

The background of the cover is a white collage of various seeds and beans. At the top left, there is a cluster of light green, elongated pumpkin seeds. Below them, in the center, are several red and yellow corn cobs. At the bottom right, there is a large group of various beans, including white, black, red, and speckled varieties. The title 'Chasing Milpa' is written vertically in a large, bold, black serif font, centered over the collage.

Chasing Milpa

THE ARCHITECTURE OF FOOD SOVEREIGNTY IN MEXICO CITY

Adriana David Ortiz Monasterio

Chasing Milpa

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Harvard Urban Mellon Initiative
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*“the availability of foods
has declined, so too have the
stories, language, cultural
practices, interpersonal
relationships, and outdoor
activities implicated in those
food systems.”*

Hoover, Elizabeth, “You Can’t Say You’re Sovereign if You
Can’t Feed Yourself”: Defining and Enacting Food Sovereignty
in American Indian Community Gardening,American Indian
Culture and Research Journal 41:3 (2017)

Contents

4

Food in the Valley of Mexico

7

On Food Sovereignty

8

“Hacer Milpa”

10

Food Supply Today

12

Conservation Areas

24

Conclusion

26

Notes

28

Appendices

Milpa from Nahuatl *milpan* ‘cultivated field’, *from milli* ‘sown parcel’ + *-pan* ‘over something’

The COVID-19 pandemic revealed a broken food supply system for Mexico City. We need to rethink the meaning of Food security for a city like Mexico City regarding land tenure, agro-industry, land care, distribution, marketing, and consumption. Feeding a city of 20 million inhabitants is a great challenge. Through an analysis of the corn supply chain today, this research seeks to reveal the discrepancies in the food system and speculate on new ways to approach healthy, sustainable, and dignified food for all actors in the supply chain. Reconnecting with the food that feeds us is an opportunity to reconnect with the natural world we inhabit. It is an opportunity to care for and maintain this land to preserve life on Earth. Food, as one of the primary intermediaries between human beings and nature, is the key to reconnecting with a more-than-human world in this Anthropocentric environment. Caring about our food means caring about this world and all living organisms that inhabit this territory in mutuality. Disconnection from the food that

sustains us equals disconnections from the natural world we inhabit. This project speculates on new ways of caring about our multispecies world through the passion for food and its sources.

Maize is one of the main sources of nutrients for early settlements in the world. Domesticated 8700 years ago in Mesoamerica from its wild species: teosinte, this crop has preserved its superiority over other crops until today. It's the species with the highest source of nutrients in America, and it is usually sown together with beans and squash. This triad is called Milpa, or Three Sisters for native American communities.

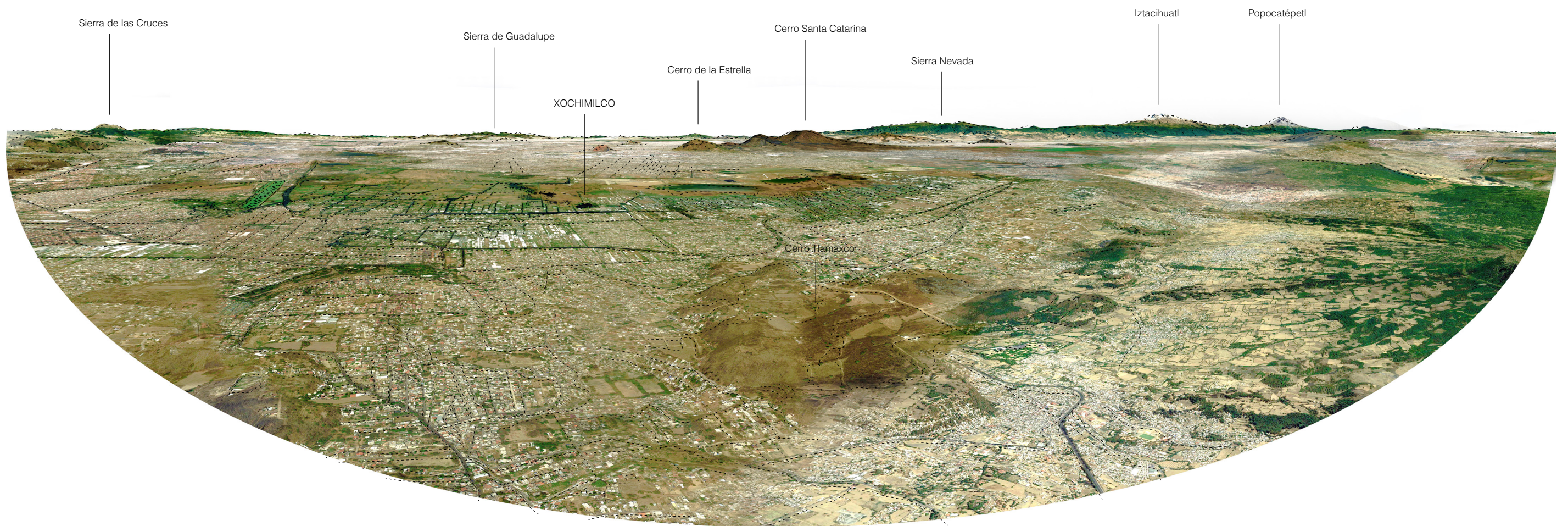
This project intends to look at the evolution of Milpa's supply chain for the Mexico City area, from pre-colonial times, until today.

As 10% of the global population is suffering food urgency today, tracing Mexico City's Milpa food chain could reveal the reasons for instability and allow us to speculate on an alternative relationship of care between human beings and food for future urban environments.

Food in Mexico City

“Mexico City's origins date back to the early 16th century. The Aztec capital of Tenochtitlan became the Spanish capital of New Spain in 1521 with the conquest of the Aztec empire. During the subsequent 300-year colonial period, Mexico City was the center of Spanish colonial socio-political and economic power and led a system of cities oriented towards mining and export to Spain. During the 1810-1821 War of Independence, large numbers joined the independence forces, diminishing the workforce available for agriculture, the mining industry and other activities in Mexico. Safety concerns during the conflict also generated migration flows from smaller urban centres to larger cities. In just one year, 1810-1811, the population of Mexico City increased from 150,000 to 170,000. Although the hegemony of Mexico City has always been a typical feature of the urban history of the country, it was not until the middle of the 19th century that the city assumed a fundamental role in national demographic and urban dynamics. “

G. Capron, Salomón González Arellano, The Urban Food System of Mexico City, Mexico, Hungry Cities Report no.7, 2017



Food in the valley of Mexico



Tlatelolco Market, Diego Rivera

Mexico City is located in the Trans-Mexican Volcanic Belt which traverses the Mexican territory from East to West, approximately 1000 kilometers long. These active volcanic formations were generated by the subduction of the Rivera and Cocos plates beneath the North American Plate. Also known as the Sierra Nevada, this mountain range is the home of the Valley of Mexico. Surrounded by various mountains and volcanoes, including the Popocatepetl active volcano. The Basin of Mexico is formed by a lacustrine system of five different endorheic lakes, both fresh and saline, today almost extinct.

All around the lakes, many Mesoamerican cultures thrived. Located in strategic sites along the coast of the lake, these communities were able to profit from food from land and water in the surroundings. The water context allowed for great communication between boroughs by the use of small vessels.

The great Aztec city of Tenochtitlán was the biggest of all the establishments. Founded in the year 1325, By the year 1519, the city had a population of approximately 400,000 inhabitants. The actual territory of the city started from an island in the middle of Texcoco lake, expanding into the water

through a series of floating plots used for all kinds of activities, including agriculture.

80% of the food consumed in Tenochtitlán by the time the Spanish arrived, came from the different boroughs in the Valley of Mexico.

People in Tenochtitlán would maintain food security for the whole population through milpa products grown in the surroundings, mostly in the chinampas. They would satisfy their nutrient requirements both from the land and from water, through fish, plants, and different animals that surrounded the milpa

They would mostly grow the food they consumed, food in Tenochtitlán was grown for self-consumption. Only the surplus of this production would be exchanged in the markets, the Tlatelolco market being the biggest of them all.

Tlatelolco was the place where people from all the surrounding towns would arrive to sell and exchange goods. It was a social place of gatherings and negotiations, there were always judges and corn altars. To maintain peace and democracy for all transactions, nobody was allowed to sell outside the market.

When negotiating with food, most transactions were done by exchange, exchanging products

for another product. Food could not be supplied from very far, as the only means of transportation at that time were either canoes or tamemes, merchandise loaders. They used to move products by foot, so the maximum reach was around 25 km or a 2-day walk. Really, the most important mean of transportation in Tenochtitlán was by water, with canoes through the canals.

There were 200,000 vessels in the city. Each family had at least one canoe, this was 40 times more efficient than by land. The inhabitants of the lake shores had access to all the towns on the lake surroundings, thus there was a bigger agricultural diversity.



Tamemes, Florentino Codex

Even if in Tlatelolco one could also find very precious products, coming from afar, such as the Mayan Empire, these were supplied ought by Pochtecas, or merchants, who would charge cacao seeds or cotton textiles in exchange for these precious objects. Food was rarely supplied by Pochtecas, as it was not feasible to move food along very long distances.

Food was not considered a commodity in Tenochtitlán and the Tlatelolco market, Mexicas thought of food as a basic right, not as the possibility for market speculation.

Gradually, *tamemes* and canoes were replaced by muleteers who carried the products from Mexico City to the ports of departure to Spain. The export products were centralized in the warehouses of the city to then leave for Europe. As the Spanish settled in the city, the market of Tlatelolco soon shut down, Spanish started charging taxes for every grain, every product that arrived in the city, through storage units. People had to pay a fee to be able to sell their product in the city's Plaza Mayor. They would save grains to control prices during drought seasons. After many floods and droughts, markets spread around the city. By the end of the 16th century, the Valley of Mexico still continued to supply the capital with almost 100% of its corn. Markets started growing in the city, people would come to sell their products through the city canals. By the mid 19th century, with the arrival of trains and telegraphs, products in Mexico City were more and more diverse. Markets flourished and there was not enough space for sellers in the city center. In 1863 Benito Juárez assigned the Merced convent to relocate all sellers.

By the end of the century, President Porfirio Díaz had more than 9 new markets built in the city, but Merced maintained its glory. As it was next to the main canal and people from all over the surrounding towns of the lake kept coming in.

By 1957, there were 88 new markets in the city, and la Merced acquired the power of a wholesale market for Mexico City. The market that supplied

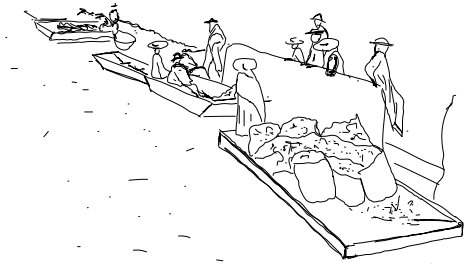
all the other tianguis of the City, became a space of cellar owners, receiving products every morning, by train, by river, by car, by public transportation. Products were then distributed to small retailers of each temporary market and then sold to consumers. In 1982, after heavy pressure from the warehousemen and the Federal Government, the Central de Abastos of Mexico City was inaugurated. The city center could no longer cope with the number of vehicles and products arriving in the city daily. The Central served to decongest the historic center. Today Mexico City is supplied with food from three main sources: Central de Abastos, the self-service stores that hold their distribution network, the alternative markets.

Mexico City has 9.209 million mouths to feed daily, this is without considering the almost 22 million inhabitants that make up the metropolitan area and come to work every day in the Mexico City area.

According to a study in the town of San Pedro el Alto, north of Mexico City, food security can be achieved with a 0.5-hectare of milpa, which includes corn, squash, beans, and all the other ingredients that are added depending on the bioclimatic zone (Ebel et al., 2017).

The Food and Agriculture Organization of the United Nations (FAO), since the World Food Summit (WFS) in 1996, states that Food Security “at the individual, household, national and global levels, is achieved when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and preferences for an active and healthy life”.

Tianguis from Nahuatl *tianquiztli*



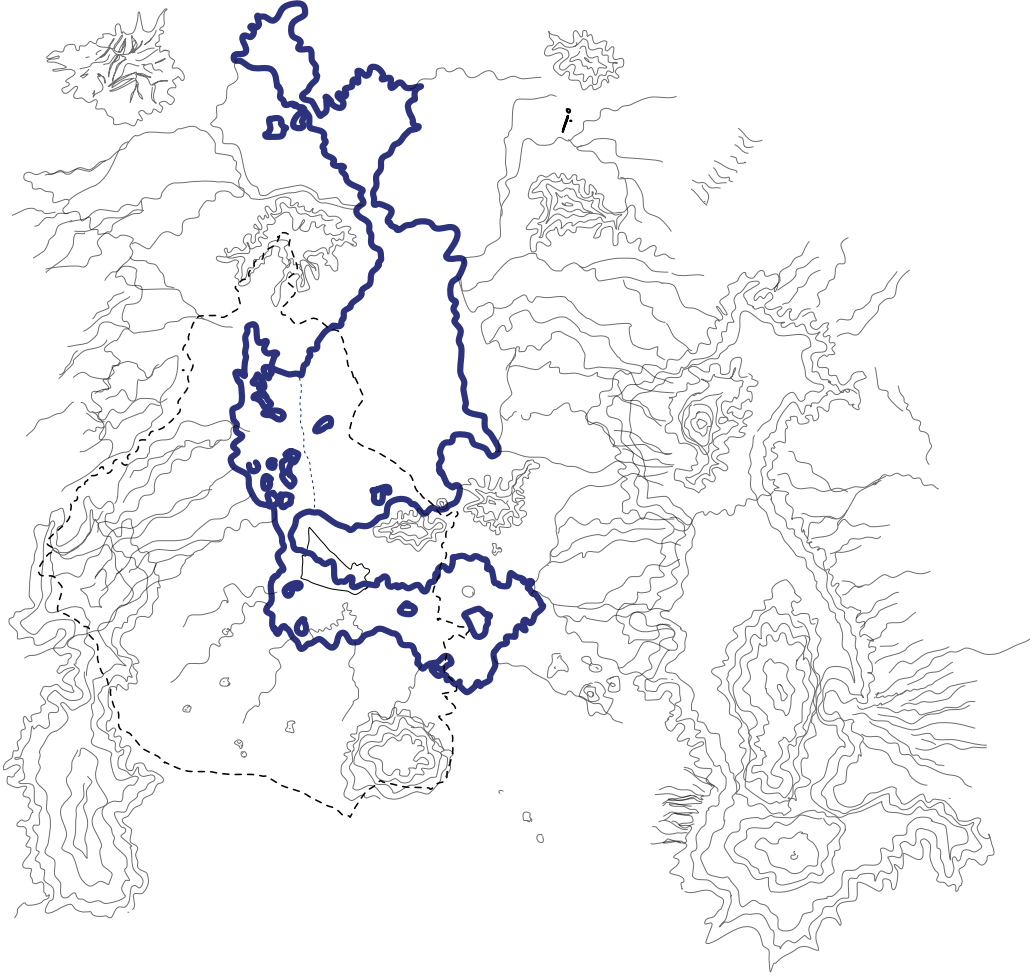
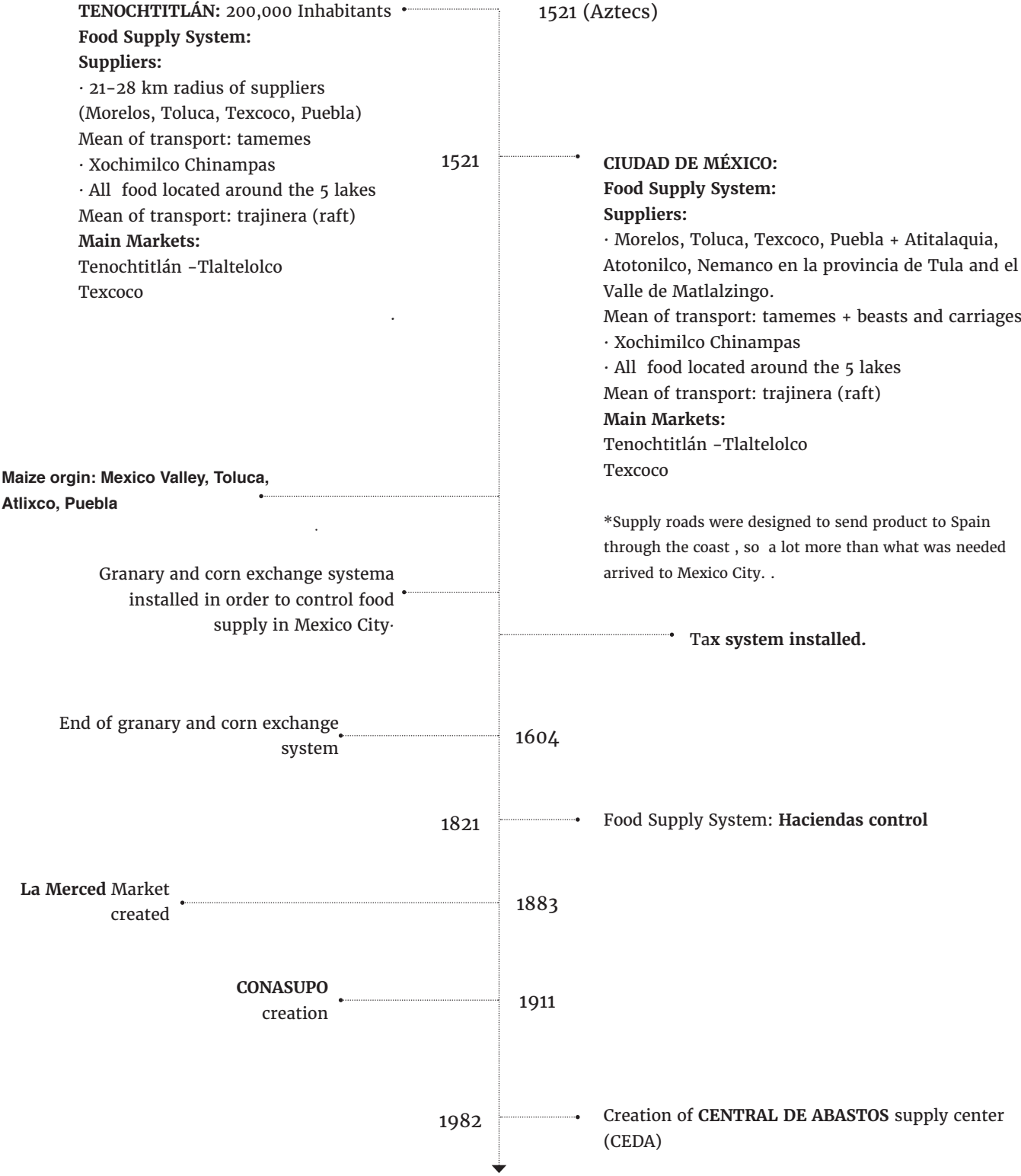
In this sense, a milpa area of 920,900 hectares would be required to attain food security for all 1,841,800 families in Mexico City, i.e. 6 times the total area of Mexico City, or 5% of the national agricultural territory.

Before the pandemic, 29.4% of Mexico City's population suffered some kind of food insecurity, and at the same time the city was wasting at least 561 tons of food daily, enough to feed 1.2 million people. This is a city holding 83,160 hectares of rural land or 56% of its territory.

In a time where relearning how to care for life on this planet is indispensable, growing and loving the food that nourishes is a crucial task. This research will trace the possibilities of reaching food sovereignty for Mexico City through the most beloved species of this territory: *Zea mays*, and all its companions. I hope that tracing the agroecological triad of Milpa will teach us ways to care about the food that is already part of our quotidian life. Perhaps to relearn is not the task, but to care about it, maintain it and praise it.

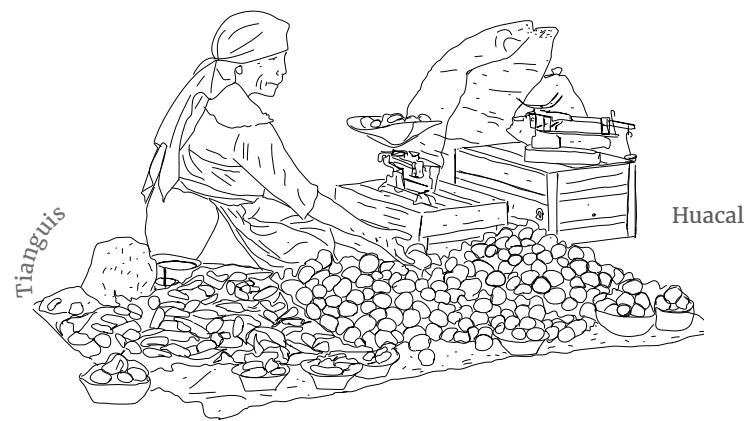


Juan Patricio Morlete (1769–1772) La Plaza del Volador a mediados del s. XVIII



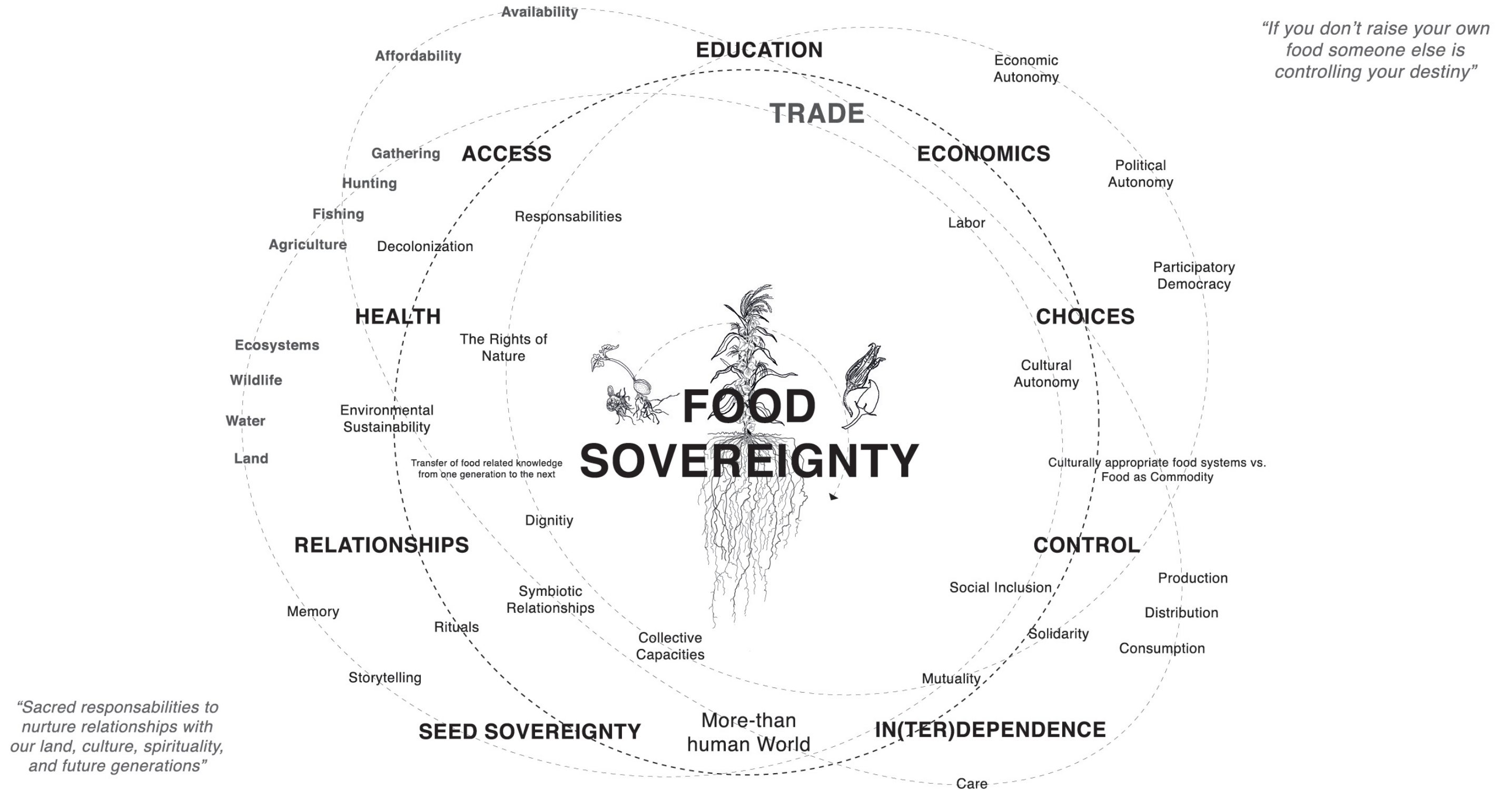
Mexico Basin

On Food Sovereignty



“Food sovereignty is the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems.”

“Declaration of Nyeleni,” February 2, 2007, Selingue, Mali.

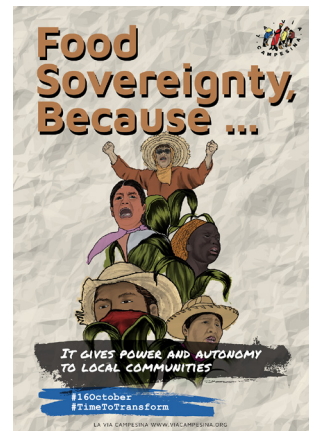


Hoover, Elizabeth, "You Can't Say You're Sovereign if You Can't Feed Yourself": Defining and Enacting Food Sovereignty in American Indian Community Gardening, American Indian Culture and Research Journal 41:3 (2017)

The concept of Food Sovereignty was presented in 1996 by La Via Campesina, an international group of peasant and small-scale farmers who aimed at defending their rights to land and seeds. This was a response to 30 years of empowerment of biotechnology and agribusinesses, that started during the Green Revolution, aiming to articulate a common response to neoliberalism and the dominant market economy

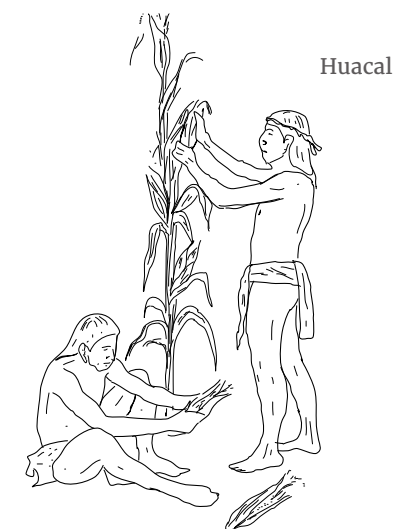
In 2007 the Forum for Food Sovereignty took place in Selingue, Mali, during which five hundred delegates from over eighty countries adopted the Declaration of Nyéléni. It includes:

1. the importance of putting food producers and consumers, rather than corporations, at the heart of food systems policies
2. the need to include the next generation in food production, as well as empowering food producers and artisans
3. the importance of environmental, social, and economic sustainability
4. the need for transparent trade, as well as equality between genders, racial groups and social classes.



This extreme control over plant genetic resources in the world has led to the rapid development of monoculture practices, drastically reducing agrobiodiversity and precipitating the loss of wildlife habitat and soil fertility, soil erosion, air, and water pollution, intensely decreasing quality of life for adjacent communities, accelerating climate change, as well as the appearance of “dead-zones” along our coast. In 2010, the UN Food and Agriculture Organization alerted that between 1900 and 2000, we lost 75% of crop diversity and that more will disappear in the following years . Environmental activist Vandana Shiva specifies that human beings switched from relying on 8,500 plant varieties to basically 8 commodity crops today . Environmental activist Vandana Shiva argues that seed patenting and labeling give too much power to big seed corporations and industrial agriculture, allowing them to control the market of living things, and ultimately dominating our food systems. Indeed, today only four companies control over 60% of the global seed market. Seeds, as the primary source of food on this planet, are close to being totally controlled by private companies, which would give them full authority on any decision related to our food systems for the future.

***Monsanto–Bayer,
Dow–DuPont,
ChemChina–Syngenta,
and BASF, today
control 60% of the
global seed sales, large
monoculture farms and
large agrochemical
companies.***



“Hacer Milpa”

UCIUR SA

“Indeterminacy, the unplanned nature of time, is terrifying, but thinking about precarity makes it clear that indeterminacy also makes life possible.”

Anna Tsing, Mushroom at the End of the World.

Seeds are a key example of this deep mutualism. Absolutely rooted in their territory, they are our messengers of the cooperative system. And it is up to us as part of the system to allow ourselves to be penetrated by them. Seeds are evidence of a constant adaptation of the plant they engender. They contain the genetic information from a past life to follow into the future; from a day of hail, from a rainy season, from a drought. Season after season plants adapt to changes in their

environment, recording them in the form of a time capsule to survive into the future. Seeds are part of a collaborative network much larger than their own being.

Some seeds, especially corn (*Zea mays*), exist because of their complete association with humans. Like wheat or rice, maize is one of the main sources of nutrients for the world’s earliest settlements. Adapted more than 3,000 years ago in Mesoamerica from its wild species, the teocintle,



this crop has retained its predominance over other crops even today. The teocintle, thanks to thousands of years of working together with humans, went from being a small grass to become a slender and strong plant that grows up to 5 meters tall and yields 3 or 4 large ears of corn, full of grains that will become the basis of the diet of large sedentary cultures of Mesoamerica. It is generally cultivated with two other companion species, beans and squash. This triad was called ‘milpa’ in Mesoamerica, or ‘three sisters’, or for the indigenous cultures of North America. It is a great example of mutualism between different living organisms.

Corn is the tallest and strongest plant in the triad and requires large amounts of nitrogen to grow. The bean plant grows a couple of weeks after the corn to allow the bean to climb around the corn and, through its roots, fix nitrogen in the soil facilitating the growth of its larger companion. At the same time, the squash, like the creeping species, covers the surrounding soil to protect it from erosion, pests or drought. The leaves act as mulch, keeping moisture in the soil and contributing to the survival of their companions. The collaborative network of a Milpa is only a partial idea of what this food web is all about. Thanks to Elaine Ingham’s description of the ‘soil food web’ (Soil Food Web7), we can understand the extraordinary interconnected world happening under our feet.

The ‘web’ describes the fundamental existence of some living things in the system, such as bacteria, protozoa, fungi, nematodes, arthropods, animals, and birds, each with a specific role in preserving

the life and balance of the whole structure. Likewise, it demonstrates how important both the upper and lower worlds are for the preservation of our food cycle, taking into account its life stage and also its death stage, as it transforms into organic matter and returns nutrients to the soil. Nutrients, necessary for the health and growth of the entire web, including plants, travel through every organism present below and above ground, from organic matter, through the different scales of disintegrators that consume, recycle and reintegrate them.

Maize, like wheat and rice, was adopted and adapted in specific places on planet Earth. Their isolated successes depended on the region’s soil type, climate, ecosystem, culture, and adaptation process. This is the kind of feminist objectivity that Haraway describes: location and situated knowledge are what make our vision objective, cooperative and ethical. Corn, in fact, is a very particular species of nature, since, in order to maintain its presence on Earth, it needs human energy for its adaptation and reproduction. The kernels on the cob are well attached to the ear and, for their dispersion, require human action to detach and replant them at the right time. The human being here has an important role in the network, but never more important than the other actors in the story.

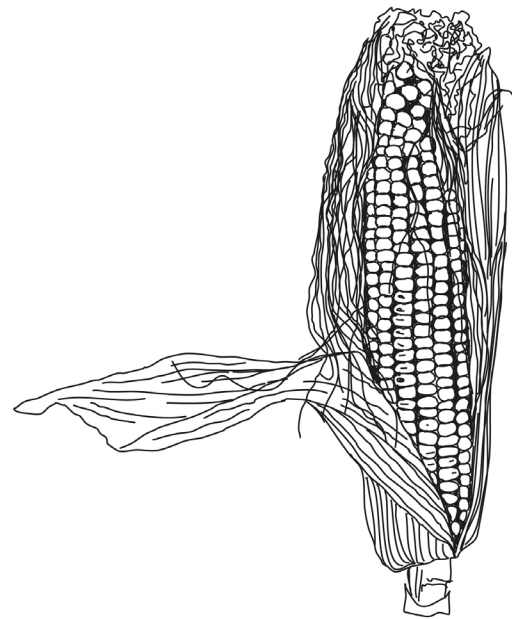


Uictli



To make milpa (“Hacer Milpa) is to activate an exchange of energies, rhythms, and extraordinary choreographies. The seed of each species that integrates this association of crops takes the energy of nutrients, water, and heat from the soil to begin its transformation process. As the cycles progress and the plant organisms continue to develop, the leaves take on a more important role in the story, as they capture energy from the air in the form of carbon dioxide and nitrogen, which is dissipated to their roots, back to the soil, and finally, some of it is returned to the atmosphere. Each species that make up a milpa follows its normal cycle of transformation, without ever disturbing the cycle of its partners in the network, including human beings. They are isolated but linked times, where each being cooperates in the present for the balance of the whole. In addition to the three main species of the milpa, each bioclimatic zone of the territory defines its own milpa with its own inhabitants, its own animals, and its own plants. The milpa can host up to 60 different edible species, such as quelites, chili, tomato, miltomato, jaltomate, or tejocote and white sapote in temperate zones, or nopal and

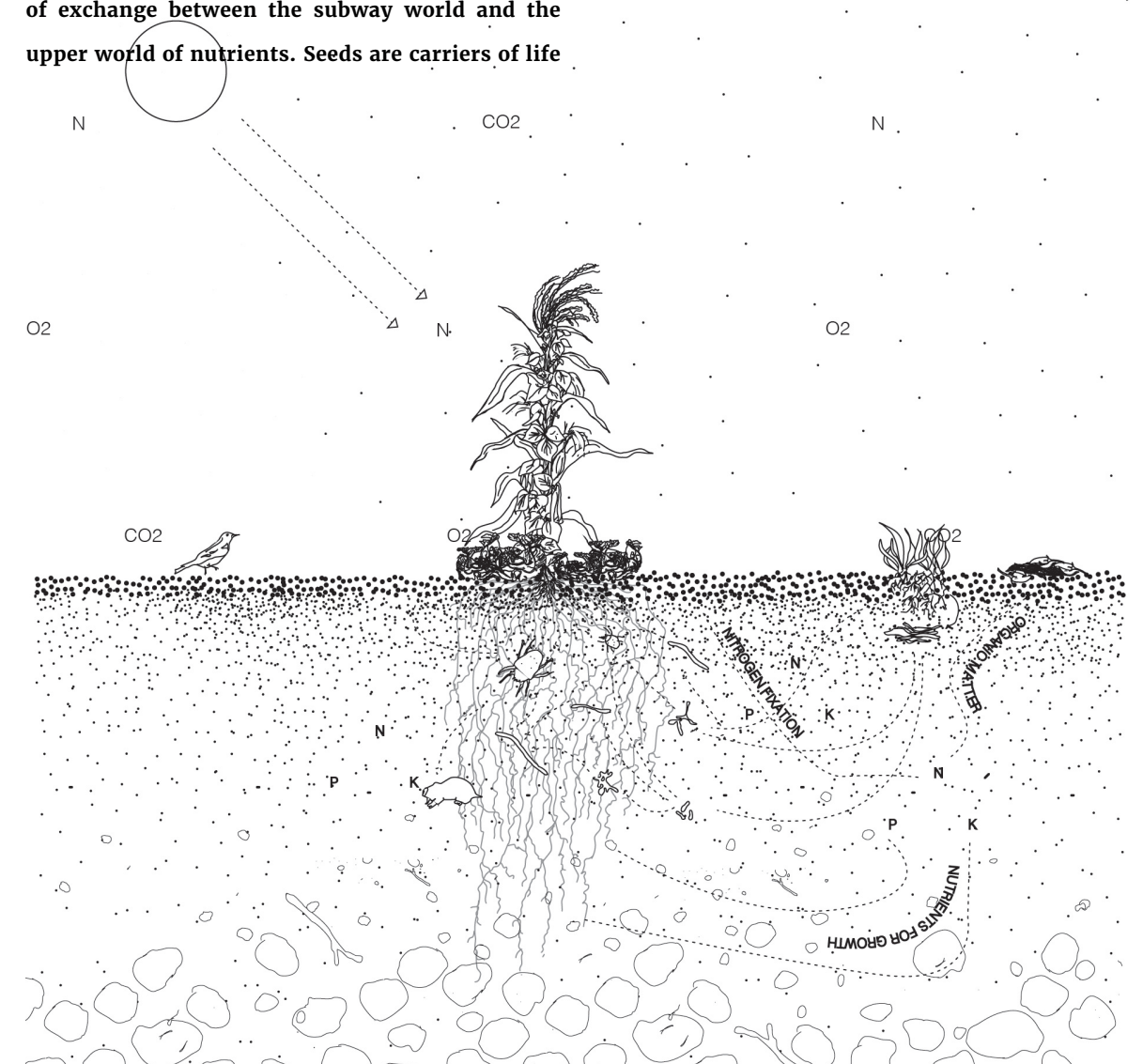
agave in arid zones. The milpa is a tremendously localized system whose balance promotes an immense agro-biodiversity. It allows a diverse and nutritious diet at all times of the year thanks to the different cycles it hosts. The milpa is, in fact, a great example of mutualism in this more-than-human world. It is a self-regulating natural organization that depends on human energy, without hierarchies, for its survival. This energy is an energy of body and mind, which penetrates both directions of collaboration; the human being, through long years, rather than domesticating the system, actually integrated into the network as a supportive and communitarian being. This being, sensitive to his inner and outer world, is a being who perceives and embodies the systems and thus, takes care of the localized balance, is a being who accepts other senses apart from vision, perceives the world through his whole body, smell, hearing, taste and also touch. This is how Maria Puig de la Bellacasa defines it in her book *Matters of Care*, suggesting that touch, as a sense of back and forth, gives us an opportunity to really maintain our networks through care and affection.



When the milpa cycle comes to an end, kernels begin to appear on the plant as a resilient strategy for the survival of the species. The corn begins to form seeds and concentrate its energy in the creation and dissipation of genes for future generations. This is the beginning of the death stage for the plant. The seeds contain the energy of the past and future locked in an incredibly strong container. When they are introduced into the soil, they release their stored energy into the soil in the form of roots that become agents of exchange between the subway world and the upper world of nutrients. Seeds are carriers of life

stories and resilience, they are the sensors that we must perceive, and also learn to translate the situated knowledge that they give us to relearn how to self-regulate democratically in this more than human world.

Making milpa is really a resilient act that protects us from exploitative agro-industries that destroy everything in their path, that through genetic transformation and the introduction of agro-toxins destroy soils, territories, flora, fauna, bodies of water, cultures, and even themselves.



Centli : Corncob

**Elote from Nahuatl
xilotl ‘baby corn cob’**

**Olote from Nahuatl
olotl ‘shelled ear of
corncob heart’**

Food Supply in

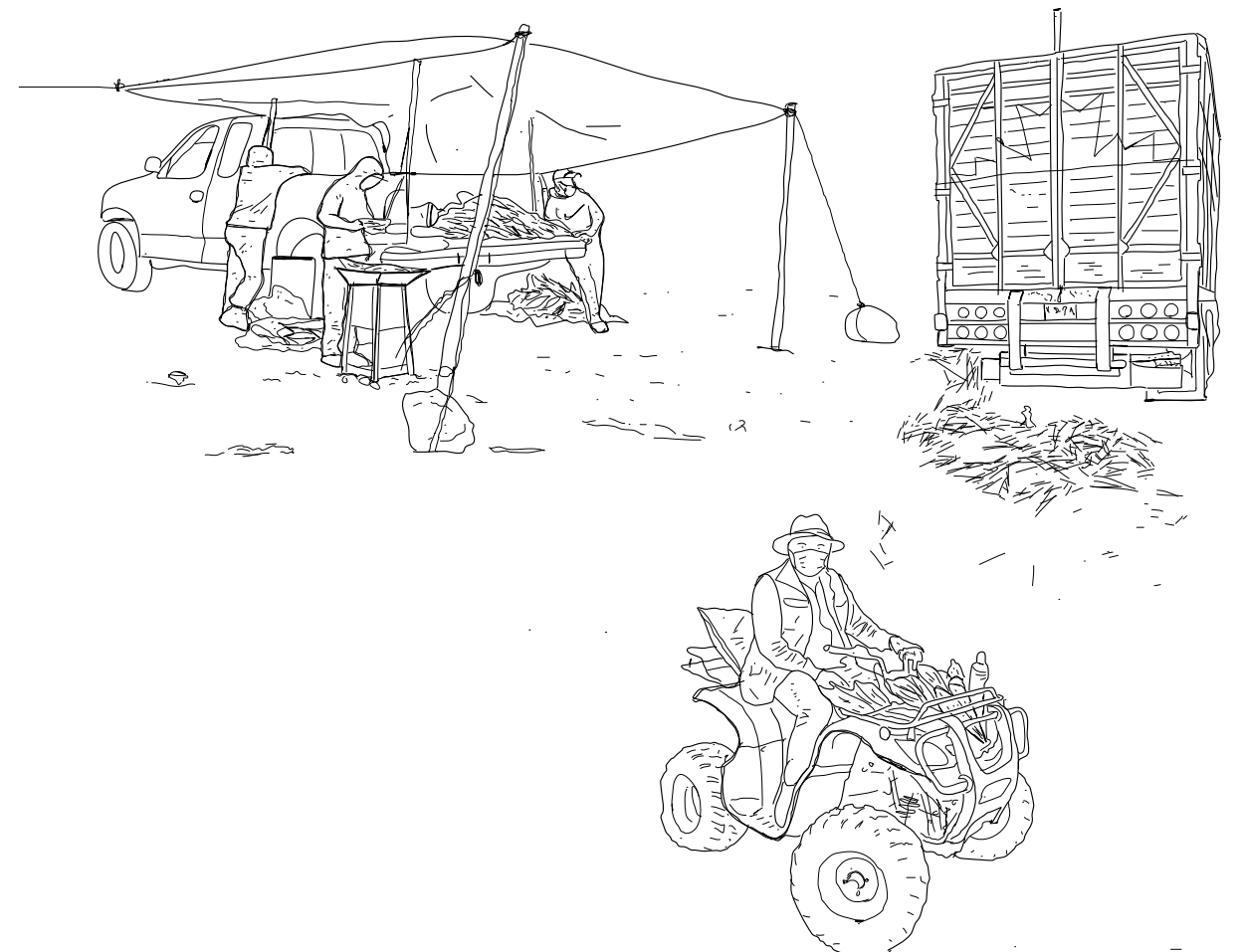
Mexico City

Today



Food supply in Mexico City today can be seen through three main actors: The central supply centers, especially the Central de Abastos de la Ciudad de México located in the Iztapalapa delegation; the modern commerce through the large self-service stores; and the few alternative markets of organic products.

Today Mexico City receives 30% of the production of the whole country.



METRO AREA POPULATION OF MEXICO CITY: 21,782,000

DAILY DEMAND:

200 TONS OF FISH AND SEAFOOD
13,000 TONS OF FRUITS AND VEGETABLES
3,000 TONS OF GROCERIES
2,600 HEAD OF CATTLE
7,000 PIGS
2,400 OVICAPRINES
> 300,000 BIRDS

30% OF THE COUNTRY'S TOTAL FOOD CONSUMPTION

32 STATES OF MEXICO PARTICIPATE IN AGRICULTURAL PRODUCTION FOR MEXICO CITY

PUBLIC MARKETS: 318

PERMANENT MARKETS: 156

TEMPORARY MARKETS OR TIANGUIS: 213

DEPARTMENT STORES: 461

SPECIALTY STORES:
3,598 CHICKEN AND BUTCHERIES
9,000 TORTILLERÍAS
1,200 BAKERIES

SMALL FAMILY BUSINESS (MISCELÁNEAS): 15,000



Central de Abastos

*Interview and tour with Juan Pablo Espejel, the coordinator of Planning and Development of the Fideicomiso de la Central de Abasto (Ceda). Hector, owner of banana warehouses in the state of Chiapas.

*Interview with Mr. Juan, an employee of the tomato stand at the Tuesday Market on Wheels in the Condesa neighborhood.

*Interview with Daniela, owner, and cook at Fonda Martina in the Miguel Hidalgo neighborhood.

With 327 hectares, the Central de Abasto receives 25 thousand tons of food daily. Enough volume to feed cities like Madrid or Berlin. It receives 75,000 vehicles daily, from trailers to small cabs for the purchase of housewives, 500,000 people a day. Nearly 15,000 drivers help to move the merchandise from side to side in the Central de Abastos.



Photography: Santiago Arau

The Central de Abastos is divided into eight different sectors, ranging from groceries and foodstuffs to the overnight stay area, passing through fruits and vegetables, empty containers (wooden, plastic and unicef crates), transfer warehouses (each with a refrigeration chamber), poultry and meat, flowers and vegetables, and the auction area.

Visitors will find 'groceries and food' in four halls (from A-B to G-H), which are made up of 384 warehouses and 330 stores (selling everything from dried chilies, grains, legumes, and sweets to cream and poultry products).

This is followed by 'fruits and vegetables, which has 1,934 warehouses and 1,222 stores distributed in eight warehouses. In this area, we are interested in aisle I-J, where butcher shops, poultry shops, creameries, and greengrocers reserved for small traders and housewives are located.

From K-L to W-X, sales are by the box, by the ton, by the agreed harvest or by the container.

The "flowers and vegetables" area has more than 700 stores, and the "poultry and meat" area has 111 warehouses.

From the Central de Abastos, almost all the retail outlets in the city are supplied, the 318 public markets, 158 fixed markets, and 213 markets on wheels or tianguis, in addition to the 9000 tortillerias, 1200 bakeries, and 3598 butcher shops.

Forty-nine percent of the corn is supplied to the Central de Abastos from seven main points in the country: Chiapas, Guerrero, Michoacán, Jalisco, Sinaloa, Morelos, Chihuahua and Tamaulipas.

13% of its food is re-exported to other cities in the interior of the country.

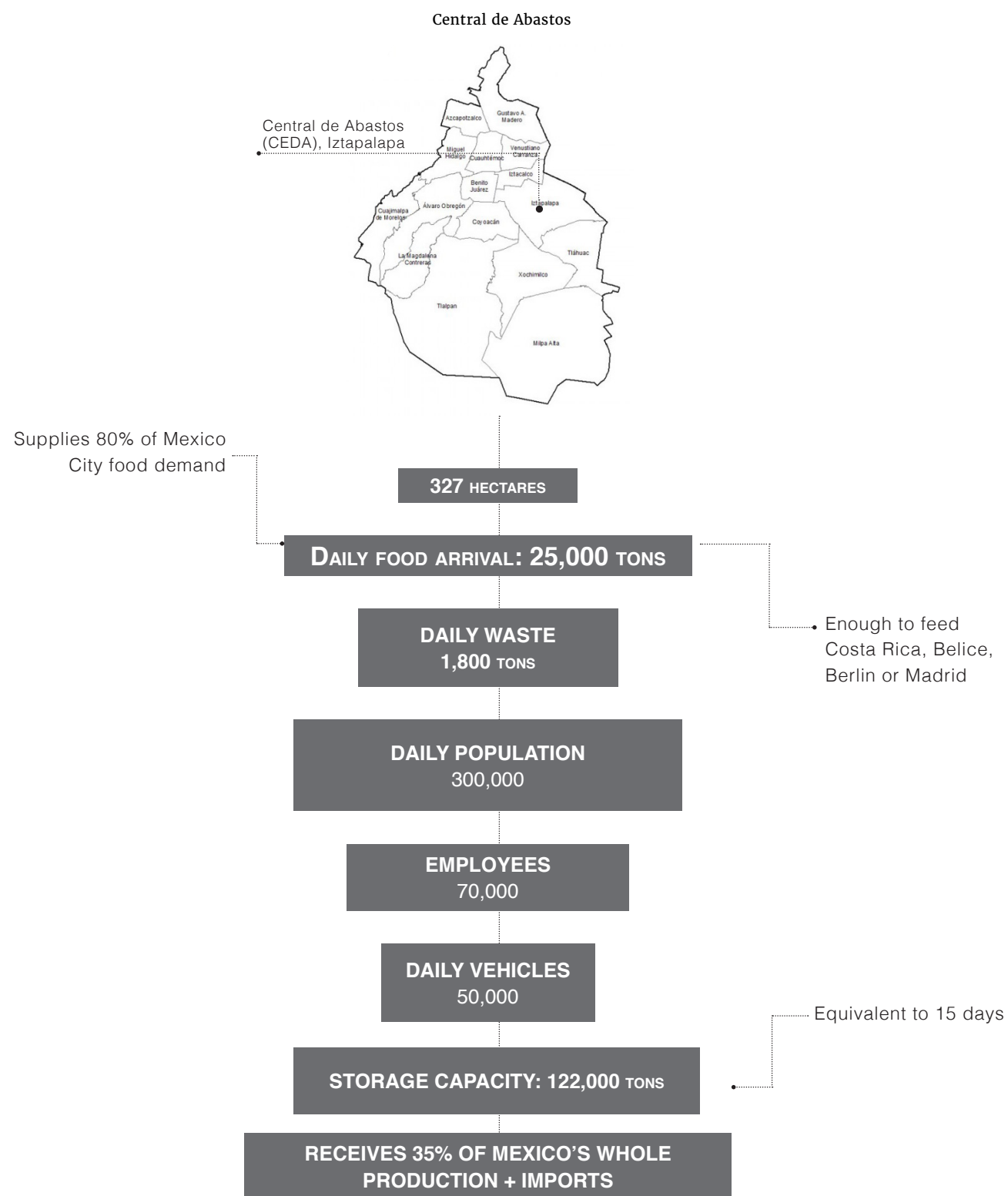
It has the capacity to store 120,000 tons of foodstuffs, while in Central de Abierta alone it has the capacity to store 120,000 tons.

while 561 tons of food are wasted daily in Central de Abasto alone.

As for the products of the cornfield, in the Central de Abasto, corn is mainly found in the form of corn or corn kernels, that is, tender corncob, flour for the dough and few grains for nixtamalization. Beans are found in the grains and seeds area because it is a dry product, and squash and corn are found in the vegetable area. The three products are completely isolated from each other, they come from different fields, different states, they are not planted together. As for the varieties of corn found, we were only able to find three varieties: white corn, cacahuacintle corn, and very little blue corn, sellers comment that it is almost not sold.



Huacal



MAIN AREAS

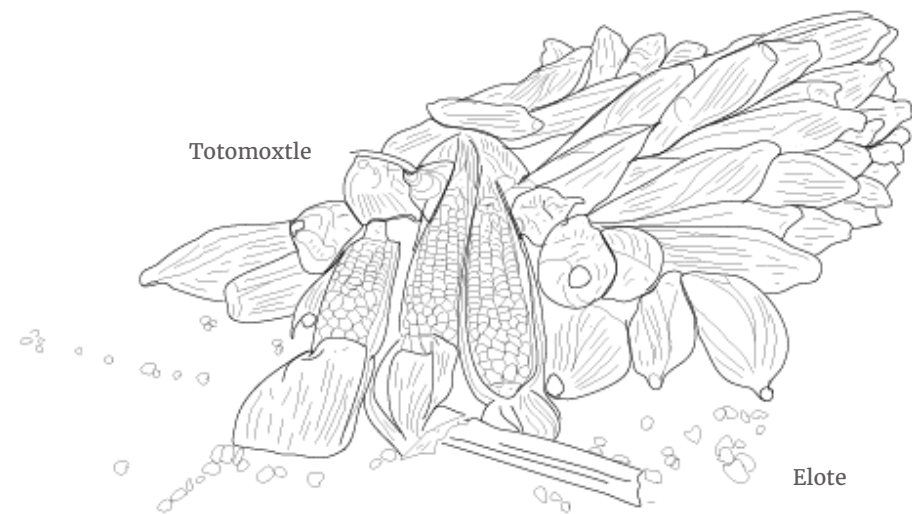
- 1· warehouses for storage, display and sale of fruit and vegetable products and groceries;
- 2· bays for wholesale marketing;
- 3· complementary services integrated by platforms for auction and farmers market, central warehouses and cold stores
- 4· administrative facilities and security, parking, circulation and reserve roads.





— Modern Commerce

Modern commerce in Mexico City is present mainly through large self-service stores such as Walmart. These stores offer alternative distribution and supply. These food companies prefer to have their own distribution centers called CEDIS, where they receive the food from a distributor who supplies it from the producer, often with safety certification. Supermarkets offer the consumer high-quality products at a better price in exchange for a loss of diversity and very punished prices to the producer. Small producers cannot meet the requirements of these large supermarkets because they do not have large production fields or the budget to transport the product or pay for the required certifications.



In Mexico City, modern commerce is focused on the high-income population, since it is located in more or less suburban areas, with the need for a private automobile to get there. The low-income population, due to their daily rather than monthly income lifestyle, do not have the resources to do their food shopping on a weekly or monthly basis, they prefer to buy products daily in markets on wheels or small neighborhood stores where the price of products is generally higher than in supermarkets.

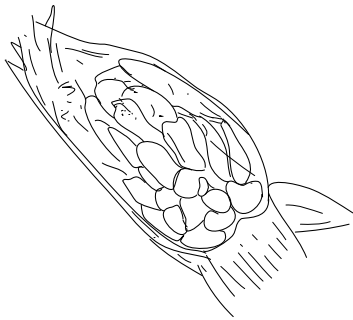
Modern commerce accounts for 45% of total retail sales in the metropolitan area, although it is estimated in the metropolitan area, although in Mexico City it is estimated to account for close to 70% of total retail sales. Mexico City is estimated to account for close to 70%. However, this percentage varies by social stratum. While the higher-income strata make 68% of their food purchases through this channel.

As for the diversity of milpa products, self-service stores offer very few varieties, generally only white corn or yellow corn, zucchini squash, and one or two varieties of beans.





— Alternative Markets



Cuitlacoche

**Interview and tour of the Foro Tianguis Alternativo in the Roma neighborhood with producer Tomás Villanueva.*

Unfortunately, in Mexico City, there are very few alternative markets with direct trade from the producer. There are approximately 5 established organic markets in the city and a few more occasions. The advantage of the alternative markets is that they offer products directly from the producer, without so many intermediaries that make the product more expensive and punish the payment to small producers.

During the pandemic, to avoid food waste, many alternative markets opted to offer baskets of products on online order, which guaranteed the sale of the harvested product and revealed an opportunity for a very resilient supply system.



In the case of milpa, there are few organic producers who make milpa for sale in the market. In the interview with Tomás Villanueva, an agroecological producer from Tepetlixpa, State of Mexico, he commented that growing milpa is hard work, requiring a lot of attention and maintenance for weeding, which is why he proposes an idea of agro-tourism, where those interested in reconnecting with their food can go to their fields and work the land themselves until the harvest.

The alternative market is an opportunity to get closer to the producer without intermediaries, create community, social exchanges, and understand the work of the land.



Tamales



Conservation

Areas



Mexico City is one of the few cities in the world that maintains such large conservation areas for groundwater recharge, biodiversity conservation, and soil and water retention.

It is 59% of the entire surface of the city, or 87,291 hectares, of which 83,160 are rural areas with agricultural activity, enough area to supply food for an entire city of 166,000 inhabitants.

These conservation areas are concentrated in 9 delegations of the city: Milpa Alta, Xochimilco, Tlalpan, Tláhuac, Cuajimalpa, Magdalena Contreras, Álvaro Obregon, Gustavo A. Madero and Iztapalapa. Although the delegations with the largest agricultural area are Milpa Alta, Xochimilco and Tláhuac. There are more than 7 bioclimatic zones in the territory of the basin and with it, 23 types of corn, which have adapted to climatic changes and have flourished to accommodate the biodiversity of each milpa.

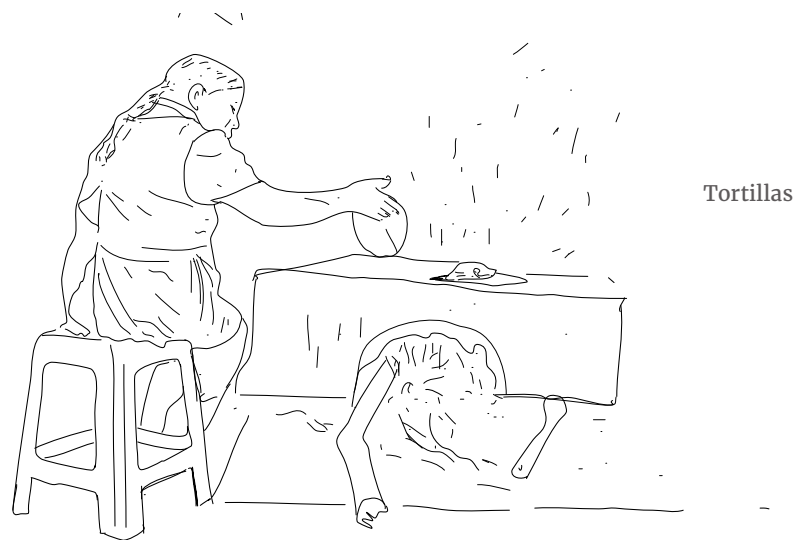
There are three main types of agricultural production in the MCMA: urban, suburban and peri-urban. Peri-urban agriculture is mainly practiced in the southwestern MCMA where 16,000 people are employed on 11,500 family farms (FAO 2014a). These farms produce maize, fruit, vegetables and animals for local consumption and sale. There is

also larger-scale production of nopal, amaranth, and vegetables for city markets. In 2012, the annual harvest included 336,000 tonnes of nopal, 147,000 tonnes of forage oats, 12,500 tonnes of potatoes and 15,000 tonnes of other vegetables and herbs. The crop was valued at USD100 million. The animal population is estimated at 7,000 head of cattle, 30,000 pigs, 10,000 sheep and 220,000 chickens (FAO 2014a).

According to 2017 data from Sederec, there are 2, 397 agricultural producers in the seven rural municipalities that are dedicated to planting corn -23 species, most are planted in Milpa Alta, such as blue, yellow, white cacahuacintle, citole, ancho, palomero, colorado, pozolero, blue with white, red and white creole corn, among others-, whose annual production is 5,400 tons, with an approximate value of 26.7 mdp.

I was able to interview producers and distributors in Milpa Alta and Xochimilco, which I will develop in the following lines.

“*Becoming is more beautiful than being*”
Paul Klee



Xochimilco

*Interview with Lucio Usobiaga, director of Arca Tierra, a project to rescue the chinampas of Xochimilco as a center of local agroecological production through agro-tourism and organic baskets.

Xochimilco area in Mexico City is the last remnant of what the great Aztec city of Tenochtitlán used to be. Today, as almost 100% of the lakes are desiccated, Xochimilco stands as a living example of the almost extinct islands. This area was in fact, part of the southern lake of Xochimilco, where the Xochimilca people developed the biggest and most efficient agricultural land of the Aztec Empire. It actually supplied 80% of the Tenochtitlán’s food requirements, a city of almost half a million people. These floating gardens are called chinampas, and still 2,215 hectares are in use for local food production today. As the city keeps growing, Xochimilco tries to fight back by entering diverse international certifications. Today, this area is included in the Ramsar Convention as a lacustrine wetland of international importance, decreed as a World Heritage Site by UNESCO and considered a Globally Important Agricultural Heritage System by FAO.

It was the main site for agriculture in the Basin during the 14th century. In Xochimilco, or Field of Flowers in Nahuatl, indigenous communities used to grow immense varieties of flowers, corn and vegetables. Together with the different types of vessels, this environment constituted a wonderful place to thrive in Prehispanic Mexico.

The construction techniques of the chinampas are in fact unique in the world. First, they would insert wooden poles into the ground, every 1.5 meters, long enough they could extend over the lake surface for 50 cm. They would then wrap the space with a reed mesh, or chinamitl in order to contain the soil. Then, they would take soil from the bottom of the lake, and stack it into different layers of organic soil and sludge until reached the desired height. Each layer is flattened on the terrain and left to dry for 2 weeks. Once it's ready, Ahuejote trees are planted every 40 steps along the periphery of the chinampa which also contributes to maintaining the stability of the soil. These floating gardens are usually 10 meters wide by 20 meters long with a separation of around 3 meters, which allows for the vessels to pass along the narrow canals, irrigate the crops if necessary and carry the produce directly from the field into the boat for faster transportation.

The combination of sludge from the swampy lake, which includes lacustrine and volcanic sediments like basalt and andesite, together with fresh water from the Xochimilco lake, and of course the perfectly stable climate of the place, together contributed to an amazingly efficient farming land, producing up to seven harvests per year, instead of the usual two. Xochimilco's chinampas design demonstrate how the addition of energies,

both human and non-human, contribute to an environmental equilibrium of the site.

Seeds hold the energy of the past and of the future together enclosed in an unbelievably strong container. When put into lacustrine sludge, they release their saved energy into the soil in the form of roots that become the agents of exchange between the underground and the upper worlds of nutrients.

These 12 x 20 m. rectangles, when analysed in plan, all follow a specific grid. That is rotated exactly 15.28° NE. Curiously enough, this orientation follows the one of an extremely important archeological site, 48 km north of Xochimilco, Teotihuacán. A city that existed since the first century after Crist, until it's mysterious collapse around the year 650 CE. Teotihuacán is constructed with two main monuments, the Sun Pyramid and the Moon Pyramid, connected by a 4 km long road called the Calzada de los Muertos. This road of the Death, just like the Xochimilco chinampas, is also oriented 15.28° NE and the sun sets exactly in front of the Sun Pyramid on two different days of the year, April 29th and August 13th. Same dates in which it is possible to observe Venus appearance in the sky as the morning star, and subsequently as the evening star.

Like for many cultures, Venus was a special star for Mesoamerican civilizations. It is the second planet closer to the Sun, after Mercury. Venus moves faster than Earth, it completes 13 turns in 8 Earth years. This is the cycle of Venus observed from Earth. For Venus, one orbit around the Sun equals 225 Earth days but only 260 days of being visible from this side. The same time span between august

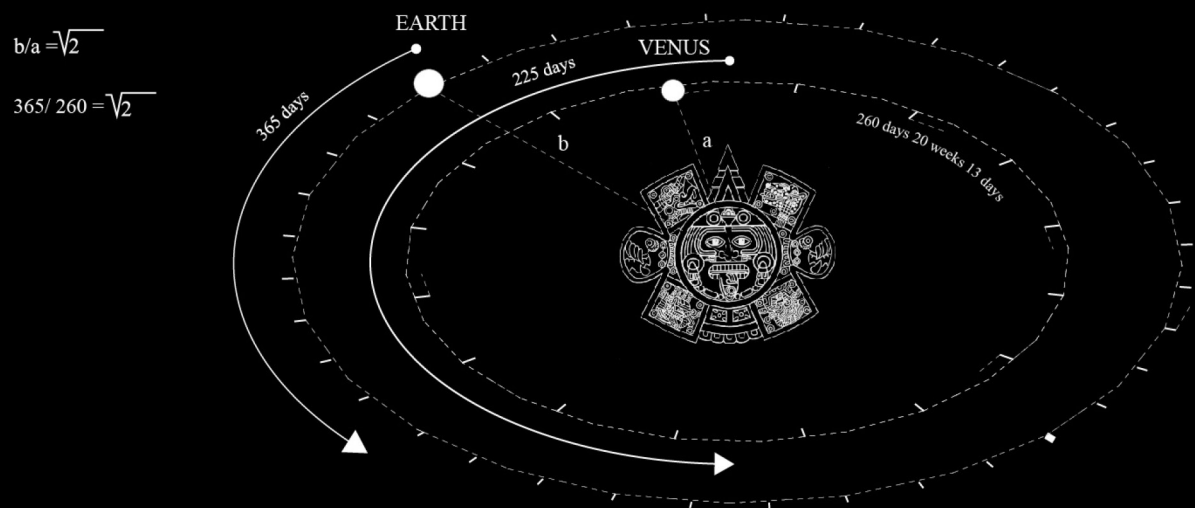
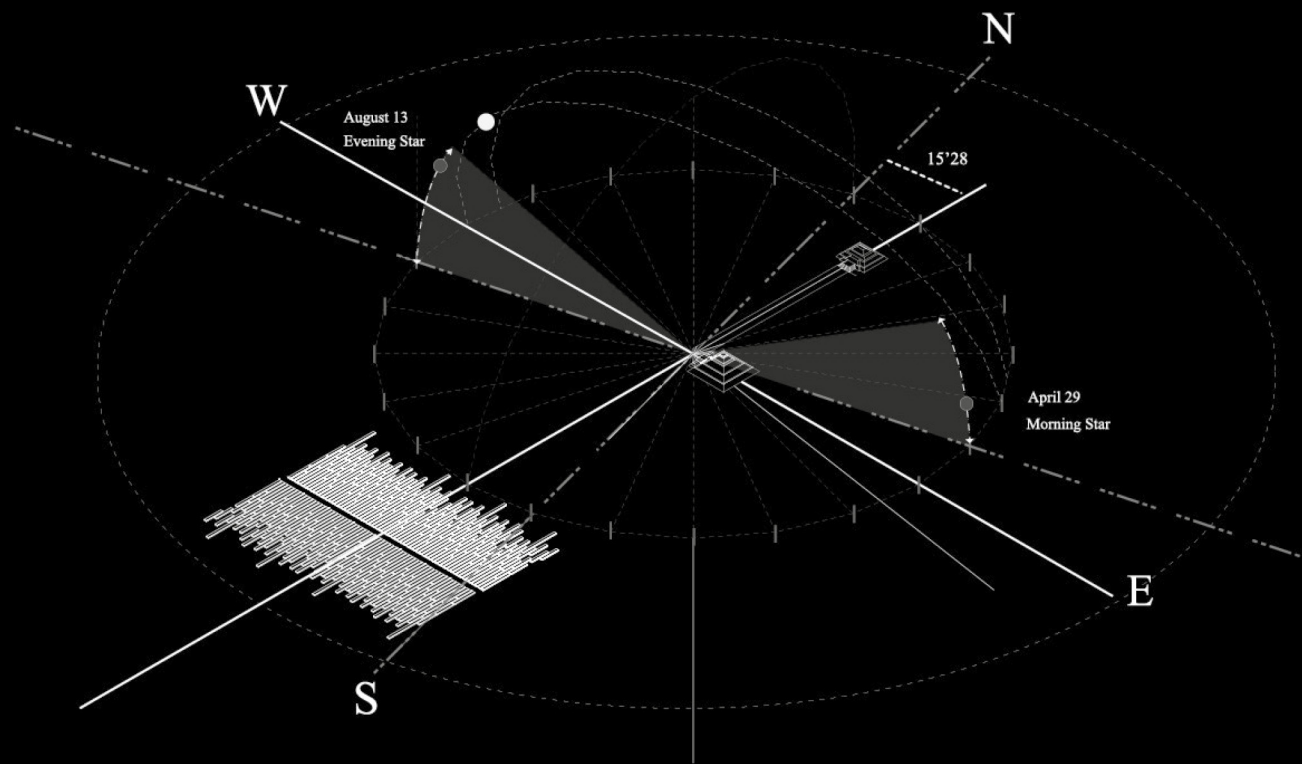
13th and April 29th. The ratio between 365 and 260 equals 1.42 or the square root of 2, and is in fact the same ratio between the external circle of the Aztec calendar and the internal one. Because as a matter of fact, Prehispanic cultures lived their lives with two different calendars, the solar, and the Synodic or agricultural calendar. They understood that life on Earth can contain different times and thus different cycles, living in mutuality in the same more than human land.

Teotihuacán people, as well as Xochimilcas and the whole Mesoamerican cultures, looked at the energies of the sky to measure time and energy on earth; because the appearance of Venus as the evening star in the sky is also the beginning of the rainy season in the Basin of Mexico, which was the queue for the people of the Valley to start planting the corn that fed them, and begin Milpa's cycle of growth. In this big network of overlapping

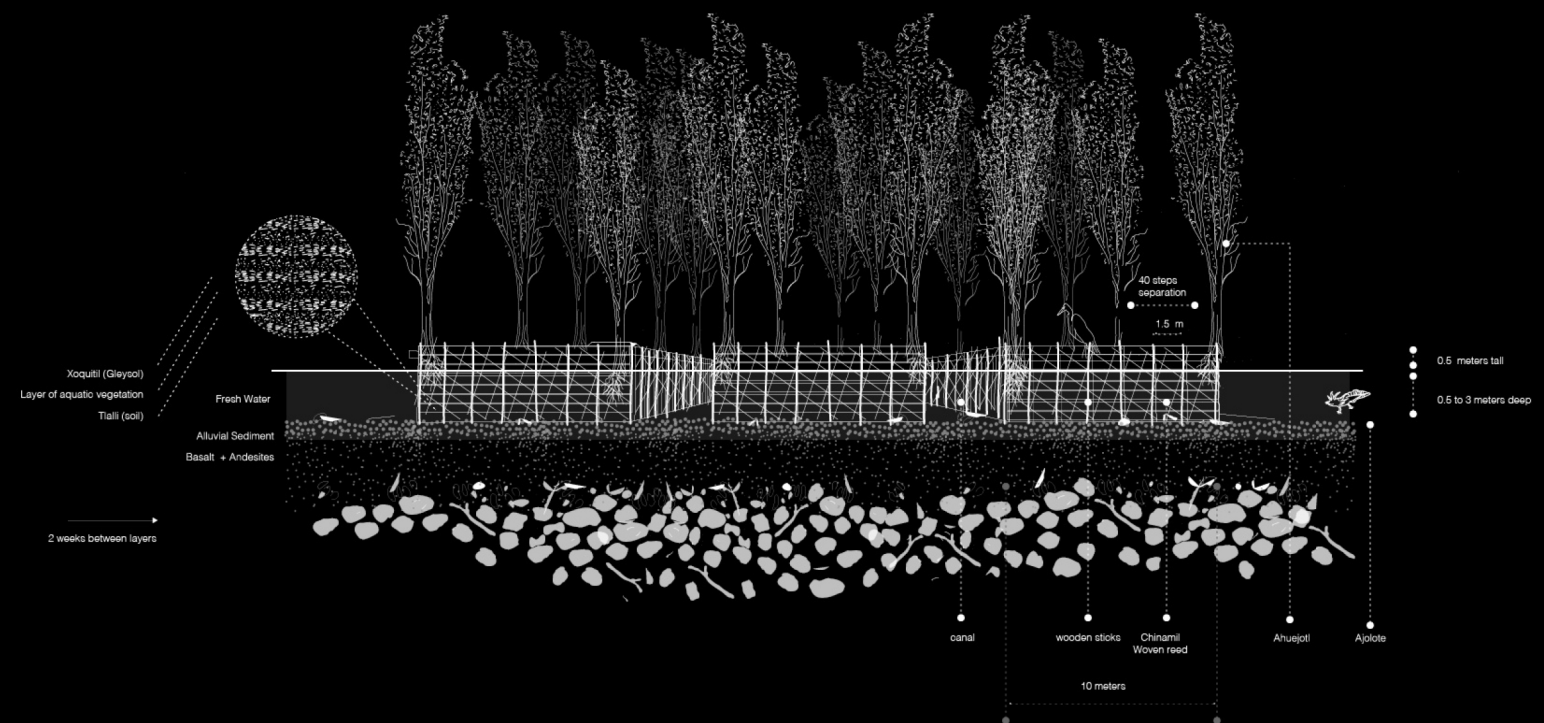
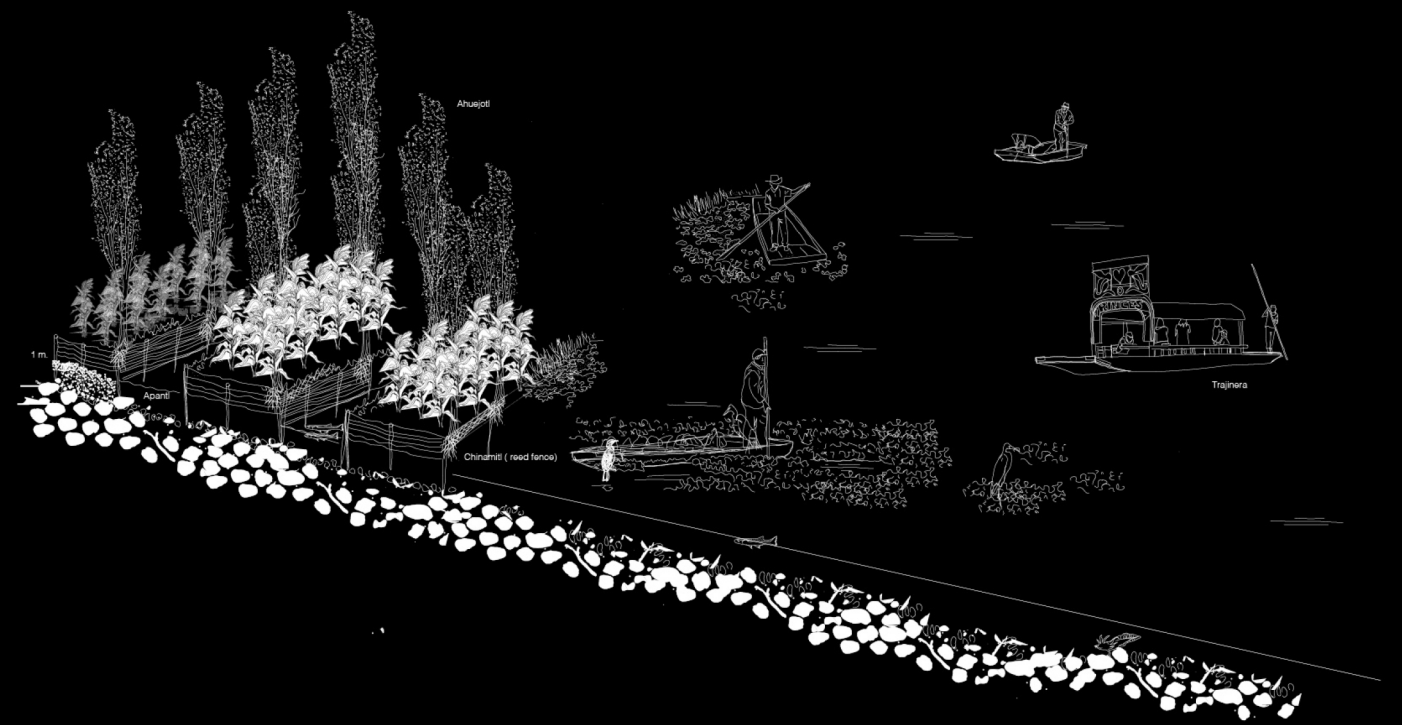
rhythms, sometimes coincide and some don't. But in the end, they all exist in the same space, with organisms and cycles, of various scales, that support each other to allow for the equilibrium of the whole system.

Today the story is different, the remaining fresh water from the lake is being extracted from the chinampas to supply potable water to a city of more than 20 million. Instead, the Conservation area of Xochimilco receives treated water from the sewage of the same population, treated in the Cerro de la Estrella treatment plant. Sometimes, the terrain subsides and loses all its water, for unknown reasons, and human energy intercepts to return it to its modern equilibrium. It is also a place full of cultural exchange, that remains as part of the inhabitant's identity and long-lost memory of what the city of Tenochtitlán represented for the Basin of Mexico.





Teotihuacán's relationship with the Cosmos



Tecorral



Milpa Alta

*Interview and tour with Verónica, an academic specialist in the history of Milpa Alta, defender of the communal territory and in resistance to the advance of real estate development in the conservation land. San Bartolomé, Milpa Alta.

*Interview and tour with Jorge Córcega, chef and person in charge of the “Ruta de la Milpa” project in San Pedro Actopan

Milpa Alta is the high zone of the city, with elevations that go up to 3,300 meters above sea level, biodiversity is completely different from the lacustrine zones such as Xochimilco and Tláhuac. Its history is of seasonal cornfields, based on the cycles of the sun and Venus, with rainy and dry seasons.

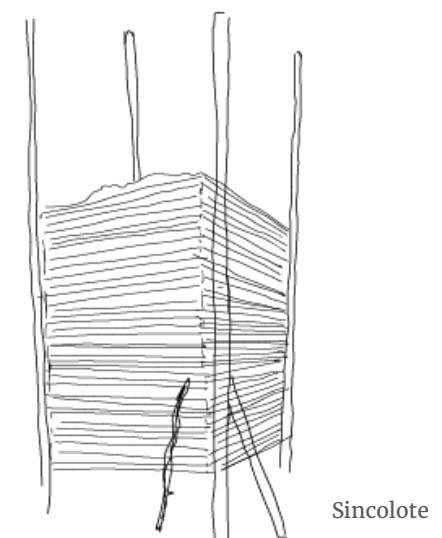




Ayate

Most of the milpa grown in Milpa Alta is for self-consumption, only the surplus reaches the markets, as it did in the times of the Tlatelolco market. Today, the main crop in Milpa Alta is nopal, which gained strength after the Mexican Revolution, since this territory was a Zapatista trench. During the revolution, the inhabitants of the 12 towns of Milpa Alta left the land to escape the violence, crops were abandoned, and when they returned, planting nopal was an act of survival. They planted nopal to have a quick harvest; a young nopal can be harvested in approximately 7 days, as opposed to corn which requires a longer wait for the first harvest.

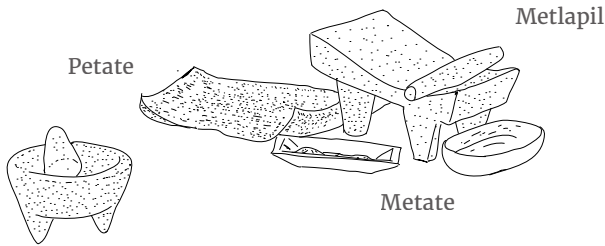




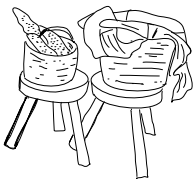
Conclusion



Olotero



Molcajete



Chiquihuite

More than a methodical and precise analysis of the origin of milpa products in Mexico City, this research became a journey through the innumerable versions of the milpa that exist in the city. The milpa is everywhere but nowhere at the same time. It is above all in the popular dishes of the city: in the tamales, in the esquite, in the elote, in the pozole of the national holiday, in the tacos, in the atole, in the pinole, in the calabacitas de la fonda, in the tacos de canasta de frijol, there are more than 300 traditional Mexican dishes where the milpa could be found. There are quelites, pumpkins, beans, corn in all its versions, rabbit, in the language. The milpa is so deeply rooted in our daily lives that we have forgotten the climatic, social and agro-ecological value of this triad that Mesoamerican cultures appreciated so much. Today, the Milpa, more relevant than ever, runs the risk of disappearing due to the dominance of monocultures and agro-industry, if we allow it.

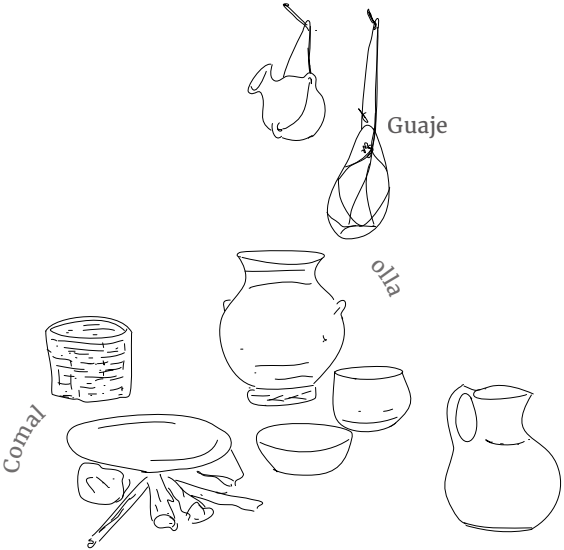
The architecture of the milpa is all those witnesses of its existence in space, it is the Nahuatl language of the actors, the times, the ears of corn, the corn, the tools, the rituals, the cycles, etc.

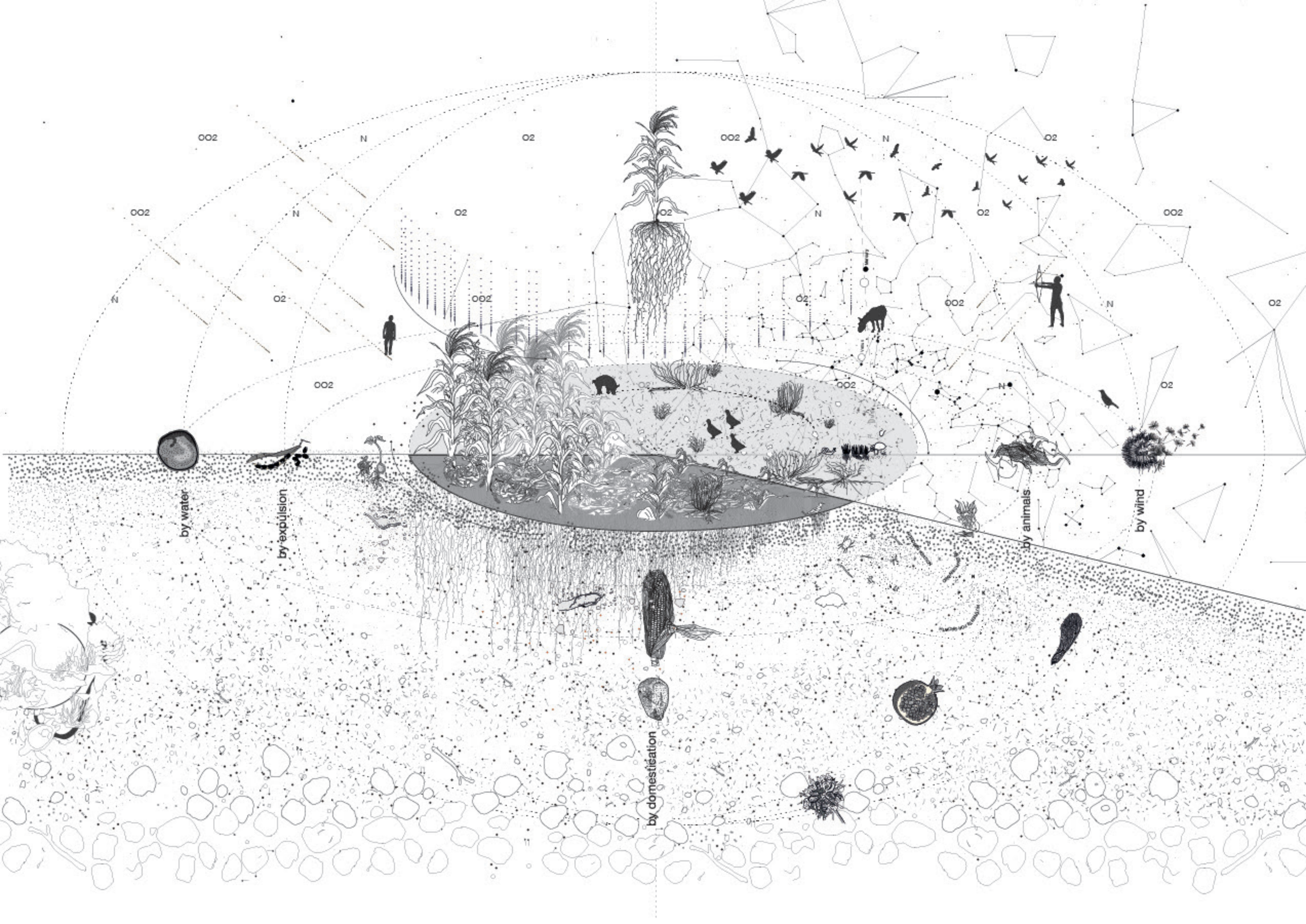
To “make milpa” means to penetrate a world that is more than human. In the same Popol-Vuh, where the myth of the creation of the Mayan culture is narrated, it is told that the gods Tepeu and Kukulcan decide that when the Earth is created, it is also necessary to create beings that can worship them. They decide then to create a man of mud but this one crumbles with the rain: The second man is a man of wood, but this one does not possess any soul, The Earth is created, together with the animals. Man is first created

from mud but it falls apart. They summon other gods and create man from wood, but he possesses no soul. Finally, from corn they create man, with language, vision, soul and abundant food.

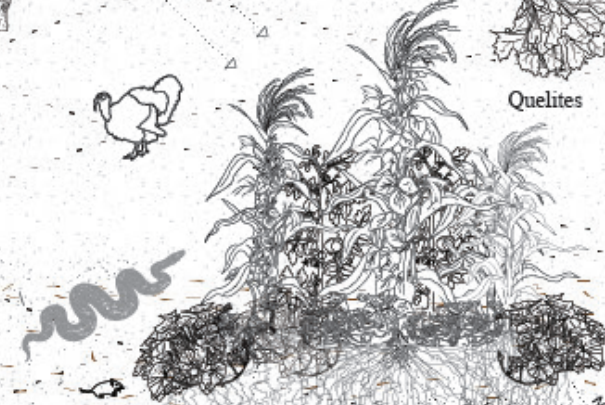
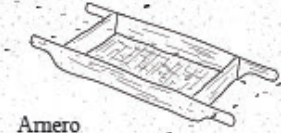
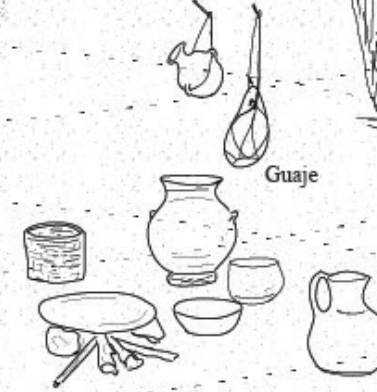
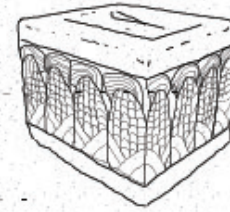
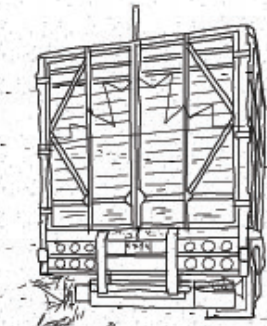
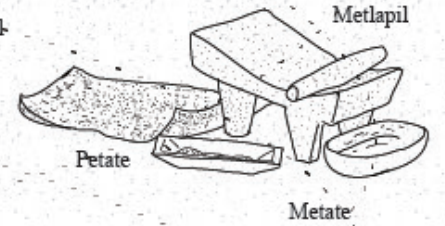
I am interested in understanding the food sovereignty of Mexico City from the minute detail to the regional supply. I am interested in taking care of the milpa from the touch, as Maria Puig della BellaCasa describes, reconnecting with the balance of the city from the seed, which adapts to the land that welcomes it, the communal land tenure, from all the wild herbs that accompany the cycle of the triad and give flavor to our food, from the rite of the gods of corn, to the dishes, and from the rituals of the corn gods to the food we eat.

The milpa can help us to recover the agrobiodiversity of the land to be resilient to future changes, it connects us as cooperative and social beings in the markets. Diversity in our food systems can indeed catalyze a healthier diet and a more cooperative relationship with our natural resources.





Chasing Milpa



Milpa:
del Nahuatl milpan, de milli
'parcela sembrada' + pan,
'encima de'

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Appendices

Here I present further information on each site
visit chasing the milpa.



1. HACIENDA SAN ANDRÉS





2. CENTRAL DE ABASTOS





3. MILPA ALTA







4. XOCHIMILCO





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Chasing Milpa

THE ARCHITECTURE OF FOOD SOVEREIGNTY



Adriana David Ortiz Monasterio

Harvard Urban Mellon Initiative
At Harvard University Graduate School of Design

September 2021