

Hijos del Maíz: Cultural Resilience and Community Responses to Food Insecurity in Amealco, Querétaro

Valentina Muhlia Gutiérrez, Nadia Alexandra Lozano Marchán, José Ilyan Valdivia Rivera, Sergio Alejandro Iglesias Ramírez, Daniel Bernal Serrano, Paola Abril Campos Rivera

In collaboration with "Comité de la Feria del Maíz" (Amealco Community Leaders Assembly) and Universidad Autónoma de Querétaro researchers



The Reach Alliance

The Reach Alliance is a consortium of global universities — with partners in Ghana, South Africa, Mexico, Canada, United Kingdom, Australia, and Singapore — developing the leaders we need to solve urgent local challenges of the hard to reach — those underserved for geographic, administrative, or social reasons. Working in interdisciplinary teams, Reach's globally minded students use rigorous research methods to identify innovative solutions to climate, public health, and economic challenges. The UN's Sustainable Development Goals (SDGs) provide inspiration and a guiding framework. Research is conducted in collaboration with local communities and with guidance from university faculty members, building capacity and skills among Reach's student researchers.

The Reach Alliance was created in 2015 by the University of Toronto's Munk School of Global Affairs & Public Policy, in partnership with the Mastercard Center for Inclusive Growth.



Note: Authors are listed alphabetically with the faculty mentor listed last.

Cover photo: A traditional milpa field





Acknowledgements

This case study is the result of the effort and support of countless individuals. We extend our deepest appreciation to the people of Amealco and San Miguel Tlaxcaltepec for their warm welcome and participation in our focus groups and interviews, particularly the Feria del Maíz organizing committee and Casa Común “Juntas Podemos.” Special thanks to Karla Nicol Hernández Puente for connecting us with the community and to Mrs. Isa for generously sharing tamales with us. We also appreciate the students of the Local Development program at Universidad Autónoma de Querétaro, campus Amealco, for their valuable feedback.

We express our sincere gratitude to Gustavo Merino, our first faculty mentor, for bringing us together as a team. We are thankful for the guidance of our faculty mentors, Daniel Bernal Serrano and Paola Abril Campos Rivera, as well as our academic directors, José Francisco Rueda Vargas, René Rosado González, Daniela González Iza, Liliana Charles Cruz, and Xochitl Pimienta Franco. We are also deeply appreciative of Moni Kim for enabling this experience, Gloria Eid for supporting our teamwork, and Jacqueline Larson, Sana Khan, and the rest of the Reach team for bringing structure and design to our work. Finally, we thank our families and friends for their unwavering support, as well as Tecnológico de Monterrey and the University of Toronto for the opportunity to be part of the Reach Alliance.

Authorship Contribution Chart

| Contribution | Contributor |
|---|----------------|
| Conception or design of the work | VM, NL, SI, IV |
| Data collection | VM, NL, SI, IV |
| Data coding | SI, IV |
| Data analysis and interpretation | VM, NL, SI, IV |
| Drafting of the case study report | VM, NL, SI, IV |
| Critical revision of the case study report | VM, NL, SI, IV |
| Final approval of the version to be submitted | VM, NL, SI, IV |

Contents

| | |
|---|----|
| Executive Summary..... | 1 |
| Foreword by the Feria del Maíz Organizing Committee | 2 |
| Background: Food Insecurity and Colonial Legacy..... | 2 |
| About Our Research..... | 5 |
| Hard to Reach | 6 |
| Measuring Food Security | 8 |
| Multidimensional Food Security in Amealco..... | 10 |
| Lessons Learned | 19 |





Figure 1. Opening ceremony of the Feria del Maíz 2024 at San Miguel Tlaxcaltepec

Executive Summary

Somos hijos del maíz.

(We are the children of maize.)

— Interview participant

We examine food insecurity in the community of Amealco, a mostly rural municipality in Querétaro, Mexico. By analyzing issues with food access, availability, utilization, stability, agency, and sustainability, a framework proposed by Jennifer Clapp and colleagues, we found that the struggle for food security is deeply intertwined with the broader fight for cultural preservation, in a context of environmental pressures and changes linked to urbanization.¹ The future of the food system's sustainability in Amealco is threatened by the erosion of traditional agricultural practices and the implementation of culturally inappropriate programs that fail to resonate with the community's interests and practices.

Despite these challenges, the community demonstrates resilience through efforts to preserve its food sovereignty and cultural heritage. Initiatives like the *Feria del Maíz* — an event where all the community gathers to promote the importance of maize — and the protection of *milpa* — a traditional cultivation system — are clear examples of the community's determination to preserve their culture and keep their local food practices.

We highlight the importance of aligning food security interventions with the cultural and environmental realities of Indigenous communities. The case of Amealco underscores the need for public policies and development models that respect and incorporate local traditions, ensure the sustainability of food systems, and empower communities to uphold their cultural identities in the face of urbanization.

1 Jennifer Clapp, William G. Moseley, Barbara Burlingame, and Paola Termine, "The Case for a Six-dimensional Food Security Framework," *Food Policy* 106 (2022). [🔗](#)

Foreword by the Feria del Maíz Organizing Committee

Our “Feria del Maíz” committee brings together residents from San Miguel Tlaxcaltepec and across the Amealco municipality who come together year round to organize activities that strengthen community ties and promote environmental stewardship. The committee’s goal is to foster community bonds, safeguard native seeds, support better nutrition, and honour the region’s rich biocultural heritage. While our committee operates independently of any political party or institution, building connections with individuals from other organizations, collectives, communities, academics, and students from the area and across the country is essential to our mission. Among our main focus areas are agrobiodiversity, the Otomí language, gender, and the local and rural economy, as well as reclaiming spaces where we can foster community around these themes.

Some of the activities undertaken throughout the year include:

- Nomadic Community Museum
- Seed exchange
- Maize Day activities (September)
- Participation in Agrobiodiversity Days — UAQ Campus Amealco
- Involvement in academic and outreach publications (*Tribuna* newspaper supplements, fair organization manual, native seed catalog, native maize posters)
- Women Documentarians Collective (IMCINE)
- Activation of the San Miguel Tlaxcaltepec Community Centre (library, reading mediation

workshops, Otomí language, choir, dance, English)


- Native Maize Fair (and pre-fair events)
- Nomadic Insect Museum
- Production of bio-inputs for agroecological transition.

Our committee’s vision is to foster a deep-rooted impact by creating a community seed bank and engaging with local schools through workshops to raise awareness among youth about preserving the farming culture and knowledge tied to native seeds. The goal is to sustain traditional ethnographic-agronomic methods for cultivating these seeds while also passing down the expertise needed to store and transform them into food, intertwining this knowledge with the gastronomic heritage and communal cycles that are vital to Amealco’s identity.

Background: Food Insecurity and Colonial Legacy

Located on volcanic ground, on an extinct caldera of 11 kilometres in diameter, sits the municipality of Amealco de Bonfil in the Mexican state of Querétaro. With a population of 66,841, the colourful municipality has great cultural diversity, and a rich and traditional cuisine featuring maize, sour tuna, *nopales* and *xoconostle* (cactus), mushrooms, beans, pumpkins, *quelites* (edible greens), and exquisite handmade maize tortillas in a variety of colours. It is also the birthplace of the famous Lele doll.²

But Amealco is also the municipality with the worst access to nutritious food in all of Querétaro, with 44.8 per cent of the population — more than

2 “Censo de Población y Vivienda 2020.” INEGI. 

four out of every ten inhabitants — experiencing food insecurity.³ There are several factors in play: poverty, recent intense droughts associated with climate change; public-policy-caused social transformations leading to the desertion of rural areas and livelihoods; the interjection of big enterprises and producers in the community's fertile lands; and the trend toward monoculture crops.

While the preservation of cultural heritage and language might at first seem unrelated to food security, the community of Amealco knows that they are deeply connected and play a crucial role in sustaining local food systems and promoting resilience against food insecurity.

The lack of access to nutritious food intersects with challenges that can be traced back to the people's complex relationship with the erosion of their cultural identity through the loss of traditions and their language, as well as the decrease in agricultural work and the extinction of their native seeds.

The municipality has the second-highest concentration of Indigenous people in all of Querétaro — with 11.54 per cent of the entire state's Indigenous population and just over half (50.5%) of all its Indigenous communities.⁴ The main Indigenous localities there are *San Ildefonso*

Tultepec and *Santiago Mexquitilán Barrio 5*, as well as *Chiteje de Garabato*.⁵ Most of the Indigenous population living in Amealco belongs to the *Hñãñho*, or, as it is more commonly known, the *Otomí* people.⁶ In fact, 59.57 per cent of *Otomí* speakers in Querétaro live in Amealco de Bonfil.

Not all Amealco's inhabitants self-identify as Indigenous or speak *Hñãñho*, and those who speak it are mostly bilingual. Those who do

“We were told that mestizaje was the best of two worlds, the Spanish and the Indigenous, but there was not just one Indigenous world when they arrived — there were many and still are. When they lump us into one [single cultural identity] they deny our identity and diversity.”

consider themselves Indigenous also don't always use the term *Otomí*, because the name was imposed upon them in *Náhuatl* by the Mexican state. The name is part of the area's colonial history which included renaming

many of their communities, streets, and even natural elements of the territory, such as mountains, in a mix of Spanish and *Náhuatl*, even though *Náhuatl* was never spoken in the region.

That colonial legacy contributed to the erosion of the community's cultural identity over the past century resulting from a clash between the vision of urbanized modernity and the preservation of their traditions and culture. In that clash their local food systems have been damaged. The creation of a Mexican state after the colonial period assumed that all modern Mexicans are descendants of Spaniards and Indigenous people.

3 Self-calculated based on “Informe de Pobreza y Evaluación 2020: Querétaro,” CONEVAL, 2020. [↗](#)

4 “Encuesta Nacional de Ingresos y Gastos de los Hogares 2022.” INEGI. [↗](#)

5 Agustín Bustos Rosales, José Alfonso Balbuena Cruz, Alma Rosa Zamora Domínguez, and José Alejandro Ascencio Laguna, “Tiendas locales en cadenas de suministro cortas en comunidades rurales” [Local shops in short supply chains in rural communities], Instituto Mexicano del Transporte, 2021. [↗](#)

6 “Encuesta Nacional de Ingresos y Gastos de los Hogares 2022.”

It invented a singular national identity that fuses the Indigenous nations into a reductive single uniform mass, through *mestizaje*. In other words, this is a “cultural process by which indigenous people can become *mestizos* by abandoning their rural community, dropping the use of indigenous languages, and assimilating to the Spanish-speaking urban world.”⁷ That notion of *mestizaje* did not serve the people of Amealco.

In a forum in both Hñãñho and Spanish during the tenth *Feria del Maíz*, a community initiative to preserve the seeds and languages native to Amealco, people shared: “We were told that *mestizaje* was the best of two worlds, the Spanish and the Indigenous, but there was not just one Indigenous world when they arrived — there were many and still are. When they lump us into one [single cultural identity] they deny our identity and diversity.”

While efforts to foster economic growth at a nationwide level have succeeded in reducing poverty to a certain degree and improving per capita income and access to health services, education, and infrastructure, they have also advanced the *mestizaje* agenda, eroding cultural diversity and abandoning the countryside.

These types of policies, coupled with racial and cultural prejudice, have a harmful effect on Otomí youth’s participation in the countryside (hence, in food production) and appreciation of the Hñãñho language. They have been taught in school to prefer languages that are “useful” (such as English) and won’t lead to instances of discrimination. During one of our field visits, a young man from *Chiteje de Garabato* commented that they still hear how “others”

insult them [people with Indigenous roots] and think that they are not “people of reason” simply because they speak Hñãñho.⁸

Residents perceive the dichotomy between urbanization and cultural preservation as one of the major problems in the region because, although they recognize the importance of urbanization in some areas, they also see young people’s abandonment of the countryside as an imminent risk. These displacements from rural to urban areas and the impact of the public schooling system and governmental programs end up affecting their food production systems, as well as the national food supply chain if these dynamics are replicated in other rural regions of the country. One of the people we spoke to explained this tension:

Everyone wants what’s best for their children. We want them to have better opportunities, but we also want them to work and take care of the countryside. Everyone wants their children to be lawyers or doctors — no one wants their children to be smallholder farmers anymore — even if that is going to put an end to our fields and crops.

These conditions, combined with climate-change-related droughts that directly affect crops in the region, have increased Mexico’s dependence on imports of products such as corn for animal consumption to preserve the national food systems. Such imports introduce genetically improved and transgenic maize that many populations, including the people in Amealco, refuse to harvest or consume, further threatening

7 Guillermo Trejo and Melina Altamirano, “The Mexican Color Hierarchy: How Race and Skin Tone Still Define Life Chances 200 Years after Independence,” in *The Double Bind: The Politics of Racial and Class Inequalities in the Americas*, edited by Juliet Hooker and Alvin B. Tillery Jr. (American Political Science Association, 2016) 3–16. [↗](#)

8 “People of reason” (*Gente de razón*) and “people of tradition” (*gente de costumbre*) were terms used during and after the colonial period to separate white/mestizos from the Indigenous population. They suggest cognitive disparity, a prejudice that persists against native language speakers. Miguel Alberto Bartolomé, “Gente de costumbre y gente de razón: Las identidades étnicas en México” [People of Custom and People of Reason: Ethnic Identities in Mexico] (Siglo XXI Editores, S.A. de C.V., 1997).

food security given the prevalence of maize as a staple food in their daily diet.

The History of the Otomí People in Querétaro

The first records of Otomí populations in Querétaro suggest that, around the sixteenth century, several communities from the Mexico State and Hidalgo began settling in the region, mostly in the current municipalities of Amealco and Tolimán.⁹ The National Institute of Indigenous Languages (INALI, by its acronym in Spanish) has identified nine variants of the Otomí language across the country, although the population in Amealco speaks the variant known as “northwestern lowland Otomí,” or *Hñāñho*.¹⁰ The word *Otomí* comes from *Náhuatl* — language inherited from pre-Hispanic Mexico which, according to several researchers, comes from the word *totómitl* (bird hunter).¹¹ However, the Otomí-speaking people of Amealco prefer to be recognized as the *Hñāñho* people and speakers, because they do not recognize the imposition of *Náhuatl* as a valid name for their cultural heritage.



Note: The Lele doll is originally from the municipality of Amealco and was recognized as the state of Querétaro’s cultural patrimony in 2018. Her name means “baby,” in the Otomí language, and she is known for her long braids, multicoloured ribbon crown, and traditional dress. The doll is a product of thousands of women artisans’ efforts in Querétaro, and is also crafted in the State of Mexico, Hidalgo, and Veracruz. (“Lele, la muñeca artesanal mexicana que recorre el mundo” [Lele, the Globe-trotting Mexican Doll], Secretaría de Relaciones Exteriores, 27 January 2023) [↗](#)

Figure 2. Lele dolls handcrafted by artisans in Amealco

About Our Research

To understand the lived experiences of the Amealco community regarding food security and their responses to it, particularly through the lens of their perceptions, experiences, and cultural practices, we employed a qualitative methodology that includes a literature review, focus groups, and participant observation. A key component of this approach was active participation in the *Feria del Maíz* (Maize Fair),

9 R. López Ugalde, “La Diversidad Étnica en el Querétaro Actual: Una Mirada Desde Sus Comunidades Indígenas” [Ethnic Diversity in Current Querétaro: A View from Its Indigenous Communities], in *Culturas de Querétaro a Través del Tiempo* [Cultures of Querétaro Through Time], edited by María Christina Quintanar Miranda (Fondo Editorial Universidad Autónoma de Querétaro, 2022), 151–66.

10 *Catálogo de las Lenguas Indígenas Nacionales* [Catalog of National Indigenous Languages], INALI. [↗](#)

11 Jiménez Moreno, “Origen y significación del nombre ‘otomí’” [Origin and meaning of the name “Otomí”], *Revista Mexicana de Estudios Antropológicos* 3, no. 1 (1939): 62–68.



Figure 3. Focus group session with the organizing committee of the Feria del Maíz and members of Grupo de Mujeres CASA Común Juntas Podemos; at right, a traditional *milpa* field

an event dedicated to promoting the exchange of native seeds, sharing knowledge about local agricultural practices and cuisine, and celebrating the community's culture. We also held a focus group in San Miguel Tlaxcaltepec, which included community leaders involved with the Feria del Maíz organizing committee and the women-centred group "Grupo de Mujeres CASA Común Juntas Podemos," whose leaders are deeply engaged with the community and committed to fostering positive change.

Amealco is a municipality in the state of Querétaro. In Mexico, a *municipality* refers to the political and administrative division of the territory inside a state. Each municipality has its own government with its elected authorities, located at the *cabecera*, the municipal seat. A municipality can contain several *localities* — every occupied territory with one or more inhabited housing units — that are named by law or custom.¹² The National Institute of Statistics and Geography (INEGI, by its acronym in Spanish)

classifies the localities by the number of people who live there: rural localities have fewer than 2,500 inhabitants, and urban localities have more than 2,500.¹³

Hard to Reach

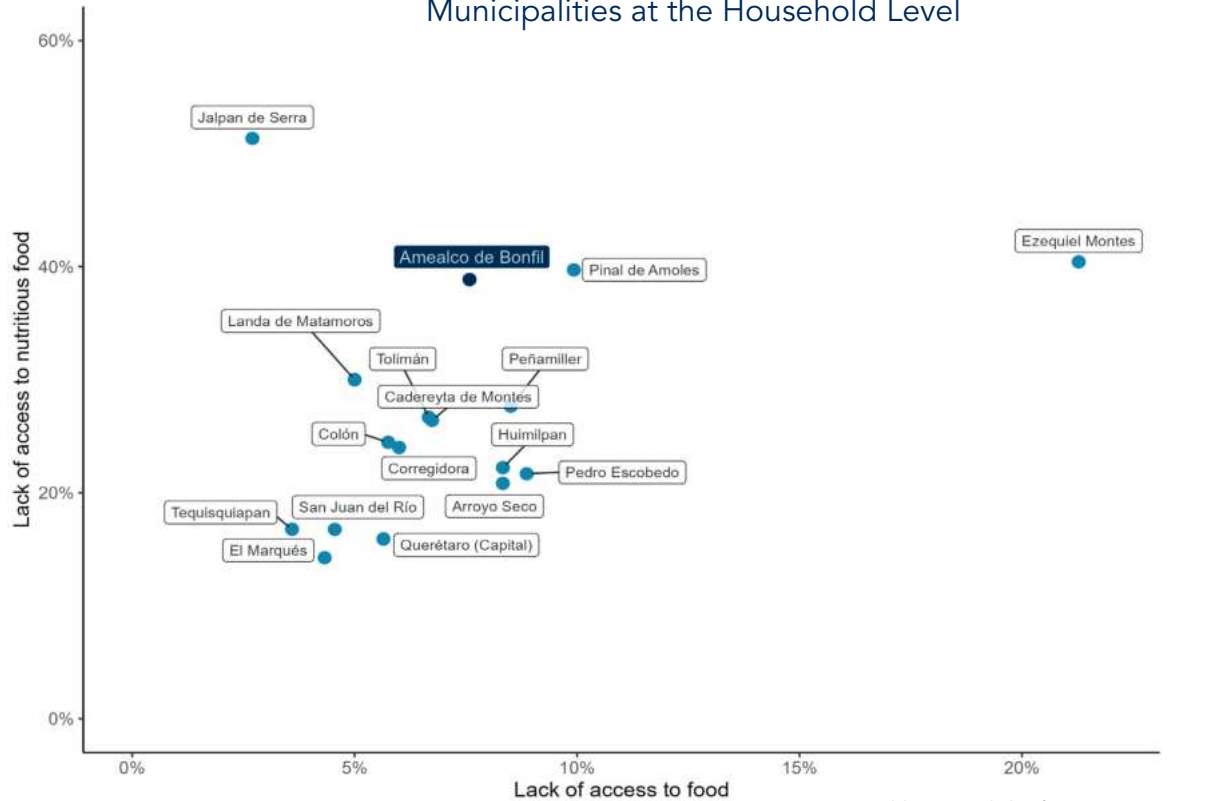
Amealco de Bonfil exemplifies the challenges that many rural, Indigenous communities in Mexico face. The community is both geographically distant from Querétaro's major cities and culturally distinct from the state's urban centres. In Mexico, rural areas with Indigenous populations experience greater lack of access to nutritious food and other social indicators of socioeconomic status (such as education, healthcare, income, and infrastructure) and are, overall, much more vulnerable to poverty. Nationwide, 69.5 per cent of the entire Indigenous population lives in poverty, while only 39 per cent of the non-Indigenous population does.¹⁴ This disparity

12 In short, municipalities (*municipios*) are territorial subdivisions of states, while localities (*localidades*) are smaller settlements, such as towns, villages, or communities, within the municipalities.

13 "Glossary of Terms," INEGI. [↗](#)

14 "Pobreza en la población Indígena" [Poverty in the Indigenous population], CONEVAL, 2019.

Amealco's Access to Food Compared with Other Municipalities at the Household Level



Our elaboration with data from ENIGH 2002 | INEGI
 Note: Axes adjusted for visualization

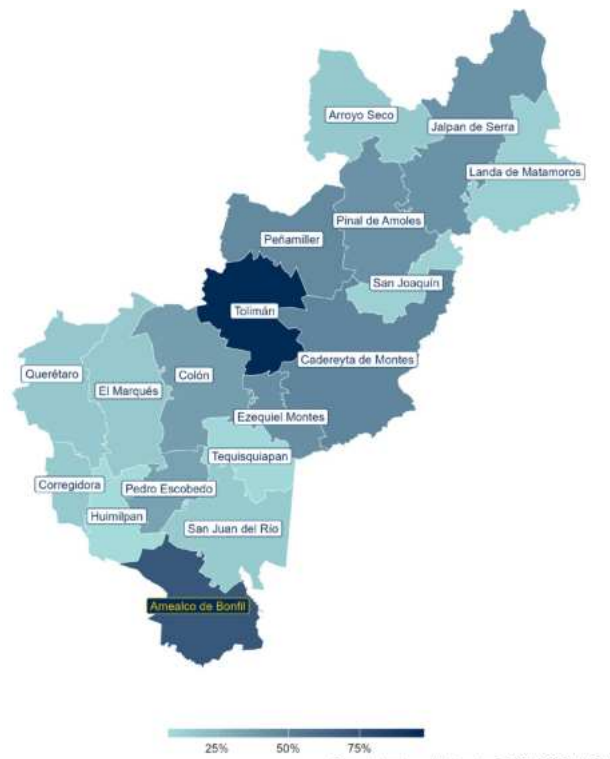


Figure 4. (Above) Amealco's access to food compared with other municipalities at the household level; (below) proportion of Indigenous population in 2022 in Querétaro, by municipality

persists in all levels of multidimensional poverty, ranging from income-based poverty to lack of access to fundamental social rights, and is prevalent in Amealco — where twice as many people lack access to nutritious food (38%) compared to the state of Querétaro as a whole (18%) and in Mexico (22.5%).¹⁵

Amealco's 153 localities, 151 of which are rural with populations under 2,500, reflect the spread-out nature of the region and the poor conditions of most of the roads connecting these areas. This isolation not only hinders trade and access to essential goods but also increases the community's dependency on the municipal seat, or *cabecera*, where the municipal government is located and which is typically a more urbanized area. Although the municipality is far from the state's major cities, with sporadic mobile phone and internet service, it has also a rich and complex culture different from other urban models.

Amealco also represents a "hard to reach" community because their unique cultural identity is not only disappearing but is also clashing with economic pressures to urbanize their way of living and their cultural values. This clash leads to adverse conditions for their fundamental food systems and livelihoods. In this sense, Amealco (and by association, similar communities) is a challenge for policymakers when they try to promote one-size-fits-all programs without eroding the population's native cultural identities and traditions, negatively affecting their livelihoods, targeting their rural-based needs, and gaining the concerned people's support for their initiatives.

There are 64 recognized Indigenous languages in Mexico. One of them, Otomí has nine variants, and Hñãñho is perhaps the rarest, spoken only in the municipality of Amealco. Therefore, even if public policies and government initiatives were to be designed with the Otomí people's culture and world view in mind, the singularity of Hñãñho (the language variation and the associated traditions) would pose additional challenges, making this population harder to reach. Successfully reaching this population would involve achieving a balance between urbanization and the preservation of their rare, endangered language, identity, and culture.

Measuring Food Security

While food has always of course been fundamental for the development of human communities, the idea of food security is a modern way to think of the relationships between communities and food systems. It began with a strong focus on the national and international food supply after the food crises of the 1970s and later focused on the perspective of a household's and an individual's access in the 1990s.¹⁶ Currently, there are many definitions but despite its multidisciplinary and multifaceted nature, the definition by the United Nations Food and Agriculture Organization (FAO) in the 1996 *Rome Declaration* remains the most widespread.¹⁷ Food security is "when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life."¹⁸

15 "Estadísticas de pobreza en Querétaro" [Poverty statistics in Querétaro], CONEVAL, 2020 [🔗](#); "Medición de pobreza 2022" [Poverty measurement 2022], CONEVAL. [🔗](#)

16 Simon Maxwell and Timothy Frankenberger, "Household Food Security: Concepts, Indicators, Measurements: A Technical Review," UNICEF, 1992. [🔗](#)

17 Andrew Jones, Francis Ngunjiri, Gretel Pelto, and Sera Young, "What Are We Assessing When We Measure Food Security? A Compendium and Review of Current Metrics," *Advances in Nutrition* 4, no. 5 (2013): 481–505.

18 "Rome Declaration on World Food Security," FAO, 1996. [🔗](#)



Figure 5. Dimensions of food security (based on the framework proposed by Clapp and colleagues)

For better application in policy, the FAO identified four pillars derived from this definition:

1. *Availability* is related to supply, and influences the level of food production, stock levels, and net trade.
2. *Access* extends from supply to consider the impact of resources that enable individuals to access food, mostly economic and physical factors such as income and social arrangements.
3. *Utilization* refers to proper care and feeding practices, effective food preparation, a varied diet, and fair distribution of food within the household.
4. *Stability* considers the assurance of availability, access, and utilization of food over time. There should not be a risk of losing access to food as a result of sudden shocks or unforeseen events.

Although these pillars are the most used in international policy frameworks, given the complexity of food security and the importance of factors such as cultural diversity, long-term impact considerations, and the climate tensions of recent decades, Clapp and colleagues have proposed extending the framework to six dimensions:

5. *Agency* is the ability of individuals and groups to influence their own situations and to contribute significantly to governance processes. It's particularly important for Indigenous communities' self-determination.
6. *Sustainability*, in contrast to stability, focuses on the interconnections between ecosystems, livelihoods, society, and political economy to sustain food systems and ensure long-term food security.¹⁹

In Mexico there is no formal and consistent way to measure food insecurity though various studies have tried. At the government level, the National Council for the Evaluation of Social Development

19 Jennifer Clapp et al, "The Case for a Six-dimensional Food Security Framework."

Policy (CONEVAL, by its acronym in Spanish), with its focus mainly on measuring food poverty, carried out a specific evaluation of food insecurity in 2010 with the objective of improving public policies related to the right to food and health.²⁰ The National Institute of Statistics and Geography (INEGI), which is responsible for carrying out national surveys, considers dietary aspects in its National Survey of Household Income and Expenses.

Some of the main causes of food insecurity in Mexican households include living in rural areas, having low income, the presence of children, and speaking an Indigenous language, characteristics that are typical of various locations in the country. Added to this, a notable discrepancy has been identified between the challenges and urgent needs of Mexican communities and how those responsible for formulating policies in charge of food security programs see these needs.²¹ This lack of attention to local needs and vulnerability to food insecurity in communities with similar characteristics highlights the importance of understanding the direct experience of households in municipalities such as Amealco.

Multidimensional Food Security in Amealco

Availability

Food availability in Amealco is shaped by the challenges of rural livelihoods, from unpredictable weather and seasonal patterns to the process of modernization. This modernization, while bringing some economic benefits, has also introduced vulnerabilities by disrupting traditional

food production methods. The community's preference for self-grown food is jeopardized by unsteady and insufficient production caused by weather changes and a lack of people dedicated to producing their own food. For example, rainy seasons make fruit (mainly apples, pears, and peaches) and native maize much more available, while droughts imply a stronger consumption of *nopales* (prickly pear) — with mushrooms appearing during both. The community can't depend fully on the availability of self-produced food for their consumption. This dependency on seasonal variations highlights a critical vulnerability in their food system.

Beyond the progressively worsening weather, the community has also been subjected to recent changes in the availability and variety of their local food supply, especially the loss of native seeds and animals for consumption. These losses indicate a significant decline in biodiversity, which not only affects the availability of food but also the cultural identity and heritage tied to these native species. About three decades ago, the people of Amealco's diet also included deer, armadillo, and *madroños* (strawberry tree fruits), among other native species, which can no longer be found in the region. Their hunting traditions have also died out. Currently, the community is struggling to find rabbits, squirrels, skunks, honey, *escamoles* (ants' larvae), and maguey worms, which were also once very important in their diet. Weather and environmental changes, along with the use of harmful herbicides, have led to these local food items being extremely hard to find. This scarcity reflects a broader environmental degradation that could have long-term consequences on the community's food sovereignty.

20 "Dimensiones de la seguridad alimentaria: Evaluación Estratégica de Nutrición y Abasto" [Dimensions of food security: Strategic Nutrition and Supply Assessment], CONEVAL, 2010. [↗](#)

21 Jennifer Coates, Edward A. Frongillo, Beatrice Lorge Rogers, et al., "Commonalities in the Experience of Household Food Insecurity across Cultures: What Are Measures Missing?" *Journal of Nutrition* 136, no. 5 (2006): 1438S–1448S. [↗](#)

Maize requires a predictable pattern of rain to grow, prompting many farmers to use hybrid seeds, which can resist drought and are said to be more productive, although they need large

This rejection of transgenic maize represents a deep mistrust in industrial agricultural practices and a desire to preserve traditional farming methods.

amounts of commercial fertilizers. This maize can be produced three or four times faster than native maize (*maíz criollo*), although people prefer the native one because it does not require as much fertilizer. Even though hybrid maize is accepted for consumption, there is a strong rejection of transgenic maize in the community because it is considered harmful for their health since it has been modified and has been harvested with significant amounts of herbicides. This rejection of transgenic maize represents a deep mistrust in industrial agricultural practices and a desire to preserve traditional farming methods. (There's currently no transgenic maize in Amealco.)

The process of urbanization and social modernization in the community has also resulted in the loss of the fields and *milpas* (a traditional polyculture system), as well as their agricultural practices and traditions. Young people tend to shy away from farming lifestyles and prefer factory work for its higher wages. The shift from agricultural practices to factory work reflects a broader economic transition. It has caused an important shift in the availability of food in Amealco. While, in the past, self-produced food was their main source of consumption, the community now depends on ultraprocessed foods

obtained from supermarkets and convenience stores in the *cabecera* because there's not enough food being grown in the municipality. There's not enough supply to satisfy the demand for self-produced food. The increasing reliance on ultraprocessed foods not only threatens people's physical health but also signifies a cultural shift away from traditional diets, which could have lasting impacts on the community's identity. And, if there are not enough people working in the *milpas* in the future, the local food supply chain that relies on this production may be at risk, raising food prices in the region and driving up the cost of living by increasing people's reliance on markets and retail stores.

Of course, not all rural communities' inhabitants rely on personal *milpas* and homegrown crops. According to community leaders, those who don't produce their own food acquire around 80 per cent of it from local *tianguis* (markets), which are hosted and supplied by neighbours who do grow and produce food and sell it to satisfy the community's demand.

While their various initiatives have aimed at improving and promoting agricultural production, residents point out that the most direct impact on food availability comes from programs implemented through local schools. This support has often materialized through the provision of school lunches and food baskets for the children's households. Government intervention can be helpful to preserve food security, but if it is not culturally adequate, it will not be sufficient to address the root causes of food insecurity, particularly if traditional agricultural practices continue to decline.

MILPA

In Mexico, *milpa* (from the *Náhuatl* word *milpan*: *milli* "sown plot [of land]" and *pan* "on top of") is the name given to the traditional agricultural system formed by a

“dynamic space of genetic resources” or a plot of land where many types of food are grown. Its main crop is maize, which is often accompanied by various species of beans, squash, chili peppers, tomatoes, and other regional crops. For example, the combination of maize, beans and squash is known as the “Mesoamerican Triad.”²²

Rural inhabitants of Mexico depend heavily on the *milpa* as a source of food. One interviewee told us “we must cultivate the *milpa* because the *milpa* saves lives.” Nevertheless, working the *milpa* is an arduous task, involving long sun exposure, hard manual labour, and frequent fertilizing and maintenance of the crops.

Access

Mrs. Iza, who sells food made with products from her own garden, shares with many residents of the municipality a deep appreciation for the *milpa*. She faced a period of intense food insecurity as a result of lacking financial resources to access products from local businesses. In this critical situation, she turned to growing her own food to feed her family. Her experience highlights the clear level of access that self-production provides to those who have a *milpa* at home. She says it herself: “the *milpa* saved my life.”

This appreciation for small farms is reflected in the shared preference of some community residents to consume foods whose origin they know well. This preference indicates a strong trust in local, self-produced food and a wariness of external sources, which may be perceived as less trustworthy or nutritious. For example, some people prefer to avoid tortillas from other places because “some of them don’t even know what they contain.” Limitations in the availability of food produced at home have led to bartering between community members to obtain food with clearly known origins. Bartering

also reinforces social bonds and trust among residents. However, bartering has not been formalized in the community and is seen as an occasional option.

Outside of self-produced food, local businesses offer additional food sources. One of these options are the *tianguis* or local markets, which typically operate one day a week in each locality. The community recognizes that availability of good-quality foods is low, but their price is affordable. In this sense, affordability plays a crucial role in maintaining food access for the community. Fixed food stores, such as greengrocers, have good availability and quality but are difficult to access due to their higher prices. The last alternative are the markets from the *cabecera*. Although there have been recent improvements on some roads, and not a significant increase in prices, they are still not considered an optimal food source because those goods are perceived as industrialized and therefore not healthy. So even an increase in physical access alone is not sufficient; perceptions of quality and nutrition heavily influence food choices, even when other options become available.

Utilization

For the community of Amealco, the concept of nutrition is not just about sustenance, but is deeply intertwined with their cultural identity and values. They believe that a good, healthy diet depends on knowing where the food comes from, reflecting a world view that prioritizes transparency and trust in food sources. The more transparent the food source, the more nutritious it is perceived to be, so people have a strong preference for local and traditional food practices as opposed to modern, industrialized food systems. This preference for locally grown food reveals a profound skepticism and concern for

22 “La milpa,” Biodiversidad Mexicana, CONABIO, 2015. [↗](#)



Figure 6. Left: a traditional milpa field; right: the research team

unknown additives or modifications that might compromise the purity and nutritional value of their diet.

Traditional cuisine and heritage play a significant role in their food choices and are integral to their sense of identity and community cohesion. Traditional recipes, crafted over generations with specific ingredient combinations, are highly valued for their nutritional benefits. While the legacy of these recipes remains strong, some Otomí beliefs (such as the classification of certain dishes and ingredients as being “hot” or “cold”) are no longer followed — indicating a gradual erosion of certain cultural practices while maintaining resilience in the core of their culinary heritage.

In Amealco, traditional recipes are also vessels of cultural memory and identity. However, the community is acutely aware of the profound cultural loss of their native language and traditional dish names — some recipes can no longer be revived. This cultural loss is significant, and the community is working to ensure new generations embrace their Indigenous identity, which includes preserving traditional dishes and native seeds. Such efforts to preserve traditions

are not merely about food — they’re about sustaining both a world view and a way of life that are under threat from external forces, including globalization and cultural assimilation.

Another significant issue regarding the community’s use of food is the clash between genetically modified (GM) corn and its native varieties, which is emblematic of a broader conflict between modern agricultural practices and more local and traditional methods. GM foods are seen as a threat, perceived as less nutritious than and even harmful to native crops. The community makes a clear distinction between GM foods, which are modified in a lab, and improved corn, which is naturally adapted to be more resilient. They prefer improved corn over GM corn, and deeply value their native corn for its cultural and agricultural significance because its seeds have long been adapted to the region’s soils.

Likewise, social food programs often face challenges in cultural appropriateness, leading to unintended consequences. One mother told us of an experience at her son’s kindergarten. A food assistance program recently included soy in their food packages and, while she recognized soy’s

nutritional value, it posed a problem because the community wasn't accustomed to eating it. This lack of cultural adaptation creates barriers to how the community uses the food provided to them, reflecting a disconnect between external aid programs and the community's cultural and dietary preferences and needs. It also suggests that government food programs have often struggled to be effective across different populations with diverse cultural contexts and needs, particularly when including unfamiliar foods or practices.

Stability

Seasonal cycles affect the availability and access of food, with the harvest of maize and mushrooms in September and October, *quelites* (greens) in the spring, and *nopales* all year round. During rainy seasons, different types of fruit (apples, pears, and peaches) are more prevalent while droughts lead to the food supply becoming scarcer. Consequently, the people of Amealco have adjusted their meals and recipes to account for the changes in food supply, but because of intense droughts in recent years, many food items have been harder to find. This has led to a decrease in the diversity of their diet, especially impacting some of the nutrient sources they rely on.



Figure 7. Local maize cobs in black and red varieties at the Feria del Maíz

Community leaders report that native maize's size has also been fluctuating, growing smaller and resembling the size of potatoes. People have resorted to buying maize from other local producers and even from outside sources. As maize is essential in their diet, this has led to important increases in their expenses.

While changing natural conditions for agricultural production are hindering the preservation and growth of native seeds and crops in Amealco, younger generations' disinterest in sowing the *milpa* also poses a threat to the stability of the community's food supply. Distinguished government initiatives like *Progres-a-Oportunidades-Prospera* (1997–2018), which conditioned cash transfers with school attendance and the use of health services, have unintentionally decimated large numbers of the countryside's workforce. By introducing young people to a more urban-focused way of life, it set modernization and improved quality of life against the preservation of cultural identity and traditional practices. Some community leaders explained how the ones currently working the *milpas* are older people — the youth tend to leave the municipality in search of better-paying jobs in the big cities and in the United States.

The stability of the local food system in Amealco is therefore at risk, along with their traditional agricultural techniques, native seeds, and rural heritage. The preservation of native seeds and the healthy growth of crops require specific techniques learned through the tradition and practice of sowing techniques within families and the community.

Of course, the use of farming technology is not entirely out of the picture but because most of the production is destined for self-consumption, there is no profit margin or motive to maintain and pay for the use of such technology. In addition, replacing the local workforce with technology affects the stability of homegrown producers. It shifts the source of supply to the

store markets, but it also increases the prices of products obtained in local markets and *tianguis* which are a cornerstone of the community's food supply chain.

Although a certain part of the population, mainly in rural communities, obtains most of their food through homegrown *milpas* and plantations, that is not the case for everyone. According to the participants from the focus group, those who don't rely on self-consumption acquire around 80 per cent of their food and products from local markets, which are hosted and provided by locals who grow and produce food for their own consumption and for their neighbours. If there are no people working in the fields, the local supply chain that relies on this production may be at risk, raising food prices in the region, driving up the cost of living, and increasing people's dependence on retail stores.

Sustainability

The community highly values taking care of their land — trying to keep it healthy and fertile — because they depend on it to produce their food. Since they focus on growing their own food, producing just enough to cover their needs, many residents told us that the amount of food waste they generate is minimal. Despite their care and love for their lands, their crops' health and persistence is threatened by climate change. Intense droughts have led to fewer people sowing their *milpas* and planting crops that won't be able to fully grow. According to

the community, these droughts have lasted for at least two years and, if they persist, they could lead to a shortage of some of the main food items in their diet, increasing their reliance on food brought from other parts of Mexico to the *cabecera*.

In addition to rejecting the consumption of transgenic maize, the community leaders of Amealco are concerned that it could affect local maize production due to maize's natural tendency to cross-pollinate with native varieties. While there is no evidence of transgenic maize in the region, only enhanced maize, it is still perceived as a potential threat to local agriculture.

Fulfilling present food needs without compromising those of future generations is meaningless if there's no labour force to keep sowing the fields — even if the climate conditions were stable and regular.

Considering the extensive effects of climate change and that droughts and other weather conditions don't affect just a single community, we can assume that Mexico's national food production system is, or will be, in danger.²³

Mexicans depend heavily on the countryside, whether they live in rural or urban areas, as a source of food (in addition to imports) but the countryside is dying.

Big enterprises working the community's lands are another source of concern regarding food production's sustainability, most notably, strawberry producers. By swindling locals into renting out their fields for extended periods of time at very low prices, large companies have devastated Amealco's fertile plots of land with herbicides that turn the soil barren and

23 Guillermo N. Murray-Tortarolo, Víctor J. Jaramillo, and John Larsen, "Food Security and Climate Change: The Case of Rainfed Maize Production in Mexico," *Agricultural and Forest Meteorology* 253 (2018): 124–31.

monoculture crops that destroy the soil's natural cycles and contribute to the extinction of the native seeds suited to the local climate and soil conditions. Community leaders also report that these producers monopolize the region's already insufficient water to irrigate their crops, leaving the local food producers without any. These conditions could also contribute to the recent disappearance of fruits and animals in the region that were once integral to local diets.

Finally, fulfilling present food needs without compromising those of future generations is meaningless if there's no labour force to keep sowing the fields — even if the climate conditions were stable and regular. In this sense, it doesn't matter how resource-responsible and environmentally friendly the community's traditional agricultural food-production practices are if they're not going to withstand the passage of time. As the local youth pursue other career plans and opportunities away from home, the community worries about the future of the *milpa* and the loss of associated agricultural practices, their local food system, and the disappearance of their Indigenous links to the land.

Agency

The community is fully aware of the needs and challenges they face regarding their food security. A fundamental characteristic of their agency is that the self-production models that make up their food system have turned them not only into consumers but also partially into producers. This increases their agency in overconsumption decisions and is reflected in their appreciation for the *milpa*. However, the impossibility of producing all their own food in the face of urbanization, the growing unreliability of the *milpa* due to climate tensions, the influence of nonlocalized public policies, and the factors contributing to food insecurity mentioned earlier create limits on their agency.

As consumers, community members selectively purchase their preferred food items. This practice is closely related to their ability to obtain information about the origin of the food they have access to. They make their decisions, as we mentioned before, based on their concepts of nutrition (natural, without any chemicals, and local) from *tianguis*, local markets, and small native producers. This agency is strongly rooted in a sense of community identity because they all consider themselves neighbours. People are familiar with each other's farming practices, which strengthens their confidence in the food's origin. These principles not only extend to cultivated products but also equally apply to meat and animal products — people avoid products treated with hormones or subjected to accelerated growth processes, aiming to keep their diet as "natural" as possible. But in addition to making purchases based on their idea of nutrition, they also practise selective purchasing to protect the community against threats to local production. They avoid purchasing from producers who use herbicides or pesticides in their *milpas* — which they know as *matahierbas* (weedkillers).

In the production realm, the *milpa* and self-production stand out as involving high levels of agency. However, the vulnerability in the sustainability of these farming systems puts the community's most valued food source at risk. Younger generations' perceived disinterest in agriculture reduces both the attention given to and the amount of work done on the *milpas* in the community. And climate trends and the use of fertilizers threaten this food source, diminishing the community's options and agency.

As recipients of public programs, the community's influence in decision making can also be seen in their resistance to government interventions in the municipality, most notably, in schools. Mothers refused to accept several instances of government aid and initiatives that didn't suit the perceived needs. For example, despite its



Figure 8. The centre of Amealco. Right: *Chacales*, a dessert made from maize and *milpa* products

high nutritional content, soy is not a culturally recognized item in Amealco's diet (or in most of Mexico), which is dominated by maize, beans, and other sources of protein. Eventually, the children's mothers contacted school authorities and regional program coordinators to request the removal of soy and the recovery of staple foods in the cafeterias.

Another instance of ineffective public policy and local decision making was the mothers' rejection of a government program that gave the children personal smartphones to improve their digital skills and overall education. According to the children's mothers, those resources would be better used in supplies such as notebooks and sufficient school infrastructure (including electric fans to fend off the heat) that would benefit their schooling.

This does not imply that the people of Amealco are against government intervention and disregard the need for public policy. Instead,

they seek policies that prioritize the preservation of the countryside and their cultural heritage. Community leaders shared how they want schools that cater to community-specific knowledge and bilingual education in Hñãñho, along with courses on using local produce in food preparation and the use of *milpa*. The community does not reject foreign intervention or modernity. While they are fearless defenders of their Hñãñho culture and lifestyle, they also promote intercultural learning and sharing knowledge by holding strategic alliances with academia, NGOs, the government, and other communities. Most of the community's efforts to preserve their heritage and their *milpa*-based local food system are channeled through social organizations usually concentrated within localities — as municipality-focused efforts are mainly directed at the urban composition of the *cabecera*.

Despite all the challenges and obstacles the people face, their community identity serves as another form of agency. Women are working

to restore love for the land and meeting the community's nutritional and educational needs, especially those of children. For instance, the organizing committee for the *Feria del Maíz* (Maize Fair) works each year to organize an event that has been held for the past ten years to promote the importance of maize. This community fair provides a space for dialogue, cooperation, and knowledge sharing regarding best practices for *milpa* cultivation, and the significance of their Hñãñho culture.

Agricultural engineers share effective and sustainable techniques with local producers, who are also invited to exchange native seeds, showcasing the colourful variety of Amealco's maize and other crops. The *Feria del Maíz*, filled with traditional dances, book presentations, video documentaries in Hñãñho with Spanish subtitles, and delicious food, has successfully increased regional awareness about preserving their *milpas* and cultural heritage. Their drive for cultural preservation stems from the unique knowledge and techniques embedded within their traditions and language. They believe that losing this would mean the loss of fundamental knowledge forever.

Although the committee was originally formed to organize the fair, it has evolved into a broader role. They meet weekly throughout the year to prepare for the fair while also working for the community, getting involved wherever they can. They regularly collaborate with students from the local *Universidad Autónoma de Querétaro* and with groups such as "Casa Común de Mujeres Juntas Podemos," a women's group that fosters nutrition and food-based knowledge in the region. Through projects like crop-cultivation workshops in schools, the promotion of Indigenous documentaries, and the creation of a community library, the committee promotes the use of the *milpa* for self-production of food, sustainable farming, and quality education

tailored to the community's specific needs and world view.

They have also established a community museum, and participated in and promoted reading clubs, Hñãñho classes, food and knowledge exchanges, reforestation campaigns, and much more. They envision a future where Amealco is a reforested, maize-centred, and bilingual community where young people work alongside the elderly. Their plans include establishing a seed bank and incorporating technology and modernity without displacing their traditions or culture. The community fosters participation and inspires both locals and newcomers who came to Amealco to make their home. For example, Erica, who was not raised in Amealco, shared her experience, which encapsulates the environment that motivates both locals and people from outside the community, to engage in these community efforts: "Maize saved me. I came from the city, learned a lot here, and decided to participate. It changed my view of food and community. We need to take care of the main seed, our people. I am a daughter of maize."

Amealco's leaders believe that public funds allocated to ineffective and unnecessary initiatives could be better used to address the priority needs they have identified so they reject public policies that don't benefit the community. The community is aware of the challenges they face regarding their food systems and nutrition, but they are equally aware that there is much they can do about it.



Figure 9. (Left) A decorative “carpet” made of maize grains depicting a maize leaf (a traditional motif of fairs); and the Feria del Maíz poster (on the right)

Women-centred Leadership

Women lead most of the community initiatives relating to the preservation of the Hñāñho cultural identity and food security in Amealco, participating in the *Feria del Maíz’s* organizer committee, agronomic technical schools, and influencing their children’s schooling by encouraging the learning of their native language and teaching workshops on growing food in *milpas*.

Lessons Learned

The assurance of food security in Amealco is not merely a practical concern, but a condition necessary for preserving the community’s identity and values, since their culture is embedded in the foods they consume. It’s at risk from various factors that threaten different dimensions of the food system, going beyond just the availability of food. The land’s importance to the community

is threatened by unpredictable weather, shifting cultural values among young people, and policies that increasingly distance them from traditional agricultural practices. This not only affects the availability, stability, and sustainability of traditional food production, but also represents a broader cultural disconnection from the land, which has historically been at the heart of Amealco’s social and economic life.

The sustainability of the entire food system is particularly at risk due to crops’ vulnerability to climate change, the decline of the young workforce in agriculture, and the use of harmful agricultural practices, such as monocultures and the use of herbicides, which degrade the land and water resources. These threaten the very foundation of the community’s food system and, by extension, their cultural and economic independence.

There are also significant challenges such as the lack of cultural appropriateness in food

interventions with an absence of a locally adapted nutrition concept that is based on the community's deep value of clarity about food sourcing. These issues undermine the community's ability to fully utilize and access food in a way that aligns with their cultural practices. The community, aware of these problems, has demonstrated its agency and resilience through interventions such as the *Feria del Maíz* and resistance to inadequate public programs (like food baskets containing soy products). These actions are not just responses to immediate problems but are also expressions of the community's determination to preserve their food culture and autonomy in the face of external pressures.

The *milpa* is central to these efforts. A source of food, it is also a symbol of reliable access,

utilization through various traditional recipes, and agricultural sustainability. More than just an agricultural technique, *milpa* is a living embodiment of the community's connection to the land, their history, and their ongoing struggle to maintain food security in a changing world.

To address these challenges and secure a sustainable future, several recommendations should be considered.

- 1. Adapt public policies to the local context and identity.** Public policies must go beyond generic approaches and consider the rich cultural diversity across Mexican communities: one size does not fit all. In Amealco, the imposition of a uniform national identity threatens to erode its rich local Hñãño identity. It is crucial that these policies recognize the traditions, cultural conceptions,



Figure 10. Research team with interviewees in front of the community centre façade, featuring a mural that represents local traditions

and specific needs of the people of the region so that they can truly strengthen, rather than weaken, local cultures. This is not just about food but about the survival of cultural identity itself.

- 2. Promote non-urbanized modernization models for rural development.** Developing and fostering non-urbanized modernization models is fundamental for the advancement and growth of rural communities. Amealco's countryside is experiencing significant changes caused by urbanized modernization processes, which primarily result in new generations moving away from rural life and pursuing opportunities elsewhere. This shift alters the region's focus and threatens to diminish its cultural and economic value. While promoting forms of production and development that respect traditions is essential, it is equally important to provide access to education and decent work opportunities. Involving young people in rural activities through these approaches ensures that the vitality of the countryside is maintained, making it a sustainable source of food, culture, and livelihood for future generations.
- 3. Protect self-production through the milpa.** Self-production of food, especially through the *milpa*, is crucial for food security in Amealco. However, urbanization and climatic pressures, such as the reduction of water supply and growing spaces, and droughts, make this technique increasingly difficult. Protecting the *milpa* is not just about preserving an essential agricultural practice; it is about maintaining the community's food independence and its ability to sustain itself in the face of external pressures.
- 4. Recognize new conceptions of nutritious food.** In Amealco, the perception of what is nutritious is strongly influenced by the clarity about the food's source. Products whose

origins are known are considered healthier, so people prefer local foods and reject GMOs and industrialized products. Nutrition policies must respect and align with these perceptions and values, avoiding imposing foods that do not conform to local practices and beliefs.

- 5. Ensure the food system's sustainability.** The Amealco community perceives that its food system is at risk. Environmental pressures, such as prolonged droughts, and struggles with large corporations over resource ownership and care, along with cultural changes among young people, highlight the fragility of their food security. It is vital to develop strategies that protect systems against food insecurity, not just for the sake of sustenance but for the preservation of the community's way of life.
- 6. Empower the communities.** There are significant community efforts that seek to protect and empower residents. The *Feria del Maíz* is a clear example of how the community comes together to celebrate and strengthen their traditions in the face of external threats and the loss of customs. Supporting and expanding these initiatives — both acts of resistance and assertions of identity and agency — are essential to face the changes and threats to Amealco's food system.

Other Recommendations

The *feria* committee has talked about an initiative to conduct summer courses for kids about planting and harvesting to connect children with their roots and their traditions. Taking it a step further, these courses could be conducted weekly, or biweekly, depending on the committee's availability, so that everyone can access them, touching on different topics that are important for the community. For example, one week the course could be about making their

traditional dishes, while the next one could be about how to make their own harvest at home or learning Otomí. The *Feria del Maíz* touches on these topics, but more frequent courses can also strengthen the sense of community in their continued efforts to learn more about their roots.

Since trade inside the community is a common practice, formalizing the trade of self-produced foods can be a way to foster local production and continue with a healthy diet of organic foods. Formalization could involve establishing a local market or cooperative where families can offer their self-produced products at fair prices.

In our interviews the community widely discussed young people's lack of interest in participating in fieldwork, and how it affects the community's sustainability. But the adults who participated on our focus groups didn't understand why young people weren't participating. Hearing from young people themselves could be helpful in solving this problem.

Finally, letting more people know about their love for the field and the work they do could be a way to attract more attention to the issues that affect their community. Whether it's through the community's activism, such as the *Feria del Maíz*, or with NGOs or local governments, their message could reach more people, and more communities that face the same problems. This way, local governments could have more incentives to invest in these communities in the long term.

Further Research

Additional research regarding food security in rural communities with Indigenous populations such as Amealco should focus on deepening understanding of younger generations' perspectives on changing values and the importance of agricultural traditions for them. Obtaining their views on the transition of rural to urban, and their relationship with their parents'

traditions, can offer valuable insights into local food systems' future sustainability.

Investigating the effectiveness of programs that incorporate local nutritional concepts can help tailor public policies and interventions to be more culturally appropriate and impactful, ensuring they resonate with and benefit the specific cultural contexts of communities like Amealco. For instance, understanding how traditional diets and local foods contribute to health can guide better nutritional support. Finally, because this study focused on the whole community, it is important to examine the household dynamics within the context of food insecurity. In particular, researching the impact on women and children can highlight the specific challenges these groups face. It's important to explore how food access varies within families and between different social spheres, ensuring that interventions address the needs of the most vulnerable.



Figure 11. A road winding through fields in the countryside of Amealco

Research Team



Nadia Lozano is a seventh-semester student of economics and international relations at Tecnológico de Monterrey. She is currently working as an intern with the education trade team at the British Embassy in Mexico City, where she supports efforts to expand the presence and growth of British companies in Mexico. Her primary area of interest is international economic development, inspired by a passion for global cooperation and its potential to drive social change.

"My experience with the Reach Alliance and the community of Amealco taught me that behind every statistic on food insecurity there are real people facing challenges, each with their own unique story. The most valuable lesson I learned is that research is not an end in itself but a tool to drive change in people's lives. I am deeply grateful for the opportunity to be part of this program and to share the story of Amealco's community with the world."



Valentina Muhlia Gutiérrez is a BA student pursuing a double degree in economics and international relations at Tecnológico de Monterrey with experience as a youth delegate for the Embassy of Canada and as an intern at the US Commercial Service in Mexico City. She served as president of the Economics Students' Society at Campus Santa Fe and worked as a research assistant at the Centre for Studies in Sustainability and Social Innovation in Argentina — conducting research on deglobalization and entrepreneurship as a tool for workforce integration. She is passionate about the intersection between sustainable development and economics.

"This project has been an invaluable experience for me, deepening my understanding of both my country's cultural heritage and the challenges faced by its Indigenous people. It has taught me not only how to carry out meaningful research, but also how to listen, connect, and truly appreciate the stories and people I encountered along the way. I've gained beautiful memories and special friendships during my time as a Reach researcher, and I'm grateful for all that I've been able to learn."



Sergio A. Iglesias Ramírez is pursuing a double degree in government and public transformation, and economics at Tecnológico de Monterrey. His strong passion for social justice and the democratization of knowledge has led him to actively participate in programs that promote social welfare. His main interests are gender perspective initiatives for men and masculinity, the fight against racism and colourism, and the vegan anti-speciesist cause. Sergio is the founder of "Reconstrucción," a men-centred gender perspective group to collectively reflect on and fight patriarchy and its effects on daily life. He participates in multiple contests focused on public policy, research papers, and essays, applying his data science, research, and statistics skills.

"I now understand that the mission of the Reach Alliance is not only to bring important stuff to everyone, everywhere, nor only to make policy and research accessible to the hardest-to-reach communities. It is also to transform the researcher, making us aware of our responsibility and impact. Through this experience, I have discovered a deep passion for research and developed a meaningful connection with the community in Amealco — one I am eager to strengthen further. I have now come to appreciate the responsibility and dedication that come with the privilege of conducting research and being part of the Reach international community."



Jose Ilyan Valdivia Rivera is pursuing a double degree in international relations and government and public transformation at Tecnológico de Monterrey. His academic interests lie in the integration of data science with social sciences and behavioural science to address complex global challenges. Last year he served as president of the Student Participation Committee, where he developed strategies for public engagement and democratic participation among students. He has also completed courses in leadership and received recognition for his commitment to leadership and social responsibility at his university.

“Amealco taught me that concepts such as food security are not just abstract ideas; they are deeply rooted in cultural identity and community resilience. The dedication and wisdom of those who protect the milpa embody an inspiring strength.”



Daniel Bernal Serrano is an academic physician specializing in health policy research. He coordinated the Health Policy Initiative at Tec de Monterrey School of Government and served as medical director at the National Centre for HIV/AIDS in Mexico. He holds an MD and an MA from Tec de Monterrey, an MSc from LSHTM and LSE, and is pursuing a PhD at LSHTM and SOAS on a Bloomsbury College’s scholarship. He continues to lecture at Tec de Monterrey.

“Mentoring the dedicated student researchers on the Amealco food insecurity project has been incredibly rewarding. The strong relationships they built with the community provided invaluable insights into how grassroots initiatives can effectively confront systemic health challenges posed by a flawed food system. Witnessing the students’ growth and their deep engagement with the community highlighted the power of collaborative, community-centred research in driving and amplifying meaningful change.”



Paola Abril Campos Rivera is a health policy research professor at Tecnológico de Monterrey, where she directs the Evidence and Action for Health Equity research centre. Her research focuses on health systems, policy implementation, and applied political analysis. Previously, she worked at the World Health Organization in Geneva and has also held positions in government in Mexico and worked for private foundations. Abril received her doctoral degree in public health from Harvard University.



Tecnológico de Monterrey (Tec de Monterrey) is a renowned private university in Mexico, known for its high academic standards, global perspective, and commitment to research and innovation. It offers a broad range of undergraduate, graduate, and continuing education programs. The institution emphasizes sustainability, human flourishing, and impactful research to address global challenges. With campuses across Mexico, Tec fosters a collaborative, inclusive learning environment, preparing students to be leaders in various fields. It is also part of several international academic networks.

<https://tec.mx/en>



The Center for Inclusive Growth advances equitable and sustainable economic growth and financial inclusion around the world. The Center leverages the company's core assets and competencies, including data insights, expertise, and technology, while administering the philanthropic Mastercard Impact Fund, to produce independent research, scale global programs, and empower a community of thinkers, leaders, and doers on the front lines of inclusive growth.

mastercardcenter.org



Published by the Reach Alliance, November 2024
Munk School of Global Affairs and Public Policy | University of Toronto

reachalliance.org |   @ReachAllianceTO  TheReachAlliance