

As Conquistas, os Desafios e as Experiências das Mulheres Mexicanas no Manejo do Fogo

RESUMO – A participação das mulheres em trabalhos remunerados no México continua sendo menor que a participação dos homens, devido a fatores como a discriminação nas práticas de contratação, remuneração, mobilidade e promoção, condições de trabalho inflexíveis, disponibilidade insuficiente de serviços, como creches, e distribuição inadequada das tarefas familiares em casa, dentre outros. No setor florestal isso se acentua ainda mais, particularmente na área de proteção contra incêndios florestais e manejo do fogo nos ecossistemas. Diante dessa situação, organizações governamentais, acadêmicas e da sociedade civil do México e dos Estados Unidos vêm se empenhando em fortalecer as capacidades técnicas e de liderança das mulheres no México e na América Latina para promover sua inclusão. Esse caminho tem desafios; entretanto, tem sido possível melhorar a visibilidade das mulheres que trabalham em temas relacionados aos incêndios e oferecer oportunidades de capacitação no tema, gerar espaços de reflexão e intercâmbio de conhecimentos e experiências para as mulheres do México e da América Latina, ampliando a rede de mulheres que trabalham com fogo na região. Um dos principais obstáculos identificados nas análises continua sendo a permanência e promoção das mulheres que foram inicialmente treinadas. Os desafios institucionais, culturais e orçamentários que persistem têm limitado os avanços. O objetivo deste documento é descrever os progressos e desafios identificados para as mulheres no manejo do fogo no México.

Palavras-chave: Treinamento; gênero; capacitação; mulheres no fogo; equipes oficiais e da comunidade.

Manejo del Fuego Forestal: Logros, Retos y Experiencias de Mujeres Mexicanas

RESUMEN – En México, la participación de mujeres en el trabajo remunerado sigue siendo muy por debajo a la participación de los hombres, debido a factores como la discriminación en las prácticas de contratación, remuneración, movilidad y ascenso, condiciones de trabajo inflexibles, insuficiencia de servicios, como guarderías y la distribución inadecuada de las tareas familiares en el hogar entre otros. En el sector forestal, esto se acentúa aún más, particularmente en el área de protección contra incendios forestales y la gestión de éstos. Ante esta situación, organizaciones gubernamentales, académicas y de la sociedad civil de México y Estados Unidos han hecho un esfuerzo por fortalecer las capacidades técnicas y de liderazgo de las mujeres en México y América Latina para promover su inclusión. Este camino tiene desafíos, pero ha sido posible mejorar la visibilidad de las mujeres que trabajan en temas de incendios para brindar una oportunidad de capacitación en el tema, generar un espacio de reflexión e intercambio de conocimientos y experiencias para las mujeres de México y América Latina, y ampliar la red de mujeres que trabajan en el fuego en la región. Uno de los principales obstáculos identificados en este análisis sigue siendo la retención y promoción de las mujeres inicialmente capacitadas. Los desafíos institucionales, culturales y presupuestarios que persisten han limitado los avances. El objetivo de este documento, es describir los avances y desafíos que se han identificado para las mujeres en el manejo del fuego en México.

Palabras clave: Capacitación; género; creación de capacidades; mujeres en el fuego; equipos oficiales y comunitarios.

Introduction

There are several concepts of fire management that define it as part of ecosystem management (Christensen *et al.*, 1996; Jardel *et al.*, 2008). In Mexico, as in most countries of the world, wildfire suppression has been a focal response. However, in the last 12 years, the National Forestry Commission (CONAFOR) has implemented the conceptualization of fire as a component of some forest ecosystems and has carried out activities focused on fire management, with a new definition, where fire is considered as a factor that ecologically affects or favors different types of ecosystems (CONAFOR, 2019). In addition to the change in government policy by institutions managing forests and natural protected areas, the scientific community, civil associations and indigenous communities identify fire as an essential part of maintaining some ecosystems and therefore necessary for the survival of some species (Jardel *et al.*, 2010).

According to Jardel (2009), fire management consists of a series of technical, institutional, and communication interventions that are planned to: 1) maintain or restore the fire regime of a given management unit (which may be a protected area); 2) use fire as a tool to control the structure and composition of vegetation and fuel loads as part of forestry, habitat management, grassland management, or agriculture; and 3) prevent, mitigate, or remediate the negative environmental impacts of forest fires (Jardel *et al.*, 2010).

CONAFOR is the official government institution in Mexico that is responsible for addressing all forest issues, including wildfire. However, other government institutions such as the National Commission of Natural Protected Areas (CONANP) and the state governments are also mandated to prevent, combat and communicate fire management activities. In addition to the work carried out by government institutions, there are civil organizations that work to conserve natural resources and biodiversity in Mexico.

Recent research has documented and identified the various components of fire management specifically for Mexico (Martinez *et al.*, 2018), where the complexity of the country's socioecosystemic structure suggests a restructuring of this concept to achieve greater success and acceptance among the actors involved in fire management. These actors are government institutions at all levels of government, ejido and/or communal authorities (uses and customs of indigenous peoples), civil society, academic institutions, communicators, ecologists, etc.

In Mexico and Latin America, the paradigm has shifted from suppression to a new vision, which integrates the diverse actors and factors of fire occurrence in part of the ecosystems; and allows better attention to and management of wildfires. Fire management, including prevention, planning, restoration, research and information has opened the doors to women and men with diverse profiles, areas of knowledge, and experience.



The new concept of fire management has given rise to professionals from various areas and profiles, with useful and timely knowledge. Within the range of activities and actions, spaces have been opened for women who, historically, had been relegated or not considered with equal employment opportunities in the fire sector.

Although fire management is still considered to be mostly managed by men, in recent years (2017-2020), the United States Forest Service-International Programs (USFS-IP); federal and state government institutions (CONANP and CONAFOR and the Jalisco Ministry of Environment and Territorial Development (SEMADET)); academia, including the Institute for Research on Ecosystems and Sustainability of the National Autonomous University of Mexico (IIES-UNAM); and civil society, particularly the Mexican Fund for the Conservation of Nature, A.C. (FMCN) and Alternare A.C.; have become involved in strengthening the capacities and training of women in fire management in Latin America. These efforts have fostered visibility for the activities, achievements, and challenges that women working in this field have faced throughout their professional careers.

The objective of this document is to describe the advances and challenges that have been identified for women in fire management in Mexico. It presents a critical path of the various actions and activities that have been carried out from the perspective of inclusion and diversity for activities carried out by women. It is important to mention that this report of experiences does not seek to divide fire management teams, but rather to analyze factors that contribute to minimize the training gap and increase opportunities for participation of women and other minorities in this area, in order to achieve inclusive teams. Likewise, the areas of opportunity and challenges that women have for participation of fire management, under the current conditions of the country, are analyzed.

Methods

A review and analysis of data from technical reports, research project results, press releases, and projects financed by various government, academic, and civil organizations was carried out. The goal was to identify the main activities carried out, such as courses, workshops, exchange

of experiences and training that have taken place in Mexico. Specific activities that promoted the inclusion and participation of women in fire management in Mexico for the period 2008-2019 were identified.

A virtual survey was conducted, aiming Latin American women who have participated in activities coordinated by CONAFOR, the United States Forest Service – International Programs, the Mexican Fund for the Conservation of Nature A.C. and the Ecology Laboratory for the management of forest resources of the IIES-UNAM, between 2017-2019. The survey was conducted via GoogleForm, with 28 questions, which addressed three main aspects: the characteristics of the group surveyed, activities carried out in forest fire management in Mexico and the permanence in the fire management program of the participants.

The last stage of information analysis describe the process implemented by various government, academic and civil organizations in Mexico to include women in fire management. It describes the achievements and challenges faced by women who are working on fire management. It presents a summary of activities and processes that have been carried out to strengthen the training and permanence of women in fire management.

Results and Discussion

Mexico has made progress in the design of legal instruments and public policies on gender equality, as well as in the signing of international commitments related to this matter, the environment, and climate change. Since 2001, institutions and programs have been created such as the Directorate of Gender Equality and the program Towards Gender Equality and Environmental Sustainability; General Law for Equality between Women and Men (2006) and a mandate to include gender considerations in the Federation's Expenditure Budget (2007). The National Development Plan 2013-2018 called for the mainstreaming of the gender perspective in all sectoral, institutional, regional and special programs. Following this recognition of women's participation and their role in the access, use, management and control of natural resources, Mexico set the goal of incorporating the gender perspective throughout the environmental sector.

However, the goal of incorporated gender perspective has not been easy to operate. Historically, firefighting and fire management has been an area which women have had very little access or opportunity. Numbers show that the participation of women in this area still does not reach even 5%. In 2017 in Mexico, there were 1,731 forest fire fighters, of which only 58 were women (3.3%) and almost all of them performed office work; in 2020 CONAFOR has 1,740 fighters and 73 are women (4%).

The State Government of Jalisco, Mexico, since 2008, has made collaboration agreements with Alberta Canada, to deploy firefighters to Canada during the critical part of the fire season. It is recorded that during the first deployment in 2008, three women participated; who were the first Mexican firefighters certified to fight forest fires in Canada (SEMADET Archives, 2020). From that year on, women's participation in direct firefighting activities became evident.

After updating Mexican Standard NMX-R-025-SCFI-2015, which seeks to recognize workplaces that demonstrate the adoption and compliance with processes and practices in favor of labor equality and non-discrimination, CONAFOR was the first institution in the environmental sector to be certified in November 2016 and made progress in establishing selection processes with equal opportunities, spaces for breastfeeding, agreements with daycare centers, flexible schedules and paternity leave, among others.

Another result of this certification was the formation of a brigade of 13 women within the National Fire Management Office of CONAFOR at the end of 2016. They were trained in basic firefighting and fire management issues, but their tasks were mainly limited to office and/or dispatch activities. Although this group of women continued to carry out activities related to fire management, there is no record of the permanence of this first brigade.

Around the same time, the United States Forest Service, CONAFOR and the Mexican Fund for the Conservation of Nature held the first workshop-exchange in Tucson with women from Latin America working on forest fire issues. The collaborating institutions have more than two decades of international technical cooperation to strengthen national and local capacities in Mexico for the protection of forest fires. They noted the

historically low participation of women in trainings, and recognized the challenges faced by women firefighters in the United States. CONAFOR had special interest after the recent certification in the Standard on Labor Equality and Non-Discrimination.

Through this international collaboration between Mexico and the United States, three *Women in Fire Management* exchanges have been held to date in Tucson, Arizona (2017, 2018 and 2019). A total of 61 women participated in these exchanges, 34 from Mexico and 27 from other Latin American countries. The objective of these meetings has been to promote the application of new tools and knowledge about fire management, identify leadership tools to strengthen the role of women in fire management, describe concepts of fire management, including prevention, fuel management and coordination between agencies, and strengthen the participation and leadership role of women.

Also, two specialized courses have been conducted, entitled: Followership to Leadership L-280 (Merida 2017 and Guadalajara 2019), specifically for women from Mexico and Latin America. A total of 47 women participated. These courses are part of the catalog of courses at the international level; they are an introduction to leadership for people who work on fire management. This course was written with male leadership perspective and examples. Content was not modified to be taught to women. This course should be restructured to make the content inclusive, to address examples of men and women who have historically been leaders in various issues and to consider gender equality issues for men and women that are applicable to fire management activities.

Parallel to the official training activities, during the year 2018, the IIES-UNAM, in coordination with the CONAFOR's Michoacan State Office, Alternare A.C., FMCN and USFS-IP, carried out the first course for women in the State of Michoacán. Basic firefighting and Incident Command System 100-200 level courses were taught, with the participation of 25 women as students, five women and four male. Additional topics of gender equality, the role of women and research in fire management were included.

In 2019, these same institutions with support from SEMADET, carried out the first "Workshop-

Training for Women: Generating Field Capacities for Fire Management”, with the objective to generate capacities not only for frontline firefighters, but also for diverse areas of management, planning, operations, logistics, research, and coordination, with a socio-ecosystemic perspective. Thirty-nine students and eight instructors (all women and four men of support) from various institutions and countries such as México, Colombia, Costa Rica and the United States participated. This workshop and training is not part of any official institutional course catalog and was designed according to the needs identified in previous activities with women in fire management.

In 2019, SEMADET, through a public call, formed the first brigade of women wildland firefighters in the state. The brigade includes 12 members who have a job security and adequate training for wildland fire response. In addition, USFS-IP supported a workshop to strengthen institutional best practices in gender equality to raise awareness among new female crew members, men and leaders of the institution they belong to.

Additional individual training opportunities have opened up. A total of five women have had the opportunity to join United States Forest Service brigades for periods ranging from two weeks to three months to develop their fire-line skills, to train for the design and implementation of prescribed burns (TRES Prescribed Fire Training Exchange) or to develop their leadership.

In order to follow up on all these activities and especially the women who have participated, some surveys and interviews have been conducted to identify changes after their participation. A key element on which almost all these women agree is that having the opportunity to be with other women facing similar challenges has resulted in an empowering experience. The participants have gained understanding to exercise their leadership skills and seek opportunities and mentors. This has allowed some to access new trainings and occupy new spaces. These meetings and trainings have also triggered the creation and expansion of a network of women in the region who work in fire. For this, the commitment of these women with other women has been key for strengthening capacities and skills; this they call ‘sorority’.

Digital surveys conducted for this research obtained 26 responses from women who

participated in the official activities (Workshops in Tucson, Arizona and the two L-280 courses in Mexico). The profiles of the participants were women between 24 and 54 years old. Respondents have three to 24 years of experience in fire management. They have academic training from high school to doctorate, with profiles in Forest Engineering and Biology, as well as Humanities. Currently, 18 women continue to work in the fire management sector, two women are unemployed and six more women are working on other activities that are not related to fire management.

Of the women who continue to work on fire management, 90% of those surveyed remain in the same job positions. Among the achievements recognized by the respondents, some specific issues are mentioned such as: 1) the modification of the current legislation, where the equal participation of women in all activities of daily life in Mexico is indicated, although it is recognized that it is far from being fulfilled; 2) commitment on the part of some governmental institutions to strengthen the abilities of women in the subject; 3) greater interest of women to participate in fire activities; 4) bonds of training and mutual aid among women have been strengthened; and 5) greater visibility of the diverse activities that women carry out within fire management. It is observed that there is a greater number of women wildland firefighters, but they are not counted because they do not belong to the official brigades, but rather to community and/or temporary brigades.

The main obstacles identified in Mexico for women in the area of forest fire management are (1) unattractive working conditions, mainly to be able to belong to the official brigades, since the job is inherited from father to son, (2) in Mexico there are temporary brigades, which are hired during some months of the year (3-6 months per year) and where there is no job security or continuity in the training, coaching and rehiring process; (3) there is still machismo on the part of some businessmen, who consider that it is an activity only for men due to the physical demands required for jobs; 4) lack of recognition of the role of women in the various areas of forest fire management; 5) labor inequality in the training processes (field activities) at the institutional levels and; 6) currently there are other areas of fire management that are more attractive to women than suppression.

As part of the International Conference-Wildfire 2019 in Campo Grande Brazil, a special session on the sub-theme 'the role of women in fire management' expanded the collaborative networks at the international level, with the participation and leadership of Mexican women, Latin American colleagues, and the United States Forest Service. This special session was attended by 46 women and five men, with the objective to give visibility to the role of women in fire and expanding opportunities for women's leadership development and networking by sharing the successes and challenges of current efforts in Latin America.

The comments and observations derived from this workshop focused on three main aspects:

1. Outreach and recruitment: raising awareness and understanding of the context of women and diversity in the fire management sector is important. There is machismo, where men do not allow women to work in a male environment. Around 85% of recruiters are men and may not like working with women, and end up hiring men. In indigenous areas, mixed brigades are not viable due to cultural issues (for example, being in a camp with men). It works to share examples of best practices in outreach and recruitment in local informal efforts such as volunteer and/or community brigades. In this context, women try to recruit and involve other women by sharing their experiences. Specifically, in Mexico, in the last three years, the number of women interested in working on fire issues has increased.

Some recommendations to improve outreach and recruitment of women include work so that it is not a temporary position and that there is more job security; improve support for women, for example, flexibility for maternity since it is not easy to apply to a job that requires many hours away from the family and although this is the same for men, it is a reality that the tasks of the home and raising children fall on women, especially in Latin America; consider the multiple tasks of fire management, not just firefighting; make public the diversity of fire management activities; and conduct awareness campaigns in key locations

where there are potential women candidates so that women know what the job is about and facilitate recruitment.

Finally, make a great effort to position the issue of women's recruitment on the agenda of organizations and institutions and develop a strategy for it. Seeing the example of another woman is important, so it is worthwhile for women to do the outreach and recruitment. Setting a gender quota is important, because the obligatory nature and fulfillment of the regulations, for example in Mexico, makes it possible to break down paradigms.

2. Training and mentoring: we must begin to reflect on restructuring training towards fire management and not only suppression, that is, generate a paradigm shift where direct combat of forest fires, until today is the most important; we must promote mentoring in the context of women and diversity in the fire management sector, with physical training to develop the skills and abilities of men and women; conduct feedback at the end of fire seasons between men and women to encourage the exchange of knowledge and experiences learned in critical seasons, as well as to promote women's leadership in different management areas; recognize areas of opportunity that women may have in the subject and acknowledge that it is a process of training and inclusion in the areas of fire management; and encourage collaborative processes within the brigades and at the institutional level, of all minorities and gender diversities and form support networks among women for capacity building in various areas.
3. Retention policy: although this issue goes beyond the activities of a government institution, since it depends on various management processes such as budget allocation and fiscal year of government agencies, it is proposed that institutional policies related to women and diversity in the fire management sector be strengthened and promoted from the state and local governments. The cultural work environment, the attitude of the team, the opportunities for training and promotion are key to retention and should include, at least, maternity leave and the opportunity to rejoin after a maternity process. On the

other hand, it has been observed that, in indigenous communities, people living in fire-prone areas tend to be committed to work in the long term and although it is recognized that the willingness and interest in including women in fire management will vary depending on each place, institution and government, it could be strengthened and driven from federal government agencies.

Once the challenges faced by women in forest fire management in Mexico have been described, some institutional and social strengths have been identified in order to promote the process of women's participation in fire management. In particular, it is clear that the collaboration and sum of social and academic efforts have borne fruit, and this is reflected on the increased participation and visibility of women in the issue. It is important to emphasize that only with the sum of wills, the creation of support networks and knowledge exchanges, a real change of paradigm can be generated where only firefighting is considered a priority in fire management. Although there is no recipe that can provide the steps to reach a goal of equality and participation of women, men and gender minorities, it is recognized that the critical path of work that has been done in Mexico can serve as a guide for other countries in Latin America to strengthen and promote this issue.

Conclusions

It is recognized that Mexico is moving towards forest fire management, appropriate to the current conditions of the country. Government, academic and social institutions have carried out various activities to promote the participation and inclusion of women in fire management, from different management areas; however, it is still recognized that it is far from meeting international standards of inclusion and diversification of work.

The specific training for women seeks to close or reduce the gap in training, opportunity and permanence in the fire management program. Currently, the participation of women in fire management has been made visible through the dissemination of activities in which women participate. And considering the wide range of

activities that involve fire management from a socio-ecosystemic perspective, which goes beyond fighting and suppressing forest fires.

One of the main obstacles identified in this analysis is the permanence and continuity of the women who were initially trained. There are no official statistics on the number of women who have been trained and who are currently engaged in other activities or are even unemployed.

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Note

There is a Spanish version of this paper available at the website:

Hay una versión en español de este documento disponible en el sitio web:

<https://usfs-public.app.box.com/s/p6zgzjx3xqnzkoq1quzzdibtzkdym9>

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