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Research Report

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Applying Women, Peace, and Security Considerations to a Cross-Border Disaster Response

A Mexico Case Study

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Published by the RAND Corporation, Santa Monica, Calif.
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Library of Congress Cataloging-in-Publication Data is available for this publication.

ISBN: 978-1-9774-1219-5

Cover: U.S. Army photo by Staff Sgt. Andrew Dickson.

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About This Report

U.S. Northern Command (USNORTHCOM) asked RAND researchers to develop two case studies that demonstrate, for training purposes, the application of the Women, Peace, and Security (WPS) framework to security cooperation efforts in the USNORTHCOM area of responsibility. The fictional disaster-response scenarios presented in the two cases take place in complex environments that require cross-border coordination with Canada in the first case and with Mexico in the second, thus furthering security cooperation activities with each of these U.S. neighbors. This report, the second in a series that addresses USNORTHCOM's request, focuses on the Mexico case. These two closely related reports share some material, including descriptions and tables.[1]

Research shows that the impacts of natural disasters are experienced inequitably among a society's different demographic groups. In addition to a recognized need to address gender inequities in disaster response, it is equally important to have a broader approach to inclusion of gender considerations in disaster operations, particularly one that incorporates intersectionality by considering other vulnerable populations, such as migrants and indigenous people. This case study presents a fictional scenario of a Category 5 hurricane that makes landfall on the U.S.-Mexico border between Matamoros, in the state of Tamaulipas, Mexico, and Brownsville, Texas, in the United States. The scenario is based on the fiscal year 2022 "Fuerzas Amigas [Friendly Forces]" binational exercise between U.S. and Mexican armed forces. In this scenario, we focus on the disaster-relief efforts taking place on the Mexican side of the border and aim to explore the application of WPS principles in the context of the cross-border support that U.S. forces provide.

The research reported here was completed in June 2023 and underwent security review with the sponsor and the Defense Office of Prepublication and Security Review before public release.

RAND National Security Research Division

This research was sponsored by USNORTHCOM and conducted within the International Security and Defense Policy Program of the RAND National Security Research Division (NSRD), which operates the National Defense Research Institute (NDRI), a federally funded research and development center sponsored by the Office of the Secretary of Defense, the Joint Staff, the Unified Combatant Commands, the Navy, the Marine Corps, the defense agencies, and the defense intelligence enterprise.

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[1] The related report, which focuses on the Canada case, is Joslyn Fleming, Irina A. Chindea, Victoria M. Smith, and Nathan Thomspon, *Applying Women, Peace, and Security Considerations to Cross-Border Disaster Response: British Columbia Earthquake Case Study*, RAND Corporation, RR-A1944-1, 2024.

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Acknowledgments

We are grateful to the support from our sponsor, USNORTHCOM, especially Tiffani Phillips and Claire Sneed. We thank our RAND colleague, Molly Dunigan, for her early input to the research and setting us on the correct path. We also thank representatives from U.S. Army North; North American Aerospace Defense Command; and USNORTHCOM Strategy, Policy, & Plans for providing their professional insight, which made our research all the richer. Kyleanne Hunter and Jeannette Haynie provided insightful and helpful comments during their thorough reviews of this report. Our editor, Melissa Parmelee, further refined the report, for which we are grateful. All errors remain the responsibility of the authors.

Summary

U.S. Northern Command (USNORTHCOM) asked RAND to develop a case study that demonstrates the application of the Women, Peace, and Security (WPS) framework in a complex environment that requires cross-border coordination with Mexico. The case study, adapted from the fiscal year (FY) 2022 "Fuerzas Amigas [Friendly Forces]" binational exercise between U.S. and Mexican armed forces, uses a fictional scenario of a Category 5 hurricane that makes a landfall on the U.S.-Mexico border.

Issue

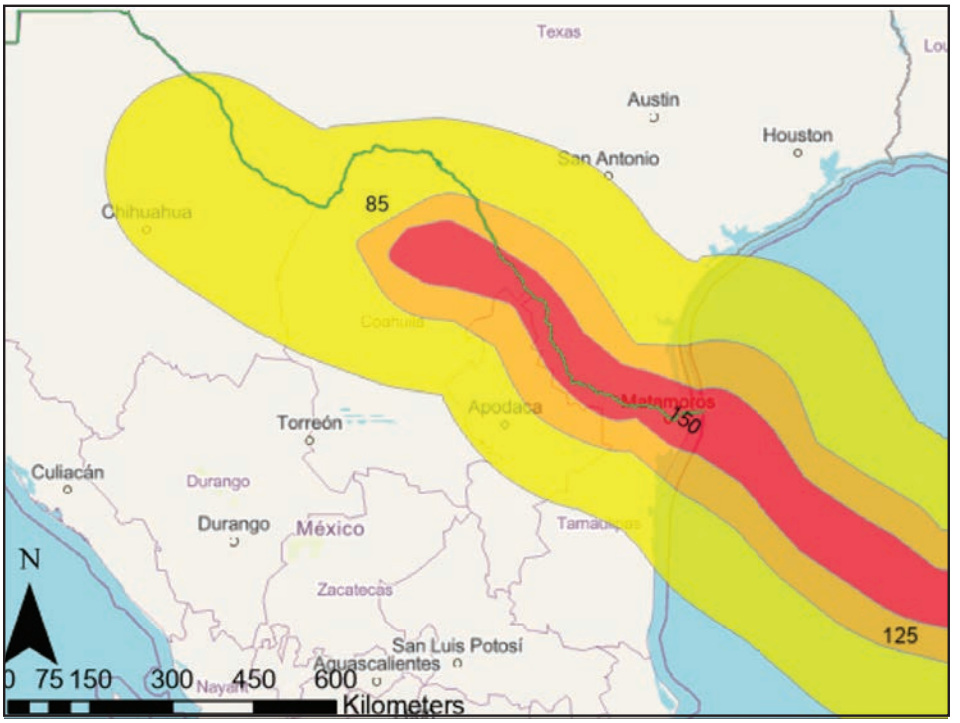
The intent of this report is to help U.S. and Mexican military organizations understand how to apply the WPS framework to security cooperation operations in complex security environments that require coordination across borders. Applying the WPS framework through a case study approach highlights how natural disasters disproportionately affect different demographic groups. The case study approach also reveals the existing knowledge base, data gaps that limit understanding of how natural disasters affect different societal groups, lessons that leaders can learn in quickly evolving scenarios, and process gaps or structural assumptions that limit data collection and effective communication during disaster response.

Approach

In this scenario, a Category 5 hurricane has blocked escape or evacuation routes in low-lying areas and inflicts major damage to buildings and infrastructure in the northeastern part of the state of Tamaulipas (see Figure S.1), requiring massive evacuations and a joint disaster-relief response from the U.S. and Mexican armed forces. In this scenario we focus on disaster-response activities conducted on the Mexican side of the border. We also aim to outline how WPS and intersectionality principles can be incorporated into primary disaster-relief joint operations conducted by U.S. and Mexican armed forces and to encourage armed forces responders on both sides of the border to think about and incorporate such considerations in their response-planning efforts.

As a basis for this case study and the design of the scenario, we used a multimethod qualitative research approach. We reviewed the existing open-source literature and U.S. and Mexican government documents on the WPS framework as it applies to disaster-relief planning and joint exercises. We also reviewed demographic data and statistics related to vulnerable populations (including indigenous people) in the state of Tamaulipas. An additional stream of literature that informed our case design included sources that are at the intersection of gender studies and disaster relief. Furthermore, we conducted interviews with (1) U.S. gov-

FIGURE S.1
Path of the Hurricane in the Fictional Mexico Scenario



SOURCE: Reproduced from U.S. Army North, "Fuerzas Amigas 2022—Hurricane Javier: Scenario Brief," July 25, 2022, Not available to the general public.

ernment officials who are involved in disaster-relief planning, emergency management, and implementation of the WPS framework in the USNORTHCOM area of responsibility and (2) WPS subject-matter experts and practitioners whose regional focus is Mexico.

Key Findings

Our key findings are twofold: The first set of findings draws on the primary insights we gained from reviewing the body of literature that explores the gender dimensions of disaster response, and the second set is specific to the Mexico case study.

Key findings from the broader literature related to gender dimensions of disaster response consist of the following:

- Mainstreaming gender perspectives into disaster response is recognized as a best practice because disaster impacts are experienced differently across different societal groups.

- Women have been historically underrepresented in disaster-response efforts, but inclusion of women can lead to more-equitable responses and increased societal resilience.[2]
- Gender-differentiated impacts (e.g., risk perceptions, evacuation behavior) are present across the entire emergency management cycle.
- During disasters, women and girls face a heightened risk of experiencing gender-based violence.
- Gender disparities in emergency health have been well-documented: Women in lower income brackets often experience higher mortality rates during a disaster.
- The intersectionality between gender and other socioeconomic and demographic factors (e.g., the risk of gender-based violence during a disaster for indigenous women of low socioeconomic status) is an important consideration when conducting a gender analysis for disaster response.
- Gender analyses for disaster response benefit from the systematic collection and integration of sex, age, and disability disaggregated data (SADDD) into disaster-response planning.

Case-specific findings consist of the following:

- Mexico's Instituto Nacional de Estadística y Geografía [National Institute of Statistics and Geography] provides an independent source of SADDD that can be used to track gender inequality metrics, but gender data gaps still exist.
- Natural disasters are fear-inducing occurrences and can lead to disinformation or lack of trust in the information available to vulnerable populations.
- Ninety percent of the population of the state of Tamaulipas lives in urban areas. A USNORTHCOM disaster response in the state would involve urban search and rescue operations conducted in a complex disaster environment.
- In both the United States and Mexico, women are underrepresented in military occupational specialties that would conduct urban search and rescue and chemical, biological, radiological, and nuclear operations in a complex disaster scenario.
- In the absence of a Mexico-U.S. Civilian Assistance Plan, the complexity of coordinating among several institutions at the local to national levels might lead to variations in approach to disaster response and the inclusion of gender perspectives, which could hinder unity of effort in a joint cross-border disaster response.

[2] Although adopting a gender perspective might primarily result in a focus on women's issues because they are not traditionally incorporated well into disaster-response efforts, it is important to note that a gender perspective is not exclusively related to the needs of women in disaster environments. Men and differently gendered people are also affected by disasters and disaster-response efforts in ways that policy planners and implementers need to understand, assess, and anticipate.

Recommendations

From these findings, we derive the following recommendations for U.S. and Mexican armed forces organizations that participate in disaster-response operations:

- For USNORTHCOM component commands—particularly U.S. Army North—and Mexican Armed Forces—especially the Secretaría de la Defensa Nacional [Ministry of National Defense] (SEDENA) and Secretaría de la Marina [the Ministry of the Navy] (SEMAR), including the Gender Observatory and Center for Human Rights:
  - Systematically collect and integrate SADDD into disaster-response planning.
- For the strategic communications working group within the Bilateral Military Cooperation Roundtable:
  - Identify information gaps and develop strategic communication plans before a disaster occurs.
- For the North American Aerospace Defense Command, USNORTHCOM Strategy, Policy, & Plans–Civil Support Plans, WPS offices in all USNORTHCOM component commands, the USNORTHCOM Humanitarian Assistance team, SEDENA's Gender Observatory, and the civilian Instituto Nacional de Mujeres [National Institute of Women]:
  - Focus vulnerability assessments and analyses of the urban environment on how gender intersects with other demographic factors—such as age, education levels, and language or dialect spoken—to affect access to resources and disaster-relief services for the most-vulnerable groups of the population.
- For all USNORTHCOM component commands—particularly U.S. Army North and the Office of the Surgeon General team within USNORTHCOM—and the Mexican Armed Forces—particularly the medical academic departments within SEDENA and SEMAR:
  - Provide training that advances a deeper understanding of how underlying biases and gender disparities can affect how care is administered.
- For the U.S. Under Secretary of Defense for Personnel and Readiness, U.S. Military Departments Personnel and Readiness offices; SEDENA, including the Military University; and SEMAR, including the Naval University:
  - Conduct analyses of U.S. Department of Defense (DoD), SEDENA, and SEMAR workforce military occupational specialties to identify the specialties in which women are underrepresented and the reasons for those imbalances.
- For DoD and the Office of the Secretary of Defense, SEDENA, and SEMAR:
  - Codify disaster response through policy and standard operating procedures, including the development and signing of a formal bilateral Mexico-U.S. Civil Assistance Plan.

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CHAPTER 1

Introduction

To advance security cooperation with Mexican armed forces, especially in relation to Women, Peace, and Security (WPS)–related topics, U.S. Northern Command (USNORTHCOM) asked RAND to develop a case study that demonstrates the application of the WPS framework (which we describe in detail in Chapter 2) in a complex environment that requires cross-border coordination with Mexico. This is the second of two case studies developed for USNORTHCOM; the first case focuses on Canada—more specifically, on a Cascadia subduction zone earthquake disaster response in Vancouver, British Columbia.[1]

To explore the application of WPS principles, we use a fictional scenario of a hurricane that makes landfall on the southwest border between the United States and Mexico. Research shows that the impacts of natural disasters are experienced inequitably among a given society's different demographic groups. In addition to a recognized need to address gender inequities in disaster response, it is equally important to have a broader approach to including gender considerations in disaster operations, particularly one that incorporates intersectionality by considering other vulnerable populations, such as migrants and indigenous people.

Scope and Methodology

The RAND research team and the USNORTHCOM sponsoring office of the study agreed on case selection and the scope of the Mexico case using WPS expertise and considering the training needs of the command. The choice of focusing the fictional scenario on the cross-border disaster response to a Category 5 hurricane that makes landfall on the U.S.-Mexico border—between Matamoros, Tamaulipas, and Brownsville, Texas—was based on the underlying scenario for the fiscal year (FY) 2022 Fuerzas Amigas [Friendly Forces] annual exercise that takes place between U.S. Army North and the Mexican armed forces.[2] The FY 2022

[1] Joslyn Fleming, Irina A. Chindea, Victoria M. Smith, and Nathan Thompson, *Applying Women, Peace, and Security Considerations to Cross-Border Disaster Response: British Columbia Earthquake Case Study*, RAND Corporation, RR-A1944-1, 2024.

[2] Fuerzas Amigas is "an annual bi-lateral TSC [Theater Sustainment Command] exercise, focused on DSCA [Defense Support of Civilian Authorities]/Mexico's National Defense Plan–III (DN3) to enhance combined disaster response between USARNORTH [U.S. Army North] and the Mexican Military while responding to a catastrophic event along the US/MEX border" (U.S. Army North, "Fuerzas Amigas [FA]

exercise focused on the disaster-relief efforts taking place on the Mexican side of the border and aimed to explore the application of WPS principles in the context of the cross-border support that U.S. forces could provide. In contrast with the FY 2022 Fuerzas Amigas scenario, which had only limited inputs pertaining to Mexico but focused mostly on disaster-response activities conducted on the U.S. side of the border, the fictional scenario we present in this report focuses exclusively on disaster-response activities conducted on the Mexican side of the border. We adapted the FY 2022 Fuerzas Amigas scenario to address cross-border disaster-response activities that U.S. and Mexican armed forces could conduct jointly in the Mexican state of Tamaulipas.

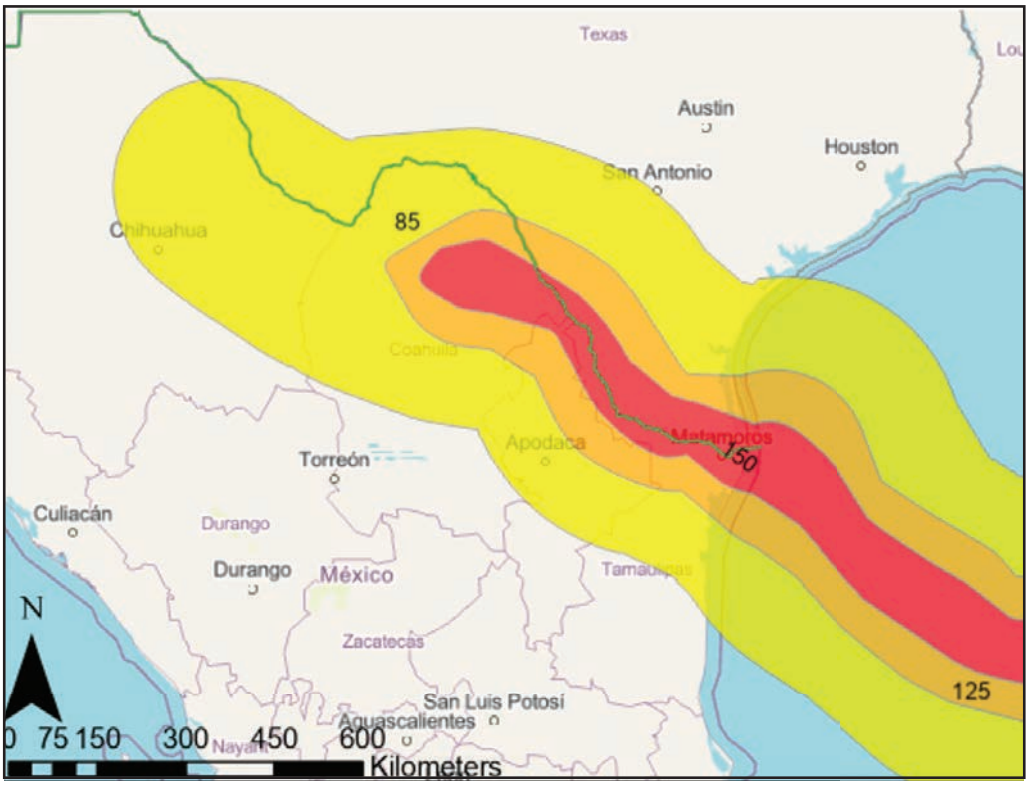
In this scenario, a Category 5 hurricane blocks escape or evacuation routes in low-lying areas and inflicts major damage to buildings and infrastructure in the northeast of the state of Tamaulipas (see Figure 1.1), requiring massive evacuations and a joint disaster-relief response from the U.S. and Mexican armed forces. With this fictional scenario, we aim to outline how WPS and intersectionality principles can be incorporated into primary disaster-relief joint operations conducted by U.S. and Mexican armed forces and to encourage armed forces responders on both sides of the border to think about and incorporate these considerations in their response planning efforts.

For the design of this fictional case study, we used a multimethod qualitative research approach. As part of this approach, we reviewed the existing open-source literature in both English and Spanish and U.S. and Mexican government documents on the WPS framework as it applies to disaster-relief planning and joint exercises. We also reviewed demographic data and statistics related to vulnerable populations (including indigenous people) in the state of Tamaulipas, which were available from the Mexican government's Instituto Nacional de Estadística y Geografía [National Institute of Statistics and Geography] (INEGI). An additional stream of literature that informed our case design consisted of sources that are at the intersection of gender studies and disaster relief. Furthermore, we conducted interviews with U.S. government officials who are involved in disaster-relief planning, emergency management, and the implementation of the WPS framework in the USNORTHCOM area of responsibility and with WPS subject-matter experts and practitioners whose regional focus is Mexico. Our request to speak with Mexican government officials who have knowledge of implementation of WPS principles in the Mexican armed forces was not answered.

The sources we reviewed and the interviews we conducted informed the analytical inferences and recommendations we make in this report.

2023," brief, January 10, 2023, Not available to the general public). The purpose of this annual bilateral exercise is "to foster and build a military-to-military partnership and interoperability between USARNORTH and the Mexican military" (U.S. Army North, *Fuerzas Amigas 22 Summary Report*, undated-a, Not available to general the public).

FIGURE 1.1
Path of the Hurricane in the Fictional Mexico Scenario



SOURCE: Reproduced from U.S. Army North, "Fuerzas Amigas 2022—Hurricane Javier: Scenario Brief," July 25, 2022, Not available to the general public.

How This Report Is Organized

In this report, we explore gender considerations in military disaster response through a case study involving a Category 5 hurricane that makes a landfall on the U.S.-Mexico border between the states of Texas and Tamaulipas. In Chapter 2, we provide an overview of the WPS agenda and review the literature related to gender considerations in disaster response in Mexico. In Chapter 3, we present the scenario and explore its specific gender dimensions. In Chapter 4, we present our findings and recommendations. In Appendix A, we provide example questions for practitioners exploring gender dimensions of disaster response through case study scenarios. In Appendix B, we present basic background information for the Mexican Ministry of National Defense, or SEDENA's "Priority Strategy 3.4." In Appendix C, we illustrate how sex, age, and disability disaggregated data (SADDD) that INEGI collects could potentially contribute to assessing the level of vulnerability among the population of Tamaulipas.

CHAPTER 2

Women, Peace, and Security Agenda and Gender Dimensions of Disaster Response in Mexico

Applying the WPS framework to the outlined scenario requires an understanding of the WPS agenda, how it is codified and implemented in the United States and Mexico, and the literature on the gender dimensions of disaster response. In this chapter, we provide insight into those topics as they relate to the case study.

The Women, Peace, and Security Agenda

Research has consistently identified the ways in which women, men, boys, girls, and differently gendered people are affected differently by harmful phenomena, such as disasters, violence, and insecurity. These varied impacts make WPS considerations vitally important to include in disaster-response efforts. Specifically, if governments wish to understand the full spectrum of issues that affect various demographics in moments of crisis, a holistic perspective that includes the WPS agenda and demands the inclusion of women's perspectives and inputs is necessary. An agenda that incorporates gender-differentiated disaster impacts, resolutions, strategies, and recovery efforts can be highly effective and durable. Women have historically been left out of security and conflict decision and resolution processes. Only in the past two decades have the roles of women and gender in conflict gained attention, first in academia, and only recently in policy circles.[1] Using the body of knowledge developed in academia, policymakers have developed the WPS framework and begun to meaningfully include women in leadership positions. Such an approach is demonstrably important for improved

[1] Some of these research concerns include the role of women to minimize the effect of violence by acting as peacemakers; the need to take on men's roles in their absence; the need to join armies as nurses, administrators, or fighters; and the political representation of women after a conflict. Donna Pankhurst, *Women, Gender and Peacebuilding*, Centre for Conflict Resolution, Department of Peace Studies, University of Bradford, 2000.

disaster response and other security-related areas.[2] With military and law enforcement organizations engaging in disaster-response efforts in both the United States and Mexico, disaster response has a very clear security dimension. In the United States, civilian organizations, such as the Federal Emergency Management Agency (FEMA), are the primary stakeholders in disaster response while the U.S. armed forces play a supporting role. In Mexico, there is no FEMA equivalent, and emergency management teams in the Mexican armed forces are the primary stakeholders in disaster response.

For both the United States and Mexico, the development and implementation of the WPS agenda is based on policy documents developed at two levels: international and national. The overall development of the WPS agenda has been closely followed in feminist academic research circles—particularly feminist international relations and feminist legal studies.[3] However, because WPS policies are relatively new, several gaps in their implementation are still present.

At the international level, there are several key documents that have been developed and published that articulate the WPS agenda and develop frameworks that are relevant to the United States and Mexico, jointly and separately. A landmark text on this matter was first issued by the United Nations (UN) Security Council. In 2000, it adopted UN Security Council Resolution (UNSCR) 1325, which explicitly notes the role that women play in conflict prevention and resolution and further emphasizes the unique needs and contributions of women that should be addressed as part of peacekeeping and humanitarian assistance efforts.[4] UNSCR 1325 additionally highlights that, during efforts to prevent and resolve conflicts, women and girls must also be protected from gender-based violence (GBV). In the wake of UNSCR 1325, the UN Security Council adopted Resolution 1889 in 2009. This document furthered the WPS agenda by urging each country to develop a National Action Plan (NAP) designed to monitor individual nations' efforts to implement the tenets of the WPS agenda.[5] Each country has developed its own NAP and other domestic policy documents pertaining to the implementation of the WPS agenda. The United States adopted its first NAP in 2011 (and has built on it in subsequent WPS national strategies); the Mexican government published its first NAP in 2021.[6] These documents explicitly note the path that each country intends to take to accomplish the objectives of the WPS agenda.

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[2] Mikaela Raphael, "Investing in Women Improves Disaster Response. Here's Why," Global Giving, April 7, 2021.

[3] Jennifer Thomson, "The Women, Peace, and Security Agenda and Feminist Institutionalism: A Research Agenda," *International Studies Review*, Vol. 21, No. 4, December 2019.

[4] UN Security Council, resolution on Women and Peace and Security, Resolution 1325, October 31, 2000.

[5] UN Security Council, resolution on Women and Peace and Security, Resolution 1889, October 5, 2009.

[6] Government of Mexico, *National Action Plan to Follow Up on Security Council Resolution 1325 (2000) on "Women, Peace and Security,"* January 2021; White House, *United States National Action Plan on Women, Peace, and Security*, December 2011; White House, *United States Strategy on Women, Peace, and Security*, June 2019.

At the national level, for the United States, through the 2017 WPS Act, the U.S. Congress codified the country's NAP into law with an accompanying whole-of-government strategic plan to accelerate its implementation. The 2017 WPS Act explicitly identifies the following seven core objectives:

> (1) integrate the perspectives and interests of affected women into conflict-prevention activities and strategies;
>
> (2) encourage partner governments to adopt plans to improve the meaningful participation of women in peace and security processes and decision-making institutions;
>
> (3) promote the physical safety, economic security, and dignity of women and girls;
>
> (4) support the equal access of women to aid distribution mechanisms and services;
>
> (5) collect and analyze gender data for the purpose of developing and enhancing early warning systems of conflict and violence;
>
> (6) adjust policies and programs to improve outcomes in gender equality and the empowerment of women; and
>
> (7) monitor, analyze, and evaluate the efforts related to each strategy submitted under section 5 and the impact of such efforts.[7]

In 2019, the U.S. government published its first strategy on WPS, accompanying the 2017 WPS Act. The U.S. WPS strategy includes three additional core objectives to be achieved by 2023:

- Women are more prepared and increasingly able to participate in efforts that promote stable and lasting peace;
- Women and girls are safer, better protected, and have equal access to government and private assistance programs, including from the United States, international partners, and host nations; and
- United States and partner governments have improved institutionalization and capacity to ensure WPS efforts are sustainable and long-lasting.[8]

According to the WPS-focused report issued by the U.S. government to Congress in 2022, the agencies responsible for implementing key aspects of the WPS Strategy have made progress on several key implementation metrics, such as revising standards of U.S. government–funded programs, holding National Security Council meetings to discuss WPS progress and metrics, and establishing internal WPS coordination structures and mechanisms.[9]

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[7] Public Law 115-68, Women, Peace, and Security Act of 2017, October 6, 2017.

[8] White House, 2019, p. 5.

[9] White House, *United States Government Women, Peace, and Security Congressional Report*, July 2022.

Finally, in 2020, the U.S. Department of Defense (DoD) published its own strategic framework and implementation plan to define its roles and responsibilities in the execution of the U.S. WPS strategy. Within this plan, DoD initially outlined three objectives:

- Defense Objective 1. The Department of Defense exemplifies a diverse organization that allows for women's meaningful participation across the development, management, and employment of the Joint Force.
- Defense Objective 2. Women in partner nations meaningfully participate and serve at all ranks and in all occupations in defense and security sectors.
- Defense Objective 3. Partner nation defense and security sectors ensure women and girls are safe and secure and that their human rights are protected, especially during conflict and crisis.[10]

The objectives laid out across these documents assign clear importance to the incorporation of WPS considerations in responses to emergency scenarios, including natural disasters. Furthermore, the objectives provide a clear framework for understanding the role that DoD might play in addressing those scenarios.

For Mexico, aligned with the international guidelines from UNSCR 1325 and the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) (see Figure 2.1), the Mexican government issued in 2021 its first NAP (also known as NAP-1325) with the purpose of promoting "the substantive participation of women as real and effective actors in conflict prevention at all levels and in the efforts of the United Nations for the maintenance, reconstruction, and consolidation of peace."[11] NAP-1325 included ten strategic objectives, and several other "lines of action, activities, indicators, and goals" structured around the four areas outlined in UNSCR 1325: "Prevention, Participation, Protection, and Relief and Recovery."[12] The document also established that the coordination of WPS matters would be the responsibility of an interagency group that consists of the Secretaría de la Defensa Nacional [Ministry of National Defense] (SEDENA), the Ministry of Security and Citizen Protection, the Ministry of Foreign Affairs, Secretaría de la Marina [Ministry of the Navy] (SEMAR), and the Instituto Nacional de Mujeres [National Institute of Women] (INMUJERES).

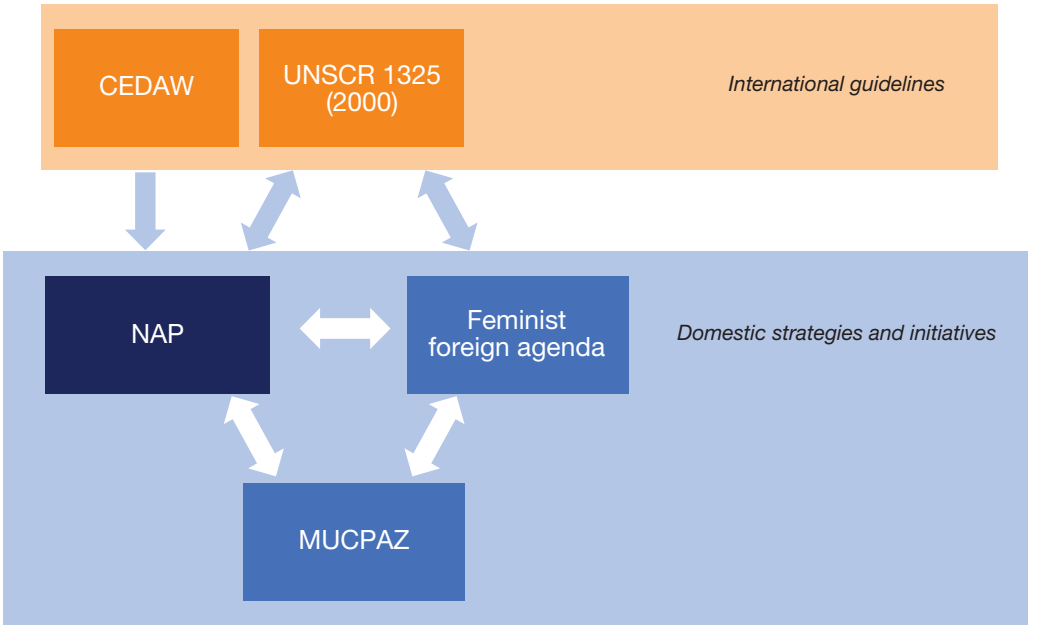
Mexico made several commitments to comply with UNSCR 1325. In 2019, Mexico agreed to deploy more women (both military officers and observers) to UN peacekeeping missions; develop gender and WPS courses for military and police members to be deployed to UN peacekeeping missions; and develop training on human rights and gender responsiveness for

[10] DoD, *Women, Peace, and Security Strategic Framework and Implementation Plan*, June 2020, p. 7.

[11] Secretaría de Seguridad y Protección Ciudadana [Ministry of Security and Citizen Protection], *Plan Nacional de Acción para el seguimiento de la Resolución 1325 (2000) del Consejo de Seguridad sobre "Mujeres, Paz y Seguridad"* [*National Action Plan to Follow Up on Security Council Resolution 1325 (2000) on "Women, Peace and Security"*], June 2022, p. 4.

[12] Secretaría de Seguridad y Protección Ciudadana, 2022, p. 5.

FIGURE 2.1
Mexico's National Action Plan System



SOURCE: Features information from Secretaría de Seguridad y Protección Ciudadana, 2022; and Security Women, "Mexico NAP 1: 2021–2025," webpage, undated.
NOTE: MUCPAZ = Redes de Mujeres Constructoras para la Paz [Women's Network for Peace Development].

the armed forces.[13] In commitment to the Gender Equity Program, SEDENA implemented the following programs:

- the Program for Training and Awareness on the Peace Culture and Gender Perspective "2008-2015"
- the Equity Program between Men and Women "2016"
- the Human Rights Program of the S.D.N. (SEDENA) "2014-2018"
- Against Women Discrimination
  - the Beijing declaration and platform
  - CEDAW 2012 final observation
  - results of the 23rd UN [United Nations] Committee Extraordinary Session.[14]

Following the same objective of promoting gender equity, SEMAR's actions consist of:

- National Program of the Equity Between Women and Men 2020–2024

[13] Security Women, undated.

[14] SEDENA, "Perspectiva de Género" ["Gender Perspective"], May 1, 2019.

- Agreement for the Equity Between Women and Men
- 2020 Gender Equity Primer
- Orange Day, Lactation and Paternity Leave Campaign
- Orange Day in the Navy
- Recommendations for the inclusive and nonsexist use of language
- General law on women's access to a life free of violence
- Manual for the nonsexist use of language
- Lactation Service at the Secretary of the Navy
- Paternity leave: comprehensive childhood education
- [Resources to support] Lactation
- IX Report of Mexico in compliance with the CEDAW convention (Final observations)
- IX Report of Mexico in compliance with the CEDAW convention (thematic distribution of the final observations).[15]

Furthermore, in January 2020, the Ministry of Foreign Affairs announced that Mexico would launch a "Feminist Foreign Policy" aimed at guiding "government actions to reduce and eliminate gender differences, gaps, and inequalities in order to build a more just and prosperous society."[16] The Ministry of Foreign Affairs has taken the lead on implementing a Feminist Foreign Policy that designates the Subsecretary for Multilateral and Human Rights Affairs as the entity in charge of the monitoring and evaluation. The Ministry has highlighted such outcomes as promoting gender equity standards in the review of the "Lima Work Program" at the international COP25 convention and participating in the #HeForShe movement.[17] The Ministry of Foreign Affairs also included a series of tasks in its 2020 workplan for the period from 2020 to 2024, but there is no public update on the status of these tasks. Moreover, an analysis by Internacional Feminista [Feminist International]—a civil society organization that promotes research and dialogue about feminism, international policy and security in Mexico and Latin America—of the Ministry's efforts on this matter concluded that "the Mexican FFP [Feminist Foreign Policy] has a broad and ambitious scope. Although SRE [Secretaría de Relaciones Exteriores (Ministry of Foreign Affairs)] says it seeks to main-

[15] SEMAR, "Igualdad de Género en la Secretaría de Marina" ["Gender Equity in the Ministry of the Navy"], August 16, 2022.

[16] Secretaría de Seguridad y Protección Ciudadana 2022, p. 3.

[17] "The COP [Conference of the Parties] is the supreme decisionmaking body" of the United Nations Framework Convention on Climate Change. At this annual conference, the parties to the convention "review the implementation of the Convention and any other legal instruments that the COP adopts and take decisions necessary to promote the effective implementation of the Convention, including institutional and administrative arrangements" (United Nations Climate Change, "Conference of the Parties (COP)," webpage, undated) Also see Subsecretaría para Asuntos Multilaterales y Derechos Humanos [Subsecretary for Multilateral and Human Rights Affairs], "La Política Exterior Feminista del Gobierno de México" ["The Mexican Government's Feminist Foreign Policy"], briefing slides, undated.

stream gender perspectives across all foreign policy areas as one of its core objectives, IF [Internacional Feminista] found this does not happen in practice."[18]

Lastly, aligned with the Feminist Foreign Policy, INMUJERES launched the initiative MUCPAZ, with the collaboration of the Executive Ministry of the Ministry of Security and Citizen Protection in 2020. MUCPAZ's mission was to develop 107 networks of "peace-building women" in 30 Mexican states with an investment of 140 million Mexican pesos.[19] Analysts have recognized that Mexico's NAP is a necessary effort to advance an inclusive agenda in security, but they have also identified four areas in which the strategy needs improvement: "1. Include the active participation of civil society organizations. . . . 2. Move beyond training. . . . 3. Have a realistic budget and sufficient expenditures for implementation. . . . 4. Adopt policies that address WPS-related issues in the domestic and regional spheres."[20]

Apart from this analysis of the Ministry of Foreign Affairs' efforts and achievements in the context of the MUCPAZ initiative, there is little to no public information available at the time of writing about the outcomes of the Feminist Foreign Policy itself.

Following worldwide advancements in the implementation of WPS principles in the past few years, the role of women is becoming an important factor beyond peacemaking in conflict situations and is expanding to disaster response and recovery. The Mexican government has undertaken significant steps to integrate WPS principles in its foreign policy, and the logical next step is to expand the application of those steps to disaster-response–related policies. Such steps are extremely important in a context in which natural disasters are not only a constant risk, but are also likely to increase with climate change. The situation of vulnerable populations that are disproportionally affected by such disasters demands a cooperative and full-fledged response that integrates gender perspectives and fully makes use of the skills and capabilities that women can contribute to disaster-response efforts.

Gender Dimensions of Disaster Response

Scholars have observed that impacts are experienced differently across groups of individuals, especially between men and women, in the wake of a disaster. Although the extent of those different impacts can be context dependent, as a general finding, "gender relations are part of the human experience of disasters," making an improved awareness of the gender dimensions of disaster response an area of improvement that policymakers should consider.[21] This

[18] Daniela Philipson García and Ana Velasco Ugalde, "Mexico's First Women, Peace and Security National Action Plan: An Assessment," Women in International Security, June 2021.

[19] INMUJERES, "Prevención de Violencia Familiar y de Género" ["Prevention of Family and Gender Violence"], briefing slides, undated.

[20] Philipson García and Velasco Ugalde, 2021.

[21] Elaine Enarson, Alice Fothergill, and Lori Peek, "Gender and Disaster: Foundations and Directions," in Havidan Rodriguez, Enrico L. Quarantelli, and Russell R. Dynes, eds., *Handbook of Disaster Research*,

is a matter of serious concern because the fallout from disasters can, in many cases, include the "denial of the fundamental human rights of women and girls in crisis."[22] For societies in which preexisting gender inequalities are already significant, such as Mexico, these factors often interact with disasters such that impacts are felt even more strongly along gender lines.[23] Although adopting a gender perspective might primarily end up being focused on women's issues, which are traditionally less well incorporated into disaster response, it is important to note that a gender perspective is not exclusively related to the needs of women in disaster environments. In the context of a gendered approach to disaster response, the needs of men and differently gendered individuals are also uncovered and considered, given that men and differently gendered people fall victim to natural disasters as well. A gender perspective has practical significance because it sheds light on the different ways in which women, men, and differently gendered people are affected by natural disasters, allowing governments and policymakers to more adequately plan and prepare for disaster response.

Even before a disaster strikes, gender can influence perceptions of risk and subsequent decisions. For example, researchers note that men and women often have different kinds of concerns with respect to disasters. Women often perceive greater threats from environmental risks, infectious diseases, and sexual assault; men often perceive greater threats from health and safety issues and physical violence.[24] These different perceptions of risk can subsequently have an impact on how individuals prepare to face a disaster.[25] Perceptions of risk are not the only factors driving gender-differentiated responses to disasters. Leading organizations, such as the UN, also make clear that women are frequently "placed at greater risk through a lack of timely and relevant information about imminent hazards."[26] They often do not have the same access to technology and information services as men, increasing the likelihood that women will not receive essential early warning communications.[27] Thus, addressing issues related to both perceptions and information access through a gendered lens clearly emerges as a path toward improved disaster response.

In the immediate aftermath of a disaster, gender is also a key differentiator with respect to health outcomes, particularly in the area of life expectancy. Existing literature points out that that the impact of disasters is "contingent upon economic, social, and cultural relations," not

Springer, 2007, p. 130.

[22] Enarson, Fothergill, and Peek, 2007, p. 130.

[23] Alvina Erman, Sophie Anne De Vries Robbé, Stephen Fabian Thies, Kayenat Kabir, and Mirai Mauro, *Gender Dimensions of Disaster Risk and Resilience—Existing Evidence*, World Bank, 2021, p. 7.

[24] Yi-Wen Kung and Sue-Huei Chen, "Perception of Earthquake Risk in Taiwan: Effects of Gender and Past Earthquake Experience," *Risk Analysis*, Vol. 32, No. 9, September 2012.

[25] Erman et al., 2021, p. 39.

[26] Dilanthi Amaratunga, "Progress in the Development of Globally Accessible Early Warning Systems: The Gender Dimension of Disaster Risk Reduction," *UN Chronicle*, November 4, 2022.

[27] Amaratunga, 2022.

just nature itself.[28] In practice, this impact takes the form of disparate effects on life expectancy for men and women. For example, biological and physiological differences can mean that women are less able to withstand the natural impacts of a disaster, such as wind or water. Moreover, when natural disasters limit the flow of essential health goods and services, the impact can be especially detrimental for women. For instance, researchers argue that when health infrastructure is affected by natural disasters, "obstetrical care is reduced, [and] the number of miscarriages increases, as does maternal and infant mortality."[29] In disaster environments, women also face reduced access to contraceptives, which is connected to rises in both unplanned and unwanted pregnancies.[30] Additionally, a cultural factor driving higher mortality rates for women is that, in some cases, they might lack both the agency to make the decision to evacuate in the face of a disaster and access to the information that would inform that decision.[31] Furthermore, because of cultural norms in which women attend to the needs of both children and the elderly, women can experience impediments to quickly fleeing a disaster.[32] In some cases, as in Mexico, the context of violence also limits the possibility of evacuation. It is because of gendered differences such as these that the scholarship argues that, specifically in contexts in which the socioeconomic status of women is low, women in disaster environments face systematically more-severe reductions in life expectancy than men do.[33] It is important to note, however, that these gendered differences in decreased life expectancy practically vanish in contexts where the socioeconomic status of women is high; scholars argue that this discrepancy suggests that it is imperative for policymakers to understand the preexisting social and economic inequalities between men and women that ultimately drive gender-differentiated outcomes in mortality following a natural disaster.[34] For example, in contexts in which the socioeconomic status of women is generally high, men often have higher mortality rates, which is at least in part driven by the fact that men are commonly overrepresented in disaster-response teams and thus have higher casualty rates.[35] This key piece of evidence suggests that preexisting social differences between men and women are a key leverage point for improving disaster-response efforts.

In addition to socioeconomic and cultural disparities that drive more negative health outcomes for women than for men, women are also frequently exposed to greater risks of

[28] Eric Neumayer and Thomas Plümper, "The Gendered Nature of Natural Disasters: The Impact of Catastrophic Events on the Gender Gap in Life Expectancy, 1981–2002," *Annals of the Association of American Geographers*, Vol. 97, No. 3, September 2007, p. 551.

[29] Neumayer and Plümper, 2007, p. 554.

[30] Erman et al., 2021, p. 22.

[31] Erman et al., 2021, p. 20.

[32] Asian Development Bank, *Gender-Inclusive Disaster Risk Management*, February 2014, p. 1.

[33] Neumayer and Plümper, 2007.

[34] Neumayer and Plümper, 2007.

[35] Erman et al., 2021, p. 20.

GBV.[36] These risks intersect with increased need for mental health services. Men and boys can be vulnerable to heightened GBV risk in other, more specific contexts, such as migration and detention settings, and especially in the case of men with diverse gender expressions or sexual orientations.[37] In totality, however, academic literature reviewed primarily addresses GBV risks as they pertain to the experiences of women and girls. As researchers note, disasters can rapidly increase the vulnerability of women and girls to "multiple forms of GBV, including sexual violence, domestic violence, forced marriage and sexual exploitation and abuse."[38] Contributing to this specific vulnerability are the crowded conditions that are often common in evacuation sites, which give women minimal space for privacy and safety.[39] Concerns about poor safety conditions in shelters can lead women to opt out of evacuating to those shelters in the first place.[40] With the increase in GBV that often follows disasters, there is often also an increased need for mental health services among women.[41] This is just one potential reason why, following a disaster, there are often reports of women and girls who experience emotional disorders and distress at a greater rate than men do.[42] Although this discrepancy between women and men might be related to a higher rate of reporting emotional distress or seeking treatment among women than among men, some earlier surveys on the topic found that women disaster survivors were more adversely affected than male survivors in terms of disaster stress, distress, or other related disorders.[43]

In a disaster recovery period, researchers have also noted gender-differentiated outcomes with respect to the socioeconomic outcomes of individuals. For women, scholars have used the term *double disaster* to characterize the gendered differences experienced in the wake of a natural disaster, including increased poverty and insecurity.[44] Researchers have also

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[36] Although men could potentially be exposed to the risk of GBV in a disaster context, existing academic literature almost exclusively addresses the risk of GBV directed at women during and following disasters. One 2022 Red Cross report does speak to specific risks to men and boys (as well as lesbian, gay, bisexual, transgender, intersex, queer, and questioning [LGBTIQ+] people) regarding GBV in particular circumstances, such as migration or detention, though not explicitly tied to disasters. Norwegian Red Cross and International Committee of the Red Cross, *"That Never Happens Here": Sexual and Gender-Based Violence Against Men, Boys, and Including LGBTIQ+ People in Humanitarian Settings*, 2022.

[37] Norwegian Red Cross and International Committee of the Red Cross, 2022.

[38] GBV Guidelines, "How to Support Survivors of Gender-Based Violence When a GBV Actor Is Not Available in Your Area: A Step-by-Step Pocket Guide for Humanitarian Practitioners—Version 2.0," undated.

[39] Erman et al., 2021, p. 35.

[40] Erman et al., 2021, p. 40.

[41] Erman et al., 2021, p. 35.

[42] World Health Organization, *Gender, Climate Change and Health*, 2014, p. 11.

[43] Fran H. Norris, Matthew J. Friedman, Patricia J. Watson, Christopher M. Byrne, Eolia Diaz, and Krzysztof Kaniasty, "60,000 Disaster Victims Speak: Part I. An Empirical Review of the Empirical Literature, 1981—2001," *Psychiatry: Interpersonal and Biological Processes*, Vol. 65, No. 3, Fall 2002.

[44] Sarah Bradshaw and Maureen Fordham, "Double Disaster: Disaster Through a Gender Lens," in John F. Shroder, Samantha Jones, Janaka Jayawickrama, Andrew E. Collins, and Bernard Manyena, eds., *Hazards,*

observed that for many adolescent girls, because gender dynamics are minimally considered in disaster response, their specific needs are "largely invisible."[45] Furthermore, because of existing gender-based economic inequalities, women might face more economic rights violations following a disaster, such as discrimination in hiring or pay practices.[46] The literature explicitly notes that this extends beyond simple declines in economic opportunity and can include violations of economic rights, which are more likely to occur when governments place greater emphasis on other aspects of recovery efforts, often at the expense of women.[47] Unequal socioeconomic and educational outcomes between women and men can also be found in the wake of disasters; scholars observe that female enrollment rates might decline more significantly than male enrollment rates do after a disaster.[48] In other words, beyond the already significant health and safety outcome differences between men and women, economic and educational differences also frequently arise.

The scholarship on disaster preparedness, impact, and response is explicit about the fact that women routinely experience unique and detrimental effects to their lives and well-being in times of crisis for a host of reasons—social, cultural, economic, and physiological. Left unaddressed, these gender-differentiated impacts can widen already existing inequalities between men and women.[49] To better understand and ameliorate these disparate impacts, a gender analysis across the essential pillars of response is a useful starting point. The core elements of managing a disaster are often broken down into four pillars: mitigation and prevention, preparedness, response, and recovery.[50]

One set of definitions regarding these pillars is offered by the Government of Canada in its framework for emergency management across the country. *Prevention* and *mitigation* is defined as the need "to eliminate or reduce the risks of disasters in order to protect lives, property, the environment, and reduce economic disruption."[51] *Preparedness* is defined as the capacity "to be ready to respond to a disaster and manage its consequences through measures taken prior to an event, for example emergency response plans, mutual assistance agree-

Risks, and Disasters in Society, Academic Press, 2015.

[45] Bradshaw and Fordham, 2015, p. 233.

[46] Nicole Detraz and Dursun Peksen, "In the Aftermath of Earth, Wind, and Fire: Natural Disasters and Respect for Women's Rights," *Human Rights Review*, Vol. 18, 2017.

[47] Detraz and Peksen, 2017.

[48] Erman et al., 2021, p. 25.

[49] Erman et al., 2021, p. 8.

[50] These pillars reference terminology used by the governments of Canada and the United States. Sometimes, in the literature, preparedness and mitigation are combined (e.g., by the International Red Cross). See FEMA, "National Preparedness Goal," webpage, last updated March 21, 2023; and Government of Canada, *Guidance on Planning for Recovery Following a Nuclear or Radiological Emergency*, 2020.

[51] Government of Canada, *An Emergency Management Framework for Canada*, January 2011, p. 4.

ments, resource inventories and training, equipment and exercise programs."[52] *Response* is defined as the ability "to act during or immediately before or after a disaster to manage its consequences through, for example, emergency public communication, search and rescue, emergency medical assistance and evacuation to minimize suffering and losses associated with disasters."[53] Finally, *recovery* is defined as the ability "to repair or restore conditions to an acceptable level through measures taken after a disaster, for example return of evacuees, trauma counseling, reconstruction, economic impact studies and financial assistance."[54]

In Mexico, recommendations related to "Mujeres en Emergencia y/o Desastre" ["Women in Emergency and/or Disaster"] that were developed by the Government of the State of Veracruz are an example of how these recommendations can be applied at the local level by taking into account the vulnerabilities to which women are exposed. Some of the measures include using information from INEGI and local institutions (e.g., Desarrollo Integral de las Familias [Integral Family Development], Instituto Municipal de las Mujeres [Municipal Institute of Women]) to locate women and include them in emergency planning and decisionmaking, establish safe spaces in which they can move without risk, ensure that women count with provisions for their sexual and reproductive health, promote gender equity in the technical and operative teams, and consider women's experiences in the development of risk maps, emergency routes, and temporary shelter.[55]

Although notionally different, these pillars are highly interrelated; when placed in concert, they offer an effective framework for understanding the ways in which gender affects disaster outcomes. Table 2.1. summarizes some of the unique gender issues that are connected to each pillar. It provides a series of recommendations for responding to those issues and various relevant questions that should be answered in each stage of disaster response.

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[52] Government of Canada, 2011, p. 4.

[53] Government of Canada, 2011, p. 4.

[54] Government of Canada, 2011, p. 4.

[55] Government of the State of Veracruz de Ignacio de la Llave, *Mujeres en Emergencia y/o Desastre* [*Women in Emergency and/or Disaster*], September 2021.

TABLE 2.1

Gender Considerations Across the Four Pillars of Emergency Management

Prevention and Mitigation	Planning and Preparedness	Disaster Response	Disaster Recovery
		Gender-Based Impacts	
• Men's and women's perception of risk differs, which affects their behavior and actions when responding to disaster warnings. • Women might be less likely to own a cell phone or have access to internet-based information services and might be more reliant on word-of-mouth communication.	• Including diverse groups in disaster planning is not always prioritized. • A lack of SADDD impedes planning to meet the needs of all vulnerable populations.	• Relief structures rely on existing structures for resource distribution that reflect the patriarchal organization of society. • Gender dominance in the planning and delivery of relief services results in an organization of relief services that does not account for gender. • The safety of women experiencing violence in the home might be compromised. • A greater proportion of women and girls suffer from emotional disorders and distress after a disaster. • Child care and elderly care obligations fall disproportionately on women.	• Reentry to communities is focused on infrastructure and safety—not on access to essential services—which causes gaps in critical services. • Economic recovery programs do not account for gender differences in livelihoods and might favor male-dominated workforce styles. • Gender differences in education outcomes post-disaster have been observed and depend on how labor is valued against education in a post-disaster society.
		Considerations	
• How do communication plans and strategies account for gender? • How are early warnings conveyed to the population, and do they account for how different populations might access and process information differently? • What measures are being taken to build confidence in early-warning systems across diverse populations?	• What is the capacity to plan and ensure support for all vulnerable populations (including gender)? • What are the processes for assessing hazards and risks for vulnerable populations (including gender)? • What are the effects of gender organizational culture on staffing, funding, and programming?	• What barriers exist to ensuring gender representation in the disaster-response workforce? • How is gender considered in resource-distribution sources and systems? • How are relief supplies distributed, and how might different vulnerable populations be affected? • What is contained in relief supply kits, and have different populations' needs been considered? • What are the policies and procedures for evacuation, and how might different vulnerable populations be affected? • What locations are used for evacuation, and how are different populations' needs considered?	• What critical services are required post-disaster, and are they available within the community? • What does the workforce look like within the community, and how can economic recovery policies account for the diverse needs of a nontraditional workforce? • Are there dynamics at play that discourage certain sectors of society from reenrolling in education? What are those dynamics, and how can they be addressed?

Table 2.1—Continued

Prevention and Mitigation	Planning and Preparedness	Disaster Response	Disaster Recovery
		Recommendations	
• Invest in a people-centered early warning system developed through participatory processes. • Make a systematic effort to build confidence in early-warning systems across all populations. • Make greater investments in mitigation efforts that can reduce social costs. • Ensure that all public-hazard communication reaches all people.	• Gender, age, disability, and cultural perspective should be integrated into all policies and practices. • Empower women to lead and promote gender-equitable approaches to disaster-response and recovery. • Include gender considerations in hazard mapping. • Ensure engagement is taking place in a culturally sensitive, strengths-based, and inclusive manner. • Improve partner training to test the effectiveness of all hazard plans.	• Address barriers to the inclusion of women in specialties likely to respond to disasters and address deployability concerns to ensure adequate gender representation in the disaster-response workforce. • Identify gender-specific relief supply needs (e.g. menstruation products, clothes, contraceptives). • Address women's safety concerns that relate to evacuation. • Ensure access to social networks and psychosocial services (counseling services). • Provide health services that cater to men and women's specific needs. • Provide adequate access to child care and elderly care.	• Allow early reentry for community support agencies to reestablish services before lifting an evacuation order. • Ensure that policies for economic recovery consider nontraditional work types (e.g., part-time work, self-employment). • Identify incentives to encourage education reenrollment based on gender-specific considerations.

SOURCE: Reproduced from Fleming et al., 2024, pp. 18–19.

CHAPTER 3

Tamaulipas Hurricane Case Study

In Chapter 2, we reviewed the WPS agenda and the literature pertaining to gender dimensions of disaster response to provide necessary background for the case study used in this report. In this chapter, we present a fictional scenario of a Category 5 hurricane centered on the Mexican state of Tamaulipas; this case study enables the exploration of gender considerations for a military-led disaster response that would require coordination between the governments of Mexico and the United States. We limited the scenario to expected impact and response in the first 96 hours following landfall. Following the presentation of the scenario, we identify case-specific gender dimensions to consider in the hypothetical response efforts.

Background

Tamaulipas is located in the northeast region of Mexico, on the southern border of the United States. It borders the U.S. state of Texas; the Mexican states of Nuevo León, San Luis Potosí, and Veracruz; and the Gulf of Mexico. Tamaulipas has an estimated population of 3.5 million people who live mostly in urban settings (90 percent). Matamoros, one of the state's largest cities, hosts around 541,000 inhabitants. The Rio Bravo, which is known on the U.S. side as the Rio Grande, divides the twin cities of Matamoros, Tamaulipas, and Brownsville, Texas; the latter has an estimated population of 187,831 inhabitants. Education levels, measured as years of education, in Tamaulipas are above the national average in Mexico (10.1 years versus 9.7 years, respectively). In Mexico, there are 68 indigenous peoples speaking their own language.[1] However, the presence of the indigenous population in Tamaulipas is low: Only seven out of every 1,000 individuals age three years and older speak an indigenous language.[2] According to the 2020 Census, the three most represented indigenous languages in Tamaulipas are Náhuatl, with 10,029 speakers; Huasteco, with 4,707 speakers, and Totonaca, with 2,215 speakers.[3]

[1] International Work Group for Indigenous Affairs, "Indigenous Peoples in Mexico," webpage, undated.

[2] INEGI, "Resumen. Tamaulipas" ["Summary. Tamaulipas"], webpage, undated-e.

[3] John P. Schmal, "Indigenous Tamaulipas: The Seno Mexicano and Nuevo Santander," Indigenous Mexico, December 1, 2020.

Because of its strategic location on the border with the United States and the Gulf of Mexico, Tamaulipas has faced several security-related challenges. El Cártel del Golfo [the Gulf Cartel] had been the dominant criminal organization in Tamaulipas until 2010, when the conflict with its offshoot group, Los Zetas, drastically increased the level of violence in the area. Specifically, Los Zetas implemented a new business model to extort local businesses and kidnap local entrepreneurs. Since then, new cells, such as El Cártel del Noreste [the Northeast Cartel] and Los Zetas Vieja Escuela [Los Zetas Old School], have appeared and created a more fragmented criminal underworld in the state.[4]

Academic research on gender differences in criminal organizations is limited, and the need for a gendered perspective is evident. According to researcher Corina Giacomello, women become involved in drug trafficking "in contexts of gender victimization and in adverse socioeconomic situations"; not only do women perform high-risk jobs at low levels of the organized criminal group, they are also more likely to be arrested for their involvement in organized crime through such occupations as small-scale courier.[5] Farfán-Méndez explores female participation in organized crime by comparing the Japanese organized crime syndicate Yamaguchi-gumi and the Sinaloa Cartel. The author describes an invisibility paradox in which women's low profile (i.e., a lack of authority) has made them an asset to criminal organizations because they can pass undetected by state and rival groups.[6] In the case of Mexican organizations, women—particularly family of cartel members—have been critical for money laundering operations. Farfán-Méndez concludes by noting that a gender parity perspective on this matter should not focus on numbers (i.e., how many female members are hired) but on which specific functions women perform that contribute to the organization's survival and expansion.[7]

Because of its geography, the state of Tamaulipas is vulnerable to a varied set of natural disasters. One of the most prevalent occurrences is flooding caused by frequent hurricanes, heavy rain, and clogging of drainage systems. According to the U.S. National Oceanic and Atmospheric Administration, Tamaulipas has registered 63 tropical cyclones, 18 Category 1 hurricanes, and three Category 5 hurricanes since 1854. On average, tropical cyclones occur

[4] Guadalupe Correa-Cabrera and Jorge A. Pérez González, "Informe de Campo: Seguridad en Tamaulipas Hoy: Una Paz Simulada" ["Field Report: Security in Tamaulipas Today: A Simulated Peace"], *Small Wars*, December 31, 2021.

[5] Lauren Borders, "Villain or Victim? Understanding the Role of Women in Latin American Drug Trafficking," Washington Office on Latin America, August 16, 2022.

[6] Cecilia Farfán-Méndez, "Women's Involvement in Organised Crime and Drug Trafficking: A Comparative Analysis of the Sinaloa and Yamaguchi-gumi Organisations," in Julia Buxton, Giavana Margo, and Lona Burger, eds., *The Impact of Global Drug Policy on Women: Shifting the Needle*, Emerald Publishing Limited, 2020.

[7] Farfán-Méndez, 2020.

in Tamaulipas every two to six years. In comparison, Category 1 hurricanes have an average occurrence of every eight years.[8]

Among the worst hurricanes that have passed through the state, Category 5 Hurricane Hilda hit the cities of Tampico and Ciudad Madero and flooded La Huasteca, a region that includes parts of Tamaulipas, in September 1955. In September 1977, Hurricane Anita reached a classification of Category 5 and affected communities, agriculture, and communication. More recently, Category 1 Hurricane Hanna began as a tropical storm in June 2020 and affected the municipalities of Reynosa, Matamoros, Valle Hermosa, and Gustavo D. Ordaz. Table 3.1 summarizes the municipalities in the state of Tamaulipas that have been affected by hydrometeorological phenomena most recently.

TABLE 3.1
List of Hydrometeorological Phenomena in Tamaulipas

Year	Month	Municipality	Name	Type of Phenomenon	Landfall	Wind Velocity (km per hour)
2000	August	Soto La Marina	Beryl	Tropical storm	Santo Domingo del Charco	83.30
2003	August	Matamoros	Erika	Category 1 hurricane	Playa Bagdad	120.00
2005	July	Matamoros	Emily	Category 3 hurricane	Matamoros	203.00
2008	July	Matamoros	Dolly	Category 2 hurricane	Matamoros	148.00
2010	June–July	Soto La Marina	Alex	Category 2 hurricane	Santa María (Isla)	157.25
2010	July	Matamoros	Two	Tropical depression	Matamoros	55.50
2010	September	Matamoros	Hermine	Tropical storm	Punta Algodones	92.50
2013	September	Soto La Marina	Ingrid	Tropical storm	La Pesca	92.60
2013	September	Ciudad Madero and Tampico	DT- Eight	Tropical depression	Ciudad Madero	56.30
2014	September	Ciudad Madero, Tampico, and Altamira	Dolly	Tropical storm	Sur de Tampico	74.08
2016	June	Ciudad Madero, Tampico, and Altamira	Danielle	Tropical storm	Tamiahua	64.82
2017	September	Ciudad Madero, Tampico, and Altamira	Katia	Category 2 hurricane	Tecolutla	120.38

[8] Government of Tamaulipas, *Atlas de Riesgos del Estado de Tamaulipas* [*Risk Atlas of the State of Tamaulipas*], undated.

Table 3.1—Continued.

Year	Month	Municipality	Name	Type of Phenomenon	Landfall	Wind Velocity (km per hour)
2019	September	Soto La Marina	Fernand	Tropical storm	Soto la Marina	56.00
2020	June	Camargo, Miguel Alemán, and Mie	Hanna	Category 1 hurricane	Rancherías Camargo	88.50

SOURCE: Features information from Government of Tamaulipas, undated.

Scenario Presentation

It is September 2027, and a Category 5 hurricane makes landfall between Brownsville, Texas, and Matamoros, Tamaulipas, on the border between the United States and Mexico (see Figure 1.1). What started as a tropical storm had been building up strength for a few days in the Caribbean Sea before it entered the Gulf of Mexico. Crisis management activities on the U.S. side of the border begin approximately 48 hours prior to landfall: The governor of Texas issues an emergency declaration, and the President of the United States makes a Presidential Disaster Declaration.

The twin cities of Brownsville and Matamoros and the northeastern coastal area of Tamaulipas are in the direct path of the eye of the hurricane (and its eyewall, where the strongest winds are present) and incur the most significant damage. The overall impact of the hurricane is felt far inland, reaching the state of Chihuahua and the northern and most northwestern part of the state of Tamaulipas.[9]

Soon after landfall, sustained winds up to 165 mph, heavy rainfall, massive flooding, and a "storm surge greater than 18 feet above normal" occur in the areas affected by the hurricane.[10] There are casualties on both sides of the border. On the U.S. side, the initial estimates for the day when the hurricane lands are 211 fatalities and 956 hospitalizations; on the Mexican side there are 512 fatalities and 945 hospitalizations estimated.[11] There is a need for mass evacuations, which have become increasingly harder in the five hours before the eye of the hurricane reaches land because "certain low-lying escape routes are inundated by water."[12] Overall, in the cross-border area of Brownsville-Matamoros, 400,000 individuals require

[9] The scenario presented here and its underlying assumptions regarding the number of fatalities and of individuals injured and displaced are based on the scenario for the FY 2022 Fuerzas Amigas exercise. This is a yearly military exercise that U.S. Army North conducts with the Mexican armed forces. The FY 2022 iteration of the exercise focused on a scenario in which a fictitious Hurricane Javier landed in the state of Tamaulipas and U.S. and Mexican armed forces provided a joint disaster response. U.S. Army North, 2022.

[10] U.S. Army North, 2022.

[11] U.S. Army North, 2022.

[12] U.S. Army North, 2022, p. 11.

evacuation, "80,000 seek shelter in safe areas," and "20,000 homes [are] destroyed."[13] Some of those individuals will likely need long-term housing until their homes are rebuilt.

Expected Response

According to Mexican law, the Secretaría de Gobierno [Ministry of the Interior], SEDENA and SEMAR oversee disaster-relief efforts.[14] Since 1965, Plan DN-III-E has been the Mexican government's main operative tool for establishing the general guidelines to support SEDENA and SEMAR in their provision of relief activities to populations affected by natural and human disasters.[15]

In 2021, the Mexican Congress approved the Ley General Integral del Riesgo de Desastres y Protección [Integral General Law of Disasters Risk and Protection]. The law aims to

> I. establish coordination mechanisms;
> II. define the phases of the general risk management and civil protection; and
> III. promote the participation of the social, private, and academic sectors.[16]

The Mexican government also developed guidelines for the Programa para la Atención de Emergencias por Amenazas Naturales [Program for Emergency Response to Natural Disasters] under the responsibility of the National Commission of Civil Protection of the Ministry of Security and Citizen Protection. These guidelines have the objective of ensuring that populations affected by natural disasters receive sufficient support from state and municipal governments.[17]

Plan DN-III-E is divided into three phases, all of which require both SEDENA's and SEMAR's participation: prevention, auxiliary activities, and recovery. The prevention phase includes coordination between SEDENA, SEMAR, and local, state, and federal governments; monitoring to identify vulnerable areas; giving press conferences; offering training for civil protection; exchanging knowledge with other institutions or countries; and promoting innovation constantly. Auxiliary activities include alerting communities of impending disasters,

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[13] U.S. Army North, 2022, p. 11.

[14] The Mexican laws that govern disaster-relief efforts are Population General Law Article 3, Section XIII, the Military and Navy Organic Law Article 1, Sections III and V, and the Mexican Armed Forces Organic Law Article 2, Section VII, cited in David Cienfuegos Salgado, *Las Fuerzas Armadas y la Protección Civil: El Plan DN-III* [*The Armed Forces and Civil Protection: Plan DN-III*], Universidad Nacional Autónoma de México [National Autonomous University of Mexico], 2015.

[15] SEDENA, "¿Qué Es el Plan DN-III-E?" ["What Is Plan DN-III-E?"], May 1, 2023-b.

[16] Cámara de Diputados [House of Representatives], *Minuta Proyecto de Decreto de la Ley General de Gestión Integral del Riesgo de Desastres y Protección Civil* [*Summary of the Decree of the General Law on Integral Management of Disaster Risk and Civil Protection*], 2020, p. 1.

[17] Centro de Estudios de las Finanzas Públicas [Public Finance Studies Center], "Fondo de Desastres Naturales 'FONDEN,' 2022" ["Fund for Natural Disasters 'FONDEN,' 2022"], February 24, 2022.

executing emergency plans, coordinating transportation, evacuating and managing shelters, assessing damage, and providing health services and resources. The recovery phase focuses on removing debris and mud; recovering provisional land communication routes; establishing air channels to supply basic necessities; distributing commodities; restoring provisional water, electricity and communication services; and guaranteeing security in affected areas. Rebuilding and total physical recovery of affected areas are the responsibilities of other institutions.[18]

Another mechanism related to disaster relief in Mexico is the Sistema Nacional de Protección Civil [Civil Protection National System] (SINAPROC).[19] The objective of SINAPROC is to "carry out coordinated actions to protect the population against dangers that arise in our territory, whether of natural origin, such as earthquakes or hurricanes, or those caused by human activity that may eventually end in a disaster."[20]

SEDENA's Programa Sectorial de Defensa Nacional 2020–2024 [National Defense Sectorial Program 2020–2024], specifically priority strategy 3.4, indicates that part of SEDENA's functions is to "assist the civilian population in cases of disasters caused by phenomena of natural or human origin, through the application of Plan DN-III-E, in order to mitigate the effects that it produces on the population."[21] Specifically, SEDENA tasks include doing the following:

> Maintain an effective response capacity, to guarantee immediate assistance to the population affected by a disaster, to save their lives and property; as well as support the reconstruction of the affected areas;
>
> Maintain coordination and cooperation with other government agencies and sectors of society, for emergency care;
>
> Comply with the Internal Training Program of the 84 Laguna Verde Task Force [Fuerza de Tarea Laguna Verde 84 or F.T.L.V. 84], of the External Radiological Emergency Program [Programa de Emergencia Radiologica Externa]
>
> Train Army and Air Force personnel to respond to incidents involving chemical, biological, radiological, nuclear, and explosive (CBRNE) materials;

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[18] SEDENA, "Fases del Plan DNIIIE" ["Phases of Plan DN-III-E"], May 1, 2023-a.

[19] SINAPROC was established after the earthquake of 1985 with the objective of allowing authorities and civil society to coordinate efficiently during disasters. SINAPROC consolidates methods and procedures between volunteers, social and private entities from Mexico City, states, and municipalities. Centro Nacional de Prevención de Desastres [National Center for Prevention of Disasters], "Qué Es el Sinaproc y Cómo Se Consolidó en Nuestra País. ¡Entérate!" ["What Is Sinaproc and How Was It Consolidated in Our Country? Find Out!"], May 6, 2023.

[20] Centro Nacional de Prevención de Desastres, 2023.

[21] The National Defense Sectorial Program 2020–2024 is divided in six priority objectives, For details on priority strategy 3.4, see Appendix B and SEDENA, *Programa Sectorial de Defensa Nacional 2020–2024 [National Defense Sector Program 2020–2024]*, 2020, p. 39.

> Promote interinstitutional exercises to deal with CBRNE substance incidents;
>
> Participate in activities of Humanitarian Aid to other nations that determine the Mexican Government, using the procedures applicable to the DN-III-E Plan.[22]

Although Mexican legislation that addresses domestic disaster-response efforts clearly establishes and delineates the responsibilities of the main government organizations responsible for these undertakings, the same cannot be said regarding the legal framework for cross-border relief efforts. As opposed to the bilateral Canada-U.S. Civil Assistance Plan (CAP) (also known as the CANUS CAP) through which the Canadian and U.S. governments can both request support through the provision of military support of civil authorities for disaster-relief efforts, there is no such bilateral agreement between Mexico and the United States that can be quickly activated in case of natural disaster on either side of the border. According to the after-action report for the FY 2022 Fuerzas Amigas exercise, "there is no framework from the U.S. to support the military forces of Mexico (and vice versa) that are providing military support of civil authorities for a catastrophic emergency along the border."[23] The after-action report further recommends the standing up of a "combined Operational Planning Team (OPT) to develop an exercise [Standard Operating Procedure] and binational CAP."[24]

Generally, U.S. military disaster-relief activities that will be carried out in Mexican territory are not done so based on decisions made at the DoD level but at the level of the cabinet and the Department of State. At the cabinet level, the Secretaries of State and Defense coordinate the response while USNORTHCOM remains on standby in the initial stages of the crisis waiting for directions from the cabinet. The level of involvement of USNORTHCOM usually depends on the nature of the crisis and how much coordination senior leadership seeks. In the absence of a formal relationship-building mechanism between the U.S. and Mexican armed forces, similar to the existing coordination mechanisms between the United States and Canada, the level of involvement of USNORTHCOM in the disaster response varies based on the directions received from the U.S. Secretary of Defense. For foreign disaster-relief efforts, the U.S. Agency for International Development (USAID) (which falls under the Department of State) is the lead federal agency that manages and coordinates the disaster-relief efforts across the U.S. government and with Mexico.[25]

The legal framework that currently governs the response to a natural disaster with cross-border impacts focuses primarily on activating the individual domestic legal frameworks that are designed to respond to the damage each country incurs within its own borders (Defense Support for Civil Authorities in the United States, and Plan DN-III-E in Mexico). In the case

[22] Fuerza de Tarea Laguna Verde 84 is the team in charge of responding to radiological disasters. SEDENA, 2020, p. 39.

[23] U.S. Army North, undated-a, p. 2.

[24] U.S. Army North, undated-a, p. 2.

[25] U.S. government official, interview with the authors, November 3, 2022.

of a complex natural disaster—such as a Category 5 hurricane combined with subsequent chemical, biological, radiological and nuclear (CBRN) events—SEDENA is unlikely to have sufficient resources to respond in a timely and adequate manner and might request cross-border assistance from the United States.

USAID emphasizes gender considerations in its work. For instance, at the end of 2022, USAID launched a new program, "Safe from the Start ReVisioned," which seeks to "advance a gender-transformative approach in humanitarian response" and prioritize the safety and perspectives of women and girls.[26] However, DoD acts only as a supporting agency for USAID, bringing the personnel and skills needed for effective and efficient relief efforts while being mindful of Mexican sensibilities regarding the presence of U.S. uniformed personnel on the ground. With this perspective top-of-mind and in the absence of a Mexico-U.S. (MEXUS) CAP, the "current legal framework is not sufficiently agile and expeditious to address immediate response actions at the border that are necessary to save lives" and deprives both Mexico and the United States of the multiplier effect that their combined armed forces could bring to a cross-border disaster response.[27] Beyond the absence of a MEXUS CAP, additional shortfalls of the current legal framework that prevent the cooperation and coordination between U.S. and Mexican armed forces from reaching their full potential in the context of a joint disaster-response concern (1) the lack of an Acquisition and Cross Servicing Agreement between SEDENA and USNORTHCOM; (2) the lack of a Status of Forces Agreement between the United States and Mexico; and (3) the suboptimal implementation of the 2008 Puerto Vallarta Agreement between the U.S. and Mexican governments "on Emergency Management Cooperation in cases of natural disasters and accidents."[28]

For our case study, we assume that (1) the legal mechanisms through which SEDENA and U.S. Army North personnel can engage to respond to a natural disaster that affects the U.S.-Mexico border have been resolved and an agreement similar to CANUS CAP is in place and (2) U.S. and Mexican armed forces capitalize on the training, emergency management, and joint operations that USNORTHCOM provides. This bilateral security cooperation relationship would include data-sharing mechanisms aimed at facilitating a successful cross-border disaster response.

Disaster Impact

In the 96 hours immediately following landfall, several casualties are recorded. Hundreds of thousands of people evacuate and seek shelter. There are thousands of homes and businesses destroyed. The estimated casualties for the Mexican side of the border for the first six days after landfall are presented in Table 3.2. Among those who started to evacuate late or

[26] USAID, "USAID Announces Safe from the Start ReVisioned Initiative to Prevent and Respond to Gender-Based Violence in Emergencies," press release, December 6, 2022.

[27] U.S. Army North, undated-a, p. 17.

[28] U.S. Army North, undated-a, pp. 17–18.

TABLE 3.2
Estimated Population Numbers for Mexico, by Status and Day After Landfall

Population	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
Fatalities	356	420	512	621	650	756
Treated	2,014	2,789	3,214	3,899	4,056	5,200
Hospitalized	560	856	945	1,623	2,300	2,898
Evacuees	300,254	389,00	421,000	452,000	512,000	560,000
Sheltered	65,000	82,000	120,000	260,456	321,000	356,000

SOURCE: U.S. Army North, 2022.

failed to evacuate at all, there are thousands of individuals who have ended up "trapped in collapsed structures" or "stranded in floodwaters" and are in desperate need of search and rescue operations.[29]

Collapsing structures (e.g., buildings, bridges) and thousands of tons of debris block roads and evacuation routes, limiting the mobility of first responders and victims' access to preidentified shelters. A loss of power in several border areas and the northeastern part of Tamaulipas has a cascading effect on "communications and operational capabilities" and the ability of medical facilities to provide much needed "life sustaining services."[30] Critical infrastructure, including "[a]irports, ports, railways and roads within a 50-mile radius of the hurricane's path are severely to moderately damaged," several medical facilities and preidentified shelters are degraded or damaged.[31] In addition degraded "infrastructure, damaged and congested highways" and damaged or abandoned vehicles limit or delay the access of first responders. Many emergency services are short staffed because emergency personnel are unable to get to their workplace or unit, and damaged communications preclude them from coordinating with the emergency response organizations for which they work.[32]

The damage the hurricane inflicted also results in spills of hazardous materials, including radioactive materials. High winds damage a tank trailer containing 20,000 liters of chlorine that was stationed at the border-crossing station on the Mexican side of the international bridge between Matamoros and Brownsville. As a result, chlorine gas has been released, further complicating local evacuation efforts and limiting the extent to which the international bridge can be used.[33] One of the hospitals in Matamoros is severely damaged by the hurricane and partially collapses "causing radioactive material release," such as radioactive materials that the oncology department uses for cancer treatment purposes, "from medical equipment

[29] U.S. Army North, 2022, p. 11.

[30] U.S. Army North, 2022, p. 15.

[31] U.S. Army North, 2022, p. 12.

[32] U.S. Army North, 2022, p. 15.

[33] U.S. Army North, undated-a, p. 8.

and medical supplies on site."[34] In addition, severed oil and gas pipelines lead to spills, leakages, and, ultimately, fires breaking out in the affected locations and their surrounding areas. The atmosphere of uncertainty and fear on the ground leads some individuals to engage in looting of homes and businesses as a way to "secure life-sustaining items and commodities."[35]

Some of the main activities that U.S. Army North and SEDENA carry out together involve

- joint search and rescue operations that U.S. and Mexican armed forces carry out to locate, extract, and provide medical assistance to individuals who were trapped in collapsed buildings or stranded in floodwaters[36]
- mortuary services and victim identification for the hundreds of fatalities that have occurred, because "there is a need for temporary morgue facilities; victim identification; and processing, preparation, and disposition of remains"[37]
- medical system support through the provision of emergency medical assistance, transport of "patients to medical facilities," and support to restore medical facilities.[38]

In addition to these activities, joint activities between U.S. and Mexican armed forces are carried out to provide support in several critical areas that have incurred damage or been affected by the hurricane. These activities include emergency route clearance "to facilitate first responder access into the hardest hit areas," assistance with "coordinating alternate transportation services" and restoring power and other critical infrastructure, provision of "temporary roofing assistance for homes and businesses," and assistance to law enforcement "to maintain law and order and protect private property."[39]

Some of the major barriers to joint disaster response that U.S. Army North and SEDENA encounter are related to binational planning (e.g., lack of MEXUS CAP or a binational disaster-response plan), communications (e.g., presence of language barriers and lack of adequate knowledge of how each other's radios function), and absence of an agile and expeditious legal framework for a DoD-SEDENA joint cross-border response "to address immediate response actions at the border that are necessary to save lives."[40] An additional barrier to a joint U.S. Army North-SEDENA disaster response concerns data-sharing between the two countries' military organizations (including access to operational data). Although open-source demographic data (which is imperfect and not detailed enough from a gender perspec-

[34] U.S. Army North, "Inject 6 FA 22: Hospital Collapse—Radiation Hazard," undated-b, Not available to the general public, slide 1.

[35] U.S. Army North, 2022, p. 16.

[36] U.S. Army North, 2022, p. 11.

[37] U.S. Army North, 2022, p. 11.

[38] U.S. Army North, 2022, p. 12.

[39] U.S. Army North, 2022, p. 12.

[40] U.S. Army North, undated-a, pp. 2, 12, and 17.

tive) is usually available for both Mexico and the United States, the sharing of operational data for government organizations in general—and for defense organizations, specifically—is usually restricted. This restriction makes it difficult to train and prepare jointly for disaster response.

Gender Dimensions of Disaster Response: Case Study

In this case study, we present a complex disaster scenario that results in catastrophic effects on both sides of the U.S.-Mexico border, requires cross-border coordination, and necessitates that the Mexican government leverages additional U.S. capabilities. Potential missions that DoD forces, through the conduit of U.S. Army North, might be asked to provide with SEDENA include CBRN response, urban search and rescue (US&R), medical evacuation, and engineering. All these missions require a full understanding of the human terrain to effectively and equitably provide relief to those most in need. Therefore, including a gender perspective across all lines of effort and in all aspects of the mission, including mission planning and strategic communication, is essential. In the following subsections, we describe practical examples of how the inclusion of gender perspectives would affect the scenario underpinning our case study.

Mission Planning and Availability of Sex, Age, and Disability Disaggregated Data

UNSCR 1325 states that gender perspectives should be considered in both military planning and in the conduct of operations because their presence will strengthen the success of a mission, lead to longer-lasting outcomes, and mitigate future challenges. One of the clearest ways to incorporate gender perspectives into military planning is to conduct a gender analysis of the area of responsibility as part of the information preparation of the battlespace. This is primarily done through the collection and use of SADDD, the use of which is vital in humanitarian crises because these data help shape the response teams' understanding of the sociocultural environment and better predict the needs of crisis-affected populations. Studies have shown that when SADDD are not collected or considered in crisis-response planning activities, their absence leads to poorer lifesaving and livelihood outcomes.[41] For example, in the aftermath of the 2004 Indian Ocean tsunami, a gender analysis revealed that more than two-thirds of fatalities were women because they were at home when the disaster struck, while men were out fishing and survived.[42] This situation led to many men losing their wives

[41] Dyan Mazurana, Prisca Benelli, and Peter Walker, "How Sex- and Age-Disaggregated Data and Gender and Generational Analyses Can Improve Humanitarian Response," *Disasters*, Vol. 37, No. 1, July 2013.

[42] Mazurana, Benelli, and Walker, 2013.

or caregivers for their children.[43] Subsequently, in the aftermath of the disaster, an increase in the number of young brides and early pregnancies were recorded, as were other negative gender outcomes. Had sex and age data been assessed earlier in the response, these outcomes might have been mitigated.

The collection of SADDD in Mexico has progressed significantly. However, there is more work to be done to collect SADDD in a systematic way and allow users to access them and carry out precrisis analyses, as well as provide nonlocal responders with the necessary information to address the needs of local communities during emergency response. A primary resource for statistical and geographical information in Mexico is INEGI, which operates independently from the Mexican government. INEGI produces information about territories, resources, population, and economy, and it validates government information on the same variables.[44] The independence granted to INEGI has helped it to further data collection and data use in country.[45] Although much of the requisite SADDD exist, they are not always standardized or collected routinely. As of 2020, Mexico had collected data that inform approximately 70 percent of the UN's sustainable development goals.[46] The sustainable development goals are part of an agreement by UN member nations to achieve gender equality by 2030. Reasons for gender data gaps include a lack of data for certain indicators, inability to regularly monitor data, and a lack of comparable methodologies.[47]

The collection of SADDD is essential across all phases of disaster planning and response. Collection of data before a disaster occurs allows for mitigation and preparedness actions to target specific groups or subgroups within the population. These actions can include ensuring that early warning systems effectively reach the entire affected population. SADDD, when considered predisaster, can also help assess gender-related risks. Consideration of SADDD early in the response can ensure life-saving interventions and account for gender-differentiated needs in relief supplies. For example, response kits could include diapers, breastfeeding supplies, and other supplies that are critical for women and children in the aftermath of a disaster. Gender considerations should also be incorporated into search and rescue and administration of health services, which will be discussed later in this chapter.

Chemical, Biological, Radiological, and Nuclear Events

In the scenario underlying this case, there are several CBRN events, such as a chlorine gas spill that causes damage at the border crossing between Mexico and the United States. Adding potential CBRN events to an existing crisis, such as the one generated by the Category 5 hur-

[43] Mazurana, Benelli, and Walker, 2013.

[44] INEGI, "About the INEGI," webpage, undated-a.

[45] For examples of the type of data that INEGI collects, please see Appendix C.

[46] UN Women, "Women Count," webpage, undated.

[47] UN Women, undated.

ricane landfall, requires a cross-border, multi-unit response. A gendered approach to CBRN operations has been elevated after the Fukushima Daiichi nuclear power plant disaster that occurred during the 2011 Tōhoku earthquake and tsunami. The Sendai Framework, which was developed in 2015 at the Third UN Conference on Disaster Risk Reduction (DRR), identified gaps in integration of gender perspectives in DRR and suggested improvements.[48] The framework advanced the discussion of gender perspectives in DRR; they progressed from a tool for only the reduction of vulnerabilities to one for development of capacity, thus increasing the participation of women in DRR roles. This progress was driven by the finding that, in the 2011 earthquake and subsequent nuclear disaster, evacuation centers were primarily run by men. The perspectives of the female population were excluded and their needs were not met.[49]

As with other operations, when CBRN operations occur during a disaster in a complex environment, there are advantages to be gained from considering how those aspects can affect different groups, particularly vulnerable populations. These impacts might include disproportionate effects on women and children during the disaster, differences in risk perception that influence decisions to evacuate, psychosocial impacts differentiated by gender, and differences in needs of vulnerable populations during decontamination and recovery operations.[50] For example, research conducted after the Fukushima disaster identified that risk perception related to radiation exposure was "associated with sex, age, the presence of children, knowledge, and cultural worldview."[51] In this scenario, it is important to understand how different populations in the affected area might respond to notices of evacuation and account for that in outreach and education initiatives. Additionally, CBRN disasters require technical skill to identify, which can cause some populations to be distrustful of the technical information with which they are presented and which is often difficult to convey in plain language.[52] These events also induce fear and increase individual uncertainty, which can lead to misunderstandings among the affected population. In this case, it is important to consider culturally sensitive approaches to communication during an evacuation. Finally, as

[48] United Nations Office for Disaster Risk Reduction, *Sendai Framework for Disaster Risk Reduction 2015–2030*, March 18, 2015.

[49] Katrina Gehman, "Operationalizing Women, Peace, and Security," SOLLIMS Lessons Learned Sampler, Vol. 8, No. 2, November 2017.

[50] Gehman, 2017, p. 13.

[51] Hiroko Hori, Makiko Orita, Yasuyuki Taira, Takashi Kudo, and Noboru Takamura, "Risk Perceptions Regarding Radiation Exposure Among Japanese Schoolteachers Living Around the Sendai Nuclear Power Plant After the Fukushima Accident," *PLoS One*, Vol. 14, No. 3, 2019, p. 3.

[52] Steering Committee on An All-of-Government Approach to Increase Resilience for International Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) Events, "Capabilities for Effective Response to an International CBRN Event," in National Research Council, ed., *An All-of-Government Approach to Increase Resilience for International Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) Events: A Workshop Summary*, National Academies Press, 2014.

in other disasters, gendered considerations should be incorporated into planning for evacuation sites to ensure that the needs of these populations are included.

Although this approach addresses vulnerability reduction, there are also considerations for increasing capacity by increasing the meaningful participation of women in these types of operations. As was demonstrated during the Fukushima disaster, the prevalence of men in disaster-response organizations led to the disregard of gender-specific needs during the response. Therefore, it is important to consider barriers that might affect the inclusion of women in the disaster response. Specific to our scenario, there is an opportunity to address these barriers through cross-border partnership and training that focuses on increasing the participation of women in occupational specialties that are involved in responding to CBRN events. For instance, CBRN responses require special equipment; there is a need to ensure that this equipment accounts for gender-based differences in physical requirements as a way to reduce friction that affects female responders. Likewise, CBRN responses are often very technical undertakings, which might cause women to self-select out of the corresponding occupational specialties, as they have in other technical specialties.[53] Identifying incentives or pathways to encourage more women to participate in these specialties is encouraged.

Urban Search and Rescue

US&R operations are another likely military response to the disaster that will require cross-border coordination and inclusion of gender considerations. Within Tamaulipas, 90 percent of the population lives in an urban environment. This complex urban terrain poses significant challenges to US&R operations because of "large, densely populated regions, often involving high, extended building blocks with complicated street patterns, and socially diverse populations with ethnic, religious and linguistic issues."[54] Urban areas are complex environments in which gender intersects with differences in age, education, family structure, and other demographic factors. Therefore, analysis of the urban environment should not only account for the gender context but also should be assessed through other overlays. For instance, in Tamaulipas, demographic data related to family structures, education levels, and disabilities exist, but not all of these data are sex-disaggregated. In an urban environment, the interplay between gender and infrastructure and communication will affect the efficacy of military US&R.

Of particular concern in this scenario would be considerations related to criminal organizations that impose challenges to accessing communities, and migrants transiting through the area who might not be accounted or planned for in evacuation efforts. According to official records, only 3 percent of residents of Tamaulipas are migrants who come from other

[53] Steering Committee on An All-of-Government Approach to Increase Resilience for International Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) Events, 2014.

[54] Milt Statheropoulos, Agapios Agapiou, George C. Pallis, K. Mikedi, Sofia Karma, Pierina Julia Vamvakari, Miranda Dandoulaki, Fivos Andritsos, and Charles L. Paul Thomas, "Factors That Affect Rescue Time in Urban Search and Rescue (USAR) Operations," *Natural Hazards*, Vol. 75, No. 1, January 2015, p. 58.

Mexican states, mostly from Veracruz.[55] However, the state is a key transit route for migrants who mainly come from Central America.[56] These migrants are trying to reach the United States in high numbers, leaving shelters unable to attend to their needs.[57] These shelters are in a state of saturation, and migrants experience deplorable living conditions.[58] Moreover, there is no official record of foreign migrants because their contact with authorities mainly occurs when some migrants are detained for not presenting papers that validate their legal stay.[59] Aside from the physical violence and extortion perpetrated by some authorities against them, migrants also face the risk of violence from criminal organizations or being captured for purposes of human and sex trafficking.[60] Since the mid-2000s, Tamaulipas has been the site of several massacres of migrants; mass graves have been found in the cities of San Fernando in 2010, allegedly perpetrated by Los Zetas, and Camargo in 2021. According to the investigation by the State Prosecutor, the Camargo incident points to the elite unit of the state police.[61] There are several groups that have historically been linked to illegal migrant trafficking (e.g., the Juárez Cartel, Los Caballeros Templarios [Knights Templar]), but the Gulf Cartel and Los Zetas were for some time the main groups involved in violence against migrants, as evidenced by the appearance of mass graves and the testimonies of victims who escaped from the cartels.[62]

Studies have shown that immigration status intersects with other vulnerability factors—such as gender, race, and income—making these vulnerable groups even more vulnerable

[55] INEGI, undated-e.

[56] In general, most of the migrants who go through Mexican territory come from the Northern Triangle of El Salvador, Honduras, and Guatemala (Comisión Nacional de los Derechos Humanos [Human Rights National Commission], *Los Desafíos de la Migración y los Albergues Como Oasis. Encuesta Nacional de Personas Migrantes en Tránsito por México [The Challenges of Migration and Shelters as Oasis. National Survey of Migrants in Transit Through Mexico]*, 2018).

[57] In 2022, local authorities identified at least ten routes of about 300 kilometers toward the United States via Tamaulipas "Tráfico de Migrantes de México Hacia Texas: Identifican 10 Rutas de Nuevo León Hasta Tamaulipas" ["Migrants Trafficking from Mexico to Texas: 10 Routes from Nuevo León to Tamaulipas Identified"], *AldíaDallas*, April 21, 2022.).

[58] "Los Albergues de Migrantes en Reynosa, Tamaulipas, Quedan Saturados" ["Migrant Shelters in Reynosa, Tamaulipas, Are Saturated"], *AldíaDallas*, May 4, 2022.

[59] Portal de Datos Sobre Migración [Migration Data Portal], "Datos Migratorios en Centroamerica" ["Migration Data in Central America"], 2021.

[60] María Dolores París Pombo, Melissa Ley Cervantes, and Jesús Peña Muñoz, *Migrantes en México: Vulnerabilidad y Riesgos* [*Migrants in Mexico: Vulnerability and Risks*], International Organization for Migration and El Colegio de la Frontera Norte [The College of the Northern Border], 2016.

[61] Alfredo Peña, "El Grupo Detrás de la Masacre de Camargo" ["The Group Behind Camargo Massacre"], *Nexos*, February 8, 2021; Anel Tello, ""México Tumba de Migrantes: de la Masacre en Tamaulipas al Incendio en Ciudad Juárez" ["Mexico Tomb of Migrants: From the Massacre in Tamaulipas to the Fire in Ciudad Juárez"], Infobae, March 28, 2023.

[62] Steven Dudley, "Parte III: La Ruta del Peligro" ["Part III: The Danger Path"], InSightCrime, November 28, 2012.

during and after a disaster.[63] When overlapping vulnerability factors converge, suffering is worse. Migrant communities are often exploited and discriminated against. Often, they fear deportation, which requires special consideration when planning for disaster response. These groups are often the most vulnerable during a disaster and the least prepared because of a lack of knowledge and resources about disaster preparedness.[64] Biases toward these groups among responders often causes them to be overlooked in response efforts, including search and rescue. These groups are often homogenized because of a lack of understanding of intersectionality. Awareness of the needs of these diverse populations is essential to ensure equitable responses and to alleviate human suffering. This awareness can begin with identifying the exact locations where migrant communities are located. It also includes understanding the needs of migrant communities and how their individual life experiences affect their reactions in the face of disasters.

Lastly, individuals with problematic substance use in treatment centers are another vulnerable group that is often neglected in evacuation, search and rescue, or other disaster-response–related activities. Intersectionality might exacerbate the risks that this population faces. A study focused on women and children who were sent to a treatment center against their will in Mexico found that patients suffered mental, physical, and sexual abuse and that the treatment was based on a series of punishments and moral judgements.[65] Information about this population group is limited, and official information about the number of centers in the state is inconsistent. According to the Sistema de Vigilancia Epidemiológica de las Adicciones [Addiction Epidemiological Surveillance System], there are 22 treatment centers that are part of the National Addiction Treatment Network.[66] Another source indicates that there are nine official specialized residences for addiction treatment, five of which are located in Nuevo Laredo. Four of these residences do not charge the residents and two accept contributions. Seven accept only men. The rest accept both men and women.[67] The number of individuals in such centers across the state of Tamaulipas is unknown; however, the Observatorio Mexicano de Salud Mental y Consumo de Sustancias Psicoactivas [Mexican Observatory

[63] Michael Méndez, Genevieve Flores-Haro, and Lucas Zucker, "The (In)visible Victims of Disaster: Understanding the Vulnerability of Undocumented Latino/a and Indigenous Immigrants," *Geoforum*, Vol. 116, November 2020.

[64] Méndez, Flores-Haro, and Zucker, 2020.

[65] Corina Giacomello and Mariana López, "Irregularidades y Abusos en los Tratamientos para Usuarios de Drogas en México" ["Irregularities and Abuses in Treatment for Drug Users in Mexico"], *Nexos*, 2020.

[66] Government of Mexico, "Directorio de Establecimientos Especializados en el Tratamiento de las Adicciones en Modalidad Residencial Reconocidos por la Comisión Nacional de Adicciones" ["Directory of Establishments Specializing in the Treatment of Addictions in a Residential Modality Recognized by the National Commission on Addictions"], webpage, August 16, 2018.

[67] Observatorio Mexicano de Salud Mental y Consumo de Sustancias Psicoactivas [Mexican Observatory of Mental Health and Consumption of Psychoactive Substances], *Informe Sobre la Situación de la Salud Mental y el Consumo de Sustancias Psicoactivas en Mexico [Report on the Situation of Mental Health and the Consumption of Psychoactive Substances in Mexico]*, 2021.

of Mental Health and Consumption of Psychoactive Substances] reported that most of the mental health problems that are related to the use of substances are associated with cocaine consumption.[68]

As with CBRN event response, there is an underrepresentation of women in US&R career fields or occupation specialties in both Mexico and the United States.[69] Health services, particularly nursing, are the only military career field in which women are overrepresented in the Mexican armed forces.[70] However, having a gender-balanced workforce in these specialties would allow for women to respond in culturally sensitive situations. Gender-balanced teams often bring strong interpersonal dynamics to a situation, which can make these teams more effective at certain tasks.[71] Assessments of internal workforce dynamics, policies, and cultures that discourage women from entering these specialties should be conducted. In addition, we recommend that structural barrier analyses be done to understand why women might be less likely to deploy on these types of missions.

Medical Evacuation

Medical evacuation is a mission area in which the U.S. military would likely be called on to assist the Mexican government in the immediate aftermath of a natural disaster. A medical evacuation is a quick-response medical capability that provides en route medical care to injured patients via airlift, most often via helicopter. Gender perspectives can be leveraged to great effect in two ways when it comes to medical evacuations. First, studies have shown that there are gender-based differences in medical needs; understanding these differences and being aware of their existence can ensure appropriate care for the entire population.[72] Second, sensitivities, either cultural or otherwise, might cause women to prefer care or only access care that is administered by someone of the same gender; therefore, ensuring a gender-balanced workforce can reap operational rewards.[73]

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[68] Observatorio Mexicano de Salud Mental y Consumo de Sustancias Psicoactivas, 2021.

[69] Zippia, "Helicopter Search and Rescue Aircrew Swimmer Demographics and Statistics in the US," webpage, undated.

[70] We appreciate this suggestion from Catherine Lantigua, of USNORTHCOM, who is the Training Section Chief and Mexico Gender Advisor in the Office of Defense Coordination at the U.S. Embassy in Mexico City.

[71] Max Witynski, "What Happens When Women and Men Work Together?" *Northwestern Now*, August 29, 2022.

[72] Julie M. Bateman and Bob Edwards, "Gender and Evacuation: A Closer Look at Why Women Are More Likely to Evacuate for Hurricanes," *Natural Hazards Review*, Vol. 3, No. 3, 2002; Erman et al., 2021; Pamela Jenkins, John L. Renne, and John Kiefer, "Gender Differences in Self-Reported Evacuation Experiences: Analysis of the City Assisted Evacuation Program During Hurricane Gustav," in *Women's Issues in Transportation: Summary of the 4th International Conference*, Transportation Research Board, Vol. 46, 2010; World Health Organization, 2014.

[73] Witynski, 2022.

Women in lower socioeconomic communities have a higher vulnerability to disaster and often experience higher mortality rates when disaster occurs. This is because of limitations in access to information and lack of agency.[74] Understanding the intersectionality of gender and economic status can inform where medical evacuations are likely to occur. Gender differentiations in emergency medicine are understudied, which results in poor understanding of women's health issues in emergency settings.[75] In trauma settings, women are less likely to be transported directly to a trauma center, which can lead to delays in the care provided to female patients and subsequent negative health outcomes.[76] Additionally, women's maternal health needs call for differentiated postdisaster health response. Being aware of these gender differentiations when it comes to emergency medicine and evacuation can ensure an equitable response that reduces human suffering across the entire population.

Capitalizing on the existing infrastructure is essential. The Defense Institute for Medical Operations is in charge of the first Combat Casualty Care training for the Mexican armed forces. The National Association of Emergency Medical Technicians is the certifying authority of this five-phase training program that includes directions from USNORTHCOM gender advisers regarding a gender-balanced composition of trainee cohorts. The first cohort completed certification in September 2023.[77]

Engineering

Often, the military provides debris removal, bridging, and other engineering capabilities to address damage to infrastructure. Although these capabilities are essential postdisaster, understanding how gender perspectives affect rebuilding efforts could provide insight into how these capabilities should be employed in concert with other recovery efforts and a holistic response. Underestimation of men's and women's perspectives on postdisaster recovery efforts can misidentify community priorities because gender perspectives influence prioritization. Research has shown that gender differences exist between men's and women's perception of the most-important and difficult challenges following a hurricane. One study revealed that, for women, physical factors, such as repairs to such major infrastructure as highways and bridges, are less of a priority than other issues, such as economic and social factors.[78] When ranking physical challenges, women were more concerned about damage to build-

[74] Erman etal., 2021, p. 19.

[75] Alyson McGregor and Esther K. Choo, "The Emerging Science of Gender-Specific Emergency Medicine," *Rhode Island Medical Journal*, Vol. 98, No. 6, June 2013.

[76] Rebecka Rubenson Wahlin, Sari Ponzer, Hanna Lövbrand, Markus Skrivfars, Hans Morten Lossius, and Maaret Castrén, "Do Male and Female Trauma Patients Receive the Same Prehospital Care? An Observational Follow-Up Study," *BMC Emergency Medicine*, Vol. 16, No. 6, 2016.

[77] We thank Catherine Lantigua for providing us with these insights.

[78] Behzad Rouhanizadeh and Sharareh Kermanshachi, "Gender-Based Evaluation of Economic, Social, and Physical Challenges in Timely Post-Hurricane Recovery," *Progress in Disaster Science*, Vol. 9, January 2021.

ings and housing, followed by access to medical services.[79] Men were more concerned about physical impacts than they were with economic and social impacts.[80] This discrepancy in priorities demonstrates that, while infrastructure damage is an issue, it is not as central to gendered considerations relative to other issues, such as employment, immediate economic resources, access to food, and GBV. Understanding these concerns and preferences from a gender perspective can mitigate negative recovery impacts, particularly when it comes to speed of delivery for recovery efforts. It also can lead to proper planning for and prioritization of postrecovery efforts.

Gender-Based Violence

Research clearly demonstrates that, in the wake of disasters, women and girls face a heightened risk of experiencing violence.[81] To address this reality, it is imperative for disaster-response teams to not only be aware of the likelihood that women will face GBV but also to have prepared appropriate strategies for managing it. GBV prevention and management could come in multiple forms, including awareness, personnel decisions, and infrastructure choices. For instance, briefings for disaster-response teams could include information about the ways in which disasters often drive increases in GBV, as well as the most common signs of GBV occurrence—even the most subtle signs. By improving awareness of and training regarding GBV, response teams will be better equipped to identify and respond appropriately to situations involving GBV. In addition to training and awareness, the high likelihood of GBV in disaster environments should inform personnel decisions. Although a primary focus for military personnel might be on specific tasks, such as evacuations and search and rescue, including individuals with appropriate social services or legal knowledge in response operations to address encounters with victims of GBV would facilitate a more effective response.[82] Finally, if the military assists with standing-up shelters or camps for disaster victims, specific efforts should be made to create and protect safe spaces for women and girls. Even such factors as poor lighting can increase the vulnerability of women and girls to GBV; ensuring that safety is paramount in shelters and camps would be an effective approach to reducing exposure to GBV.[83]

[79] Rouhanizadeh and Kermanshachi, 2021.

[80] Rouhanizadeh and Kermanshachi, 2021.

[81] Neetu John, Sara E. Casey, Giselle Carino, and Terry McGovern, "Lessons Never Learned: Crisis and Gender-Based Violence," *Developing World Bioethics*, Vol. 20, No. 2, June 2020.

[82] Shalini Mittal and Tushar Singh, "Gender-Based Violence During COVID-19 Pandemic: A Mini-Review," *Frontiers in Global Women's Health*, Vol. 1, September 2020.

[83] Sarah Fisher, "Violence Against Women and Natural Disasters: Findings from Post-Tsunami Sri Lanka," *Violence Against Women*, Vol. 18, No. 8, 2010, p. 909.

Strategic Communication

In the wake of a natural disaster, not only does the military conduct emergency and rescue operations, it also provides communications to the public to increase popular awareness of the efforts it is undertaking. As with any kind of communication around sensitive issues—in this case, specifically regarding a disaster—an organization would highly benefit from increased mindfulness and sensitivity toward the stories it is telling, particularly in situations when the stated narrative could propagate stereotypes of the population groups it is targeting. Literature on media environments in the wake of natural disasters highlights the fact that popular outlets have, often inadvertently, perpetuated stereotypes around race or gender in their coverage.[84] In the same vein, military organizations would benefit from broader considerations regarding the stories they are telling about the work they carry out on the ground, the service members and tasks they highlight, the ways in which they describe the populations that require assistance, or how gender considerations and a critical gender lens could inform more-sensitive information-sharing. For example, literature addressing media coverage of Hurricane Katrina noted that race likely served as at least a contributing factor to the intense focus on violent crime in the New Orleans area.[85] This includes one anecdote in which allegations were reported by media outlets that a National Guard helicopter had to abort a hospital rescue mission after being the target of heavy gunfire; after the fact, National Guard officials clarified for the record that this story was entirely false.[86] One lesson that could be drawn from such an example is the value of clear communication from disaster-relief teams and government officials about both what is *and* what is not happening, to accurately inform media reporting that could stray into harmful stereotyping that, in turn, can affect response efforts.

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[84] Kevin T. Baaske and Megan A. Baaske, "ISSA Proceedings 2006: Hurricane Katrina: An Argumentative Analysis of Race and Gender Issues in the Media Coverage of a Natural and National Disaster," *Rozenberg Quarterly*, 2006.

[85] Samuel R. Sommers, Evan P. Apfelbaum, Kristin N. Dukes, Negin Toosi, and Elsie J. Wang, "Race and Media Coverage of Hurricane Katrina: Analysis, Implications, and Future Research Questions," *Analyses of Social Issues and Public Policy*, Vol. 6, No. 1, 2006.

[86] Sommers et al., 2006.

CHAPTER 4

Conclusions and Recommendations

Mainstreaming gender perspectives into disaster response ensures equitable response and secures operational benefits. Existing literature shows that different populations experience disasters differently. The impacts of a disaster are not gender neutral; therefore, understanding the way that differences in gender, race, socioeconomic, and other factors affect an individual's risk vulnerability can improve how organizations respond to a natural disaster. Additionally, research has shown that including women in disaster response can lead to better outcomes and increased resiliency when individuals experience disasters. In this case study, we provided examples of how a gender perspective can be mainstreamed into DoD's response to a foreign disaster using a fictional Category 5 hurricane scenario occurring on the U.S.-Mexico border, with a particular focus on the state of Tamaulipas, Mexico. Activities that are likely to occur, such as US&R, medical evacuation, CBRN event response, and reconstruction would all benefit from the inclusion of WPS principles. In this chapter, we present findings from our research and recommendations for DoD and Mexican armed forces stakeholders who participate in disaster response.

Key Findings

Our findings are presented in two parts. The first set of findings comes from the literature review we conducted and highlights important gender dimensions in disaster response. These findings are broadly applicable to all organizations conducting disaster response. The second set of findings is specific to the Mexico case study and the military activities included in the scenario we presented in Chapter 2. Although these findings are more context-specific and apply mostly to DoD and Mexican armed forces personnel who perform disaster response, they do have broader lessons for the emergency management community in both the United States and Mexico, particularly for organizations operating in the region of interest.

Key findings from the broader literature related to gender dimensions of disaster response consist of the following:

- Mainstreaming gender perspectives into disaster response is recognized as a best practice because disaster impacts are experienced differently across different societal groups, with significant differences in the experiences of men and women. Differences

in gender-specific impacts might be exacerbated in societies in which gender inequalities already exist, such as Mexico,.

- Women have been historically underrepresented in disaster-response efforts, but research shows that their inclusion can lead to more-equitable responses and increased societal resilience after disasters.
- Gender differentiated impacts are present across phases in the entire emergency management cycle, including disaster preparedness and mitigation efforts, immediate disaster response, and long-term disaster recovery efforts. These gender-differentiated impacts include risk perceptions, evacuation behavior, health outcomes, education access, economic outcomes, vulnerability to violence, and coping capacity.
- During and after disasters, women and girls face a heightened risk of experiencing GBV. Gender disparities in emergency health have also been well documented. Women in lower income brackets often experience higher mortality rates during a disaster because of limited access to information and lack of agency. Women in trauma settings are also less likely to be directly evacuated to trauma centers, which can lead to negative health outcomes. Emergency medicine is also centered on the male health experience, which does not account for women's specific emergency health needs. Awareness of these biases and gender differentiations can help reform medical evacuation processes and lead to more-equitable response.
- The intersectionality between gender and other socioeconomic and demographic factors (e.g., the risk of GBV during a disaster for indigenous women of lower socioeconomic status) is an important consideration when conducting a gender analysis for disaster response. Overlapping vulnerability factors compound and make individuals much more susceptible to risk.
- Gender analyses for disaster response benefit from the systematic collection and integration of SADDD into disaster-response planning as these data inform the understanding of the environment and better predict the needs of the crisis-affected populations. Moreover, SADDD have historically been used in post-disaster analyses rather than in disaster-response planning ahead of crises.

Case specific findings consist of the following:

- Mexico's INEGI provides an independent and excellent source of SADDD that can be used to track gender inequality metrics. However, gender data gaps still exist because of a lack of standardization, a lack of disaggregation by gender for other demographic data measurements, and an inability to routinely collect the respective data.
- Natural disasters are fear-inducing occurrences, especially when several crises overlap (as they do in the scenario included in this report, which also included a chemical spill occurring during the hurricane). Lessons learned from previous CBRN response operations indicate that there are gender differentiations in risk perception related to risk exposure. When complex crises also involve CBRN events, the level of uncertainty that

individuals experience increases, and disinformation or lack of trust in the information available to groups of vulnerable populations (including gender groups) often occur during disaster response. As a result, tailored and gender-sensitive approaches to evacuation communication are key to the success of evacuation efforts.

- In the event of a disaster that exceeds Mexico's capacity to respond, the Mexican government will likely ask USNORTHCOM to carry out US&R operations in a complex disaster environment. Tamaulipas is an urban environment where 90 percent of the population lives in urban areas that present a complex disaster environment. Highly diverse populations live in small, concentrated areas, and challenging infrastructure increases disaster impacts. Migrants and drug treatment participants living in shelters are two large and vulnerable populations whose evacuation needs during a disaster are often ignored and intersect with gender dimensions.
- In the United States and Mexico, women are underrepresented in military occupational specialties that would conduct US&R and CBRN operations in a complex disaster scenario in which several crises are present. Women can play key roles in the conduct of US&R and CBRN operations during disaster response.
- Because of the complexity of coordination among several institutions at the local, state, and national levels and the need for cross-border coordination, there may be variations in approaches to disaster response and the inclusion of gender perspectives.
- In the absence of a MEXUS CAP, the complexity of coordination among several institutions at the local to national levels might lead to variations in approaches to disaster response and the inclusion of gender perspectives and is likely to significantly hinder unity of effort in a joint cross-border disaster response. For example, forces from both countries are not conducting joint trainings and are, therefore, not familiarized with each others' mechanisms and equipment. Additional factors likely to hinder unity of effort are language barriers and communications and radio interoperability between DoD and SEDENA.

Recommendations

From these findings, we derive the following recommendations for DoD and Mexican armed forces organizations participating in disaster-response operations.

- For all USNORTHCOM component commands, with an emphasis on U.S. Army North, and the Mexican Armed Forces (both SEDENA and SEMAR, including the Gender Observatory and Center for Human Rights):
  - Systematically collect and integrate SADDD into disaster-response planning to facilitate the integration of gender analyses of the disaster-impacted region into the military's efforts geared toward information preparation of the battlespace.
  - Outline in standard operating procedures the standards for usage of SADDD to ensure interoperability for data usage across organizations.

  - Integrate SADDD into disaster planning sooner to determine how gender differentiated impacts can be mitigated, rather than using this information post-disaster as it has been used historically.
- For the Strategic Communications working group within the Bilateral Military Cooperation Roundtable:
  - Identify information gaps and develop strategic communication plans ahead of time to mitigate the impact of uncertainty and disinformation that usually occur during natural disasters.
  - Carefully draw strategic communication plans to meet the needs of different groups. Addressing issues related to both perceptions and information access through a gendered lens clearly emerges as a path for improved disaster response.
- For North American Aerospace Defense Command and USNORTHCOM Strategy, Policy, & Plans—Civil Support Plans, WPS offices within all USNORTHCOM Component Commands, USNORTHCOM Humanitarian Assistance teams, and (on the Mexican side), SEDENA's Gender Observatory and the civilian organization INMUJERES:
  - Conduct vulnerability assessments and analyses of the urban environment in advance to help prioritize rescue locations and needs.
  - Focus such assessments and systematic analyses of the urban environment on how gender intersects with other demographic factors, such as age, education level, family structure, and immigration status.
- For all USNORTHCOM component commands, with an emphasis on U.S. Army North and the Office of the Surgeon General team within USNORTHCOM; the Mexican Armed Forces; and the medical academic departments within SEDENA and SEMAR:
  - Provide training that advances a deeper understanding about how underlying biases and gender disparities might affect how care is administered to ensure equitable access to health care. An increased awareness of these biases and gender disparities can lead to fuller understanding of their potential impacts and is likely to generate changes to policies and procedures.
  - Capture and codify the best practices that emerge when WPS principles are applied during joint military exercises or training events.
- For the U.S. Undersecretary for Personnel and Readiness, U.S. Military Departments Personnel and Readiness offices; SEDENA, including the Military University; and SEMAR, including the Naval University:
  - Conduct analyses of DoD, SEDENA, and SEMAR workforce military occupational specialties to understand the structural barriers that impede women's meaningful participation in disaster-response efforts.
  - Ensure that these analyses aim to understand which occupational specialties have lower representation of women and why, and follow these analyses with the implementation of measures that address the identified gender imbalances. Solutions might include inter-unit transfers to increase representation or leveraging other components, such as the reserves and National Guard. Many of the expected US&R and

CBRN activities that DoD and Mexican armed forces personnel would likely conduct would benefit from gender-balanced workforces. Other possible solutions might involve the use of female engagement teams, gender advisers, and civil affairs units that are specifically designed to be culturally responsive to local populations.

- For DoD and the Office of the Secretary of Defense, SEDENA, and SEMAR:
  - Codify disaster response and the inclusion of gender perspectives through policy and standard operating procedures, including through the development and signing of a formal bilateral MEXUS CAP, to strengthen cross-border coordination and create a unified disaster response at the local and national levels in Mexico and the United States. The implementation of such a bilateral document would advance interoperability between DoD and SEDENA disaster-response teams (including communications), and "provide unity of effort during bilateral support for civil support operations, in order to save lives, prevent human suffering and mitigate damage to property."[1]
  - Integrate Mexican armed forces inclusion and gender equity teams into joint DoD-SEDENA-SEMAR response teams, to the extent possible.

[1] U.S. Army North, 2022, p. 17.

APPENDIX A

Questions for Discussion

In this appendix, we list discussion questions that can serve as a starting point for U.S. and Mexican armed forces organizations to engage with the Women, Peace, and Security framework.

Overarching Questions for Discussion

- What are the primary capabilities that the U.S. military brings to bear during foreign disaster response and in which areas can a gender lens be applied?
- What are the lessons learned from previous foreign disaster-response efforts that demonstrate cases in which a gender perspective might have been helpful?

Disaster-Response Planning

- What type of data might be useful in an operational gender analysis to complement the intelligence preparation for a disaster-response mission? What are potential sources for collecting sex, age, and disability disaggregated data (SADDD)? Will data access restrictions be an obstacle? Are there bilateral data-sharing agreements in place that can be capitalized on, or will new agreements need to be made?
- What are the effects of gender organizational culture on internal staffing, funding, and programming?
- What are the processes for assessing hazards and risks for vulnerable populations (including vulnerable gender groups)?

Search and Rescue and Evacuation

- What is the gender makeup of search and rescue teams within the organization? What structural barriers exist that could deter women from serving or deploying in these roles during a disaster-response mission?
- What are the policies and procedures for evacuation and how might different vulnerable populations be affected?
- What locations are used for evacuation? How are different populations' needs considered?

Health

- What is the gender make-up of health providers in the organization? What structural barriers exist that could deter women from serving or deploying in these roles during a disaster-response mission?
- What types of care are provided at health facilities and how might access to that care be compromised?
- What access does the population have to psychosocial care?

Chemical, Biological, Radiological, Nuclear, and Explosive Events

- What is the gender make-up of the teams responding to chemical, biological, radiological, nuclear, and explosive (CBRNE) events in the organization? What structural barriers exist that could deter women from serving or deploying in these roles during a disaster-response mission?
- What are the policies and procedures for CBRNE response and evacuation activities, and how might different vulnerable populations be affected?
- What are the processes for assessing hazards and risks for vulnerable populations (including gender)?

Engineering

- What is the gender make-up of engineering teams in the organization? What structural barriers exist that could deter women from serving or deploying in these roles during a disaster-response mission?
- What are the policies and procedures that engineering teams rely on to identify infrastructure rebuilding priorities? How might different vulnerable populations be affected?
- How have different populations' needs been considered in infrastructure rebuilding efforts?

Gender-Based Violence

- What is the gender make-up of the teams who respond to situations that involve gender-based violence (GBV)?
- What training do the disaster-response teams on the ground receive regarding how to address or manage situations that involve GBV? What is the impact on different vulnerable populations?
- How have different populations' needs and GBV consideration been incorporated in efforts to set up of shelters?

Strategic Communications

- How is gender considered in the strategic communications of military organizations in the context of a disaster scenario?
- How are stereotypes approached in disaster-related strategic communications of military organizations? How might different vulnerable populations be affected?
- What are some examples of ways in which the needs of different populations have been considered and incorporated in disaster-related strategic communications from military organizations?

APPENDIX B

Priority Strategy 3.4

In this appendix, we present basic background information for SEDENA's Priority Strategy 3.4. The origins of this priority strategy can be found in the six priority objectives of the National Defense Sectorial Program 2020–2024, in which priority objective 3 is divided into six priority strategies.

First, the National Defense Sectorial Program 2020–2024 is divided in six priority objectives:

1. Promote authentic leadership in all hierarchical levels, which prioritizes military discipline and privileges the morale of the personnel and the well-being of their families;
2. Apply a comprehensive austerity policy and eradicate corruption, through the exercise with honesty and transparency with the Resources assigned to the Ministry of National Defense;
3. Contribute to preserving National Security and ensure internal security;
4. Support government actions in matters of Public Safety, Social Welfare and Economic Development for the benefit of the country's population;
5. Make the operation of the air and land forces more efficient; and
6. Strengthen civil-military relations based on dialogue, openness, transparency and respect.[1]

Second, priority objective 3 is divided into the following six priority strategies:

1. Preserve national sovereignty and independence and defense of the Mexican territory, in order to guarantee the Rule of Law;
2. Strengthen surveillance, control and protection capacities of the national airspace, for the benefit of the safety of the population;
3. Guarantee Internal Security to help maintain the constitutional order and sustainable development of the country;
4. Assist the civilian population in cases of disasters caused by phenomena of natural or human origin, through the application of Plan DN-III-E, in order to mitigate the effects that it produces on the population.

[1] SEDENA, 2020, p. 17.

5. Strengthen the cooperation and projection of the Army and Mexican Air Forces, in order to increase its institutional capacities; and
6. Consolidate Mexico's Joint Operations Training Peace Center [also known as CECOPAM based on its Spanish abbreviation], in the development of peace operations training.[2]

[2] SEDENA, 2020.

APPENDIX C

INEGI-Collected Data and Vulnerable Populations

Using the framework developed by Bradshaw and Arenas, we illustrate how INEGI-collected SADDD could potentially contribute to assessing the level of vulnerability among the population of Tamaulipas.[1] The Bradshaw and Arenas framework is based on previous studies designed by Enarson.[2] According to Bradshaw and Arenas, it is important to assess the level of vulnerability in the context of natural disasters by analyzing a combination of external aspects—such as the risk and the intensity of an external shock—and internal aspects—such as the capacity to confront these shocks without severe damage and with the possibility to recover. To do so, the factors that are key to the population's survival and recovery from natural disasters—such as income, savings, health, nutrition, family safety nets, level of adult dependency, access to transportation, political power, power within the household, and access to emergency resources—must be identified. In that sense, in environments in which fewer of these resources are present, there is a higher likelihood that disasters will have a heightened impact. Examples of such vulnerable populations include households with lower incomes, single-parent families, socially isolated individuals, newer residents, migrants, foreign born citizens, elderly people, children and youth, persons with diseases or mental or physical disabilities, individuals without papers, refugees, indigenous and ethnic groups, institutionalized population, people experiencing homelessness, and women (especially women with lower incomes, elderly women, women with disabilities, women who are heads of their household, women experiencing homelessness, indigenous women, migrant women, isolated women, women in rural communities, or women in violent environments).[3]

Several of these vulnerability factors are present in Tamaulipas. With a median age of 30 years, the age distribution shows that about 39 percent of the population in Tamauli-

[1] Sarah Bradshaw and Ángeles Arenas, *Análisis de Género en la Evaluación de los Efectos Socioeconómicos de los Desastres Naturales [Gender Analysis in the Evaluation of the Socioeconomic Effects of Natural Disasters]*, Comisión Económica para América Latina y el Caribe [United Nations Economic Commission for Latin America and the Caribbean], 2004.

[2] Elaine Enarson, "Through Women's Eyes: A Gendered Research Agenda for Disaster Social Science," *Disasters*, Vol. 22, No. 2, June 1998.

[3] Bradshaw and Arenas, 2004, p. 12.

pas is between 30 and 59 years old; 30 percent are 0 to 17 years old, 19 percent are 18 to 29 years old, and 12 percent are 60 or older. This distribution results in a dependency ratio of 49 dependents (those between 0 to 14 years old and those 65 years or older) for every 100 people of working age (those between 15 and 64 years old). Moreover, about 4.8 percent of the population has a disability, 1.3 percent has a mental health condition, and 10.9 percent has some sort of mental or physical limitation. Out of the population with some sort of disability, 52.4 percent are women. Specifically, about 47 percent have difficulties moving, walking, or using stairs and require a person to assist them or a wheelchair or other equipment. About 45 percent have lost sight in one or both eyes or are visually impaired even when using glasses. Twenty percent have lost hearing in one or both ears, or are hearing impaired even when using a hearing device. Sixteen percent have a speech or language impairment that does not allow for verbal communication.[4]

Sixty-two percent of households are considered to be nuclear families (parents with children, one parent with children, or a couple without children); the rest are considered extended family (aunts, cousins, grandparents, etc.). Thirty-one out of each 100 households identify a woman as the head of household. Twelve out of each 100 individuals do not speak Spanish and instead speak indigenous dialects, such as Náhuatl, Huasteco, Totonaco, and Zapoteco. Additionally, about 1.2 percent of the population identify as Afromexican or Afro-descendants. Out of the households registered, about 2 percent are temporary, and about 1.5 percent do not have manufactured flooring so the inhabitants sleep directly on the ground.[5]

About 50.8 percentage of inhabitants in Tamaulipas are women, and about 3.3 percent of those older than 15 (87,614 individuals) identify as LGBTIQ+ either by their sexual orientation (81.8 percent), gender identity (10.6 percent), or both (7.6 percent).[6] Out of women who gave birth in 2019 in the state, approximately 16 percent are 20 years old or younger. Women older than 12 have an average of two children. However, this average is higher for widows (4.5), women who are separated (2.7), and divorcees (2.5).[7] Moreover, 57.8 percent of Tamaulipas women older than 15 have experienced some type of violence in their lives; 37 percent experienced violence in the year previous to the survey conducted in 2019. Data also indicate that 34 percent of women in Tamaulipas have experienced aggression from their partners during their relationship. Out of women who are in a relationship, one-fourth had married or cohabitated with their partners for the first time before they turned 18. Moreover, 40 percent

[4] INEGI, "Presentación de Resultados del Censo 2020" ["Presentation of Results of the 2020 Census"], briefing slides, undated-c.

[5] INEGI, undated-c.

[6] INEGI, "Conociendo a la Población LGBTI+ en México" ["Getting to Know the LGBTI+ Population in Mexico"], undated-b.

[7] INEGI, "Promedio de Hijos Nacidos Vivos de las Mujeres de 12 y Más Años por Entidad Federativa Según Estado Conyugal, Años Censales de 2000, 2010 y 2020" ["Average Number of Children Born to Women Age 12 and Older, by Federal Entity and Marital Status, Census Years 2000, 2010, and 2020"], webpage, undated-d.

of those women indicated suffering some form of physical, emotional, or sexual violence. When disaggregating by type of violence, we learned that 39 percent of women have experienced emotional violence, 27 percent experienced physical violence, 36 percent suffered sexual violence, and 26 percent experienced economic violence.[8] And sometimes, these forms of violence result in death. In 2018, 132 women were killed; 57 percent were killed with a firearm, 21 percent with a sharp object, 13 percent with other nonspecified objects, and about 7 percent by suffocation or strangulation.[9]

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[8] INEGI, *Estadísticas a Propósito del Día Internacional de la Eliminación de la Violencia Contra la Mujer. Datos Tamaulipas* [*Statistics about the International Day for the Elimination of Violence Against Women. Tamaulipas Data*], November 21, 2019.

[9] INEGI, 2019.

Abbreviations

CAP	Civil Assistance Plan
CBRN	chemical, biological, radiological, and nuclear
CBRNE	chemical, biological, radiological, nuclear, and explosive
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
DoD	U.S. Department of Defense
DRR	disaster risk reduction
FEMA	Federal Emergency Management Agency
FY	fiscal year
GBV	gender-based violence
INMUJERES	Instituto Nacional de Mujeres [National Institute of Women]
INEGI	Instituto Nacional de Estadística y Geografía [National Institute of Statistics and Geography]
LGBTIQ+	lesbian, gay, bisexual, transgender, intersex, queer, and questioning
MEXUS	Mexico-United States
MUCPAZ	Redes de Mujeres Constructoras para la Paz [Women's Network for Peace Development]
NAP	National Action Plan
SADDD	sex, age, and disability disaggregated data
SEDENA	Secretaría de la Defensa Nacional [Ministry of National Defense]
SEMAR	Secretaría de la Marina [Ministry of the Navy]
SINAPROC	Sistema Nacional de Protección Civil [National Civil Protection System]
UN	United Nations
UNSCR	United Nations Security Council Resolution
US&R	urban search and rescue
USAID	U.S. Agency for International Development
USNORTHCOM	U.S. Northern Command
WPS	Women, Peace, and Security

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NATIONAL SECURITY RESEARCH DIVISION

The authors apply the Women, Peace, and Security (WPS) framework to a fictional scenario of a Category 5 hurricane disaster response along the U.S-Mexico border to demonstrate how disasters are experienced inequitably by different demographic groups. Through this case study, they reveal the existing knowledge base, data gaps that limit understanding of how natural disasters affect different societal groups, and process gaps or structural assumptions that limit data collection and effective communication during disaster response.

In this case study, a Category 5 hurricane has blocked escape or evacuation routes in low lying areas and inflicts major damage to buildings and infrastructure in the Northeastern part of the state of Tamaulipas, requiring massive evacuations and a joint disaster-relief response from the U.S. and Mexican armed forces. The authors focus on disaster response activities conducted on the Mexican side of the border. They aim to outline how WPS and intersectionality principles can be incorporated into primary disaster relief joint-operations conducted by U.S. and Mexican armed forces and to encourage armed forces responders on both sides of the border to think about and incorporate such considerations in their response planning efforts..

$23.00

ISBN-10 1-9774-1219-X
ISBN-13 978-1-9774-1219-5

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RR-A1944-2