ECORFAN-Journal Republic of El Salvador

ECORFAN Journal-Republic of El Salvador

Definition of Journal

Scientific Objectives

Support the international scientific community in its written production Science, Technology and Innovation in the Field of Social Sciences, in Subdisciplines of international migration law, human rights-diplomatic and consular protection, migrant population in a vulnerable situation, public policies and projects from a country perspective.

ECORFAN-Mexico SC is a Scientific and Technological Company in contribution to the Human Resource training focused on the continuity in the critical analysis of International Research and is attached to CONACYT-RENIECYT number 1702902, its commitment is to disseminate research and contributions of the International Scientific Community, academic institutions, agencies and entities of the public and private sectors and contribute to the linking of researchers who carry out scientific activities, technological developments and training of specialized human resources with governments, companies and social organizations.

Encourage the interlocution of the International Scientific Community with other Study Centers in Mexico and abroad and promote a wide incorporation of academics, specialists and researchers to the publication in Science Structures of Autonomous Universities - State Public Universities - Federal IES - Polytechnic Universities - Technological Universities - Federal Technological Institutes - Normal Schools - Decentralized Technological Institutes - Intercultural Universities - S & T Councils - CONACYT Research Centers.

Scope, Coverage and Audience

ECORFAN Journal-Republic of El Salvador is a Journal edited by ECORFAN-Mexico S.C in its Holding with repository in Republic of El Salvador, is a scientific publication arbitrated and indexed with semester periods. It supports a wide range of contents that are evaluated by academic peers by the Double-Blind method, around subjects related to the theory and practice of international migration law, human rights-diplomatic and consular protection, migrant population in a vulnerable situation, public policies and projects from a country perspective with diverse approaches and perspectives , That contribute to the diffusion of the development of Science Technology and Innovation that allow the arguments related to the decision making and influence in the formulation of international policies in the Field of Social Sciences. The editorial horizon of ECORFAN-Mexico® extends beyond the academy and integrates other segments of research and analysis outside the scope, as long as they meet the requirements of rigorous argumentative and scientific, as well as addressing issues of general and current interest of the International Scientific Society.

Arbitration Committee

Assignment of Rights

The sending of an Article to ECORFAN Journal-Republic of El Salvador emanates the commitment of the author not to submit it simultaneously to the consideration of other series publications for it must complement the Originality Format for its Article.

The authors sign the Authorization Format for their Article to be disseminated by means that ECORFAN-Mexico, S.C. In its Holding Republic of El Salvador considers pertinent for disclosure and diffusion of its Article its Rights of Work.

Declaration of Authorship

Indicate the Name of Author and Coauthors at most in the participation of the Article and indicate in extensive the Institutional Affiliation indicating the Department.

Identify the Name of Author and Coauthors at most with the CVU Scholarship Number-PNPC or SNI-CONACYT- Indicating the Researcher Level and their Google Scholar Profile to verify their Citation Level and H index.

Identify the Name of Author and Coauthors at most in the Science and Technology Profiles widely accepted by the International Scientific Community ORC ID - Researcher ID Thomson - arXiv Author ID - PubMed Author ID - Open ID respectively.

Indicate the contact for correspondence to the Author (Mail and Telephone) and indicate the Researcher who contributes as the first Author of the Article.

Plagiarism Detection

All Articles will be tested by plagiarism software PLAGSCAN if a plagiarism level is detected Positive will not be sent to arbitration and will be rescinded of the reception of the Article notifying the Authors responsible, claiming that academic plagiarism is criminalized in the Penal Code.

Arbitration Process

All Articles will be evaluated by academic peers by the Double Blind method, the Arbitration Approval is a requirement for the Editorial Board to make a final decision that will be final in all cases. MARVID® is a derivative brand of ECORFAN® specialized in providing the expert evaluators all of them with Doctorate degree and distinction of International Researchers in the respective Councils of Science and Technology the counterpart of CONACYT for the chapters of America-Europe-Asia- Africa and Oceania. The identification of the authorship should only appear on a first removable page, in order to ensure that the Arbitration process is anonymous and covers the following stages: Identification of the Journal with its author occupation rate - Identification of Authors and Coauthors - Detection of plagiarism PLAGSCAN - Review of Formats of Authorization and Originality-Allocation to the Editorial Board-Allocation of the pair of Expert Arbitrators-Notification of Arbitration -Declaration of observations to the Author-Verification of Article Modified for Editing-Publication.

Instructions for Scientific, Technological and Innovation Publication

Knowledge Area

The works must be unpublished and refer to topics of international migration law, human rights-diplomatic and consular protection, migrant population in a vulnerable situation, public policies and projects from a country perspective and other topics related to Social Sciences.

Presentation of the Content

In issue seventeen, is presented an article *State of the art: "social and solidarity economy as a driver of sustainability",* by GÓMEZ-LÓPEZ, Daniela S., VALADEZ-SOLANA, Brenda D., CRUZ-DOMÍNGUEZ, Enrique and CRUZ-CABRERA, Blasa C., with adscription at Tecnológico Nacional de México - Instituto Tecnológico de Oaxaca, in the next article *Psychological impact of feminicide,* by CASTILLO-QUIÑONES, Adriana Guadalupe, CEJAS-LEYVA, Luz María, FERNANDEZ-MOJICA, Leticia and LAZCANO-FRANCO, Maura Antonia, with adscription at Universidad Juárez del Estado de Durango, in the next article *Community water management in Veracruz. Challenges and current perspectives,* by AGÜERO-RODRÍGUEZ, José Cruz, TEPETLA-MONTES, Julia and TORRES-BERISTAIN, Beatriz, with adscription in the Universidad Veracruzana, in the next article, *Automatic identification of false opinions in social networks*, by GUZMAN-CABRERA, Rafael, HERNÁNDEZ-RAYAS, Angelica, PRASAD-MUKHOPADHYAY, Tirtha and RUIZ-PINALES, José.

Content

<div align="center">

Article   **Page**

</div>

State of the art: "social and solidarity economy as a driver of sustainability"

Estado del arte: "economía social y solidaria como agente de sostenibilidad"

GÓMEZ-LÓPEZ, Daniela S.†, VALADEZ-SOLANA, Brenda D., CRUZ-DOMÍNGUEZ, Enrique and CRUZ-CABRERA, Blasa C.*

Tecnológico Nacional de México - Instituto Tecnológico de Oaxaca, México.

ID 1st Author: *Daniela S., Gómez-López* / **ORC ID**: 0000-0002-6574-2764/ **CONAHCYT ID:** 1232443

ID 1st Coauthor: *Brenda D., Valadez-Solana* / **ORC ID:** 0000-0002-7883-7148, **CONAHCYT ID:** 950650

ID 2nd Coauthor: *Enrique, Cruz-Domínguez* / **ORC ID:** 0000-0003-3493-455X, **CONAHCYT ID:** 1005862

ID 3rd Coauthor: *Blasa C., Cruz-Cabrera* / **ORC ID:** 0000-0003-4694-4261, **CONAHCYT ID:** 50347

Abstract

The article presents a comprehensive analysis of the current state of convergence between Social and Solidarity Economy (SSE) and sustainability, covering the period from 2009 to 2023. SSE, with its principles of cooperation, equity, and citizen participation, is considered a key tool for addressing inequality and promoting decent employment, while sustainability focuses on improving living conditions without compromising the future. The article argues that SSE promotes sustainable economic practices aligned with the 2030 Agenda. The proposed methodology combines heuristic and hermeneutic approaches, allowing for a thorough and up-to-date review of the literature on SSE and sustainability. The application of SSE in various regions is illustrated through case studies that encompass areas such as urban agriculture, circular economy, recycling cooperatives, and socio-economic development projects. Overall, it is emphasized that the combination of SSE and sustainability offers a promising approach to addressing socio-environmental challenges, highlighting cooperation, inclusion, and the pursuit of a sustainable and equitable future.

Social and solidarity economy, Sustainability, cooperation

Resumen

El artículo presenta un análisis exhaustivo del estado actual de la convergencia entre la Economía Social y Solidaria (ESS) y la sostenibilidad, abarcando el periodo 2009-2023. La ESS, con sus principios de cooperación, equidad y participación ciudadana, se considera una herramienta clave para abordar la desigualdad y promover empleo digno, mientras que la sostenibilidad se enfoca en mejorar las condiciones de vida sin comprometer el futuro. El artículo argumenta que la ESS promueve prácticas económicas sostenibles alineadas con la Agenda 2030. La metodología propuesta combina enfoques heurísticos y hermenéuticos, lo que permite realizar una revisión exhaustiva y actualizada de la literatura sobre ESS y sostenibilidad. Se ilustra la aplicación de la ESS en diversas regiones mediante estudios de casos que abarcan áreas como la agricultura urbana, economía circular, cooperativas de reciclaje y proyectos de desarrollo socioeconómico. En conjunto, se enfatiza que la combinación de la ESS y la sostenibilidad ofrece un enfoque prometedor para abordar los desafíos socioambientales, destacando la cooperación, inclusión y la búsqueda de un futuro sostenible y equitativo.

Economía social y solidaria, Sostenibilidad, Cooperación

* Author's Correspondence (E-mail: cabreracruz85@hotmail.com)
† Researcher contributing first author.

Introduction

The intersection between the Social and Solidarity Economy (SSE) and sustainability has become an area of growing research and action as it seeks to address contemporary challenges in both social and environmental terms (García-Lorenzo et al., 2021; Gutberlet, 2009; Lee, 2019; Pérez Villa et al., 2022; Villalba-Eguiluz et al., 2020).

SSE, which focuses on equity, cooperation and citizen participation, has the potential to generate a positive impact on reducing inequality, creating quality employment and promoting inclusive communities (Chaves-Ávila and Gallego-Bono, 2020; Villalba-Eguiluz and Pérez-De-Mendiguren, 2019). For its part, sustainability has become an essential priority to address issues such as climate change, environmental degradation and resource scarcity (Chaves-Ávila and Gallego-Bono, 2020).

The purpose of this study is to conduct a comprehensive analysis of the relationship between SSE and sustainability, using previous research, case studies and theoretical approaches, it seeks to identify patterns, trends and lessons learned that can guide future research and practice in this area (George-Reyes, 2019; Molina- Montoya, 2005).

Correspondingly, this state of the art will contribute to a deeper and more complete understanding of how SSE can favor the improvement of sustainability and how these practices can be leveraged to maximize their positive impact on society and the environment.

The importance of these themes lies in their ability to catalyze concrete actions that promote sustainability. By understanding how the SSE can address socio-environmental challenges in an integrated manner, more effective strategies and policies can be designed that promote economic equity and environmental protection.

So this knowledge can influence decision making at government, community and business levels, driving the adoption of more sustainable and collaborative practices. Ultimately, understanding how SSE can contribute to improved sustainability has the potential to lead to the creation of societies that are more just, inclusive, and in harmony with the natural environment (Cheng and Xu, 2021 2019; Leipold et al., 2021).

Conceptualization of ESS

The SSE (see Figure 1) is represented by an economic and social approach that stands out for its emphasis on cooperation, equity and democratic participation in the planning and management of economic activities (Chaves-Ávila and Gallego-Bono, 2020). Thus, this paradigm encompasses a wide range of organizations, enterprises and practices with the fundamental objective of fostering the wellbeing of people and communities, in addition to promoting environmental sustainability (García-Lorenzo et al., 2021; Sahakian and Dunand, 2015).
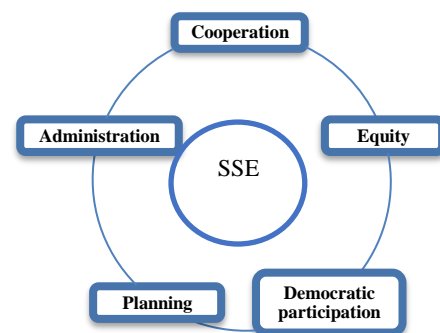
Figure 1 SSE construct
Source: Own elaboration with information from Chaves-Ávila and Gallego-Bono (2020)

It should be emphasized that SSE works on the study of various entities such as cooperatives, mutual associations, social enterprises and other organizational models, which share common values such as solidarity, inclusion and social responsibility (García-Lorenzo et al., 2021; Lee, 2019; Sahakian and Dunand, 2015). These concepts have historically developed along experiences in which "partnerships" were created in order to organize and protect communities, emphasizing cooperation and exchange as fundamental principles.

In contrast to conventional economic approaches focused on maximizing individual profit, SSE emphasizes collective well-being, equity, environmental sustainability and the strengthening of local communities (Chaves-Ávila and Gallego-Bono, 2020; García-Lorenzo et al., 2021-; Pérez Villa et al., 2022; Sotto, 2021).

Likewise, its components seek to harmonize economic objectives with social and community values, promoting participatory management, collective ownership, cooperation and solidarity as guiding principles.

Sustainability in the SSE

SSE plays a crucial role in promoting sustainability by prioritizing economic practices that respect natural resource limits and avoid resource depletion. Through its focus on cooperation and community, SSE tends to generate economic activities rooted in local contexts, responding to real needs of people and contributing to the creation of more resilient economic systems in the face of potential global crises (García-Lorenzo et al., 2021; Quiroz-Niño and Murga-Menoyo, 2017).

Therefore, sustainability within the context of SSE encompasses the ability to preserve and enrich current economic conditions, without undermining the social capacities of future generations to meet their own demands and requirements (Lee, 2019). Likewise, sustainability implies the search for economic and social solutions that not only address present needs, such as poverty reduction and social exclusion, but also consider the long-term impact on the environment and society as a whole (Leipold et al., 2021; Quiroz-Niño and Murga-Menoyo, 2017). Therefore, sustainability implies a balance between economic development, social justice and the conservation of natural resources to ensure a viable and equitable future (Chaves-Ávila and Gallego-Bono, 2020).

Intersections between SSE and sustainability

The SSE contributes to this utopia of sustainable development, aligning itself especially with the United Nations 2030 Agenda (Laville, 2003). In this context, education and complementary strategies are essential for the promotion of sustainability values and principles.

Thus, SSE highlights its role in waste management and circular economy as a way to address environmental and social aspects of sustainability (Do Nascimento et al., 2020; Gutberlet and Carenzo, 2020; Leipold et al., 2021).

In this sense, SSE recognizes the contribution of recycling workers in conserving resources and promoting social inclusion. In agroecological projects and other contexts, the SSE provides a framework for strengthening economic, social, ecological and political sustainability (Gutberlet, 2009; Gutberlet and Carenzo, 2020).

Methodology

The methodology used for the design of the present state of the art is based on heuristic and hermeneutic techniques, following the works of Alexis and Torres (2020); George-Reyes (2019); Molina-Montoya, (2005). The steps that make up this methodology are detailed below:

1.   Heuristic phase of the state of the art

Figure 2 shows the heuristic phase. To this end, a search for documents was carried out in the digital databases Scopus, Web of Science (WoS) and Scielo during the year 2023. The keywords used were: "social and solidarity economy" and "sustainability". The document inclusion criteria focused on articles and books. A total of 96 publications were found, which were then filtered by relevance, year of publication and contribution. In this state of the art, the most relevant ones are analyzed as follows.
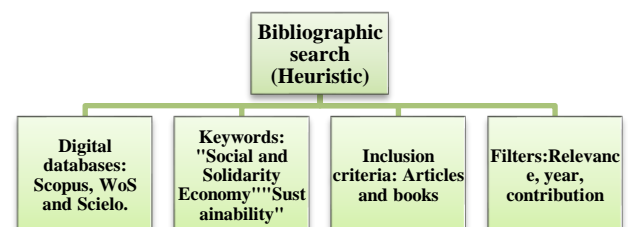
Figure 2 Heuristic phase
Source: Own elaboration with information from Patiño (2016)

Article

2. Hermeneutical phase of the state of the art

Figure 3 shows the hermeneutic phase of the state of the art. In this phase, as Patiño (2016) points out, the objectives, methods, variables, theories and contributions of each document were examined with an objective critique, this with the aim of obtaining new technical knowledge. In addition, a registration table was designed to organize the database, with a constructivist approach. Subsequently, a critical reading of the selected documents was carried out, identifying trends and lines of research in development. A hermeneutic perspective was adopted to understand the meaning of the documents and their relationship with the research topic.
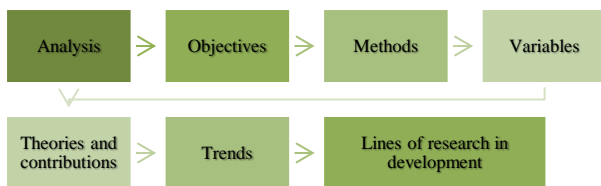
Figure 3 Hermeneutic phase
Source: Own elaboration with information from George-Reyes (2019) and Molina-Montoya (2005)

The methodology used integrates both heuristic and hermeneutic approaches, which allows for an exhaustive and updated review of the literature related to SSE and sustainability.

Results

Case studies mentioned in databases such as Scopus, WoS and Scielo, address the connection between SSE and sustainability in diverse contexts (See Table 1). These include research such as that of Lee (2019) in South Korea, which highlights the benefits of SSE in urban agriculture and the circular economy to reduce poverty and mitigate climate change. Recycling cooperatives are also explored as in Gutberlet's (2009) study in São Paulo and Buenos Aires, cities that alleviate poverty through waste management, as well as initiatives in Europe and Spain that promote SSE to create employment and address socioeconomic challenges (Chaves-Ávila and Gallego-Bono, 2020).

In addition, the relationship between SSE and the 2030 Agenda, and how community-based fisheries organizations in Europe and Asia contribute to sustainable development is examined (García-Lorenzo et al., 2021). These studies demonstrate how SSE can be an effective vehicle for addressing specific socio-environmental challenges, promoting cooperation, social inclusion and transformation towards a more sustainable future.

| Giro	Example of a cooperative	ESS and Sustainability Connection	Challenges Addressed	Name of study/author/year.
Urban Agriculture Cooperatives in Brazil and Argentina	Red de Agroecología de la Zona Oeste de São Paulo (RAZOSP) in Brazil, and Huerta Niño Comunidad in Buenos Aires, Argentina.	They prioritize cooperation and democratic participation while focusing on environmental sustainability and food security.	Access to fresh and healthy food in urban areas, food security, loss of agricultural land and environmental awareness.	""Social and solidarity economy and agroecology in family farming cooperatives in Brazil as a form of sustainable agriculture development" (Do Nascimento et al., 2020)..
Fair Trade and Responsible Consumption Networks	Fair Trade Network in several countries	Promote cooperation between producers and consumers to achieve a positive impact on the local and global economy.	Inequalities in international trade, unfair and exploitative working conditions in goods production.	"¿Necesitamos una "sociedad circular"? Narrativas contrapuestas de la economía circular en el sector alimentario francés". (Leipold et al., 2021).
Renewable Energy Social Enterprises in Europe	Som Energia in Spain and Enercoop in France	It aims to reduce carbon emissions and promote the transition to cleaner and more sustainable energy sources.	Fossil fuel dependency, climate change and lack of citizen control over energy.	"Transformative Policies for the Social and Solidarity Economy: The New Generation of Public Policies for the Promotion of the Social Economy for the Achievement of the Sustainable Development Goals. The European and Spanish Cases". (Chaves-Avila and Gallego-Bono, 2020).
Recycling and Waste Management Initiatives in Latin America	Recycling Cooperative "Los Cartoneros" in Argentina	These initiatives are dedicated to the collection and recycling of materials, reducing waste and promoting the circular economy.	Pollution, lack of recycling infrastructure, marginalization of recycling workers, etc.	"Políticas locales de Economía Social y Solidaria: aportes para el análisis de las iniciativas desarrolladas por la Municipalidad de Santa Fe entre los años 2011-2019." (Sotto, 2021)

Table 1 Relevant case studies on SSE and sustainability
Source: Own elaboration with information from Chaves-Ávila and Gallego-Bono (2020); Do Nascimento et al. (2020); Leipold et al. (2021); Sotto (2021).

After analyzing the documents, it was determined that the SSE has a direct influence on the dimensions that make up sustainability (see Figure 3).
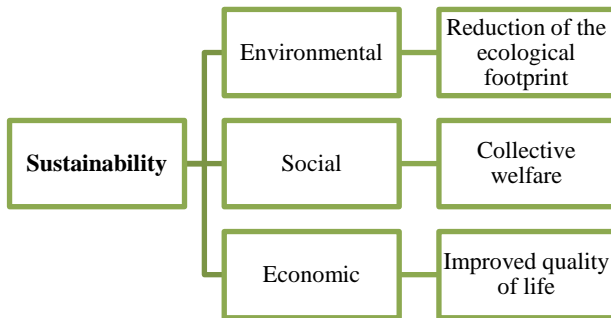
Figure 3 ESS in sustainability
Source: Own elaboration with information from Chaves-Ávila and Gallego-Bono (2020); García-Lorenzo et al. (2021); Gutberlet (2009); Gutberlet and Carenzo, (2020); Lee (2019); Sahakian and Dunand (2015); Villalba-Eguiluz et al. (2020); Villalba-Eguiluz and Pérez-De-Mendiguren (2019

Socio-economic and environmental impact of SSE on sustainability

SSE practices have proven to have a significant impact in the social, economic and environmental spheres, playing an essential role in improving the quality of life of communities and reducing the ecological footprint (Quiroz-Niño and Murga-Menoyo, 2017; Sahakian and Dunand, 2015). These practices go beyond the exclusive pursuit of individual benefits and focus on collective well-being, equity and sustainability, resulting in a number of positive outcomes in different aspects (Do Nascimento et al., 2020; Sahakian and Dunand, 2015).

Social impact of the SSE on sustainability

SSE stands out for its ability to generate transformative social impact. By prioritizing cooperation and democratic participation in decision-making and management, SSE practices empower local communities by giving them greater control over their own economic and social development (Lee, 2019; Quiroz-Niño and Murga-Menoyo, 2017).

In addition, cooperatives, nonprofits, and social enterprises created under SSE principles foster social inclusion by providing employment and income-generating opportunities for segments of the population that are often marginalized or excluded from the conventional labor market.

This contributes to reducing inequality and poverty, while strengthening social cohesion and solidarity in communities (Do Nascimento et al., 2020).

Economic impact of SSE on sustainability

From an economic perspective, SSE generates positive outcomes by promoting the creation and development of enterprises and organizations based on social and community values (Quiroz-Niño and Murga-Menoyo, 2017). Cooperatives and social enterprises operate under models of participatory management and collective ownership, resulting in a more equitable distribution of benefits and shared decision-making (Gutberlet, 2009; Lee, 2019).

These sustainable economic practices contribute to the self-management and autonomy of communities, allowing them to be more resilient in the face of economic fluctuations and external challenges. In addition, SSE initiatives often have a local focus, fostering economic revival at the community and regional levels (Sahakian and Dunand, 2015; Villalba-Eguiluz et al., 2020).

Environmental impact of SSE on sustainability

One of the most notable aspects of SSE is its commitment to environmental sustainability (Do Nascimento et al., 2020; Gutberlet, 2009; Gutberlet and Carenzo, 2020). Many of these practices are designed to address environmental challenges, such as overexploitation of natural resources and waste accumulation. A clear example is recycling cooperatives and circular economy projects contribute to waste management and recycling, reducing the amount of waste that ends up in landfills and reducing pollution.

Likewise, social enterprises and renewable energy projects promote the transition to clean energy sources, reducing dependence on fossil fuels and minimizing greenhouse gas emissions (Espelt, 2020; Villalba-Eguiluz et al., 2020). SSE is also associated with the promotion of sustainable agricultural practices, thus contributing to biodiversity conservation and ecosystem health (Gutberlet, 2009; Gutberlet and Carenzo, 2020; Lee, 2019; Sahakian and Dunand, 2015).

Improved quality of life and reduction of ecological footprint

SSE practices have a holistic impact on improving the quality of life of communities (Sotto, 2021; Villalba-Eguiluz and Pérez-De-Mendiguren, 2019). By addressing social and environmental challenges in an integrated manner, these practices generate solutions that are contextualized and focused on people's real needs.

Thus, the equity and social inclusion inherent to SSE ensure that all members of the community benefit in a fair and equitable manner (Leipold et al., 2021; Pérez Villa et al., 2022). Furthermore, by promoting responsible production and consumption, SSE contributes to the reduction of the ecological footprint of communities and encourages a more sustainable lifestyle.

Hence, the positive results in terms of social, economic and environmental impact, as well as its ability to improve the quality of life of communities and reduce the ecological footprint, highlight the great importance in the quest for a more equitable and sustainable future.

Challenges and barriers in the SSE

Despite the remarkable benefits that the SSE brings, it faces a number of challenges and obstacles that can hinder its quest for sustainability. One of the most prominent challenges lies in competing in an economic environment dominated by conventional businesses, which limits their access to financial resources and markets. Lack of public awareness and recognition can also restrict the reach and visibility of SSE initiatives, affecting their access to resources and support (Pérez Villa et al., 2022; Villalba-Eguiluz et al., 2020).

It should be added that cooperation and democratic decision-making, fundamental to the SSE, can be more complex than in hierarchical approaches. Social exclusion and disempowerment in some communities erode social cohesion in SSE initiatives, while inequalities of power and knowledge in markets make it difficult to balance pre-existing relationships (García-Lorenzo et al., 2021; Pérez Villa et al., 2022; Sotto, 2021).

Moreover, the implementation of sustainable skills training programmes in SSE requires innovation in teaching. Despite the potential of SSE to contribute to sustainability and the Sustainable Development Goals (SDGs), more empirical research is needed. Social injustice and inequality are often overlooked in the public debate on circular economy (García-Lorenzo et al., 2021; Lee, 2019; Quiroz-Niño and Murga-Menoyo, 2017).

It should be noted that Community Supported Agriculture (CSA) also faces challenges of engagement and cooperation, and the compatibility between economic growth and sustainability is a central dilemma (Do Nascimento et al., 2020; Espelt, 2020).

Overcoming these challenges will require collaborative efforts involving governments, educational institutions and society at large. Despite this, SSE initiatives continue to demonstrate their ability to generate positive impacts in terms of sustainability, social inclusion and equity, underlining the importance of addressing these challenges in order to achieve a more sustainable and equitable future.

Future guidelines

In the context of SSE, there are promising prospects and avenues for exploration that can amplify its influence in terms of sustainability and equity in development. First, SSE is emerging as a crucial vehicle for the achievement of the SDGs, encompassing areas such as poverty eradication, hunger alleviation and climate action (García-Lorenzo et al., 2021; Lee, 2019; Quiroz-Niño and Murga-Menoyo, 2017). The consolidation of supportive policies at local and national levels stands as an opportunity to cement an enabling environment that fosters the sustainable growth of SSE initiatives (García-Lorenzo et al., 2021; Pérez Villa et al., 2022; Sotto, 2021).

Similarly, public awareness and synergy between different actors, including governments, academic institutions and society as a whole, can enhance the positive impact of SSE on society and the environment, has the potential to catalyse educational and community development processes, addressing basic needs and human rights in various facets (Do Nascimento et al., 2020; Pérez Villa et al., 2022).

Cultivating new narratives that emphasise the notion of a 'circular society' as opposed to a 'circular economy' could stimulate deeper and more equitable transformations (Gutberlet and Carenzo, 2020; Leipold et al., 2021).

Moreover, the confluence between Information and Communication Technologies (ICTs) and the promotion of professionalisation within the SSE could strengthen its sustainability and foster stronger partnerships. Moreover, engaging marginalised groups, such as informal waste pickers, in dialogues on the circular economy and waste management opens the door to fairer and more remunerative partnerships (Gutberlet, 2009; Gutberlet and Carenzo, 2020). Ensuring coherence between the fundamental principles and concrete applications of the SSE is essential to preserve its transformative and equitable nature. The interaction between SSE and other development approaches, such as the SDGs, needs to be explored to deepen understanding of these constructs and to optimize their effectiveness.

In short, capitalizing on these opportunities and focusing on these future perspectives could further enhance the role of SSE in promoting more equitable, just and sustainable societies. From the governmental level, there is a need to foster cross-sectoral partnerships and further research to realize sustainable development in the context of the SSE.

Discussion

This study provides an enriching and meaningful perspective, contributing key ideas for understanding how SSE practices can influence the search for more equitable and sustainable development (García-Lorenzo et al., 2021; Lee, 2019; Villalba-Eguiluz et al., 2020). With the analysis of research on SSE and sustainability, the results and effects in terms of social, economic and environmental impact, as well as their role in improving the quality of life of communities and reducing the ecological footprint, were further explored (Gutberlet, 2009; Lee, 2019).

This state of the art allowed the identification of the opportunities presented by the SSE to promote fairer and more sustainable development, aligned with the SDGs (Quiroz-Niño and Murga-Menoyo, 2017; Villalba-Eguiluz et al., 2020). Studies, such as the case of South Korea, have shown how the SSE can be a key tool for achieving several SDGs, addressing crucial aspects such as poverty reduction, decent work and climate action. This understanding has contributed to strengthening the theoretical and practical basis for addressing global challenges through more inclusive and sustainable approaches (Villalba-Eguiluz and Pérez-De-Mendiguren, 2019).

Furthermore, the analysis of recycling cooperatives in urban contexts, such as the case of São Paulo, has shed light on the capacity of SSE to alleviate poverty and foster social and economic change in marginalized communities (Gutberlet, 2009; Lee, 2019). These studies have highlighted the importance of considering SSE as a key agent in managing resources and promoting sustainable employment, which has enriched knowledge on innovative solutions to urban challenges (Quiroz-Niño and Murga-Menoyo, 2017; Villalba-Eguiluz et al., 2020).

Furthermore, this state of the art has pointed to challenges and obstacles faced by SSE initiatives on their way to sustainability; barriers ranging from lack of resources to institutional resistance have been identified and analysed in depth. These findings not only contribute to the understanding of the obstacles themselves, but also offer insights to address them more effectively in future research and policy (García-Lorenzo et al., 2021; Pérez Villa et al., 2022; Sotto, 2021).

In terms of future directions, the state of the art has suggested multiple promising areas of research. These include the need to explore how the SSE can be more transformative and how its relationship with the SDGs can be optimised. In addition, suggestions have been made for improving the quality of sustainability skills training programmes within SSE, highlighting the importance of education and training in achieving sustainable development.

Ultimately, these developments have not only identified opportunities and challenges, but have also inspired future research directions that could continue to transform the way the socio-economic and environmental problems of our time are addressed.

Conclusion

This state of the art sheds significant light on how SSE and sustainability can converge to promote more equitable, inclusive and sustainable development. Throughout the studies reviewed, it has been shown that SSE has the potential to generate positive impacts in terms of poverty reduction, job creation, social inclusion and climate change mitigation. These findings highlight the capacity of the SSE to contribute directly to the SDGs set by the United Nations.

One of the key trends that has emerged from the state of the art is the intrinsic connection between the SSE and the SDGs. SSE acts as a catalyst for the achievement of multiple SDGs by addressing social, economic and environmental issues in an integrated manner. Furthermore, the importance of sustainability skills training within SSE has been emphasised as a means to achieve greater alignment with the 2030 Agenda.

However, the state of the art has also highlighted challenges and obstacles that need to be addressed to maximise the sustainability impact of SSE. Competition in an environment dominated by conventional business, lack of public recognition and coordination issues are some of the challenges faced by SSE initiatives. In addition, the need to balance economic growth with sustainability and the adaptation of policies for holistic transformation are critical issues that need to be addressed in the future.

Ultimately, the state of the art underlines the continuing importance of research in this evolving field. The SSE presents itself as a powerful approach to address social and environmental challenges, and its potential has yet to be fully realised. Future research can play a key role in identifying innovative approaches, addressing barriers and generating effective solutions for the creation of more balanced societies.

Finally, the analysis of the current state of Social and Solidarity Economy (SSE) research and its intersection with sustainability has revealed substantive findings. Research has identified a number of opportunities, such as the significant growth in the number of cooperatives and social enterprises worldwide in recent years, as well as the positive impact that these organisations have in terms of employment and local development.

References

Alexis, J., & Torres, G. (2020). Estado del arte de los dominios de la motricidad humana. La discursividad gestual de un coro de manos blancas. *Revista EDUCARE - UPEL-IPB - Segunda Nueva Etapa 2.0*, *24*(3), 224–242. https://doi.org/10.46498/reduipb.v24i3.1411

Chaves-Avila, R., y Gallego-Bono, J. R. (2020). Transformative Policies for the Social and Solidarity Economy: The New Generation of Public Policies Fostering the Social Economy in Order to Achieve Sustainable Development Goals. The European and Spanish Cases. *Sustainability*, *12*(10), 4059. https://doi.org/10.3390/su12104059

Cheng, Y., y Xu, J. (2021). Model of environmental management science based on circular economy theory. *Ecological Chemistry and Engineering S*, *28*(4), 513–524. https://doi.org/10.2478/eces-2021-0034

Do Nascimento, F. S., Calle-Collado, Á., & Benito, R. M. (2020). Economía social y solidaria y agroecología en cooperativas de agricultura familiar en Brasil como forma de desarrollo de una agricultura sostenible. *CIRIEC-España, Revista de Economía Pública, Social y Cooperativa*, *0*(98), 189–211. https://doi.org/10.7203/CIRIEC-E.98.14161

Espelt, R. (2020). Agroecology prosumption: The role of CSA networks. *Journal of Rural Studies*, *79*, 269–275. https://doi.org/10.1016/J.JRURSTUD.2020.08.032

García-Lorenzo, I., Ahsan, D., y Varela-Lafuente, M. (2021). Community-based fisheries organisations and sustainable development: Lessons learned from a comparison between European and Asian countries. *Marine Policy*, *132*, 104672. https://doi.org/10.1016/J.MARPOL.2021.104672

George Reyes, C. E. (2019). Methodological strategy to develop the state of the art as a product of educative research. *Praxis Educativa*, *23*(3), 1–14. https://cerac.unlpam.edu.ar/index.php/praxis/article/view/3672

Gutberlet, J. (2009). Solidarity economy and recycling co-ops in São Paulo: micro-credit to alleviate poverty. *19*(6), 737–751. https://doi.org/10.1080/09614520903026892

Gutberlet, J., & Carenzo, S. (2020). Waste Pickers at the Heart of the Circular Economy: A Perspective of Inclusive Recycling from the Global South. *Worldwide Waste*, *3*(1). https://doi.org/10.5334/WWWJ.50

Laville, J.-L. (2003). Économie solidaire : les enjeux européens. *Hermès*, *n° 36*(2), 27. https://doi.org/10.4267/2042/9355

Lee, S. (2019). Role of social and solidarity economy in localizing the sustainable development goals. https://doi.org/10.1080/13504509.2019.1670274

Leipold, S., Weldner, K., & Hohl, M. (2021). Do we need a 'circular society'? Competing narratives of the circular economy in the French food sector. *Ecological Economics*, *187*, 107086. https://doi.org/10.1016/j.ecolecon.2021.107086

Molina Montoya, N. P. (2005). ¿Qué es el estado del arte? *Ciencia & Tecnología Para La Salud Visual y Ocular*, *5*, 73. https://doi.org/10.19052/sv.1666

Patiño, R. G. (2016). El estado del arte en la investigación: ¿análisis de los conocimientos acumulados o indagación por nuevos sentidos? *Revista Folios*, (44), 165–179. https://www.redalyc.org/articulo.oa?id=345945922011

Pérez Villa, P. E., Montoya Agudelo, C. A., Uribe Castrillón, V. H., Vásquez Mira, M. Á., Ortega Barro, A. C., Pérez Villa, P. E., Montoya Agudelo, C. A., Uribe Castrillón, V. H., Vásquez Mira, M. Á., & Ortega Barro, A. C. (2022). La importancia de la educación solidaria para el fortalecimiento y elaboración de políticas públicas de economía social y solidaria (ESyS) en Colombia y en México. *Revista Latinoamericana de Derecho Social*, *34*(34), 115–144. https://doi.org/10.22201/IIJ.24487899E.2022.34.16734

Quiroz-Niño, C., & Murga-Menoyo, M. Á. (2017). Social and Solidarity Economy, Sustainable Development Goals, and Community Development: The Mission of Adult Education & Training. *Sustainability 2017, Vol. 9, Page 2164*, *9*(12), 2164. https://doi.org/10.3390/SU9122164

Sahakian, M. D., & Dunand, C. (2015). The social and solidarity economy towards greater "sustainability": learning across contexts and cultures, from Geneva to Manila. *Community Development Journal*, *50*(3), 403–417. https://doi.org/10.1093/cdj/bsu054

Sotto, O. (2021). Políticas locales de Economía Social y Solidaria: aportes para el análisis de las iniciativas desarrolladas por la Municipalidad de Santa Fe entre los años 2011-2019. *PAMPA*, *23*, e0031. http://www.scielo.org.ar/scielo.php?pid=S2314-02082021000100031&script=sci_abstract

Villalba-Eguiluz, U., Egia-Olaizola, A., & de Mendiguren, J. C. P. (2020). Convergences between the Social and Solidarity Economy and Sustainable Development Goals: Case Study in the Basque Country. *Sustainability 2020, Vol. 12, Page 5435*, *12*(13), 5435. https://doi.org/10.3390/SU12135435

Villalba-Eguiluz, U., & Pérez-De-Mendiguren, J. C. (2019). La economía social y solidaria como vía para el buen vivir. *Revista Iberoamericana de Estudios de Desarrollo = Iberoamerican Journal of Development Studies*, *8*(1), 106–136. https://doi.org/10.26754/OJS_RIED/IJDS.338.

Article

Psychological impact of feminicide

Impacto psicológico ante el feminicidio

CASTILLO-QUIÑONES, Adriana Guadalupe†, CEJAS-LEYVA, Luz María*, FERNANDEZ-MOJICA, Leticia and LAZCANO-FRANCO, Maura Antonia

Facultad de Psicología y Terapia de la Comunicación Humana de la Universidad Juárez del Estado de Durango

ID 1st Author: *Adriana Guadalupe, Castillo-Quiñones /* **ORC ID:** 0009-0003-0622-8305, **Researcher ID Thomson:** JKH-6987-2023, **CVU CONAHCYT ID:** 1331808

ID 1st Co-author: *Luz María, Cejas-Leyva /* **ORC ID:** 0000-0003-1822-5606, **Researcher ID Thomson:** V-3185-2019, **CVU CONAHCYT ID:** 889382

ID 2nd Co-author: *Leticia, Fernández-Mojica /* **ORC ID:**0000-0003-2947-9142, **Researcher ID Thomson:** 3055270; **CVU CONAHCYT:**1003137

ID 3rd Co-author: *Maura Antonia, Lazcano-Franco /* **ORC ID:**0000-0002-5055, **Researcher ID Thomson:** ABC-8297-2020, **CVU CONAHCYT ID:** 885363

Abstract

This paper was designed with the objective of describing the characteristics and consequences of femicide in order to raise awareness in society about the psychological impact of its normalization and minimization. This crime is due to the fact that the conduct itself develops within an unequal power relationship between men and women, due to different factors, among which can be found: economic, political, social, religious and sexual, to mention a few. Affecting not only the life and integrity of women, but also third parties, such as the family. It is for this reason that this paper seeks to provide a look at the effects that femicide has on society, as well as the characteristics and consequences of the same and some intervention strategies that can be applied, giving importance to the psychological area and the way in which, as a society we can contribute something to stop normalizing this type of violence.

Femicide, Psychology, Crime, Intervention

Resumen

El presente trabajo fue diseñado con el objetivo de describir las características y consecuencias del feminicidio con la finalidad de concientizar a la sociedad acerca del impacto psicológico de su normalización y minimización. Este delito se debe a que la conducta en sí, se desarrolla dentro de una desigual relación de poder entre hombres y mujeres, debido a diferentes factores, entre los cuales se pueden encontrar: el económico, el político, el social, el religioso y el sexual por mencionar algunos. Afectando no solo la vida y la integridad de la mujer; ya que también, se perjudica a terceros, como la familia. Es por esto, que con el presente se busca aportar una mirada sobre los efectos que tiene el feminicidio en la sociedad, así como, las características y consecuencias del mismo y algunas estrategias de intervención que se pueden aplicar, dándole importancia al área psicológica y la manera en que, como sociedad podemos aportar algo para dejar de normalizar este tipo de violencia.

Feminicidio, Psicología, Delito, Intervención

* Correspondence to Author (E-mail: doctoradoluz1@hotmail.com)

† Researcher contributing first author.

Introduction

In recent years there has been a lot of talk about feminicide; a problem that is intensifying every day, alarming the country and the world in general.

The aim of this essay is to describe the characteristics and consequences of feminicide, in order to make society aware of its psychological impact, its normalisation and minimisation. Unfortunately, not many people are aware of what this crime really is, nor of the consequences it can have on people's lives in general.

The text shows the importance of the issue, the damage it causes and what we as a society can do to gradually eradicate this problem. The methodology used for its elaboration is qualitative and documentary as it is the one that best fits in this case, to describe the aforementioned problem.

Femicide is considered a serious violation of women's human rights, as well as one of the most extreme manifestations of discrimination and violence against women. Discrimination and violence are brutal forms in which girls, adolescents and adult women are subjected; evidencing the hatred and contempt felt towards them (Olivares et al., 2021, page 12).

Femicides are the most extreme form of contempt and violence against women in Mexico, our country. In the family, in the street, in schools and at work, they are assaulted, made invisible and humiliated, preventing them from enjoying the same opportunities as men.

If we want to eradicate the violent deaths of thousands of women and the violence they experience on a daily basis, it is crucial to intervene appropriately, condemning the aggressors, understanding the problem in depth, preventing it and taking action to achieve real change. This will only be possible by making the magnitude of the problem visible, being empathetic, not ignoring or normalising these actions.

The research on this problem was carried out precisely because of the interest in knowing the consequences and some of the causes of this crime and how to intervene psychologically in this situation.

The attention to feminicide implies an inter and multidisciplinary work, so the focus of this contribution is more towards the psychological field, since it is an area that can contribute to the understanding and explanation of this problem, with the intention that women who have been violated and the families of the victims can re-evaluate their emotional and mental part, since, unfortunately, in many cases this part of health is left aside.

It is also important that in the different care centres this problem is made visible from the mental health point of view, so that the people involved in this type of experience feel safe and are able to carry out a therapeutic process in confidence.

Justification

Historically, violence is a crime that women have had to suffer. This begins with cultural issues and little by little it has been escalating and incorporating other forms of exercising control, such as psychological violence, physical violence or even death.

The situation worsens once it is considered normal. The institutions that should protect and help women, leave them aside, revictimise and ignore them, fail to provide them with the support they need to safeguard their integrity and nobody does anything about it.

Therefore, the aim is to raise awareness and reflect on some of the causes and consequences that lead to femicide. An important point mentioned by Bejarano (2014) in this regard is that the state provides precarious care due to the limited resources allocated for this purpose. As a result, it is not possible to carry out efficient work or to provide the support that women who are victims of violence need (paragraph 9).

Problem

The problem of feminicide in Mexico is alarming, the issue is becoming more controversial every day, it is a situation that has been dragging on historically and over the years has become more acute, as hundreds of women and girls have been victims of this violence just because they are women.

CASTILLO-QUIÑONES, Adriana Guadalupe, CEJAS-LEYVA, Luz María, FERNANDEZ-MOJICA, Leticia and LAZCANO-FRANCO, Maura Antonia. Psychological impact of feminicide. ECORFAN Journal-Republic of El Salvador. 2023

There is an urgent need to protect girls and women from this violence and to hold the perpetrators accountable, to provide real resources to the victims and, above all, to provide justice for each of the women who have lost their lives due to violence (Instituto de las Mujeres del estado de San Luis Potosí, 2012, p. 14).

Therefore, it is necessary to intervene as a society and as mental health professionals to ensure that this crime is punished as it should be and that the families of the victims and the victims themselves, who have survived this crime, are given the justice they deserve and above all the psychological support they need at that time.

Objective

To describe the characteristics and consequences of femicide in order to raise awareness of the psychological impact of its normalisation and minimisation.

Clarification of terms

Femicide

The National Commission to Prevent and Eradicate Violence Against Women, (2016), typifies femicide as the violent death of women for gender-based reasons; it is the most extreme form of violence against women.

The General Law on Access to a Life Free of Violence (LGAVLV) criminalises femicide in Mexico and its purpose is to establish coordination between the Federation, the states and the municipalities to prevent, punish and eradicate violence against women, as well as the principles and modalities that guarantee their access to a life free of violence, which favours their development and well-being in accordance with the principles of equality and non-discrimination (Instituto Nacional de las Mujeres, 2007, p. 11).

The Federal Criminal Code defines femicide as a criminal offence and a presumed femicide is committed when one of the listed gender-based reasons is fulfilled.

The intentional homicide against a woman should be investigated as a femicide if:

- The victim's body was exposed.

- The aggressor maintained or maintained some link with the victim.

- There is a history of previous stalking or harassment.

- There was sexual violence prior to the murder.

- There are physical injuries.

- There is a history of domestic violence (Garcia, 2020, para. 3 and 4).

Violence against women and girls is one of the most serious forms of violence, which has remained throughout life, in a society that normalises, invisibilises and degrades the female population. Feminicide, as a concept, includes the factor of impunity and is a chain of violations of women's human and social rights.

In most countries, femicide is no different from homicide in criminal law, with only a few countries legally recognising femicide as distinctly different from homicide. Only 16 countries have included femicide as a specific crime, including Mexico.

The most recent global report on homicide by the United Nations Office on Drugs and Crime (UNODC) was published in July 2019, presenting data from 2017. That year, 87,000 women worldwide were intentionally murdered, more than half of them (50,000) by intimate partners or family members (Offiong, 2021, para. 9 and 10).

No matter how viciously these crimes were perpetrated, at the moment, those who beat or stab women to death could get a lesser sentence of 20 to 25 years in prison.

In the state of Durango, Mexico, more than 12 femicides have been recorded so far during the current administration, according to information provided by Julieta Hernández Camargo, president of "Sí hay mujeres en Durango" (Yes, there are women in Durango). Most of the alleged perpetrators of the femicides have been arrested, although no sentences have yet been handed down by judges (Lastra, 2023, para. 1-4).

CASTILLO-QUIÑONES, Adriana Guadalupe, CEJAS-LEYVA, Luz María, FERNANDEZ-MOJICA, Leticia and LAZCANO-FRANCO, Maura Antonia. Psychological impact of feminicide. ECORFAN Journal-Republic of El Salvador. 2023

A femicide can be punished with up to 70 years in prison in some states in our country, but if the murderer alleges that the crime was committed under a state of "violent emotion" (also known as a crime of passion), the sentence can be reduced to only a quarter (Duran, n.d., para. 30).
Femicide

Many of the men who have been identified as potential feminicides are because in the past, mainly in their childhood, they lived in a violent environment that forced them to feel hatred towards women or were victims of physical and psychological abuse (Perez, 2022, para. 2).

Femicides can be the victim's own husband, partner or ex-partner, criminal groups, killers who look for victims of opportunity or predators who look for women with a specific profile to fulfil their fantasies, whom they go out to hunt (Sánchez, 2021, para. 8).

The level of violence, poverty, machismo and impunity make a perfect mix for the development of feminicides. The impunity that prevails in our country allows these types of people to continue to act against women, adding that in order to better understand the origin of this crime it is also necessary to determine that there are different types of feminicide, although the research carried out to date has not been sufficient to delimit their classification.

Types of femicide

The categorisation of the types of femicide has progressed a little further, as detailed below.

Intimate Femicide

This is the death of a woman committed by a man with whom the victim had or had had an intimate relationship or link: husband, ex-husband, boyfriend, ex-boyfriend or lover. It includes the case of a friend who murders a woman (friend or acquaintance) who refused to enter into an intimate relationship (sentimental or sexual) with the aggressor (Olamendi, 2016, p. 35).

Non-intimate femicide

The crime is carried out by an unknown person who has no relationship with the victim. In these cases, physical and sexual aggression is present (Navarro, 2020, para. 6).

Child femicide

The murder of a girl up to 14 years of age, by men or women, in the context of a relationship of responsibility, trust or power that gives them their adult status over the girl's minority (Albarrán, 2015, para. 41).

Familial femicide

It is the death of a woman in the context of a kinship relationship between the victim and the perpetrator. The relationship can be by consanguinity, affinity or adoption (Olamendi, 2016, p. 34).

Femicide by prostitution

This is the murder of a woman in prostitution; committed by one or more men. This typology includes cases in which the perpetrator or perpetrators kill the woman motivated by hatred and misogyny aroused by the victim's status as a prostitute (Atencio and Laporta, 2012, para. 31).

These are some of the types of feminicide, the victims of which can be women of all ages and belonging to any social group, as well as the perpetrators. Although, as previously mentioned, there is still a lack of categorisation of those who commit feminicide, there are currently a series of characteristics that identify them.

Femicide profile

It can be said that, although there is no single type of feminicide perpetrator and all of them have characteristics that make them different from each other, there are a series of elements that tend to be common in almost all cases. Pérez, (2022) points out that the National Institute of Women has made known some of the characteristics of a subject who can be profiled as a feminicide:

Violent and jealous people

These are people who fall into situations of uncontrollable violence. They respond with excessive violence to any situation that puts their instinct of "superiority" at risk, they consume drugs or alcohol and are prone to commit this crime (many of the attacks that have been carried out against women have been perpetrated under the influence of drugs or alcohol).

Social complacency with violence

Those who grew up in a social context where violence against women is celebrated and encouraged have behaviours that can lead to femicidal violence.

Impunity

Those who have touched a woman inappropriately, without legal consequences for their actions, increase their level of aggression and may even commit femicide.

Misogyny

Those who show irrational hatred towards women are prone to extreme violence.

Exacerbated machismo

People who consider women to be inferior may be potential femicides.

Gender inequality

Those who live in an environment where women's rights are constantly undermined on the basis of gender alone are a red hotspot.

Patriarchal culture

Institutionalised system of domination that maintains the subordination and invisibility of women.

Argumentation

The theoretical elements found on femicide in the documentary consultation are set out below.

Background

It is necessary to talk about gender-based violence against women in order to better understand the term femicide. Historically, girls have been taught how to behave in society, to be polite, sweet, tender; even the differentiation in the use of toys shows the way in which contrasts are promoted in the education of women and men. At the same time, women are expected to remain virgins until marriage and maternal in order to be socially accepted; on the other hand, men can have sex freely, they can go to bars, have one or several relationships, without being frowned upon (Cárdenas and Vargas, 2014, p. 21).

All these beliefs and teachings are transmitted from generation to generation through culture, schools, education received at home, even through the media and social networks, creating a series of prejudices and stereotypes that become naturalised and accepted (Díaz, 2017, p. 11).

Galeana (2014) argues that, since classical antiquity, Aristotle considered women to be incomplete human beings, less capable than men. Plato, on the contrary, made his disciples see that there could be nothing better for a society than having all its members to defend it. He therefore proposed that women should be given the possibility of participating in its defence.

In the selective Athenian democracy, only free men with the ability to bear arms could vote, thus excluding the elderly, the disabled, slaves and women, who made up the majority of the population. Unfortunately, the Aristotelian view prevailed and not the Platonic idea (p.15).

Over the centuries, the patriarchal system was reinforced by philosophical and religious as well as legal conceptions. Women have had to fight hard to deconstruct this discriminatory culture. They fought first for their labour rights, then for access to education and for their political rights, and it was thanks to these women who paved the way and worked to stop this from happening that the term feminism was born.

Ordorica, (2019), indicates that the first recorded use of the word occurred only around 45 years ago; in 1976, when three radical feminists, two North Americans and a Lebanese, defined the concept at the "First International Tribunal on Crimes Against Women" held in Belgium.

The definition stabilised once Russell (American Feminist) published the book Femicide: The Politics of Women Killing in 1992 where she defined the concept as "misogynist killing of women by men": the misogynist killing of women by men. It was this definition that would be reinterpreted for the Mexican context (paragraphs 4-6).

Hernández (2020) mentions that the concept of femicide became popular in the context of the events in Ciudad Juárez (Chihuahua, Mexico). Between 1993 and 2012, more than 700 violent murders of women were recorded there, most of whom showed evidence of sexual violence.

In 1993, Alma, a 16-year-old girl, was found murdered in a vacant lot with blows to her face and signs of rape, raising concerns about the whereabouts of many other missing women.

Several bodies were found in the cotton fields, half-buried, with marks of violence, and as a result, the world began to speak of "Las muertas de Juárez" (the dead women of Juárez). By the way, they should have been called "Las asesinadas de Juárez" because they did not die automatically, but were murdered. This made Mexico a feminicidal country and attention was drawn to the issue (paragraph 12).

Faced with the bewilderment of the Mexican and international community, as well as the lack of concepts that could provide an answer as to why these murders were taking place, Dr. Marcela Lagarde y de los Ríos in 2007 proposed, together with other deputies, to frame the initiative of the General Law on Women's Access to a Life Free of Violence to investigate more about the femicides committed in Ciudad Juárez (Peralta, 2020, p. 72).

Chihuahua, Guerrero and Baja California were the states with the highest rates of female deaths with presumed homicide in 2009. These are just some of the data on the basis of which the picture of the magnitude and intensity of the violence against women that claims fatal victims is configured (Castañeda, 2012, p. 16).

These events have been the watershed for the constant feminist protests across the country to focus attention on the importance of addressing gender violence, without leaving behind the fact that it is not only in Mexico that this problem exists.

Ramírez, (2018) indicates that the term feminicide began in Latin America in the last two decades, where there has been a broad debate on the concept as an effect of the situation of vulnerability and violence in which women find themselves, and especially due to the ineffectiveness of the justice system to contain and repress the death of women.

For this reason, it was in Latin American countries that the political decision was taken to criminalise the murder of women in certain circumstances, calling it feminicide.

Chile, Costa Rica, Guatemala, Nicaragua, El Salvador, Mexico and Peru call it feminicide, and although progress has been made in terms of protection and guarantees, there is still a long way to go (pp. 11-14).

At the state level (Durango, Mexico), according to Barrientos (2021), as of 2021 and based on statistics from the Executive Secretariat of the National Public Security System, the number of femicides has increased exponentially over the last few years.

In 2015 there were two investigations initiated for this crime, as well as in 2016, while in 2017 there were nine femicides, four in 2018, 10 in 2019 and 12 investigations initiated by the authorities in 2020. Despite the fact that an Alert for Gender Violence against Women has been active in Durango since 2018, this type of crime is on the rise (para. 7).

Prevalence

According to official statistics, during 2021, 969 femicides were registered in Mexico, an average of 2.6 per day. In 2022, 1,006 victims of feminicide were counted, which means that 3 women die every day due to gender violence. Currently, feminist groups have denounced that, on average, 10 women are murdered every day (Islas, 2022, para. 23).

The State of Mexico is the state with the most femicides in absolute numbers. The government of Alfredo del Mazo has registered 131 incidents in 11 months; it is followed by Nuevo León, with 85 cases; La CDMX, with 70; Veracruz, with 63, 42 in Chiapas and 40 in Oaxaca (Ramos, 2022, paragraph 2).

But it is not only in Mexico that femicide exists, nor is it the country with the highest figures; there are other countries and continents that also suffer from this violence against women.

Bermúdez and Meléndez, (2020) say that in 2017 there were 87,000 intentional homicides of women, 58% of them took place within the family and 34% were committed by their partner.

CASTILLO-QUIÑONES, Adriana Guadalupe, CEJAS-LEYVA, Luz María, FERNANDEZ-MOJICA, Leticia and LAZCANO-FRANCO, Maura Antonia. Psychological impact of feminicide. ECORFAN Journal-Republic of El Salvador. 2023

According to the United Nations Office on Drugs and Crime (UNODC, 2018). The region with the highest percentage of femicides in relation to homicides of women in 2017 was Oceania (42%), followed by Africa (38%), the Americas (35%), Asia (31%) and Europe (29%). The data also show a homogeneous distribution in relation to the prevalence of physical violence cases (paragraph 3).

Since 2019, countries such as Greece, Slovenia, Germany and Italy experienced significant increases in femicides, Greece had the highest increase in 2021 with a peak of 187.5% from eight incidents from 2020 to 2023. It is also important to note that, according to experts, this has much to do with the control men had over women in closed settings during the pandemic (Khatsenkova, 2023, para. 7).

Etiology

It is clear that the profile of a feminicide offender can vary depending on the case, and therefore the causes for committing this crime depend on particular circumstances; however, a history of physical and psychological violence increases the risk of being a victim of feminicide much more. Other causes include gender violence, domestic violence, poor anger management, pathological jealousy, substance abuse, psycho-emotional disorders, low self-esteem and economic problems, among others.

Hernández (n.d.) indicates that there is another factor that increases the probability of a woman being a victim of violence, with the risk of feminicide; that is, having been a victim of sexual violence increases four times more her risk of being a victim of this form of violence.

It is not that sexual violence conditions a femicide, but it does make it more likely under the extreme domination to which some femicides subject their victims; however, the other types of violence should not be minimised (paragraph 20).

Lugo (2020) points out that the writer and journalist Lydiette Carrión, who specialises in documenting a network of trafficking in girls and adolescents and feminicides in the State of Mexico, explains that not all feminicides can be committed for the same reason. In other words, there is a clear division between femicides that occur in rural contexts, where the violence is due to specific causes specific to the culture and activities that take place in these places, and those committed in more urbanised areas, where it is even due to organised crime (paragraph 4).

However, there are other elements that feminicides have in common and that could occur frequently in rural areas, or areas with scarce resources, and one of these is machismo, this does not mean that it does not occur in other areas, simply that it is more common to see it in this environment since most men have been taught over time to be exploitative and to exploit women for their own benefit.

Social consequences

At the social level, femicide leaves a culture of learned violence, where the one who loves, controls, mistreats and minimises the female sex. It is currently a plague that affects women, violating their fundamental rights, threatening their lives and preventing the development of an inclusive and democratic society.

The specialist Rita Segato introduced the concept of gender violence as "the incubator" of all other forms of violence, it is the first pedagogy; it is the first school of all other forms of violence (Demirdjian, 2019, paragraph 10).

Femicide is related to social and institutional misogyny, to the failures of the justice system and impunity. This violence is not exclusive to any political or economic system; unfortunately, it occurs in all societies around the world and without distinction of economic position, race or culture (Álvarez, 2019, paragraph 5).

The authorities are indifferent, liars and evasive, this is one of the main problems that society faces in this situation and every time new cases of feminicide arise, there is no perceived path that leads to justice and above all, to the eradication of the problem (Castañeda, 2012, p.15).

CASTILLO-QUIÑONES, Adriana Guadalupe, CEJAS-LEYVA, Luz María, FERNANDEZ-MOJICA, Leticia and LAZCANO-FRANCO, Maura Antonia. Psychological impact of feminicide. ECORFAN Journal-Republic of El Salvador. 2023

Femicides have led us to reflect on two things: firstly, on prison policies, the authority of judges and how they handle these cases, and secondly, on the type of society that makes it possible for a woman to be raped and murdered because she is a woman; even today it is safe to say that there are still people who are not informed about what a femicide is.

It is there, in access to justice, where most victims complain about the mistreatment and revictimisation they receive from the authorities. And the authorities, overwhelmed, make slow progress in resolving cases with obstacles, lack of personnel, lack of training and budget cuts (Barragán, 2021, para.10).

There are poorly prioritised resources, as well as a lack of human sensitivity, emotional and spiritual intelligence to respond to this national catastrophe, which leads to the need to raise awareness and make this problem more and more visible, for the vindication of women's right to life (Flores, 2016. P. 53).

Legal consequences

In Mexico, the violent murders of women have led to the emergence of the terms feminicide and feminicidal violence. According to the federal penal code, certain essential characteristics must be met for femicide to be differentiated from any other type of homicide.

Contreras, (n/d) indicates that Article 325 of the Federal Criminal Code establishes that the crime of femicide is committed by anyone who takes the life of a woman for gender-based reasons. It is considered that there are gender-based reasons when any of the following circumstances concur.

I.   The victim shows signs of sexual violence of any kind.

II.   The victim has been inflicted with infamous or degrading injuries or mutilations, prior or subsequent to the deprivation of life or acts of necrophilia.

III. There are antecedents or data of any type of violence in the family, work or school environment, of the active subject against the victim.

IV.   There has been a sentimental, affective or trusting relationship between the perpetrator and the victim.

V.   There is information that establishes that there were threats related to the criminal act, harassment or injuries by the perpetrator against the victim.

VI.   The victim has been held incommunicado, regardless of the time prior to the deprivation of life.

VII. The victim's body is exposed or exhibited in a public place (paragraph 3).

The penalties for femicide in the state of Durango, Mexico according to Article 147 bis are 40 to 60 years imprisonment. If the victim is a minor, older adult, pregnant or disabled, 45 to 65 years in prison and a fine of 3240 to 4680 times the Unidad de Medida y Actualizacion (Maldonado, 2020, para. 2).

Psychological impact

Femicide is currently an act that affects society in all parts of the world, occurring in diverse contexts, in all social strata and leaving in its wake pain, suffering, anger and frustration. It affects not only the women involved, but also their children, families and communities.

Rodríguez (2019) mentions that the woman victim of femicide faces two situations that are linked between life and death, both situations provoke and trigger a series of damages that alter, either in their environment or in their own individuality, one of these situations is when the victim is a survivor of this attack, which leads to emotional sequelae that can affect the daily life of the woman as it can reduce their social interaction, acquire low self-esteem, guilt and emotional dependence.

In the alterations of the victim's personality, Post Traumatic Stress Disorder (PTSD) can occur, where the affected person can relive over and over again the scenes that disturbed her mental condition, presenting a state of hypervigilance and in some cases paranoid conditions.

For a woman to have experienced a violent event within attempted femicide can lead to PTSD. Additionally, comorbidity can be related to depression, bipolar disorder, anxiety, substance use disorders, or neurocognitive disorder, among many other consequences (DSM-V, 2013).

On the other hand, there is the second situation that is equally devastating and is defined as the greatest act of violence against women; femicide as such. In this case, those directly affected are the family members, who primarily suffer the consequences of femicide, having to cope with life after the fact, without the presence of one of their family members. Families, for example, lose the mother as their fundamental pillar and suffer the consequences (Tornimbeni et al, 2020, p. 1).

(Vélez, 2018) mentions that the family may present emotional problems, difficulty adapting to changes, feelings of guilt, low self-esteem, depression, signs of aggression and attitudes of isolation.

All of this causes different affectations because it is not only the victim who presents consequences, but also the family system is altered; causing dysfunctions in the family environment and in the social sphere. Within the family system, different reactions are generated in each of its members, who assume different positions with respect to the situation (paragraph 1).

For all of the above reasons, feminicide is a fact that must be studied and dealt with in an interdisciplinary manner in the search to design alternatives and changes that make it possible to safeguard the integrity of society and provide effective care for the victims.

Intervention

In a society of murdered women, of which we are all a part, hatred, discrimination and contempt towards women increases daily and means that gender violence continues to be perpetrated, often with impunity and in silence. Justice, like any other law, reproduces macho mechanisms and most of the time does not guarantee women's rights or protect them in the face of macho violence.

We must insist that the elimination of gender violence is a collective responsibility, not only of the victim. If we want to avoid more feminicides, we must ensure that the state implements public policies free of conservative, religious and sexist beliefs in which the idea that women are only there to serve men prevails.

González (n.d.) suggests some strategies that can help prevent violence against women and girls, starting by incorporating the gender perspective and the right to live free of violence into the educational curriculum so that:

1. From an early age girls and boys learn to know their bodies and make them respect them.

2. Acquire the ability to differentiate between affectionate acts and abusive actions.

3. Access key knowledge about bodily changes as they grow up.

4. Learn to value themselves and defend their bodies as a territory that cannot be subjugated by anyone. The greater the knowledge, the greater the self-esteem; the greater the self-esteem, the less likely to fall into toxic, abusive and violent relationships.

5. Have the strength to say NO if they feel that someone wants to subjugate, humiliate or attack their body and their life (paragraph 6).

In short, girls, boys and adolescents must learn that they have the same rights and that women are nobody's property.

On the other hand, Cervera (n/d) mentions that close communication can be established between governmental institutions, private care centres and civil society associations that deal with the problem of violence against women and children in order to establish urgent and free prevention and care measures.

To follow up on the complaints filed by women against their partners, as well as to provide psychological and medical support to victims of violence; a very important measure, as many women remain silent because the institutions do not listen to them and their cases are forgotten (p. 472).

CASTILLO-QUIÑONES, Adriana Guadalupe, CEJAS-LEYVA, Luz María, FERNANDEZ-MOJICA, Leticia and LAZCANO-FRANCO, Maura Antonia. Psychological impact of feminicide. ECORFAN Journal-Republic of El Salvador. 2023

This commitment must be accompanied by the business sector, civil society organisations, institutes, universities and academia. This participation is essential and will favour a country without violence, not only for women, but for the entire population. And that all of us, who now have information about this problem at our fingertips, should also be part of the solution.

Analysis and Discussion

Historically, there has been violence against women and, according to research, it is violence that exerts control over women. Women are taught that they must meet certain standards in order to fit in socially. However, over the years many women have spoken out against discrimination and it is thanks to feminist movements that their status has improved. Nevertheless, inequality, control and access to power between men and women have not yet been overcome.

The research carried out for this article leads us to reflect that this struggle is not based on seeking power over men but over people themselves, over roles, decisions and the sexuality of each person. Olguín and Rojas (2023) mention that this struggle is not about women against men, it is against the machista system that affects us all because, although it may not seem like it, men are also affected by machismo and its consequences such as feminicide, situations that are not talked about.

Due to the education that most men receive, they carry a huge mental and social burden as alpha males, family providers, successful and competitive men. Living in a society where they are told how and in what way we have to be as men and as women is a heavy burden, which is why most of the time it is men who are the protagonists of all forms of violence against women, from drug trafficking, arms trafficking, human trafficking, assaults and above all femicides (paragraphs 1-5).

We are acting badly as a society by reproducing violent masculinities, with men raping women, children, adolescents and the elderly. While each feminicide is the result of different causes, it cannot be overlooked that many of the aggressors feel power, possession and authority over women, which are the main reasons why men murder women (Sahuquillo, 2017, paragraph 3).

Thousands of girls, young women and older women live in a constant risk of suffering some kind of violence and to a greater or lesser extent society bears a heavy burden of responsibility for being indifferent to the actions that affect women's physical and emotional integrity.

According to some studies, the most dangerous place for a woman to live is in her own home, unfortunately the majority of femicides are caused by the victim's partner. The person who should care, love, and protect her the most, is instead the one who ends her life (Zraick, 2018, p. 18).

Femicide is foreseeable before it happens, due to experiences of violence manifested in jealousy, insults, economic control, manipulation, physical, sexual or psychological aggression, women tend to remain silent not only if this happens at home but also at work, in the street, on public transport and at school, as spaces conducive to suffering some kind of aggression.

In Mexico, statistics on femicides are increasing year by year. Currently there are 11 feminicides a day and unfortunately it has reached a point where they represent only one figure; it has been forgotten that 11 feminicides are 11 women and that these statistics are people with dreams, with family and friends. Feminicide is dehumanising us, we are just automatically repeating figures. Normalising this crime has led to the need to demand and protest for justice for these women (Reyes, 2023 para. 6).

As a society we must speak out because the victims are mothers, daughters, friends, people with goals in life. As a collective we are turning the other way in the face of the impunity that exists in the country, which is blinded by fear and shame that prevents us from taking actions such as denouncing the crime. Giving the impression that it is better to accept this type of mistreatment.

This form of violence has a direct impact on the victim, the perpetrator, the children and family members of both parties, it is a problem of great magnitude, without leaving aside the social aspect; friends and the community.

The damage caused by femicide can affect the lives of many people, even if the victim does not die, the attempted femicide has permanent consequences.

Experiencing any type of violence tends to limit people's functionality, they may experience emotional exhaustion, physical fatigue, inhibition, apathy, low self-esteem and frustration. In the worst cases, when the family loses a family member, the experience of grief is accompanied by the legal process, which is just as emotionally exhausting as it revictimises the family, together with the institutional violence that in most cases occurs, which limits the quality of life of the family members.

Therefore, it is of vital importance to provide them with psychotherapeutic intervention in order to develop the psycho-affective tools that allow them to adequately elaborate their mourning process after the loss of their family member, as well as to overcome the traumatic or stressful situation that the family members may have experienced, especially to rebuild their life project (Olivares et al, 2021, p 19).

It is very important that when a report of violence is made, the Public Prosecutor's Office acts immediately by removing the aggressor from the family environment, as well as preventing a possible feminicide, it also guarantees the emotional stability of the rest of the family.

We must remember that it is not right for the next generation to normalise insults, lack of respect towards their partner, substance abuse, much less physical aggression or any type of violence, this is what people learn and normalise, then these attitudes are what they repeat as they grow up and the cycle is reproduced. Children must be taught that violence cannot be a form of love.

Based on all of the above, there is a need to implement public policies and strategies, as well as projects that allow mental health education in schools so that children and adolescents learn about their emotions and feelings and how they can work with them. Having mental health in childhood means having a good development, as well as learning healthy social skills to cope with problems that may arise (United Nations, 2006, p. 6).

It is also important to know that it is not all the work of the State; at home, parents must also contribute and have a respectful education, instil values and above all the responsibility to remain physically, emotionally and spiritually stable in order to provide them with the best possible education.

For its part, the State must also take the necessary measures to support the families of victims of feminicide or attempted feminicide with professionals in the area of psychology or psychiatry, depending on the need, which not only guarantees the right to justice, but also to timely access to professional treatment (National Human Rights Commission, 2021, p. 28).

The role as psychology professionals in this issue is essential; as we have to actively participate in programmes to prevent violence in schools, support gender equality education both in behaviour and in the expression of feelings; as well as work with young aggressors and bullies, considering that some of them might also have been victimised. As psychology professionals, it is also necessary to be in contact with the aggressor in order to understand the reason for his offence and its possible relation to a disorder.

It is also necessary to consider that within prisons, psychology professionals play a very important role in the diagnostic and therapeutic function with detained offenders, which, to date, is unfortunately not given the importance it deserves. There is a lack of support and visibility so that they can be properly followed up in prisons.

Women who are suffering from violence on a daily basis cannot be left in oblivion. We must raise awareness and provide more support for those who are still being abused in silence, ensuring that they are protected so that they can raise their voices.

Conclusions

Over time, patriarchal thinking has had a negative impact on crimes such as feminicide, which causes irreversible damage at the family, social and political levels. At the family level, the psychological, social and biological state of those around the victim is altered, with children and parents being the most affected, and in the case of death, those close to the victim experience depressive disorders, anxiety and post-traumatic stress, among other symptoms.

On a social level, criminal and aggressive behaviour is produced, as well as revenge, the result of an apprenticeship probably experienced at home. Drug addiction, alcoholism and even bad influences can drag the perpetrator to continue committing the crime of feminicide.

From the political point of view, it is necessary to create and approve laws that protect the wellbeing of women or to make effective the laws that already exist, that politicians in general leave corruption aside and focus on what is really important, that they pay attention to the needs that exist such as: improving the country's penitentiary spaces, professional support from doctors, psychiatrists and psychologists, knowing in depth the real history of the perpetrators to understand the reason for their actions and provide them with the best therapeutic treatment that is required, depending on the case.

We have to stop normalising violence in our society, this is a problem that has been going on for many years. Fortunately, many women are already breaking the silence and it is society's duty to inform itself about how it can help and how it directly impacts society as a whole in order to prevent it. We need to be empathetic and not look the other way when it comes to violence such as feminicide.

Reaffirming this position also leads us to reflect on the need to educate families, teachers in schools, especially mothers and fathers, who are responsible for providing the axiological and educational references in the family context..

References

Albarrán, J. (2015, Diciembre). Referentes conceptuales sobre femicidio / feminicidio. Su incorporación en la normativa jurídica venezolana. Scielo: http://ve.scielo.org/scielo.php?script=sci_arttext&pid=S1690-32932015000200010 .

Alvarez, R. (2019, 10 de abril). La violencia y el feminicidio están matando a la sociedad. Lexlatin. https://lexlatin.com/opinion/la-violencia-y-el-feminicidio-estan-matando-la-sociedad

Atencio, G. y Laporta E.. (2012, 5 de Julio). Tipos de feminicidio o las variantes de violencia extrema patriarcal. de feminicidio.net : https://feminicidio.net/tipos-de-feminicidio-o-las-variantes-de-violencia-extrema-patriarcal/.

Barragán, A. (2021, 24 de Noviembre). México, el fracaso en frenar los feminicidios. https://elpais.com/mexico/2021-11-25/mexico-el-fracaso-en-frenar-los-feminicidios.html.

Barrientos, C. (2021, 29 de Junio). Cinco feminicidios reportan Durango en 2022. El siglo de Durango. https://www.elsiglodedurango.com.mx/noticia/2021/cinco-feminicidios-reporta-durango-en-2021.html.

Bejarano, M. (2014). El feminicidio es sólo la punta del iceberg. Scielo. https://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S1870-39252014000600002

Bermúdez, M. y Meléndez, M. (2020, 21 de diciembre). Epidemiological analysis of gender violence in the European Union. Scielo https://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S0212-97282020000300002

Cárdenas, D y Vargas, M. (2014). "Identidad de género y relaciones de poder en el noviazgo entre adolescentes. Un estudio de dos colegios en Valle Central". repositorio. http://repositorio.sibdi.ucr.ac.cr:8080/jspui/bitstream/123456789/1987/1/37247.pdf

Castañeda (2012, 22 de Junio). Feminicidio y violencia de género en México: omisiones del Estado y exigencia civil de justicia. De Iztapalapa Revista de Ciencias Sociales y Humanidades. https://www.pjenl.gob.mx/ViolenciaDeGenero/download/articulo-feminicidio-violencia-genero-mexico.pdf.

Cervera, L. Flores, R. Fuentes, C. Monárrez, J, Rubio, R. (s/f). Recomendaciones para prevenir, investigar, reducir y erradicar la violencia contra las niñas y las mujeres en Chihuahua. UNESCO. https://catedraunescodh.unam.mx/catedra/mujeres/menu_superior/Feminicidio/5_Otros_textos/9/6/ix.pdf

Comisión Nacional de los Derechos Humanos. (2021). La reparación del daño para víctimas indirectas en el delito de feminicidio. cndh. https://igualdaddegenero.cndh.org.mx/Content/doc/Publicaciones/1_Estudio_161221.pdf

Comisión Nacional para Prevenir y Erradicar la Violencia Contra las Mujeres. (2016). ¿Qué es el feminicidio y cómo identificarlo? Gobierno de México. https://www.gob.mx/conavim/articulos/que-es-el-feminicidio-y-como-identificarlo?idiom=es

Contreras, R. (s/f). El feminicidio como tipo penal autónomo. file:///C:/Users/user/Downloads/2539-11840-1-PB%20(1).pdf

Demirdjian, S. (2019). Rita Segato: "La violencia de género es la primera escuela de todas las otras formas de violencia". la diaria. https://ladiaria.com.uy/feminismos/articulo/2019/7/rita-segato-la-violencia-de-genero-es-la-primera-escuela-de-todas-las-otras-formas-de-violencia/

Diaz, J., Martínez, A., Espinoza, F., Vizuete, C., Mier, A., Cárate, S. y Becdach, A. (2017). Discriminación hacia las mujeres y su representación en medios de comunicación. flacsoandes. https://biblio.flacsoandes.edu.ec/libros/digital/56758.pdf

Duran, V. (s/f). Las muertas que no se ven: el limbo de los feminicidios. de contralacorrupcion: https://contralacorrupcion.mx/web/femimicidiosocultos/.

Flores, D. (2016, septiembre). "El delito de femicidio y su necesidad de incorporar una agravante en el articulo 142 del código orgánico integral penal". Universidad Nacional de Loja. https://dspace.unl.edu.ec/jspui/bitstream/123456789/16356/1/TESIS%20%20Misoginia.pdf

Galeana, P. (2014). La revolución de las mujeres en México. Instituto Nacional de Estudios Históricos de las Revoluciones de México (INEHRM). https://www.inehrm.gob.mx/work/models/inehrm/Resource/492/1/images/Mujeres.pdf.

García, A. (2020, 15 de febrero). ¿Qué es el feminicidio?. de El economista: https://www.eleconomista.com.mx/arteseideas/Que-es-el-feminicidio-20200215-0017.html.

González, M. (s/f). "Para evitar feminicidios". https://www.cde.org.py/para-evitar-feminicidios/

Hernández, J. (2020, 24 de Junio). Si hay mujeres en Durango. El sol de Durango. https://www.elsoldedurango.com.mx/analisis/si-hay-mujeres-en-durango-5404408.html.

Hernández, W. (s/f). ¿Por qué suceden los feminicidios y las agresiones casi letales?. Revista Ideele. https://revistaideele.com/ideele/content/%C2%BFpor-qu%C3%A9-suceden-los-feminicidios-y-las-agresiones-casi-letales.

INMUJERES. (2007). Ley General de Acceso de las Mujeres a una Vida libre de Violencia. INMUJERES. http://cedoc.inmujeres.gob.mx/documentos_download/lgamvv.pdf

Instituto de las Mujeres del Estado de San Luis Potosi. (2012). Modelo de atención a mujeres víctimas de violencia familiar y de género. inmujeres. http://cedoc.inmujeres.gob.mx/lgamvlv/27.pdf

Islas, L. (2022, 08 de Marzo). Estadísticas de feminicidios en México 2022. ¿Cuántas mujeres son asesinadas al día?. La unión https://www.unioncdmx.mx/2022/03/08/estadisticas-de-feminicidios-en-mexico-2022-cuantas-mujeres-son-asesinadas-al-dia/#INDICE9

Khatsenkova, S. (2023). El aumento de feminicidios en Europa ¿falsa percepción o realidad?. euronews. https://es.euronews.com/2023/03/07/the-cube-el-aumento-de-feminicidios-en-europa-falsa-percepcion-o-realidad

Lastra, G. (2023). Ya son más de 12 feminicidios en lo que va de la administración en Durango: Julieta Hernández. TELEDIARIO. https://www.telediario.mx/comunidad/durango-mas-de-12-feminicidios-en-lo-que-va-en-la-administracion

Lugo, B. (2020, 22 de Febrero). ¿Por qué ocurren feminicidios en México?. La silla rota. https://lasillarota.com/la-cadera-de-eva/2020/2/22/por-que-ocurren-feminicidios-en-mexico-217946.html.

Maldonado, S. (2020, 06 de Marzo). Durango: 40 años de cárcel por intento de feminicidio. https://www.jornada.com.mx/2020/03/06/estados/025n3est

Naciones Unidas. (2006). Poner fin a la violencia contra la mujer. De las palabras los hechos. Naciones Unidas. https://www.un.org/womenwatch/daw/public/VAW_Study/VAW-Spanish.pdf

Navarro, A. (2020, 16 de Octubre). Tipos de feminicidio. Aníbal Navarro médicos forenses: https://www.anibalnavarro.com/tipos-de-feminicidio/.

Offiong, A. (2021, 1 de octubre). ¿Qué es el feminicidio y qué tan grave es a nivel mundial?. de CNN: https://cnnespanol.cnn.com/2021/10/01/feminicidio-grave-mundo-trax/.

Olamendi, P. (2016, Octubre). Feminicidio en México. de Instituto nacional de las mujeres: http://cedoc.inmujeres.gob.mx/documentos_download/Feminicidio-en-Mexico-2017.pdf.

Olguin, M y Rojas, D.. (2023,1 de febrero). Machismo: afecta tanto a mujeres como a hombres. UNAM global. https://unamglobal.unam.mx/global_revista/machismo-afecta-tanto-a-mujeres-como-a-hombres/

Olivares, S., Mendoza, D., Muñoz, L., Chávez, I., Camacho, A., Pérez, M y Tello, E. (2021). Modelo de intervención psicológica, psicoeducativa y de cuidados integrales para hijas e hijos de víctimas de feminicidio. Igualdad.Jalisco.gob. https://igualdad.jalisco.gob.mx/wp-content/uploads/2021/11/marco-teorico-mthhvf.pdf

Ordorica, C. (2019, 12 de noviembre). Breve historia conceptual del feminicidio. De Nexos: https://cultura.nexos.com.mx/breve-historia-conceptual-del-feminicidio/.

Peralta, B. (2020). Las mujeres jóvenes en acción Estudio sobre la participación política de las mujeres jóvenes en la Ciudad de México. Bibliotecapan. https://bibliotecapancdmx.org.mx/wp-content/uploads/2021/11/1.Las-mujeres-jovenes-en-accion_FULL_Color.pdf

Perez, A. (2022, 8 de Marzo). Estos son los rasgos que permiten identificar a un feminicida. La prensa: https://www.la-prensa.com.mx/mexico/estos-son-los-rasgos-que-permiten-identificar-a-un-feminicida-4124961.html

Ramírez, L. (2018, septiembre). El feminicidio en Colombia. Universidad la Gran Colombia. https://repository.ugc.edu.co/bitstream/handle/11396/4622/Feminicidio%20en%20Colombia.pdf

Ramos, J. (2022, 28 de diciembre). Seis estados concentran más del 50% de los feminicidios cometidos en México durante 2022. Publimetro. https://www.publimetro.com.mx/noticias/2022/12/28/feminicidios-seis-estados-concentran-mas-del-50-de-los-casos-en-mexico-durante-2022/

Reyes, R. (2023, 7 de marzo). Si eres mujer, estás en peligro: la premisa con la que se creó podcast 10 Mujeres. El Sol de Mexico.https://www.elsoldemexico.com.mx/gossip/creadoras-de-se-regalan-dudas-abordan-la-violencia-contra-la-mujer-en-el-podcast-10-mujeres-9724505.html

Rodríguez, Q. (2019, Noviembre). Impacto Psicológico, Biológico y Socioeconómico del Feminicidio: Desde la Perspectiva de la víctima y del victimario. ResearchGate file:///C:/Users/user/Downloads/459-Textodelartculo-837-1-10-20191104.pdf

Sahuquillo, M. (2017, 22 de Noviembre). "La sociedad aún trata de justificar al agresor y culpa a la mujer víctima de violencia". El país. https://elpais.com/internacional/2017/11/21/actualidad/1511288682_711621.html

Sánchez, N. (2021, 27 de Mayo). El 10% de reos tienden a ser asesinos y feminicidas seriales, ¿cuántos andan libres en México?. de infobae: https://www.infobae.com/america/mexico/2021/05/27/el-10-de-reos-tienden-a-ser-asesinos-y-feminicidas-seriales-cuantos-andan-libres-en-mexico/.

Tornimbeni, S. Peralta, V. Gelves, G. (2020). Femicidio y violencia de género. Factores relacionados y costos sociales. Revistaunc. file:///C:/Users/user/Downloads/llopresti,+Ponencia_286_Tornimbeni,+Silvia_20.pdf

Vélez Álava, N., Zambrano Vélez, C, Camacho Mera, C., & Mendoza Bravo, J. (2018). Descripción de las secuelas emocionales en familiares de las víctimas de femicidio en Manabí. Revista San Gregorio. https://revista.sangregorio.edu.ec/index.php/REVISTASANGREGORIO/article/view/560

Zraick, K (2018, 29 de noviembre) El lugar más peligroso para una mujer es su hogar, alerta la ONU. The new york times. https://www.nytimes.com/es/2018/11/29/espanol/feminicidios-en-el-mundo-onu.html.

Community water management in Veracruz. Challenges and current perspectives

La gestión comunitaria del agua, en Veracruz. Retos y perspectivas actuales

AGÜERO-RODRÍGUEZ, José Cruz†*, TEPETLA-MONTES, Julia and TORRES-BERISTAIN, Beatriz

Sistema de Enseñanza Abierta, Universidad Veracruzana, Veracruz, México.

ID 1st Author: *José Cruz, Agüero-Rodríguez*

ID 1st Co-author: *Julia, Tepetla-Montes* / **ORC ID:** 0009-0009-4779-7866

ID 2nd Co-author: *Beatriz, Torres-Berinstain* / **ORC ID:** 0000-0001-8486-8576, **CVU CONAHCYT ID:** 76609

Abstract

Adjective. In this article we will present a situational diagnosis of community systems in water management in the national and state context, taking as a specific case community management in the Sierra del Gallego, Córdoba, Veracruz. The research methodology applies an analysis of the legal framework of community water management, returning to some specific studies that glimpse the potential for participatory, democratic and community water management; Some experiences of regional and national organizations in defense of water and community managers participating in the 3rd *Congreso Nacional Agua Para Todos*[1]. The diagnostic situation in the state of Veracruz is reviewed, highlighting some paradigmatic cases of social management; Finally, we will analyze a specific experience of community management. Finally, a series of social, regulatory and programmatic policies are proposed to recognize the potential of community and social drinking water systems in the state of Veracruz and in compliance with the additions to article 4 of the Constitution, which guarantee the human right to water.

Community water management, Water legislation, Access to water as a human right

Resumen

Objetivos. Expondremos un diagnóstico situacional de los sistemas comunitarios en la gestion del agua en el contexto nacional y estatal, tomando como caso concreto la gestión comunitaria en la Sierra del Gallego, Córdoba, Veracruz. Metodología de la investigación. Se realiza un análisis del marco legal de la gestión comunitaria del agua retomando algunos estudios concretos que vislumbran el potencial de gestión participativa, democrática y, comunitario del agua; se incluyen algunas experiencias de organizaciones regionales y nacionales en defensa del agua y gestores comunitarios participantes en el 3° Congreso Nacional de Agua para Todos[1]. Se revisa la situación diagnóstica en el estado de Veracruz, destacando algunos casos paradigmáticos de gestion social; finalmente, analizaremos una experiencia concreta de gestión comunitaria. Conclusiones. Se plantea una serie de políticas sociales, normativas y programáticas para reconocer el potencial de los sistemas de agua potable comunitaria y social en el estado de Veracruz y en el cumplimiento de las adiciones al artículo 4.° constitucional, que garanticen el derecho humano al agua.

Gestión comunitaria del agua, Legislación del agua, Acceso al agua como derecho humano

---

* Correspondence to Author (E-mail: aguador58@yahoo.com.mx)

† Researcher contributing first author.

[1] *Congreso Nacional Agua Para Todos* is a national movement in defense of water that emerged in 2012, whose central purpose is to stop the privatization of water in the country and to propose a new Water Law with a participatory and democratic character for the sustainable, social, equitable and redistributive use of national water.

Introduction

By community or social water management we mean those processes of drinking water or various uses whose ownership or usufruct is administered directly or indirectly by social sectors that are autonomous or semi-autonomous from the state for collective use, whether or not they hold a water concession. Water management corresponds to what has been called Integrated Water Resources Management (IWRM), and community management is an important axis to achieve sustainable and responsible water management as an essential need nowadays (Torregosa, 2004).

Water legislation in Mexico does not have a regulatory framework or legal recognition for the participation of community groups related to water management, but it does provide for their participation in social management. In the country, there are countless experiences of community or social water management, but their importance for the development of community life and the precept of the human right to water - recently incorporated and regulated in article 4 of the Constitution - is ignored or minimised.

So far - and although they are not the only ones with community and social systems - few states have water regulations that explicitly recognise the legal participation of social water management (including community management), among them Veracruz, Tabasco and Chiapas (Aguilar, 211:12; Gutiérrez, 2005), Since the 1990s, with the opening up to free trade and the world water forums, the global trend has been to privatise drinking water systems and water services in general, as happened in the municipality of Veracruz in 2017 when drinking water and sewage services were concessioned to the MAS group, transnational investors from Brazil and Spain (Zavaleta, 2020). Since the reforms to the Water Law in 1994 and 2004, decentralised management was strengthened in Mexico, where states and municipalities were given greater responsibilities (LGA, Title 3, Section XIII). It also opened up the regulatory possibility of participation from private concessions to civil associations alongside parastatal management to provide drinking water services (Rolland, 2010).

However, there is no regulatory law that defines the terms and conditions of community management or social responsibility, which is why it develops de facto, under such diverse modalities and dissimilar organisational processes that, while allowing civil society to self-manage or co-manage water, it is left at the expense of multiple social and political conditioning factors, giving rise to adverse processes of conflict or, in the best of cases, successful processes of community management (Pineda, 2010).

Veracruz explicitly recognises in its local legislation (Law 21 of Water of the State of Veracruz-Llave) social participation as a subject of concession and manager of water, and leaves open the possibility for water systems to be operated by the government, private parties and civil society (Law 21, art. 59 and 60). However, this legal framework does not have an explicit policy of normative recognition or the design of programmes aimed at strengthening and promoting their organisation.

Water management is still centralised in the state agency called Comisión del Agua del Estado de Veracruz (CAEV) and in the Municipal Operative Systems; although there is generally a patronage or water committee in each community, which is in charge of overseeing the supply and operation of the water distribution system, there are some community associations and organisations that practically manage and administer water, but they have not been given the character of "community water operator".

It is therefore necessary to carry out a state situational diagnosis of these small de facto organisations, their level of organisation, coverage, resources, training, degree of autonomy and the quality and quantity of water they manage, in order to strengthen them or, if necessary, formalise them legally and broaden community and social participation in water, with the aim of complying with the precepts of the human right to water guaranteed in article 4 of the Constitution and the sustainable management of water.

Community and social management in the National Waters Law

Community management in the country is a remnant of experiences that have endured in changing forms through Mexico's various water policies, particularly after its revolutionary stage; these redistributive reforms of water and land and the new actors: ejidatarios, comuneros, and inhabitants of the cities in formation, sealed the social character of management in the countryside and in the cities (Aguilar, 2011). Regulatory improvements obviated de facto forms of social and community management to give priority to private water and centralised state control over its management, preserving concessions to large landowners and nascent industry, basically leaving the focus of public water to urban supply and irrigation.

The communities largely retained their organisational forms and learned to manage water at various levels by negotiating with the state bureaucracy, making water exchange agreements with other communities, contributing labour, community work, carrying out infrastructure works for water supply and collection, and implementing these internal reforms through assemblies, committees, social consensus, cooperation, rules and norms for water management and administration.

This parallel aspect of local and regional organisation is perhaps the best example of sustainable water management due to its low economic cost and rationalisation of use, as well as the social and participatory benefits it implies, in addition to environmental conservation measures for water catchment (Sandoval, 2015).

The national water legislation, however, did not act in their favour, but rather was omissive and allowed them to exist. They are organisations that survived through their self-managed capacity and resistance against the large irrigation communities, landowners and the nascent industry and intensive urbanisation, which demanded greater volumes of water for human consumption. It was not until the 1994 and 2004 reforms that they were contemplated as possible subjects of concessions and with the possibility of forming associations or water management bodies, giving them new expectations, although no regulatory laws were passed, nor was a policy of community and social water management promoted.

The Rio de Janeiro and Dublin Summits framed new directions related to water policies at the global level; Mexico adopted Agenda 21 and the action plan to promote sustainable development; it reoriented the economic value of water and sought to influence social vulnerability and the role of gender in water policies (Agüero, 2010:210).

Privatisation of operational water systems attracted more force in water policy in Mexico but did not advance significantly due to social resistance and unclear management of concession transfer and administration. Conversely, community and social systems were again constrained by the onslaught of transnationals and national corporate groups in a new onslaught to control water for mining, multi-purpose dams, energy activities such as fracking, the growing expectation of agrofuels and the control of urban water for private management by national or transnational consortiums.

The New Water Law (as an initiative in the legislature, arising from the reform of the 4th Constitution) elevates access to water as a fundamental human right, in sufficient quality and quantity to sustain the quality of life, but it is a paradox; on the one hand it pretends to guarantee sufficient water supply to the most vulnerable population and, on the other, it shows its most perverse side to concession and privilege the large extractivist consortiums by placing the management and supply of drinking water in the hands of national and transnational private initiative.

In this New Law initiative, the right of communities and indigenous peoples to organise themselves and guarantee their human right to water is practically ignored. It is precisely this interest that motivates an urgent reflection so that the Citizens' Water Initiative, proposed in parallel, takes up the community experience and guarantees the supply, self-management and substantive participation of citizens in water management.

The information base document of the National Water Commission (CONAGUA), "Water in Mexico" (2016) - a compendium of basic statistics on the water sector at national and international level - does not have any statistical reference on community and social water organisation in Mexico, despite the fact that this is of enormous importance for supplying the poorest and most vulnerable communities and urban centres in the country.

Dimension and importance of community organisations in Mexico

Potential and weaknesses of management

Despite the fact that community organisations are considered essential in the country, not only as part of the organisational process in the defence of water, but also as a guarantee of self-supply, environmental care, substantive participation, economic benefit and as a source of social balance, they do not have a specific public policy. For this reason, it is not known how many there are or what levels of organisation they have, as well as their financial sources, location, local, regional or national coverage, volumes of water they manage, tariffs, primary needs, beneficiaries, levels of conflict and social stress resulting from the violent defence of water.

There are states where their presence and organisational dimension can be distinguished, such as Guadalajara, Chiapas, Oaxaca, Puebla, Veracruz, Tabasco, Morelos, Hidalgo, San Luis, Guerrero, Zacatecas, Durango, among others (Antonio, 2010; Valdivia, 2016), where community water systems subsist. These same organisations have been the basis for the defence of water and territory against the latest onslaught of megaprojects, open-pit mining, multipurpose dams, fracking and shale gas, GMO production, among others. In order to illustrate this aspect, we will describe the demands of some organisations in defence of community and social water, who attended the 3rd National Congress of the National Coordinating Body Water for All, Water for Life, an organisation that promotes the Citizens' Water Initiative, held in the city of Xalapa, Veracruz, in 2016, whose report is presented below:

Experiences and demands

-   Guarantee the fundamental rights of peoples and civil society for the defence of territory and natural resources. The main problems faced by the organisations in Guadalajara are the mega-projects of dams and mining.

-   Revision of constitutional reforms that favour large consortiums and transnational companies, affecting community organisation and local management in defence of natural resources (San Luis Potosí, Guerrero, State of Mexico, Puebla, Oaxaca, Veracruz).

-   Recognition of traditional and community forms of organisation; elevate effective community consultation and assemblies as local and regional decision-making bodies to constitutional status.

-   Encourage local, regional and national organisation against mining megaprojects, dams, fracking, shale gas and oil, to prevent dispossession, control of water, contamination and extraction of natural resources.

-   Advocate for municipal council agreements to declare regions and municipalities free of megaprojects and promote participatory land use planning (Consejo de Pueblos Tiatliani, Puebla).

-   Promote autonomous regional organisation for social and environmental defence against extractivist projects that destroy nature, as is currently being done in some regions (Frente Popular de Lucha de Zacatecas; Consejo de pueblos Tiatliani, Puebla; Frente Hidalguense en Defensa de la Tierra, etc.).

-   Legislation should be passed on territorial rights and self-determination of peoples and communities, in accordance with the principle of article 169 of the International Labour Organisation (ILO).

-   Weaknesses of social and community water management, proposed at the roundtable (synthesis)

- In urban areas it is very difficult to raise awareness among the population due to the degree of individualisation and lack of solidarity; however, it is necessary to rescue committees or associations for the defence of urban or suburban water.

- There are municipalities with several community systems (Oaxaca, Tabasco to mention a few) in which a linked and organic articulation would facilitate their organisation with a regional impact.

- Legal empowerment of communities to make more assertive decisions. This indicates that it is necessary to have a legal personality that gives legitimacy to the organisation. It is a priority to overturn municipal concessions that, without being in charge of water management, authorise and execute projects in an irregular manner without consulting the Basin Committees.

- It is important to link planning and land and water use tools and instruments that can be inputs for the creation of public policy.

- Sustainability of water resources should be paramount for community systems; reforestation should be encouraged.

- Many of the community systems do not have an adequate level of professionalisation; they must have knowledge of administration, accounting, collection, sanitation and, above all, legitimacy in order to have the correct financial management.

- Optimal water management cannot be achieved without considering the problems of contamination and poor water use practices. Association in water and sanitation committees is also important because progress on an individual basis is more complex.

- Successful experiences must encompass an autonomous, self-managing and self-sustaining community system.

- There must be a collective awareness of the care and non-contamination of water and sanitation, and more awareness than technical issues.

- In Colombia there is a National Network of Aqueducts (community systems) and with this union they have had achievements such as the creation of an aqueducts law and the obtaining of public resources for the financing of infrastructure and sanitation.

- It is necessary to address the gender approach in community systems, since women and girls, because of their gender role, are in charge of household water supply and sanitation activities, and their knowledge and experience in water management must be taken into account.

Law 21 in the context of the General Water Act

The state of Veracruz is one of the entities that stands out for its community organisational capacity both in the seven existing indigenous regions and in rural communities throughout the country. Since 2001 and aligned with the National Water Law, it promoted the state Water Law 21 (Art. 44-59) to recognise: a) social and community entities in water management, b) the regulation of concessions, and c) the transfer of management to private initiative.

Products of this law have been the initiatives for the privatisation of water management in the metropolitan area of Veracruz Puerto, Boca del Río and Medellín, to Grupo Metropolitano de Agua y Saneamiento (MAS), a Brazilian-Spanish consortium owned by Odebrecht and Aguas de Barcelona, two large transnationals that thrive on appropriating Mexico's water and energy resources as part of neoliberal state policy, including transferring control to these companies in the municipalities of Coatzacoalcos and the Xalapa-Banderilla Metropolitan Zone; For obvious reasons, this law gave room for a clear policy of privatisation of the management of drinking water in the main cities of the state of Veracruz.

The social mobilisation against the privatisation of the water systems, the lack of clarity in the bidding processes, the uncertain management of the financial resources for the transfer, and the undeserved administration of the MAS group, have brought social distrust to the process of water privatisation in these cities.

The regulations of Law 21 (which displaces Law 72 on Water and Sanitation, approved since 1950, encouraging the patronatos) give room for community and social management of water and foresee the possibility of self-organisation and autonomous management, but it has not become a public policy that encourages social initiative, or strengthens existing organisations. The terms of Law 21 are practically unknown, since it is general and does not promote its recognition in the communities or social groups.

Although there is autonomous management of various water committees or boards - be they municipal or inter-municipal - they are ultimately subject to the ultimate decisions of the municipalities and their Water Operating Bodies (OOA) and, where appropriate, of the CAEV (Comisión del Agua del Estado de Veracruz); bodies that are supposed to guarantee the regional or local water supply. In 2016, the CAEV had 67 operational offices in four regions of the state, with 652 rural systems under its control that functioned as patronatos, but more than twice as many (1425) operate in a self-managed manner, with a strong lack of knowledge of their functioning and administrative efficiency (Domínguez, 2018).

Social and community water management in Veracruz

In Veracruz, Water Law 21 recognises three spheres of water management: public, private and social, either in partnership or independently. The third title of the law deals with the participation of the social and private sectors.:

> Article. 44. It is considered of public interest to promote and encourage the organised participation of the social and private sectors for the financing, construction, expansion, rehabilitation, maintenance, conservation, operation and administration of the hydraulic infrastructure of the state of Veracruz-Llave, as well as the provision of public services of drinking water supply, sewerage, drainage, wastewater treatment and disposal; and the actions that promote the reuse of treated water.

The different forms of water management, whether integral or partial, will be open to different modalities: 'public-private', 'public-social' or 'private-social', these legal forms will be adjusted to the normative dispositions indicated in the same code and will be promoted in accordance with the public policies that the state promotes; the important thing is that the possibility of the participation of the social sector's management is regulated. Chapter III, Article 59 reads as follows:

> Non-profit organisations may carry out, upon concession, the works and actions necessary for the self-supply of drinking water, treatment, disposal and removal (SIC) of wastewater, in compliance with the provisions on quality control, under the terms and conditions established by the regulations of this law.

Under these regulations, the state has since favoured a policy focused on the privatisation of drinking water services and, in collusion with the federation, the granting of large water concessions to multi-service companies, with an emphasis on dams.

Recall that the privatisation of water in the metropolitan area of Veracruz, Boca del Río and Medellín in 2006, giving the concession to Odebrecht and Aguas de Barcelona was the most significant experiment; the next places on the list were Coatzacoalcos and Xalapa, but civil opposition stopped them. In the same year CONAGUA announced the construction of 112 dams for control, storage and multiple uses.

This inclination to benefit private and transnational capital unleashed a strong social conflict in defence of territory and water sources. The most representative cases were the mobilisations against the dams in Amatlán, Zongolica, Jalcomulco and the 'Monterrey 6 diversion' project, whose promoters are consortiums such as Odebrecht, the Monterrey group and the Higa group. The other case is the open-pit gold mine known as Caballo Blanco, promoted by the Canadian transnational Golden Group. Almost all of these dam and water control projects in Veracruz, which included the concession of extraordinary volumes of water to these business groups, were stopped by social mobilisation and opposition, except for Zongolica, which was the first dam built under this privatisation policy, which was erected in 2004.

In contrast, legislation and public policies have acted in a lukewarm or omissive manner in favour of social and community water organisation, despite the fact that it is an important component in the management of water throughout the territory of Veracruz. The CAEV, the governing body of the vital liquid in the state, lacks a timely register with the location and diagnosis of the social and community water systems; moreover, it does not have a social policy that makes the management and sustainable co-management of water effective, with a community focus.

Community-based water management in Sierra del Gallego

The experience of the Civil Association 'Ciudadanos Unidos en Defensa del Agua en la Sierra del Gallego A.C.' allows us to reflect on the potential of community water management and on the social and regulatory risks of its management.

Since 1996, twelve peasant communities in the Sierra del Gallego initiated efforts to introduce piped drinking water, as the mountainous area lacked water for supply and the diverse uses required by human settlements. The Sierra del Gallego is located south of the municipality of Cordoba, Veracruz and is a humid mountainous area, with a mesophilic mountain ecosystem and heavy annual rainfall of 2065mm; however, the height above sea level (MSNM), which reaches 2300m, means that the enormous amounts of rainfall filter into the subsoil and there is little retention of surface water.

It was this scarcity that led to the development of a water culture that took advantage of rainfall through community and family water retention and rainwater harvesting works; Although canals and ponds were some of the water collection and supply strategies for decades, new retention and catchment measures allowed for subsistence and minimal domestic water supply, the construction of water retention basins, jagüeyes, rainwater storage tanks, facilitated the carrying of water from the river, and pots, buckets and containers were filled with water from roofs.

With the introduction of piped drinking water, the communities had to organise themselves by creating a precise and effective management; from this process a solid regional community organisation emerged that integrated fourteen highland communities. Local and regional assembly has been the basis of the agreements, rules and effective and substantive participation of this organisation. Community work, tasks, economic and social cooperation, and internal water management and administration norms have generated local power vis-à-vis the municipality and its Water Operating Body, Hidrosistema.

Municipal policies have been changing and controversial with community management, depending on the political parties and the interests that move the municipal interest groups. La Sierra del Gallego has favoured the National Action Party (PAN), which has negotiated and carried out actions and alliances for the management and introduction of water since 1996. In contrast, the Institutional Revolutionary Party (PRI) has deployed a policy of force and confrontation whose actions have sought to control the water concession, dismantle the self-managed regional organisation and channel the "surplus" or "excess" water to the communities of the Sierra Media and the city of Cordoba, even though the water supply in the Sierra del Gallego has been deficient and precarious.

The resistance and opposition of the communities has resulted in a proposal for the legal formation of an organisation called 'Pueblos Unidos en Defensa del Agua de la Sierra del Gallego A.C.' (PUDASG), as well as in the reorganisation of the communities to favour a medium and long-term self-managed process, that is, to constitute an autonomous operative body or to associate with the Municipal Operative System (Sistema Operativo Municipal). The legalisation of the organisation and a water co-management agreement would lay the foundations so that, in the future, water supply would be guaranteed and decision-making would rest primarily with the community organisation.

Experiences: progress and setbacks

The process of negotiating with the municipal authorities so that they would recognise the legality and legitimacy of a collective organisation was not easy. Within the organisation itself, a self-diagnosis and review of capacities and potentialities to promote an autonomous organisation was carried out.

Supported and advised by the Academic Body 342 of the Sociology Department of the Universidad Veracruzana, self-management workshops were held to train and analyse the organisation's abilities in three main areas: a) associative figure and operative organisation; b) administration and training; and c) community planning; which we will briefly summarise by highlighting the basic decisions that characterised the process and that serve as a framework to propose the normative, organisational, administrative, political and contextual needs of the autonomous organisations in the management and defence of water.

Social organisation

Here the dilemma was posed between traditional community organisation, the formalisation of the organisation for water management and relations with the governing institution (Hidrosistema) of the municipal water operation.

The first proposal consisted of remaining a formal organisation or not, of community and regional political oversight, conditioning Hidrosistema's decisions and negotiating achievements and benefits: tariffs, administrative attention, incorporation of workers from the organisation, community oversight of water distribution and supply, consultation with the organisation on important decisions, etc. This implied that Hidrosistema would continue to administer the water and that the communities would only have a monitoring and negotiation role.

The second option was co-management of water. Here, the signing of a bipartite agreement was proposed, in which the organisation would become a community management body recognised by Hidrosistema, or rather co-administrator of the Sierra del Gallego system, and decisions would be taken collegially, with transparency, accountability and under established rules.

This organisational perspective of co-management proposed that, if necessary and in the community's interest, autonomous water management would be transferred to the community gradually as its members were trained.

- Thirdly, the organisation's total autonomy was proposed in order to become an independent, self-managed, community-based and social water agency, as provided for in the state's Law 21 and the General Water Law. It is worth noting that until that moment, Hidrosistema had shown full openness and willingness to provide a lasting and convenient management to both instances.

- Here there was a division of opinion, with one side arguing that it was better for Hidrosistema to remain in charge of water management and that the community organisation would continue as a watchdog and collaborator under a regulation recognised by both parties; The second group was more accepting of bipartite co-management, since responsibilities were shared and the Municipal Operational Body, which was to guarantee water supply, was not abandoned; the third position, total autonomy, was the least favoured, since the committees and representatives saw themselves as having full responsibility for water management, without adequate and substantive training, and this frightened and worried them for the time being.

- The workshops not only discussed tariffs, community organisation, communal work, technical reorganisation of work, surveillance, collection and administration of resources, but also the concertation of both organisations was used to dialogue and to concretise adequate water management that would guarantee water supply, to formulate tariff regulations, water uses, administration costs and technical expenses, the legality of co-management, supervision and labour contracts.

- The overall review of the various aspects of co-management reached a culminating curve for the benefit of the negotiating bodies and above all for the decision-making and empowerment of the users; the workshops guaranteed the reduction of subsequent conflicts, unilateral decisions, the verticality of the decisions of personalities, parties or vested interests, and priority of water for the organised communities, thus regulating participatory democracy in the community organisation (organisational strength for the achievement of goals and mediation with the local power).

- Nine years passed before reaching the climax of the organisation's destiny, just as elections for the municipal presidency were approaching. This time the rupture came from within the organisation: on the verge of signing the bipartite agreement and initiating the actions of the agreements taken, the main leaders of the community organisation began a confrontation, apparently of dishonesty, accusing each other of admitting personal economic support from the director of Hidrosistema, and from here the intentions and achievements that had been promoted until then were called into question. In the end, both leaders were participating with contending political parties and the differences transcended the organisation, halting the gains and organisational progress momentarily.

- The organisation's internal regulations have been a pillar of its organisational strength, among other principles, the fact that 'the organisation is like water, it has no colour or flavour, it is not conditioned by politics or religion; each member is free to join the party of their choice and practice the religion of their choice as long as it does not affect the internal life of the organisation'. This time, the context prevailed over internal norms and has postponed the project of autonomous water management that would guarantee water supply, democratic decisions within the Sierra and control of water vis-à-vis the regional power groups.

Discussion and results

- Community or regional organisation, as well as its organisational strength, substantive democracy and decision-making, are the basis for autonomous water management; a fact that must be recognised as a principle in any water legislation based on integrated co-management of water resources. Their local, regional or extra-local level depends on the organisational capacity of peoples, communities and urban water managers. This is the basis of legitimacy.

- Similarly, the legality or recognition of the fundamental human rights to access water and organise freely, must guarantee and promote the relevant associative figures to consolidate participatory and substantive democracy. The legality of autonomous or shared management, whether with the state or with civil associations (or, where appropriate, with individuals) must always consider social supply as a priority.

- The new Water Law should promote a special chapter that is the framework for a regulatory law on social and community water, which should guarantee a dignified, sufficient and quality water supply, as stated in the 4th Constitution.

- The existence or proposal within the Citizens' Initiative for the New Water Law of an ombudsman's office to protect community and social water management is proposed.

- It is of utmost importance that the rights of communal ownership of water and territory be guaranteed, considering Article 169 of the International Labour Organisation (ILO), and that priority be given to human water supply and the conservation of hydrological ecosystems, as opposed to other consumptive uses and uses of great commercial value, as provided for in the National Water Law.

General conclusions

The lack of regulations and policies to promote the organisation of community and social operational systems is a pending task in the secondary regulatory laws of the LAN, and constitutes a priority to be incorporated into the Citizens' Initiative for a New Water Law, since the official one, called 'Korenfiel', does not foresee it.

The normative recognition of operational systems for water management does not translate mechanically into social policies for community development and social organisation; it is necessary to formulate social policies in this regard and to include them in national, state and municipal development plans.

Community and social water management systems, considering their limitations and potentials, are seen as a social asset of great importance to promote social organisation around water management, to meet the millennium goals and to realise the human right to water enshrined in Article 4 of the Constitution.

References

Agüero R. José Cruz (2010). Entre las Demandas Reivindicativas y ambientales. Conflictos por el Agua en la Zona metropolitana de Córdoba-Orizaba, 1990-2006. Universidad Veracruzana.

Aguilar Amilpa E. (2011). La Gestión Comunitaria de los Servicios de Agua y Saneamiento. Su posible Aplicación en México. MDGIF

Antonio Acatzihua; Tlaxcala Tlaxcala y Xocua Antonio (2010). Participación y Organización de los Actores Sociales Para El Uso del Agua y Manejo de los Manantiales de Zacamilola, Atlahuilco, Veracruz. Parcela Digital. Universidad Veracruzana.

CONAGUA. Ley General de Aguas Nacionales. 2016. http://www.diputados.gob.mx/

LeyesBiblio/pdf/16_240316.pdf (consultada 15 de noviembre de 2017)

Domínguez Judith y Castillo P. Erandi (2018). Las Organizaciones Comunitarias del Agua en Veracruz. Análisis a la Luz de la Experiencia Latinoamericana. En Estudios Demográficos y Urbanos. Vol. 33 No. 2, Mayo/agosto 2018. Cd. De México. ISSN2448-651 (http://www.scielo.org.mx/scielo.php?script=sci _arttext&pid=S0186-721020180002 (consultado 16 de julio 2022)

Gutiérrez Mercadillo (coord..) (2005). Agua. Guía para Organismos Operadores. Agua Potable, Alcantarillado y Saneamiento.Agua.org.mx

Gutiérrez Villalpando, Dominga Austroberta y Otros. (2013). Mujeres y Organización Social en la Gestión del Agua Para Consumo Humano y Domestico en Berriozábal, Chiapas. En Revista LiminaR. Estudios sociales y Humanísticos, VolXI, No.2, Julio -diciembre 2013, México. Pp100-113

Pineda Pablos (2010). La Municipalización de los Sistemas de Agua Potable y Alcantarillado. En Gaceta Mexicana de Administración Pública Estatal y Municipal.No.60. UNAM (https://revistas-colaboracion.juridicas.unam.mx/index.php/gace ta-mexicana/article/view/25027/22443) (consultado 14 de marzo de 2018)

Rolland, Luise (2010). La Gestión del Agua en México. En La Polis. Vol.6, No.2. Julio/dic.2010 (http://www.scielo.org.mx/scielo.php?script=sci _arttext&pid=S1870-23332010000200006. (Consultado el 15 de noviembre de 2017)

Sandoval Moreno y Griselda Günter (2015). Organización Social y Autogestión del Agua. Comunidades de Chapala y Michoacán. En Política y Cultura, No. 44 México. Septiembre de 2015. http://www.scielo.org.mx/scielo.php?script=sci _serial&pid=0188-(7742&lng=es&nrm=iso (consultado, 15 de marzo de 2018)

Torregosa Ma.Luisa (2004). Gestión integrada, descentralizada y con participación social del Agua en México. Un proceso en Construcción. IIS UNAM.

Valdivia Oseguera (2016). La Participación Social de la Preservación de los Recursos Hídricos. Lecciones del Comité Técnico De las Aguas Subterráneas del Acuífero Interestatal Ojo Caliente. Aguascalientes Encarnación. (Tesis doctoral) Colegio de México.

Zavaleta, Noe. (2020) El Agua Otro Negocio Cedido en Veracruz. En Revista Proceso (24 de agosto 2020) https://www.proceso.com.mx/nacional/2020/8/24/el-agua-otro-negocio-cedido-en-veracruz-248180.html (consultado, de mayo 2023) Documentos.

Relatoría 3º Congreso Nacional de Agua para Todos, Agua para la vida. Xalapa, Veracruz 22-23 octubre de 2016.

Relatoría general. Mesas de Concertación para la Gestión Sustentable del Agua en la Sierra del Gallego. 30 de octubre de 2016. CAEC 342, Hidrosistema.

Automatic identification of false opinions in social networks

Identificación automática de opiniones falsas en redes sociales

GUZMAN-CABRERA, Rafael, HERNÁNDEZ-RAYAS, Angelica, PRASAD-MUKHOPADHYAY, Tirtha and RUIZ-PINALES, José

ID 1st Author: *Rafael, Guzman-Cabrera* / **ORC ID:** 0000-0002-9320-7021

ID 1st Co-author: *Angelica, Hernández-Rayas* / **ORC ID:** 0000-0002-2844-2922

ID 2nd Co-author: *Tirtha, Prasad-Mukhopadhyay* / **ORC ID:** 0000-0002-2707-390X

ID 3rd Co-author: *José, Ruiz-Pinales* / **ORC ID:** 0000-0003-2639-1487

Abstract

This paper presents the problem of detecting false opinions in social networks, also called "opinion spam", describing how lies can be automatically detected using different methods. It has been shown that deception is frequently present in everyday communication in social networks. Deception detection is a well-known challenging problem in any research area, basically because the human ability to detect deception is deficient. Particular studies on social psychology and communications show that the accuracy rates of people's abilities to detect deception are in the range of 55 to 58%, i.e., slightly better than chance. This paper addresses the specific problem of deception detection in communication. Emphasis is placed on those approaches that use affective resources such as categorical and psychometric information provided by natural language processing tools. Finally, we focus on the identification of opinion spam, whose detection is very important for reliable opinion mining. Results obtained using different machine learning methods are presented. The results obtained allow us to see the feasibility of the proposed methodology to carry out the detection of false opinions in social networks by obtaining accuracy values higher than 80%.

Options, Social Networking, Deception

Resumen

En este trabajo se presenta el problema de la detección de opiniones falsas en redes sociales, también llamadas "opinión spam", describiendo cómo las mentiras pueden detectarse automáticamente usando diferentes métodos. Se ha demostrado que el engaño está frecuentemente presente en la comunicación cotidiana en redes sociales. La detección de engaños es un problema desafiante bien conocido en cualquier área de investigación, básicamente porque la capacidad humana para detectar engaños es deficiente. Estudios particulares sobre psicología social y comunicaciones muestran que las tasas de precisión de las habilidades de las personas para detectar el engaño están en el rango de 55 a 58%, es decir, ligeramente mejor que el azar. En este trabajo se aborda el problema específico de la detección del engaño en la comunicación. Se hace hincapié en aquellas aproximaciones que utilizan recursos afectivos como la información categórica y psicométrica proporcionada por las herramientas de procesamiento del lenguaje natural. Finalmente, nos centramos en la identificación de opinión spam, cuya detección es muy importante para una minería de opinión fiable. Se presentan resultados obtenidos utilizando distintos métodos de aprendizaje automático. Los resultados obtenidos permiten ver la viabilidad de la metodología propuesta para llevar a cabo la detección de opiniones falsas en redes sociales al obtener valores de precisión superiores al 80%.

Opciones, Redes sociales, Engaño

Citation: GUZMAN-CABRERA, Rafael, HERNÁNDEZ-RAYAS, Angelica, PRASAD-MUKHOPADHYAY, Tirtha and RUIZ-PINALES, José. Automatic identification of false opinions in social networks. ECORFAN Journal-Republic of El Salvador. 2023. 9-17:36-42.

---

* Correspondence to Author (Email: guzmanc@ugto.mx)
† Researcher contributing first author.

Introduction

Opinion is a natural act of human beings and allows them to discern the reality that surrounds them and then take action on it. The fact that people are receiving false information is not something new and exclusive to our era, however, it has become popular due to the use of forums, blogs and social networks in general. With the general use of information technologies, it is increasingly common for users to write their opinions for or against the products or services they have purchased. These references commonly written on social networks are helpful to other consumers who wish to purchase some similar products or services. They also help manufacturers or service providers to identify new areas of opportunity on the part of consumers and allow them to know not only the opinion about them, but also to see their uses, habits, and satisfaction, among others. Consumer reviews are used by consumers to receive information about products, such as quality and usefulness, and are also used to provide data about their own experience with the product to other consumers.

In today's age of digital communications it is possible to purchase almost any product and contract all kinds of services without ever having to cross a single word with anyone. The problem of opinion detection in unstructured texts is to detect opinions that do not follow an established structure or format. This can be clearly observed in the opinions that are given on social networks such as Facebook, Instagram, Twitter, etc. Another clear example can be seen in the reviews that people give when buying a product in online shops, showing their satisfaction or dissatisfaction with the product or item they have purchased. Consequently, in order to be able to organise and filter all this type of information, new tools are needed to enable us to make the best decision regarding the purchase or rejection of these products or services. All this leads to the big problem of fake reviews (opinion spam), which are deliberately written to promote or discredit a product or service. These are reviews written by people who have not purchased a product or service, but were hired to write misleading reviews [1]. The consequences of fraudulent reviews in e-commerce range from loss of reputation and sales and apply to both product or service providers operating in the traditional way with established businesses as well as those operating online.

The challenge of this task lies in the fact that it is complicated to carry out this detection, as users express their opinions in a subjective way, in addition to the fact that each person's criteria can vary significantly, some being more direct and explicit, and others the opposite, falling into ambiguity and expressing themselves in an indirect way.

There are different techniques that can help to solve this problem, such as natural language processing and machine learning. These techniques include word tokenisation, emotion detection, text classification, among others. It is also possible to apply approaches in deep learning models, such as recurrent neural networks, in order to extract contextual information and improve the accuracy of the identification of this type of text.

This paper presents results from four experiments using the Deceptive Opinion Spam corpus, which consists of 1,600 opinions in total, the opinions are about hotel service, divided into two main categories: truthful opinions and deceptive opinions. Each category has 800 documents. Each of the four experiments is described in the methodology section.

Detecting fake reviews in hotels has become an increasingly relevant challenge. With the rise of online review platforms such as TripAdvisor or Booking, and more recently Airbnb, travellers rely heavily on the opinions of other users to make informed decisions about where to stay. However, this ease of access to information has also given rise to a growing problem: fake reviews. Fake hotel reviews are misleading or manipulated reviews that seek to distort the image of an establishment or promote hidden interests. They can come either from unfair competitors seeking to damage a hotel's reputation, or from companies hired specifically to create fake positive reviews in order to increase their ranking and attract more customers.

A study published by [2] focused on the analysis of linguistic and structural features of fake hotel reviews, using machine learning techniques to extract features such as the length of reviews, the frequency of use of certain words and the consistency of sentence structure. Through the application of these models, they were able to accurately identify a high percentage of fake reviews.

GUZMAN-CABRERA, Rafael, HERNÁNDEZ-RAYAS, Angelica, PRASAD-MUKHOPADHYAY, Tirtha and RUIZ-PINALES, José. Automatic identification of false opinions in social networks. ECORFAN Journal-Republic of El Salvador. 2023

Another approach can be found in [3], where the authors proposed a method based on the analysis of the temporal evolution of reviews and the detection of "suspicious" patterns. By observing the distribution of ratings and sudden changes in opinions over time, they were able to identify patterns that indicated the presence of false opinions.

To this point, we can see the relevance of carrying out the identification of false opinions issued by users in social networks, some related work is presented below.

Related work

In [4] the authors propose a deep learning approach to detect and classify misleading opinions in online reviews. The approach involves preprocessing techniques, word representations and various machine learning models, including Naive Bayes, Logistic Regression, Support Vector Machine, Stochastic Gradient Descent and deep neural networks such as Convolutional Neural Networks (CNN), Short-Term Memory Model (LSTM), Bidirectional LSTM, Recurrent CNN and Bidirectional LSTM with Attention. The proposed approach is compared with other text classification methods and state-of-the-art approaches, and the results show that Bidirectional LSTM with Attention outperforms the other approaches.

According to the work of [4], the Attention-based Bidirectional model is considered better compared to other deep learning models due to its ability to capture the most important semantic information in the text sequence. In addition, the model uses a bidirectional neural network that retains contextual information in both directions and an attention layer that extracts only the important word representations needed to understand the meaning of the sentence.

A possible limitation of the method proposed in this paper is that it is based on a specific dataset and may not be generalisable to other datasets or domains. In addition, the method may require a large amount of labelled data to train deep learning models, which may be costly and difficult to obtain in some cases.

In [5] a reliable recommendation framework is proposed using the content features of the Deceptive opinion spam corpus dataset by using several deep learning algorithms to predict the veracity of reviews. The proposed hybrid CNN-LSTM combination involving content features. The main challenge of a recommender system lies in the reliability of the user's choices and needs.

The methodology of this paper is based on the analysis of content features, such as review text and composite score, to predict the trustworthiness of reviews. The methodology proposed by the authors focuses on improving the trustworthiness and stability of the recommender system by avoiding misleading reviews.

An interesting approach can be found in [6], in this work the authors propose a methodology based on the PU (Positive Unlabeled) learning approach which stands out for being a type of learning with positive labels and unlabeled data, this learning method is used in this work to detect misleading opinions in online reviews. This approach uses a small set of examples of misleading opinions and a set of unlabelled opinions to build accurate classifiers. The proposed method is a two-step iterative process in which a classifier is trained using a set of positive examples and a set of unlabelled data, and then this classifier is used to classify the unlabelled data set. The process is repeated until a stopping criterion is reached and the last classifier constructed is returned as the final classifier. Later, this work was modified in [7] where the authors propose the use of n-charactergrams as features for false opinion detection. They perform two experiments to evaluate the effectiveness of this approach. In the first experiment, they compare the performance of character n-grams with word n-grams in detecting misleading opinions. In the second experiment, they evaluate the robustness of the character n-gram approach when only a few examples of deceptive opinions are available for training. The authors use the Naive Bayes classifier to evaluate the performance of the proposed approach. Furthermore, they compare their approach with other existing approaches, such as sentiment analysis and spam detection.

In the study by [8], the researchers proposed an unsupervised approach for detecting false and misleading opinions using the Deceptive Opinion Spam corpus. Their goal was to identify textual patterns inherent in opinions that would allow distinguishing between genuine and misleading opinions without the need for a labelled training dataset.

The researchers explored multiple linguistic and structural features of the opinions in the corpus, such as the use of emotional words, the length of reviews, the amount of punctuation and the frequency of specific words. They then used machine learning algorithms, such as SVM (Support Vector Machines) and Naïve Bayes, to classify the reviews as genuine or false. The following section describes the methodology implemented in this work.

Methodology

It is clear that the issue of identifying false opinions is still an open research topic, as shown in the previous section, this problem is not new and this has allowed different research groups to make their contributions on different approaches that contribute to the solution of this problem. In this paper we present a methodology, see figure 1, with which competitive results are obtained when carrying out the identification of false opinions. It is worth mentioning that this methodology can be used with other corpora. A brief description of the corpus used in the experimental part is presented below.

The corpus used in the present work is: "Deceptive Opinion Spam" which is available (https://www.kaggle.com/datasets/rtatman/deceptive-opinion-spam-corpus) and consists of a dataset used in the research on the detection of false and misleading opinions. This corpus consists of hotel reviews written by real users, but with a distinction between truthful and deceptive reviews, specifically it contains: 400 truthful positive reviews from TripAdvisor [9], 400 deceptive positive reviews from Mechanical Turk [9], 400 truthful negative reviews from Expedia, Hotels.com, Orbitz, Priceline, TripAdvisor and Yelp [3] and 400 deceptive negative reviews from Mechanical Turk [3]. In total there are 1,600 reviews, divided into two main categories: "truthful" reviews and "deceptive" reviews. Each category has 800 documents. Illustrative examples of these opinions are:

- Truthful: "I recently stayed at this hotel during my business trip and I must say it exceeded my expectations. The staff was friendly and accommodating, the room was clean and comfortable, and the location was convenient. I highly recommend this hotel for both business and leisure travelers."

- Deceptive: "I had the worst experience at this hotel. The staff was rude and unhelpful, the room was dirty and uncomfortable, and the location was terrible. I would never recommend this hotel to anyone. Stay away!"

As you can see it is not easy to identify at first glance the false opinion, but if we look more closely we see that the negative evaluations that are made are very general and that, when a person complains about something, they usually specify in more detail what they did not like about the room.

These opinions are the ones that feed the first block of the proposed methodology, shown in figure 1.
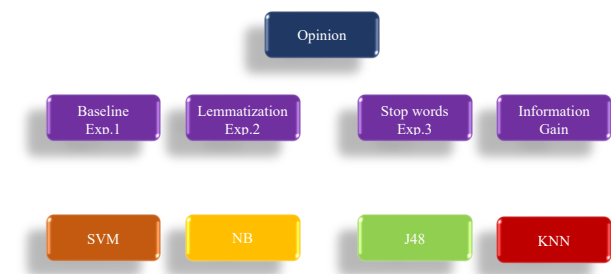
Figure 1 Methodology implemented for the identification of false opinions

Four experiments were carried out, which are described below:

- Exp 1: Baseline, the data set is taken without preprocessing.

- Exp 2: Lemmatisation of the dataset is carried out

- Exp 3: Stopwords and words with frequency less than 3 are eliminated.

- Exp 4: Information gain is applied to the set of Exp 3.

It is worth mentioning that this process does not have to be sequential, however, as will be shown in the results section, a gradual improvement is observed when moving from one to the other. Four different learning methods were used, which are described below:

- SVM: SMO divides the optimisation problem into smaller subproblems and solves them sequentially to find the hyperplane that best separates the different classes in the dataset. It is able to handle both binary and multi-class classification problems. [10, 11].

- NB: Naive Bayes is a probability-based statistical learning model, which has as its main foundation that all attributes are completely independent given the class of study [12]. Although this assumption is not regularly respected in many real-world applications, Naive Bayes remains one of the best classification algorithms today due to its simplicity and efficiency. Given a test instance d, represented by a vector of attributes (w1, w2, ..., wm), the probabilistic condition P(d|c) is computed as follows:

$$p(d|c) = \prod_{i=1}^{m} P(w_i|c)$$

- J48: is a widely used algorithm in machine learning, which belongs to the family of decision tree algorithms. This algorithm, a variant of ID3, differs in its ability to accept continuous and categorical attributes when constructing the decision tree [13]. In order to reduce classification error caused by high noise or detailed data sets, the J48 algorithm uses an improved tree pruning technique. In addition, this algorithm employs a greedy divide-and-conquer approach to recursively induce decision trees containing the attributes of the database or dataset for further classification [13]. The algorithm shows the ability to accept both continuous and categorical attributes during the construction of the decision tree and can be developed using a top-down or bottom-up approach. In addition, the algorithm splits a dataset based on the different attribute values present in the data to separate out a likely prediction.

- KNN: refers to the k-nearest neighbour classification algorithm. It is a supervised learning algorithm that is used to classify new data points based on their similarity to their nearest neighbours in the training set [14]. The algorithm uses a training data set containing examples with their respective class labels. When presented with a new data point to classify, the algorithm searches for the k nearest neighbours in the training set and assigns the new point the most frequent class among those neighbours. The value of k determines the number of nearest neighbours to be used for classification. Once the nearest neighbours are found, some distance metric can be used to calculate the similarity between the new point and the neighbours.

According to [15] there are common ways to evaluate the results of machine learning experiments, among these metrics is accuracy. Precision is a metric used in classification problems to measure the proportion of correctly identified positive cases among all the cases classified as positive by the model:

$$P = \frac{TP}{TP + TF}$$

Where: TP (True Positive) is the number of positive cases that have been correctly identified and FP (False Positive) is the number of negative cases that have been incorrectly classified as positive.

Results

The results obtained for the four experiments are shown in table 1 and figure 2.

	SVM	NB	J48	KNN
Exp.1	79.63%	12.25%	54.16%	35.32%
Exp.2	80.20%	13.43%	55.46%	36.84%
Exp.3	81.30%	77.23%	56.53%	37.78%
Exp.4	82.32%	78.50%	55.35%	38.62%

Table 1 Results obtained: accuracy metrics in the deceptive opinion spam corpus

As can be seen, the best results are obtained for SVM. The dimension of the feature vector for each experiment was as follows: for the baseline the feature vector consisted of a total of 9604 elements, in the case of experiment 2 where the lemmatisation was carried out the dimension of the vector was 9604 elements, in the case of experiment 3, where the empty words or stopwords were eliminated as well as words with a frequency of less than 3, the dimension of the vector was reduced to 3217 elements and finally in experiment 4, when using information gain, there were only 1816 elements (considering only those elements with an information gain greater than zero), it is worth noting that although the dimension of the feature vector is significantly better (it contains only 19. 21% of the instances that were in the baseline) the accuracy value is significantly increased. It also highlights the values obtained with Naive Bayes, which is observed that with a large feature vector (experiments 1 and 2) gives very bad results and improves significantly when the feature vector reduces its dimension.
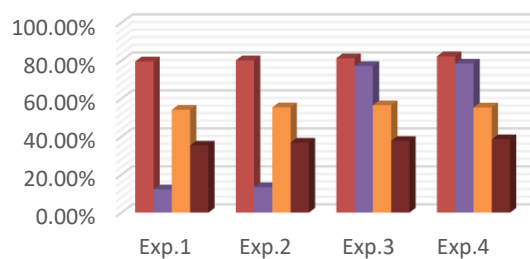
Figure 2 Results obtained: accuracy metrics in the deceptive opinion spam corpus

Conclusions

The methodology implemented in this paper addresses the detection of false opinions in the hotel industry using the Deceptive Opinion Spam corpus. Four different machine learning methods were used and results are presented using several preprocessing methods, including word lemmatisation. The best results in the evaluation metrics used are obtained with SVM in the detection of false and misleading opinions. This level of accuracy is competitive and suggests that the approach used in this study has the potential to detect misleading opinions effectively.

Importantly, word lemmatisation applied in data preprocessing has been shown to be an effective technique for improving the accuracy of false and misleading opinion detection. By reducing words to their base form, a more generalised representation is achieved and the essential features of opinions are better captured. It is important to mention a significant difference between the approach used in this paper and the approach of the authors mentioned in the literature. While the authors focused only on the detection of two classes of opinions, genuine and misleading, in this work the detection of opinions is performed in four different classes False Positive Opinions (FP), True Positive Opinions (TP), False Negative Opinions (FN), True Negative Opinions (TN). This adds complexity to the problem, as it involves classifying opinions into more categories, which is more challenging.

References

1. Fitzpatrick, E., J.C. Bachenko, and T. Fornaciari, *Automatic detection of verbal deception.* 2015.

2. Ren, Y. and D. Ji, *Learning to detect deceptive opinion spam: A survey.* IEEE Access, 2019. **7**: p. 42934-42945.

3. Ott, M., C. Cardie, and J.T. Hancock. *Negative deceptive opinion spam.* in *Proceedings of the 2013 conference of the north american chapter of the association for computational linguistics: human language technologies.* 2013.

4. Salunkhe, A., *Attention-based Bidirectional LSTM for Deceptive Opinion Spam Classification.* arXiv preprint arXiv:2112.14789, 2021.

5. SujithraKanmani, R. and B. Surendiran, *Boosting credibility of a Recommender System using Deep Learning Techniques-An Empirical Study.*

6. Fusilier, D.H., et al. *Using PU-learning to detect deceptive opinion spam.* in *Proceedings of the 4th workshop on computational approaches to subjectivity, sentiment and social media analysis.* 2013.

GUZMAN-CABRERA, Rafael, HERNÁNDEZ-RAYAS, Angelica, PRASAD-MUKHOPADHYAY, Tirtha and RUIZ-PINALES, José. Automatic identification of false opinions in social networks. ECORFAN Journal-Republic of El Salvador. 2023

7. Fusilier, D.H., et al. *Detection of opinion spam with character n-grams.* in *Computational Linguistics and Intelligent Text Processing: 16th International Conference, CICLing 2015, Cairo, Egypt, April 14-20, 2015, Proceedings, Part II 16.* 2015. Springer.

8. Asghar, M.Z., et al., *Opinion spam detection framework using hybrid classification scheme.* Soft computing, 2020. **24**: p. 3475-3498.

9. Ott, M., et al., *Finding deceptive opinion spam by any stretch of the imagination.* arXiv preprint arXiv:1107.4557, 2011.

10. Tanveer, M., et al., *Comprehensive review on twin support vector machines.* Annals of Operations Research, 2022: p. 1-46.

11. Chinguel Tineo, S.F., *Evaluación de rendimiento de algoritmos en la identificación de ataques a sitios web utilizando logs de servidor.* 2022.

12. Wang, S., L. Jiang, and C. Li, *Adapting naive Bayes tree for text classification.* Knowledge and Information Systems, 2015. 44: p. 77-89.

13. Shadi Aljawarneh, M.B.Y.y.M.A., *An enhanced J48 classification algorithm for the anomaly.* Cluster Computing, 2017: p. 10549–10565.

14. Bishop, C.M., *Pattern Recognition and Machine Learning.* 2006, Springer: New York. p. 738.

15. Powers, D.M.W., *Evaluation: from precision, recall and F-measure to ROC, informedness, markedness and correlation.* International Journal of Machine Learning Technology, 2011: p. 37-63.
.

[Title in Times New Roman and Bold No. 14 in English and Spanish]

Surname (IN UPPERCASE), Name 1st Author†*, Surname (IN UPPERCASE), Name 1st Coauthor, Surname (IN UPPERCASE), Name 2nd Coauthor and Surname (IN UPPERCASE), Name 3rd Coauthor

Institutional Affiliation of Author including Dependency (No.10 Times New Roman and Italic)

International Identification of Science - Technology and Innovation

ID 1st Author: (ORC ID - Researcher ID Thomson, arXiv Author ID - PubMed Author ID - Open ID) and CVU 1st author: (Scholar-PNPC or SNI-CONACYT) (No.10 Times New Roman)

ID 1st Coauthor: (ORC ID - Researcher ID Thomson, arXiv Author ID - PubMed Author ID - Open ID) and CVU 1st coauthor: (Scholar or SNI) (No.10 Times New Roman)

ID 2nd Coauthor: (ORC ID - Researcher ID Thomson, arXiv Author ID - PubMed Author ID - Open ID) and CVU 2nd coauthor: (Scholar or SNI) (No.10 Times New Roman)

ID 3rd Coauthor: (ORC ID - Researcher ID Thomson, arXiv Author ID - PubMed Author ID - Open ID) and CVU 3rd coauthor: (Scholar or SNI) (No.10 Times New Roman)

Abstract (In English, 150-200 words)

Objectives
Methodology
Contribution

Keywords (In English)

Indicate 3 keywords in Times New Roman and Bold No. 10

Abstract (In Spanish, 150-200 words)

Objectives
Methodology
Contribution

Keywords (In Spanish)

Indicate 3 keywords in Times New Roman and Bold No. 10

Citation: Surname (IN UPPERCASE), Name 1st Author, Surname (IN UPPERCASE), Name 1st Coauthor, Surname (IN UPPERCASE), Name 2nd Coauthor and Surname (IN UPPERCASE), Name 3rd Coauthor. Paper Title. ECORFAN Journal-Republic of El Salvador. Year 1-1: 1-11 [Times New Roman No.10]

---

* Correspondence to Author (example@example.org)
† Researcher contributing as first author.

Introduction

Text in Times New Roman No.12, single space.

General explanation of the subject and explain why it is important.

What is your added value with respect to other techniques?

Clearly focus each of its features

Clearly explain the problem to be solved and the central hypothesis.

Explanation of sections Article.

## Development of headings and subheadings of the article with subsequent numbers

[Title No.12 in Times New Roman, single spaced and bold]

Products in development No.12 Times New Roman, single spaced.

Including graphs, figures and tables-Editable

In the article content any graphic, table and figure should be editable formats that can change size, type and number of letter, for the purposes of edition, these must be high quality, not pixelated and should be noticeable even reducing image scale.

[Indicating the title at the bottom with No.10 and Times New Roman Bold]
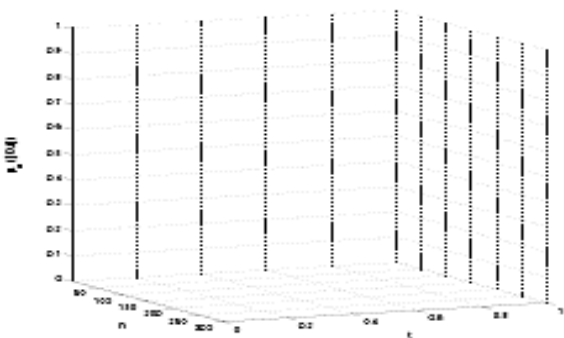
Graphic 1 Title and *Source (in italics)*

Should not be images-everything must be editable.
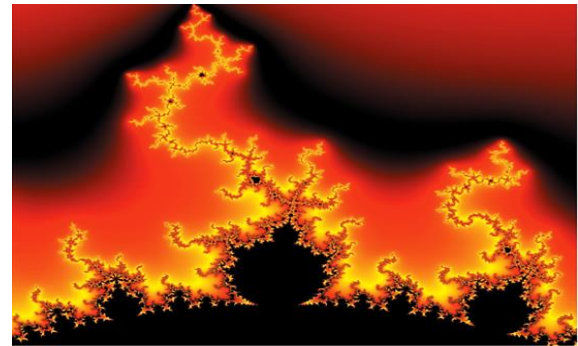
Figure 1 Title and *Source (in italics)*

Should not be images-everything must be editable.

Table 1 Title and *Source (in italics)*

Should not be images-everything must be editable.

Each article shall present separately in **3 folders**: a) Figures, b) Charts and c) Tables in .JPG format, indicating the number and sequential Bold Title.

For the use of equations, noted as follows:

$$Y_{ij} = \alpha + \sum_{h=1}^{r} \beta_h X_{hij} + u_j + e_{ij} \qquad (1)$$

Must be editable and number aligned on the right side.

Methodology

Develop give the meaning of the variables in linear writing and important is the comparison of the used criteria.

Results

The results shall be by section of the article.

Annexes

Tables and adequate sources

Thanks

Indicate if they were financed by any institution, University or company.

Conclusions

Explain clearly the results and possibilities of improvement.

References

Use APA system. Should not be numbered, nor with bullets, however if necessary numbering will be because reference or mention is made somewhere in the Article.

Use Roman Alphabet, all references you have used must be in the Roman Alphabet, even if you have quoted an Article, book in any of the official languages of the United Nations (English, French, German, Chinese, Russian, Portuguese, Italian, Spanish, Arabic), you must write the reference in Roman script and not in any of the official languages.

Technical Specifications

Each article must submit your dates into a Word document (.docx):

Journal Name
Article title
Abstract
Keywords
Article sections, for example:

1. Introduction
2. Description of the method
3. Analysis from the regression demand curve
4. Results
5. Thanks
6. Conclusions
7. References

Author Name (s)
Email Correspondence to Author
References

Intellectual Property Requirements for editing:

- Authentic Signature in Color of <u>Originality Format</u> Author and Coauthors.

- Authentic Signature in Color of the <u>Acceptance Format</u> of Author and Coauthors.

- Authentic Signature in blue colour of the <u>Conflict of Interest Format</u> of Author and Co-authors.

Reservation to Editorial Policy

ECORFAN Journal-Republic of El Salvador reserves the right to make editorial changes required to adapt the Articles to the Editorial Policy of the Journal. Once the Article is accepted in its final version, the Journal will send the author the proofs for review. ECORFAN® will only accept the correction of errata and errors or omissions arising from the editing process of the Journal, reserving in full the copyrights and content dissemination. No deletions, substitutions or additions that alter the formation of the Article will be accepted.

Code of Ethics - Good Practices and Declaration of Solution to Editorial Conflicts

Declaration of Originality and unpublished character of the Article, of Authors, on the obtaining of data and interpretation of results, Acknowledgments, Conflict of interests, Assignment of rights and Distribution.

The ECORFAN-Mexico, S.C Management claims to Authors of Articles that its content must be original, unpublished and of Scientific, Technological and Innovation content to be submitted for evaluation.

The Authors signing the Article must be the same that have contributed to its conception, realization and development, as well as obtaining the data, interpreting the results, drafting and reviewing it. The Corresponding Author of the proposed Article will request the form that follows.

Article title:

– The sending of an Article to ECORFAN Journal-Republic of El Salvadoremanates the commitment of the author not to submit it simultaneously to the consideration of other series publications for it must complement the Format of Originality for its Article, unless it is rejected by the Arbitration Committee, it may be withdrawn.

– None of the data presented in this article has been plagiarized or invented. The original data are clearly distinguished from those already published. And it is known of the test in PLAGSCAN if a level of plagiarism is detected Positive will not proceed to arbitrate.

– References are cited on which the information contained in the Article is based, as well as theories and data from other previously published Articles.

– The authors sign the Format of Authorization for their Article to be disseminated by means that ECORFAN-Mexico, S.C. In its Holding Republic of El Salvador considers pertinent for disclosure and diffusion of its Article its Rights of Work.

– Consent has been obtained from those who have contributed unpublished data obtained through verbal or written communication, and such communication and Authorship are adequately identified.

– The Author and Co-Authors who sign this work have participated in its planning, design and execution, as well as in the interpretation of the results. They also critically reviewed the paper, approved its final version and agreed with its publication.

– No signature responsible for the work has been omitted and the criteria of Scientific Authorization are satisfied.

– The results of this Article have been interpreted objectively. Any results contrary to the point of view of those who sign are exposed and discussed in the Article.

Copyright and Access

The publication of this Article supposes the transfer of the copyright to ECORFAN-Mexico, SC in its Holding Republic of El Salvador for its ECORFAN Journal-Republic of El Salvador, which reserves the right to distribute on the Web the published version of the Article and the making available of the Article in This format supposes for its Authors the fulfilment of what is established in the Law of Science and Technology of the United Mexican States, regarding the obligation to allow access to the results of Scientific Research.

Article Title:

Name and Surnames of the Contact Author and the Co-authors	Signature
1.	
2.	
3.	
4.	

Principles of Ethics and Declaration of Solution to Editorial Conflicts

Editor Responsibilities

The Publisher undertakes to guarantee the confidentiality of the evaluation process, it may not disclose to the Arbitrators the identity of the Authors, nor may it reveal the identity of the Arbitrators at any time.

The Editor assumes the responsibility to properly inform the Author of the stage of the editorial process in which the text is sent, as well as the resolutions of Double-Blind Review.

The Editor should evaluate manuscripts and their intellectual content without distinction of race, gender, sexual orientation, religious beliefs, ethnicity, nationality, or the political philosophy of the Authors.

The Editor and his editing team of ECORFAN® Holdings will not disclose any information about Articles submitted to anyone other than the corresponding Author.

The Editor should make fair and impartial decisions and ensure a fair Double-Blind Review.

Responsibilities of the Editorial Board

The description of the peer review processes is made known by the Editorial Board in order that the Authors know what the evaluation criteria are and will always be willing to justify any controversy in the evaluation process. In case of Plagiarism Detection to the Article the Committee notifies the Authors for Violation to the Right of Scientific, Technological and Innovation Authorization.

Responsibilities of the Arbitration Committee

The Arbitrators undertake to notify about any unethical conduct by the Authors and to indicate all the information that may be reason to reject the publication of the Articles. In addition, they must undertake to keep confidential information related to the Articles they evaluate. Any manuscript received for your arbitration must be treated as confidential, should not be displayed or discussed with other experts, except with the permission of the Editor.

The Arbitrators must be conducted objectively, any personal criticism of the Author is inappropriate.

The Arbitrators must express their points of view with clarity and with valid arguments that contribute to the Scientific, Technological and Innovation of the Author.

The Arbitrators should not evaluate manuscripts in which they have conflicts of interest and have been notified to the Editor before submitting the Article for Double-Blind Review.

Responsibilities of the Authors

Authors must guarantee that their articles are the product of their original work and that the data has been obtained ethically.

Authors must ensure that they have not been previously published or that they are not considered in another serial publication.
Authors must strictly follow the rules for the publication of Defined Articles by the Editorial Board.

The authors have requested that the text in all its forms be an unethical editorial behavior and is unacceptable, consequently, any manuscript that incurs in plagiarism is eliminated and not considered for publication.

Authors should cite publications that have been influential in the nature of the Article submitted to arbitration.

Information services

Indexation - Bases and Repositories

LATINDEX (Scientific Journals of Latin America, Spain and Portugal)
RESEARCH GATE (Germany)
GOOGLE SCHOLAR (Citation indices-Google)
REDIB (Ibero-American Network of Innovation and Scientific Knowledge- CSIC)
MENDELEY (Bibliographic References Manager)

Publishing Services

Citation and Index Identification H
Management of Originality Format and Authorization
Testing Article with PLAGSCAN
Article Evaluation
Certificate of Double-Blind Review
Article Edition
Web layout
Indexing and Repository
ArticleTranslation
Article Publication
Certificate of Article
Service Billing

Editorial Policy and Management

San Quentin Avenue, R 1-17 Miralvalle - San Salvador-El Salvador. Phones: +52 1 55 6159 2296, +52 1 55 1260 0355, +52 1 55 6034 9181; Email: contact@ecorfan.org www.ecorfan.org

ECORFAN Journal-Republic of El Salvador

"State of the art: "social and solidarity economy as a driver of sustainability""
GÓMEZ-LÓPEZ, Daniela S., VALADEZ-SOLANA, Brenda D., CRUZ-DOMÍNGUEZ, Enrique and CRUZ-CABRERA, Blasa C.
Tecnológico Nacional de México - Instituto Tecnológico de Oaxaca

"Psychological impact of feminicide"
CASTILLO-QUIÑONES, Adriana Guadalupe, CEJAS-LEYVA, Luz María, FERNANDEZ-MOJICA, Leticia and LAZCANO-FRANCO, Maura Antonia
Universidad Juárez del Estado de Durango

"Community water management in Veracruz. Challenges and current perspectives"
AGÜERO-RODRÍGUEZ, José Cruz, TEPETLA-MONTES, Julia and TORRES-BERISTAIN, Beatriz
Universidad Veracruzana

"Automatic identification of false opinions in social networks"
GUZMAN-CABRERA, Rafael, HERNÁNDEZ-RAYAS, Angelica, PRASAD-MUKHOPADHYAY, Tirtha and RUIZ-PINALES, José