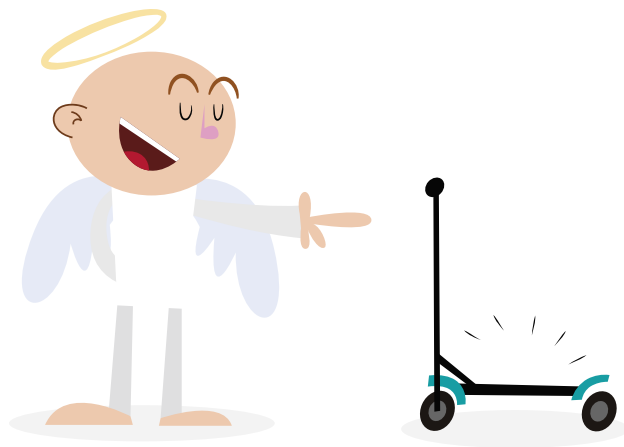


Funding active mobility



**Financial innovation and transportation
demand management**



Funding active mobility

**Financial innovation and transportation demand
management**

Funding active mobility. Financial innovation and transportation demand management.

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Funding active mobility

**Financial innovation and transportation demand
management**

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Claudio Olivares Medina

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*Could you be fooled by an evil demon into thinking
there's a real world out there when in fact there's not?*

- DAVID CHALMERS, 2022 (REALITY+)

What questions does this guide answer?

Based on the work carried out by Despacio for GIZ and its DKTI project in three Colombian cities, this guide explains how urban mobility funding works and describes both reasons and ways in which they can be improved. In short: we can make better use of the existing resources. The whole purpose is to manage finances in a different way in order to improve safety conditions, circulation and the overall well-being of people traveling through the cities.

This is exemplified by the story of the Mayor of Atlantida, who has numerous concerns and doubts about how he should reduce congestion, improve travel times and generally improve mobility in their city without having to spend millions of dollars to do so. An expert owl helps them figure it out with data and analysis, while an angel and a demon suggest options for them to choose from.

Although this guide focuses on the conditions of Colombian cities, its messages are easily applicable in the context of other countries in the region and, overall, in the world.

THE END OF THE DOCUMENT CONTAINS A SECTION PRESENTING ALL THE DATA SOURCES AND BIBLIOGRAPHY USED DURING THE PROJECT AND IN PREPARING THIS PUBLICATION.



Financial innovation and transportation demand management

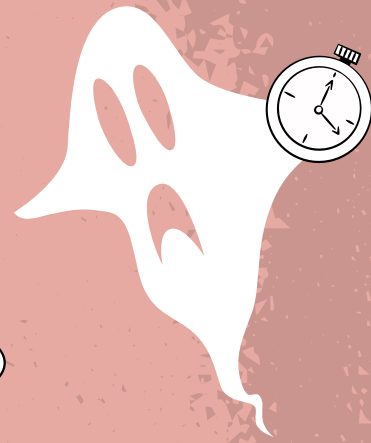
POLLUTION



CRASHES



TRAFFIC JAMS



HOW SHOULD I SPEND THE BUDGET
IN SOLVING THESE ISSUES?

PSST... MOTORCYCLES FOR
EVERYONE. THEY ARE FAST, YOU
GET MORE SALES.



WE SHOULD PAY FOR CLOUDS
SO EVERYONE CAN MOVE
AROUND SMOOTHLY.



LET'S NOT JUMP TO CONCLUSIONS
YET. FIRST, LET US ANALYZE THE
DATA; I'M SURE WE CAN FIND GOOD
WAYS TO INVEST.

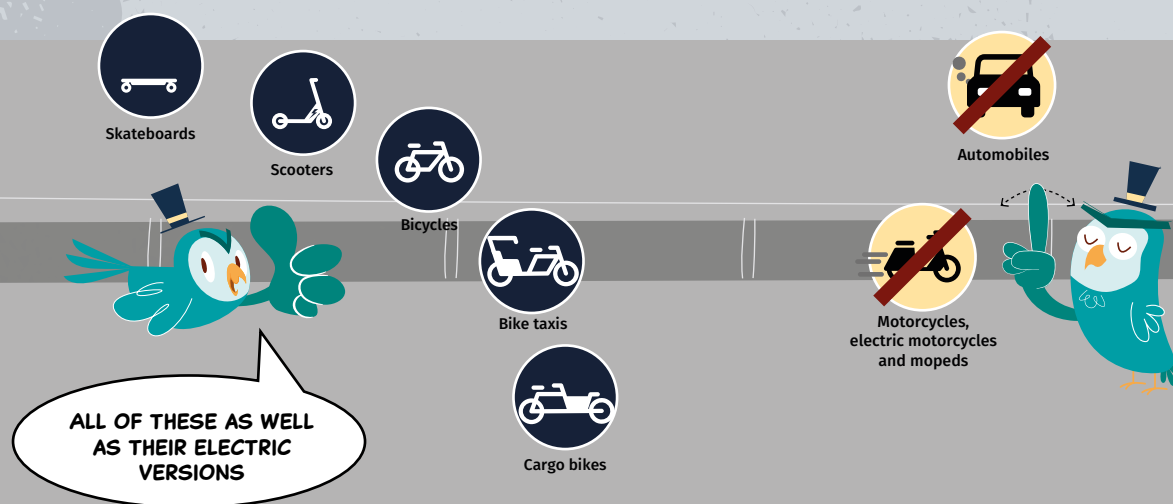


What is active mobility and micromobility?

To avoid any confusion, we need a dictionary.

Active mobility: all forms of travel involving any significant physical activity, including walking, cycling, or riding scooters with no propulsion.

Micromobility: includes all lightweight, slow, clean and healthy vehicles (including active mobility as well as other not so active means such as electric scooters and others with non predominantly human propulsion).



Financial innovation and transportation demand management

MICROMOBILITY:
HUMAN DRIVEN OR ELECTRICALLY
ASSISTED MOBILITY REACHING
SPEEDS UP TO 25 KM/H...

BUT, WHAT ARE THE BENEFITS?

**MICROMOBILITY ENABLES ACCESS
TO THE CITY FOR MORE PEOPLE.
MOST OF THE PEOPLE IN CITIES
DON'T OWN A CAR.**

**BESIDES, MICROMOBILITY
ENHANCES ACCESS TO PUBLIC
TRANSIT AND REPLACES CARS IN
SHORT TRIPS.**

I'M RUNNING OVER YOU!

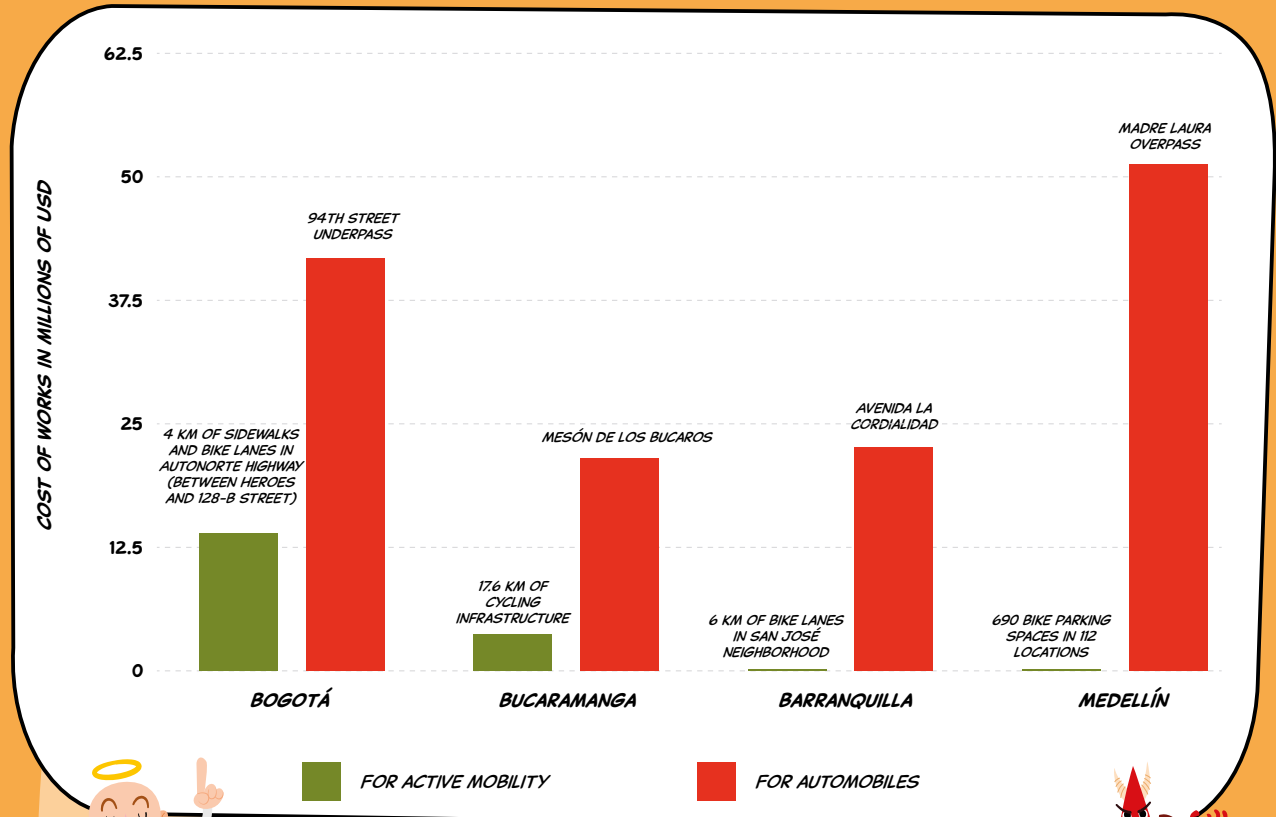


*NO, SIREE! THIS IS A SAFE
MICROMOBILITY LANE*



Micromobility can be funded very efficiently

When developing ambitious active transportation and micro-mobility projects, there are often times when officials examining these proposals will say that there is not enough budget to implement them (or that the project exceeds the available budget). Upon reviewing the total costs of representative active transportation facilities, it is evident that the problem is not a matter of costs, but rather one of budget allocation. This means that the cost of a large scale micromobility infrastructure (e.g. several kilometers of high quality bike infrastructure) is a fraction of the costs of infrastructure specifically for automobiles.



I CAN RIDE MY SCOOTER ON ALL THOSE BIKE LANES



NONSENSE! WE NEED MORE ROADS



THOSE PROJECTS ARE REALLY EXPENSIVE!

THIS GRAPH SHOWS A COMPARISON BETWEEN THE COST OF BUILDING PROJECTS FOR ACTIVE TRANSPORTATION AND MICROMOBILITY VS PROJECTS FOR MOTORIZED TRAFFIC. WE CAN SURELY SEE THAT SOME PROJECTS ARE VERY EXPENSIVE.



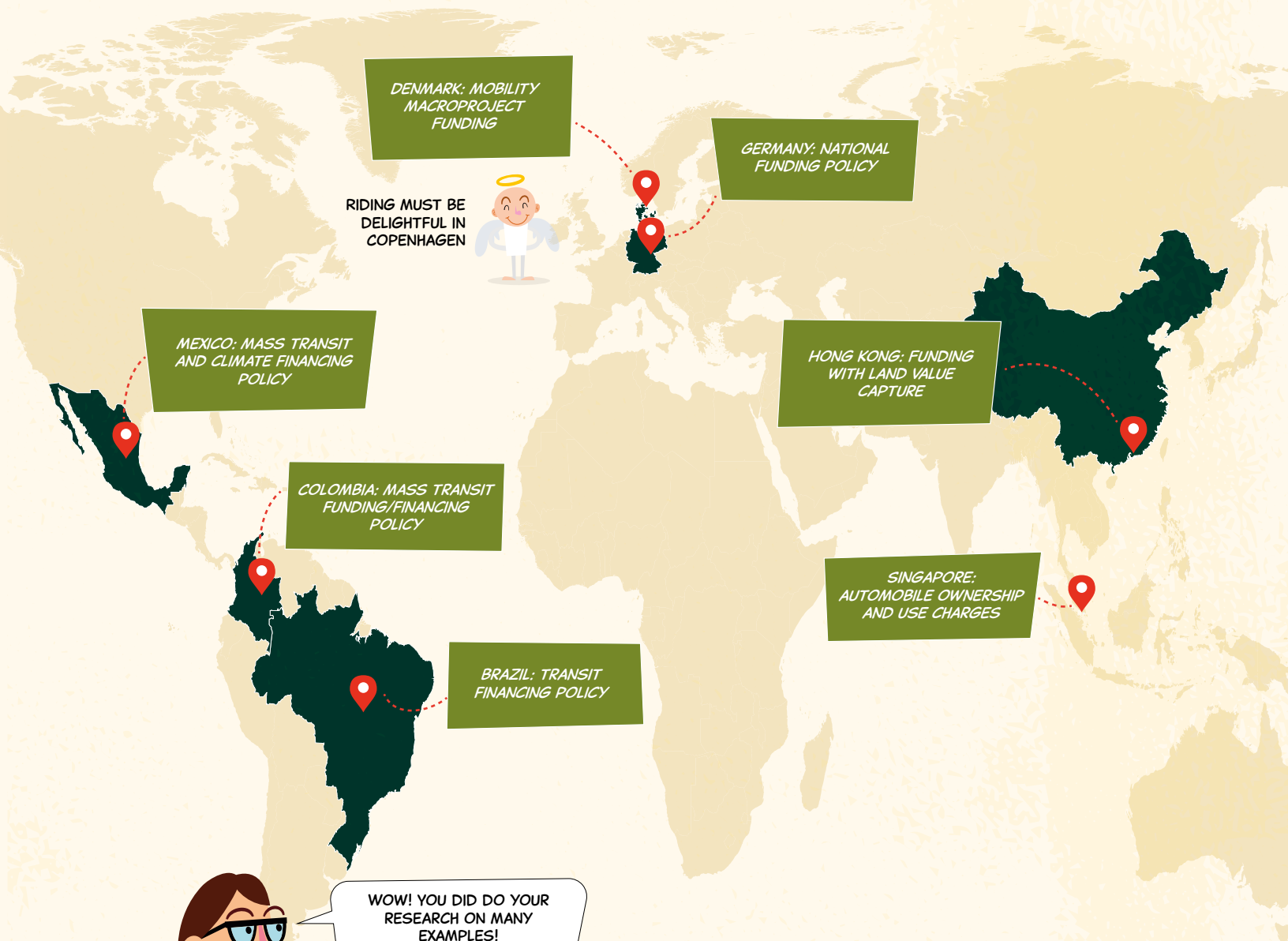
Mobility funding has been improved in some places

There are several examples to which one can refer to find out how mobility is funded in a more equitable way while improving the travel conditions of vulnerable people and active mobility travelers. Some have used “demand management” measures, charging for the use of cars and roads (Singapore, London, Stockholm...), others have redefined the way transport funding is distributed (as in Colombia!), and others have managed to invest much more in active mobility projects (Denmark, Netherlands).



WE LOOKED INTO VARIOUS CASES WORLDWIDE. SINGAPORE CHARGES THREE TIMES MORE TAXES JUST FOR PURCHASING A CAR; DENMARK HAS INVESTED UP TO 6 MILLION EUROS FOR A BICYCLE BRIDGE; IN COLOMBIA, THE NATIONAL GOVERNMENT PAYS UP TO 70% OF THE COSTS OF MASS TRANSIT SYSTEMS; AND SO ON...

Financial innovation and transportation demand management



I HAVE TRAVELED. MAKE NO MISTAKE. I KNOW THINGS. I HAVE SEEN PROJECTS, HUGE ROAD WORKS. THAT'S WHAT WE ARE LACKING OVER HERE.



We have unspent budgets

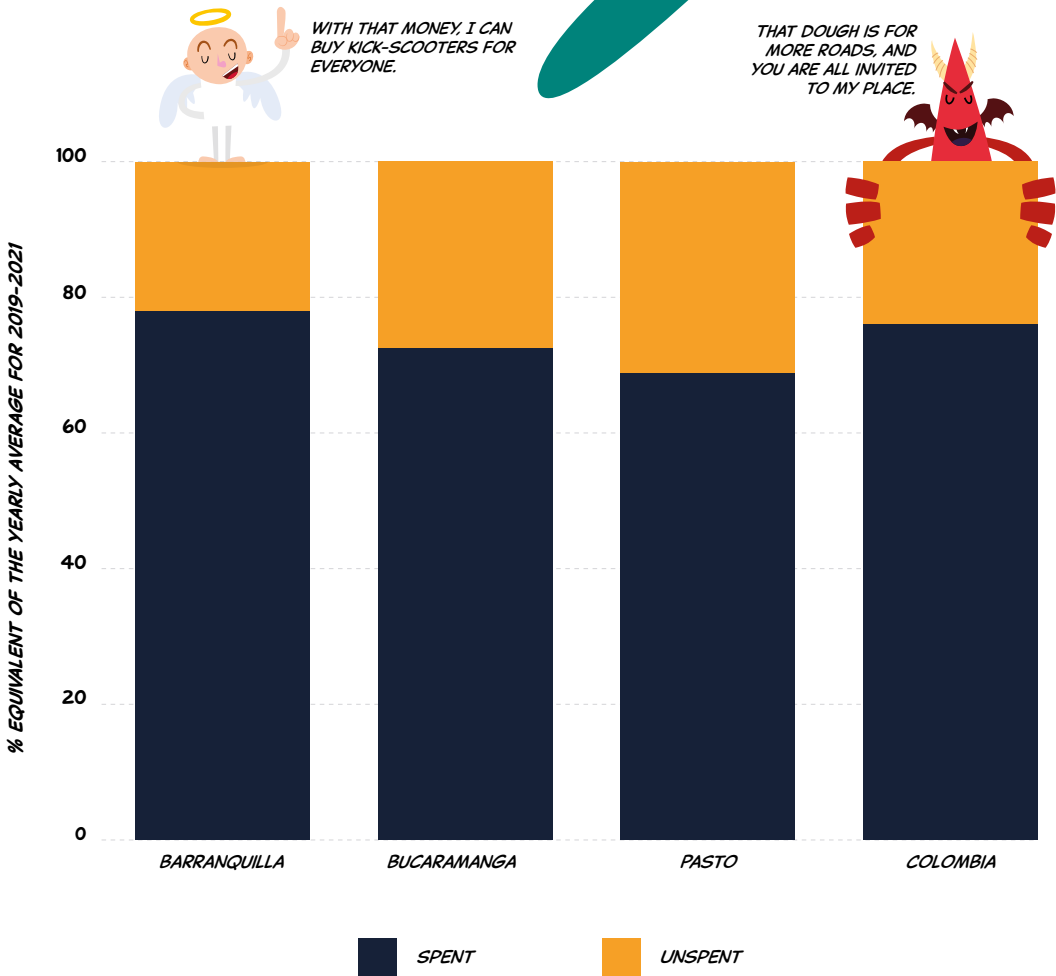
Each year, the available budget is approved and distributed across a city's expenditures, and this budget includes a portion for mobility projects (which in turn is allocated to road, public transportation, active transportation, and other expenditures). However, there is almost always some unspent money left over that can be taken into consideration and should be identified, in order to find better ways of spending it.

This figure provides a clear idea of the magnitude of the available budget in both Colombia as a whole, as well as in three specific cities. We can compare this with the costs shown in the previous section.



Financial innovation and transportation demand management

THE BARS SHOW THE PERCENTAGE SPENT AND WHAT WAS NOT SPENT OF THE TOTAL CITY BUDGET.



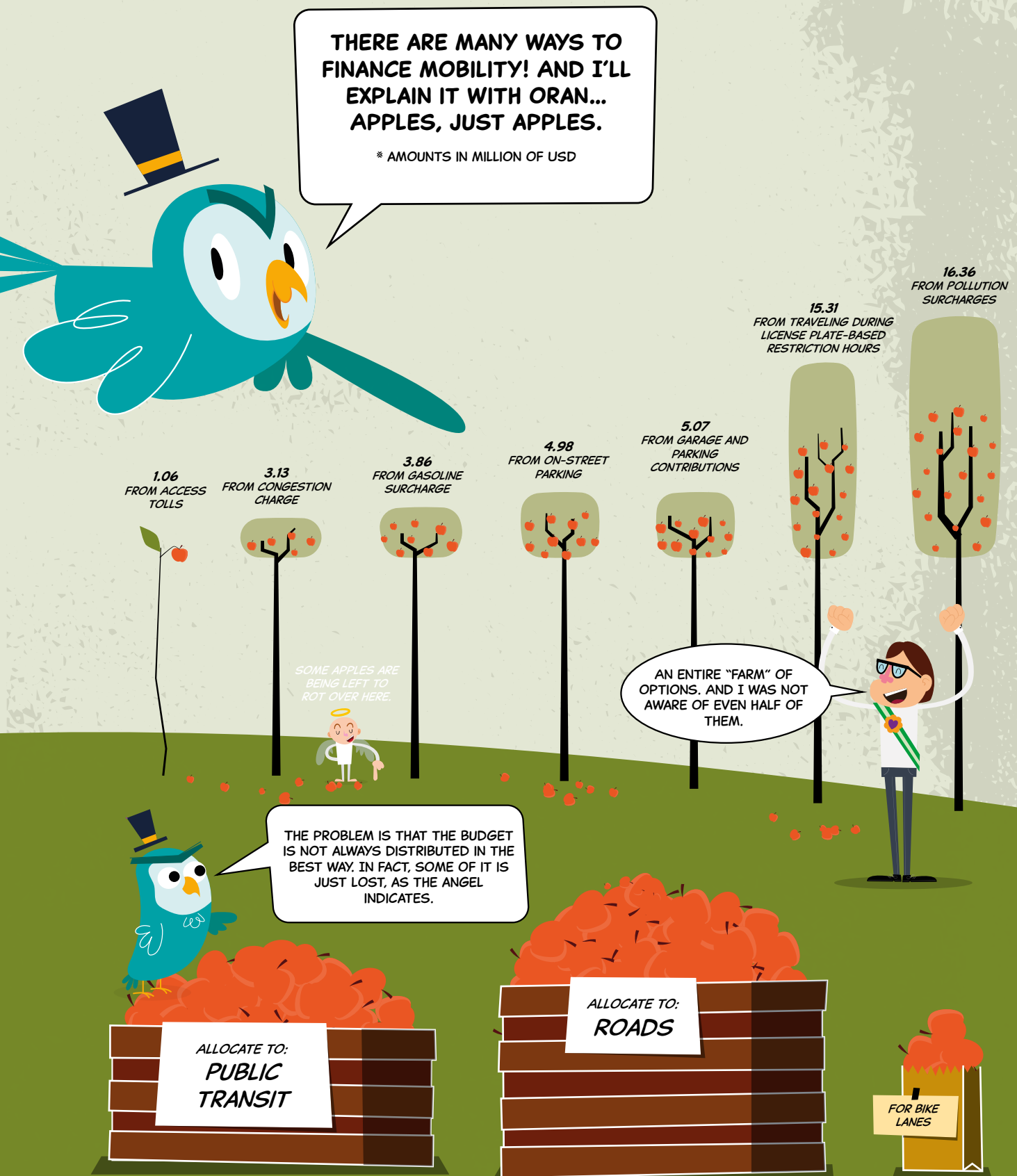
There are multiple sources to fund mobility

Although it has always been believed that transportation is funded by “the taxes we pay,” there are actually several sources of funding and sometimes the total money available from each source is much more (or much less!) than we realize. Furthermore, there are untapped but available and well-defined funding sources. It is also critical to clarify that mobility projects are paid with funds coming from the entire population and not only from those who buy or use cars. Finally, every year Colombian cities are left with an unspent budget that could be used for active transportation.

Knowing the magnitude of each source and comparing it with how it is being used (e.g. for highways, vehicular bridges, or public transit or active transportation infrastructure) creates an opportunity for more impactful investments.



Financial innovation and transportation demand management



Individual motorized transportation entails higher costs

In general, funding infrastructure projects for automobiles or private motorized transport is not the best course of action when financial resources are scarce, since these modes have a higher risk of crashes (with deaths and injuries), they generate more polluting emissions (especially when estimated per passenger-km), and they also produce congestion due to their inefficient use of urban public space. At the same time, they have adverse effects on other modes (they increase congestion and travel times for public transit and reduce the likelihood of use and safety for those who ride bicycles).





The only way to initiate the virtuous cycle is through reorientation

Considering what we have described throughout the rest of this guide, we can find ways to reallocate the budget to ensure that the line item earmarked for active mobility has more resources to build and make improvements. This is a good form of budget management that also uses existing resources for purposes other than the traditional ones. However, it is important to find ways to make this feasible under cities' regulatory conditions. Consequently, future budget allocations can be made differently from what is done today, with a higher portion for active mobility projects. Time and attention can enable a timely and well allocated budget.



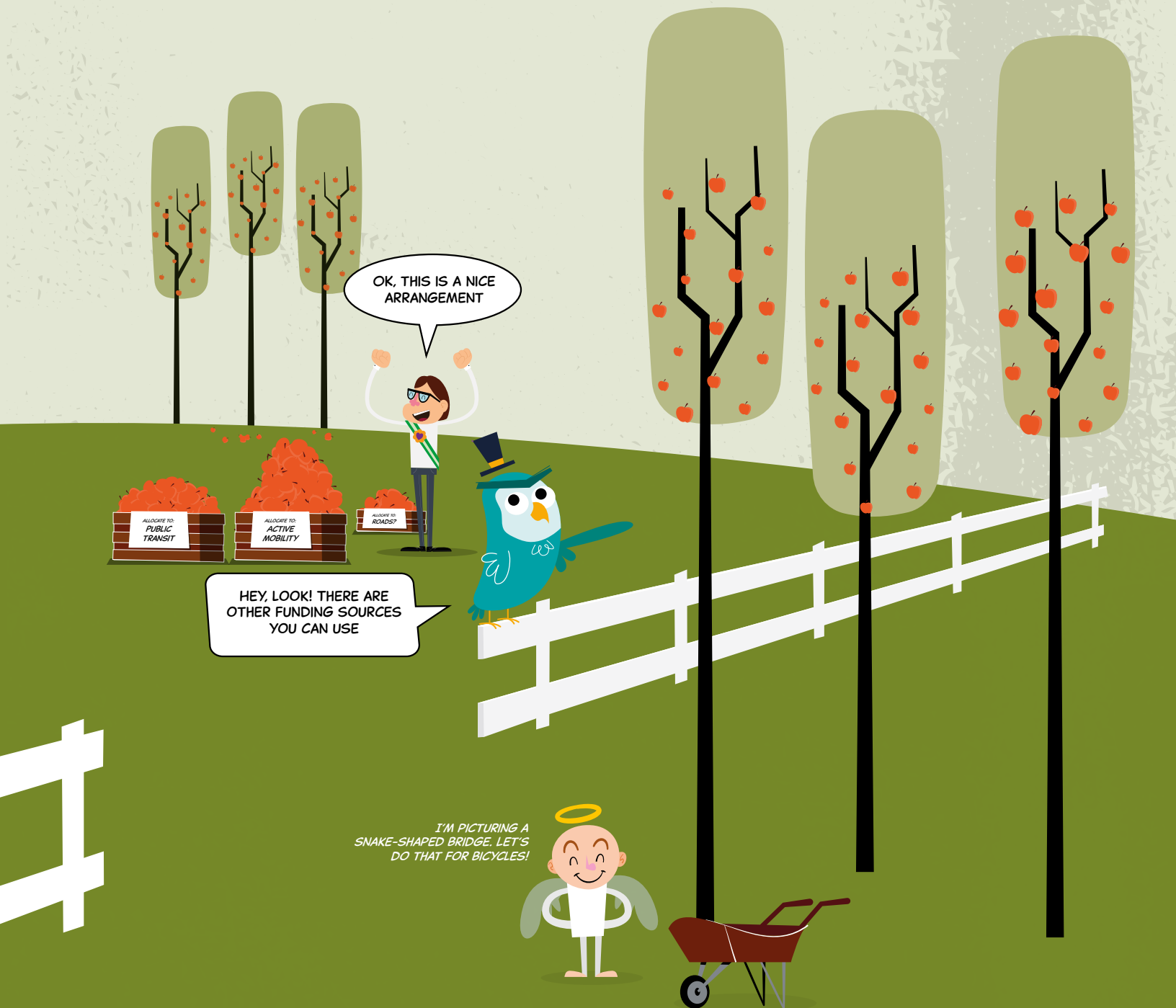


There are other sources of funding for mobility in Colombia

In addition to redirecting resources within the existing budget, new and more flexible sources of funding can also be used to secure a higher proportion of available resources for active mobility works. In the Colombian case, the 2018-2022 National Development Plan outlines nine different ways to generate new resources, and some studies have clearly identified these potential sources of funding together with their legal feasibility. If these instruments are properly deployed, they could be used to fund active mobility and micromobility projects as part of ambitious sustainable mobility projects.



Financial innovation and transportation demand management



5 TIPS FOR BETTER COMMUNICATION

- ✓ *EXPLAIN EVERYTHING WITH REAL DATA*
- ✓ *SHOW INVESTMENTS ACCORDING TO SERVICE COVERAGE IN AN URBAN AREA OR PEOPLE SERVED*
- ✓ *HIGHLIGHT THE BENEFITS FOR EACH PERSON OR USER*
- ✓ *DO NOT ATTACK ANYONE*
- ✓ *MAKE IT SO SIMPLE THAT EVEN YOUR RETIRED UNCLE CAN UNDERSTAND IT*



SO, I SHOULDN'T TELL
THEM "SELL YOUR CAR IF
THEY DON'T HAVE MONEY
FOR PARKING"

THERE ARE SEVERAL WAYS TO
CONVEY THIS MESSAGE. FOLLOW
THESE KEY TIPS



We must clearly communicate this reality and the opportunities

The importance of funding active mobility and micromobility, the efficiency of investments in this sub-sector, the existence of resources that can be identified and invested in a timely manner, and the possibilities of reallocating budgets, finding new sources and investing appropriately is evident. In some cases these investments involve increasing charges to those who travel by car, who traditionally pay little for road use. If all this is miscommunicated, the effort can be lost amidst the confusion. Although there is specialized literature on effective communication of unpopular public policies, it is rarely consulted when it comes to making transportation funding policies, and efforts are wasted when ideas are poorly communicated to the public.



OUR STUDIES ARE HELPING
US IMPROVE



WE DID IT. AND WE HAD
A GOOD TIME WHILE
DOING IT.

*I CAN'T RESIST!
THIS IS BEAUTIFUL!*



IT IS!

By improving mobility funding, people will travel happier and save money

Using data and analysis to understand mobility finances while focusing on positive impacts for all commuters, budget redistribution, and identifying and/or generating new sources of funding for active mobility and micromobility can help in building urban environments where the most vulnerable as well as those who use active mobility can travel safely and comfortably. In addition, resource utilization is more efficient and, consequently, congestion is reduced when more people move around actively and with micromobility, as fewer people are using space-consuming modes.

Appendix: Complete data



Everything we have presented throughout this document is based on actual data and research, and many of them have been applied in Colombian cities. Below you will find details of this information for each section.

The database used to make the calculations shown in this document is **available for download in a spreadsheet**¹ (in Spanish).

Specific sources for each graph and the base information for them can be found below..

1. Full url <https://www.despacio.org/portfolio/financiar-movilidad-activa>

Financial innovation and transportation demand management

What questions does this guide answer?

No data was used for this drawing, but a description of the mobility conditions in Latin American cities is [available here](#)² (in Spanish)

What is active mobility and micromobility?

No data was used, and the definition presented is taken from the Cycling Infrastructure Manual of Ecuador (2022). The drawing was based on an ITDP infographic on Maximizing Micromobility (thanks for allowing us to use it!). There are some more detailed documents and a few good definitions on micromobility in the following links.

- [ITF - Safe Micromobility](#)³
- [ITDP - Maximizing Micromobility](#)⁴ (documento pdf)
- [SAE - Taxonomy and Classification of Powered Micromobility Vehicles](#)⁵
- [Ministry of Transportation of Colombia Resolution 160 of 2017](#)⁶ (definition of small vehicles and their conditions to circulate)

As for the population's low access to automobiles, it is difficult to find complete or disaggregated data for all Colombian cities. However, this data may be useful for such purpose:

- According to [RUNT \(National Transit Register\)](#)⁷, there were 6,718,496 vehicles in Colombia (including cars, SUVs, trucks, buses and minibuses, among others). This is for a country of 50 million people.
- A [study carried out by CAF in 2016](#)⁸ found that six Colombian cities had between 19 thousand and 1.7 million vehicles (Montería and Bogotá, respectively). That is equivalent to 40 to 196 vehicles per thousand people.

2. Full url <https://www.despacio.org/portfolio/transporte-urbano-sostenible-en-america-latina/>

3. Full url <https://www.itf-oecd.org/safe-micromobility>

4. Full url <https://www.itdp.org/2021/06/30/maximizing-potential-by-connecting-micromobility-and-transit/>

5. Full url https://www.sae.org/standards/content/j3194_201911/

6. Full url <https://www.mintransporte.gov.co/descargar.php?idFile=14858>

7. Full url <https://www.runt.com.co/runt-en-cifras>

8. Full url <https://scioteca.caf.com/handle/123456789/981>

Micromobility can be funded very efficiently

These graphs were produced using several sources that were harmonized to be comparable. The project spreadsheet contains a comprehensive list of references, including the ones used here, [and available here](#)⁹.

Mobility funding has been improved in some places

The map was prepared with the list of locations surveyed for the GIZ DKTI project Analysis of funding sources at the national level for Non-Motorized Transport projects, with emphasis on the cities of Barranquilla, Bucaramanga and Pasto. The map uses the Mercator projection as it is the most widely recognized, although we understand the importance of each projection and their advantages and drawbacks (see an [explanation by The Economist](#)¹⁰ on this subject).

We have unspent budgets

These graphs are prepared using the analysis work of the “Analysis of the national sources of funding (and financing) for non-motorized transport projects, with emphasis on the cities of Barranquilla, Bucaramanga and Pasto” project of GIZ DKTI, with data sourced from the Colombian General Accounting Office (Contaduría General de la Nación) in the Single Territorial FUT Form for each municipality in Colombia. Specifically, the data were extracted from the chip.gov.co application, used to consult the report of the investment and operating expenditure form of the municipality, to subsequently add the quarterly values of the final budget amounts (per year approved) and commitments (previously contracted) of each item within the transportation sector. Since these figures were obtained in November 2021, they were adjusted to constant values using the 2020 CPI deflator, along with an estimated 5% increase for 2021. Since these figures were obtained in November 2021, they were adjusted to constant values using the 2020 CPI deflator, along with an estimated 5% increase for 2021. Note: The Secretary of Finance of Barranquilla reported that for the year 2021 the percentage of budget execution in the transportation sector was approximately 92%.

There are multiple sources to fund mobility

This is an indicative drawing where the size of each tree is based on how fruitful the corresponding funding source can be (or has been). The following data was used on it:

9. Full url <https://www.despacio.org/portfolio/financiar-movilidad-activa>

10. Full url <https://www.economist.com/graphic-detail/2016/12/27/misleading-maps-and-problematic-projections>

Financial innovation and transportation demand management

- The average revenue estimated in the 2019 FDN publication on transportation (see references section for full citation).
- The analysis work of the “Analysis of the national sources of funding for non-motorized transport projects, with emphasis on the cities of Barranquilla, Bucaramanga and Pasto” project of GIZ DKTI, with data sourced from the Colombian General Accounting Office (Contaduría General de la Nación) in the Single Territorial FUT Form for each municipality in Colombia. Specifically, the data were extracted from the chip.gov.co application, used to consult the report of the investment and operating expenditure form of the municipality, to subsequently add the quarterly values of the final budget amounts (per year approved) and commitments (previously contracted) of each item within the transportation sector. All of these figures were adjusted to constant values using the 2020 CPI deflator, along with an estimated 5% increase for 2021.

Individual motorized transportation entails higher costs

For this drawing, we used several sources with data on revenue both from within and outside the transport sector. There is no consolidated base of this information and the data are very dissimilar in the way they are reported, their time units, and the breakdown of sources and revenue collection. Hence, we chose to draw a more conceptual graph and therefore avoid making mistakes by using exact but imprecise values. Thus, we had to check the yearly budgets for different cities, as well as some press articles, the data in the other graphs, and bibliography at the end. Overall, it is evident that most of the cities around the world have an implicit subsidy to use automobiles, while public transit pays for all of its costs through fares, and micromobility (from walking to e-bikes) does not receive enough money to cover its infrastructure costs. the article “*¿Para qué son los impuestos de los vehículos?*”¹¹, (What are vehicle taxes for?) published in *El Tiempo* on January 2022 is a particularly good first step to understand this topic.

Regarding the impact caused by car use, there are several studies that have dubbed this the “actual costs of driving automobiles”. One of the most recent ones is a 2022 academic paper, “*The lifetime cost of driving a car*”¹² that estimated the social costs of a car over its lifespan to be USD\$689,000, USD\$275,000 of which society is paying. **Another study, “*Incidence and total lifetime costs of motor vehicle-related fatal and nonfatal injury by road user type, United States, 2005*”**¹³ showed that injury costs alone (fatal and nonfatal) in one year in the United States amounted to \$99 billion dollars.

11. Full url <https://www.eltiempo.com/bogota/que-pasa-con-los-impuestos-que-pago-por-mi-carro-644545>

12. Full url <https://www.sciencedirect.com/science/article/pii/S0921800921003943?via%3Dihub>

13. Full url <https://pubmed.ncbi.nlm.nih.gov/20730682/>

The only way to initiate the virtuous cycle is through reorientation

This graph was produced using the same data as the previous graphs.

There are other sources of funding for mobility in Colombia

The main source for this section is Article 97 of the **2018-2022 National Development Plan¹⁴**, and its full reference can be found in the bibliography section below. Bear in mind that this article may be amended during the 2023-2026 presidential term, although things may be added as opposed to deleted (the previous version of this article in the **2015-2018 National Development Plan¹⁵** was Article 33, indicating five sources, whereas the **2018-2022 Plan¹⁶** presented nine of them).

We must clearly communicate this reality and the opportunities

This drawing does not use numerical data, but does use lessons learned from behavioral economics and some publications on sustainable transportation promotion. You can find a summary of these findings in ***“Sustainable Mobility: Getting People on Board (Module 1e GIZ Sourcebook on Sustainable Transport for Policy Makers in Cities)”¹⁷***.

By improving mobility funding, people will travel happier and save money

This drawing does not use any data; it is the result of our own dreams.

14. Full url <https://www.alcaldiabogota.gov.co/sisjur/normas/Norma1.jsp?i=84147&dt=S>

15. Full url <https://www.alcaldiabogota.gov.co/sisjur/normas/Norma1.jsp?i=61933>

16. Full url <https://www.alcaldiabogota.gov.co/sisjur/normas/Norma1.jsp?i=84147&dt=S>

17. Full url <https://www.sutp.org/publications/sustainable-mobility-getting-people-on-board/>

Bibliographical resources



This is a full list of the bibliographical resources used throughout this document, in alphabetical order by author:

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*“So I shall suppose that some malicious, powerful,
cunning demon has done all he can to deceive me”*

RENÉ DESCARTES (1641), MEDITATIONS ON FIRST PHILOSOPHY

