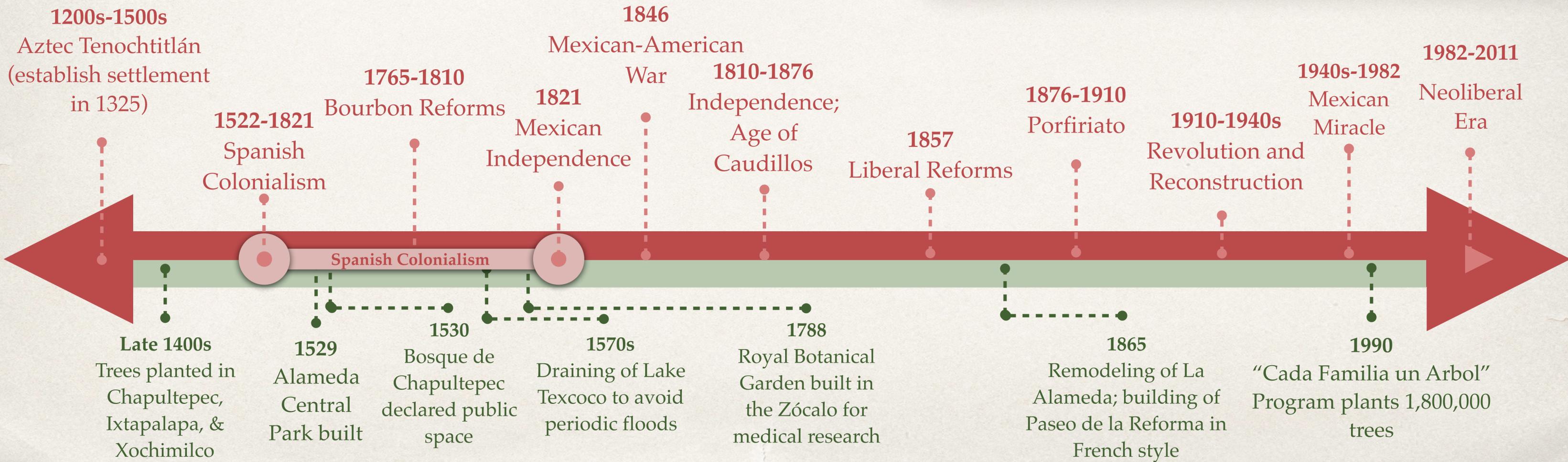
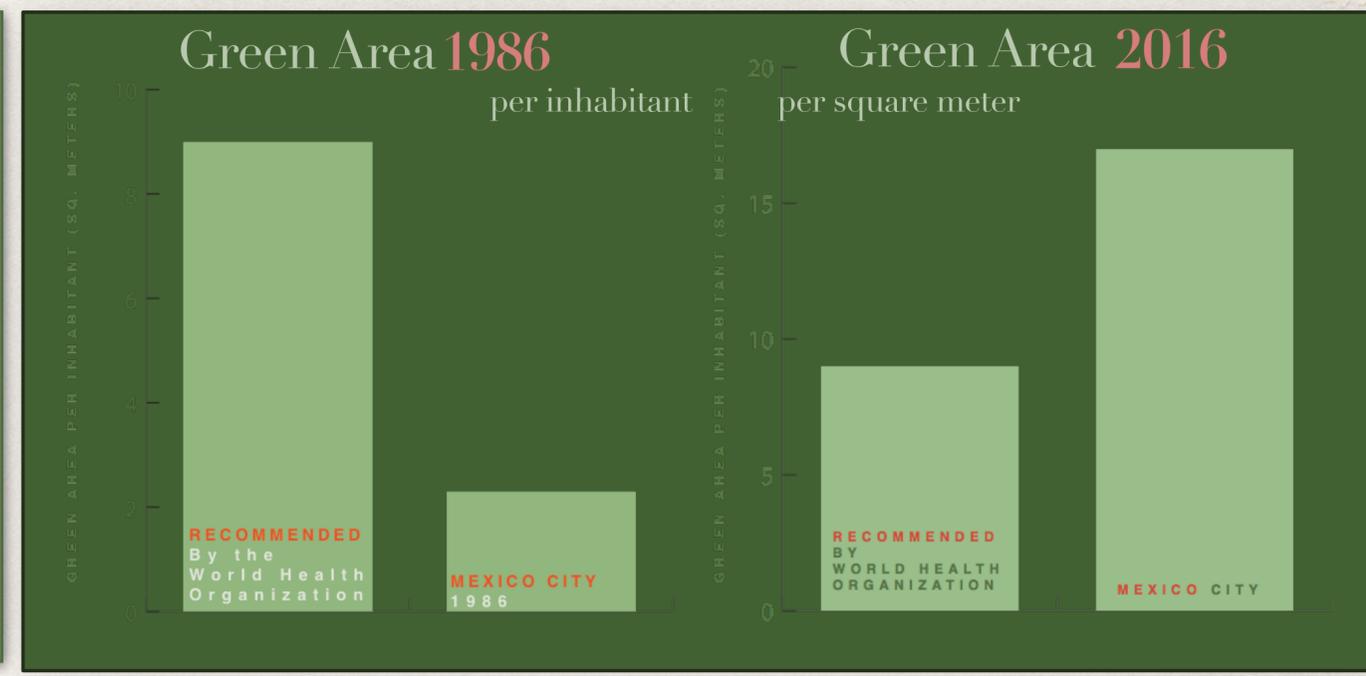


urban greening Mexico City

Andrea Murray & Madison Kremer
 Fall 2016 - Urban Greening Theory and Practice
 Advisor: Professor Theodore Eisenman

A literature review of urban greening phenomenon in Mexico City from the 1400s to present day shows how the planning and maintenance of urban trees and greenspace has been shaped by political ideology and power structures.

- We found that since the 1980s, urban greening has been driven by:
- ❖ A desire to combat pollution
 - ❖ Fighting a negative international reputation
 - ❖ Resistance to the effects of climate change
 - ❖ Interest in branding the city as “green” and livable
 - ❖ Attracting tourism



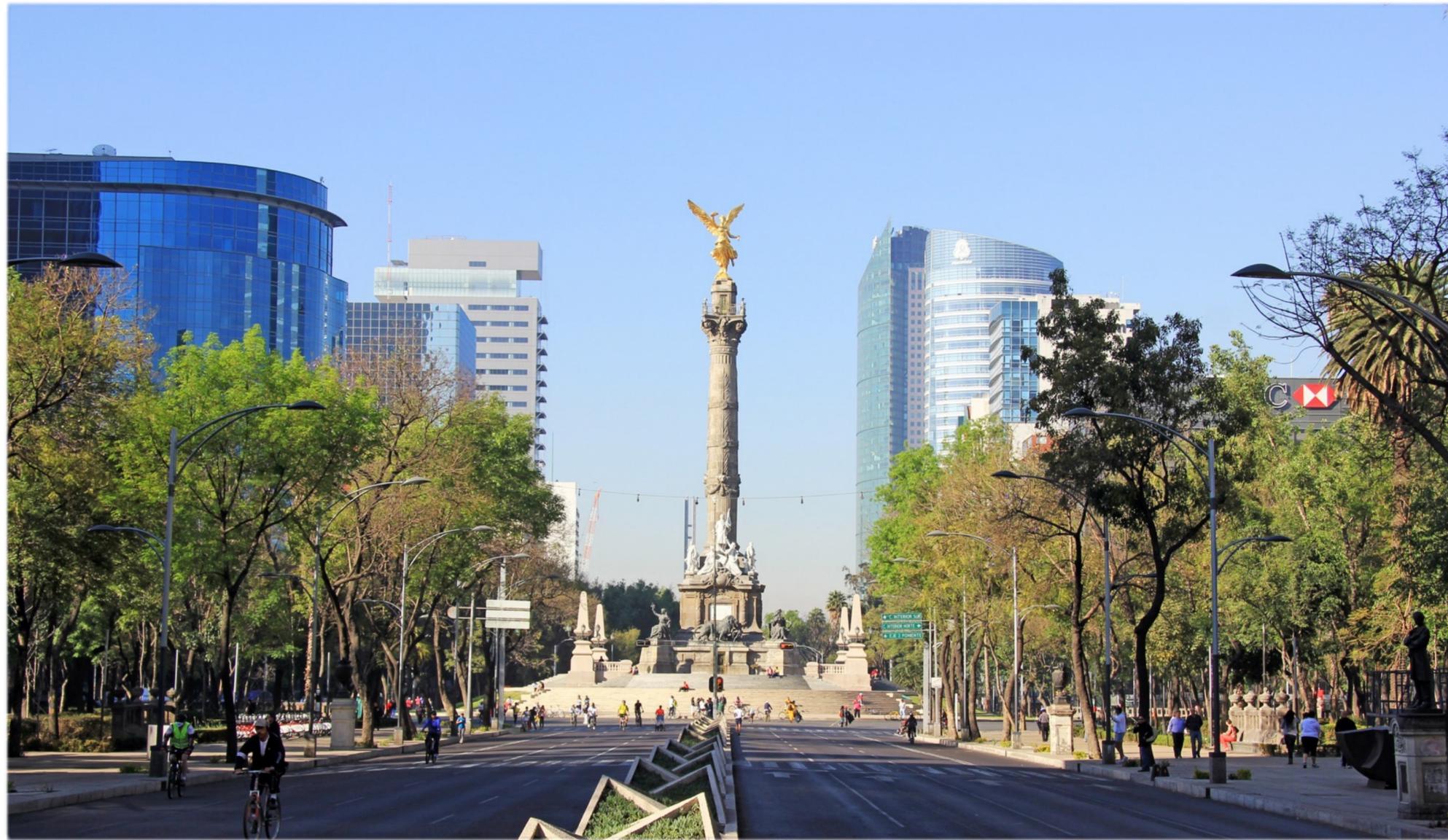
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Fall 2016

SustComm591

Urban Greening Theory and Practice

Professor Theodore Eisenman



A literature review
of urban greening
phenomenon in
Mexico City from the
1400s to present day,
as interpreted by two
non-Mexican
students

urban greening **Mexico City**

Abstract

Our research analyzes the history of urban greening – the planning, planting, and maintenance of urban trees and greenspace – in Mexico City. While the study of urban forestry and urban greening in the United States and Europe has been well documented in the past several decades, this discourse largely excludes Latin American cities.

We posit, through the example of Mexico City, that urban greening has been a vibrant practice in Latin American cities for centuries. Furthermore, we argue that Mexico City's urban landscape is a product of the city's history of colonization, political ideologies, and pollution. We believe that the case of Mexico City offers valuable insight into the challenges and mechanisms of urban greening that the current discourse lacks.

In this two part project, we first depict the history of urban greening via major political ideologies and cultural influences of the Spanish and French on the indigenous Aztec city. As a city with a rich legacy of urban agriculture stemming from its famous chinampa farming practices, we explore the process of relegating greenspaces to parks and draining water sources to accommodate rapid population growth and urbanization. In the second part, we investigate how the city is grappling with the effects of urbanization and prioritizing natural systems both today and in its plans for the future. We discuss several current greening initiatives and conclude by looking at Mexico City's plans for combating climate change, negative effects of growth, and environmental and social issues.



Mexico City

Area: 600 square miles

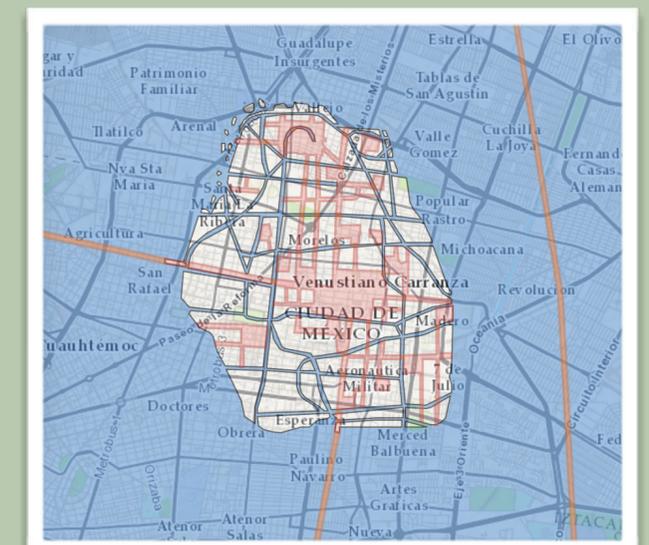
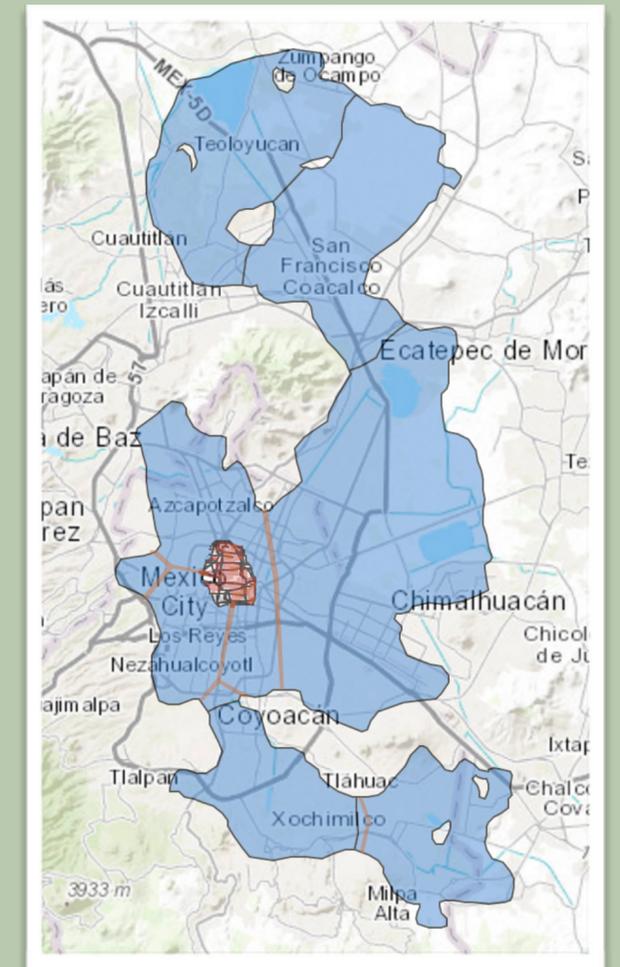
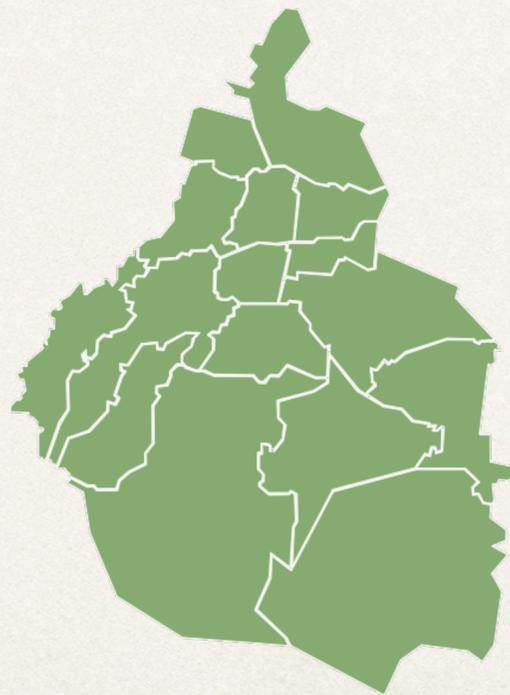
Climate: Subtropical highlands

Population Density: 24,600 per square mile

Population: approx. 9 million

Urban area population: approx. 22 million

Mexico City was founded within Lake Texcoco, which has gradually drained since the 15th century



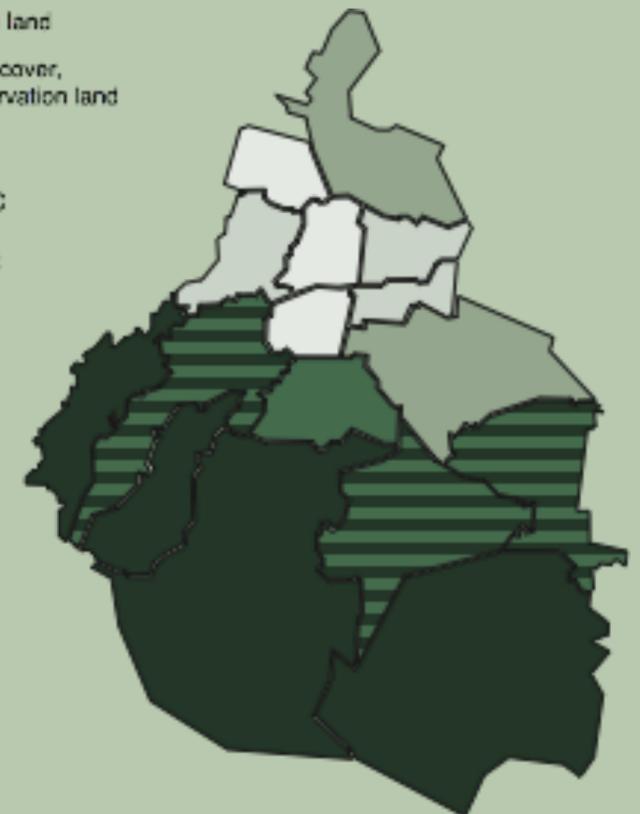
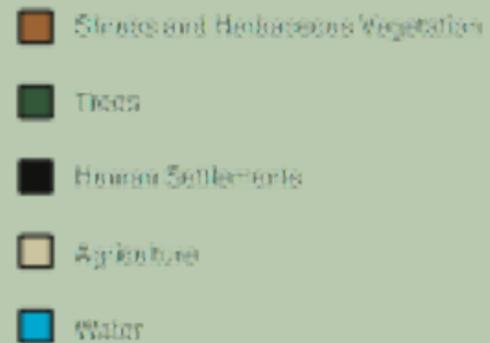
Context: Land Use

Over 50% of Mexico City's land area is designated conservation land and is heavily forested.

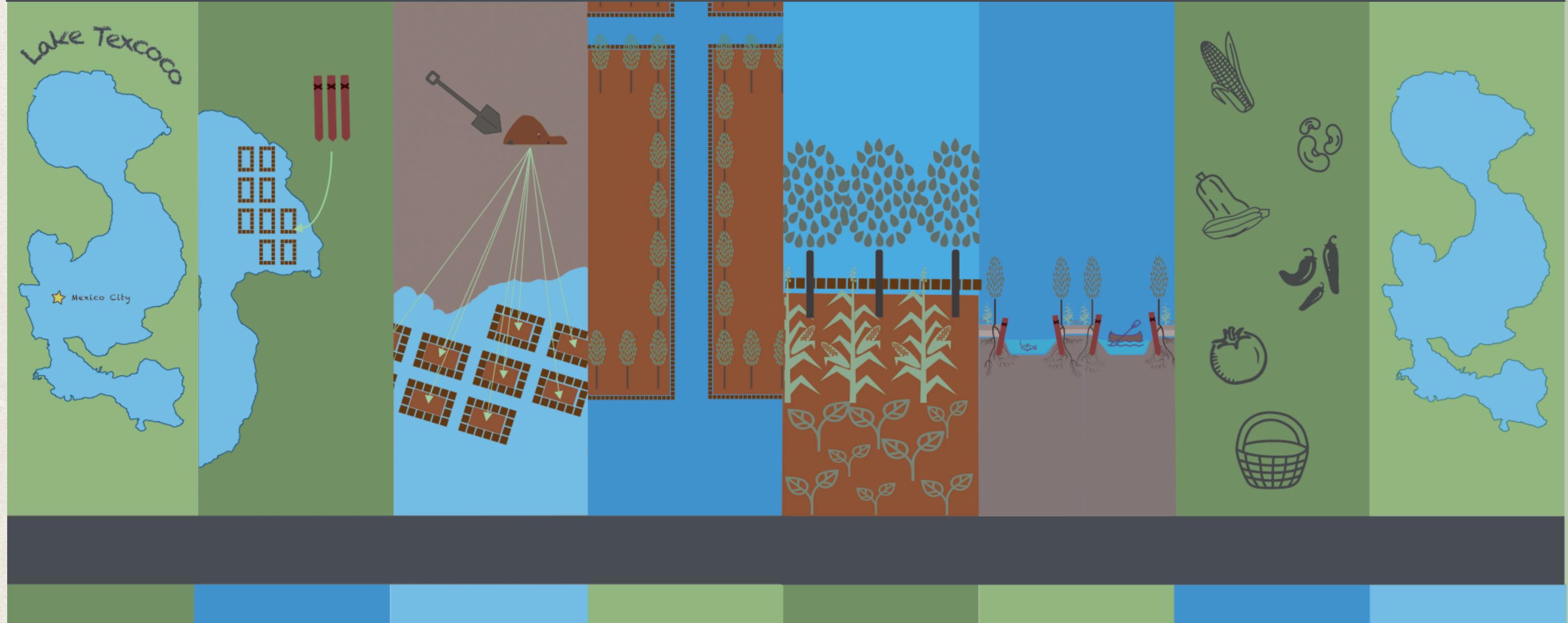
A majority of conservation land lies within the less densely populated southwest of the city

The surrounding basin itself maintained a large agricultural economy.

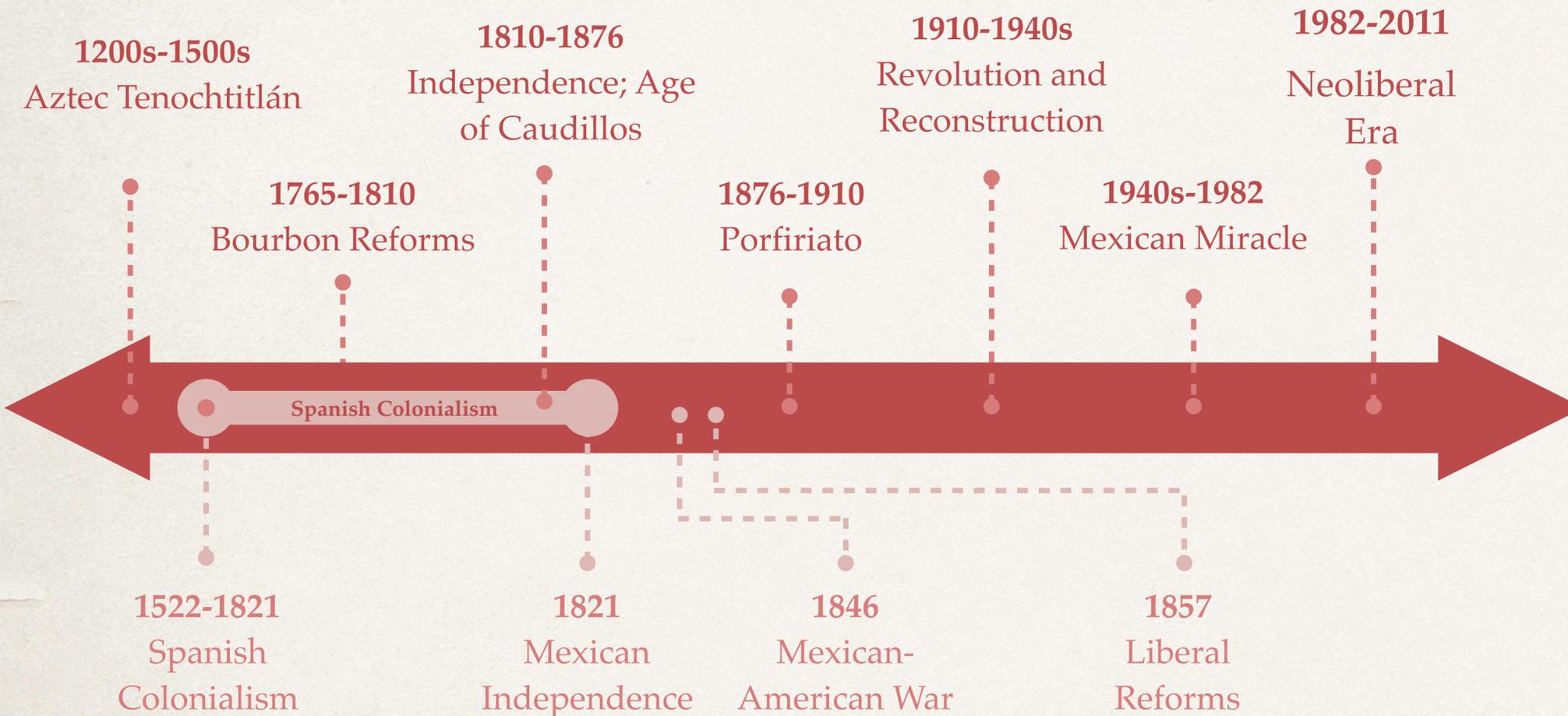
Whereas, the area was once itself a lake, water sources are now scarce following the near complete drainage of the lake. Additionally rivers and streams have been severely effected by heavy pollution.



Chinampa Agriculture



Political Timeline



Implications of Political Ideology for Greening

Aztec History

The Aztec legacy comes from earthmoving, their chinampa agriculture which still exists today, and creation of the royal ahuehuate gardens on Chapultepec Hill.

Hernan Cortes & Colonialism

Hernan Cortes enforced European design practices during the Colonial Era, including the creation of La Alameda park, the "oldest park in the Americas," and the preservation of Chapultepec Park, declared a site of "public recreation" in 1537.

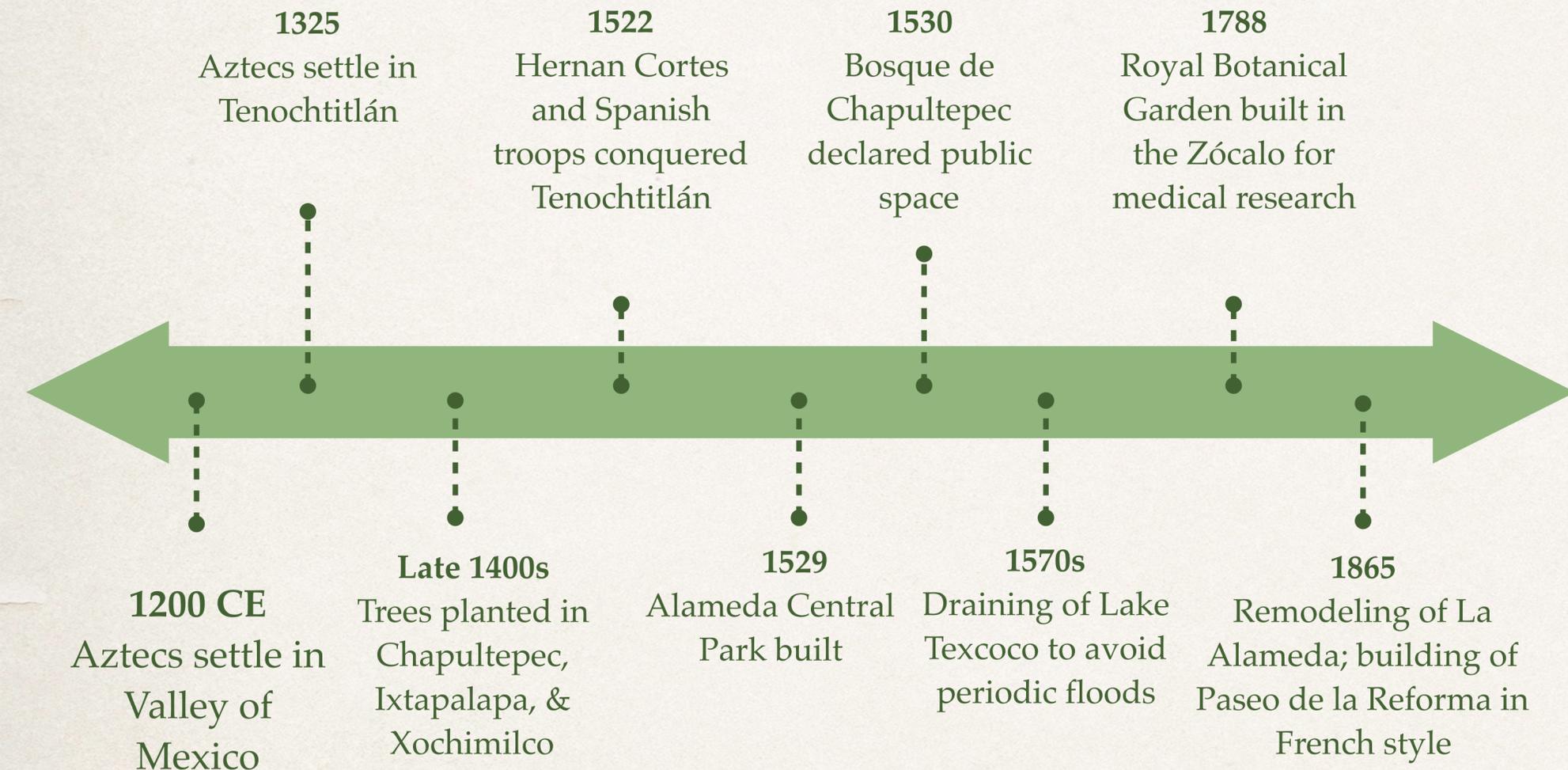
Bourbon Reforms

During the Bourbon Reforms, the Spanish Empire sought to reassert its colonial power and "its relevance to the Enlightenment" through scientific pursuits such as an urban tree inventory and a Royal Botanical Garden, which claimed indigenous knowledge for the Spanish crown and made nature an elite commodity.

Independence & Age of Caudillos

After the fight for independence, the new government of Mexico struggled to support urban greening and other state institutions

Urban Greening Timeline



Implications of Political Ideology for Greening

Liberal Reforms

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French Military Intervention

Emperor Maximilian brought French formal design to the reconstruction of La Alameda and Chapultepec, the construction of the Paseo de la Reforma, and the addition of rooftop gardens in the Castillo de Chapultepec.

Porfiriato

Porfirio Diaz's regime was shaped by his technocrat advisors, científicos, who used top-down control to commodify natural resources and renovate Chapultepec Park

Revolution & Reconstruction

Urban greening suffered after the Revolution of 1910 due to political instability that lasted until President Lazaro Cardenas who initiated the "conservation leadership" era of 1934 to 1940.

Mexican Miracle

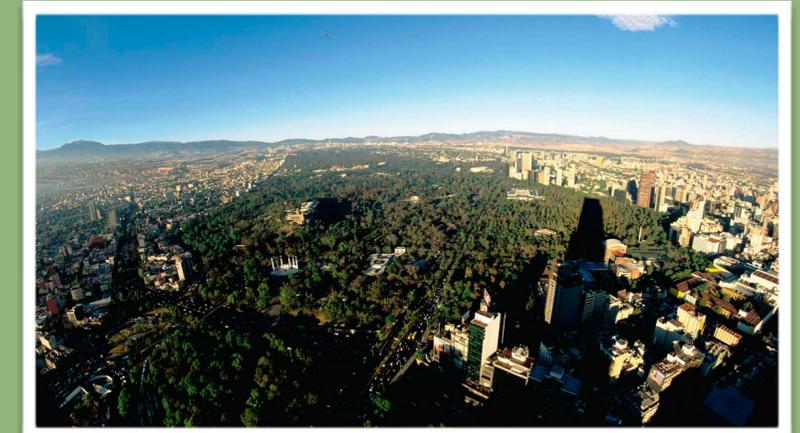
An abrupt economic boom and rapid population growth from the 1940s to the 1980s challenged natural resource provision and ecological park goals in the rapidly densifying Mexico City, including the Intensive Drainage System for Lake Texcoco that left ahuehete trees in dire and dry conditions.

Parks & the Neoliberal Era

International and local recognition of severe pollution in Mexico City building since the 1980s (largely owing to car culture), spurred popular and municipal support for urban greening initiatives as a method of pollution mitigation and city beautification.

The city's parks have been a constant symbol of the city's problems, concerns, and investments. Park landscapes have historically been rooted in the preferences of the elites, yet they were designated "public" spaces very early as compared to parks internationally. Attempts to balance the recreational needs of the public with the historic ecology of the parks came to a head in the late 1900s.

As the environmental consequences of urbanization reached a peak in the 1970s and 1980s, the ancient *ahuehuate* trees in Chapultepec Park began to die due to lack of irrigation. They became a symbol in the movement for ecological sustainability. Around that time, Mexico started their *Cada Familia una Arbola* tree planting campaign.



Current Drivers of Greening

❖ Pollution, Livability, and Public Health

By the late 1980s, 6 of 10 residents had respiratory problems related to pollution, largely owing to the city's massive car culture, and the city had earned an extremely negative international reputation for its pollution. Embarrassed and seeking to improve its reputation and make it a more desirable city for investors, workers, and businesses, the city has taken large strides to reduce pollution. Greening has been positioned as a way of "taking back the streets," and a way to improve livability. Though urban green infrastructure has negligible effects on carbon pollution reduction, especially as compared to the impact of tackling real sources of carbon emissions such as cars, its perception as a response to pollution and commitment to city quality of life has encouraged its prescription.

❖ Tourism & International Competition

Maintaining a reputation of livability and is central to attracting and retaining a competitive workforce, market, international events, e.g. the Olympics, tourism, etc. Increasingly cities use greening as an attractive and visible way to compete globally and brand themselves as "green" and "sustainable." Additionally, the chinampa agriculture that built Mexico City has become a symbol of the city. Today they are exploited more for their touristic value, rather than agricultural output.

❖ Climate Change Concern

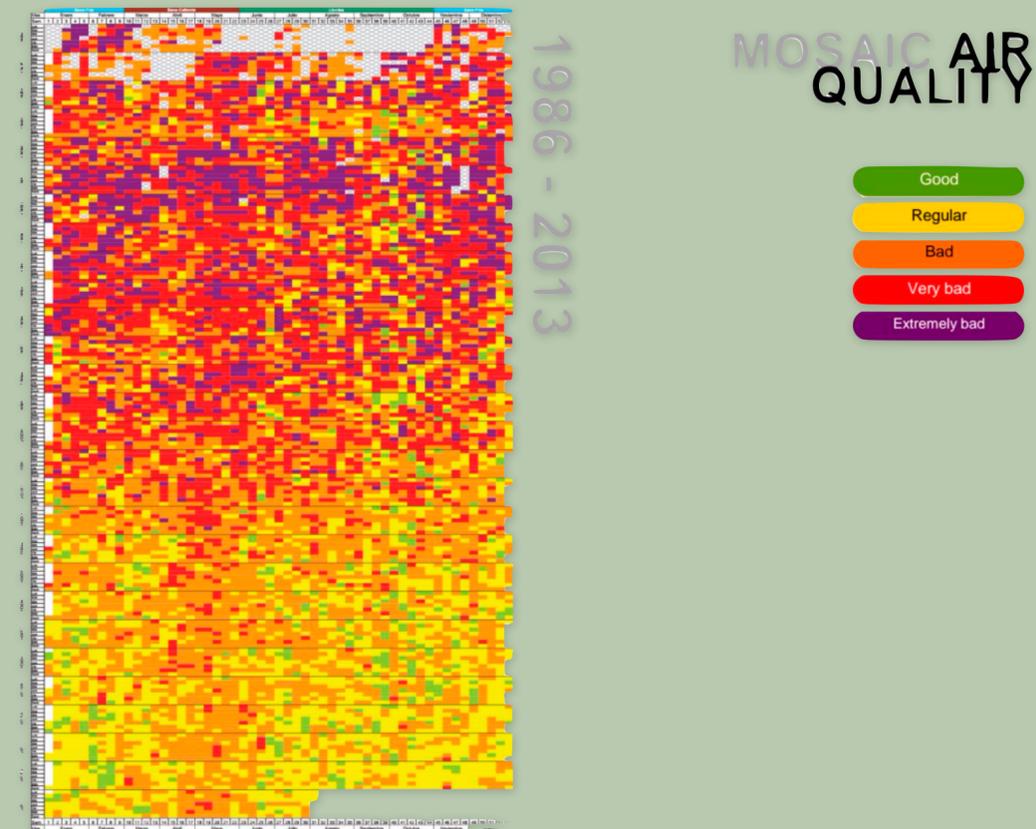
Mexico City faces extreme heat, extreme weather, and drought as climate change persists. Concerns for mitigating these effects have led to the prescription of urban greening for urban heat stabilization, water retention, etc.

❖ Population Growth & Inequality

The growth of informal settlements and population infill, in addition to public health concerns linked to environmental inequality, has reinforced the importance of greening and greenspace management. Additionally, small scale and informal farming are still prominent within the city, including urban dairy production, chinampa farming, and urban agriculture, but these practices (and sources of economy) face building pressure from population growth and development.

❖ Building Trust & Breaking Perceptions of Political Corruption

In recent years, Mexico City life and politics have been roiled by political corruption leading to enormous distrust in the government and wariness about how tax dollars are spent. Greening projects indicate direct commitment to residents and can (often) be conducted in the span of one term of office.



Current and Ongoing Projects

*Pocket Parks & Strategic Space Usage

The Public Space Authority has built 14,000m² of “pocket” parks by strategically using spaces under bridges, parking lots, etc. This is part of efforts by the Ministry Urban Development and Housing to improve livability and is largely funded by parking meter revenue.

*Rooftop Greening

The Ministry of Environment has promoted green roofing since 2007. With over 35,000m² of green roofs already built as of 2015 mostly on public buildings, the city plans to increase green roofing by 10,000m² annually through 2018

*Corridor Greening

Many plans have been proposed to “take back the streets,” including the busy Avenida Chapultepec.

*Eco-Sculptures

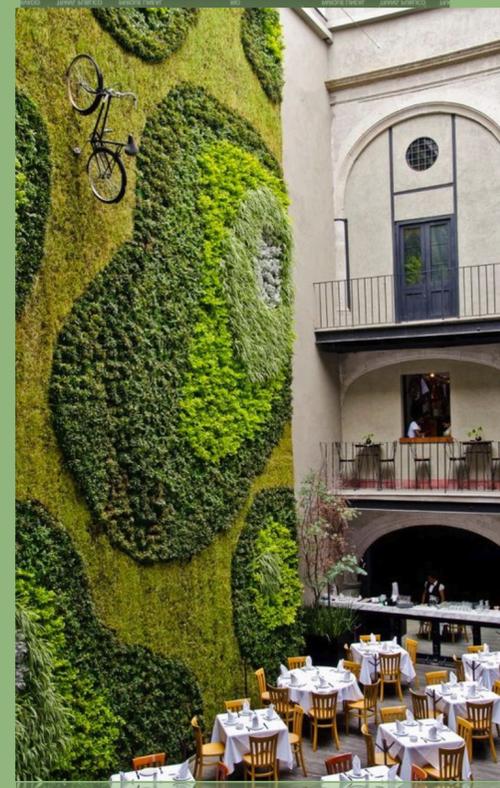
Many large-scale, highly visible green sculptures have been created throughout the city to generate awareness of green infrastructure. Most also boast large claims for mitigating pollution levels.

*Daylighting Streams

45 streams are currently covered and multiple plans have been proposed to daylight streams within the city, and simultaneously to create green corridors

*Tree planting

The city planted 3500 trees in 2016, spending 50 MDP with the expectation that these trees can capture 66,500 tons of carbon. The Secretariat of the Environment further announced this summer that it would plant 18 million trees in Mexico City and its surrounding suburbs after months of soaring pollution levels. Yet, there is currently no plan or timeline available that details this initiative.



Progress and Plans



❖ Plan Verde

15-year plan and \$1 billion-per-year investment for development of new transport, water, waste, land conservation and alternative energy programs; Pushed by Mayor Marcelo Ebrard and his administration

ProAire

❖ ProAire

First published in 1990, plan to reduce pollution and CO₂; Written by City government in conjunction with the Metropolitan Environment Commission



❖ PACCM - Climate Change Action Plan

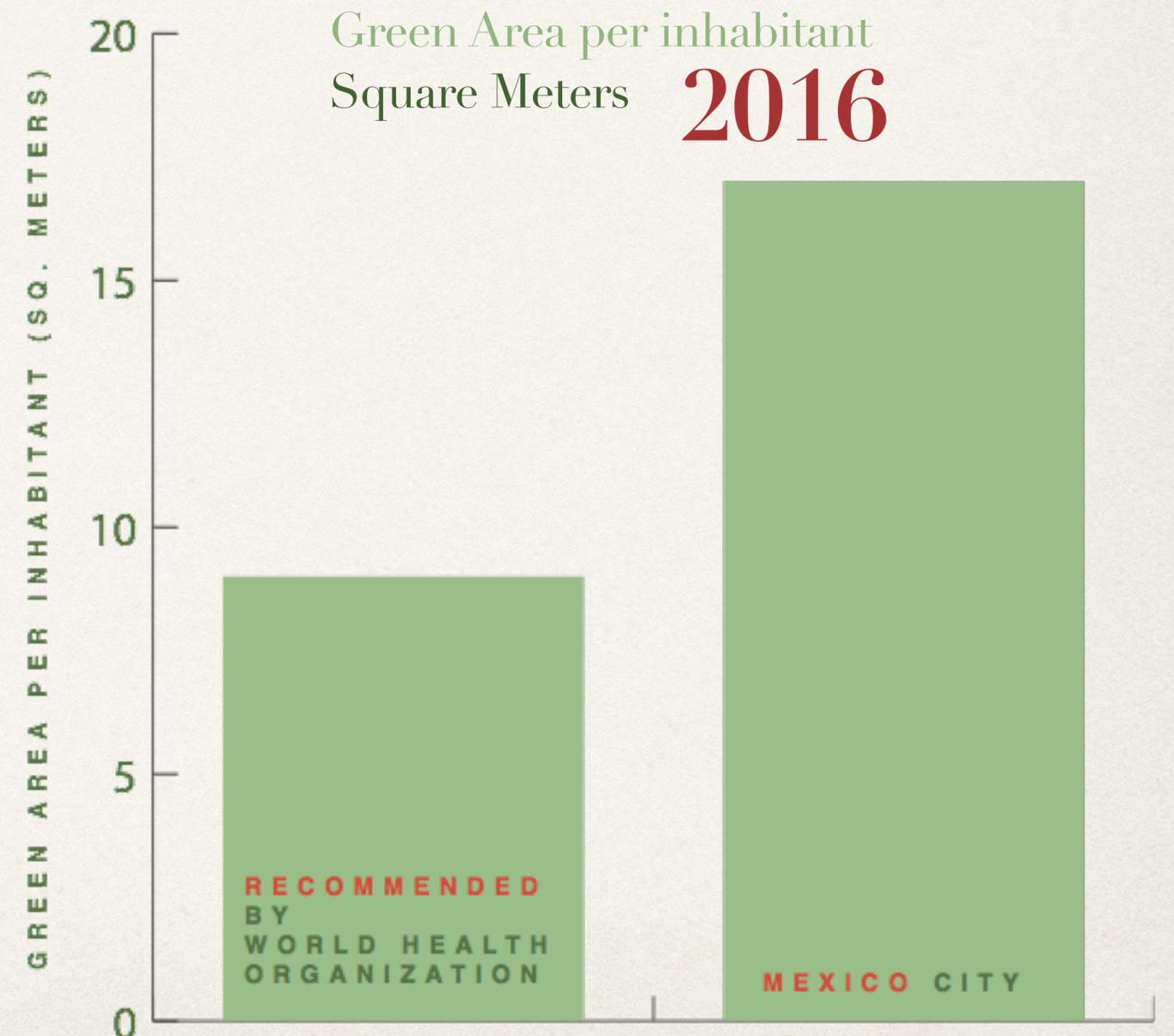
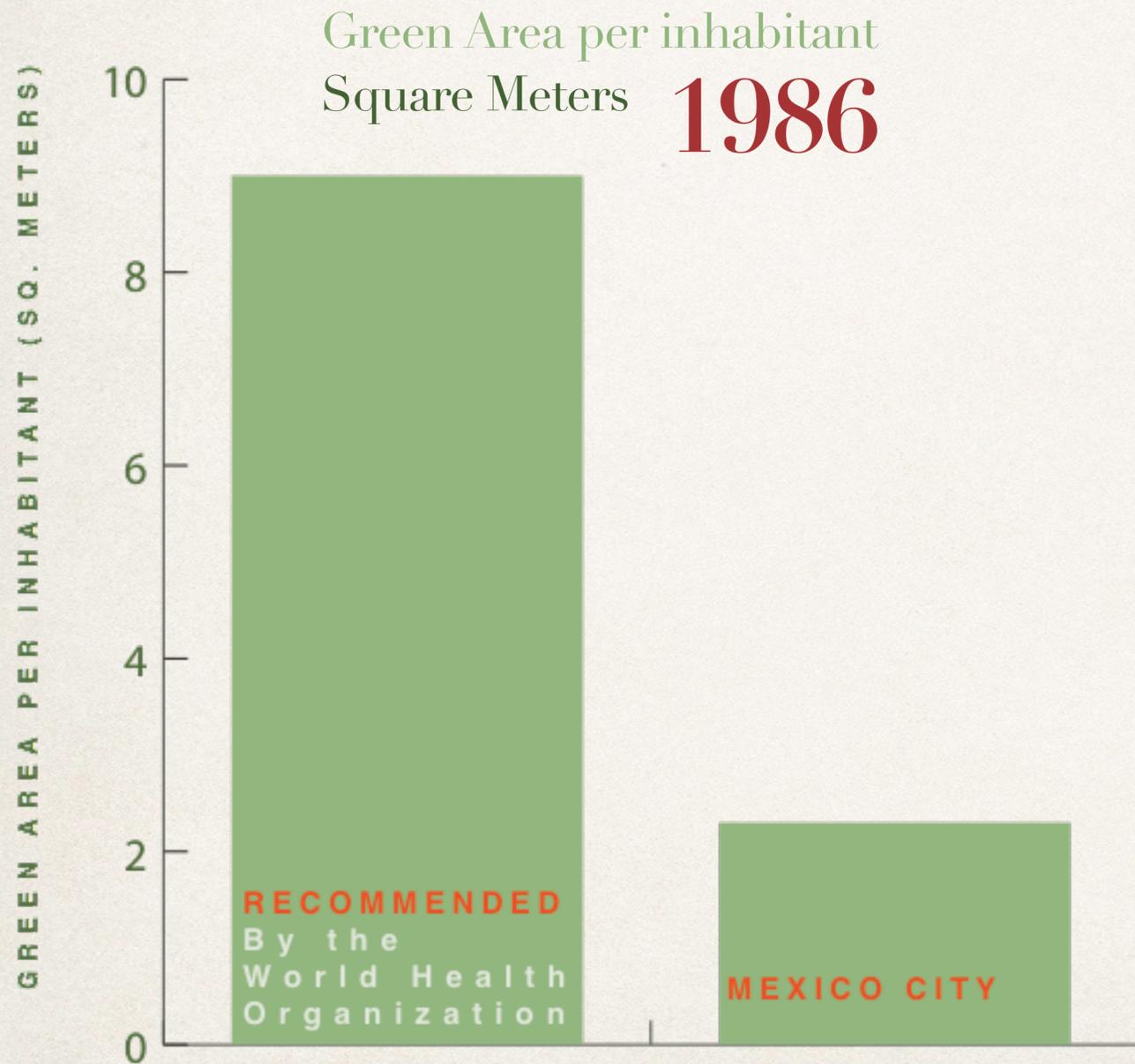
Aims to reduce environmental, social, and economic risks posed by climate change while aiming to improve infrastructure and quality of life; Recommends “green rehabilitation of intra-urban area,” likely in order to encourage greater density

ELAC

❖ ELAC - Strategy for Pollution Reduction

Discusses ecosystem services, the “urban metabolism,” and resilience; Refers to vegetation as “urban infrastructure”

Green Area per Inhabitant



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