



THE COST OF URBAN EXPANSION IN MEXICO

Executive summary

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Guanajuato, Mexico; Credit: Salim Chaddesine/ Flickr

Executive Summary

HIGHLIGHTS

- The economic cost associated with expansion depends on the urban structure and housing stock of each city. The cost of providing basic public services depends on those factors, but also on the local capacity to collect tax revenues.
- Extrapolating the results, the sum of the annual costs for providing basic urban services and the expenditure on the commuting of families account for more than 1% of the national GDP each year.
- The current urban model is not financially sustainable in the long term. By 2050, half of the analyzed cities would need to increase their municipal spending from 48 to 244% to maintain the current expenditure per housing unit in the provision of urban services.
- Locating new dwellings in consolidated areas close to sources of employment would mean a joint average saving of 5.6% in commuting, compared to a business as usual (BAU) scenario.
- Without location policies, the densification of distant peripheries can reduce the aggregated cost in some cities, but not in all. However, the reduction of the total cost is achieved at the expense of increasing the annual commuting expenses of the families.

- To maximize benefits, densification and location policies need to be implemented jointly, considering the context of each city.
- Location and densification planning policies must be developed in a context of joint responsibility by all levels of government. Efficient, transparent and democratic planning instruments must be developed out of agreements between governments and citizens, in order to effectively regulate future sustainable urban growth.

ABOUT THIS REPORT

The Cost of Urban Expansion in Mexico is the third publication of the Coalition for Urban Transitions in Mexico, after the reports *Federal Actions for Urban Planning: Towards Better Cities for All* and *Mexican Cities: Expansion Trends and their Impacts*.

The Coalition is a global initiative that supports national governments to accelerate economic development in order to face the climate crisis by transforming cities. At a global level, it is made up of more than 36 research institutes, intergovernmental organizations, investors, infrastructure providers, strategic advisory companies, NGOs and city networks, all with the same objective: the creation of livable, equitable and sustainable cities, which encourage the economic development and well-being of people.

The Coalition has been working in Mexico since January 2019, and among its partners and collaborators are WRI Mexico, C40, GGGI, Tecnológico de Monterrey, ONU-Habitat, ICLEI, Fundar, Oxfam, UNAM, CEPAL, Techo Mexico, GIZ, El Colegio de Urbanistas de México, IDOM and ITAM

THE CURRENT STATE OF CITIES

Mexican cities face three challenges –urban sprawl, pollutant emissions, and inequality in the access to employment and urban amenities¹– which hinder their transformation towards a compact, connected, coordinated, clean and equitable urban model (4C + E). In the last twenty years, Mexico’s urban sprawl –defined as the process in which the urban footprint grows at a larger pace than population growth, leading to a decrease of urban density– has been more markedly experienced in medium-sized cities (500,000 to 3 million people), especially in the rural towns of metropolitan areas, whose urban footprint has grown, at least, at a rate four times higher than urban towns in the same metropolitan areas.

1. See Zubicaray, G., Brito, M., Ramírez, L., García, N. and Macías, J. (2021). *Las ciudades mexicanas: tendencias de expansión y sus impactos*. Available at <https://urbantransitions.global/publications/>



Bellas Artes Palace, Mexico City. Credit: Salim Chamseddine/Flickr

Urban expansion has brought with it increases in emissions of air pollutants and greenhouse gases, especially in medium and small cities. Lastly, the new urban peripheries are spaces of socio-spatial segregation, with few, low-skilled informal employment opportunities and poor access to urban services that improve the quality of life (formal employment, basic urban facilities, and public space). Mexican cities are polarized, and access to urban amenities is concentrated in the highest income population, while the most disadvantaged are deprived of most of the options.

THE CALCULATION OF URBAN EXPANSION COSTS

Urban expansion has a negative impact, as well as a high economic cost. To estimate the latter, the report analyzes the cost of peripheral urban expansion in eight metropolitan areas: Mexico City, Guadalajara, Monterrey, Tijuana, Reynosa, Mérida, Tuxtla Gutiérrez and Culiacán. The case studies' diversity in size, urban structure and location provides a greater scope for the current situation, and it can serve as a guidance for cities with similar features.

The economic modeling uses four components: costs of housing construction and its urbanization, emissions associated with construction, commuting expenses and costs of provision for basic services. The aggregated costs in the eight cities are then extrapolated to the national level, and three future scenarios are considered: business as usual, the promotion of adequate location for new housing (closer to employment sources and with urban services), and the densification of the outer periphery.



Tepic, Mexico. Credit: Daniel Estouchev/Flickr

THE CURRENT COST OF URBAN EXPANSION

The analysis of the individual components shows that the composition of the housing stock of each city has a direct impact in the overall cost of urban expansion. In most cities, except for Culiacán, Mérida and Mexico City, the urbanization of road infrastructure for low-density housing developments has a greater impact on the cost of housing construction, a cue that supports the development of denser urban models. Likewise, the analysis of emissions reveals that low-tech housing construction can lead to the use of greater volumes of material, and therefore, increase emissions and their cost. However, there are important variations at the regional level, depending on the specific urban structure and the composition of the housing stock.

Regarding the recurring costs, commuting expenses are aggravated by the fragmentation of the urban footprint, for example in Culiacán and Tijuana –which have very fragmented and disperse metropolitan areas– especially for families living in distant peripheries. Urban structure also impacts the cost of providing urban services, although in this component the local tax collection capacity is also of utmost importance. In medium-sized cities such as Culiacán, Tijuana and Tuxtla Gutiérrez, there is a decrease in the available resources for housing due to accelerated urban growth, putting the future financial sustainability at risk.

Finally, the extrapolation of the results at the national level shows the high annual cost of urban sprawl. The sum of the annual expenditure of commuting for families and the cost of providing public services can exceed 1% of the country's GDP each year.

THE FUTURE COST OF URBAN EXPANSION

The current model of urban development is not financially sustainable in the future. If current conditions² continue, by 2050 four cities –Culiacán, Reynosa, Tijuana and Tuxtla Gutiérrez– would decrease their spending on public services per housing unit, decreasing either the quality and/or the areas of urban service. In these four cities local spending should increase between 48% and 244% by 2050 to allocate the same expenditure per housing unit as in 2019. The other four cities could assume the new housing stock if the percentage of federal transfers remains constant, an unlikely horizon in the face of a greater need for federal financing in cities with a shortfall. Thus, this scenario shows great uncertainty on the future sustainability of the current urban model, due to the inability to generate local income and the higher unit costs for providing services in cities with an increasing urban footprint and vulnerability to climate change.

In the case of betting on an adequate location for new houses, the total accumulated cost would decrease in most cities compared to the BAU scenario. In the case of Culiacán and Tijuana –cities which have increased their total costs– the situation could be reversed by adopting more efficient housing typologies. However, between 2020 and 2050 the average accumulated cost of commuting in all cities would decrease 5.6%, and in cities like Mexico City, Guadalajara and Tuxtla Gutiérrez, this percentage decrease would exceed 7%. Moreover, savings would increase every year: by 2050 the average annual cost of commuting per housing unit would be 8.3% lower than in the BAU scenario. These results represent a direct saving for vulnerable families, usually located in outer peripheries.

Finally, adopting just densification policies in the farthest peripheries would reduce the total accumulated costs in most cities between 2020 and 2050, at the expense of increasing costs on families' budgets. Excluding Mérida, Reynosa and Tuxtla Gutiérrez, on average the total accumulated cost by 2050 would be reduced by almost 10%. On the other hand, commuting costs up to 2050 would increase by 5.3% in relation to the extension of the BAU scenario. These results are concerning due to the vulnerable situation of families in urban peripheries. But as a positive, emissions costs would drop an average of 2.5% in the eight cities, which could rise to 15% in cities like Mexico City and Monterrey.

AN OPPORTUNITY FOR BETTER CITIES

The results show, in the first place, that the current urban model is not financially sustainable: it leads to a progressive deterioration of essential public urban services. Secondly, it is necessary to analyze the urban structure and the housing stock of each city to design adequate public policies. And thirdly, it is necessary to combine densification and adequate location, to prioritize the support of the most vulnerable population and to maximize the benefits of urban policies.

2. In other words, keeping the current trend on income from local taxes and the same tendency in the construction of new housing units.

Urban planning should be the responsibility of all levels of government. For this reason, the development of transversal planning instruments that allow directing public investment and promote comprehensive, environmental-friendly and inclusive planning, while developing the economic potential of cities, should be encouraged.

There is no single roadmap for this, as all cities are different. However, three basic principles can be followed:

- A shared responsibility for urban planning between governments, the private sector and the citizens, which would include a fiscal co-accountability of the three government levels.
- Focused institutional support on the most vulnerable population and territories, in social, economic or environmental terms.
- A comprehensive vision of planning, with a holistic analysis on the impacts and benefits of urban development in the short and long terms.

Santa Prisca Taxco, Guerrero, Mexico. Credit: Salim Chamseddine / Flickr





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