3500 BCE

1800 BCE

2500 BCE

200 BCE

First civilizations
Sumerian
Egyptian
Indus
Shang

5 Urban Hearths

I. History of Urban Centers

Hunter-Gatherer

For the bulk of human history, humans practiced transhumance, acting as nomadic hunter-gatherers and pastoralist herders. Each band and tribe temporarily resided on a piece of land for as long as their local food supply lasted. Once the food supply ran out, the band was on the move again. Housing and goods were made from local natural materials, reflecting a unique folk culture. Societies were egalitarian, usually composed of only a few family members. There were no urban centers and the activities most resembling organized gatherings took place in Africa. There is possible archeological evidence of religious meeting areas, with evidence suggesting that tribes met to trade items, marry off sons-daughters, etc. Otherwise, each band was a mobile, self-sufficient, nomadic unit unto itself.

Agricultural Revolution

The first evidence of official, permanent urban centers corresponds with the onset of the agricultural revolution. As nomads settled down to begin intensive subsistent agriculture, it eventually became beneficial for multiple families to work together for their common good. Before, more mouths to feed was a danger to the group's survival. Now, more people meant more work that could be accomplished for the greater good of all. Population density grew, as did the demand for food and other resources. This spurred the people's expansion to search for, and settle, other resource rich areas. If there was a lack available land, an invasion might be planned against neighboring groups to take their land. As a result, communities worked together for mutual defense against raiding tribes looking for a quick meal or against invaders looking to conquer their land. This led to land based trade networks between cities that shared similar cultures. Eventually kingdoms became established, and kingdoms grew into empires.

Over the following centuries, cities improved and become more complex through a series of progressive innovations. With successful improvements to agricultural practices, food surpluses allowed individuals to specialize in their labor by becoming craftsmen, blacksmiths, politicians, and religious leaders. Society became stratified, creating unequal access to resources and economic opportunities. These systems were run by a centralized government, who organized the worker's division of labor, as well as resources to

Temple

Markets

Housing

City of Ur
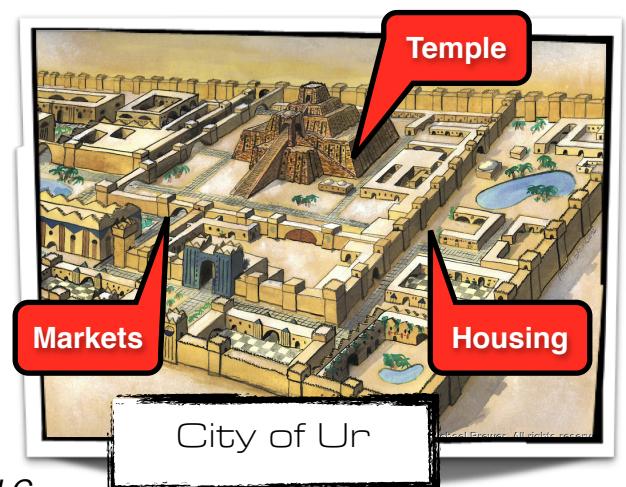
Expansion in Number of Cities

3050 B.C.

25 A.D.
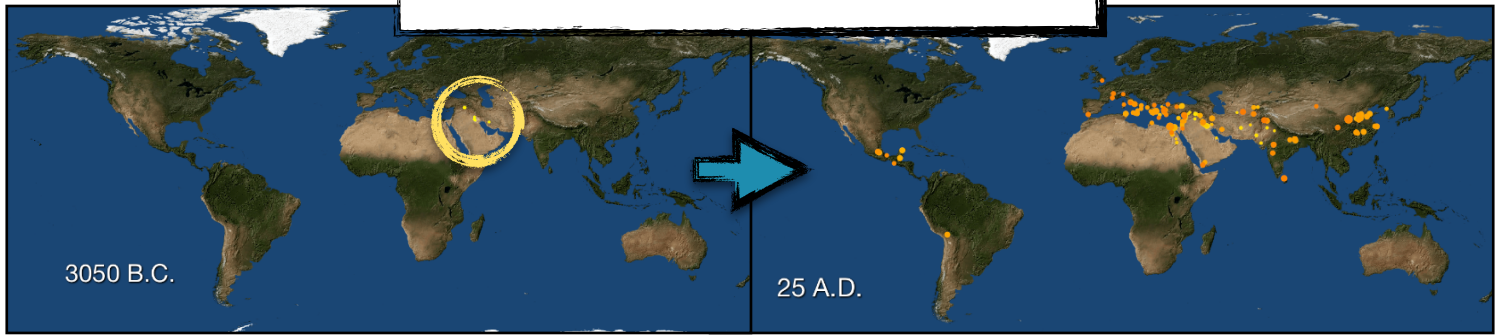
be able to accomplish more together than they could a part. This included public building projects like irrigation systems, protective walls, religious buildings, political palaces, market places, etc. At the center of the city was the chief religious building(s). Near the temples were market places to sell surplus goods and crafts. Residential areas were initially unplanned and were built as needed. This created narrow, winding alleys, with a unique mix of one and two story vernacular architecture.

City-States formed around important site features in beneficial situations. All cities needed a stable water supply, arable land, and domesticable plants and animals. They also prized locations with features that allowed them to defend against invaders. The earliest settlements did not initially take situation into account. However, as the number of city-states increased, they developed methods to share resources through land-based trade networks. The routes evolved and matured into interregional and international trade between established urban areas. The largest collection of routes was the land based Silk Road, spanning across Africa, Asia, and Europe. Cities sprang up along these important land-based routes and also formed around strategic military choke points, defending key spots vital for protection of the people and profitable trade.

Advancement of Cities

As humanity expanded, cities evolved. The Greeks and Indians created city planning by purposefully zoning built landscapes. These urban spaces had specific and strategic layouts that included advanced markets, political meeting places, residential sectors, sports arenas, and theaters. At the city center were the rich elite who wanted direct access to the advanced urban services and recreation with minimal walking required. Surrounding the elite was a ring of lower-class residents. Finally, the outer ring was for outcasts. Around 500 BCE, the Greeks had established 500 urban centers throughout Greece and the broader Mediterranean region. The port and gateway city of Athens was the largest city in the world, supporting 250,000 people.

Pre-Industrial City Model
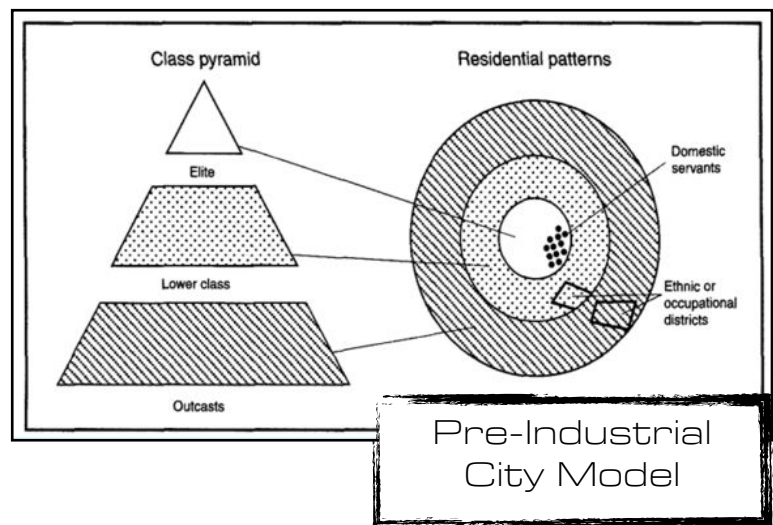
The Romans made significant advancements in urban development and planning. They built aqueducts to bring in water from distant rivers. They built plumbing and fountains so that the people of Rome would always have access to clean water on every street corner. Romans built baths for people to keep themselves clean and socialize. They built advanced sewers and public toilets to remove human waste away from populated areas. Government programs provided bread so that everyone in the city could eat. Roads in the key urban areas were built with a grid system. Roads led into plazas, where people could mingle socially throughout the city. The invention of concrete allowed for the building of gladiator stadiums that could accommodate 40,000 people and racing arenas that could seat 150,000 people. High density, mixed use architecture was developed with the store front on the bottom floor and apartments scaling the next four stories.

City of Rome
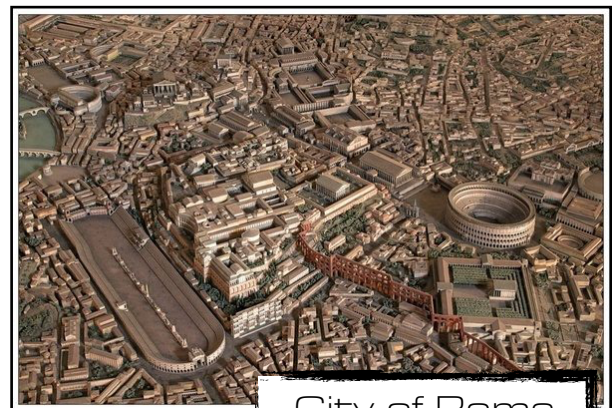
As the Romans expanded their empire, they brought with them advanced engineers to establish new settlements or improve existing ones. Everywhere the Romans conquered, soldiers built eight foot wide roads. This interconnected the entire Roman empire, speeding up trade and the diffusion of ideas, creating a unified Roman cultural identity across the European continent. Over 80 of the cities founded by the Romans still exist as vibrant urban centers today including: London, Paris, Lyon, Geneva, Barcelona, Istanbul, Vienna, Budapest, and Manchester.


Roman Road Network

Around the world, governments independently developed advanced urban planning. The layout of Chinese Capital Chang-an demonstrated a sophisticated grid planning around the palace and administrative complexes. The Chinese built their cities in square blocks, perfectly oriented to the cardinal directions: north-east-south-west. By 200 BCE, the first urban centers developed in Mesoamerica; making it the fifth major hearth of urbanization - the first to exist outside of Afro-Eurasia. These settlements quickly developed an equally advanced urban planning system. The Mayans and Aztecs developed the great cities of Tikal, Chichen-Itza, and Tenochtitlan, both with wide streets, complex market places with goods from across the region, temples, public schools, sporting arenas, and advanced canals with hydroponic farm systems. Home to over 400,000 people, the Europeans claimed they had never seen a city so beautiful or sophisticated in all of Europe.

By 1500 CE, the number of cities around the world had increased, but their purpose and structure had not drastically altered. They were still self-sufficient cities relying on their local environment for all food and natural resources. Indian Ocean trade routes created a burst of port cities along the coasts of Africa and Asia. The trade was so financially robust, that the inland cities of the Silk Road shrank and died while the human populations shifted to the coast. This became the first network of intercontinental cities connected by sea-based trade. A second change came when Chinese gunpowder cannons made wall fortifications obsolete. Without confining walls, cities exploded in size and expanded rapidly with lower-density populations further away from the heart of the urban center. A third change was European colonization. While Europeans did not drastically change the layout of cities with colonization, they increased the number of cities around the world and their interconnectedness. The global European trade networks were driven through the city centers they developed across five continents. One change Europeans DID make to cities was to accentuate racial segregation. Europeans developed the best parts of the city for themselves, with the finest services, architecture, art, and amenities. The natives that accepted and supported European leadership had the next best, although distinctly separate, section of the city. Finally, the remaining natives lived in the worst and least habitable regions, clearly as third class members of society. Racial segregation was the last legacy the Europeans delivered to the world.

Aztec: Tenochtitlan

By 1800, despite the large size increase, less than 10% of humans around the world lived in urban spaces. Cities with populations of one million people were still considered massive. The purpose of cities was still the same: self sufficient political and economic centers built with defensive structures and directly tied to the success of local food sources (#VonThunen).

1750 A.D.
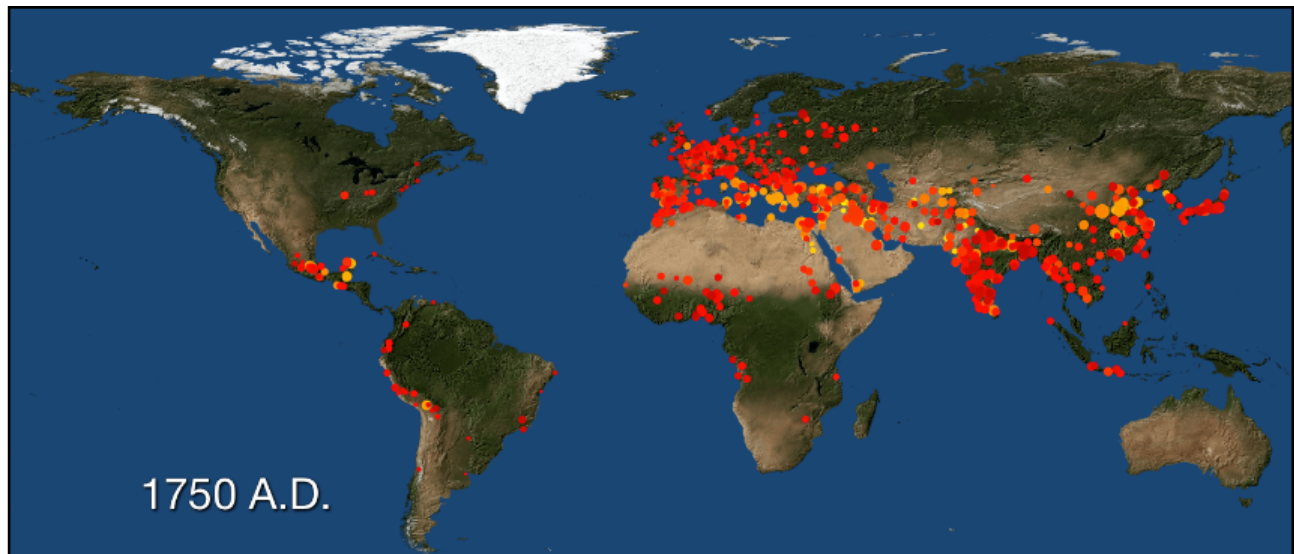
Industrial and Urban Revolutions

In the 1800s, the Industrial Revolution led to the Urban Revolution. In Europe, four major movements setup the urban explosions:

1) First, the Protestant Reformation in Germany had developed the cultural norm of *Work Ethic*: people must think rationally/logically and work hard to be considered pure and godly. Sayings like "God helps those who help themselves" came from this time. In return, the worker had the to right to profit from their efforts, with riches being the reward of the Christian god's favor.

2) The second movement was the *enclosure movement*, privatizing all lands while removing commoners from common lands. Land owners could use their land anyway they wanted and were able to keep any profits earned. Entrepreneurs used privatized land to build factories and spur economic growth.

3) Third, during *the Enlightenment* came the notion of *Capitalism*: Governments should not interfere with the free markets; businesses run the best economy, gaining unlimited profits as their reward.

4) Fourth, the *mechanization* of primary sector activities decreased the availability and need for primary sector workers. Because farmers and laborers could no longer support themselves by working the land, they were forced to migrate near factories that provided economic opportunities. Farmers now needed to be paid for hourly work to survive. This caused a massive increase in residential density around factories, creating a rapid explosion of factory and industrial boomtowns.

% World Population Urbanized

Networked industrial centers were flooded with low cost food and material goods, moving Britain into Rostow and DTM Stage 2. From 1800-1850, this transition caused Britain to experience a massive population boom with an increase of 27 million more people, mostly in urban areas. People used the novel methods of train and steamboat transportation to migrate to cities where they felt employment was possible. As a result of demographic change and migration, the city of London became the worlds largest city, experiencing a 257% population increase. Similar population explosions occurred in German, French, and American urban centers which followed Britain's path of Industrialization.
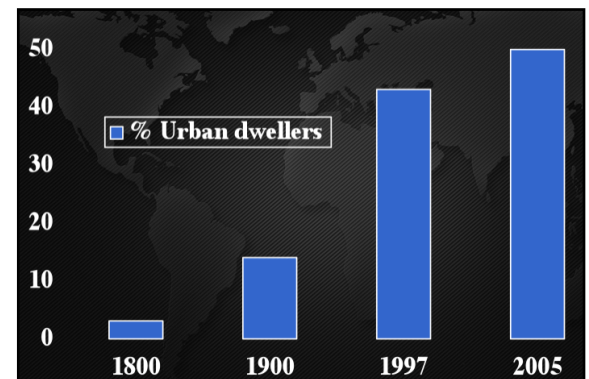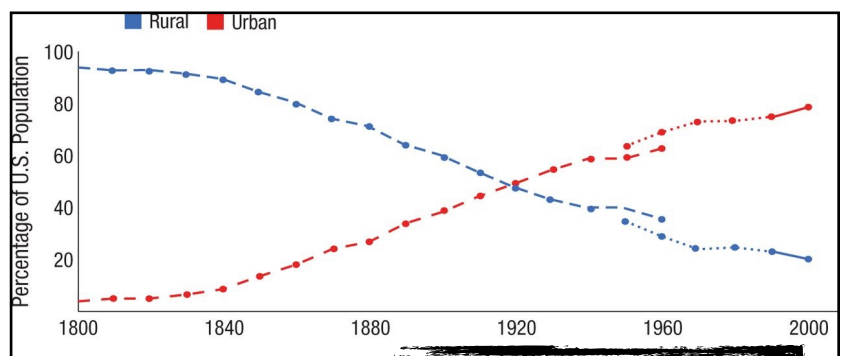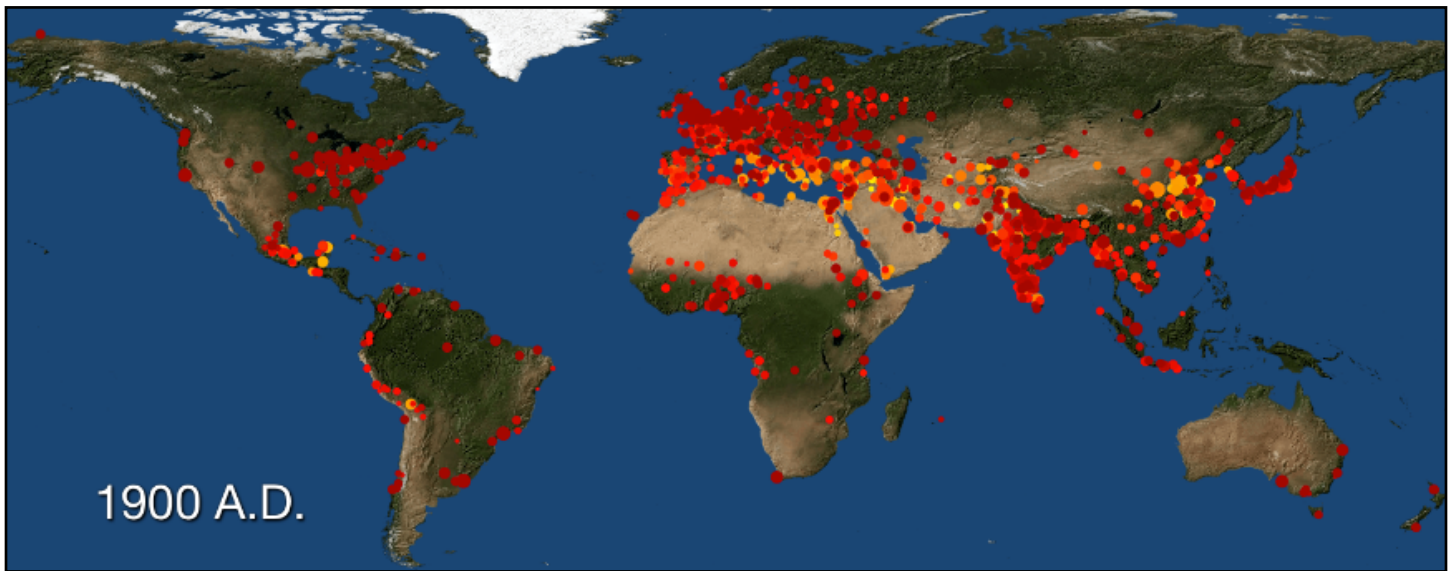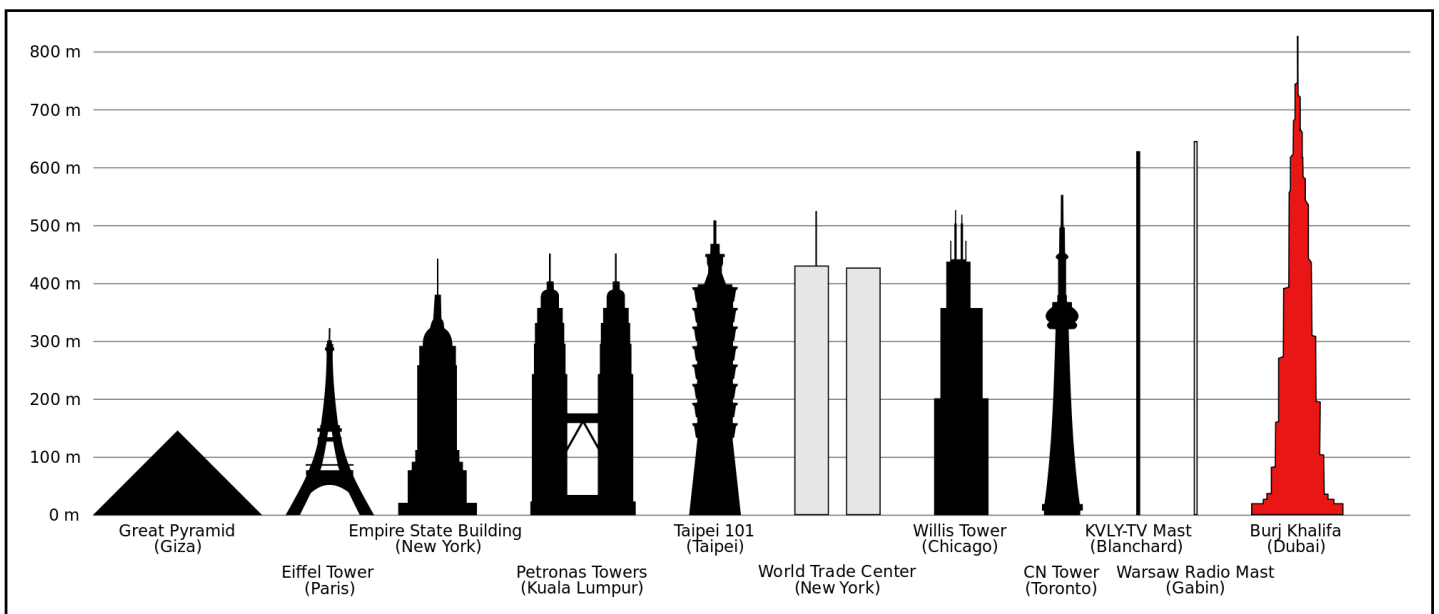

% USA Population Urbanized

4

1900 A.D.

The urban landscape was radically altered by advancements in technology. Advancements in steel enhancement, mechanization, glass manufacturing, and architectural design allowed buildings to be built taller than ever. In 1889, the Eiffel Tower became the tallest free-standing building the world, dwarfing all other buildings in Paris. The average building in Paris was five to six stories tall (around 60-100 feet). The Eiffel Tower was built to a staggering 1,000 feet in height, kicking off the era of the skyscraper. Soon Chicago (the financial powerhouse of the midwest) and NYC (the financial capital of the East Coast) were competing for who could construct the tallest buildings on the skyline. The Empire State Building and the Sears Tower soared over the skyline, reaching 1,700 ft. from ground to tip; filled with office space for corporate and financial headquarters. Skylines of major cities were forever changed as cities used vertical architecture to maximize their highest-demand land.

| 800 m |
| 700 m |
| 600 m |
| 500 m |
| 400 m |
| 300 m |
| 200 m |
| 100 m |
| 0 m |

Great Pyramid (Giza) — Eiffel Tower (Paris) — Empire State Building (New York) — Petronas Towers (Kuala Lumpur) — Taipei 101 (Taipei) — World Trade Center (New York) — Willis Tower (Chicago) — CN Tower (Toronto) — KVLY-TV Mast (Blanchard) — Warsaw Radio Mast (Gabin) — Burj Khalifa (Dubai)

Trains and the advancements in transportation technology improved the space-time compression between cities and within cities. The same steel advancements that allowed for the construction of skyscrapers also allowed engineers to design massive bridges and tunnels that improved the speed, efficiency, and reliability of train travel. This then changed the shape of cities since people could live farther from their place of employment, as long as they were still living within a transportation corridor. This altered the form and shape of the city into a spoke-hub/star pattern where medium-to-high density development took place along the train tracks leading out of the city. The speed of greater interconnectivity allowed and encouraged greater interregional migration between cities as people were able to move across the state to pursue economic opportunities.   As a result, areas continued to expand in order to accommodate the massive demographic population growth plus rapid in-migration. The impoverished and new migrants lived in medium and high density vertical architecture within walking distance of the industrial complexes. The rising middle and upper classes purchased newly built housing in the prime parts of the city where they could use public transportation, like trollies, to move around the urban center. These changes caused urban planners to ponder how these expanding cities would develop. Would they continue in a circular pattern (Burgess) or would the transportation infrastructure reshape the cities into sectors?
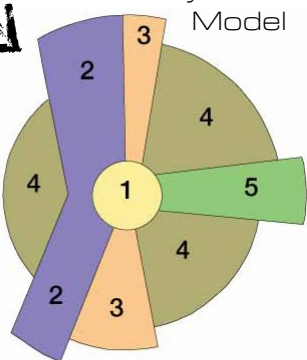
Pre-Industrial Model

Cleveland's Growth & Transition (1900-60)
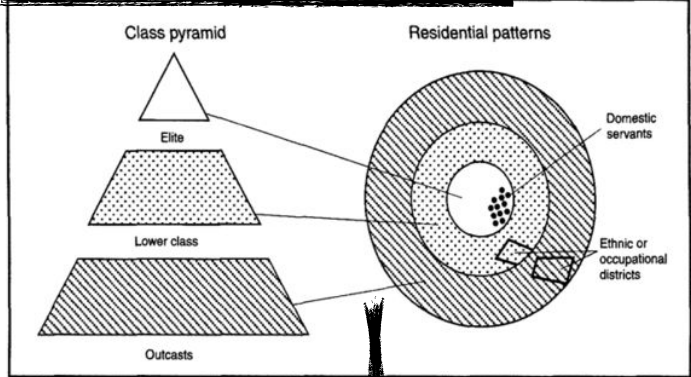
Burgess Circle Model
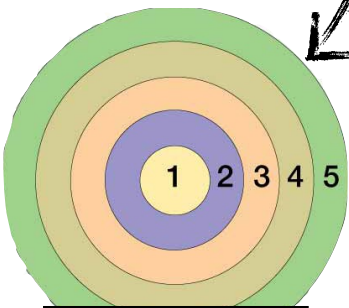
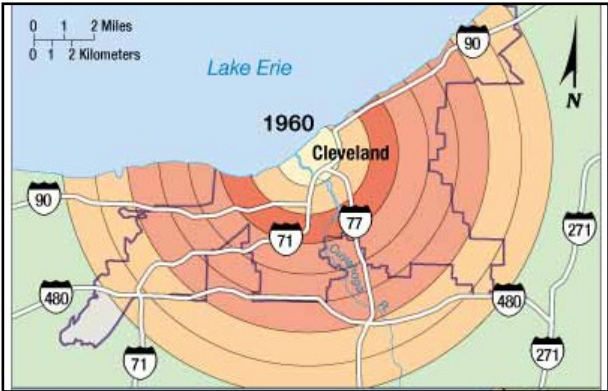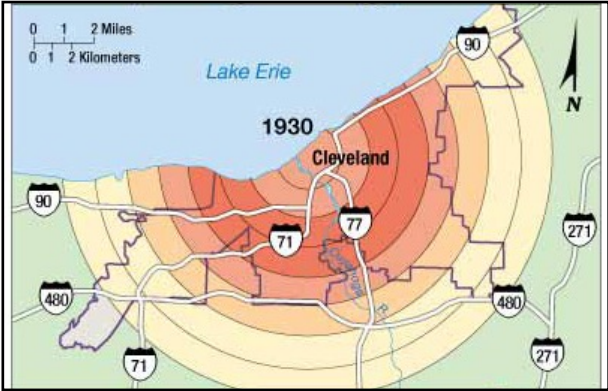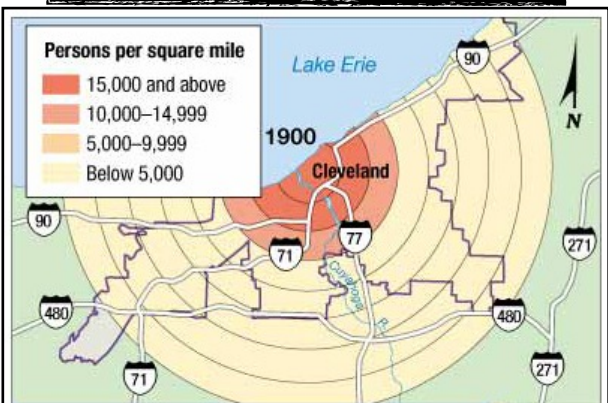## Hoyt Sector Model

1 Central business district
2 Transportation and industry
3 Low-class residential
4 Middle-class residential
5 High-class residential

The massive explosion of people impacted the quality of life in urban environments. The factory cities were not initially designed to handle the needs of so many people so there were issues with sanitation, disease, and fires that made life miserable, especially for the poor. As urban centers increased in wealth from the factories, money was invested into necessary infrastructure to improve the quality of life for the residents. In 1875, sewer systems and clean water piping began to be installed to remove human waste from the population and to improve access to clean drinking water. Buildings were designed with the necessary plumbing to directly access the system, reducing the number of open sewers and improving the health of the population. Electricity and power grids, along with telephone lines, soon joined pipes being installed through cities; all of which improved the lives of residents. Napoleon III of France even went so far as to intentionally destroy large segments of Paris in order to install sanitation infrastructure. While rebuilding the now-iconic Parisian buildings, he improved the city's layout from the twisted medieval streets to wide and straight roads. The city was designed to have a new radial layout connecting train stations and developing organized neighborhoods. The Parisian arrondissements systematically distributed needed food access, retail, government and medical services throughout the city. Paris also mandated that the each neighborhood have a certain amount of low income housing, in and attempt to disperse the poverty through the city. While a massive gap still existed between the quality of life of the wealthy and that of the average worker, all these improvements did improve the overall quality of life for the low-income workers.


1870s Sewers

Radial Road Pattern

Paris

Another change in the urban development was the increase in interdependency between cities. In the preindustrial era, cities were self sufficient. In line with the Von Thunen Model, food was brought in from just outside the city center so only urban complexes near arable land had a chance of survival with such a dense population. With improved transportation, communication, and mechanization, food no longer needed to be grown near the city. Neither did raw materials have to be extracted from near the factories. Steamboats and trains could transport almost any resources across almost every imaginable terrain. Cities began to develop around transportation networks and focus on maximizing their comparative advantage in the global system. A Global Division of Labor begin to form as cities supported one or more functions in the supply chain. This meant cities were no longer focused on being self-sufficient, but instead became interdependent; relying on the success of other urban and rural places for their own wellbeing.

American Urbanization

While the USA urban settlements developed thousands of years after Europe, the rate of urbanization was exceptionally faster. America's smaller population, expansive open hinterlands, and (after 1898) lack of neighboring enemies, set them off on a different urbanization path than Europe. They did not have ancient or medieval settlements at the heart of their cities to preserve or work around. Instead, they could benefit from the latest in industrial technology and from the knowledge of studying thousands of years of urban design around the world.

John Borchert developed the *theory of five epochs* to explain the development of American Urbanization. The epochs were based on the cycles of development within transportation. As each transportation advancement occurred, it caused a ripple effect in where urban developments were located. Cities that could take advantage of the new transportation thrived and grew. Those who were left out or were unable to keep up with the times… shrank and died. The chart on the next page displays a breakdown of Borchert's Epochs. It shows within each era:

- Changes in the source of energy for the transportation

- Changes in types of transportation and communication technology

- Changes in the critical location for where the city settlement should be placed to maximize the benefits of the new transportation technology.

- Impacts to the spatial distribution & pattern of the new cities developed in that Era/Epoch.

- Examples of which cities were developed during that epoch.
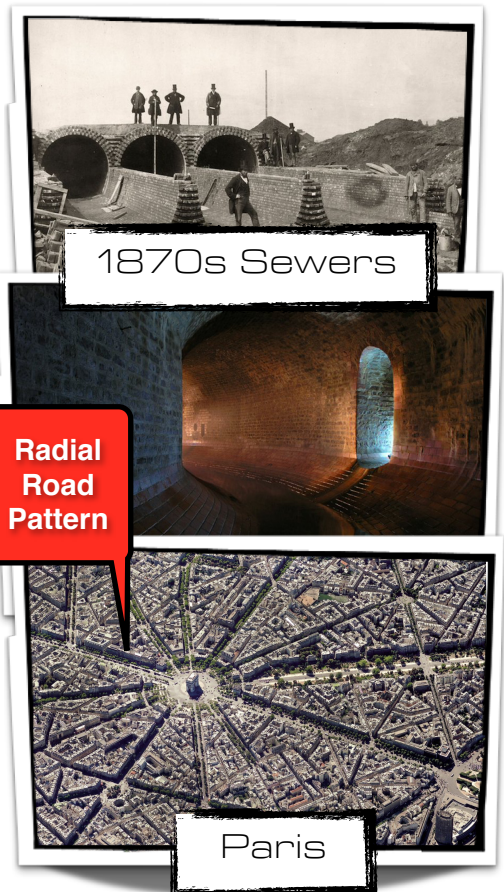
APPLICATION #1

Perform a 4 Level Analysis regarding the distribution of cities on this map. Each colored bubble represents the epoch represented on the chart (Next Page). How has transportation impacted their distribution? Do you think there will be any new cities developed in the 20th century?

USA City Growth - Based on Borchert's Model of Urban Development

Growth Stage	Energy Base	Transport Channel	Critical Location	Spatial Pattern	Examples
Epoch 1: Pre 1820 (Arable Land)	• Human • Animal • Wind, Water	• Dirt Roads (Horse/**Wagon**) • Rivers/Oceans (Flat/**Sail boats**)	• Seaports on River Mouths for trade • Agriculture Villages near arable land	• Dispersed in good Agriculture Areas • Linear distribution along key waterways.	• Boston, NYC, Philly, Hartford, Charleston
Epoch 2: 1820-1840 (Adaquete Labor)	• Water Power • Steam Power (Wood)	• Rivers & canals (**Steamboats**)	• Interior parts of rivers, lakes, canals for trade • Near large pools of labor	• Linear Distribution along waterways	• Cleveland, Buffalo, Pittsburgh
Epoch 2: 1840-1860 (Capital/Wealth)	• Coal burning steam engine	• **Iron railroads** (to hinterlands)	• Interior railroads near freshwater lake/sea/river ports	• Urban centers connected to national markets by rail	• Chicago, Kansas City, Memphis, Salt Lake City
Epoch 3: 1860-1920 (Age of Enterprise)	• Coal & Steam • Electricity	• **Steel Railroads** (Spec. Railcars/fast Service)	• Railcenters, no regard for water	• Distributed. in West/ South (Periphery) • Close access to resources like Oil, Coal, Wood	• Dallas, San Fran, Seattle
Epoch 4: 1920-1970 (Info)	• Internal Combustion Eng. • Natural Oil/Gas	• Rail, **Highway**, Roads, **Airports** • Telephone and TV Signal	• Highways now come to the cities. • Position within the communication grid.	• Growth of Megacities and megalopolis • New metropolitan centers in based on quality of life/pleasure	• Los Angeles, Miami, Phoenix, Las Vegas
Epoch 5: 1970-Present (Decentralized)	• Electronic, Jet Engine. • Natural Oil/Gas • Green Energy	• Rail, Highway, Roads, Airports • Birth of Internet & Cell Phones	• Accessibility to the internet network and satellite communications • Accessibility to intellectual labor and markets	• Decentralization. Movement of people out of cities into the suburbs. • Urban Sprawl	• Creation of suburbs and edge cities around major cities. • Sprawls creating megaregions and Megalopolises

Pre-Industrial Model

Hoyt Sector Model

Harris Galactic City Model
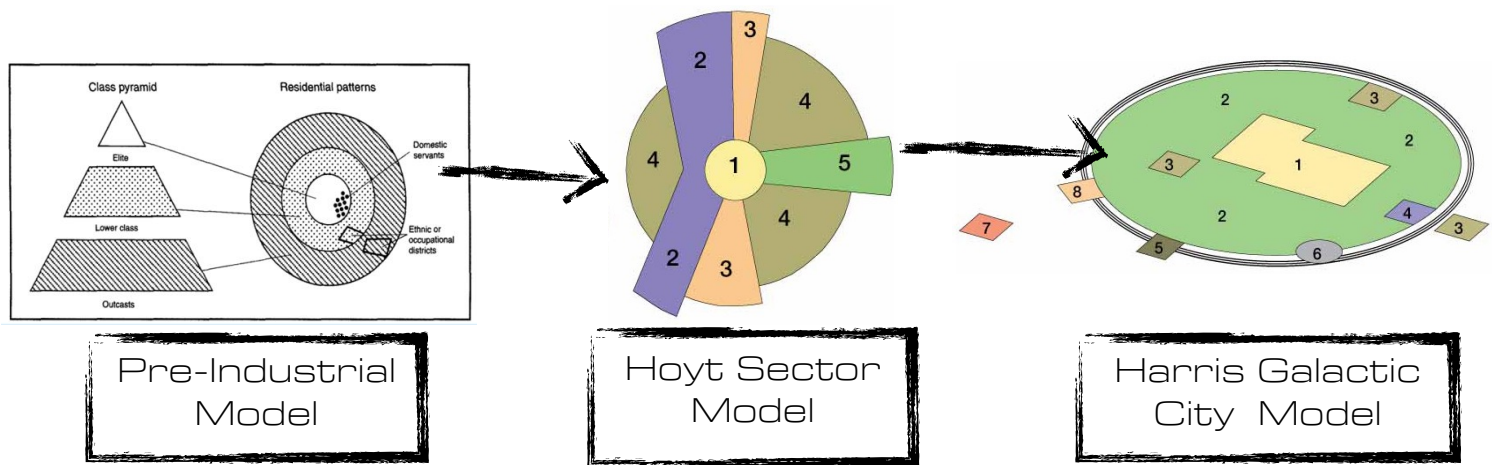
Modern Urbanization Trends in the MDC: 1950-Present

After WWII, the Cold War era began. In the USA, factories shifted their Fordist production from war machines to automobiles and home appliances. Upper and middle class Americans displayed their wealth through the number and quality of cars they purchased. The government supported this trend by making the landscape-altering decision to invest government funding into the building of an interstate highway system, instead of into more advanced railroads. These two social-political movements have shaped, and continue to shape, the modern American urban and cultural landscape:

• **Growth of suburbs and edge cities**. Prefabricated homes were quick and easy to assemble. Roads were paved into the hinterlands, creating new communities away from the confines of the city but still close enough to access infrastructure and drive to work. In these rapidly expanding edge cities, mini-CBDs formed with office towers and shopping malls/strip malls with all the retail needs of an American family. Investment from the new formed (or newly empowered) towns poured in money for parks, schools, recreation centers, libraries, and any other conceivable need for a middle-class American family.

• **Rich-White Flight**. For thousands of years the wealthy prided themselves on living in the CBD. Now, the wealthy rapidly emigrated into the suburbs. The ultra wealthy went even further to gated communities in the exurbs. With the exit of a majority of rich white families, the high quality services left with them. This left the downtown areas outside of the CBD to slowly degrade over time and turn into run-down slums, ethnic enclaves, or ghettos with a high percentage of minorities. Some areas were left with scant food store options, slowly turning into food deserts.

This "white flight" was encouraged by the practice of *blockbusting*. Real estate and mortgage agents would find all of the white communities in a city with homes for sale. They would assist the black families from the slums by "planting them" in the white neighborhoods. Then, the real estate agents would visit white families within two blocks, saying, "Did you see who moved in? You know… where there is one black family there, there will be more. You know what will happen to your home value? You better sell now, while I can still get you the best price that I can. Actually, let me help you out, and I know an investor who will buy this house from you as is for cash. You can be out in 28 days! You better get you out before it's too late." Homes that were worth $8,000 were sold by scared white families for $5,000 to investors. In Baltimore, neighborhoods that were 100% white became 98% black in 3 years as the result of blockbusting. The same real estate agent who "saved" the white families, would then arrange for them to buy a house in the suburbs for a low cost, low interest mortgage.

What about black families? Most were living in ethnic enclaves in the slum part of town from when their grandparents or parents moved in during the Great Migration north. These 2nd or 3rd generation city dwellers wanted a better life for themselves and their children. Real estate agents would sell "discounted homes" in the white communities (remember the homes the white families sold out of fear?) to black families for $12,000. The black families, who did not have public access to the sales records and contract information (like we have today) were told they were getting a

deal of a house in a great neighborhood! The sales pitch would sound something like this:

> *"Tired of living and renting in the slums? Do you want better for your family and to OWN your own house and property? To get a mortgage on a $10,000 house requires at LEAST a $2,000 down payment. For just a $300 down payment, you can get into this $12,000 house with nice sidewalks, safer communities, and better schools. Just $300 down and $31 per week and in 15 years you can own this house - by the time your kids are in high school! BUT, this is a hot deal and you have to act now. If you don't someone else will!"*

Using this high pressure tactic, black families paid the $300 down payment and moved in. Only years later did they realize they hadn't been sold a 15 year mortgage, they had been sold a *Land Lease Option*. With a mortgage, the home owner OWNS the home from day 1 and every mortgage payment builds a persons *equity* in the house. When they sell the house, the person gets that equity back, to use when paying for their next home. With a land lease option, the person is RENTING the house with the OPTION to buy at the end of the agreement. That $300 was a non-refundable deposit the family never gets back, with only part of the weekly rent going towards paying for the house in 15 years. Because they were renting, the family never built any equity. If the black family doesn't buy the house at the end of the contract, they lose ALL the money they paid in rent; having built ZERO equity. Also, because the black family is renting, if they are late on a payment or miss a payment, they face the threat of immediate eviction. As a result, the black families over paid for rent, built no equity, and over paid for the home. Many found themselves back in the slums if they missed payments - worse off than when they began the process.

Would you panic if a Negro moved next door?

"I'm broad-minded," said one home owner when Negroes moved into his block. But a short time later he panicked—and sold his house at a loss. In this week's Post, you'll read how speculators decide which blocks are "ripe" for racial change. How they use vicious tactics to force out the whites. And how one speculator brags that he could "bust" your block in no time at all.

The Saturday Evening **POST** July 14-21 issue. A Curtis Magazine

- **Legal Discrimination**. With the economic and ethnic segregation came discriminatory policies ensuring that only the middle class and rich lived in the suburbs. Many communities in the South created the Jim Crow racial laws that influenced home ownership policies. Homes were sold at a lower price to white people and at a higher price to the people of other races/ ethnicities/classes not wanted in the community. Louisville had a law until the 1910s that strictly forbade interracial housing developments "to keep the public peace." Banks also setup *redlining policies* - refusing to loan money to people in certain zip codes with larger minority populations for fear they would not get their money back.

Before

After Gentrification

The New America

- **Urban Sprawl**. While suburbs in the 1950s had seemed like a great idea, the growth became uncontrollable. Instead of organized, planned communities making intensive use of their space, developers utilized the vast open lands around the cities to build homes and retail wherever they felt would be most profitable. This caused smaller cities and suburbs to explode in size with thousands of cookie cutter homes rapidly being assembled. By the 2000s, these policies resulted in massive metropolitan areas, consuming 2-4x the amount of land than in 1950.

The Industrialization of Asia, Mexico, and Brazil caused the deindustrialization and economic restructuring of once-thriving urban centers in the *Rust Belt*. When the factories left the Rust Belt, the cities lost their economic base. Unemployment numbers skyrocketed to 15-20%, as once proud steelworkers competed for jobs at McDonalds. These aging cities relied on an aging infrastructure falling into disrepair, without the needed tax base to fit it. Some Rust Belt cities, like NYC, Pittsburgh and Boston, were able to utilize their well developed universities and hospitals to transition and become technopoles. These cities have sought to *gentrify* by promoting urban renewal through rebuilding and repurposing their old warehouse districts and run down parts of town into new, vibrant urban centers. The goal: to attract wealth, employment, and tourism back into the center of the city. New urban centers, like Silicon Valley in California and Research Triangle in North Carolina, were able to leverage their political and educational resources to form vibrant technopoles as well. Other deindustrialized urban centers have fallen into a state of decline, sometimes to the point of collapse. The economic restructuring of America has continued to reshape its population distribution and economic supply chains as cities continue to fight for economic growth to stay relevant into the 21st century.

To fight urban sprawl, city planners are attempting to bring density to the suburbs. *Urban sprawl* has created economic, social, political, and environmental issues for metropolitan regions and is considered unsustainable. Towns are turning to smart growth strategies, like *New Urbanism,* to bring mixed use, medium/high density development to the suburbs. With the rapid decay of shopping malls into underperforming asphalt, cities are converting these prime locations into mixed use communities. The goal is to support businesses and residents by bringing them back together. By creating tighter, more dense communities, towns promote urban planning that encourages walkability and mass public transit. New Urbanism strives to build communities, promote local economies, all while protecting the environment.

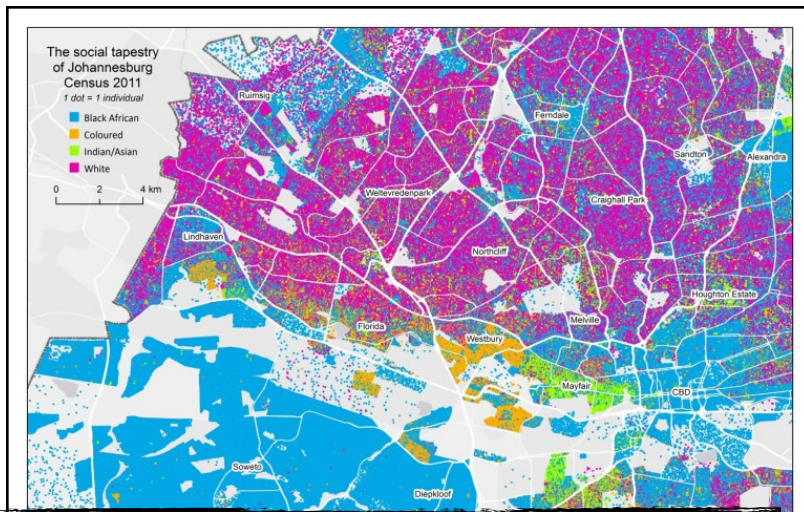# J. Urban Problems of the Less Developed Countries (LDC)
Legacy of Imperialism

European imperialism of Latin America, Africa and Asia has had long term impacts on urban settlements in these regions:

- **Urban Location**. Many of the regions conquered by Europeans were traditional-folk societies (Rostow Stage 1). Advanced societies, like India, had a modest collection of cities, most of which were setup in the pre-industrial model. Other areas did not have any defined urban structures and had to be developed from scratch. Europeans invested heavily into areas along the coast to maximize the relationship between port trading access AND exporting a region's natural resources. The mission was to transport cheap raw materials to industrial factories in Europe, regardless of the impact on life for the people in the colonies.

- **Political and Economic Power Shift**. European coastal cities became the centers for political, military, and economic power. Since most regions had one major European city, all investment went into that one city. Soon key European cities in the region became *Primate Cities* - cities with a population more than twice that of the next largest urban settlement. This gave primate cities a disproportionate influence in the state as compared to smaller cities, towns, and hamlets dispersed throughout the rural countryside.

- **Technology & Cultural Diffusion**. Through relocation diffusion, industrial technology infused into the European cities. Railroads, ports, electricity, telephones, radio towers, universities, hospitals, sanitation systems, and schools were integrated into the urban landscape. European building styles changed the colonial cultural landscape. Asian, African, and South American towns now had wide business lined boulevards (paved streets), tall buildings, retail shops, theaters, men's clubs, upscale restaurants, and dance halls. Unfortunately, much of this technology usually did not diffuse beyond the colonial city.

Major Cities in Asia

- **Segregation**. Europeans built new extensive urban spaces in which the rich colonists could reside. The older, more poorly constructed residences were where the natives lived. Cities were segregated physically, culturally, economically, and legally. For example, S*outh African Apartheid* legalized institutional racism. Black and white people could not walk together on the street, shake each other's hands, date, or marry. They had to live in different parts of the city and work at different jobs. This was the law of the land in South Africa until 1993.

The social tapestry
of Johannesburg
Census 2011
1 dot = 1 individual
■ Black African
■ Coloured
■ Indian/Asian
■ White

Segregation in Johannesburg, South Africa

Boulevard in Bangkok

China's SEZ in the
Great Pearl Delta

As Europe decolonized in the 1950s, urban centers took on a greater role in Asia and Africa. As a parting legacy, Europeans had superimposed random boundaries, creating European-style states with these colonial trade cities as their capital. For many new states, the former colonial cities were the only area in the state with advanced industrialized technologies because the Europeans had unevenly developed the surrounding territories. Since decolonization was occurring during the Cold War, the US funded IMF required states to be capitalist democracies in order to receive development loans. Thus, to get money, the developed colonial cities became the home to key government and economic organizations. Some states, like Pakistan, Brazil, and Nigeria, chose to create their own capital cities inland, in a central location convenient for the State's population and reflecting the State's cultural values.

By the 1980s, these capital cities were trying define their roles in the world's economy. With the advancement of cargo ships, containerization, telephones, satellites, computers, and the Internet, cities in the periphery were able to become interconnected members to the global network. Periphery states created *Export Processing Zones* (EPZs, SEZs, Maquiladoras, Free Trade Zones, etc.) and began to leverage their *comparative advantages* of cheap land, cheap labor, low taxes, and authoritarian governments to entice transnational corporations to provide *foreign direct investment (FDI)*. The *Newly Industrialized Countries (NICs)* of Mexico, China, South Korea, the Philippines, and Vietnam began to create urban growth using FDI. With the promise of cheap land and labor, as well as access to the populated Asian markets, multinational corporations rapidly deindustrialized in Europe and the USA and "raced to the bottom" in Asia and Mexico. As a result, massive waves of rural-to-urban migration crashed into these newly industrialized urban spaces, with new people urbanizing at a rate of one person every three-seconds.
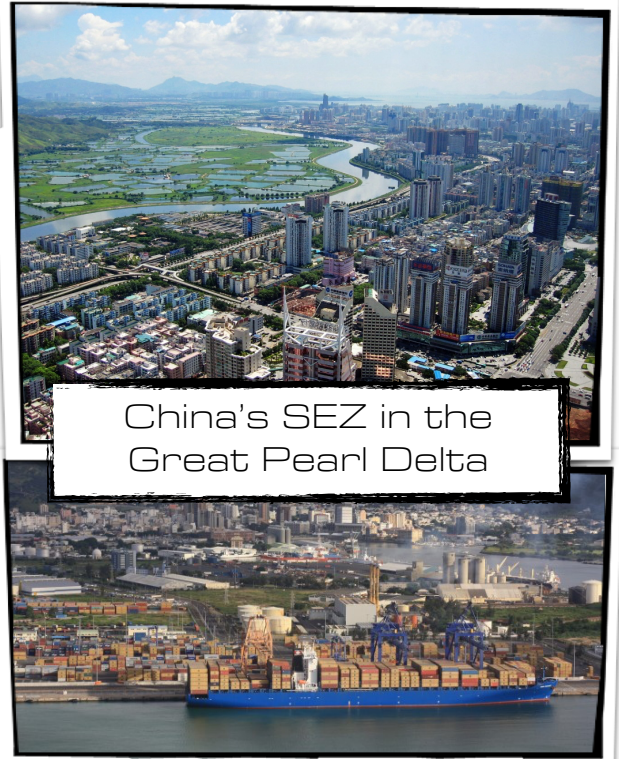
As a result of this massive and rapid urbanization, the periphery is experiencing a rapid expansion in its number of *Megacities*. Megacities are urban spaces with over 10 million residents. In 1950, only New York City had a population larger than 10 million. As of 2015, there were 27 megacities, with 44 more cities with populations between 4 - 9 million. The number of megacities is growing rapidly, with the highest rate of urban growth being located in the periphery.

Challenges of LDC Megacities

As a result of such a massive increase in population, these mega-urban spaces in the LDC face a unique set of challenges:

Migration. Rapid urbanization is being driven by rural-to-urban migration. It is projected 200,000 people a day migrate from intensive subsistent farming communities or mines into megacities. As periphery states transition into DTM Stage 2, the dropping death rate and increase in life expectancy causes a massive spike in population growth. Overpopulation of rural areas over-stresses the land's carrying capacity, especially if the geography was not ideally arable. Where there is arable land, the introduction of mechanization and the agricultural green revolution further reduces the need for primary sector work. These serve as additional push factors, driving people from the rural towns into megacities.

Meanwhile, pull factors are also enticing people to move. Africa is home to many cities gaining prominence and importance on the world's stage. Thanks to home grown African technologies plus trillions of dollars of infrastructure investment from China, African cities are now the home of growing secondary and tertiary sector businesses - especially as China's population demands a higher living income. The promise of decent wages and the ability to pay for food is more promising than the hunger seasons on some subsistent farms. The opportunity to access health and educational services, or provide social mobility opportunities for themselves and their children, also serve as strong pull factors into the megacities. Even if a family is poor in the city, it is often better than being poor in the rural countryside.

	Global				Most Developed				Least Developed			
City Size	50's	70's	90's	2015	50's	70's	90's	2015	50's	70's	90's	2015
10 million people +	1	3	12	27	1	2	4	4	0	1	8	23
5 million - 10 million People	7	18	21	44	5	8	6	8	2	10	15	36
1 million - 5 million people	75	144	249	472	43	73	98	120	32	71	151	352
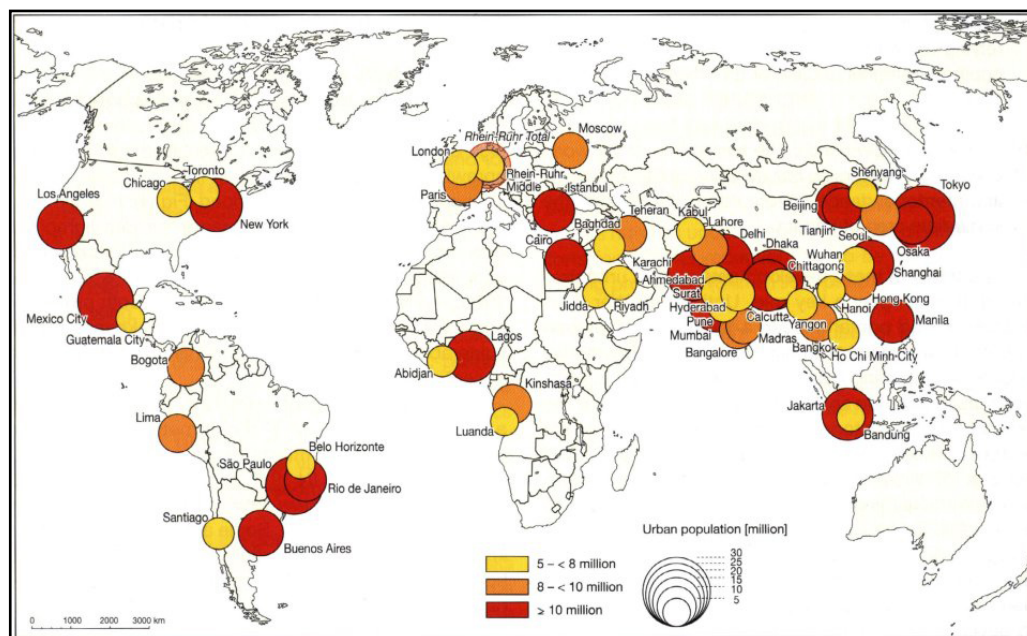
APPLICATION #2

How would Wallerstein describe the spatial distribution of cities with populations above 5 million? Predict what Economic, Social, Political and Natural impact this urban growth might have?

Development. The LDC/Periphery has the lowest development level in the world. While the cities are working to improve the situation, the rapid pace of migration places tremendous pressure on urban spaces. The cities have limited infrastructure, and their transportation and sanitation systems are older and often insufficient for such dense populations. Carrying capacity is stressed, with a lack of both clean water and ample supply of food. Systems are not in place to handle massive waste disposal from trash or sewage. Available energy is limited, with the bulk being made available to the industries. Services like education and health care are easily overwhelmed. Construction of affordable housing cannot take place fast enough. Even cities with sprawling high-density residential towers cannot keep up with the growth.

While the cities are growing in wealth, the periphery states do not have a strong enough GDP to provide all the necessary services to the remainder of the State. The states work to attract FDI, but it becomes increasingly difficult to gain the attention of businesses in the competitive global market. States often have to rely on loans from the World Bank and the IMF to speed up urban development, in hopes they can generate enough income from the economic growth to pay them off… but this is a risky and potentially burdensome proposition.

Economic. There are not enough jobs for everyone wanting to work. Highly skilled and technical workers can find work easily or can emigrate to areas where their skills are in demand. However, the abundant supply of low-skill work is greater than the demand. This keeps wages low, since people are willing to work for any small amount of money they can earn. They are also willing to work in the informal markets - making goods by hand, working in domestic services (cleaning houses), on street economies (shining shoes, food vending), and picking up trash for cash (under the table). A lucky few will find work in day-labor construction or in a micro-enterprise like a car repair shop or as a plumber.

Political. Many periphery governments are weak or ineffective, hindering effective urban development planning. With a weak GDP and a small tax base, it is difficult to plan for a tremendously sized population. This is especially true in situations with *fragmented morphology*. Governments of island states, like Indonesia and the Philippines, or areas with rugged geography, like Bangladesh, have added challenges in meeting the needs of their isolated and fragmented populations.

Crowded Trains in Delhi, India

Open Sewers & Trash Dump in Lagos, Nigeria

Streets of Mumbai, India

Environmental. Megacities also present a large number of environmental concerns:

Clean or Unclean?

- *Air and Water Pollution*. The factories in LDC are usually environmentally unregulated. This causes them to have little regard for the amount of chemicals released into the air, water, and land. Open sewers and unregulated trash heaps contaminate clean drinking water.

- *Natural Disasters*. Much of the housing is poorly made and is built in unsafe areas, making urban spaces susceptible to floods and mud slides. High quality housing can withstand most natural disasters, but low quality housing is easily destroyed - especially since it is usually built on flood plains or leftover land unsuitable for commercial development. The low quality and high density of this housing also makes it susceptible to fires.

- *Disease*. Overcrowding is a problem for disease because standing water breeds mosquitos, which readily transmit diseases like malaria. A lack of adequate health services causes small breakouts to turn into massive health disasters.

- *Deforestation and Energy Consumption*. As a society advances and grows, its urban metabolism increases. The amount of resources it consumes increases as the population expands. This leads to an overuse of nearby forests and clean water sources. If proper agricultural techniques are not used, the arable soil can be depleted of nutrients.

2000 A.D.
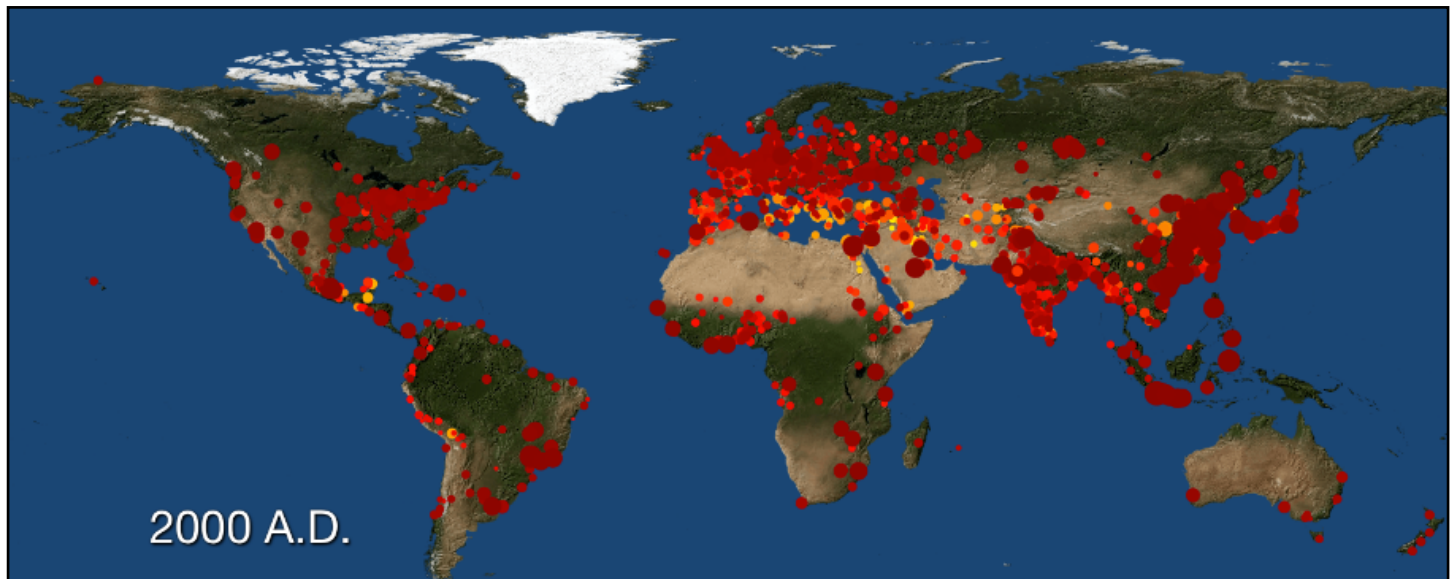
Squatter Settlements: The Cities of the Future in the LDC

With the massive migration into underprepared urban spaces, there is not enough legal affordable housing. As a result, *squatter settlements* or *shanty towns*, grow around urban spaces. A squatter settlement occurs when people illegally build or rent housing which was constructed illegally on land they do not own. It is estimated that over 55% of populations living in cities in the periphery reside in a squatter settlement. These settlements are growing fast, at the rate of one person every three-seconds; 200,000 per day; 1.5 million people per week; 70 million people per year. In 2010, there were 1 billion squatters. By 2030, there will be 2 billion. By 2050, it will reach 3 billion people, averaging 1 in every 3 people on the planet living in a squatter community. These are the cities of tomorrow.

Squatter settlements are typically located on the outskirts of the city, where the city boundary and land title ownership is unclear. The land squatters settle on is otherwise unwanted and is the least desirable: the side of a steep mountain, in a flood plain, along the side a landfill, in a mass cemetery, or near unregulated industries with heavy pollutants. The quality of housing varies given the resources available and the governments acceptance. Most governments are so overwhelmed

with urban issues, they do not have the resources to properly enforce land rights. For example, Rio de Janeiro has over 1 million people living in their *Favelas* - making the residents nearly impossible to remove. Kibera near Nairobi Kenya has 55% of its population living in squatter settlements.

Life in the squatter settlements is difficult. Most residents struggle to find work because they are low skilled, poorly educated, and have little money of their own. While work is not impossible to find, these workers tend to be low wage earners and the amount or frequency of work is unreliable. The construction of homes varies by community; some have a simple concrete slab with corrugated metal roofs or are made with mud brick, sticks, and plastic tarps. A new migrant may share a 10 ft x10 ft concrete and metal hut with four people for the cost of $20 per person per month. The homes do not have running water or toilets. Any electricity is stolen from the grid and is very limited - often enough to power only one light bulb. The residents have no rights and no access to services: education, medical, policing, or legal services. If the government wants their land or desires the people to be removed, the squatters' homes can be bulldozed without warning and without recourse. For example, Brazil bulldozed squatter settlements when building soccer stadiums for the FIFA World Cup and the Olympic Games. Brazil air dropped pamphlets onto the community and arrived in two weeks later with bulldozers to clear the area.

The squatter settlements make their towns vibrant communities, to the extent they are allowed. Skilled craftsmen and cooks set up restaurants along their make-shift strip malls. Members of the community form their own city council to create rules and regulations for the community. When resources are available, people run PVC pipes to bring in water and lay concrete for streets and sidewalks. They work hard to make their communities livable. They are people who are not looking for a handout or charity, they are begging for an opportunity.

Squatter settlements present many challenges for a city:

- *Unsafe living for residents*. The housing is, for the most part, poorly constructed. Fires, floods, and natural disasters are devastating to these communities. Deforestation, from clearing trees to build homes, can lead to mudslides and can wipe out whole communities without warning. Squatters may live near trash heaps and open sewers, lacking access to clean water.

  Nutritious food is hard to come by and often leads to malnutrition, especially among children. A lack of contraceptives and little access to medical care leads to high fertility rates, infant mortality rates, and maternal mortality rates. Members of the community struggle with usually preventable diseases, especially from water born illnesses. Members of these communities have higher mortality rates than their urban counterparts in the city proper.

- *Political Strain*. The relationship between the squatter settlements and the government is a hate-hate relationship. Squatters hate having to live in such poverty with no rights or government support. The government hates that people are living there illegally. The squatter settlements are a visible eye-sore, staining the landscape with a very visible reminder of a city's poverty. The depravity leads some residents to turn to gangs, sparking an increase in crime. The crime, both personal and property related, demands resources for policing which puts a strain on the money spent by the government.

On the positive side of the political spectrum, in Sultanbelyi near Istanbul, Turkey the government provides the right to not be evicted, allowing people the ability to develop their homes without fear of bulldozers or sudden eviction. Turkey also allows communities to register with the government when they have 2,000 residents to become a *sub-municipality*. This allows the community to have a legitimate governing body, collect taxes, and provide services within their own settlements.

If current trends continue, migration and demographic patterns will begin merging megacities into *mega-regions*. These are the urban areas of the future.

Squatter Market

Which community has a better relationship with the government?