



Munich Personal RePEc Archive

Innovative Horizons: Weaving Social Justice and Sustainability in Totonacapan through the Lens of the 2030 Agenda

Medel-Ramírez, Carlos and Medel-López, Hilario and Lara-Mérida, Jennifer

Universidad Veracruzana / IIESES, Universidad Veracruzana / Instituto de Antropología, Universidad de Xalapa / Escuela de Derecho

5 September 2023

Online at <https://mpra.ub.uni-muenchen.de/118487/>
MPRA Paper No. 118487, posted 13 Sep 2023 13:43 UTC

Innovative Horizons: Weaving Social Justice and Sustainability in Totonacapan
through the Lens of the 2030 Agenda

Carlos Medel Ramírez

ORCID: 0000-0002-5641-6270
Investigador del Instituto de Investigaciones y Estudios
Superiores Económicos y Sociales
Universidad Veracruzana
Coordinador del Observatorio Observes-IIES UV
Autor de correspondencia: E-mail: cmedel@uv.mx

Hilario Medel López

ORCID 0000-0002-0072-8654
Investigador del Instituto de Antropología
Universidad Veracruzana

Jennifer Lara-Mérida

ORCID: 0000-0003-2121-5652
Universidad de Xalapa
Facultad de Derecho

Introduction

In a study presented at the VII Conference of the Latin American and Caribbean Association for Human Development and the Capabilities Approach (ALCADECA) at the University of the Americas Puebla (UDLAP), Medel-Ramírez and Medel-López (2019) delved into the challenges of multidimensional poverty and social marginalization experienced by indigenous communities. The primary argument presented was that empowering these communities in managing productive ventures can be a key strategy in tackling these socio-economic issues effectively.

Moreover, a subsequent research paper by Medel-Ramírez and Medel-López (2020) discussed the notions of sustainability and justice within the Totonacapan region, factoring in its rich cultural heritage and profound connection with the environment. This work was unveiled at the 2020 HDCA conference themed "New Horizons: Sustainability and Justice" held in Auckland, New Zealand. The duo emphasized the need to view the matters concerning the Totonacapan region with a lens of introspection.

The overarching objective of this segment is to discern the correlation between the principles laid out in the United Nations' Agenda 2030 on Sustainable Development and the development blueprints at various governmental levels - national, state, and municipal. This endeavor also seeks to juxtapose the sustainable development approach of Totonacapan with these international guidelines. Additionally, it underscores the value and uniqueness of Totonacapan, advocating for an inclusive approach towards social justice and sustainability that honors its age-old customs, narrative, and heritage.

This section commits to a holistic exploration of the prevailing conditions within the Totonacapan landscape. The focus is to scrutinize the strategies employed and gauge the role of human rights, ecological sustainability, and cultural conservation in steering the region's trajectory. This knowledge is paramount to fathom the depths of how the principles of Agenda 2030 have been instrumental in advancing equity and environmental sustainability in the region. The aspiration is to mold the discourse in line with a paradigm that harmonizes human rights, ecological balance, and cultural integrity in the broader context of Agenda 2030.

Perspective on Sustainability and Justice: An Exploration of the Indigenous Worldview in Totonacapan

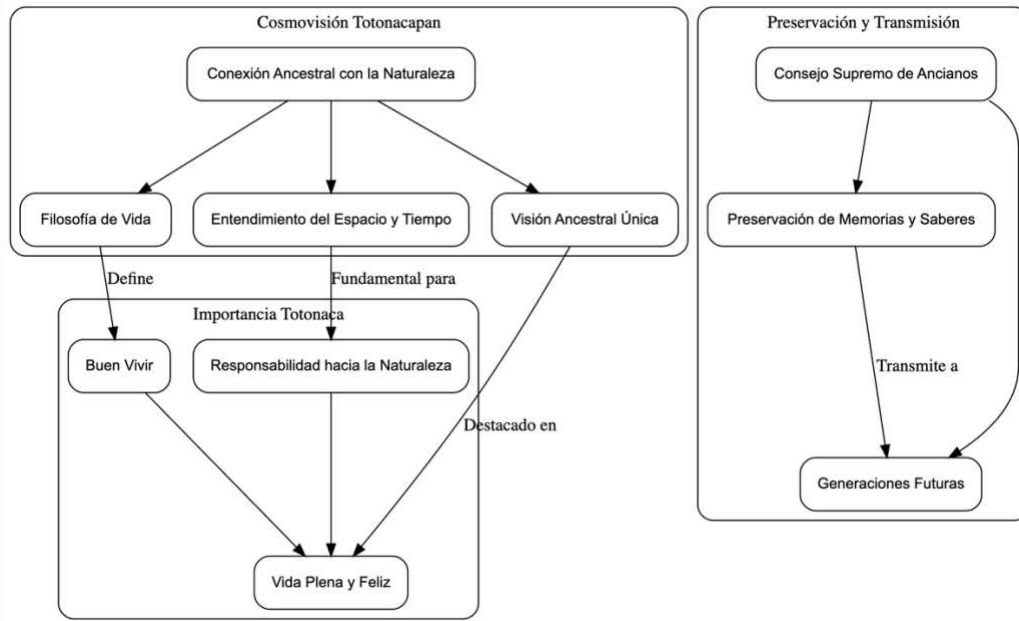
Understanding the worldview of Totonacapan demands a profound look into their ancestral connection with nature and their respect for it, which shapes their life philosophy, way of thinking, understanding of space and time, and their unique ancestral vision¹. This vision remains alive thanks to the efforts of the Supreme Council of Elders, tasked with preserving and passing on their memories and knowledge to future generations. This worldview, rooted in the connection and respect for Mother Nature, defines the life philosophy, thought, space, and time of the Totonacapan inhabitants and is crucial for its preservation and protection². The Totonac way of life, also known as Tapaxuwan Latamat,³ emphasizes the importance of two key elements: good living and responsibility towards nature, as essential ingredients for achieving a full and happy life. See Figure 1.

¹ See. Torres Solís M., Ramírez-Valverde B., et. al (2020) Buen vivir y agricultura familiar en el Totonacapan poblano, México. ÍCONOS Revista de Ciencias Sociales. Número 68. Volumen XXIV (3er. cuatrimestre). ISSN: 1390-1249. e-ISSN: 1390-8065. septiembre-diciembre 2020. Retrieved from: www.revistaiconos.ec

² See. Soto Vázquez G. F. (2020) Los saberes de los Totonacos del trabajo en el campo para su reproducción y fortalecimiento en la materia de etnoagricultura en el Centro de Estudios Superiores Indígenas Kgoyom (Cesik). Universidad Autónoma Metropolitana. Unidad Xochimilco. Tesis d Maestría en Desarrollo Rural. Retrieved from http://dcsh.xoc.uam.mx/podr/images/Tesis/Maestria/Soto_Vazquez_Gerardo_Francisco.pdf

³ See. Torres Solís, M., Ramírez-Valverde, B., Juárez Sánchez, P., Martínez Carrera, D., Ramírez-Valverde, G., Aliphath Fernández, M. & Parra Vázquez, M. (2021). Happy Life or Tapaxuwan Latamat: knowledge and community practices in the municipality of Huehuetla, Puebla, Mexico. *Textual*, 78, pp. 15-40. DOI: 10.5154/r.textual.2021.77.1

Figure 1
 Tapaxuwán Latamat: The Ancestral Essence and Nature-Driven
 Philosophy of Totonacapan's Worldview

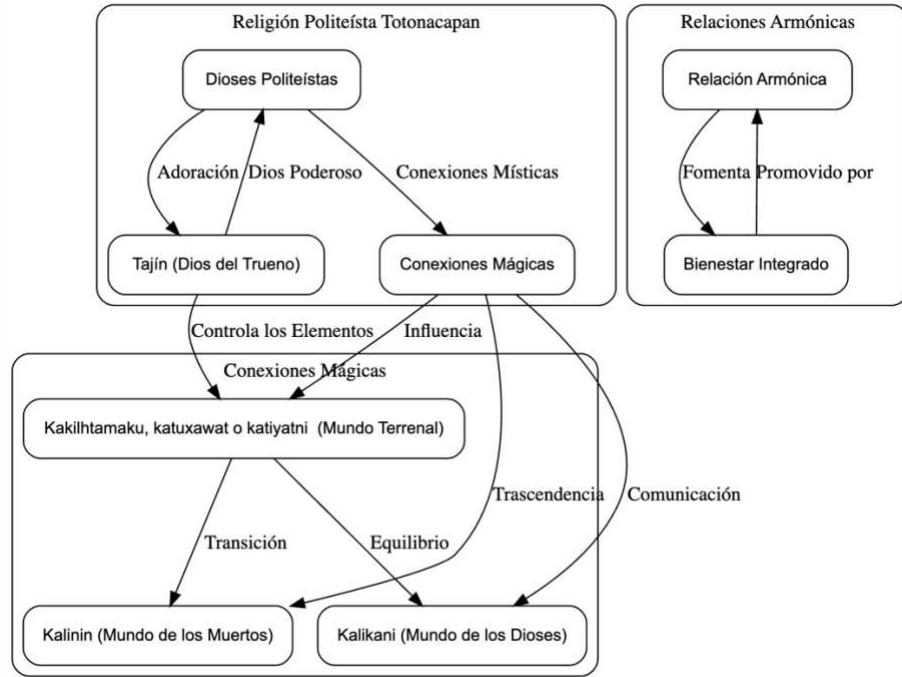


Source: Own elaboration.

The ancient inhabitants of Totonacapan practiced a polytheistic religion, where their gods were seen as sources of well-being for their health, harvests, and family. Among their deities, Tajín or Aktsiní, the God of Thunder, was considered the most powerful, controlling the clouds, rain, water, and wind. He was venerated for his ability to influence the rain and the harvests of the milpa, making him a significant figure in their religious culture. According to Cruz (2016), the Totonac worldview is based on three magical connections that interrelate spiritual life, the earthly world, and the realm of the gods. See next Figure 2.

Figure 2

"Threefold Magic: Totonacapan's Sacred Realms of Existence and Their Harmonious Interplay with Nature



Source: Own elaboration.

These dimensions are: 1) Kakilhtamaku, katuxawat or katiyatni, the earthly world where humans, spiritual and terrestrial beings, animals, and plants coexist; 2) Kalinin, the world of the dead, made up of Pupatin (world of punishment) and Akgapun (paradise); and 3) Kalikani (world of the gods), where the gods of water, wind, mountain, animals, rainbow, dances reside, and Kimpuchinakan, which is translated by some as "the owner of things." From a human rights and sustainability perspective, it's important to note that this worldview promotes an integrated approach to well-being and a harmonious relationship between humans, spiritual beings, and nature.

The worldview of the Totonacapan inhabitants,⁴ which values justice⁵ and the preservation of traditions and customs, was altered by Spanish domination,⁶ the war of independence, and the subsequent capitalist market development.

The latter focused on exploiting agricultural products for export, which contradicts the ancestral vision of respect for nature⁷ and conditions their original worldview. This resulted in a new social construct and a cultural evolution centered on the market system that clashes with the ancestral collective longing⁸ for rest, health, and peace. (Cruz, 2016).

In this regard, it is essential to consider human rights and sustainability to protect and preserve indigenous cultures and their traditional values. It is crucial that public policies integrate human rights, sustainability, and cultural preservation when seeking economic development. The age-old culture of the Totonacapan people, with its harmonious relationship with nature as the guiding principle in their worldview, is fundamental to preserving their history, tradition, and sense of belonging.

The life and coexistence of the inhabitants of the Totonacapan region are being impacted by political actions focused on sustainable development. From a human rights perspective, it is necessary to

⁴ Cruz Vázquez, M. (2016). La faena: Práctica para la organización comunitaria. Universidad Veracruzana Intercultural. Retrieved from <https://www.uv.mx/uvi/General/la-faena-practica-para-la-organizacion-comunitaria/>

⁵ Pérez Gil, V. Y., González Téllez, M. L., & Campero Carracilly, S. C. (2017). Kin tachiwin ix likaxtlaw kulitlan, nuestro diálogo como construcción de la paz. Memoria y saberes totonacos para la resolución pacífica de los conflictos en el municipio de Papantla, Veracruz. (Primera edición). Fondo Editorial, Secretaría de Educación Pública. ISBN: 978-607-9116-30-9. Retrieved from http://dgei.basica.sep.gob.mx/files/fondo-editorial/educacion-intercultural/cgeib_00048.pdf According to Pérez, González, and Campero (2017), the results of interviews conducted in the Totonacapan area suggest that "from the explanation of the cosmos also arise the foundations of their notions and conceptions about conflict, peace, respect, and justice for the Totonacs" (p. 45).

⁶ López-Lobato, A. (2014). Importancia del maíz en el sistema alimentario campesino en la región Totonacapan, Veracruz. Master's Thesis in Rural Development, Autonomous Metropolitan University, Mexico. Retrieved from http://dcsh.xoc.uam.mx/poddr/images/Tesis/Maestria/Lopez_Lobato_Alvaro.pdf

According to López-Lobato (2014), the religion of the Totonac people blends indigenous tradition with that of the Catholic faith, forging a distinct religiosity. Furthermore, the author notes that the Totonac belief system is cumulative, emerging from a fusion over time and space of symbols, myths, rituals, and ceremonies, derived from the blend of Mesoamerican indigenous cultures, enriched by the incorporation of aspects of Christianity as a result of the Spanish conquest (p. 80).

⁷ Pérez, V. Y., González Téllez, M. L., & Campero Carracilly, S. C. (2017). Kin tachiwin ix likaxtlaw kulitlan, nuestro diálogo como construcción de la paz: Memoria y saberes totonacos para la resolución pacífica de los conflictos en el municipio de Papantla, Veracruz (p. 46). Primera edición. ISBN: 978-607-9116-30-9. Retrieved from: http://dgei.basica.sep.gob.mx/files/fondo-editorial/educacion-intercultural/cgeib_00048.pdf

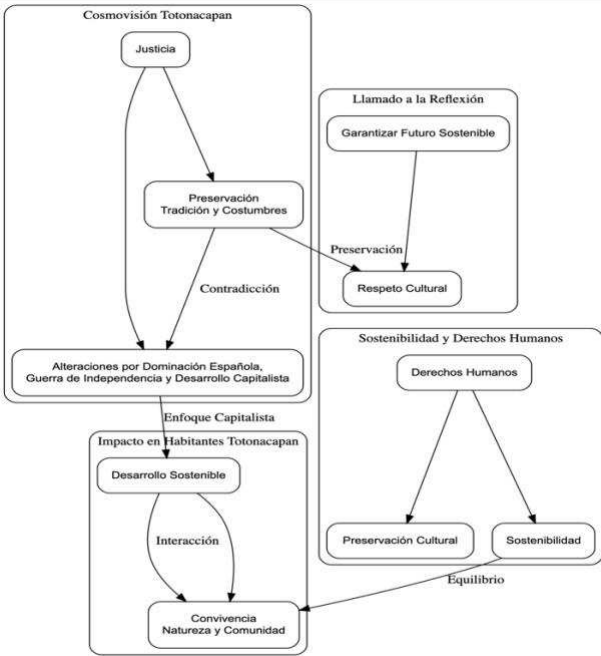
⁸ Pérez, V. Y., González Téllez, M. L., & Campero Carracilly, S. C. (2017). Kin tachiwin ix likaxtlaw kulitlan, nuestro diálogo como construcción de la paz. Memoria y saberes totonacos para la resolución pacífica de los conflictos en el municipio de Papantla, Veracruz. In the work, it is mentioned that for the Totonacs, "peace" means "to live in harmony" (lakatitum nalatapaya) (p. 59)

consider how these actions affect the communities' right to a dignified life and how nature is a fundamental element for their livelihood and quality of life.

It's important to listen to and value the vision and philosophy of the Totonacapan people, who consider the rain, climate, and life of the towns in the region as essential elements for their well-being. The worldview of this community is part of their history and tradition and should be respected and protected in sustainable development.

From a perspective grounded in human rights, cultural preservation, and the pressing need for sustainability, the analysis of how the inhabitants of Totonacapan experience and share their lives with government policies seeking sustainable development takes on significant importance. It's crucial to explore the path towards a full and balanced coexistence with nature that can be forged. Evaluating the extent to which we adhere to human rights and the imperatives of Totonac communities becomes a question of utmost importance, an inquiry that deserves meticulous examination. See Figure 3.

Figure 3
 Evolution and Impact: The Intersection of Totonacapan's Ancestral Values
 and Contemporary Development Challenges



Source: Own elaboration.

There remains, however, a broad task at hand to ensure that human rights are not only respected but also elevated to their highest expression, while nature is fervently safeguarded in development. It

becomes indispensable to introspect about the current state of affairs, urging the identification of solutions that enable communities to coexist in harmony with their surroundings and to live fully.

This reasoning aims to give rise to a process of reflection, forged from the perspective and beliefs deeply rooted in Totonacapan. In this introspection, it is necessary to consider the rich historical and traditional tapestry that defines this people, where the rain, climate, and the very life of the region converge as essential for their survival. What steps are indispensable to crafting a sustainable future for these communities while zealously preserving their values and culture?

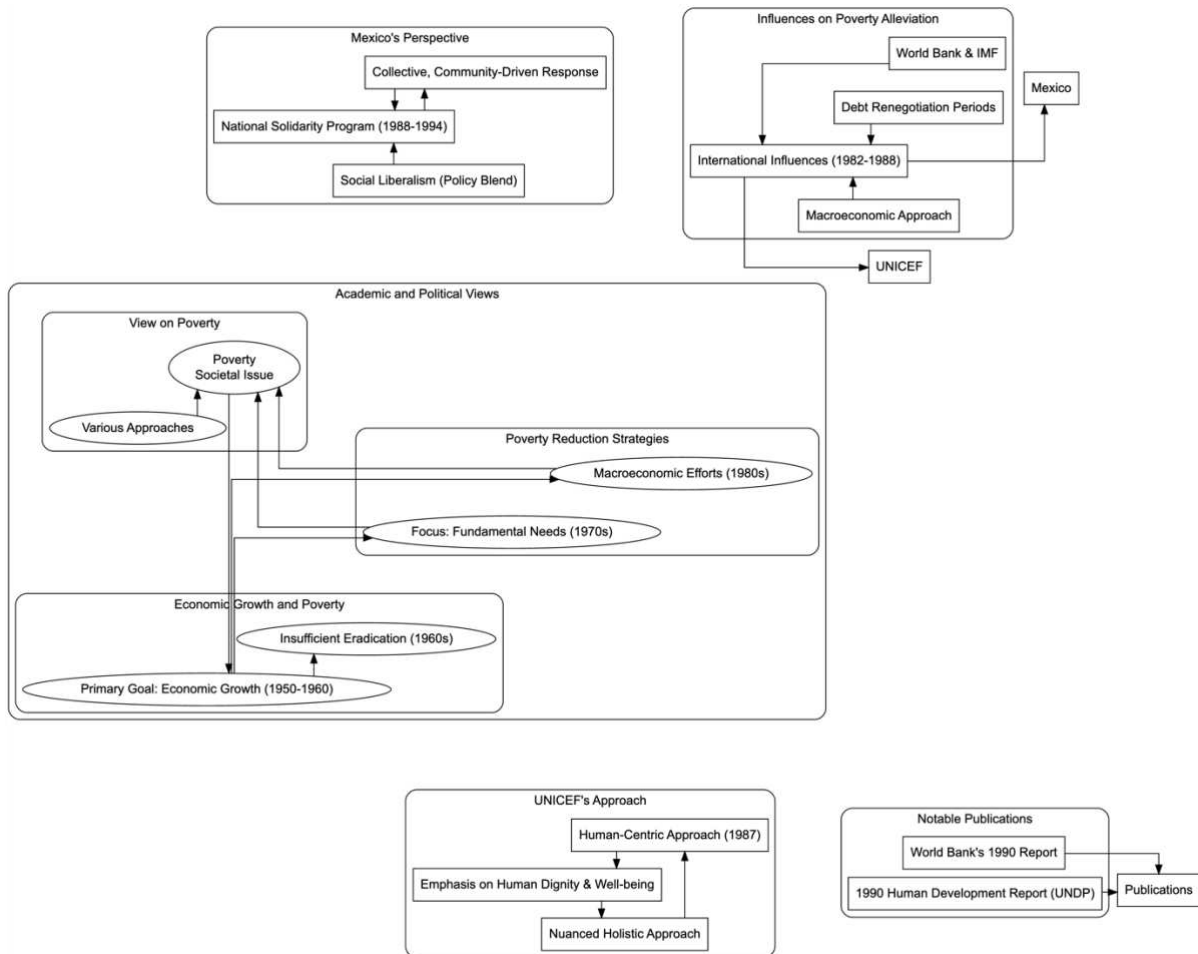
The realization of a sustainable future for these communities, where their values and culture are venerated, stands as a substantive pillar. Sustainability, intertwined with the safeguarding of culture, crystallizes as a cornerstone in the endeavor to ensure the human rights and dignified life of these groups.

Global Perspective: Moving toward the Sustainable Development of the United Nations

The academic and political worlds view poverty as a societal issue that requires various approaches to address. Economic growth became the primary goal between the years 1950 and 1960, yet it was later shown to be insufficient to eradicate poverty in societies. In the 1970s, the primary focus of the poverty reduction strategy was on meeting the most fundamental needs. But, according to Székely (1997), while governments implemented macroeconomic liberalization and stabilization programs, poverty and inequality increased during the 1980s. These efforts had to contend with rising societal demands and finite funds to meet social needs.

Based on insights from Czarnecki (2012), poverty alleviation efforts are shaped by a macroeconomic approach that leans towards free-market dynamics. This stance is aligned with the guidelines of prominent global institutions like the World Bank and the International Monetary Fund, especially during debt renegotiation periods. In the phase from 1982 to 1988, international influences played a significant role in shaping the country's financial direction and how poverty and disparities were addressed. See Diagram 1

Diagram 1
Evolution of Poverty Alleviation Strategies and Global Influences



Source: Own elaboration.

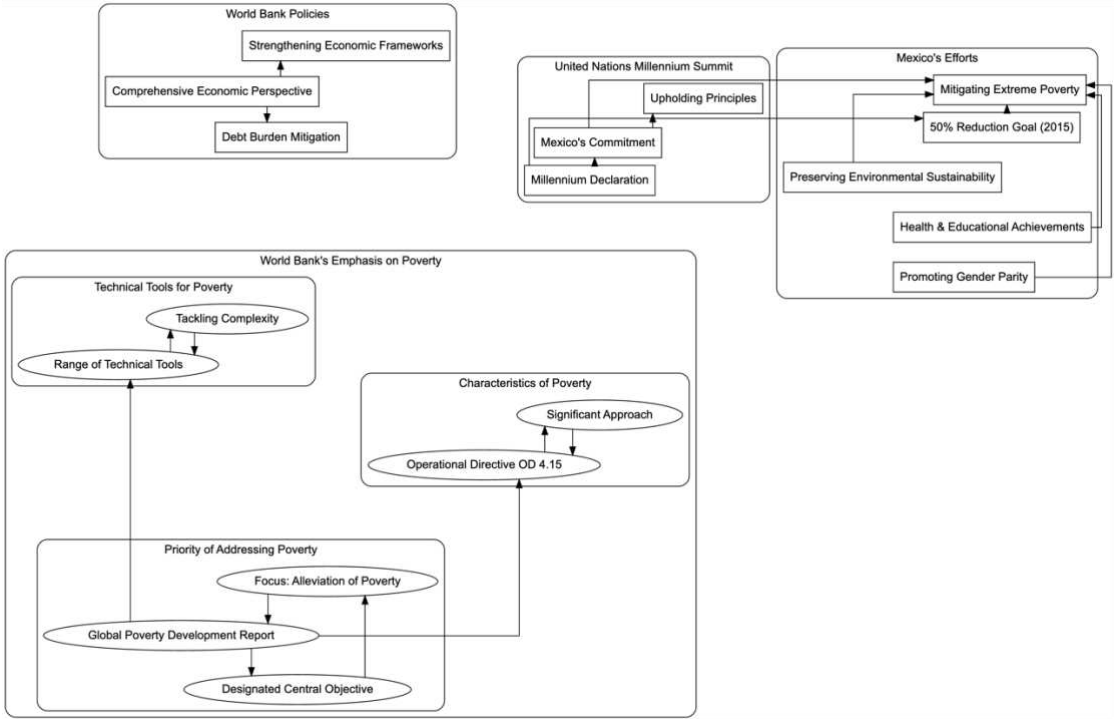
According to Diagram 1, from 1988 to 1994, Mexico's official perspective on poverty was articulated in its National Solidarity Program, emphasizing a collective, community-driven response. This pivot was intended to amplify the reach and effectiveness of anti-poverty measures in the nation. Tetreault (2012) posits that Mexico's 1988 strategy mirrors aspects of social liberalism—a policy blend of free-market tenets with directed government expenditure, ensuring access to foundational services like healthcare and education and introducing supportive measures for underserved communities to cultivate social cohesion.

In a pivotal move in 1987, the United Nations Children's Fund (UNICEF) embraced a unique "human-centric" approach, emphasizing the importance of human dignity and well-being. This paradigm shift enabled a more nuanced and holistic approach to poverty across nations. As a result, notable publications, such as the 1990 Human Development Report from the UNDP and the World Bank's 1990

Global Poverty Development Report, prioritized poverty reduction as a core objective in global development discussions.

In 1991, the World Bank placed significant emphasis on the priority of addressing poverty, designating it as a central objective and core purpose. The primary focus of their help activities, as emphasized by Barber B. Conable, the President of the institution at that time, was the alleviation of poverty. With a specific emphasis on this objective, the World Bank generated a range of technical tools with the intention of tackling the complexities associated with worldwide poverty. In the same year, the institution delineated the characteristics of poverty in its operational directive OD 4.15, signifying a significant tactic in their approach to mitigating poverty. See Diagram 2.

Diagram 2
Charting Global Efforts: Prioritizing Poverty Reduction in Development Strategies



Source: Own elaboration.

From Diagram 2, we can, looking forward, the need to address poverty persists with undiminished urgency. The World Bank's 2015 report titled "Objetivos de Desarrollo del Milenio" presented the goal of eradicating poverty and hunger as a significant milestone. In conjunction with this, during the United Nations' Millennium Summit convened in New York in 2000 (shown in Figure 2), delegates from 189 countries unanimously affirmed this dedication, a milestone represented in the provided figure 4.

After the United Nations' Millennium Summit in New York in 2000, Mexico made a commitment to uphold the principles outlined in the Millennium Declaration. The aforementioned commitment was established in the year 2000. Subsequently, Mexico directed its efforts on mitigating the prevalence of extreme poverty, improving health and educational achievements, promoting gender parity, and preserving environmental sustainability.

Figure 4
Progress and Overview of the 2015 Millennium Development Goals (MDGs)



Source: United Nations Organization. United Nations Millennium Summit.

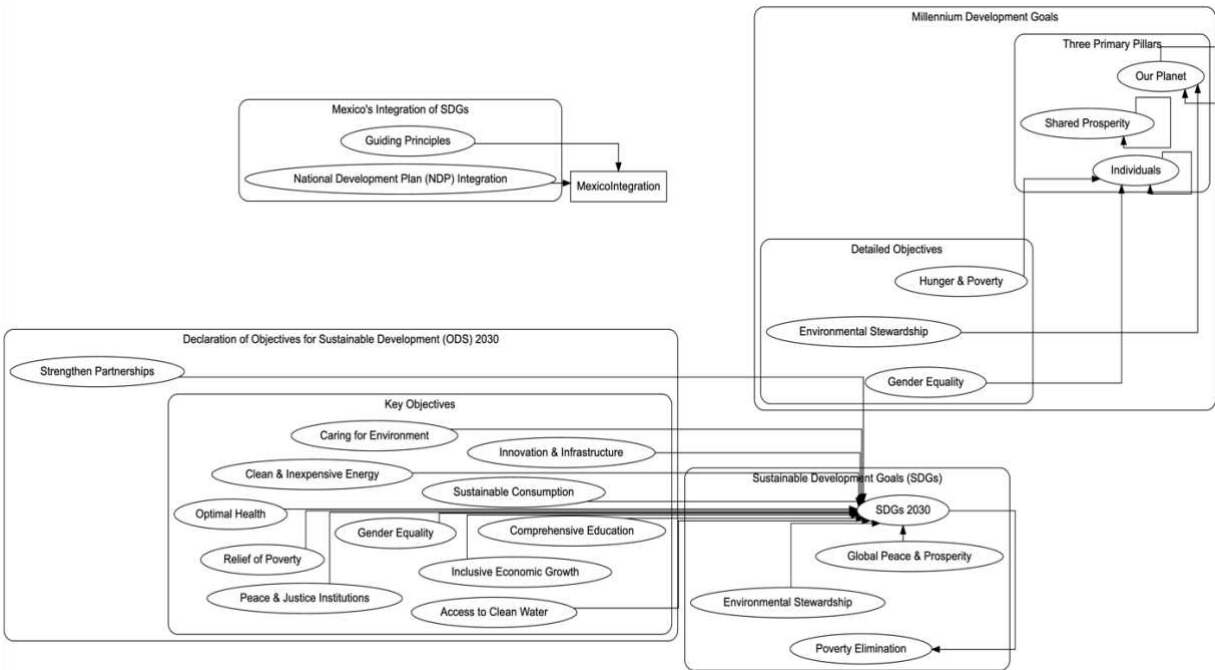
The objective was to achieve a 50% reduction in the population living in poverty by the year 2015. Simultaneously, the World Bank developed policies that had a more comprehensive economic perspective in addressing poverty. The aforementioned measures were designed to assist countries in mitigating their debt burdens and strengthening their economic frameworks.

Mapping a Trajectory Towards 2030: The United Nations' Perspective on Sustainable Development

This project had the ambitious objective of fostering worldwide improvements in quality of life. Through the "Millennium Development Goals" (MDGs), the UNDP set out to tackle a myriad of global challenges, from addressing hunger and poverty to championing gender equality and environmental stewardship. These goals were organized into three primary pillars: individuals, our planet, and shared prosperity.

The United Nations (UN) has emerged as a crucial proponent of environmental consciousness, charting a path towards a sustainable and greener world and reinforcing the essence of global unity. This mission, anchored in mutual commitment, is pivotal for sculpting a cohesive and harmonious globe. In 2015, the UN unfurled its diverse Sustainable Development Goals (SDGs) for 2030, targeting issues like poverty elimination, environmental stewardship, and the aspiration for global peace and prosperity. This strategic blueprint stands as the cornerstone for international synergies, laying the groundwork for a stable and balanced tomorrow. As the 21st century dawned, the United Nations Development Programme (UNDP) embarked on an ambitious project aimed at uplifting the living standards of people globally. See Diagram 3.

Diagram 3
 Charting Global Efforts: Prioritizing Poverty Reduction in Development Strategies



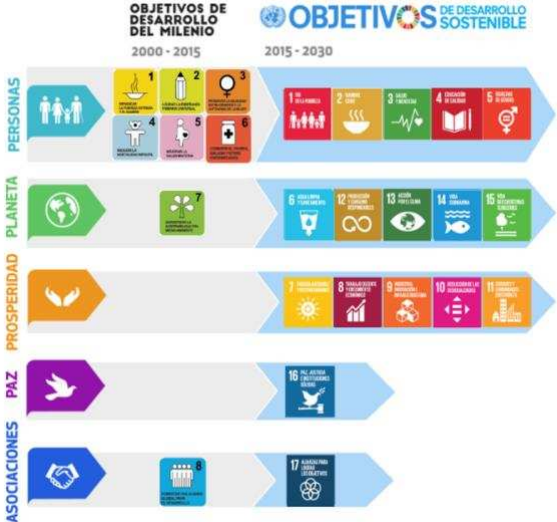
Source: Own elaboration.

The United Nations Organization recognized the "Declaration of Objectives for Sustainable Development" (ODS) for the year 2030 as a significant endeavor in 2015. This proposal's fundamental axis is the relief of poverty, the abolition of hunger, the promotion of optimal health, comprehensive education, and gender equality, and it tries to solve these difficulties. Simultaneously, there is a focus on the need of caring for our environment, with aims targeted at the preservation of marine and terrestrial ecosystems, assuring access to clean water sources, and fostering sustainable consumption and production practices.

Concerning Prosperity, the goal is to secure clean and inexpensive energy sources, stimulate inclusive economic growth, support innovation and infrastructure development, reduce inequities, and construct sustainable cities and communities. Finally, the necessity of preserving peace, boosting justice, and establishing strong institutions is underlined, with the objective of strengthening partnerships that support the attainment of the goals listed in the ODS 2030 Declaration. Detailed objectives for each pillar can be viewed in the Figure 5.

Figure 5

The Transition towards a Sustainable Future: From the Millennium Development Goals (2000-2015) to the Sustainable Development Goals (2015-2030)



Source: United Nations Organization - Mexico. (s.f.). Retrieved on [date of access] from <https://www.onu.org.mx/agenda-2030/objetivos-de-desarrollo-del-milenio/>

In 2015, the United Nations introduced the Sustainable Development Goals (SDGs) 2030, a framework designed to steer global governmental efforts. Nevertheless, as the SDGs serve more as guidelines than binding regulations, challenges arise when transitioning from theory to practical application. This paper delves into how Mexico integrates these recommendations into its national and regional planning strategies.⁹ A study by Medel-Ramírez and Medel-López (2020) revealed that the Mexican National Development Plan (NDP) 2019-2024 incorporates at least three of its twelve Guiding Principles that resonate with the ethos of the SDGs. Specifically, Principle 1 focuses on fostering national well-being,

⁹ In this study, the Municipal Development Plan (PMD) 2018-2021 of the municipality of Papantla, Veracruz, Mexico, is used as a reference. The choice of this document is because Papantla is one of the main municipalities in the Totonacapan Zone.

Principle 4 emphasizes an "Economy for Well-being",¹⁰ and Principle 7 promotes inclusive growth with the motto "Leaving no one behind, leaving no one out". These foundational principles navigate Mexico's policy framework towards diminishing social disparities, comprehensive poverty, and societal marginalization.

Sustainable Development Goals (SDGs) 2030: An Examination of Mexico's Strategic Framework

In 2015, the United Nations endorsed the Sustainable Development Goals (SDGs) 2030 as a unified vision to address global concerns and craft a better, more sustainable path for all. Even with sustainability at the heart of the SDGs, challenges like human rights protection and cultural conservation remain daunting, especially in countries like Mexico.

When examining Mexico's Strategic Framework, there's an evident technocratic lean in the adoption and integration of the SDGs, veering away from a more rights-centric approach. This is a stark contrast to nations like the United States where the application of SDGs emphasizes human rights. Such a methodology might inadvertently bypass the needs and perspectives of marginalized populations, risking the erosion of human rights. Furthermore, Mexico often neglects the rich cultural tapestry of its indigenous communities when aligning with the SDGs. The true embodiment of the SDGs in Mexico necessitates a holistic fusion of human rights, cultural reverence, and environmental stewardship. A truly inclusive and considerate strategy should be cultivated, giving voice to vulnerable communities during both ideation and actualization.

The 2030 SDGs are indeed conceived as a beacon of international collaboration. However, as highlighted by Medel-Ramírez C. and Medel-López H. (2020), it's critical to acknowledge that they serve more as guiding principles rather than strict mandates. This segment delves into how these global guidelines have been translated into tangible action across various governance tiers in Mexico.

National Perspective on Mexico's Sustainable Development Goals (SDGs) for 2030

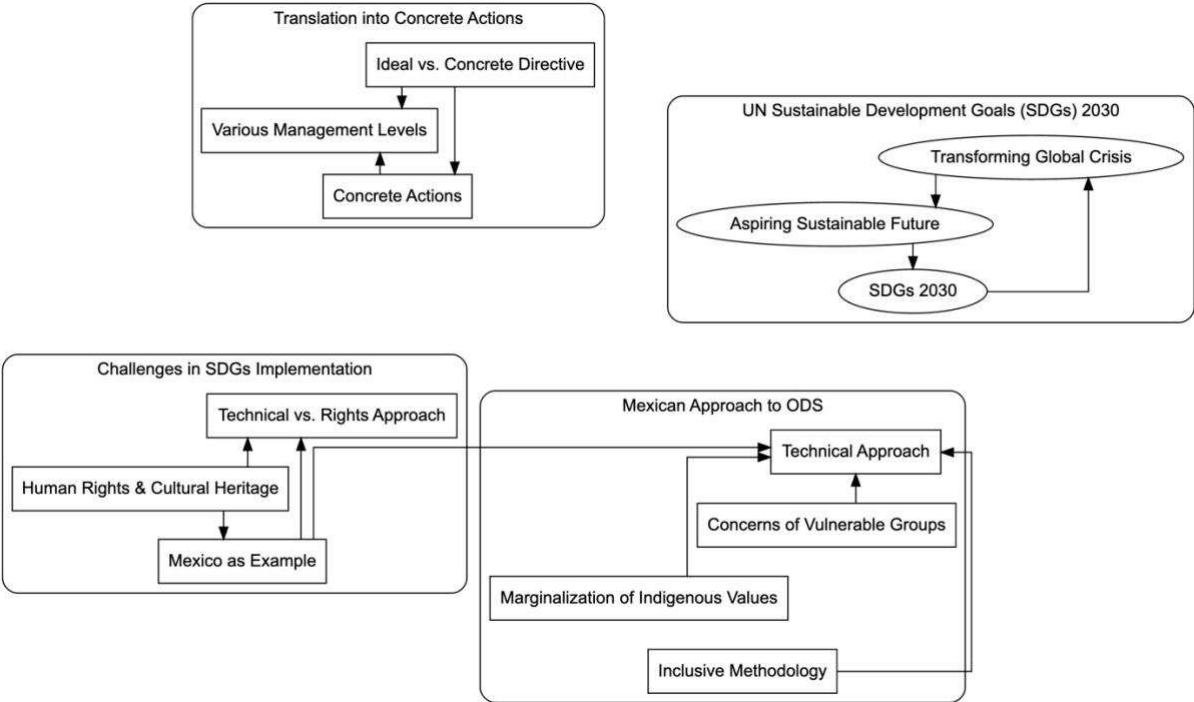
The United Nations established the Sustainable Development Goals (SDGs) 2030 in 2015 with the goal of transforming global crisis management and aspiring to a more sustainable future for humanity. Nonetheless, despite the initiative's sustainable goal, human rights promotion and cultural heritage

¹⁰ The convergence between Mexico's National Development Plan and the 2030 Sustainable Development Agenda, as noted by the Regional Observatory for Development Planning (CEPAL-ORPD, 2021), shows that Guiding Principle number 1, "Building a country with well-being", from the National Development Plan (PND) 2019-2024 in Mexico aligns with Goals 1 "End poverty", 10 "Reduced inequalities", and 16 "Peace, justice and strong institutions" from the 2030 Sustainable Development Agenda (SDGs 2030). The source can be accessed at <https://observatorioplanificacion.cepal.org/es/planes/plan-nacional-de-desarrollo-de-mexico-2019-2024>.

preservation face challenges, with Mexico serving as a prime example. Within the Mexican planning landscape, the ODS have been approached on occasion from a more technical rather than basic rights perspective. See Diagram 4.

Diagram 4

Charting Pathways: Mexico's Sustainable Development Goals (ODS) for 2030 Amidst Challenges and Perspectives



Source: Own elaboration.

This approach may result in strategies that ignore the concerns and visions of the most vulnerable groups, undermining the promotion and protection of fundamental rights. In the same way, cultural heritage and traditional values of indigenous peoples are sometimes marginalized in ODS implementation strategies. It is critical that strategic design in Mexico include human rights, cultural value, and sustainability into the operation of ODS in a more holistic manner. This necessitates a more inclusive and collaborative methodology in which the voices of the most affected communities are heard and considered at all stages of development and application.

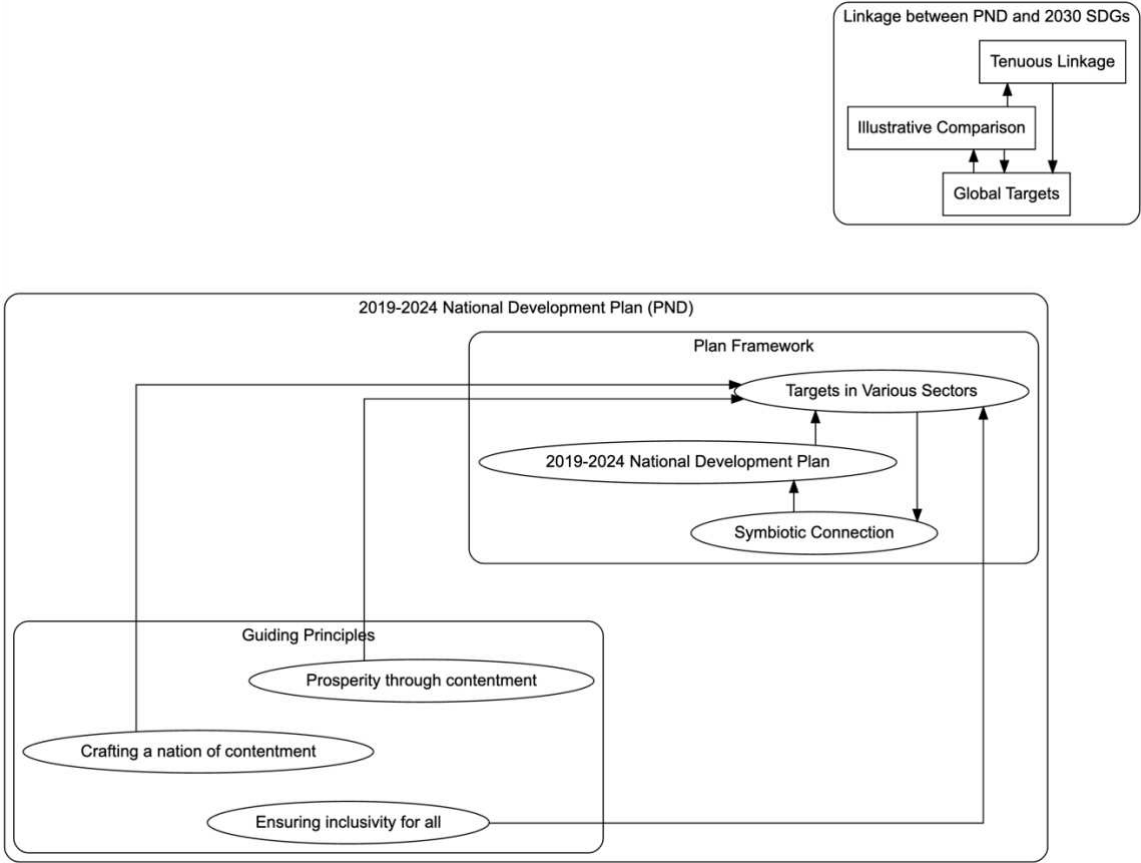
The 2030 Sustainable Development Goals (ODS) focus is to serve as a model for global and national interventions. However, according to Medel-Ramrez C. and Medel-López H.'s (2020) analysis, this declaration is perceived as an ideal rather than a concrete directive. In the following sections, we will look at how this principle has been translated into concrete actions at various levels of management in Mexico.

Integration of the 2019-2024 National Development Plan and the 2030 Sustainable Development Goals

Mexico's 2019-2024 National Development Plan serves as a blueprint for driving sustainable growth and enhancing citizens' well-being. The framework outlines ambitious targets across sectors like health, education, infrastructure, environmental conservation, and technology innovation. A symbiotic connection between the plan and the general populace is crucial. It envisions a collective effort, with citizens actively participating and synergies being built between the governmental and private sectors, ensuring the strategy's effective realization and substantial improvements in the quality of life. See Diagram 5.

Diagram 5

Nurturing Synergy: Aligning Mexico's National Development Plan (2019-2024) with the 2030 Sustainable Development Goals



Source: Own elaboration.

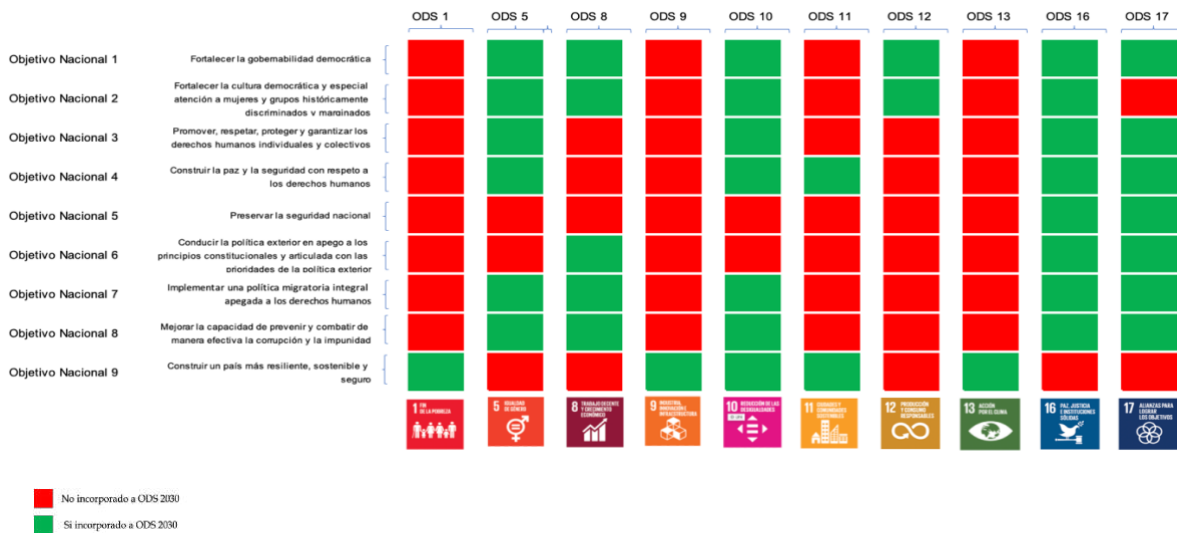
Upon analyzing Mexico's strategic roadmap, it becomes evident that the emphasis on fostering societal well-being is deeply ingrained in multiple tenets of the 2019-2024 National Development Plan (PND), as detailed by Medel-Ramírez, C., and Medel-López, H. (2020). Notably, the guiding principles include: a) "Crafting a nation of contentment" (Guiding Principle 1), b) "Prosperity through contentment" (Guiding Principle 4), and c) "Ensuring inclusivity for all" (Guiding Principle 7). These directives anchor policy measures towards alleviating inequality, pervasive poverty, and societal marginalization.

Bridging the 2019-2024 National Development Plan with the 2030 Sustainable Development Goals in Mexico

Insights from Rosa Ruz (2019) and the Latin American and Caribbean Regional Planning Observatory (CEPAL, 2021) suggest a tenuous linkage between the objectives of the PND 2019-2024 and the 2030 SDGs. Even though the 2030 SDGs don't impose mandatory requirements, they serve as a beacon, encouraging nations to craft and implement domestic strategies in line with these global targets. Figure 4 offers an illustrative comparison, mapping the goals of Axis 1 "Justice and Rule of Law" from the PND 2019-2024 to potentially corresponding goals within Mexico's 2030 SDGs. See Figure 6.

Figure 6

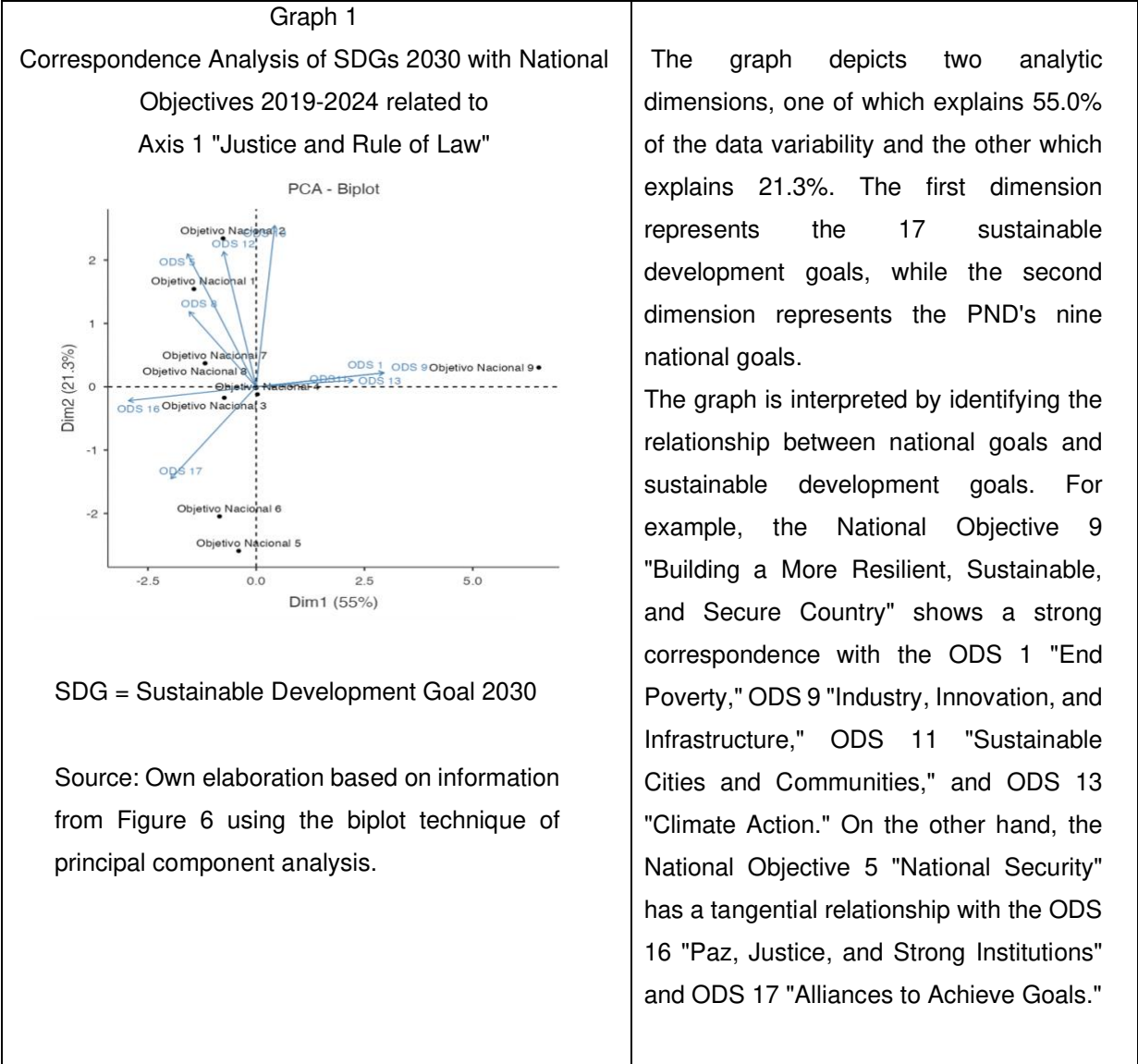
Analysis of the Alignment between the 2030 Sustainable Development Goals and the National Objectives of the PND 2019-2024 under the "Justice and Rule of Law" Axis



Source: Own elaboration.

Based on information compiled by the Center for Sustainable Rural Development and Food Sovereignty Studies (2019). "The National Development Plan 2019-2024 and the Sustainable Development Goals in the Rural Sector." Accessed through the LXIV Legislature of the Chamber of Deputies. Available at: [http://www.cedrssa.gob.mx/files/b/13/32PND%202019-2024%20y%20ODS%20\(1\).pdf](http://www.cedrssa.gob.mx/files/b/13/32PND%202019-2024%20y%20ODS%20(1).pdf)

As a guideline for reading Figure 6, note that the first column labeled OD1 corresponds to the ODS number 1 labeled "Fin de la Pobreza," and that the objectives highlighted in Eje 1 of the PND 2019-2024 are shown on the vertical axis. The color indicators refer to whether or not the national goal of the PND 2019-2024 corresponds to the ODS 2030. As a result, the red indicators do not correlate, while the green indicators do. The analysis of Figure 6 shows the correspondence between the national objectives of Eje 1 of the National Development Plan 2019-2024 and the ODS 2030. The first column, known as OD1, corresponds to ODS number 1, "Fin de la Pobreza." The color indicators reflect the relevance of the national PND 2019-2024 goal to the ODS 2030: the red indicators indicate a lack of correspondence, while the green indicators indicate a match. Similarly, the following columns are interpreted analogously in Figure 6. The Graph 1 depicts an analysis of the correspondence between the ODS 2030 and the national objectives (ON) of the PND 2019-2024 in relation to Eje 1 "Justicia y Estado de Derecho."



An examination of the relationship between Eje 1 of the PND 2019-2024, "Justicia y Estado de Derecho," and the ODS 2030 reveals that at least 9 of the 17 ODS 2030 relate to the topics addressed in this national planning eje. The ODS with the most correspondence are the ODS 16 "Paz, justicia, y instituciones sanas," the ODS 17 "Alianzas para lograr los objetivos," the ODS 10 "Reducción de las desigualdades," and the ODS 5 "Igualdad de género." On the other hand, the ODS with less correspondence include the ODS 1 "End of Poverty," the ODS 13 "Climate Action," the ODS 9 "Industry, Innovation, and Infrastructure," and the ODS 12 "Responsible Production and Consumption." The ODS 2030 relate to the national objectives of Eje 1 "Justicia y Estado de Derecho" of the PND 2019-2024, as seen in Chart 1.

The analysis is carried out using a Principal Component Analysis (PCA) and is represented via a bidimensional PCA-Biplot graph.¹¹ The first dimension explains 55.0% of the variance in the data, whereas the second dimension explains 21.3%. The ODS range from 1 to 17, whereas the national objectives range from 1 to 9. The graph allows for an examination of the correspondence between the ODS 2030 and the national objectives of Eje 1 "Justicia y Estado de Derecho" in the PND 2019-2024.

The national goal of Eje 1 of the PND 2019-2024 is to strengthen the rule of law and justice in order to achieve a more equitable and just society. This entails promoting transparency, access to justice, human rights respect, the fight against corruption and impunity, the defense of vulnerable people's rights, the modernization of justice, internal security, and the protection of citizens' rights.

The achievement of these national goals is directly related to the ODS 2030, such as ODS 16 "Paz, Justice, and Strong Institutions," which seeks to promote peace, justice, and the strengthening of national and regional institutions for conflict prevention, management, and peacekeeping; and ODS 17 "Alianzas for Goal Achievement," which encourages collaboration among all relevant actors to achieve goals.

On the other hand, the ODS with the least correspondence to Eje 1 of the PND 2019-2024 include the ODS 1 "Fin de la Pobreza," which seeks to eradicate poverty in all of its forms, the ODS 13 "Acción por el Clima," which seeks to take measures to address climate change, the ODS 9 "Industria, Innovación, y Infraestructura," which seeks to promote sustainable industry, innovation, and infrastructure, and

¹¹ The PCA-Biplot analysis technique represents variable relationships optimally by displaying combined distances between observations as well as variable relationships, resulting in an approximate representation of the original multidimensional space. Véase. Renwick J. Beattie and Esmonde-White Francis W. L. (2021) Principal Component Analysis Exploration: Deriving Principal Component Analysis Visually Using Spectra. *Applied Spectroscopy*, vol. 75, no. 4, pp. 361-375. Retrieved from: <https://doi.org/10.1177/0003702820987847>

These ODS are less related to Eje 1 of the PND 2019-2024 since the Eje 1's national objectives focus on the establishment of a legal state and equitable and just justice, rather than other topics related to sustainability.

Figure 7

Analysis of the Alignment between the Sustainable Development Goals 2030 and the National Objectives of the PND 2019-2024 under the Axis 2 "Social Welfare"



Source: Own elaboration.

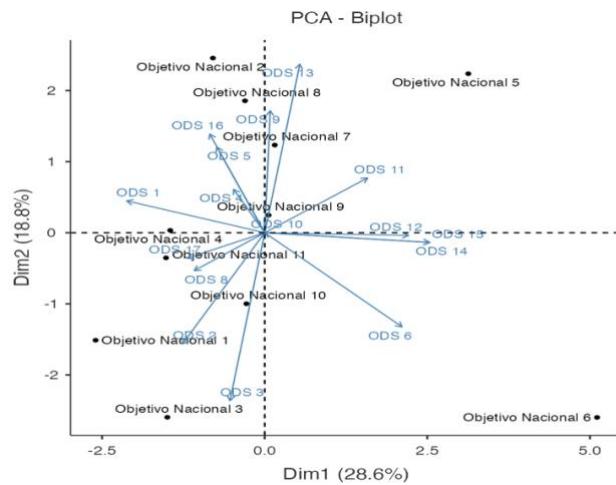
Based on information gathered by the Center for Sustainable Rural Development and Food Sovereignty Studies (2019). Op.cit.

The Figure 7 shows a clear correlation between the objectives of Mexico's National Development Plan (PND) 2019-2024, which corresponds to Eje 2 titled "Social Welfare," and 16 of the 17 Sustainable Development Goals (ODS) for 2030. This relationship is evident via the selection of certain public policies aimed at promoting people's well-being, such as educational advancement, poverty eradication, and the preservation of human rights, among others.

These policies are directly related to the Sustainable Development Goals, which seek to provide a vision of the future for global progress and prosperity. As a result, Figure 7 shows a clear link between the PND 2019-2024 goals and the ODS 2030 goals through the implementation of public policies aimed at promoting Mexico's economic and social development.

The results of Figure 7 show a significant correspondence between the Sustainable Development Goals (ODS) 2030 and the National Development Goals (NDG) of Eje 2 "Social Wellbeing" in the 2019-2024 National Development Plan.

Graph 2
Correspondence Analysis of SDGs 2030 with National Objectives 2019-2024 related to Axis 2 "Social Welfare"



SDGs = Sustainable Development Goal 2030

Source: Own elaboration using data from Figure 7 and employing the biplot analysis technique of principal components.

The second graph shows the results of the primary component analysis (PCA) performed for the PND 2019-2024 Eje 2 "Bienestar Social."

The PCA-Biplot tool generates a graphical representation of the data that examines two dimensions: the first dimension accounts for 28.6% of the variance in the data, while the second dimension accounts for 18.8%.

These two dimensions reflect the goals of sustainable development for 2030 (ODS 1-17) and the national goals contained in the PND 2019-2024 in relation to Goal 2 "Social Well-Being" (National Goal 1-11). The PCA-Biplot visualizes the relationship between national goals and sustainable development goals for 2030, allowing you to assess their level of achievement.

This correspondence is evident in the ODS 10 "Reducción de desigualdades," ODS 17 "Alianzas para lograr los objetivos," ODS 1 "Fin de la Pobreza," and ODS 16 "Paz, Justicia, and Sanas Instituciones," all of which have a stronger relationship with the Plan National's objectives. In contrast, there is a weaker

relationship between ODS 6 "Clean Water and Sanitation," ODS 2 "Hambre cero," ODS 15 "Life in Terrestrial Ecosystems," and ODS 14 "Submarine Life." ¹²

These findings suggest that the National Development Plan 2019-2024 has focused primarily on reducing inequality, forming alliances to achieve goals, ending poverty, and establishing a peaceful, just, and healthy environment.

The interconnection between the 2030 Sustainable Development Goals (SDGs) and the objectives of the "Social Well-Being" aspect in the 2019-2024 National Development Plan is vividly illustrated in the previously presented Graph 2. This visual representation provides insights into the alignment of the 2030 SDGs with Mexico's national vision and underscores the importance of domestic objectives in the global push for sustainable growth.

The 2030 SDGs encompass an array of concerns related to societal welfare, spanning from poverty eradication to promoting gender equality and enhancing educational, health, and employment prospects. As such, the 2019-2024 National Development Plan has been structured to address a comprehensive set of social issues, aiming to elevate the overall life quality for its citizens.

In Graph 2, dots closely associated with National Objectives 5 and 3 are notably aligned with the 2030 SDGs. National Objective 5, focused on ensuring the right to a healthy environment while preserving ecosystems, biodiversity, and cultural heritage, correlates with the SDGs associated with industry innovation, infrastructure, reduced inequalities, and sustainable urbanization. In contrast, National Objective 3, centered on advocating the right to quality nutrition, aligns with the second and third SDGs, namely "Zero Hunger" and "Good Health & Well-being."

The depicted vectors in Graph 2 serve to highlight the nexus between the 2019-2024 National Development Plan's National Objectives 5 and 3 and the broader SDGs. Such a representation insinuates that the goals under Mexico's second pillar are in tune with the desired outcomes set by the National Development Plan. The strategic alignment between these national objectives and global sustainability aspirations signifies Mexico's commitment to a greener, more equitable future, reinforcing the importance of the 2019-2024 National Development Plan as a pivotal instrument in this pursuit.

¹² Figure 5 depicts a graphical comparison of the basic pieces of both sets. The red signs make it plainly evident that there is no relationship between the elements, whilst the green indicators make it abundantly clear that the elements correlate with one another. To have a better grasp of the situation, consider the following columns in regard to the elements' respective correspondences. As a result, understanding the significance of the figure is critical in order to completely appreciate the link between the components of the two ensembles.

Additionally, the third dimension of the 2019-2024 National Development Plan, termed "Economic Development," is pivotal to Mexico's socio-economic advancement. As illustrated in next Figure 8, this dimension seamlessly aligns with the United Nations' 2030 Agenda SDGs. Such alignment stems from the UN's unwavering dedication to sustainable growth. Eje 3 resonates with all 17 SDGs, aiming to spur sustainable economic growth that better the lives of Mexicans. The approach is holistic, promoting measures to enhance economic efficiency and competitiveness, thereby facilitating job creation and income augmentation. Furthermore, the plan encourages policies to ensure wealth redistribution, easier credit accessibility, infrastructural upgrades, and technological advancements.

Figure 8
 Analysis of the Alignment between the 2030 Sustainable Development Goals and the National Objectives of the PND 2019-2024 under the Axis 3 "Economic Development"



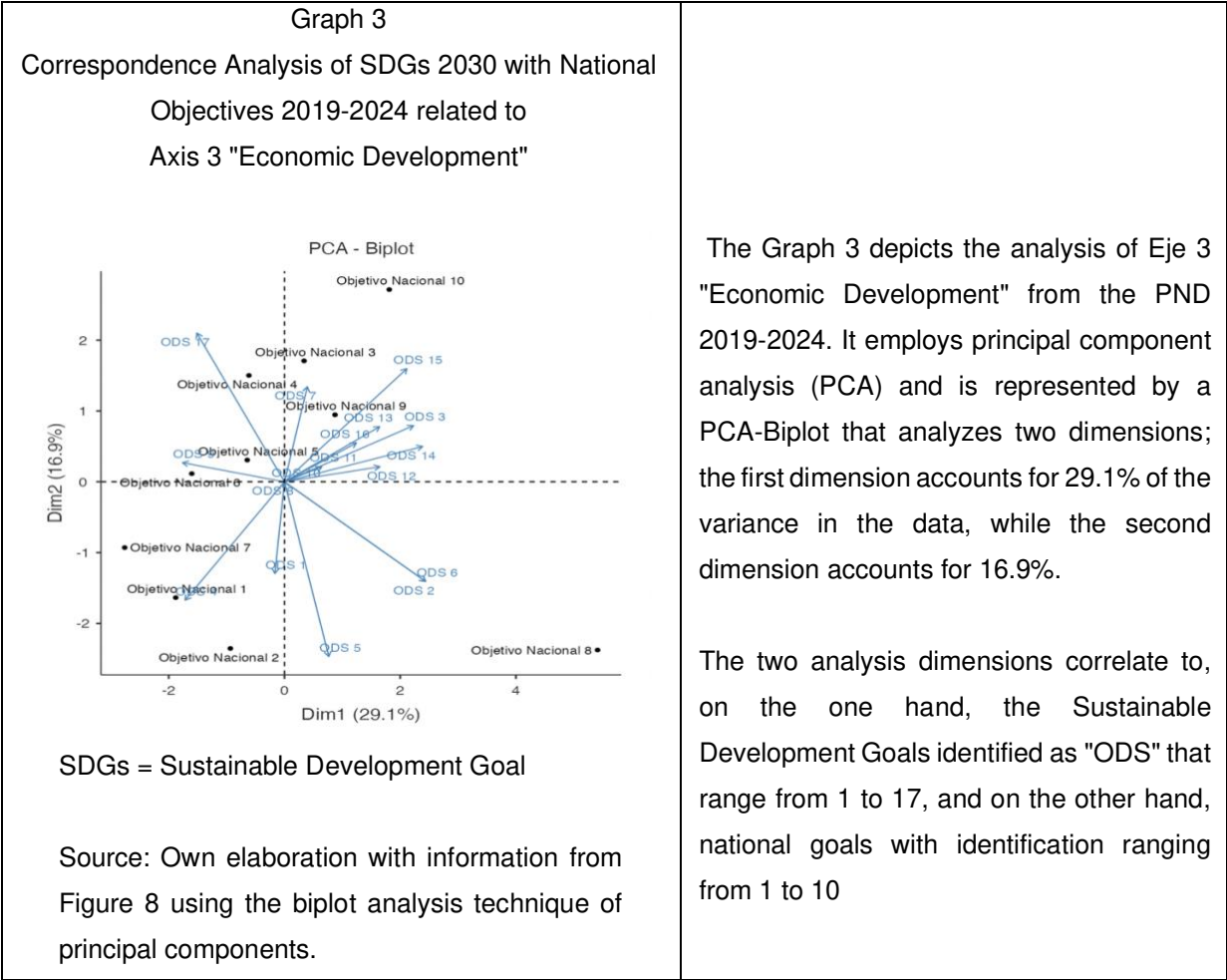
Source: Own elaboration.

Based on information gathered by the Center for Sustainable Rural Development Studies and Food Sovereignty (2019). Op.cit.

Figure 8 shows that there is a significant correlation between the Sustainable Development Objectives (ODS) 8, 10, 17, and 11 and the results obtained. Specifically, ODS 8, which addresses "Decent Work and Economic Growth," ODS 10, which addresses "Desigualdades Reduction," ODS 17, which focuses on "Alignments to Achieve Goals," and ODS 11, which addresses "Sustainable Cities and Communities." On the other hand, the ODS 6 ("Agua limpia y saneamiento"), 2 ("Hambre cero"), 5 ("Igualdad de género"), 3 ("Salud y bienestar"), 14 ("Vida submarina"), 13 ("Acción por el clima"), y 4 ("Educación de calidad") show a lower correlation with the results obtained.

The following Figure 8 depicts the relationship between the Sustainable Development Goals (ODS) 2030 and the National Development Goals (NDG) of Eje 3 "Economic Development" in the National Development Plan 2019-2024. This graph explains how the ODS 2030 are an intrinsic element of the national economic development plan, and how the national objectives of eje 3, such as job creation, investment, and economic growth, are directly related to the ODS 2030. It is hoped that the achievement of these goals would contribute to the achievement of the ODS 2030.

When studying Graphic 3, students may identify the vectors (flechas) that match to National Objectives, demonstrating a clear relationship with Sustainable Development Goals. The National Objective 10 of "Fostering Economic Development that Promotes the Reduction of Greenhouse Gas Emissions and Climate Change Adaptation to Improve People's Quality of Life" corresponds directly to the ODS 3 "Health and Well-Being," ODS 13 "Climate Change Action," ODS 14 "Submarine Life," and ODS 15 "Terrestrial Ecosystem Life." On the other hand, the National Objective 2 of "Provide an environment that encourages formality and job creation, and that allows for better working conditions for workers" is tangentially related to the ODS 1 "End Poverty" and ODS 4 "Quality Education."



The graph elucidates the alignment between the Eje 3 national objectives and the ODS 2030, specifically focusing on aspects like job creation, investment, and economic expansion.

In the context of the National Development Plan (PND) 2019-2024, Eje 3's national priorities such as employment generation, fostering investment, and spurring economic progress are intrinsically connected to the ODS 2030 targets. Achieving these national priorities will inherently further the progress towards ODS goals, notably ODS 1 (eliminating poverty), ODS 8 (championing inclusive and sustainable economic development), ODS 10 (curtailing inequalities), and ODS 11 (building sustainable and resilient urban spaces).

The specific objective of "Encouraging Employment" in Eje 3 aligns closely with ODS 3 (ensuring health and promoting well-being for all age groups) and ODS 8 (safeguarding sustained, inclusive economic growth). This is grounded in the understanding that facilitating job opportunities not only augments people's living standards but also provides them the means to uplift their socioeconomic status.

Similarly, the ambition to "boost investment" correlates with ODS 3, 8, and 10. The rationale behind this is that greater investment augments the capital pool to support initiatives and ventures that elevate societal welfare, playing a role in diminishing inequalities and advancing sustainable development.

Lastly, the aspiration for "stimulating economic growth" resonates with ODS 8, 10, and 11. Economic dynamism inherently drives sustainable development, inclusivity, and the development of secure, sustainable urban ecosystems. Furthermore, such growth has a ripple effect, bolstering efforts to meet ODS 1 and 3.

Following this section is an analysis of the level of correspondence between the state goals outlined in the Veracruzano Development Plan (PVD) for 2019–2024 and the objectives outlined in the ODS for 2030.

Relevance to the Veracruz Development Plan (PVD) 2019-2024

The Veracruz Development Plan (PVD) 2019-2024, representing the vision of the state of Veracruz de Ignacio de la Llave, underscores vital tenets like "Human Rights Respect" and "Inclusion and Equality." These foundational principles are channeled into frameworks including the "Cross-Sectional Theme: Culture of Peace and Human Rights," "Theme C: Community Well-being," and various goal-strategy-action sequences from economic paradigms to grassroots community initiatives. A comprehensive view is presented in Figure 7, mapping the intertwining principles, cross-sectional themes, and specific pathways of the PVD 2019-2024. This strategic layout fosters the evolution of human rights and assures equal opportunities for the Veracruz community.

Within the PVD 2019-2024,¹³ cardinal principles such as "Human Rights Respect" and "Inclusion and Equality" find expression through the "Cross-Sectional Theme: Culture of Peace and Human Rights." This thematic flow proceeds to "Theme C: Community Well-being,"¹⁴ encapsulating diverse goals, approaches, and actionable strategies pertaining to economic governance¹⁵, societal welfare,¹⁶ and communal engagement endeavors.¹⁷

Figure 9 encapsulates the holistic integration of the bedrock principles, cross-thematic directions, and specialized domains embedded in the PVD 2019-2024. This structure accentuates commitments to human rights, inclusivity, and societal well-being, whilst advocating for peace and harmony. It further elucidates the synergy among foundational beliefs, thematic avenues, and specialized domains sculpting the 2019-2024 Development Plan. Together, these components forge a robust roadmap for the forthcoming half-decade, envisioning a progressive society marked by fairness, justice, and sustainability. Such thematic divisions ensure effective regional targeting, channeling resources for the fruition of ambitious developmental milestones.

The following Figure 9 depicts the integration of these vertices of rectilinear principles, transversal equities, and specific attention equities contained in the PVD 2019-2024, which promotes respect for human rights, equality, and inclusion, as well as the promotion of social well-being and peace culture, as well as the integration of the various rectilinear principles, transversal equities, and specific attention equities that comprise the Plan of Development 2019-2024. These principles, directives, and specific actions seek to establish a framework for action over the next five years in order to achieve just, equitable, and sustainable social development. These directives, based on a comprehensive vision, allow for the most effective use of resources to achieve long-term development goals.

¹³ The 2019-2024 Veracruz Development Plan (PVD) is a pivotal roadmap introduced by the Governor of the State of Veracruz de Ignacio de la Llave, adhering to the stipulations of Article 49, Section X of the Political Constitution of the same state. Central to the PVD is its ambition to craft and advance a visionary development trajectory for Veracruz, aspiring to elevate residents' living standards while fostering a society characterized by justice, equity, prosperity, and sustainability. The PVD 2019-2024 delves into vital areas including economic growth, job creation, education initiatives, healthcare, environmental conservation, societal progress, and regional advancements. It encapsulates a comprehensive suite of initiatives and protocols engineered to augment the well-being of Veracruz's populace. Comprehensive details can be accessed at <https://www.legisver.gob.mx/leyes/LeyesPDF/CONSTITUCION24112020.pdf>.

¹⁴ See. Veracruz Development Plan 2019-2024, p.3. Retrieved from: <http://www.veracruz.gob.mx/programadegobierno/2019/06/06/plan-veracruzano-de-desarrollo-2019-2024/>

¹⁵ See. Veracruz Development Plan 2019-2024, p. 256. Op. Cit.

¹⁶ See. Veracruz Development Plan 2019-2024, p. 263. Op. Cit.

¹⁷ See. Veracruz Development Plan 2019-2024, p. 267. Op. Cit.

Their guiding principles are: population well-being, equitable access to goods, services, and opportunities, gender equality, environmental sustainability, civic participation, human rights respect, democracy strengthening, and cultural development. These ejes include education, health, security, infrastructure, territorial management, the environment, the economy, employment, social development, culture, and technological development. In addition, Figure 7 depicts specific attention points that allow for the exploration of priority topics in accordance with regional reality, with the goal of achieving long-term development goals. These specific attention points include the creation of jobs, the promotion of gender equality, the strengthening of health, the improvement of education, the promotion of culture, and the respect for human rights.

Figure 9
 Integration Scheme of the Veracruz Development Plan
 2019-2024 and the 2030 Sustainable Development Agenda Objectives



Source: Adapted from the Veracruz Development Plan (PVD) 2019-2024, p.30.

According to Figure 9, the eje C "Bienestar Social" is a critical expression for the development of public function, with functional correspondence in the ejes of Politics and Government, Education, and Social Well-Being. This alignment with the PND objectives 2019-2024 provides coherence and integrity to the public administration's effort in the public action proposal, reinforcing coordination between national and regional levels in order to effectively manage public resources to meet targets.

Furthermore, while the Sustainable Development Goals (ODS) 2030 are not legally binding, they do serve as an important guideline for the government's operational and policy intentions, with the goal of achieving optimal social and economic well-being. This is demonstrated by a correspondence analysis between the PVD 2019-2024 and the ODS 2030, which seeks to identify the driving force behind state-level actions and comprehend government intentions.

The following section presents a correspondence analysis of the PVD 2019-2024 with the ODS 2030, with the goal of analyzing the action guideline and interpreting, in some measure, the state government's intention.

Convergence of the Veracruzano Development Plan (PVD) 2019-2024 with the Development Agenda 2030 Objectives

The following Figure 10 depicts the correspondence between the goals of the Veracruzano Development Plan (PVD) 2019-2024 and the goals of the Agenda for Development (ODS) 2030. The Figure 10 shows that there is some compliance with the Sustainable Development Goals (ODS) 16: "Paz, justice, and strong institutions"; ODS 5: "Gender Equality"; ODS 15: "Life in Terrestrial Ecosystems"; and ODS 13: "Climate Action." However, several ODS, such as ODS 17: "Alianza para lograr los objetivos", ODS 6: "Agua limpia y saneamiento", ODS 9: "Industria, innovación y infraestructura", ODS 1: "Fin de la pobreza", ODS 3: "Salud y bienestar" y ODS 2: "Hambre cero" This indicates that there are significant challenges ahead in order to achieve sustainable development.

Figure 10
Analysis of the Alignment between the 2030 Sustainable Development Goals and the State Objectives of the Veracruz Development Plan (PVD) 2019-2024



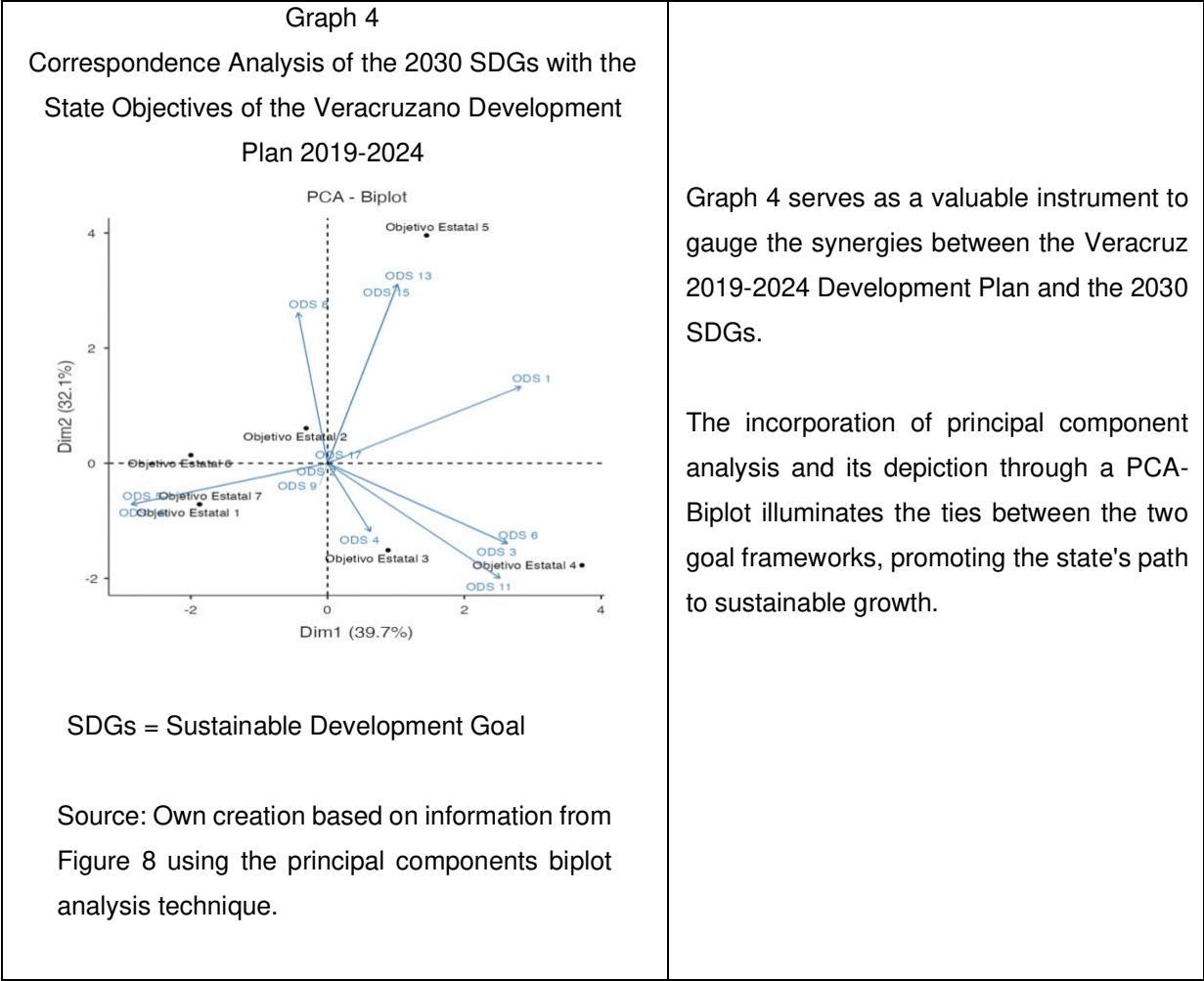
Source: Own elaboration based on information from the Veracruz Development Plan 2019-2024 and the 2030 Agenda for Development.

Figure 10 prominently showcases the interrelation of the 2030 Sustainable Development Goals (SDGs) and the Veracruzano Development Plan 2019-2024. This points towards a comprehensive set of challenges that Veracruz must face to realize its state objectives, such as poverty reduction, promoting economic growth and quality employment, tackling climate change, and safeguarding land ecosystems.

It becomes evident that Veracruz has a duty to act decisively and efficiently on these fronts. State-wide policies need to champion fair access to development resources and equal opportunities for every citizen, ensuring adequate public services, educational opportunities, health provisions, safeguarding of

human rights, and striving for a more equal society. An unwavering dedication to environmental conservation and proactive climate response is also pivotal.

By delving into Figure 10, one can discern the intricate alignment between the 2030 Sustainable Development Goals (SDGs) and the state goals enumerated in the Veracruzano Development Plan 2019-2024. For instance, the State's "Community Work" goal aligns well with the SDGs focused on eradicating poverty, promoting decent work and economic prosperity, addressing climate change, and preserving terrestrial ecosystems. Meanwhile, national aspirations related to governance resonate more with goals concerning gender parity and ensuring peace, justice, and robust institutions. Such insights crystallize how the Veracruzano Development Plan's state objectives can bolster efforts to realize the SDGs by 2030.



Graph 4 serves as a valuable instrument to gauge the synergies between the Veracruz 2019-2024 Development Plan and the 2030 SDGs.

The incorporation of principal component analysis and its depiction through a PCA-Biplot illuminates the ties between the two goal frameworks, promoting the state's path to sustainable growth.

The overarching ambition of the SDGs is to realize these universal objectives through bespoke public strategies that resonate with local nuances. Such tailored policies can enhance the provision of essential

amenities, education, nutrition, and healthcare, and simultaneously champion causes like gender parity, societal integration, and environmental preservation. Thus, the 2018-2021 PMD from Papantla Veracruz serves as a testament to how regional governance can drive community-centric sustainable development by harmonizing SDG principles with local realities.

Graph 4 presents the outcomes of a principal component analysis (PCA) used to evaluate the alignment between the state objectives of the Veracruzano Development Plan 2019-2024 and the 2030 Sustainable Development Goals (SDGs). This analytical method delves deeper into pinpointing congruencies between the two goal sets, shedding light on their interconnectedness.

The data interpretation is captured in a PCA-Biplot, offering a two-dimensional visualization. The first dimension accounts for 39.7% of the data variance, while the second dimension covers the subsequent 32.1%. These dimensions represent the 2030 SDGs labeled as "ODS" spanning from ODS 1 to ODS 17, along with state objectives numbered 1 through 7.

Alignment of the 2018-2021 Papantla, Veracruz Municipal Development Plan (PMD) with the Objectives of the 2030 Development Agenda

The 2030 Development Agenda, also recognized as Agenda 2030, outlines 17 Sustainable Development Goals (SDGs) complemented by 169 associated targets. Endorsed by the United Nations (UN) in 2015, it steers member nations towards realizing comprehensive sustainable development milestones. In a parallel vein, the Papantla, Veracruz PMD 2018-2021 delineates the municipality's developmental vision and trajectory for that four-year span.

Highlighting the significance of this, the fusion of the 2018-2021 PMD of Papantla, Veracruz with the SDGs of Agenda 2030 is pivotal for steering the municipality's progress. This harmonization facilitates the assimilation of Agenda 2030's objectives into the PMD's initiatives, anchoring municipal undertakings and broad strategies. The municipality, thus, envisions a long-term approach to fulfilling sustainable development imperatives.

The PMD of Papantla, Veracruz, is anchored in the tenets of the Mexican Constitution, congruent with stipulations in Articles 4 and 27 of Veracruz's Planning Legislation and Article 35 of the Veracruz Municipal Regulation.

With three core directives, the PMD underscores: Firstly, the "Convivencia Objective," encompassing governance strategies, public safety, and collaborative governmental efforts; secondly, the "Inclusion Objective," which focuses on societal progression, urban evolution, and the rejuvenation of indigenous cultural identities; and lastly, objectives centered around economic amplification. This strategic plan is

dedicated to enhancing the quality of life in Papantla, emphasizing sustainability, societal integration, and economic prosperity. It serves as a vital instrument, paving the way for the acquisition of essential developmental resources.

Figure 11 elucidates the nexus between the 2018-2021 PMD's goals and the SDGs of Agenda 2030 for Papantla, Veracruz. This interrelation provides insights into the municipality's commitment to achieving developmental aspirations in the short and medium term. The diagram underscores the alignment of the PMD's objectives with the broader SDG framework, fostering cohesive municipal efforts in fulfilling these global objectives. The overarching aim remains an inclusive developmental model, attentive to the diverse needs and aspirations of the city's populace. In this assessment, emphasis was placed on delineating the SDGs within the Agenda 2030, spanning from SDG 1, which targets poverty eradication, to SDG 17, emphasizing strengthening the means of execution and breathing life into the Global Partnership for Sustainable Development.

Figure 11
 Analysis of the Alignment between the 2030 Sustainable Development Goals and the Municipal Strategies of the Municipal Development Plan (PMD) 2018-2021 of Papantla Veracruz



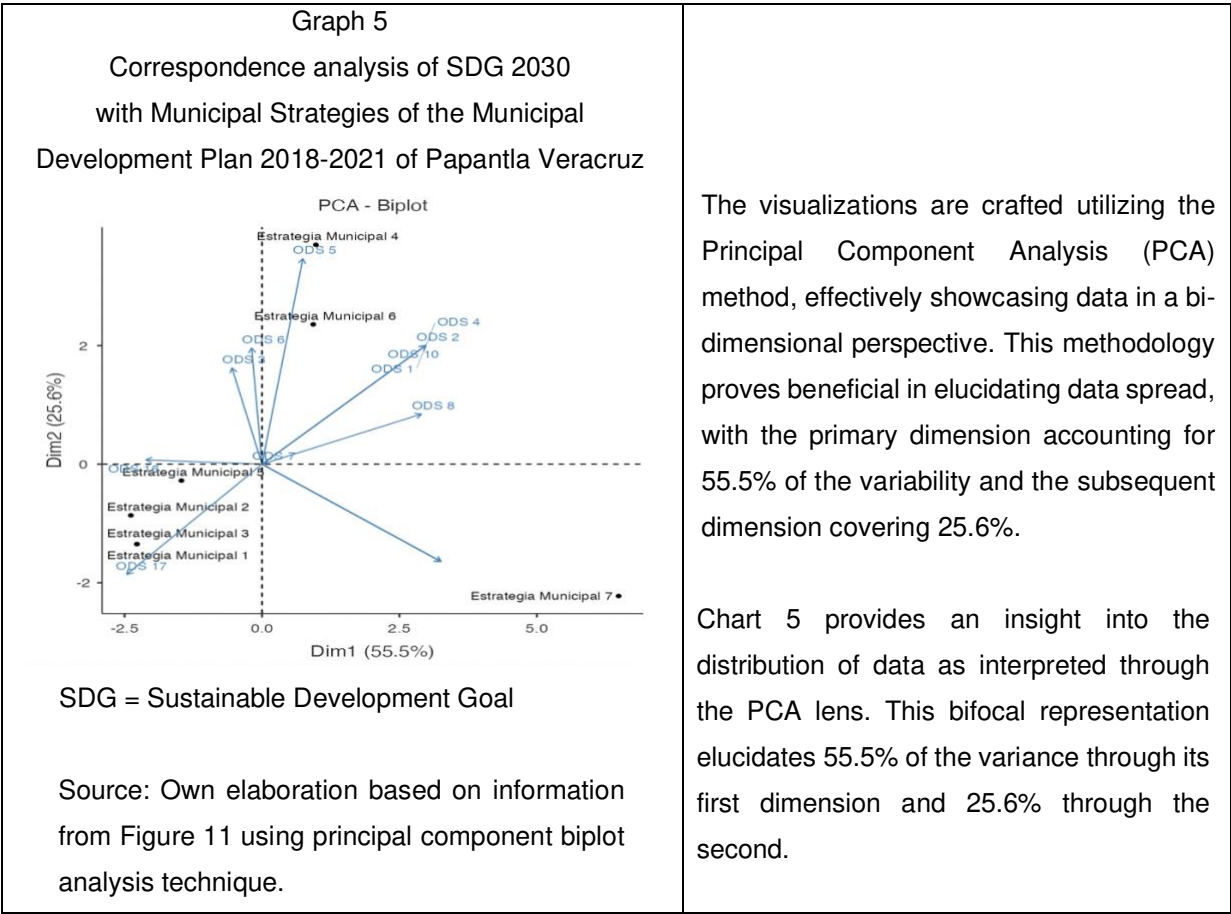
Source: Own elaboration.

Based on the information provided from "Papantla in Full Flight. Municipal Development Plan 2018 – 2021 of Papantla Veracruz". Retrieved from: <https://papantlaveracruz.com.mx/wp-content/uploads/2018/05/PLAN-MUNIICIPAL-DESARROLLO-2018.pdf>

In analyzing the municipal strategies outlined in the 2018-2021 Plan Municipal de Desarrollo for Papantla, Veracruz, we find clear connections to the Sustainable Development Goals (ODS) 2030. Key strategies, such as the first one focused on boosting economic development, and the seventh, aimed at ensuring municipal efficiency, are central to this alignment. From the presented data, Strategy 4 "Social Development" from the 2018-2021 Municipal Development Plan in Papantla, Veracruz, closely aligns

with several 2030 Sustainable Development Goals. Notably, this includes ODS 1 "End Poverty", ODS 4 "Quality Education", ODS 5 "Gender Equality", ODS 8 "Decent Work and Economic Growth", and ODS 10 "Reduced Inequality". Conversely, Municipal Strategies 1 "Government and Public Management", 2 "Public Safety", and 3 "Intergovernmental Relations" are more broadly tied to ODS 17, which promotes partnerships for these goals.

As depicted in Figure 11, the development plan from Papantla, Veracruz for 2018-2021 underlines the commitment to further sustainable growth, societal equity, and the safeguarding of human rights. With four vital municipal strategies tethered to the Sustainable Development Goals 2030, it's evident that priorities like Social Development are tied to poverty eradication, quality education, and robust economic progress. Additionally, strategies emphasizing governance, public safety, and intergovernmental relations may not directly correlate with specific ODS, but they play an overarching role in cultivating a sustainable, equitable, and prosperous community. Lastly, the focus on revitalizing Indigenous Cultural Identity within the Papantla Veracruz PMD 2018-2021 is a commendable endeavor. By emphasizing cultural diversity, this strategy not only preserves rich traditions but also propels the broader regional development agenda.



This approach ensures the safeguarding of culture, language, and history, which stands as a paramount heritage of this region. Additionally, it underscores the duty of municipal leaders to establish initiatives and policies promoting equal opportunities across diverse ethnic and social groups. Enacting the strategy outlined in the PMD 2018-2021 becomes an imperative to ensure balanced and sustainable growth for the Papantla Veracruz region.¹⁸ (Refer to Figure 12, below)

Figure 12
Strategic Axis Reevaluation of the Indigenous Cultural Identity
in the PMD Papantla 2018-2021



Source: Taken from the Municipal Presidency of Papantla. (2018) Papantla in full flight. Municipal Development Plan 2018-2021. p. 58.

Figure 12 emphasizes dual pivotal insights: a) the recognition of at-risk communities requiring unwavering human rights protection integrated into policy design; and b) the pressing call for an approach centered on sustainability that encompasses the conservation of cultural values, ecological diversity, and natural assets, all while promoting holistic societal well-being inclusive of healthcare access, education, food stability, and equal opportunity.

It's paramount that the allocation of public resources aligns with the tenets of human rights, cultural retention, ecological sustainability, and principled accountability. Such allocation should bolster programs epitomizing these principles, with an anchoring focus on the 2030 Sustainable Development Goals (ODS). This alignment not only paves the way for diminishing inequalities, obliterating poverty, and fortifying human rights for all societal segments but also fosters cultural diversity preservation,

¹⁸ See. Municipal Presidency of Papantla. (2018) Papantla in full flight. Municipal Development Plan 2018-2021. Retrieved from: <https://papantlaveracruz.com.mx/wp-content/uploads/2018/05/PLAN-MUNIICIPAL-DESARROLLO-2018.pdf>

climate change adaptation, and ecological challenges mitigation. Achieving this entails judicious and ethical channeling of funds into pivotal domains like education, health, transport, agriculture, infrastructure, energy, water, and food stability. Hence, public financial strategies should champion sustainable evolution, enhancing the broader societal living standard.

Agenda 2030: Progress and Gaps - Are We Truly Meeting Our Commitments?

The Agenda 2030 is a worldwide action plan adopted by United Nations member countries in 2015 to address economic, social, and environmental challenges through 17 Sustainable Development Goals (ODGs). In the case of Mexico, and particularly in the Veracruz and Totonacapan regions, there have been advances and setbacks in meeting these goals.

In terms of education, a study examines Mexico's progress in meeting four of the ODS goals for quality education in the 2030 Agenda. It is concluded that only two of the goals for achieving Agenda 2030 compliance have been satisfied.¹⁹

In the economic and social spheres, an article identifies the main elements of the criminal economy in Veracruz and the Totonacapan region, emphasizing the presence of strategic natural resources, economic precarity, and political circumstances conducive to corruption as potential conditions for the criminal economy in the region.²⁰ In relation to indigenous peoples, a study examines the impact of COVID-19 pandemic in indigenous language areas in Veracruz, including the Totonacapan region.²¹ This analysis is important for the ODS 3, which seeks to provide a healthy life and promote well-being for all.

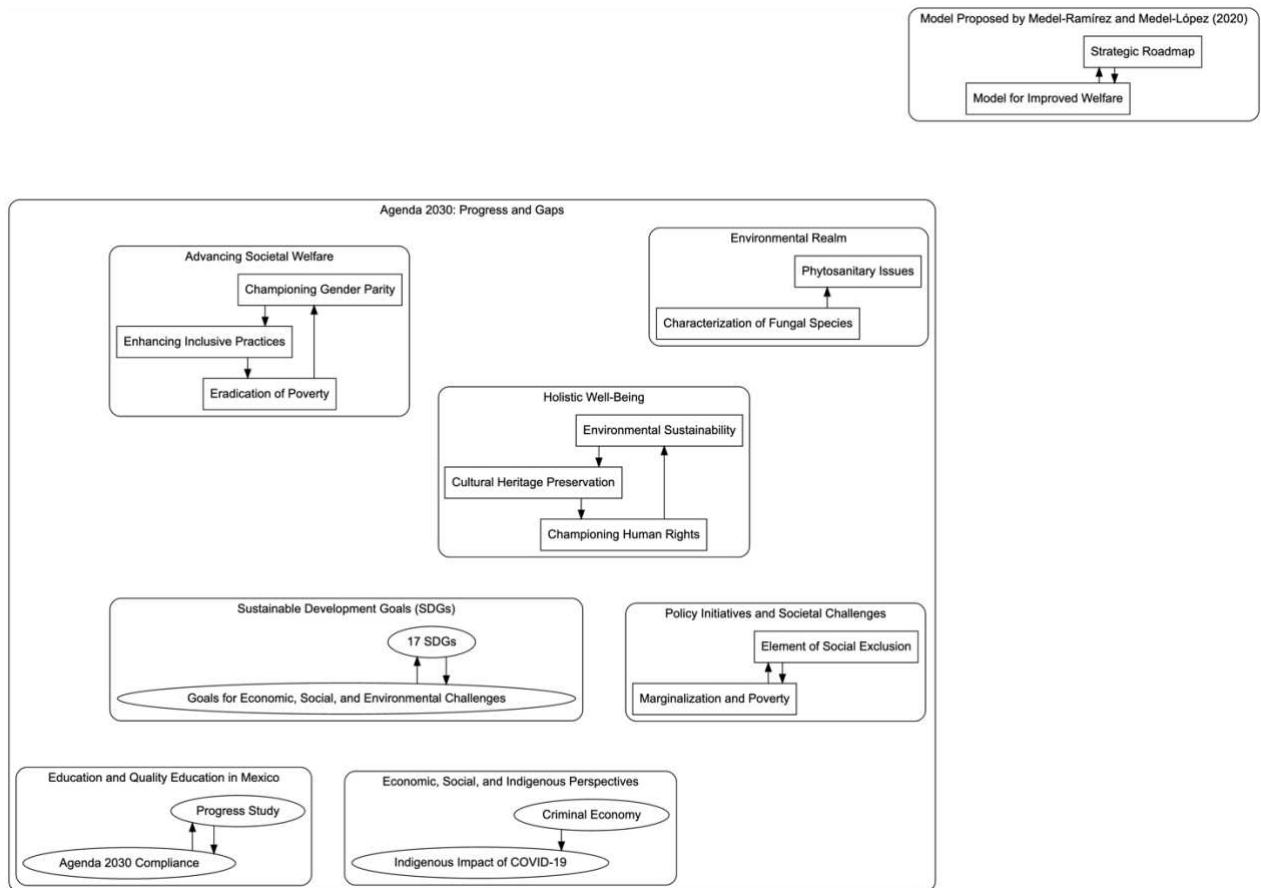
¹⁹ See. Huerta-Estévez, A., Severino-Parra, C.A., & Virginia León, F. (2023). Agenda 2030 y educación de calidad en México, avances en el cumplimiento para el 2030. RIDE Revista Iberoamericana para la Investigación y el Desarrollo Educativo. Recovered from: <https://www.semanticscholar.org/paper/Agenda-2030-y-educaci%C3%B3n-de-calidad-en-M%C3%A9xico%2C-en-el-Huerta-Est%C3%A9vez-Severino-Parra/25bd7676cf8093c92f58b07313ffe8fdcd30f52>

²⁰ See. Alvear-Galindo, M.G., Giraldo-Durán, A., Ramírez-Gutiérrez, S.E., & Valadez-Hernández, C. (2022). Economía criminal en Veracruz y la región del Totonacapan, México, 1998-2018. Sociedad y Economía. Recovered from: <https://www.semanticscholar.org/paper/Econom%C3%ADa-criminal-en-Veracruz-y-la-regi%C3%B3n-del-Alvear-Galindo-Giraldo-Dur%C3%A1n/facf5c2f4ee9fd5823c011785a78c742b1373cbf>

²¹ Medel-Ramírez, C., & Medel-López, H. (2020). Impact of (SARS-CoV-2) COVID-19 on the Five Main Indigenous. Language-Speaking Areas in Veracruz Mexico: The Case of the Totonacapan Area. SSRN Electronic Journal. Recovered from: [https://www.semanticscholar.org/paper/Impact-of-\(SARS-CoV-2\)-COVID-19-on-the-Five-Main-in-Medel-Ram%C3%ADrez-Medel-L%C3%B3pez/937a2cf5d86fa3017f0ee2cfd7fd86dc1389297d](https://www.semanticscholar.org/paper/Impact-of-(SARS-CoV-2)-COVID-19-on-the-Five-Main-in-Medel-Ram%C3%ADrez-Medel-L%C3%B3pez/937a2cf5d86fa3017f0ee2cfd7fd86dc1389297d)

In the environmental realm, a study on the characterization of hongo species associated with the Root Rot of Vanilla in Totonacapan²² emphasizes the importance of investigating and addressing the phytosanitary issues that affect cultivators in Region. See Diagram 6.

Diagram 6
Charting Progress and Challenges: Evaluating Mexico's Pursuit of Agenda 2030 Commitments



Source: Own elaboration.

Although these studies do not cover every ODS, it is clear that there are advances and gaps in Veracruz and Totonacapan's implementation of the 2030 Agenda. To achieve sustainable development in the region, it is necessary to address economic, social, and environmental challenges in a comprehensive and coordinated manner, including all sectors of society and promoting public-private partnerships.

²² Rosa, F.R., Martínez-Gendrán, C., Torres-Olaya, M., Matilde-Hernández, C., Estrella-Maldonado, H.J., & Santillán-Mendoza, R. (2023). Fungal species characterization associated with vanilla root rot in the Totonacapan, Veracruz, Mexico. *International Journal of Science and Research Archive*. Recovered from: <https://www.semanticscholar.org/paper/Fungal-species-characterization-associated-with-root-Rosa-Mart%C3%ADnez-Gendr%C3%B3n/33f6a059de3b98c466b8876614e9317087f3bc43>

Addressing the issues of marginalization, societal grievances, and multifaceted poverty is paramount. In response, there have been policy initiatives targeting those most at risk. A unique approach has been introduced, wherein the study of poverty encompasses the element of social exclusion²³. Various studies indicate that aspects such as gender, ethnicity, and complex poverty are significant drivers of societal ostracism (Appasamy et al., 1996; Uquillas et al., 2003; Del Popolo et al., 2009; Barba, 2009; Rionda, 2010; Tetreault, 2012).

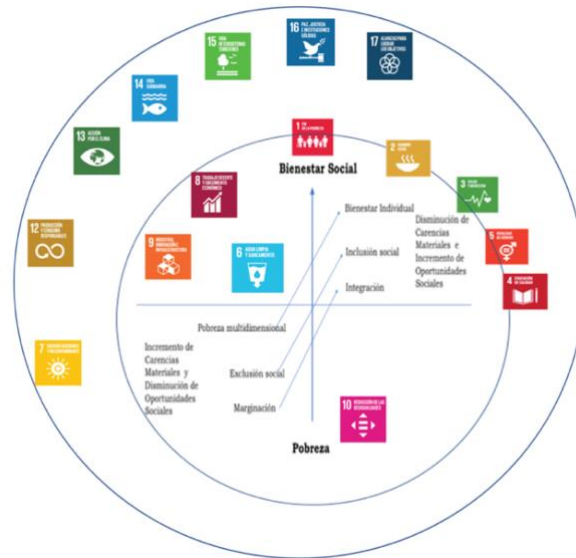
In its Agenda 2030, the United Nations (UN) emphasizes the eradication of poverty in every dimension and the reduction of disparities. Meeting this objective demands increased commitment to financing inclusive societal policies and a broader understanding of the urgency to counter all forms of prejudice (UN, 2015). Thus, progressing towards the milestones of Agenda 2030 necessitates fostering societal advancement, championing gender parity, and enhancing inclusive practices to ensure a dignified life for all.

Medel-Ramírez and Medel-López (2020) argue that the prevailing political narrative at the national level accentuates social unity and integration, often sidelining the deep-seated social disparities that underscore essential human rights and shape multifaceted poverty. See next Figure 13 for further details.²⁴

²³ Many indigenous communities, despite their rich cultural heritage, continue to face profound challenges rooted in social exclusion. This has led to multidimensional poverty, hindering their access to vital services like education, health care, formal employment opportunities, and proper housing. Reference: Medel Ramírez C. (2016). An Analysis of Social Exclusion and Multidimensional Poverty in Indigenous Localities in Veracruz: A Study on the Priority Zone Development Program. Ph.D. in Public Finance, Veracruzana University. Available at: https://www.researchgate.net/publication/356508492_Evaluacion_del_grado_de_exclusion_social_y_de_poverza_multidimensional_en_las_localidades_indigenas_en_el_Estado_de_Veracruz_El_caso_del_programa_de_desarrollo_de_zonas_priori.

²⁴ See. Medel-Ramírez C. and Medel-López H. (2020) "Social Welfare: An approach to the concept from a multidimensional perspective" Retrieved from: <https://philpapers.org/rec/MEDSWA>

Figure 13
 Analysis of the notion of Social Welfare from
 a Multidimensional Approach



Source: Own elaboration.

Based on the idea of Raworth, Kate (2018).
 Doughnut Economics: Seven Ways to Think Like a
 21st-Century Economist.

Cited by Medel-Ramírez, C. and Medel-López, H.
 (2020). "Social Welfare: An approach to the concept
 from a multidimensional perspective." Retrieved
 from: <https://philpapers.org/rec/MEDSWA>"

Figure 13 showcases the model proposed by Medel-Ramírez and Medel-López (2020), emphasizing a transition from social vulnerabilities to improved individual welfare and community integration. This framework suggests a roadmap for strategic interventions that prioritize holistic well-being.

Presently, discrepancies in human rights access significantly affect individuals' life quality. Comprehensive evaluation of public policies at national, regional, and local levels is pivotal to align with the objectives of the ODS 2030. The emphasis should be on fostering social cohesion, personal welfare, and overall community integration, elevating societal living standards. Constructing a methodology to shift from prevailing social disparities to comprehensive societal well-being is imperative. This endeavor should be approached critically to ascertain impactful outcomes.

In pursuit of a more inclusive world, central objectives include championing human rights, environmental sustainability, cultural heritage preservation, and achieving the Sustainable Development Goals (ODS) to enhance global societal welfare (United Nations, 2015). The UN's 17 ODS for 2030 encapsulates an envisioned egalitarian world, where pressing concerns like poverty alleviation, reducing inequalities, combating climate change, conserving natural assets, and eradicating violence and prejudice are paramount to elevate societal welfare (Raworth, 2018).

With these objectives in perspective, an expansive definition of well-being is proposed, which goes beyond just decreasing rates of marginalization, social ostracization, and multidimensional poverty. Instead, it accentuates the significance of upholding human rights, promoting sustainable practices, and preserving cultural legacies, resonating with the principles of the United Nations (2015), Raworth (2018), and Medel-Ramírez and Medel-López (2020).

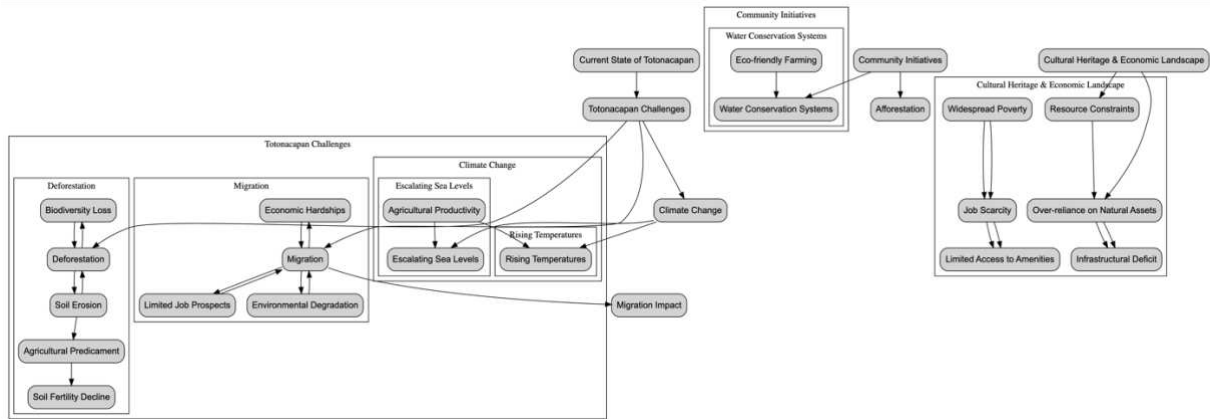
Current State of Totonacapan: An Economic and Social Overview

Situated in Veracruz's northern expanse and comprising nine municipalities, Totonacapan is a treasure trove of cultural heritage. It's the heartland of the Totonaca, one of Mexico's most ancient indigenous communities. This culture, deeply intertwined with nature, epitomizes a profound reverence for their environmental surrounds. Yet, the region's economic landscape is marred by resource constraints, over-reliance on natural assets, and an infrastructural deficit impeding holistic economic growth. Dominant social narratives are characterized by widespread poverty, job scarcity, and limited access to fundamental amenities like healthcare, quality education, and potable water.

The Totonacapan region grapples with a myriad of contemporary challenges. Prominently, it contends with the pervasive effects of climate change, which directly threaten its agriculture, ecological diversity, and economic stability. Rising temperatures, coupled with escalating sea levels, are culminating in significant flooding across various areas, undermining agricultural productivity – a sector intrinsically linked to water consistency. See next Diagram 6.

Diagram 6

Navigating Challenges: Unveiling the Economic and Social Landscape of Totonacapan



Source: Own elaboration.

Deforestation, another concerning phenomenon, has accelerated biodiversity loss and enhanced soil erosion in the area. The subsequent decline in soil fertility further exacerbates the agricultural predicament. In response, several local entities have embarked on transformative initiatives to counter these adversities. Spearheading endeavors ranging from establishing water conservation systems and championing eco-friendly farming techniques to proactive afforestation, they aim to bolster the community's well-being and ensure ecological resilience.

Migration also casts its shadow over Totonacapan, driven by economic hardships, limited job prospects, and environmental degradation. This exodus, primarily in pursuit of more promising horizons, curtails the residents' aspirations of leading enriched, fulfilling lives in their homeland.

Following that, the results of the previously selected social indicators: the indice de Marginación, the indice de Rezago Social, the indice de Exclusión Social, and the indice de Pobreza Multidimensional are shown. These studies cover the period from 2000 to 2020, with a focus on the Totonacapan region.

Marginalization Index (IM) 2000 -2020

Mexico grapples with the pervasive issue of marginalization. To address this, the National Population Council (CONAPO), in collaboration with the National Institute of Statistics and Geography (INEGI), introduced the Marginality Index. This instrument factors in three societal indicators (education, health, and safety) and two economic pointers (income and housing) to identify regions facing marginalization.

A comprehensive evaluation of these metrics allows for a nuanced understanding of the degree of marginalization across Mexican municipalities.

The Marginality Index ²⁵ (IM) serves as a metric to gauge the extent of deprivation and lack of access to developmental opportunities, education, and adequate shelter. Marginalization, as characterized by CONAPO, reflects a systemic societal inequality where specific developmental prospects are either absent or inaccessible.

Given the profound impact of marginalization on individual well-being, it's imperative to proactively address this challenge. This involves facilitating better access to essential resources and upholding human rights, environmental sustainability, and cultural heritage. Undertaking such initiatives will not only enhance the quality of life but also pave the way for a balanced and sustainable developmental trajectory.

Furthermore, the margin index is critical for accurately measuring population inequality. This reduces the dimensionality of the new eight economic and social indicators and allows for the establishment of a hierarchy among the observation units. This information is useful for identifying vulnerable groups as well as effective ways to address marginalization issues. To summarize, an urgent response to the issue of marginalization is absolutely necessary to ensure access to resources and the preservation of human rights, sustainability, and cultural preservation. This necessitates a clear understanding of the situation of the most vulnerable groups via margination index measurement. Furthermore, policies must be put in place to reduce inequality and promote equitable and sustainable development.

Given the detrimental impacts of marginalization on individual well-being, it's imperative to confront and mitigate this concern promptly. This requires guaranteeing individuals' equitable access to resources, safeguarding human rights, championing sustainability, and upholding cultural integrity. By taking these measures, we can elevate the living standards of many and foster both just and sustainable growth.

Additionally, the margin index plays a pivotal role in gauging disparities amongst populations. By streamlining the eight new socio-economic indicators, it simplifies the complex dimensions of data, facilitating the ranking of observational units. Harnessing this knowledge is instrumental in pinpointing at-risk demographics and strategizing effective interventions to counteract marginalization.

²⁵ The marginalization index is a very useful tool for analyzing social inequality in a region since it allows authorities to identify the most vulnerable sectors and those in greatest need of attention. This enables the development of more effective public policies to improve the quality of life in the most disadvantaged sectors.

In the year 2000, Totonacapan, consisting of five municipalities, boasted a population of 854. Out of this population, a significant 39% had an elevated margin of error. Meanwhile, 53% exhibited a high margin, and the remaining 8% displayed medium, low, or very low margins.

Zozocolco de Hidalgo led the pack, with a staggering 91.67% of its towns presenting a high margin of error. This was closely followed by Filomeno Mata at 87.50%, Mecatlán at 85.71%, Coahuatlán at 71.43%, and Coxquihui at 65.22%. This data implies that, in 2000, 70% of all localities in the region were grappling with a high margin of error. Such pronounced discrepancies in the Totonacapan region are worrisome, as they hamper the community's developmental prospects. Therefore, it's imperative to roll out interventions aimed at uplifting the quality of life and trimming down the prevalent levels of marginalization.

Fast forward to 2005, and the total municipalities in this region stood at 805. Of these, 332 had a high margin of error, a 41.16% representation. However, by the end of the fiscal year 2005, this figure dwindled to 202 municipalities, marking a 39.16% dip from the prior year. These statistics signify some improvement in the Totonacapan area regarding marginalization, even though high incidence remains a concern.

Breaking it down, Filomeno Mata topped the list with a margin of error of 77.78%, followed by Mecatlán at 66.67%, both Coxquihui and Chumatlán stood at 50.00%, while Zozocolco de Hidalgo trailed at 48.00%. Collectively, these municipalities make up 22% of the region, underscoring the persistent high-margin challenges faced in parts of Totonacapan.

In 2000, Totonacapan, encompassing five municipalities, recorded a population of 854. Out of this, a significant 39% faced a high degree of uncertainty, labeled as a high margin of error. Concurrently, 53% experienced a high margin, while the remaining 8% ranged between medium, low, or minimal margins.

The subsequent two decades witnessed a commendable decline in the margin of error within Totonacapan. The count of localities grappling with a high margin of error drastically reduced from 202 in 2005 to a mere 54 by 2020. Several influential factors contributed to this progress, primarily the introduction of developmental schemes and initiatives aimed at alleviating poverty. Thanks to these interventions, the local communities saw marked enhancements in their living standards. See Table 1.

Table 1
Evolution of the Degree of Marginalization in the Localities of
the Totonacapan Municipalities (2000-2020)

Año	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total	
Grado de Marginalización	Cazones de Herrera	Chumatlán	Coahuatlán	Coatzacoatlán	Coxquihui	Coyutla	Espinal	Filomeno Mata	Gutiérrez Zamora	Mecatlán	Papantla	Poza Rica de Hidalgo	Tecolutla	Tihuatlán	Zozocolco de Hidalgo	Total	
2000	Muy alto	19	3	5	12	15	17	21	7	9	12	92	1	45	52	22	332
	Alto	38	3	2	20	8	12	30	1	30	2	147	5	43	110	2	453
	Medio	2	0	0	2	0	0	1	0	2	0	8	3	10	14	0	42
	Bajo	0	0	0	1	0	0	1	0	0	0	3	1	2	9	0	17
	Muy bajo	0	0	0	1	0	0	0	0	1	0	5	1	2	0	0	10
Total	59	6	7	36	23	29	53	8	42	14	255	11	102	185	24	854	
2005	Muy alto	9	3	1	7	12	7	11	7	4	10	52	3	25	39	12	202
	Alto	39	3	3	21	11	18	36	2	27	3	167	6	51	96	10	493
	Medio	6	0	0	2	1	1	5	0	5	1	13	1	11	18	2	66
	Bajo	1	0	0	4	0	1	1	0	2	0	6	1	7	6	1	30
	Muy bajo	0	0	0	2	0	0	0	0	2	1	3	2	1	3	0	14
Total	55	6	4	36	24	27	53	9	40	15	241	13	95	162	25	805	
2010	Muy alto	3	2	0	4	8	7	1	6	1	7	34	4	17	30	12	136
	Alto	45	4	4	32	17	23	42	3	36	10	210	3	66	128	13	636
	Medio	3	0	0	0	0	1	2	0	3	0	6	1	6	10	0	32
	Bajo	0	0	0	3	0	0	0	0	2	0	5	2	4	7	0	23
	Muy bajo	0	0	0	2	0	0	1	0	0	0	4	2	2	0	0	11
Total	51	6	4	41	25	31	46	9	42	17	259	12	95	175	25	838	
2020	Muy alto	2	1	0	0	4	3	0	1	1	3	14	3	3	15	4	54
	Alto	5	2	1	4	12	5	9	6	1	11	55	0	12	17	13	153
	Medio	16	3	2	15	7	16	14	1	13	4	93	5	21	54	7	271
	Bajo	27	0	1	13	2	3	23	0	20	0	72	1	29	63	1	255
	Muy bajo	5	0	0	12	0	0	1	0	3	0	15	4	14	18	0	72
Total	55	6	4	44	25	27	47	8	38	18	249	13	79	167	25	805	

Source: Own elaboration, based on CONAPO data 2000-2020.

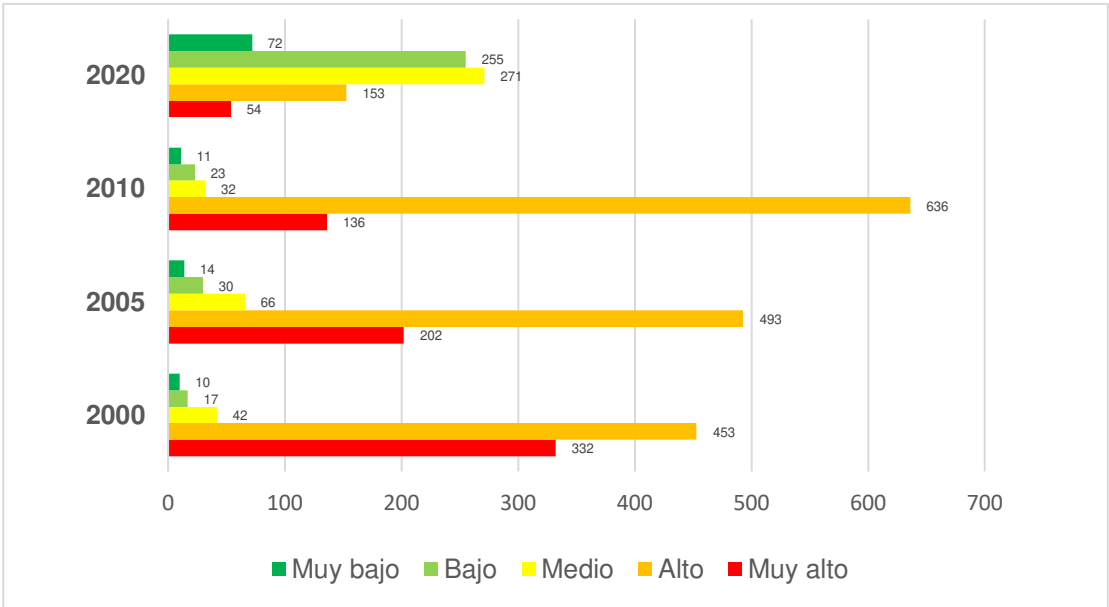
In 2010, the Totonacapan region comprised 838 localities, with many facing extreme marginalization. By 2005, 202 of these localities experienced high margin of error levels, but this number dwindled to 136 by 2010 — a decrease of 32.67%. Among these, the most populous municipalities were Filomeno Mata at 67%, Zozocolco de Hidalgo at 48%, Mecatlán at 41%, Chumatlán and Poza Rica de Hidalgo both at 33%. Fast forward to 2020, the region had 805 municipalities, with 54 registering a high margin of error. This marked a 60.29% drop from the prior year's figure of 136 municipalities. Municipalities with notably high margins included Poza Rica de Hidalgo at 23.08%, Mecatlán and Chumatlán both at 16.67%, Zozocolco de Hidalgo at 16.00%, and Coxquihui also at 16.00%.

Graph 6 offers a visual representation of locality data from the Totonacapan region, charting the margin of error from 2000 to 2010. This trend showcases a decline in localities with a high margin of error, dropping from 332 in 2000, to 202 in 2005, and further to 136 in 2010. Such a favorable trend is largely due to the introduction of public policies that bolstered the communities' basic social infrastructure, leading to a decline in extreme marginalization levels. However, a concerning rise in areas that previously had high marginalization was observed, increasing from 453 municipalities in 2000 to 493 in 2005 and then 636 in 2010. Graph 6 also provides an overview of the high-margin localities in the Totonacapan region from 2000-2020.²⁶

²⁶ The marginalization within the area is vividly represented using a palette of colors, with each hue reflecting varying degrees of the issue. Specifically, red paints a picture of extreme marginalization, while orange hints at significant levels. Yellow conveys a moderate level, light green suggests a lower degree, and dark green represents minimal marginalization. Over the years, the

Throughout this period, there was a noteworthy decline in municipalities with a high margin of error, plummeting from 332 in 2000 to a mere 54 by 2020. Conversely, municipalities with a low margin saw a marked rise, going from 10 in 2000 to 72 by 2020. This shift underscores the overall improvement in addressing the challenges of marginalization in the area.

Graph 6
Evolution of marginalization in localities
of the Totonacapan zone (2000-2020)



Source: Own compilation based on CONAPO data from 2000, 2005, 2010, and 2020.

A potential reason for the observed upward trend in reduced marginalization within Totonacapan's municipalities from 2000 to 2020 could be enhancements in housing and greater accessibility to local services. While this interpretation holds weight, it's crucial to acknowledge that other factors might also be at play. The significance of this improvement cannot be understated from a human rights perspective. Access to fundamental amenities like education, health care, clean water, sanitation, and transportation directly influences the realization and enjoyment of basic human rights.²⁷

Totonacapan region has experienced fluctuations in its municipal count. For perspective, while 2000 saw 854 municipalities, this number dwindled to 805 by 2005. Interestingly, this figure rose to 838 in 2010 but reverted to 805 by 2020.

²⁷ This section features data from the National Population Council (CONAPO) that's crucial for understanding how human rights impact the landscape of Mexico. Spanning from 2000 to 2020, this detailed estimation at the community level offers precise insights into the prevalent levels of marginalization across Mexico. For a deeper dive, the full dataset and an accompanying technical note are accessible at: <https://www.gob.mx/conapo/documentos/indices-de-marginacion-2020-284372>. The data

The Marginality Index (IM) highlights instances of structural and societal exclusion,²⁸ where not only are growth opportunities limited, but there's also a notable absence of means to leverage any existing opportunities. Addressing this pressing concern promptly is essential, given the overarching implications marginalization can have on a community's overall quality of life.

In the following section, we will explore the 'Social Lag Index'. This measurement provides an in-depth understanding of local economic and social aspects. Additionally, it acts as an indicator for assessing the actualization of human rights and the promotion of equality. It's crucial for both local and national governments to work diligently to establish the essential infrastructure ensuring a life of dignity. This commitment guarantees that each resident of the Totonacapan region has equal opportunities and can fully realize their human rights.

Social Lag Index (SLI) 2000 – 2020)

The Social Lag Index (SLI) serves as a pivotal metric in gauging the progress of social development within specific regions. Introduced in 2000, the SLI has become instrumental for Mexico in evaluating social backlogs, empowering both local and national governments to spotlight areas that demand immediate intervention and facilitate the allocation of public resources. Over the years, SLI has been paramount in sculpting and driving public policies that strive to enhance the living standards across Mexico. This discussion will unravel the trajectory of Mexico's SLI from 2000 to 2020, shedding light on the fluctuations in the nation's social lags.

The Social Lag Index (SLI) amalgamates several factors including access to education and healthcare, housing quality and basic services, and household dynamics (CONEVAL, 2020). This multifaceted approach allows for an intricate analysis, distinguishing states, municipalities, and localities on a spectrum of high to low social lags. Moreover, the SLI encapsulates data on a variety of social deprivation metrics as outlined by the National Council on Evaluating Social Policy (CONEVAL). These include housing conditions, educational accomplishments, and healthcare accessibility, among others. Consequently, the SLI stands as an invaluable instrument in pinpointing regions with pronounced

underscores the importance of education, employment, and health as pillars for societal progress and the safeguarding of human rights. Indeed, the adherence to human rights is closely interwoven with these foundational elements.

²⁸ An index to gauge marginalization is crucial for accurately understanding population disparities, pinpointing vulnerable communities, and devising efficient strategies to mitigate such issues. Over the last decade, the Totonacapan region has showcased substantial progress. In 2005, 202 communities were grappling with intense marginalization; by 2020, this number had dwindled to just 54. Such strides reflect the region's efforts in elevating living standards, attributable to the roll-out of poverty alleviation schemes and economic growth initiatives. Consequently, the region has experienced a palpable enhancement in the overall well-being of its inhabitants.

social inequalities, guiding the formulation and execution of public policies that are focused on diminishing poverty and social lags in Mexico (CONEVAL, 2020).

The Social Lag Index (SLI) is constructed as a total of four different indicators. The method of main components is used for estimation, and the coefficients of the first component are used as ponderators. The construction of the SLI will take into account the following dimensions: educational indicators,²⁹ access to health-care services indicators,³⁰ quality and space indicators in housing,³¹ basic housing services indicators,³² and household asset indicators.³³ These indicators allow for the evaluation of a community's level of development, as well as the identification of areas with the greatest social need and the establishment of public policies to improve people's quality of life (Garcia, 2020). Following that, Figure 2 (2000-2020) shows the number of municipalities in the Totonacapan Zone based on their social lags.

In the year 2000, Totonacapan had 854 localities, 64.87% of which had a high or very high level of social rezago, while the remaining 35.13% had a medium, low, or very low level of social rezago. The five municipalities with the highest levels of social rezago were Papantla, Tihuatlán, Tecolutla, Cazonas de Herrera, and Espinal, with proportions of 29.60%, 17.87%, 11.37%, 7.58%, and 6.32%, respectively. This social rezago situation in the Totonacapan area has prompted a slew of local government actions aimed at improving the quality of life for its residents. Programs of social, educational, cultural, and economic development have been implemented in order to reduce poverty and social resentment in the region.

In the year 2005, the number of registered localities in the Totonacapan zone was 805 in the municipios. This year, 85.45% of these communities had a high or very high level of social rezago. Papantla (12.20%), Tihuatlán (9.52%), Tecolutla (8.04%), Zozocolco de Hidalgo (4.76%), and Coxquihui (2.68%) had the highest proportion of localities in this condition. Despite the fact that there were 554 municipalities with very high or very high social rezago in 2000, this figure had dropped to 162 in 2005. This indicates an improvement in the area's social situation, which is good news for the region.

²⁹ a) Rate of illiteracy among 15+, b) Rate of non-school attendance among 6-14, c) Rate of households with 15-29 year olds with less than 9 years of education, and d) Rate of incomplete basic education among 15+.

National Council for Social Development Policy Evaluation (2010). Municipal and local social backwardness index. URL: <https://www.coneval.org.mx/Medicion/IRS/paginas/%C3%8DNDICE-de-Rezago-social-2010.aspx>

³⁰ The percentage of people without health care rights. National Committee for Social Development Policy Evaluation (2010). Op. cit.

³¹ Population without health services. The National Council for Social Development Policy Evaluation (2010). Op. cit.

³² The percentage of inhabited private dwellings without toilets, sanitation, piped water, drainage, or electricity.

National Council for Social Development Policy Evaluation (2010). Op. cit.

³³ Share of private residences without washers. Private homes without refrigerators. Social Development Policy Evaluation Council (2010). Social Development Policy Evaluation Council (2010). Op. cit.

Table 2
Number of localities by Degree of Social Lag
from 2000 to 2020 in municipalities of the Totonacapan área

Grado de Rezago Social	Cazones de Herrera	Chumatlán	Coahuiltán	Coatzintla	Coxquihui	Coyutla	Espinal	Filomeno Mata	Gutiérrez Zamora	Mecatitlán	Papantla	Poza Rica de Hidalgo	Tecolutla	Tihuatlán	Zozocolco de Hidalgo	Total
2000																
Muy alto	1	1	1	0	8	2	4	4	0	4	11	0	7	10	8	61
Alto	41	5	6	23	10	23	31	4	26	10	153	2	56	89	14	493
Medio	13	0	0	8	5	3	12	0	8	0	64	4	19	46	2	184
Bajo	4	0	0	3	0	1	6	0	6	0	21	3	16	32	0	92
Muy bajo	0	0	0	2	0	0	0	0	2	0	6	2	4	8	0	24
Total	59	6	7	36	23	29	53	8	42	14	255	11	102	185	24	854
2005																
Muy alto	1	0	0	0	0	0	1	2	0	1	7	0	2	12	2	28
Alto	5	1	1	4	9	5	4	4	1	6	34	1	25	20	14	134
Medio	36	5	3	24	14	22	40	3	27	8	165	6	43	81	9	486
Bajo	12	0	0	7	1	0	6	0	8	0	28	2	14	39	0	117
Muy bajo	1	0	0	1	0	0	2	0	4	0	7	4	11	10	0	40
Total	55	6	4	36	24	27	53	9	40	15	241	13	95	162	25	805
2010																
Muy alto	1	0	0	0	0	0	0	0	0	0	2	0	3	2	0	8
Alto	3	0	0	3	6	2	1	3	0	5	34	2	16	29	10	114
Medio	32	6	3	20	17	25	31	6	23	12	165	2	43	88	15	488
Bajo	13	0	1	13	2	4	12	0	15	0	47	3	16	41	0	167
Muy bajo	2	0	0	5	0	0	2	0	4	0	11	5	17	15	0	61
Total	51	6	4	41	25	31	46	9	42	17	259	12	95	175	25	838
2020																
Muy alto	1	0	0	0	2	0	0	0	0	2	4	1	1	8	1	20
Alto	7	2	1	5	13	7	10	6	2	10	72	2	13	16	16	182
Medio	16	4	2	14	7	17	13	2	12	5	93	0	28	61	6	280
Bajo	30	0	1	13	3	3	24	0	21	1	71	6	28	69	2	272
Muy bajo	1	0	0	12	0	0	0	0	3	0	9	4	9	13	0	51
Total	55	6	4	44	25	27	47	8	38	18	249	13	79	167	25	805

Source: Own compilation based on Coneval data for the period 2000 to 2020.

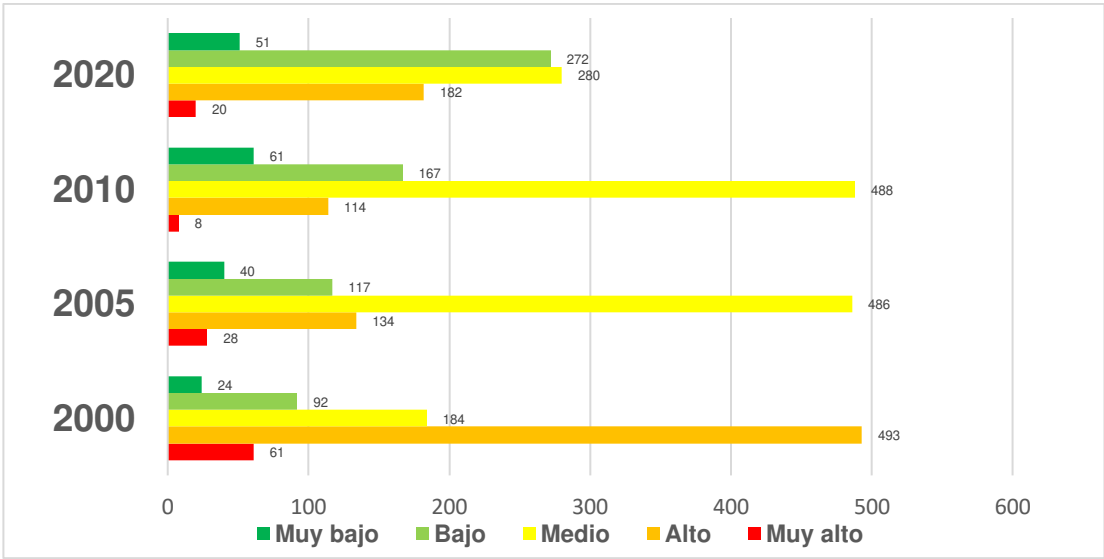
The Totonacapan area had 838 recognized settlements in 2010. During this time, 83.61% of these areas experienced high to extremely high levels of social underdevelopment. The majority of this went to five key municipalities: Papantla (29.51%), Tihuatlán (25.41%), Tecolutla (15.57%), Zozocolco de Hidalgo (8.20%), and Coxquihui (4.92%). The main causes of this underdevelopment were a lack of access to critical amenities like as drinkable water, power, education, and medical care, as well as a lack of economic possibilities. Recognizing this, local governments launched a variety of socioeconomic and educational projects targeted at improving living conditions in these areas. They not only decreased socioeconomic gaps but also improved the region's overall well-being through these measures. (For further information, see Graph 7).

The number of registered municipalities in the Totonacapan Zone in 2020 was 805 people. The following five municipalities had the highest levels of social rezago: 1) Papantla with 37.62%, 2) Tihuatlán with 11.88%, 3) Zozocolco de Hidalgo with 8.42%, 4) Coxquihui with 7.43%, and 5) Tecolutla with 2.48%. This information is shown in Graph 7, which depicts the evolution of communities in the Totonacapan Zone from 2000 to 2020, according to social rezago level. ³⁴

³⁴ The Social Lag Index uses a spectrum of colors to illustrate varying levels of lags. The gradations are as follows: red for areas with an extremely high lag, orange for those with a high lag, yellow for a medium range, pale green indicating low lag, and deep green for areas with minimal lag. In the span of two decades, the Totonacapan region saw its number of municipalities shift from

Throughout the period under review, there was a notable reduction in municipalities experiencing pronounced social challenges, plummeting from 61 municipalities in 2000 to a mere 20 by 2020. Conversely, municipalities with minimal social issues saw a substantial upturn, moving from 24 in 2000 to 51 in 2020. This shift points towards a significant enhancement in the region's social well-being metrics over the two decades.

Graph 7
 Number of localities in the Totonacapan region
 by Social Lag Grade from 2000 to 2020



Source: Own elaboration with information from CONEVAL, 2000, 2005, 2010 and 2020.

The progress seen in the Social Lag Grade for localities within the Totonacapan region from 2000 to 2020 largely stems from enhancements in fundamental social infrastructure and community integration. This has substantially decreased the rate of social backlog. This positive change is evident in the substantial reduction of neighborhoods classified as high-risk; dropping from 493 in 2000 down to 182 in 2020. Such outcomes underscore the dedication of the Totonacapan area to curbing social disparities and elevating its residents' standard of living.

At the heart of public policy formulation should be a strong focus on championing and upholding human rights. This aims to shift from prevalent social disparities to a more equitable society.

854 in 2000, dip to 805 in 2005, rise slightly to 838 in 2010, and revert to 805 by 2020. This data provides a comprehensive view of social disparities in the region, spotlighting how each municipality ranks within the lag categories.

Social Exclusion Index (SEI) 2000 – 2020

The Social Exclusion Index (SEI) for the years 2000-2020 serves as an instrument to gauge the extent of social exclusion in a country or specific region. This measure draws from a set of criteria outlined by (Medel and Medel, 2019) tailored for the Mexican context. These criteria delve into factors like disparity, poverty, and the inaccessibility of fundamental services.³⁵ These benchmarks are inspired by (Subirats, 2004) and his framework for examining social exclusion. The SEI for the two-decade span provides an overarching view of the dynamics of social exclusion within a given timeframe and locale. This index is invaluable in pinpointing the most at-risk populations, thus aiding in the crafting of effective socio-political strategies to counteract social exclusion.

The data are from the General Population and Housing Censuses in 2000 and 2010. The Index of Social Exclusion (IES) is calculated using a ponderation of 16 different indicators; its construction employs the main component method and the coefficients of the first component as ponderators.³⁶ The Social Exclusion Index (IES) is a tool for identifying municipalities with the highest level of social exclusion. See Table 3.

Table 3
Number of Localities by Degree of Social Exclusion
from 2000 to 2020 in municipalities of the Totonacapan region

³⁵ Medel-Ramírez C. y Medel-López H. (2019) addressed the proposal to incorporate social exclusion into methodology for identifying and focusing federal public resources, as well as identifying the poor at the regional level, in their article "Methodological note for the estimation of the index of social exclusion in indigenous localities of Veracruz Mexico." This study, published in Munich Personal RePEc Archive under the reference number 94070, offers a novel approach to addressing social exclusion in indigenous communities in Veracruz, Mexico. This methodology is a useful tool for developing public policies aimed at reducing poverty and improving indigenous peoples quality of life.

³⁶ Véase. Medel-Ramírez, Carlos and Medel-López, Hilario (2019). Op. cit.

	Municipio	Cazones de Herrera	Chumatlán	Coahuatlán	Coatzacoatlán	Coxquihui	Coyutla	Espinal	Filomeno Mata	Gutiérrez Zamora	Mecatlán	Papanitla	Poza Rica de Hidalgo	Tecolutla	Tehuacán	Zozocolco de Hidalgo	Total
2000	Muy alta	0	1	0	0	0	0	0	2	0	0	0	0	0	1	0	4
	Alta	19	2	5	15	15	17	20	6	12	14	86	1	45	55	20	332
	Media	39	3	2	17	8	12	29	0	27	0	147	6	40	98	4	432
	Baja	1	0	0	2	0	0	4	0	2	0	16	2	16	28	0	71
	Muy baja	0	0	0	2	0	0	0	0	1	0	6	2	1	3	0	15
	Total	59	6	7	36	23	29	53	8	42	14	255	11	102	185	24	854
2005	Alta	5	1	0	2	3	3	2	4	2	3	23	2	12	16	9	87
	Media	24	5	2	19	17	17	30	3	12	10	125	5	37	72	8	386
	Baja	24	0	2	12	4	7	20	2	22	1	89	4	38	69	7	301
	Muy baja	2	0	0	3	0	0	1	0	4	1	4	2	8	5	1	31
	Total	55	6	4	36	24	27	53	9	40	15	241	13	95	162	25	805
2010	Alta	1	0	0	0	0	0	0	0	0	0	1	0	3	2	0	7
	Media	3	3	1	5	11	4	2	8	1	10	42	4	16	30	14	154
	Baja	43	3	3	31	13	27	40	1	35	7	194	3	64	110	11	585
	Muy baja	4	0	0	5	1	0	4	0	6	0	22	5	12	33	0	92
	Total	51	6	4	41	25	31	46	9	42	17	259	12	95	175	25	838
2020	Alta	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Media	1	2	0	0	5	2	2	4	0	6	24	3	2	3	9	63
	Baja	50	4	12	65	19	29	54	6	46	12	248	17	138	201	18	919
	Muy baja	10	0	0	16	1	0	12	0	5	0	21	4	14	30	0	113
	Total	62	6	12	81	25	31	68	10	51	18	293	24	154	234	27	1,096

Source: Own elaboration with data from INEGI 2000 to 2020 and with the methodology proposed by (Medel and Medel, 2019).

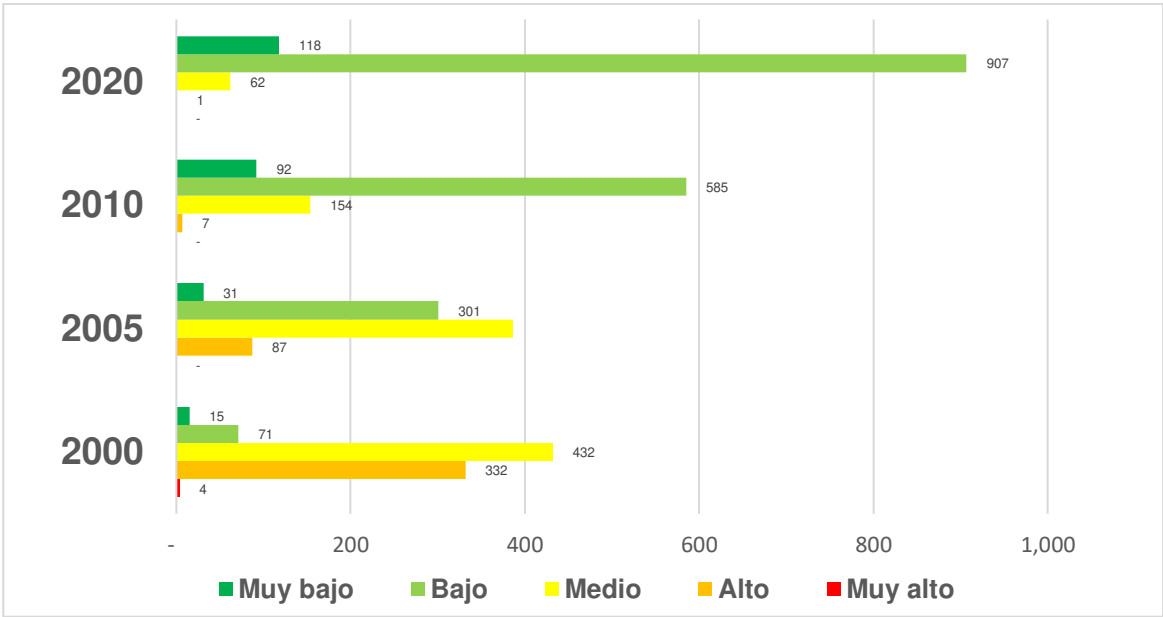
The municipalities of the Totonacapan zone included 854 settlements in 2000. 39% experienced severe social exclusion, whereas the remaining 61% experienced medium, low, or no social exclusion. Notably, the municipalities facing substantial social issues made up 9% of the Totonacapan region as a whole. Some municipalities were particularly hard hit: 1) Filomeno Mata and Mecatlán, where every town faced this difficulty; 2) Zozocolco de Hidalgo, with 83% of its towns in this category; 3) Coahuatlán, with 71%; 4) Coxquihui, with 65%; and 5) Coyutla, with 59%. These municipalities have pronounced social exclusion markers such as low income, insufficient access to key services, poor education, and high unemployment rates, to name a few. More about this in the third segment.

In 2005, the Totonacapan region comprised a total of 805 municipalities, each exhibiting varying levels of social inclusion, ranging from none to extremely high. Notably, the municipalities with a high degree of social exclusion witnessed a sharp decline of 73.7% in 2005 when compared to the year 2000. Specifically, the number of municipalities classified under high social exclusion plummeted from 332 in 2000 to just 83 in 2005. This marked improvement is attributed to the region's governmental efforts aimed at enhancing the living standards of its inhabitants. In 2005, merely 5 municipalities recorded a moderate to high level of social exclusion, broken down as follows: 1) Chumatlán, where all its municipalities fell under this bracket, 2) Mecatlán with 87%, 3) Coxquihui with 83%, 4) Filomeno Mata with 78%, and 5) Coyutla at 74%.

In 2010, the total number of municipalities in the Totonacapan zone was 838. This means that in 2005, 66% of localities had a high or very high level of social exclusion; by 2010, this had decreased to 161 localities. These five municipalities account for 19% of all municipalities with high or moderate social

exclusion: Filomeno Mata (89%), Mecatlán (59%), Zozocolco de Hidalgo (56%), Chumatlán (55%), and Coxquihui (55%). These statistics show that the Totonacapan area has improved its social exclusion situation in recent years. However, there are still many communities that have social exclusion issues and require assistance to improve their living conditions. See Graph 8.

Graph 8
Number of localities in the Totonacapan zone
by Degree of Social Exclusion from 2000 to 2020



Source: Own elaboration based on data from INEGI, 2000, 2005, 2010, and 2020 and using the methodology proposed by Medel-Ramírez, Carlos and Medel-López, Hilario (2019): Methodological note for estimating the social exclusion index in indigenous localities of Veracruz, Mexico. Op. Cit.

The count of municipalities categorized under high social exclusion witnessed a drastic drop, plunging from 332 in 2000 to a mere 7 by 2010. This positive shift can largely be attributed to the introduction and effectiveness of public policies aiming to transform areas of high social exclusion to zones of reduced social marginalization. This policy-driven improvement is evident in the enhanced social infrastructure within these communities, leading to a transition from pronounced social unrest to more moderate social concerns. Conversely, there's been a notable surge in the municipalities categorized under low social exclusion, increasing from 71 in 2000 to a staggering 585 by 2010. This change underscores the efficacy of the enacted public policies, facilitating considerable advancements in addressing and reducing social marginalization within these communities.

The results indicate a notable rise in social exclusion from 5% in 2000 to 20% in 2010. This underlines the urgent need to introduce public policies that spur social and economic progress in the region to combat escalating social exclusion levels.

From 2000 to 2020, cities within the study showed a significant reduction in social exclusion. Whereas four cities registered a high exclusion rate in 2000, by 2020, no city fell into this category, marking a positive shift in residents' well-being. Conversely, municipalities with minimal social challenges have seen a surge, moving from 15 in 2000 to 118 in 2020. This shift signifies the region's enhanced living conditions and the successful execution of strategies aimed at diminishing social disparities and stagnation in various areas.

The Multidimensional Poverty Index (MPI) 2000-2020

Delving into the intricacies of poverty, this segment explores it from a multidimensional lens, encapsulating both the ethos of social justice propounded by Rawls (1971) and the notion of capability deprivation introduced by Sen (2000). This nuanced perspective is underpinned by the foundational principles set out by Alkire-Foster (2007), showcased in Figure 14.

Over the last two decades, the Multidimensional Poverty Index (MPI) has emerged as a pivotal diagnostic instrument to discern the global ramifications of poverty. Beyond mere fiscal constraints, this mechanism offers an expansive scrutiny, encompassing facets such as educational accessibility, healthcare provisions, employment opportunities, sustenance assurance, shelter adequacy, and the extent of societal engagement.

At its core, the MPI is anchored in the layered definition of poverty. This definition transcends mere monetary constraints, expanding to embrace the deficit in rights, resources, assets, and essential services, alongside the diminished avenues for skill enhancement and full societal participation (Alkire-Foster, 2007). It echoes Rawls' (1971) vision of social justice, emphasizing equal opportunities for all, irrespective of their economic standing. Further, Sen's (2000) conception of capability deprivation reverberates within, spotlighting the diminished prospects to cultivate and wield essential capacities to lead fulfilling lives.

These intertwined themes coalesce to furnish an enriched understanding of poverty. This holistic approach not only illuminates the multifaceted nature of impoverishment but also paves the way for crafting more targeted and efficacious counter-poverty strategies (Alkire-Foster, 2007).

Between 2000 and 2020, the MPI has proven instrumental in spotlighting the demographic segments most susceptible to impoverishment. It serves as a barometer to gauge the impact and success rate of

strategies aimed at poverty alleviation. Moreover, by rendering a global overview of the state of poverty, the IPM has been pivotal in spurring national and international entities into orchestrating initiatives to elevate the living standards of populations and thereby, diminishing the chasm of inequality. Through the IPM, concerted efforts have been directed towards regions and segments demanding intensified interventions to pull populations out of the quagmire of poverty.

It is noteworthy that the focus on poverty medicine is approached from a multidimensional perspective, employing Alkire and Foster's (2007) methodology, Sen's (2000) capacity focus, and Medel's (2016) inclusion of the social exclusion dimension. This multidimensional perspective allows us to approach poverty from a broader and more comprehensive perspective, taking into account the various aspects that comprise it. See next Table 4.

Table 4
Number of Localities by Multidimensional Poverty Condition
from 2000 to 2020 in Municipalities of the Totonacapan Region

Grado de Pobreza Multidimensional	Cazones de Herrera	Chumatlán	Coahuatlán	Coatzacoatlán	Coxquihui	Coyutla	Espinal	Filomeno Mata	Gutiérrez Zamora	Mecatlan	Papantla	Poza Rica de Hidalgo	Tecolutla	Tihuatlán	Zozocolco de Hidalgo	Total	
2000	Pobre multidimensional	42	6	7	22	21	26	36	8	22	14	155	4	66	102	22	553
	No Pobre multidimensional	17	0	0	14	2	3	17	0	20	0	100	7	36	83	2	301
	Total	59	6	7	36	23	29	53	8	42	14	255	11	102	185	24	854
2005	Pobre multidimensional	30	0	2	16	5	9	25	2	30	3	108	6	50	84	8	378
	No Pobre multidimensional	25	6	2	20	19	18	28	7	10	12	133	7	45	78	17	427
	Total	55	6	4	36	24	27	53	9	40	15	241	13	95	162	25	805
2010	Pobre multidimensional	26	6	3	22	22	25	20	9	15	17	147	4	50	101	24	491
	No Pobre multidimensional	25	0	1	19	3	6	26	0	27	0	112	8	45	74	1	347
	Total	51	6	4	41	25	31	46	9	42	17	259	12	95	175	25	838
2020	Pobre multidimensional	21	5	4	8	13	16	17	8	6	13	94	3	13	28	17	266
	No Pobre multidimensional	31	1	8	57	11	15	39	2	39	5	177	17	126	176	9	713
	Total	52	6	12	65	24	31	56	10	45	18	271	20	139	204	26	979

Source: Own elaboration using data from INEGI 2000 and the methodology proposed by Medel-Ramírez, Carlos, and Medel-López, Hilario (2019): Methodological note for estimating the multidimensional poverty index in the State of Veracruz 2010.

According to Table 4, in the year 2000, 854 municipalities made up the Totonacapan zone, with 65% of them being multidimensionally poor municipalities and the remaining 35% being non-multidimensionally

poor municipalities. Chumatlán, Coahuilán, Filomeno Mata, and Mecatlán accounted for 100% of the Totonacapan zone, while Zozocolco de Hidalgo accounted for 92%, Coxquihui accounted for 91%, Coyutla accounted for 90%, and Cazones de Herrera accounted for 71%. Furthermore, the only municipality with non-poor multidimensional neighborhoods was Poza Rica de Hidalgo (64%). This information is further detailed in Section 4.

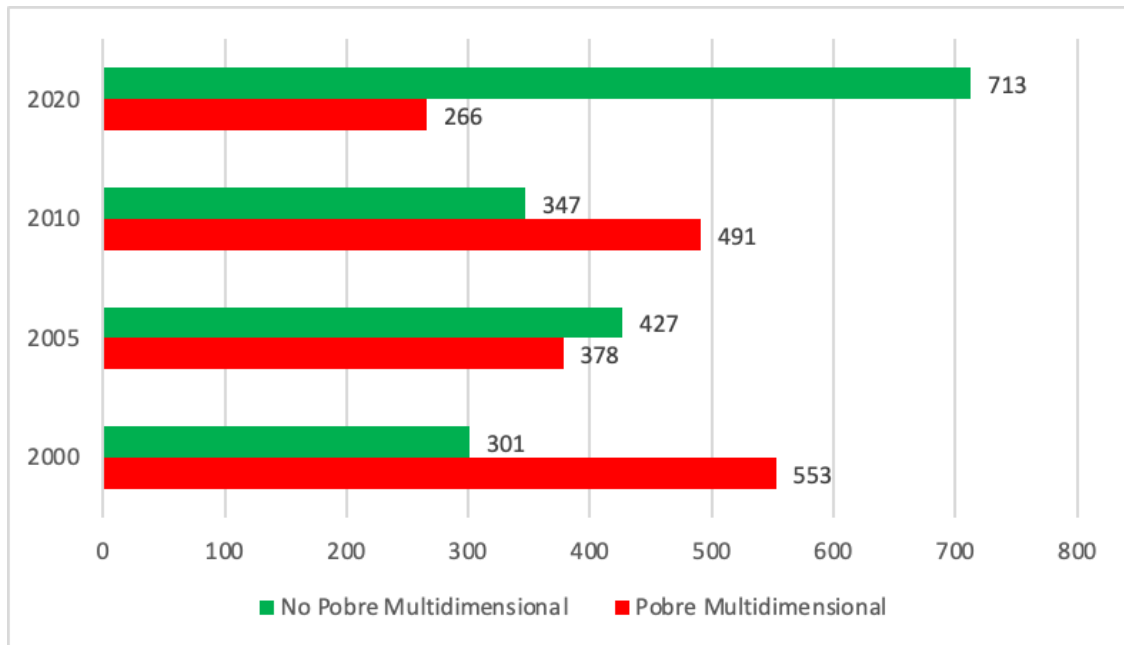
In the year 2005, the number of municipalities in the Totonacapan zone was 805 in number. This year, the number of municipalities suffering from multidimensional poverty decreased by 32%, from 553 in 2000 to 378 in 2005. Only 5 municipalities had a high or moderate level of social exclusion: Chumatlán had 100%, Mecatlán had 87%, Coxquihui had 83%, Filomeno Mata had 78%, and Coyutla had 74%.

In 2010, the total number of municipalities in the Totonacapan zone was 838. In that year, the proportion of localities with multidimensional poverty increased by 29.9% over the previous year. This means that, instead of the 378 communities that existed in 2005, the number increased to 491. Five municipalities account for 22% of the total: Chumatlán, Filomeno Mata, and Mecatlán have 100% of their communities in multidimensional poverty, Zozocolco de Hidalgo has 96%, Coxquihui has 88%, Coyutla has 81%, and Coahuilán has 75%.

The Totonacapan zone will consist of 979 municipalities in the year 2020, marking a substantial rise from the 805 municipalities recorded in 2010. However, amidst this increase, there has been a noteworthy 45.8% reduction in the count of municipalities grappling with multidimensional poverty compared to the statistics of 2010. This signifies a transformation from 491 municipalities affected by multidimensional poverty in 2010 to a projected decrease of 266 municipalities encountering this predicament by 2020. See Graph 9.

Graph 9

Number of localities in the Totonacapan area, according to the degree of multidimensional poverty in the period 2000 to 2020



Source: Own elaboration with INEGI data for the years 2000, 2005, 2010 and 2020. To estimate the multidimensional poverty index, the methodology proposed by (Medel and Medel, 2019) is used.

Among these, Chumatlán stands out with an alarming 83% of its localities facing the challenges of multidimensional poverty, followed by Filomeno Mata at 80%, Mecatlán at 72%, Zozocolco de Hidalgo at 65%, and Coxquihui at 66.5%.

It's imperative to acknowledge that, in spite of the collective endeavors by local, regional, and national authorities to enhance the quality of life in the Totonacapan Zone, a significant number of communities still grapple with the complexities of multidimensional poverty.³⁷

³⁷ The representation of multidimensional poverty adopts a symbolic language, where the color red signifies its presence, while green signifies its absence. This symbology encapsulates the Grado de Pobreza Multidimensional. The total count of municipalities within the Totonacapan region has exhibited fluctuations over time: in the year 2000, the tally stood at 854 municipalities, followed by 805 in 2005, 838 in 2010, and a projected 974 by the year 2020. This ebb and flow in community numbers serves as a reflection of the region's current stage of socioeconomic development. It is imperative to take these dynamic figures into account, establishing a pivotal reference point that can function as a tool to assess the circumstances within each municipality. Only by doing so can we accurately gauge the extent of multidimensional poverty present within each of these distinct locales.

This serves as a glaring alarm, compelling us to reevaluate the existing paradigms of public policy to effectively confront this issue head-on. Thus, there exists an imperative to intensify efforts aimed at enhancing the quality of life for residents within the Zona del Totonacapan. This entails implementing comprehensive policies that approach multidimensional poverty from a holistic perspective. Such strategies must encompass measures to enhance access to essential services, such as education and healthcare, among other crucial aspects.

As we approach the year 2020, a cluster of five municipalities is projected to bear the weight of 33% of the total localities afflicted by multidimensional poverty: 1) Chumatlán, Filomeno Mata, and Mecatlán, all recording 100% of their respective localities under this condition; 2) Zozocolco de Hidalgo, witnessing 96%; 3) Coxquihui, experiencing an 88% rate; 4) Coyutla, grappling with 81%; and 5) Coahuilán, with a 75% ratio. Additionally, fresh entries have emerged among municipalities featuring substantial percentages of localities grappling with multidimensional poverty. Notable among these are Acatlán de Pérez Figueroa (90%), Acajete (80%), and Hueyapan de Ocampo (77%), alongside others.

The multidimensional poverty situation in the Totonacapan region demonstrates that despite efforts by local, regional, and national governments to improve the living conditions of the people in this region, there are still a large number of communities in need. In order to effectively address this situation and improve people's living conditions, including access to basic services, education, health care, and more, it will be necessary to rethink the public policy framework.

In summary, to conclude.

Through a comprehensive analysis of the Totonacapan residents' situation, the compelling need for implementing public policies that ensure the full realization of fundamental human rights, sustainability of natural resources, preservation of culture, and elimination of marginalization and social exclusion becomes evident. These policies must be implemented with the aim of ensuring that communities achieve equitable and sustainable development, capable of addressing regional challenges in alignment with the 2030 Sustainable Development Goals.

The examination of Totonacapan residents has facilitated the recognition of the importance of preserving culture, tradition, and fundamental human rights as avenues for sustainable progress within this community. This diverges from other contexts where the predominant development approach revolves around resource exploitation and social marginalization.

The scrutiny of the Totonacapan residents' condition has deepened our understanding of the prevailing significance of safeguarding culture, tradition, and core human rights as means to attain sustainable progress for the locality. This conclusion can be extrapolated to other contexts, aiming to foster equitable

and sustainable development in harmony with human rights, cultural preservation, and conservation of natural resources. This will enable communities to achieve the 2030 Sustainable Development Goals.

This novel perspective beckons us to explore the prospect of cultivating a culture that respects nature, maintains a balance between humanity and the environment, and constructs a harmonious economy conducive to preserving the culture and way of life of Totonacapan inhabitants. Such a culture hinges on nature preservation, social justice, and a sustainable economy where the State plays a central role in upholding human and social rights. This measure will allow Totonacapan residents to continue being recognized as heirs of the Thunder, thereby safeguarding their culture, tradition, and worldview while simultaneously contributing to the sustainable progress of the region.

In conclusion, this reimagined perspective of public responsibility prompts profound introspection on the imperative of preserving and promoting the values, culture, and tradition of the Totonacapan region to achieve human and sustainable development across all its communities. This phenomenon fosters an emerging ethos of sustainability, entailing the recognition and valuation of the cultural heritage and richness present in the region, alongside the fundamental human rights that ensure the responsible utilization and enjoyment of these resources.

References

- Alkire Sabina y Foster James. (2007). Recuento y medición multidimensional de la pobreza. Universidad de Oxford y Universidad Vanderbilt. Documento de trabajo OPHI No. 7. Diciembre de 2007. Recuperado de: <http://www.ophi.org.uk/wp-content/uploads/ophi-wp7-s.pdf>
- Alvear-Galindo, M.G., Giraldo-Durán, A., Ramírez-Gutiérrez, S.E., & Valadez-Hernández, C. (2022). Economía criminal en Veracruz y la región del Totonacapan, México, 1998-2018. Sociedad y Economía. Recovered from: <https://www.semanticscholar.org/paper/Econom%C3%ADa-criminal-en-Veracruz-y-la-regi%C3%B3n-del-Alvear-Galindo-Giraldo-Dur%C3%A1n/facf5c2f4ee9fd5823c011785a78c742b1373cbf>
- Appasamy Paul et al. (1996). Social exclusion from a welfare rights perspective in India (RS 106). ILO. International Institute for Labour Studies; UNDP. Switzerland. Recuperado de: http://www.ilo.org/public/libdoc/ilo/1996/96B09_501_engl.pdf
- Barba Solano, C. (2009). "Los estudios de la pobreza en América Latina". Revista Mexicana De Sociología. UNAM. Instituto De Investigaciones Sociales. doi:0188-2503/09/071-especial-01
- Cámara de Diputados. LXIV Legislatura. Centro de Estudios para el Desarrollo Rural Sustentable y la Soberanía Alimentaria. (2019). El Plan Nacional de Desarrollo 2019-2024 y los objetivos del Desarrollo Sostenible en el Sector Rural. Recuperado de: [http://www.cedrssa.gob.mx/files/b/13/32PND%202019-2024%20y%20ODS%20\(1\).pdf](http://www.cedrssa.gob.mx/files/b/13/32PND%202019-2024%20y%20ODS%20(1).pdf)

- Center for Sustainable Rural Development and Food Sovereignty Studies (2019). "The National Development Plan 2019-2024 and the Sustainable Development Goals in the Rural Sector." Accessed through the LXIV Legislature of the Chamber of Deputies. Available at: [http://www.cedrssa.gob.mx/files/b/13/32PND%202019-2024%20y%20ODS%20\(1\).pdf](http://www.cedrssa.gob.mx/files/b/13/32PND%202019-2024%20y%20ODS%20(1).pdf)
- CEPAL-ORPD (2021). Plan Nacional de Desarrollo (PND) 2019-2024 – México, Recuperado de: <https://observatorioplanificacion.cepal.org/es/planes/plan-nacional-de-desarrollo-de-mexico-2019-2024>
- Consejo Nacional de Evaluación de la Política de Desarrollo Social. (2010). Índice de rezago social a nivel municipal y por localidad. Recuperado de: <https://www.coneval.org.mx/Medicion/IRS/paginas/%C3%8DNDICE-de-Rezago-social-2010.aspx>
- Consejo Nacional de Población (CONAPO). (2020). Índice de marginación por localidad. Nota técnico-metodológica. Septiembre de 2021. Recuperado de: <https://www.gob.mx/conapo/documentos/indices-de-marginacion-2020-284372>
- Constitución Política del Estado de Veracruz de Ignacio de la Llave. Recuperado de: <https://www.legisver.gob.mx/leyes/LeyesPDF/CONSTITUCION24112020.pdf>
- Cruz Vázquez M. (2016) La faena: Práctica para la organización comunitaria. Universidad Veracruzana Intercultural. Recuperado de: <https://www.uv.mx/uvi/general/la-faena-practica-para-la-organizacion-comunitaria/>
- Cruz Vázquez, M. (2016). La faena: Práctica para la organización comunitaria. Universidad Veracruzana Intercultural. Retrieved from <https://www.uv.mx/uvi/General/la-faena-practica-para-la-organizacion-comunitaria/>
- Czarnecki Lukasz. (2012). "The Comparative Study on the Official Conceptions of the Poverty in Mexico (1980-2012) and in the Federal District (1997-2012). One or Two Views?". En: Revista del CESLA, No. 15, CESLA Universidad de Varsovia, p. 113-129.
- Del Popolo Fabiana et al. (2009). "Indígenas urbanos en América Latina: algunos resultados censales y su relación con los Objetivos de Desarrollo del Milenio". En: Notas de población. Año XXXV. N°86 • CEPAL. CELADE-División de Población de la CEPAL - Naciones Unidas. Santiago de Chile. pp 101- 140 Recuperado de: http://www.cepal.org/publicaciones/xml/6/35866/lcg2349-P_5.pdf
- Gobierno del Estado de Veracruz de Ignacio de la Llave. Plan Veracruzano de Desarrollo (PVD) 2019 – 2024. Recuperado de: <http://www.veracruz.gob.mx/programadegobierno/2019/06/06/plan-veracruzano-de-desarrollo-2019-2024/>
- Huerta-Estévez, A., Severino-Parra, C.A., & Virginia León, F. (2023). Agenda 2030 y educación de calidad en México, avances en el cumplimiento para el 2030. RIDE Revista Iberoamericana para la Investigación y el Desarrollo Educativo. Recovered from: <https://www.semanticscholar.org/paper/Agenda-2030-y-educaci%C3%B3n-de-calidad-en->

M%C3%A9xico%2C-en-el-Huerta-Est%C3%A9vez-Severino-Parra/25bd7676cf8093c92f58b07313ffe8fdcd30f52

- López Lobato A. (2014) Importancia del maíz en el sistema alimentario campesino en la región Totonacapan, Veracruz. Universidad Autónoma Metropolitana. México. Tesis de Maestría Desarrollo Rural. Recuperado de: http://dcsh.xoc.uam.mx/podr/images/Tesis/Maestria/Lopez_Lobato_Alvaro.pdf.
- López-Lobato, A. (2014). Importancia del maíz en el sistema alimentario campesino en la región Totonacapan, Veracruz. Master's Thesis in Rural Development, Autonomous Metropolitan University, Mexico. Retrieved from http://dcsh.xoc.uam.mx/podr/images/Tesis/Maestria/Lopez_Lobato_Alvaro.pdf
- Medel Ramírez C. (2016) Evaluación del grado de exclusión social y de pobreza multidimensional en las localidades indígenas en el Estado de Veracruz: El caso del programa de desarrollo de zonas prioritarias. Tesis Doctoral en Finanzas Públicas. Universidad Veracruzana. Recuperado de: https://www.researchgate.net/publication/356508492_Evaluacion_del_grado_de_exclusion_social_y_de_pobreza_multidimensional_en_las_localidades_indigenas_en_el_estado_de_Veracruz_El_caso_del_programa_de_desarrollo_de_zonas_prioritarias/stats
- Medel Ramírez C. (2016). An Analysis of Social Exclusion and Multidimensional Poverty in Indigenous Localities in Veracruz: A Study on the Priority Zone Development Program. Ph.D. in Public Finance, Veracruzana University. Available at: [\[https://www.researchgate.net/publication/356508492_Evaluacion_del_grado_de_exclusion_social_y_de_pobreza_multidimensional_en_las_localidades_indigenas_en_el_estado_de_Veracruz_El_caso_del_programa_de_desarrollo_de_zonas_prioritarias/stats\]](https://www.researchgate.net/publication/356508492_Evaluacion_del_grado_de_exclusion_social_y_de_pobreza_multidimensional_en_las_localidades_indigenas_en_el_estado_de_Veracruz_El_caso_del_programa_de_desarrollo_de_zonas_prioritarias/stats)
- Medel-Ramírez C. y Medel-López H. (2019). Methodological note for the estimation of the index of social exclusion in indigenous localities of Veracruz Mexico. Munich Personal RePEc Archive. MPRA Paper No. 94070. Recuperado de: <https://mpra.ub.uni-muenchen.de/94070/>
- Medel-Ramírez C. y Medel-López H. (2020) "Social Welfare: An approach to the concept from a multidimensional perspective" Recuperado de: <https://philpapers.org/rec/MEDSWA>
- Medel-Ramírez, C., & Medel-López, H. (2020). Impact of (SARS-CoV-2) COVID-19 on the Five Main Indigenous Language-Speaking Areas in Veracruz Mexico: The Case of the Totonacapan Area. SSRN Electronic Journal. Recovered from: [https://www.semanticscholar.org/paper/Impact-of-\(SARS-CoV-2\)-COVID-19-on-the-Five-Main-in-Medel-Ram%C3%ADrez-Medel-L%C3%B3pez/937a2cf5d86fa3017f0ee2cfd7fd86dc1389297d](https://www.semanticscholar.org/paper/Impact-of-(SARS-CoV-2)-COVID-19-on-the-Five-Main-in-Medel-Ram%C3%ADrez-Medel-L%C3%B3pez/937a2cf5d86fa3017f0ee2cfd7fd86dc1389297d)
- Medel-Ramírez, Carlos and Medel-López, Hilario (2019): Nota metodológica para la estimación del índice de pobreza multidimensional en el Estado de Veracruz 2010. MPRA Munich Personal RePEc Archive. MPRA Paper No. 95311, Recuperado de: https://mpra.ub.uni-muenchen.de/95311/1/MPRA_paper_95311.pdf

- Municipal Presidency of Papantla. (2018) Papantla in full flight. Municipal Development Plan 2018-2021. Retrieved from: <https://papantlaveracruz.com.mx/wp-content/uploads/2018/05/PLAN-MUNIICIPAL-DESARROLLO-2018.pdf>
- National Council for Social Development Policy Evaluation (2010). Municipal and local social backwardness index. URL: <https://www.coneval.org.mx/Medicion/IRS/paginas/%C3%8DNDICE-de-Rezago-social-2010.aspx>
- Organización de Naciones Unidas. Objetivos de la Agenda para el Desarrollo (ODS) 2030.
- Pérez Gil V. Y, González Téllez M.L., Campero Carracilly S. C. (2017) Kin tachiwin ix likaxtlaw kulitlan, nuestro diálogo como construcción de la paz. Memoria y saberes totonacos para la resolución pacífica de los conflictos en el municipio de Papantla, Veracruz. Primera edición. ISBN: 978-607-9116-30-9. Recuperado de: http://dgei.basica.sep.gob.mx/files/fondo-editorial/educacion-intercultural/cgeib_00048.pdf
- Pérez Gil, V. Y., González Téllez, M. L., & Campero Carracilly, S. C. (2017). Kin tachiwin ix likaxtlaw kulitlan, nuestro diálogo como construcción de la paz. Memoria y saberes totonacos para la resolución pacífica de los conflictos en el municipio de Papantla, Veracruz. (Primera edición). Fondo Editorial, Secretaría de Educación Pública. ISBN: 978-607-9116-30-9. Retrieved from http://dgei.basica.sep.gob.mx/files/fondo-editorial/educacion-intercultural/cgeib_00048.pdf
- Presidencia Municipal de Papantla. (2018) Papantla en pleno vuelo. Plan de Desarrollo Municipal 2018-2021. Recuperado de: <https://papantlaveracruz.com.mx/wp-content/uploads/2018/05/PLAN-MUNIICIPAL-DESARROLLO-2018.pdf>
- Rawls, J. (1971). "A Theory of Justice". Harvard University Press. Recuperado de: <https://archive.org/details/theoryofjustice00rawlrich>
- Raworth, Kate (2018). Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist.
- Renwick Beattie J. y Esmonde-White Francis W. L. (2021) Exploration of Principal Component Analysis: Deriving Principal Component Analysis Visually Using Spectra. Applied Spectroscopy. Volume: 75 issue: 4, pp. 361-375. Recuperado de: <https://doi.org/10.1177/0003702820987847>
- Rionda Ramírez Jorge Isauro. (2010). "Exclusión indígena en México (Historia económica en retrospectiva)". En: Revista electrónica de las ciencias sociales. Tecsitecatl. no. 7 Enero de 2010. Recuperado en: <http://www.eumed.net/rev/tecsistecatl/n7/jirr.pdf>
- Ríos Ruiz, Alma de los Ángeles (2019) Consideraciones en torno al Plan Nacional de Desarrollo 2019-2024. Ius Comitalis, [S.l.], v. 2, n. 4, p. 29-46, dic. 2019. ISSN 2594-1356. Recuperado de: <https://iuscomitalis.uaemex.mx/article/view/12944>
- Sen Amartya. (2000). La perspectiva de la libertad. Planeta Colombiana Editorial S. A., Bogotá, 2000, Recuperado en: <http://www.undp.org.ar/development/humano/LaperspectivadelaLibertad.pdf>
- Soto Vázquez G. F. (2020) Los saberes de los Totonacos del trabajo en el campo para su reproducción y fortalecimiento en la materia de etnoagricultura en el Centro de Estudios

- Superiores Indígenas Kgoyom (Cesik). Universidad Autónoma Metropolitana. Unidad Xochimilco. Tesis d Maestría en Desarrollo Rural. Retrieved from http://dcsh.xoc.uam.mx/podr/images/Tesis/Maestria/Soto_Vazquez_Gerardo_Francisco.pdf
- Székely Miguel. (1997). Policy options for poverty alleviation. Inter-American Development Bank. Washington DC. March 1997. Recuperado en: <http://www.iadb.org/res/publications/pubfiles/pubWP-342.pdf>
- Tetreault Darcy Victor. (2012). “La política social y los programas para combatir la pobreza en México ¿Oportunidades para quiénes?” En: Estudios Críticos del Desarrollo, Vol. II, no. 2, primer semestre de 2012, pp. 41–74 Recuperado de: <http://estudiosdeldesarrollo.net/critical/rev2/2.pdf>
- Torres Solís M, Ramírez-Valverde B., et. al (2020) Buen vivir y agricultura familiar en el Totonacapan poblano, México. ÍCONOS Revista de Ciencias Sociales. Número 68. Volumen XXIV (3er. cuatrimestre). ISSN: 1390-1249. e-ISSN: 1390-8065. Septiembre-Diciembre 2020. Recuperado de: www.revistaiconos.ec
- Torres Solís, M., Ramírez-Valverde, B., Juárez Sánchez, P., Martínez Carrera, D., Ramírez-Valverde, G., Aliphath Fernández, M. & Parra Vázquez, M. (2021). Happy Life or Tapaxuwán Latamat: knowledge and community practices in the municipality of Huehuetla, Puebla, Mexico. Textual, 78, pp. 15-40. DOI: 10.5154/r.textual.2021.77.1
- Uquillas J., Carrasco T. y Rees Martha. (2003). Exclusión social y estrategias de vida de los indígenas urbanos en Perú, México y Ecuador. Quito Ecuador. Banco Mundial. Recuperado de: <http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2006/04/13/00001200920060413154451/Rendered/PDF/358410rev0EXCLUSION120SOCIAL1.pdf>
- Urías-Hermosillo, Margarita (2000). Totonacas de Veracruz. Proyecto Perfiles Indígenas de México, Documento de trabajo. Acta Académica. Centro de Investigaciones y Estudios Superiores en Antropología Social. Unidad Golfo. Recuperado de: <https://www.aacademica.org/salomon.nahmad.sitton/59>
- World Bank (1990) Informe sobre el desarrollo mundial 1990. La pobreza. Washington, D.C; Banco Mundial. Julio. 1990
- World Bank. (1992). Operational Directive 4.15. Washington D.C. 1992.