

# FEMICIDE / FEMINICIDE VIOLENCE: A GEOSPATIAL KNOWLEDGE FRAMEWORK



**FEMICIDE / FEMINICIDE**  
**VIOLENCE:**  
**A GEOSPATIAL KNOWLEDGE**  
**FRAMEWORK**

## **Femicide / Femicide violence: a geospatial knowledge framework**

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The opinions expressed in this publication are those of the authors and do not necessarily represent the opinions of UN Women, the United Nations or any of their affiliated organizations.

Mexico City, 2021

# ACKNOWLEDGEMENTS

This document is part of the project "Gender, research and geospatial analysis" under the coordination of the Global Centre of Excellence on Gender Statistics (CEGS) carried out as part of the Collaboration Agreement between UN Women Mexico and the National Institute of Statistics and Geography (INEGI).

Margarita Parás Fernández, Visiting Researcher at the INEGI and Researcher at the CentroGeo-CONACYT; was in charge of the design of the geospatial knowledge framework and contributed significantly to the development of the CEGS project.

Karla Ramírez was the consultant for this document.

The author would like to acknowledge the careful and detailed reviews of this document by: Belén Sanz, Representative of UN Women Mexico; Paulina Grobet, Coordinator, CEEG; Teresa Guerra, Head of Statistics and Knowledge Management, UN Women; Claudia Tello, Researcher, CONACYT-CentroGeo; Mónica Orozco, Director of GENDERS A. C; and Juan Manuel Núñez, Consultants, UN Women.

The review of the editing process was carried out by Alexis Kyander.

# GLOSSARY

<b>Geospatial analysis</b>	Set of statistical methods and techniques, both descriptive and inferential, which aim at the exploration and deduction of conclusions about a phenomenon from geographically referenced data.
<b>Territorial analysis</b>	Analysis based on the study of geographical capital, that is, in the set of social, cultural, economic, political and infrastructure characteristics of a particular territory and how these characteristics influence the existence of a certain phenomenon.
<b>Geographic capital</b>	Set of social, cultural, economic, political and infrastructure characteristics of a particular territory.
<b>Discrimination against</b>	Any distinction, exclusion to restriction based on sex which main objective or result is to undermine or cancel the recognition, enjoyment or exercise for women, regardless of marital status, on the basis of equality of men and women, of human rights and fundamental freedoms in the political, economic, social, cultural and civil fields or in any other one.
<b>Femicides / Feminicides</b>	Violent deaths of women due to gender.
<b>Gender</b>	Set of socially built identities, functions and characteristics of women and men, and the social and cultural meaning that society attributes to these biological differences, which gives rise to hierarchical relationships between men and women and the distribution of powers and rights in favour of man and in detriment of women.
<b>Sex</b>	Set of biological differences between men and women.
<b>Violence against</b>	All acts of violence to a female on account of her gender, women and girls which result or may result in harm or physical, sexual or psychological suffering for women, as well as threats of such acts, coercion or arbitrary deprivation of freedom, whether they occur in public or private life.
<b>Economic violence</b>	Any action or omission of the aggressor that affects economic survival of the victim. It is manifested through actions aimed at limiting the income of females, as well as paying women a lower salary for the same work as men within the same workplace.

<b>Femicide / Feminicide violence</b>	Set of manifestations of violence against women which can result in the death of women and girls.
<b>Physical violence against</b>	All attacks aimed at damaging or attempting to harm women.
<b>Patrimonial Violence</b>	Acts of coercion and dispossession of women's assets, material resources or properties. The goal is to identify if any family member or partner has forced or made them put their belongings in the name of another person or stripped them by removing or stealing their property or belongings. Patrimonial violence is also known as emotional violence, and includes all forms of aggression that affect the emotional or psychological state of women.
<b>Sexual violence against</b>	Any act of coercion with the intent to abuse or sexually abuse, that degrades women or damages the body and sexuality of the victim and that therefore threatens their freedom, dignity and physical integrity.

# ABBREVIATIONS AND ACRONYMS

ACHR	American Convention on Human Rights
CEDAW	Convention on the Elimination of All Forms of Discrimination against Women
CEDAW Committee	Committee on the Elimination of All Forms of Discrimination against Women
CEGS	Global Centre of Excellence on Gender Statistics
CIM	Inter-American Commission on Human Rights
COMJIB	Conference of Ministers of Justice of Ibero-American Countries
COMMCA	Council of Ministers of Women's Affairs of Central America
Convention of Belém do Pará	Inter-American Convention on the Prevention, Punishment, and Eradication of Violence against Women
EU	European Union
EIGE	European Institute for Gender Equality
IACW	Inter-American Commission of Women
IACtHR	Inter-American Court of Human Rights
INEGI	National Institute of Statistics and Geography
LGBTI	Lesbian, Gay, Bisexual, Transgender, and Intersex
MESECVI	Follow-up Mechanism to the Belém do Pará Convention
OHCHR	Office of the High Commissioner for Human Rights
OAS	Organization of American States
OHCHR	Office of the United Nations High Commissioner for Human Rights
UN	United Nations
UN Women	United Nations Entity for Gender Equality and the Empowerment of Women
VAWG	Violence Against Women
Women Count	Flagship Programme Making Every Woman and Girl Count

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# 1

## INTRODUCTION



**Violence against women and girls (VAWG) is a global scourge that has managed to position itself in recent decades as one of the problems with great significance and huge repercussions on the lives of women and society as a whole. Therefore, it is one of the main obstacles to women’s advancement and empowerment. In addition to affecting the full exercise of women and girls’ human rights, it is an important barrier to achieving gender equality in social, economic and political fields. In its most extreme manifestations, gender-based violence results in the death of women and girls. When women are murdered due to their gender, it is known as femicide or feminicide (OHCHR / UN Women, 2014).**

This work document has been developed by the United Nations Entity for Gender Equality and the Empowerment of Women (UN Women), through the CEGS. Paulina Grobet coordinated and managed the production of the document with the technical support from Karla Ramirez.

One of the most important concerns in order to eradicate femicide / feminicide violence is that it can be made visible through statistical information that allows the development of adequate public policy, as well as its monitoring and evaluation. UN Women and the National Institute of Statistics and Geography (INEGI, Spanish Abbreviation) joined to establish in Mexico the Global Centre of Excellence on Gender Statistics (CEGS).

The CEGS is an innovative initiative, first of its kind, that contributes to the strategic efforts of UN Women and INEGI to strengthen the generation, availability, analysis and use of internationally comparable data and statistics on key and emerging aspects for the achievement of gender equality and women’s empowerment. The purpose of this initiative is to contribute, from the statistical agenda, to the effective implementation and monitoring of the main international commitments on women’s rights and gender equality, including the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), the Beijing Platform for Action, gender aspects of the 2030 Agenda and the Sustainable Development Goals (SDGs). One of the first efforts of the CEGS is to contribute to the international measurement of femicide / feminicide violence with the proposal of an international theoretical-methodological framework for the geospatial analysis of femicide / feminicide violence that allows to increase understanding and knowledge about the causes and consequences of the phenomenon. Always aligned with the objectives of the 2030 Agenda that recognizes, on the one hand, that gender equality and women’s empowerment are necessary conditions for achieving sustainable development and on the other, the importance of understanding sustainable development from a territorial and geospatial approach. Under these perspectives, geographic capital is placed at the centre of the development agenda, that is, the set of social, cultural, economic, political and infrastructure characteristics of a particular territory and how these characteristics influence the different areas of development (Heyns, et al., 2007).



Together with the theoretical-methodological framework, a geospatial tool will launch a transdisciplinary approach using new generation geomatics applications (Reyes and Parás, 2010). The concrete proposal is to carry out the design of a methodology of systemic and territorial analysis through a geospatial analysis tool, which allows the visualization of the relevant issues with the gender approach to propose spatial solutions in which processes generating gender inequality are analyzed and in this particular case, femicide / feminicide violence. The end purpose of the tool will be that conceptual frameworks and the different visions of gender issues and the territory combined with the use of different data sources and statistical methods provide a basis for possible solutions, analysis of results or presentation of scenarios.

General and specific objectives of this methodological proposal are the following:

## GENERAL OBJECTIVE

The general objective is to provide the international community with a standardized theoretical-methodological tool that contributes to the study on the link between the phenomenon of femicide / feminicide violence, geographical space and territory, in order to offer empirically based elements that strengthen the processes of decision-making regarding public policies to face the phenomenon of femicide / feminicide violence.

## SPECIFIC OBJECTIVES

- Incorporate the geographical space and territoriality perspective for the analysis of indicators 2.1, 2.2 and 3.2 of SDG 5, 7.2 of SDG 11 and indicators 1.1, 1.2, 1.3, 2.1, 2.2 and 2.3 of SDG 16.
- Provide, by introducing a geospatial and territorial perspective, empirically based elements to strengthen the design, monitoring and evaluation processes of public policies against femicide / feminicide violence.
- Contribute to the detection, evaluation and use of statistical information sources with geospatial references in the field of femicide / feminicide violence.
- Encourage the increase in the amount and availability of geospatial information and statistics with a gender perspective on femicide / feminicide violence.



The document was structured in four sections of the background where a recount of the legislative framework of the VAWG and femicide / feminicide violence is made, as well as the most important moments that have contributed to its analysis and study.

The conceptual framework is presented in the second section, delimiting the present proposal for the geospatial analysis of femicide / feminicide violence. For this purpose, a review is made about the main definitions, the factors related to femicide / feminicide violence and the purposes and applications of the methodology are discussed. The methodological proposal for geospatial analysis is developed in the fourth chapter. The analytical framework of the work is presented here, a proposal of indicators for the study of femicide / feminicide violence from the territorial perspective and the types of geospatial analysis that can be performed. In this fourth part of the document an example is developed for the case of Mexico with the intention of showing the potential of the methodological proposal. The fifth section presents the scope and limitations of the proposed methodology.

Additionally, the elimination of all forms of discrimination and violence against women and girls, therefore, stands as one of the pillars in the Sustainable Development Goals (SDG). These concerns were specifically reflected in goals 1, 2 and 3 of SDG 5 “Achieve gender equality and empower all women and girls”, goal 7 of SDG 11 “Make cities and human settlements inclusive, safe, resilient and sustainable” and in goals 1 and 2 of SDG 16 “Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.”

In 2015, through the adoption of the 2030 Agenda, the international community reaffirmed that gender equality and women’s empowerment are necessary conditions for achieving sustainable development. To eliminate all forms of discrimination and violence against women and girls, therefore, stands as one of the pillars in the Sustainable Development Goals (SDGs). These concerns were specifically reflected in target 1, 2 and 3 of SDG 5 “Achieve gender equality and empower all women and girls”, target 7 of SDG 11 “Make cities and human settlements inclusive, safe, resilient and sustainable” and in target 1 and 2 of SDG 16 “Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.”

To contribute to the fulfilment of the SDGs regarding VAWG. For this, it is not only necessary to analyze SDGs 5, 11 and 16, but also of their possible links and relationships with the rest of the SDGs, in addition to their study from different approaches and methodologies.

In general terms, in the case of the VAWG, it is known that this is the result of multiple structures and unequal power relations between the sexes in couple, family, school and work environments. The factors that alter the risks of victimization of women and girls in these environments vary among communities depending on their geographical capital.



For example, it can be expected that in communities where women have lower social status, less economic empowerment, less participation in public decision making, restricted access to economic and material resources, limited access to education and fewer specialized institutions of support for women (centres for prevention and assistance to women victims of violence, public policies to support women's employment, etc.) also shows an increased risk of VAWG (Castro & Casique, 2009; Casique, 2010; WHO & PAHO, 2012).

In line with the key principal of not leaving anyone behind in sustainable development and making every woman and girl count, the 2030 Agenda has called for generating disaggregated information at subnational levels for SDGs' analysis from the local level, placing geography and territoriality at the centre of public policy strategies. In line with this premise, this document intends to join the various international efforts that seek to contribute to the achievement of the 2030 Agenda on VAWG and proposes an international theoretical-methodological framework for the geospatial analysis of femicide / feminicide violence.



# 2

## BACKGROUND



**The United Nations Organization for Gender Equality and Women’s Empowerment (UN Women) promotes women’s empowerment, rights and gender equality worldwide, through technical support to intergovernmental organizations in their policy formulation, making gender equality central to national development planning and budget.**

The first advances in the international agenda on the theme of VAWG occurred during the period of 1975-1985, known as the United Nations Decade of Women (UN, 2012). Although there is previous background in the matter, such as the *Charter of the United Nations* signed in 1945, the creation of the Commission on the Legal and Social Status of Women in 1946, the *Universal Declaration of Human Rights* in 1948 and the Signing of the *Convention for the Suppression of the Traffic in Persons of 1949*, was until December 18th, 1979 with the approval of the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) by the General Assembly of the United Nations that marks a milestone in the recognition of gender inequality as a social problem. During this decade of United Nations’ Women, on November 29th, 1985 the General Assembly of the United Nations approved the Resolution on Domestic Violence. Although this resolution focused solely on this type of violence, it was one of the first international efforts that specifically addressed the issue of VAWG (UN, 2012).

Another key background is the Declaration on the *Elimination of Violence Against Women* issued by UN’s General Assembly in 1993. This Declaration constitutes the first international tool that conceptually explicitly defines violence against women. The commitments of the *Declaration on the Elimination of Violence against Women* were reaffirmed a year later during the Fourth World Conference on Women held in Beijing, which resulted in the *Beijing Declaration and Platform for Action*.

Initiatives aiming to increase the recognition of VAWG as a social problem and for improving their understanding have also been carried out by the countries of Latin America and the Caribbean. One of the most important advances took place in the Inter-American Convention on the Prevention, Punishment and Eradication of Violence against Women (also known as the Convention of Belém do Pará). As a result of this Convention, a call was made for countries to take measures to ensure women access to a life free of violence, including “guaranteeing the investigation and collection of statistics and other relevant information on the causes, consequences and frequency of violence against women, in order to assess the effectiveness of measures to prevent, punish and eliminate violence against women and to formulate and apply the necessary changes and promote intentional cooperation for the exchange of ideas and experiences and execution” (OAS, 1994). Due to the need to support the agreements and objectives achieved, in 2004 the Follow-up Mechanism of the Convention of Belém do Pará (MESECVI) was created. The MESECVI consists of a series of multilateral evaluation rounds of the progress and challenges in the implementation of the Convention. This evaluation is based on a series of structural, process and outcome indicators prepared by a committee of experts in the field, in which five aspects related to the issue of violence against women are analyzed:





The legislative framework, national plans, access to justice, statistical information and the situation of women who experience greater vulnerability (migrants, girls and elderly, indigenous, poor, among others).

A key aspect of the Beijing Declaration and Platform for Action is the contribution of a diagnosis on the challenges in VAWG issues as well as the strategies and measures that countries must adopt to effectively combat this problem. Among the established strategies, it is worth highlighting that in order to design public policies for the prevention and fight against violence against women in all forms, it is imperative to study their causes and consequences, as well as the effectiveness of the strategies undertaken. To achieve this end, it proposes a series of actions that can be divided into two large fields. First, the generation of relevant statistical information should be promoted to increase the quality and availability of data on violence against women from a gender perspective. And in addition, knowledge on the subject must be produced and disseminated through studies and research, for which not only the volume of work must be increased, but also new statistical methodologies that allow understanding the complexity in which the phenomenon of violence against women develops (UN, 1995).

Another significant advance in relation to the measurement of VAWG was in 2007, when a group of experts organized by the Division for the Advancement of Women, the Economic Commission for Europe (UNECE) and the United Nations Statistics Division developed a series of indicators to know and quantify the physical, sexual and couple violence that women and girls face in the world, as well as harmful practices and the prevalence of early marriage. In 2009, after an examination by the Friends of the Chair Group of the United Nations Statistical Commission, the set of indicators was welcomed (ECOSOC, 2009).

UN Women offers technical guidance for the use of global standards and norms on gender equality, to increase women's leadership and political participation, improving economic empowerment, in particular, ending violence against women and girls as one of the key priorities of UN Women.

Gender statistics are key to the design of public policies and a critical contribution to implement, monitor and evaluate them. Therefore, it is vital to strengthen national statistics by incorporating a gender and intersectional approach in data production, dissemination and use. To improve gender statistics availability, accessibility and use to design public policies, UN Women implemented its Global Programme "Make every woman and girl count" (Women Count) to achieve gender equality and women's empowerment. UN Women also works globally to achieve the 2030 Agenda and the Sustainable Development Goals for women and girls. Gender equality is, for the first time, the centre of the three dimensions of development: economic, social and environmental. Violence against women and girls is a serious human rights' violation. For this reason, it has become crucial to place special emphasis on the elimination of violence against women and girls worldwide. The 2030 Agenda has highlighted this issue through the Sustainable





Development Goals (SDGs). In line with the 2030 Agenda for Sustainable Development, the European Union (EU) and the United Nations (UN) formulated the Spotlight Initiative, a new global initiative focused on eliminating all forms of violence against women and girls (VAWG). The objective of the Initiative is to draw attention to VAWG, bring this issue to attention and place it at the centre of efforts to achieve gender equality and women's empowerment.

In relation to the generation of information on VAWG, CEDAW's Committee has issued the following General Recommendations:

## CEDAW'S GENERAL RECOMMENDATIONS

In accordance with article 21, paragraph 1 of the CEDAW, the Committee on the Elimination of Discrimination against Women can make general recommendations and suggestions to countries. From 1986 to 2017, a total of 36 recommendations were made that have been paid both in conceptual development, as in the generation of statistics and indicators and their use. The following recommendations particularly stand out in VAWG's theme:

- General recommendation No. 9 on statistics relating to the status of women: Invites countries to generate official statistics that can be disaggregated by sex. (1989)
- General Recommendation No. 12 on violence against women: Encourages countries to generate statistical information regarding incidents of violence against women, as well as on victims. (1989)
- General Recommendation No. 14 on female circumcision: Calls on countries to collect and disseminate data on female circumcision. (1990)
- General Recommendation No. 19 on violence against women: Defines the concept of violence against women on the grounds of sex and gender and invites countries to collect statistics and conduct research on the magnitude, causes, effects and effectiveness of measures against VAWG. (1992)
- General Recommendation No. 27 on older women (over 60 years old) and the protection of their human rights: It highlights the importance of countries paying attention to violence experienced by older women. (2010)
- General Recommendation No. 28 on the responsibility of States parties to constantly create and improve their statistical databases and deepen the analysis of all forms of discrimination against women in general and in particular, against women of certain vulnerable groups. (2013)



- General recommendation No. 30 on women in conflict and post-conflict situations recommends that states parties collect data and harmonize methods of data collection on the incidence and prevalence of gender-based violence, in particular the sexual violence, in different environments and depending on the different categories of women. (2013)
- General recommendation No. 31 of the Committee on the Elimination of Discrimination against Women and general comment No. 18 of the Committee on the Rights of the Child on harmful practices: Encourage meetings, analysis, dissemination and periodic and exhaustive use of quantitative and qualitative data is crucial to ensure effective policies, develop appropriate strategies and formulate measures, as well as assess impacts, follow the progress made towards eliminating harmful practices and
- Identify emerging and reemerging harmful practices. General recommendation 33 on women's access to justice. (2014)
- General recommendation No. 34 on the rights of rural women: States parties should collect, analyze, use and disseminate data on the situation of rural women, disaggregated by sex, age, geographic location, disability and socioeconomic, minority or other status. These data, also for the indicators of the Sustainable Development Goals, should be used to inform and design measures, including temporary special measures, aimed at achieving substantive equality of rural women in all fields of life. These data should also include information on the situation of rural women, including specific groups of rural women who face cross-linked forms of discrimination and specific obstacles to access their rights. (2016)
- General recommendation 35 on gender-based violence against women: Constitutes a conceptual update of general recommendation 19 and introduces the term gender-based violence against women. Calls for countries to work on data coordination, monitoring and collection on VAWG, in particular on gender-related killings of women and girls, also known as “femicide” or “feminicide,” and attempted murder of women. (2017)

The complete and updated list of all general recommendations can be consulted at the OHCHR, 2019.

Progress has been made in the Latin American region around the most extreme form of violence against women motivated by misogyny, femicide and feminicide. In Latin America is where these crimes began to be typified in criminal codes barely a decade ago; because of this, few countries have quality statistics on femicides and feminicides, for which opacity and its non-visibility. Given this situation, efforts have been carried out to make this problem visible, by collecting data on femicide and feminicide to be able to characterize the expressions and manifestations of this crime with the purpose of providing inputs to prevent, care, punish and eradicate effectively, efficiently and timely femicide and feminicide in Latin America.



In addition to the statistical efforts, documents have been prepared that offer relevant information for the investigation and punishment of femicides and feminicides in the region. One of the important documents is the *Latin American Model Protocol for the investigation of gender-related violent killings of women*. This document was jointly prepared by the Central America Regional Office of the High Commissioner of the United Nations for Human Rights (OHCHR) and the UN Regional Office for the Americas and the Caribbean of UN Women. The document states that the incorporation of gender perspective in the issue of Violence “makes visible the extreme expression of violence resulting from the position of subordination, marginality and risk in which women find themselves” (OHCHR / UN Women, 2014). It also provides important elements for the identification of these crimes that definitely contribute for their statistical registration, as well as for their integration into the legal orders of the countries.

As a complement to the latter, the *Inter-American Model Law on the Prevention, Punishment and Eradication of the Gender-Related Killing of Women and Girls (Femicide / Feminicide)* prepared and published jointly by the UN Women and the MESECVI. This proposal was based on research: Analysis of the legislation on femicides / feminicides in Latin America and the Caribbean and a proposed model law. The purpose of this document is to offer those countries that intend to typify gender-related killings of women and girls as femicide / feminicide. The model law offers more effective measures for the prevention, investigation and punishment of femicides / feminicides, and effective access to justice for both victims as well as survivors and family members.

In 2015, the international community adopted the 2030 Agenda for sustainable development. Among the 17 proposed SDGs are those related to gender equality and all women and girls’ empowerment, on the inclusion, security, resilience and sustainability of cities and human settlements and the objective in relation to the promotion of just, peaceful and inclusive societies (UN, 2015). Concerns and interest in materializing the 2030 Agenda in this area have been reflected in different efforts around the world and from various fields. One such project is the Spotlight initiative, a global and multiannual initiative jointly developed between the European Union and the United Nations with the purpose of eliminating all forms of VAWG. The initiative is based on six pillars, including the improvement of data quality, accuracy and availability on violence against women and girls. In Latin America, the Spotlight initiative focuses its efforts on the elimination of femicide / feminicide.

In addition to the conceptual, standardization and indicator contributions, the 2030 Agenda has also placed at the centre of the debate the need for the use and exploitation of geospatial information with a territorial approach to the study of sustainable development. Therefore, the 2030 Agenda set among its main commitments “Do not leave anyone behind” in sustainable development. This commitment aims to ensure that all people enjoy the benefits of development, which unconditionally demands the generation and use of statistics at the local level and disaggregated, among others, according to sex, age and ethnicity of people. In line with this principle, UN Women launched in 2016 the flagship programme “Making every woman and girl count” (MEWGC) now



referred to as Women Count. Women Count places special emphasis on generating statistical information that allows to adequately locate and monitor the situation of women and girls in the geographical and territorial space.

In relation to the use of geospatial and territorial analysis, these are some of its precedents. There are still many pending issues in the use of the geographic space and community perspective on the issue of VAWG, however, important advances are also identified. In the United Kingdom, Coy et al. (2011) made a mapping of the location of specialized services in attention to violence against women in the country to detect possible deficits in coverage and also analyzed the routes followed by women fleeing domestic violence to access shelters where they are protected, with the intention of finding patterns that allow improving the response in the provision of such services. Achia (2014), used geographic information to find the areas of Kenya where female genital mutilation prevails and thus determine those regions that still require intervention strategies to combat this practice. In the United States, based on the analysis of information on femicides / feminicides at the neighbourhood level from *Wisconsin Violent Death Reporting System* an association was found between the socioeconomic and demographic characteristics of neighbourhoods with femicide / feminicide violence perpetrated by a household member (Beyer et al., 2014). Similar experiences can be found in Turkey (Ulukaya, 2017), Canada (Canadian Femicide Observatory for Justice & Accountability, 2019), in European countries (European Data Journalism Network, 2017) and in Lebanon (Civil Society Knowledge Center, 2015), to name a few.

In Latin America there are also some contributions to geographic information use in the matter of femicide / feminicide violence. In Mexico, for example, these efforts have been driven from the INEGI with projects such as *Gender Atlas* (INEGI, 2019), and the *Integrated System of Statistics on Violence Against Women* (SIESVIM) (INEGI, 2019). The *Gender Atlas* is a computer tool that allows gathering some of the most important gender indicators in ten different subjects: population, education, health, work, decision making, time use, poverty, entrepreneurship, indigenous population and violence, and represent such information on maps, which allows to distinguish regional differences shown by each indicator. For its part, the SIESVIM is a consultation tool that presents a large amount of data on the violence experienced by women in Mexico and also allows the user to “characterize the economic, demographic and socio-cultural context in which women live and reproduce the phenomenon” (INEGI, 2019). It should be noted that efforts have also come from civil society, as in the case of the *Map of Femicides in Mexico* (Salguero, 2019). In El Colegio de la Frontera Norte (El Colef), the Geographic Information System for Femicides (SIGFEM) for the georeferencing of femicides / feminicides in Ciudad Juárez was developed. A database that collects information on femicides / feminicides that occurred in Ciudad Juárez from 1993 to date was built. The database has about 1,800 records of murdered women, fact that are described with variables such as the victim’s name, femicide / feminicide date, age, marital status, home address, place of origin, schooling, employment, crime scene, injuries present in the body, body disposal, murder motive, name of the murderer(s) and their relationship to the victim, among others. It is a pioneer database of its kind



that sets the standard for developing studies from different perspectives. One of the main contributions of the SIGFEM is that it allows the location of high-risk areas for women and for those who may be potential victims of a violent death, as well as making projections of the increase in violence against women according to the prevention or impunity that prevail in the city (Cervera & Monárrez, 2013).

In Brazil, Article 19 (Article 19, 2018) seeks to make the phenomenon of femicide / feminicide visible through the generation of data with geospatial information, which has also allowed them to make a call to the Brazilian authorities regarding official statistical needs on the issue of violence against women.

In Chile, the System of Indicators of Violence against Women was developed in 2017. This system consists of a virtual platform of free access on the subject of VAWG in the different regions of the country. The system is the result of coordinated work between the Ministry of Women and Gender Equality of Chile and the Latin American Demographic Centre (CELADE) of the Population Division of the Economic Commission for Latin America and the Caribbean (ECLAC).

In Costa Rica, the Unified System of Statistical Measurement of Gender Violence in Costa Rica (SUMEVIG) was established in 2008, which consists of an inter-institutional technical effort attached to the National System for the Attention and Prevention of Violence against Women and Domestic Violence, whose objective is the creation of a standardized system of information on the subject and indicators to monitor and evaluate the situation faced by women and girls in relation to violence in the different provinces of the territory.

Although the previously mentioned works study VAWG with a geographical approach, most express only the information descriptively without establishing relationships or investigating the causes of femicide / feminicide violence. Moreover, when causalities of femicide / feminicide violence are analyzed through inferential tools, the territorial approach supported by the concept of geographic capital of communities is practically ignored. Due to the above, there is a need to promote the use of geographic information through the use of standardized statistical methodologies that consider the heterogeneity of the phenomenon in space; and, on the other hand, it is important to introduce the territoriality approach in the geospatial methodology.

In response to this and other needs and challenges regarding gender statistics, UN Women and the National Institute of Statistics and Geography (INEGI) established in Mexico in 2018 the Global Centre of Excellence on Gender Statistics (CEGS). The CEGS, being part of the agreements of the Women Count flagship programme, aims to contribute, from the field of strengthening in the generation, availability, analysis and data use and statistics use on the subject, to the effective implementation and monitoring of the main international commitments on the eradication of violence against women, in which the geospatial and territorial aspects are indispensable.



# 3

## CONCEPTUAL FRAMEWORK





Violence against women impacts the lives of women and girls in various ways with immediate and long-term consequences, in their physical, sexual and mental health. In its extreme form the consequence is definitive: The deprivation of life. Its impact can be measured in terms of losses in productivity, impacting national budgets and overall development. The expressions of VAWG that lead to women's death are known as femicide / feminicide violence, that is, deadly sexism that results in women's murders. The terms femicide / feminicide are used to denote gender-related killings of women and girls. For the murder of a woman to be characterized as femicide / feminicide, there must be evidence that violence was used against a woman because she was a woman, that is, that they are expressions of discrimination, sexism and misogyny. Some of these evidence are the identification of patterns of sexual abuse, physical assault and other signs of mutilation and torture prior to the murder. Femicide / feminicide violence is conceptualized as structural violence, beyond a singular model of cause and effect. Femicide / feminicide violence negatively affects the general well-being of women and prevents women from fully participating in society, for that reason, multiple factors must be considered and analyzed from another perspective.

Femicide / feminicide violence is qualitatively different from other forms of violence. Investigations, prosecutions and convictions for gender crimes are not achieved due to impunity. This impunity is the result of the government's lack of commitment to solve these types of crimes. Impunity is a fertile breeding ground for femicide / feminicide violence. When there are high levels of criminal violence and impunity, these are risk factors for women to be victims of feminicide. However, the emphasis cannot be on criminal justice. It is necessary to seek to transform the contexts in which femicide / feminicide violence flourishes (Fregoso, 2012).

To find appropriate ways to prevent and eradicate femicide / feminicide violence, it is necessary to determine what factors that have an effect on it. Some of the factors that have been identified in communities where femicide / feminicide violence is exacerbated are: rooted gender norms of male domination and female submission, structural conditions such as impoverishment, low levels of education, high unemployment, lack of social infrastructure and public services, social tensions, for example: militarized response to crime. Therefore, integrating a framework of territorial knowledge and geostatistical analysis methodologies for the study of femicide / feminicide violence is pertinent, enriching and necessary.

Territorial knowledge and geostatistical analysis are a strategic framework in terms of integrating a global political agenda into national geospatial capabilities that favour sustainable development.

The 2030 Agenda establishes that achieving sustainable development presents important development challenges that are almost completely geographical in nature.



This is also true for gender issues, such as femicide / feminicide violence. An inter and transdisciplinary integration is essential to study femicide / feminicide violence, especially if it involves a territorial and geospatial analysis, where the analysis of the social processes, the socio-economic and infrastructure situation of femicide / feminicide violence is intrinsically related to territory. This type of methodology offers the opportunity to explain territorial processes and phenomena in which femicide / feminicide violence occurs considering territorial differences. To achieve this, it is necessary to use different statistical sources and calculate indicators derived from the theoretical and conceptual frameworks that arise in the analysis of femicide / feminicide violence and territorial processes. This implies strengthening the statistical and spatial treatment of existing information to allow the integration of geospatial information with statistics and gender issues, making use of information at different scales (space-time).

Despite significant advances in geospatial information technologies, there is still a lack of recognition and understanding, particularly at the level of policies and decision making for the use of such tools. The role of geospatial information to contribute to sustainable development has not been adequately described either by sustainable development policy or by the geospatial professional community. This lack of policies and guidance, with proportional critical gaps and connection points with national geospatial frameworks, is a visible impediment for emerging countries and those most affected by the challenges and the need to achieve sustainable development. The global geospatial community now has a unique opportunity to integrate and connect geospatial information in the world on sensitive issues, so that the resulting information will provide decision-making elements to design appropriate public policies based on empirical knowledge and the opportunity to monitor and evaluate them.

The main objective of this project is to integrate gender mainstreaming and geospatial analysis, emphasizing its significant contribution and its innovative vision to femicide / feminicide violence. The approach to the geospatial analysis of femicide / feminicide violence proposed in this document is the result of the sum of different international efforts and initiatives that start from the recognition of the particular situation of violence faced by women and girls as a result of misogyny as a social problem, the consequent development of standardized definitions and the generation of internationally comparable measurements and indicators, to study femicide / feminicide violence as an interdependent phenomenon of the geographical capital of the territory where it occurs.

To explore a territorial knowledge framework and a geostatistical analysis for femicide / feminicide violence, it was proposed to consider information on three different analysis dimensions:

- Individual Characteristics
- Sociodemographic and socioeconomic context
- Social infrastructure and public services.





An indispensable requirement for the promotion of an international methodology lies in the definition and delimitation of the main concepts of study and the way in which the matter in question is approached. In the case of this document for the geospatial analysis of femicide / feminicide violence, it is necessary to define three main components: femicide / feminicide violence, geospatial analysis and territorial approach to integrate the proposal of international methodology.

In article 1 of the CEDAW, discrimination against women is defined “any distinction, exclusion or restriction made on the basis of sex which has the effect or purpose of impairing or nullifying the recognition, enjoyment or exercise by women, irrespective of their marital status, on a basis of equality of men and women, of human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field” (UN, 1979).

The most serious manifestation of discrimination against women and girls is violence against women derived from the historical inequality in power relations between men and women, and as a mechanism to preserve the subordination of women and prevent the advancement of women. The *Declaration on the Elimination of Violence Against Women* defines VAWG as any act of gender-based violence that results in, or is likely to result in, physical, sexual or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life.” Such acts of violence include, among others:

- Physical, sexual and psychological violence occurring in the family, including battering, sexual abuse of female children in the household, dowry-related violence, marital rape, female genital mutilation and other traditional practices harmful to women, non-spousal violence and violence related to exploitation;
- Physical, sexual and psychological violence occurring within the general community, including rape, sexual abuse, sexual harassment and intimidation at work, in educational institutions and elsewhere, trafficking in women and forced prostitution;
- Physical, sexual and psychological violence perpetrated or condoned by the State, wherever it occurs. (UN, 1993).

CEDAW General Recommendation No. 19 defines gender-based violence as “directed against a woman because she is a woman, or that affects women disproportionately,” and that constitutes a violation of their human rights.

General Recommendation No. 35 points out the concept of “gender-based violence against women” is used as a more precise term that highlights the causes and effects related to the gender of violence. The expression further reinforces the notion of violence as a social problem rather than an individual one, which demands comprehensive responses, beyond those related to specific events, authors and victims and survivors.



The Committee also considers that gender-based violence against women is one of the fundamental social, political and economic means through which the subordinate position of women with respect to men and their stereotyped roles is perpetuated. In all its work, the Committee has made it clear that such violence constitutes a serious obstacle to the achievement of substantive equality between women and men and for the enjoyment by women of their human rights and fundamental freedoms enshrined in the Convention.

Regarding the types of violence presented, the aforementioned recommendation refers that “gender-based violence affects women throughout their life cycle and, consequently, references to women in this document include girls. Such violence takes many forms, namely: Acts or omissions intended for or that may cause or lead to death or physical, sexual, psychological or economic harm or suffering for women, threats of such acts, harassment, coercion and arbitrary deprivation of freedom. Gender-based violence against women is affected and often aggravated by cultural, economic, ideological, technological, political, religious, social and environmental factors, as evidenced, inter alia, in the contexts of displacement, migration, increasing globalization of economic activities, in particular global supply chains, extractive industry and relocation, militarization, foreign occupation, armed conflict, violent extremism and terrorism. Gender-based violence against women is also affected by political, economic and social crises, riots, humanitarian emergencies, natural disasters and the destruction or degradation of natural resources.”

From the definition of violence against women it is possible to point out three main elements. The act of violence is motivated by gender reasons, that is to say by misogyny; the different manifestations of violence that women and girls experience are pointed out; and finally, that violence expresses the different areas in which the lives of women and girls are developed, as well as the characteristics or situations that occur in different areas without making a difference if they occur in private or publicly.

In relation to the different manifestations of violence against women, a typology of the acts of violence was presented according to the type of damage they cause as established in the *Declaration on the elimination of violence against women* recognizing three main types: Physical, sexual and psychological violence. Physical violence can be defined as all “aggressions aimed at harming or attempting to harm a woman’s body.” Sexual violence includes “any act of coercion with the intent to abuse or sexually abuse, that degrades or damages the body and sexuality of the victim and that therefore threatens their freedom, dignity and physical integrity”. Psychological violence refers to the “forms of aggression that affect the emotional or psychological state of women” (INEGI, 2016).



Based on article 3 of the *Declaration on the Elimination of Violence Against Women* and with other conceptual developments in the matter, other types of VAWG can be found, such as economic violence and property violence.<sup>1</sup>

The set of manifestations of VAWG in any of its forms that can culminate in the death of women and girls as victims is known as femicide / feminicide violence. The highest expression of VAWG is feminicide, that is, “the violent death of women due to gender” (UNHCHR / UN Women, 2014).

The second important component to review within the theoretical framework of this proposal is geospatial analysis. In general terms, geospatial analysis is defined as the set of statistical methods and techniques, both descriptive and inferential, that aim to explore and deduct conclusions about a phenomenon from geographically referenced data.

Obviously, a transcendental part in the geospatial analysis is the identification of the location or position of the occurrence of the phenomenon under study within the geographical space, knowing its spatial distribution or concentration and establishing relationships with other variables that also vary in the geographical space. The argument that motivates the introduction of this approach in research is based on the first Law of Geography, which states that “all things are related to each other, but those closest in space have a greater relationship than distant ones” (Tobler, 1970).

In follow-up to international academic conventions, three types of spatial data are recognized according to their geographical reference (Cressie, 1993; Banerjee et al., 2004; and Gelfand et al., 2010). The first type of data, known as point pattern data or spatial data with point pattern, occurs when the exact location of the observation unit of the phenomenon in question is known. In this case, the observations of the phenomenon can be referenced to any possible geographical location within the determined analysis space. The identification of said location is made with points related to geographical coordinates. On the particular issue of femicide / feminicide violence, when there is an exact location of occurrence of acts of femicide / feminicide violence, the information may present a spatial pattern of points that could show concentration or patterns of the manifestation of femicide / feminicide violence either in homes, schools, public spaces such as parks or markets where the aggression is committed.

On the other hand, when the exact location of occurrence of the phenomenon is not known, the location may be referenced to a set of fixed locations. These fixed locations may correspond to either a specific finite set of points (known as point-referenced

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1 Economic violence refers to “any action or omission of the aggressor that affects the economic survival of the victim. It manifests itself through limitations aimed at controlling the income of its economic payment, as well as the payment of a lower salary for equal work, within the same workplace”, while property violence is defined as all those “acts of coercion and dispossession of their assets, material resources or properties” (INEGI, 2016).



data or spatial data referenced to points) or be related to a finite set of polygons that do not overlap each other and that divide the total space (areal data or spatial data referenced to polygons). For example, applied to the study of femicide / feminicide violence, spatial data referenced to points occur when the location of each act is associated with the geographical coordinates of the location of the Police Department, Public Prosecution's Office or District Attorney's Office who attended the case. In contrast to the spatial data with a point pattern, in the spatial data referenced to points the observations can only belong to a finite and fixed number of locations, those of the public security agencies in the case of the example presented. Regarding the spatial data referenced to polygons, these are generally associated with neighbourhoods, districts, cities or regions in the case of the study of femicide / feminicide violence.

Finally, the third key component for this proposal is the territorial approach. This approach, applied to the study of femicide / feminicide violence, places geographic capital at the centre of the debate about understanding the factors involved in the manifestation of femicide / feminicide violence in a differentiated way in the territory.

That is, to investigate what set of social, cultural, economic, political and infrastructure characteristics of a particular territory influence the types and levels of femicide / feminicide violence experienced by women and girls in that particular locality or community. In this way the territorial approach works as a mechanism between the concept of femicide / feminicide violence from the discussed gender perspective and the geospatial analysis.



# 4

## ANALYSIS OF TERRITORIALITY PERSPECTIVE



The final objective of the introduction of the geospatial and territorial approach to the study of femicide / feminicide violence is to provide significant elements for decision-making regarding public policies, that is, the analysis is oriented towards the contribution of elements for policy makers. For example, in the case of femicide / feminicide as a result of violence by an intimate partner, it can be analyzed whether the communities with the greatest presence of care centres, hospitals, schools, women's justice centres, public prosecution's offices, support centres or community programmes to prevent violence against women have lower levels of victimization than those where the presence of such infrastructure and services is lower.

In general, the use of geospatial analysis to investigate femicide / feminicide violence must have two interdependent primary purposes that are important in decision-making regarding public policies: administration and planning of resources in the geographical space and research. The effective and efficient use of both human and financial resources (essentially limited) is a key element for the fulfilment of goals and objectives of any organization. In this sense, the incorporation of geospatial information plays a significant role in improving the results and impact of the strategies. For its part, research is the fundamental element for decision-making, since it allows conclusions to be drawn about the factors that contribute to the success or failure of the instrumented measures, as well as knowing the effects of other variables more precisely. A geospatial analysis of femicide / feminicide violence can allow public policy makers to know elements such as:

- In which areas is feminicide violence concentrated and in particular the occurrence of femicides / feminicides and identify areas of high femicide / feminicide risk.
- What factors intervene or coexist according to the levels at which femicide / feminicide violence is detected.
- The levels of general crime affect whether there are high levels of femicide / feminicide violence or not.
- The high levels of violence against women in their cruellest manifestations are related to the deaths of women with presumption of homicide, and femicides / feminicides.
- There is a relationship between the existence of programmes for the care and prevention of violence against women and the presence of femicide / feminicide violence.
- Profiles of the victims of femicides / feminicides.



- Higher level of notice to the Public Prosecution's Office is related to lower levels of femicide / feminicide.
- The programmes of prevention and attention to violence against women together with care centres, the existence of justice centres for women, make a difference. That is, they have an effect on the levels at which femicide / feminicide violence and femicides / feminicides occur.

The input offered by the geospatial approach applied to the analysis of femicide / feminicide violence allows decision makers in general to assess whether human and financial resources are being allocated in the best possible way, as well as whether there is a different distribution that would enhance the effects of public policies. It is central for governments and civil society to know what happens at the territorial level since they contribute with important elements for the design, monitoring and evaluation of policies, for the elaboration of plans, projects and programmes in the matter, as well as the reorientation of what has been done. In this sense, the generation of statistical information on all these elements, including femicide / feminicide violence and the necessary one on femicides / feminicides is fundamental. Therefore, the National Statistics Offices should consider these elements to include them in their National Statistics System.





# 5

TERRITORIAL FACTORS  
INVOLVED IN FEMICIDE  
/ FEMINICIDE VIOLENCE





**Although there is no robust methodological theoretical framework to analyze the phenomenon of femicide / feminicide violence from a geospatial and territorial perspective, it is possible to find in the literature some works that allow hypothesis about its potential determinants.**

Among them, the exercise carried out in El Colegio de la Frontera Norte with the SIG-FEM stands out, where the places where the bodies of femicide / feminicides victims were found were geographically identified; their address, this combined with other study variables, allowed them to make an analysis of femicide / feminicide violence in a spatial context that includes, from the generation of thematic cartography to the use of spatial analysis modules and geostatistical techniques, for the analysis of the phenomenon. The project that supports the SIGFEM has a central hypothesis: gender violence and socio-economic structural conditions are factors that condition a context of extreme violence for women in Ciudad Juárez since the 1990s (Cervera & Monárrez, 2013).

The analysis on femicide / feminicide presented in Latin America indicates that there are various cultural, legal, political and justice conditions that contribute to the make femicide / feminicide happen. Regarding cultural conditions, machismo and misogyny are inserted in the ideological and social environment that normalizes violence against women. When there are legal and public policy loopholes with a gender and judicial branches perspective, as well as the presence in the legislation of misogynist or adverse content for women and girls' equality and advancement. This encourages impunity and aggravates the situation of women and girls, increases the risk of violent acts and puts their lives at risk. Social cover-up through silence, considering that there are more urgent or greater problems that must be addressed with greater priority contributes to the devaluation of women and girls' lives. That is why it was considered necessary for the analysis of violence against women to be carried out using regional and local geographical criteria with various sociodemographic characteristics and the level of human development. They included: Human Development Index (HDI), Human Development Index related to Gender (IDG), Gender Empowerment Index (IPG) and Human Security Index (ISH). In addition, a comprehensive approach was sought by analyzing data on the violent deaths of women and girls, not just homicides, which proved to be very useful. Likewise, high homicide rates were analyzed in the light of high rates of sexual and physical violence and human development rates that proved to be the lowest. This work gives light on the main elements involved and that should be analyzed. In this context, it is clear how femicide / feminicide violence makes it possible to expand the study's scope on the phenomenon of femicides / feminicides and better understand what other factors are involved such as health neglect, violent deaths, and violence as a whole (Fregoso, 2011).

According to different studies, the risk of a woman to be a victim of femicide / feminicide violence increases as her social status, empowerment, access to economic and material resources decrease either in the individual, situational and / or community level (Castro & Casique, 2009; Casique, 2010; WHO & PAHO, 2012; UN Women, 2017).



From the review of studies, a set of variables that are proposed is integrated and can explain femicide / feminicide violence with a territorial approach to have the possibility of performing geospatial analysis. Below is a set of variables and indicators of interest that may be related to the phenomenon of femicide / feminicide violence.

The proposal considers three levels:

- Individual characteristics
  - Age
  - Schooling
  - Occupation
  - Female child marriage
  - Average labour income of women
  - Women who speak indigenous languages
  - Women that self-identify as indigenous
  - Partner's age
  - Relationship with the aggressor
  - Women living in poverty
- Sociodemographic and socioeconomic context
  - Socioeconomic strata
  - Human Development Index
  - Gender Inequality Index
  - Poverty
  - Social deprivation



- Indicators of social deprivation
- Welfare
- Percentage of women who speak indigenous languages
- Percentage of women that self-identify as indigenous
- Average labour income of women
- Teenage pregnancy
- Child marriage
- Women's property
- Holding of women's bank account
- Women's domestic work index
- Women living in poverty
- Average schooling of women
- infrastructure and public services context
  - Existence of schools, clinics and hospitals
  - Community infrastructure (roads, lighting, transportation, etc.)
  - Public security and justice conditions
  - Prevalence and incidence of crimes against women
  - Impunity in crimes against women
  - Police presence on the streets
  - Trust in the authorities
  - Government conditions and laws



- Participation of women in public affairs
- Perception of corruption
- Existence and compliance with laws in favour of women
- Clinics and hospitals (first and second level facilities)
- Justice centres for women
- VAWG prevention programmes
- VAWG Victim Services
- Programmes to detect victims of femicide / feminicide violence



# 6

## METHODOLOGICAL PROPOSAL



The methodological proposal is based on the hypothesis approach that can be verified through geospatial and territorial analysis. For this, it is necessary to make a selection of indicators or variables that are considered to be intervening factors and that are related to the levels of femicide / feminicide violence represented by indicators of femicide / feminicide (both proxy's and the incidence of femicides / feminicides). From identifying what factors are involved, it will be possible to contribute to the decision-making process for the design of public policies considering including different components of geographical / territorial capital.

One of the most frequent problems faced by geospatial and territorial models is the lack of georeferenced information. National Statistical Systems attempt to produce statistical information at the national level, regional or local disaggregation (towns, provinces, departments or states). There are not always disaggregated levels, and for some indicators it is possible that the information only exists for the most aggregated levels.

So that the information is insufficient to perform territorial analyzes for the diagnosis, design of public policy, monitoring and evaluation of important issues. Therefore, the 2030 Agenda has placed special emphasis on this in order to prevent biases that make invisible and minimize local differences in the manifestation of the phenomenon under study. Therefore, what is sought is for indicators with the highest level of disaggregation possible to be used compared to statistic information availability with the aim of contributing to the commitment of the 2030 Agenda "Leave no one behind" and with UN Women's Women Count flagship programme on the territorial vision to bring sustainable development to the local level.

## ANALYTICAL FRAMEWORK

Femicide / feminicide violence is a phenomenon that presents spatial heterogeneity, so considering geography is key for its study (Miles-Doan & Kelly, 1997; Peña et al., 2016 and Sepúlveda Murillo et al., 2018). This implies that femicide / feminicide violence tends to concentrate in localities that present a similar territorial context. Due to the above, in order to understand the causes that affect the prevalence of femicide / feminicide violence, it is important to consider the different components of the geographical / territorial capital of the communities. In some studies, it has been found that violence has a defined spatial pattern and is concentrated in critical areas that form regions with a high incidence of femicide / feminicide violence. A municipal concentration of feminicide has been observed that does not correspond to the concentration of female population in these municipalities, this also maintains that there is a spatial correlation of femicide / feminicide violence (UN Women, Ministry of the Interior, IN-Mujeres, 2017). While it is true that there is no set of determinant indicators of femicide



/ femicide violence that remain constant over time and space, in general terms, it is expected for femicide / femicide violence to be concentrated in those communities where women have lower social status, empowerment and access to economic and material resources (Castro & Casique, 2009; Casique, 2010 and WHO & PAHO, 2012).

To know possible associations between femicide / femicide violence and the factors that are considered to be involved it is necessary to use statistical methods. According to the scope that is intended to be obtained from the analysis there are two major stages, the stage of the exploratory analysis and that of the inferential analysis. Both stages provide important inputs for decision-making, so ideally both should be carried out. These two analyses are broadly described in the following lines.

The first stage of all research consists in performing an exploratory analysis of the variables that will be used in the study. The geospatial exploratory analysis consists of a set of techniques based on graphs, maps and evidence of association or spatial correlation that seek to provide initial guidance on possible trends, causal correlations between variables and hypothesis formulation (Gelfand et al., 2010 and Symanzik, 2014).

Some of the main graphs used are histograms and XY graphs (dispersion of two variables) and visual representation on maps when geospatial information is incorporated. However, some techniques in this exploratory stage vary according to the type of spatial data that is available. When the information corresponds to spatial data with a pattern of points, a central question is to know if the data is distributed homogeneously in the space - as they would be located if the location was made randomly. Two tests generally used are the Goodness-of-Fit test and Ripley's K function (Banerjee, et al., 2004; and Gelfand, et al., 2010).

When spatial data is referenced to points an important question to ask is whether the covariance between variables in two different locations depends on the distance between them. This is widely proven through the use of variograms and semivariograms (Cressie, 1993). Finally, when the spatial data are referenced to polygons (such as neighbourhoods or cities), the technique generally used is the measures of spatial association of Moran's I and Geary's C (Boots, 2002 and Banerjee et al., 2004)

For the exploratory analysis, the variables related to femicide / femicide violence and individual characteristics are a good source, in addition to context, sociodemographic, economic, public services and infrastructure variables.

However, the exploratory analysis only consists of the first stage of an analysis and although it provides valuable information, it does not allow inferences about how a set of variables statistically influence or not on the main study variable, which is femicide / femicide violence in this case. These questions concerning association will be answered through inferential geospatial analysis.



The most widely used inferential statistical analysis technique is regression. Regression is a methodology that allows knowing the average effect that a set of covariates (explanatory variables) have on an objective variable. The type of models varies according to the type of variables used. For example, femicide / feminicide can be studied using a rate calculated per 100,000 inhabitants, counts or even categories can also be used according to the type of weapon used or according to the relationship with the perpetrator (Gary et al., 2003; Frye et al., 2008; Torrubiano-Domínguez et al., 2015; and Siegel & Rothman, 2016).

**Table 1:** Exploratory and inferential analysis of femicide / feminicide with geospatial perspective

Analysis Type	Objective	Advantages	Disadvantages
Exploratory	<ul style="list-style-type: none"> <li>Visualize data's spatial distribution;</li> <li>Find the data's adjacent structure or geographic vicinity;</li> <li>Quantify the structure of spatial autocorrelation.</li> </ul>	<ul style="list-style-type: none"> <li>It offers clues for hypothesis formulation;</li> <li>It allows to inquire about atypical data;</li> <li>It offers a first approximation to possible causal correlations between variables.</li> </ul>	<ul style="list-style-type: none"> <li>It does not allow corroborating hypotheses;</li> <li>It finds no effects and correlations</li> </ul>
Inferential	<ul style="list-style-type: none"> <li>Know the average effect that a set of explanatory variables has on the femicide / feminicide variable.</li> </ul>	<ul style="list-style-type: none"> <li>This allows to draw conclusions based on hypothesis testing;</li> <li>Find effects and correlations between variable</li> </ul>	<ul style="list-style-type: none"> <li>Greater complexity;</li> <li>Greater demand of statistic information.</li> </ul>

Source: Prepared by the CEGS.

The selection of indicators and variables of the three analysis's dimensions is the result of the proposed hypothesis about how femicide / feminicide violence is related to territorial, contextual and individual characteristics to find relationships or statistical effects between them. As mentioned above, it has been observed that femicide / feminicide violence tends to be exacerbated when rooted gender norms of male domination





and female submission are present at the individual and group level, structural conditions such as impoverishment, low levels of education, high unemployment or labour market, lack of social infrastructure and public services, impunity in gender-related crimes, as well as social tensions, for example: Militarized response to crime (Fregoso, 2012). The point is to determine which of these are present or have a greater presence in different geographical and temporal spaces with a significant effect on femicide / feminicide violence.

The geospatial approach to gender statistics project aimed to study two main issues of great importance to achieve gender equality: Women's economic empowerment, care systems and femicide / feminicide violence. These problems are interrelated phenomena; therefore, some indicators are shared in the geospatial approach. Below is a list of some of the indicators considered to study femicide / feminicide violence.

The central hypothesis is that femicide / feminicide violence and the socio-economic context, infrastructure, levels of insecurity and public services are factors that produce a context of extreme violence for women.



# 7

## MEXICAN CASE



## INDICATORS

**There is a high complexity of factors that interact and have an effect on the manifestation of femicide / feminicide violence and, in particular, feminicides that need to include various indicators referring to the different factors in order to know which ones have the greatest intervention and favour their occurrence.**

In the Mexican case, there have been several investigations that have identified some factors; however, it is likely that having had a starting space approach would have been helpful to recognize them more effectively. Therefore, the use of territorial and geostatistical analysis tools is considered the best way to continue the analysis of femicide / feminicide violence in countries. These tools offer a greater capacity to characterize the phenomenon and elements for the design of public policies. The identification of these factors opened a path for international recommendations to implement research protocols, norms with a gender perspective and legal typification of femicides / feminicides.

The next step is to propose a statistical model to explore the suggested variables that are perceived to have an effect on the occurrence, frequency and different manifestations of femicide / feminicide violence. This statistical model will be included in the geospatial prototype of the website for the statistical analysis that is being built. The result of the statistical model will provide the necessary elements to advise on what kind of changes should be implemented in the territory. In terms of public services, specific programmes of action protocols.

To carry out the geospatial analysis of femicide / feminicide violence it is essential to have a minimum of indicators that allow contextualizing the phenomenon of study from the geospatial and territorial approach. For this, it is important to have standardized indicators that allow the international scope of the proposal.

- Below are a series of indicators gathered into three groups:
  - Indicators of femicide / feminicide violence.
- Indicators related to the geographical / territorial capital of the communities:
  - Individual characteristics
  - Sociodemographic and socioeconomic context
  - Infrastructure and public services context



- Context of public safety and justice
- Indicators of femicide / feminicide violence.
- Proxies and femicides / feminicides
  - Rate of violent female deaths (external causes: homicide, suicide, accidents) per one hundred thousand women.
  - Rate of female deaths with presumption of homicide per one hundred thousand women.
  - Homicide rate of women for every one hundred thousand women.
  - Femicide / feminicide rate per hundred thousand women.
  - Violence Against Women
    - Rate of women and girls that are victims of crimes against women (trafficking, injuries, trafficking of minors, corruption of minors, trafficking in persons)
    - Percentage of women aged 15 years and over who have suffered physical and sexual violence in the last 12 months.
    - Percentage of female patients treated for physical and sexual violence.
    - Percentage of victims of female genital mutilation
    - Number of women victims of attacks with chemical agents.
    - Percentage of women and girls as victims of sexual harassment in public places.
    - Percentage of cases of physical and sexual violence that are reported to the Public Prosecution's Office by attending physicians.
    - Rate of women reported missing by each one hundred thousand inhabitants.
- Indicators related to the geographical / territorial capital of the communities:
  - Individual characteristics



- Distribution by age group of women.
- Percent distribution of women's education.
- Percentage of labour participation
- Percentage distribution of women's marital
- Average labour income of women
- Percentage of women self-identified as Afro-Mexican.
- Percentage of women who speak indigenous languages
- Percentage of women that self-identify as indigenous
- Percentages of the types of relationship with the aggressor.
- Indicators of the sociodemographic and socioeconomic context
- Sociodemographic and socioeconomic context
- Percentage of women by socioeconomic strata.
- Human Development Index
- Gender Inequality Index
- Percentage of population with income below the welfare line
- Percentage of women under 20 years of age
- Percentage of women under 20 years of age, married
- Average difference in the intimate partner's age in women under 20 years of age
- Percentage of women homeowners
- Women's domestic work index.
- Infrastructure and public services context



- Community infrastructure (roads, lighting, transportation, etc.)
- Schools
- Clinics and hospitals (first and second level facilities).
- Justice centres for women
- Violence prevention programmes against women and girls
- Services for victims of violence against women and girls
- Programs to detect victims of femicide / feminicide violence
- Context of public security and justice
- Family violence impunity proxy: Percentage of those charged for the crime of domestic violence of those convicted for domestic violence
- Impunity violation proxy: Percentage of those charged for the crime of rape of those convicted for rape
- Percentage of households with at least one crime victim
- Rate of victims of 18 years or more crimes for every one hundred thousand inhabitants
- Percentage of crimes reported to the Public Prosecution's Office
- Percentage of perception of insecurity in the state
- Percentage of perception of insecurity in the municipality
- Percentage of perception of insecurity in the neighbourhood or locality
- Percentage of perception of criminals' impunity
- Percentage of perception of trust in the Public Prosecution's Office and State Attorneys / Prosecutors' Offices
- Percentage of perception of trust in judges
- Percentage of perception of trust in the state police



## SOURCES OF INFORMATION

- Main sources of information for the Mexican case are listed below.
- National Institute of Statistics and Geography (INEGI)
- Vital Mortality Statistics
- Population and Housing Census / Intercensal Survey
- National Survey on the Dynamics of Households Relationships (ENDIREH)
- National Survey on Victimization and Perception of Public Security (ENVIPE)
- National Census of State Procurement of Justice
- National Census of State Administration of Justice
- Ministry of Health (SINAIS)
- Subsystem of Injuries and Causes of Violence
- Automated Hospital Expenditure Subsystem (SAEH)
- Medical Emergencies
- Birth Information Subsystem (SINAC)
- Unique Key Catalog of Health Establishments (CLUES)
- Executive Secretariat of the National Public Security System, National Information Center (SESNSP-CNI)
- Criminal Incidence (Victims)



# 8

## SCOPE AND LIMITATIONS





Although the scope of the methodology points to the use of standardized concepts resulting from various international efforts, there are limitations in their application due to the heterogeneity of the quality and availability of statistical products generated by the National Statistical Offices of the different countries. However, it allows inquiring about femicide / feminicide violence according to the different levels of progress that each country has since the selected indicators include a wide margin of progress in the statistics. In addition, this exercise offers a clear line to where efforts should be directed to generate information on femicide / feminicide violence and related factors, coming from different data sources (surveys, population censuses, administrative records). This information, as already stated, is essential to understand the context in which femicide / feminicide violence occurs and the characteristics of the community environment that allow us to know elements that will allow the elaboration of useful and adequate public policy.

Continuing to work with the development of tools focused on geospatial and territorial analysis will allow to focus at the local level what can decidedly end the inequality and heterogeneity that currently exists within countries and that due to lack of information is reproduced and maintained, in some cases it even intensifies. Only in this way will the objective of the 2030 Agenda of not leaving anyone behind be achieved; from a geographical perspective that manages to integrate various sources of information that contextualize the multiple manifestations of femicide / feminicide violence at the territorial level.



# 9

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