

## Research “Mapping the Urban Unconnected”

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### Executive Summary

This report presents the findings of research conducted by Maravedis on behalf of the Wireless Broadband Alliance regarding the state of the urban unconnected population in 18 large cities as well as each of their related international regions.

The conclusions presented take into consideration an analysis of urban broadband adoption at both the city and regional levels.

- The digital divide phenomenon is not limited to rural or remote areas. A staggering 57% of world’s urban population remains unconnected, either with fixed or mobile broadband. That represents more than 2.2 billion people living in cities across the world.
- Wide differences exist in broadband access when comparing metro areas. This means that an important segment of the population inside large cities are being left out of the digital age, either because they cannot afford the service or because the service is simply not available in their neighborhood.
- Large, sophisticated cities are still lagging behind in terms of broadband penetration. Los Angeles, New York City, and Shanghai are good examples. More than 25% of their population unconnected.
- Affordability and social inequality represent the primary obstacles to urban connectivity. Urban citizens still remain unconnected either because they cannot afford the broadband service or the device.

The research methodology is explained at the end of the paper.

## Key Findings at the City Level

First, analysis at the city level reveals a huge contrast when it comes to urban broadband access between large cities around the world. Table 1 highlights one of the most extreme comparisons. Among the cities researched, the lowest proportion of citizens without broadband access is in London (UK) where only 8% or 683,095 of the population is unconnected. However, in Lagos (Nigeria) the portion of unconnected is 88.2% or 10,168,090 people. This demonstrates a wide gap between cities. This is not a surprising result and is well in line with overall regional differences, explained by differences in economic, social, technology and telecom regulatory environments.

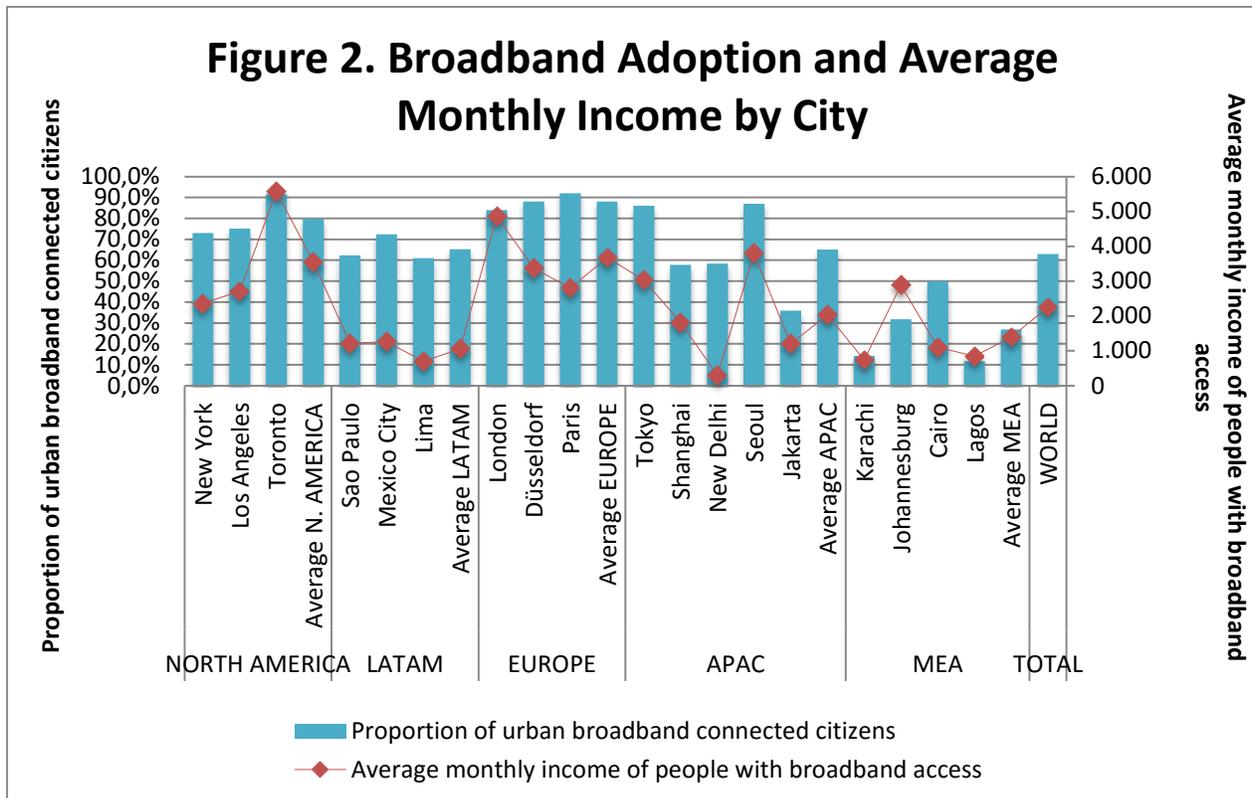
**Table 1. Unconnected Citizens for Select Cities**

Region	City	Urban Broadband Unconnected	Proportion Urban Broadband Unconnected
<b>NORTH AMERICA</b>	New York	5,425,078	27%
	Los Angeles	3,300,345	24.9%
	Toronto	519,205	8.5%
<b>LATAM</b>	Sao Paulo	7,394,924	37.6%
	Mexico City	5,469,592	27.6%
	Lima	3,803,170	39%
<b>EUROPE</b>	London	683,095	8%
	Düsseldorf	72,385	12%
	Paris	1,984,868	16%
<b>APAC</b>	Tokyo	1,859,820	13.9%
	Shanghai	4,925,981	42.3%
	New Delhi	7,525,295	41.6%
	Seoul	3,313,725	13%
	Jakarta	6,560,893	64.1%
<b>MEA</b>	Karachi	14,259,960	85.8%
	Johannesburg	2,221,405	50.1%
	Cairo	7,120,275	68.3%
	Lagos	10,168,090	88.3%
<b>General Average (all 18 cities)</b>			<b>37%</b>

The disadvantage experienced by the citizens of Lagos is not surprising at all since the average of unconnected citizens in all the cities examined is just 37%. Also, most of the cities surpassing the average are located in the Middle East & Africa (MEA) and Asia Pacific (APAC) regions. On the other hand, the cities located in more developed regions, such as North America and Europe, and two APAC countries (Seoul and Tokyo) show considerable lower proportions of unconnected, and are below the general average.

The data reveals an expected higher proportion of Internet users than broadband users in less developed cities. Although the numbers of broadband users could be overestimated due to the different definitions of broadband in each country, this still confirms the digital divide of broadband access in cities located in less developed countries. Broadband definitions differ greatly between countries. In the most extreme cases as in India, 256 or 512 kbps speeds are considered broadband while a minimum of 3mbps speeds applies in the US.

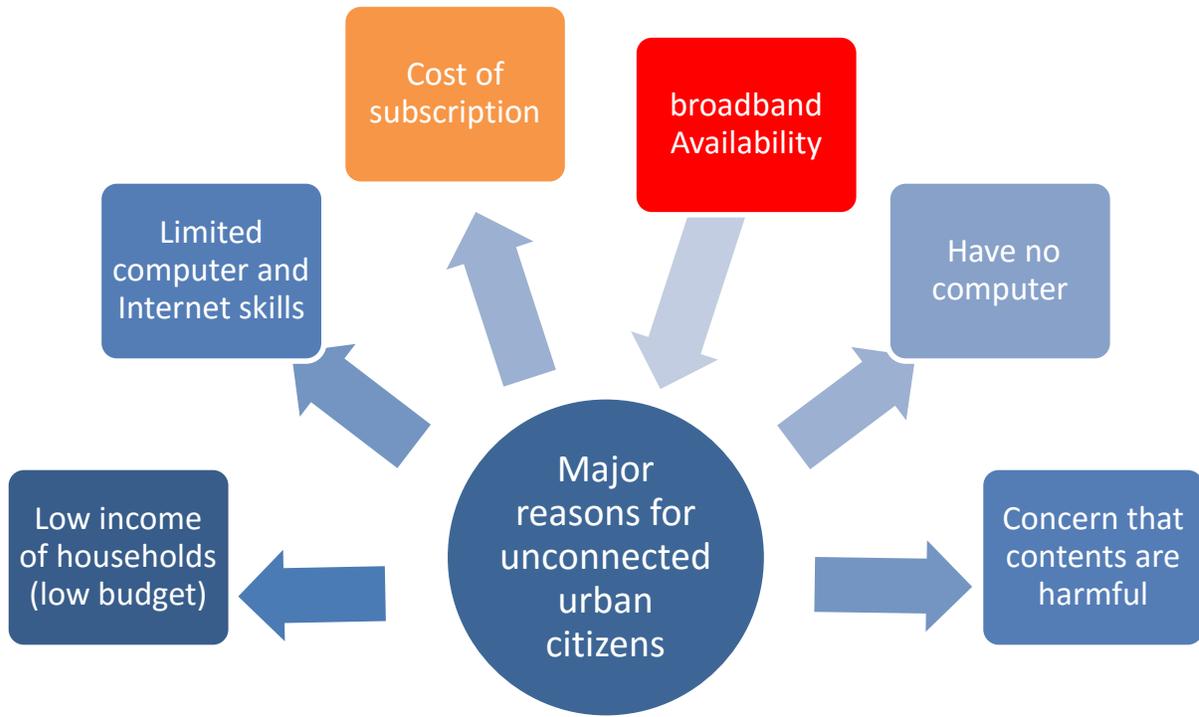
The data also reveals surprising results among developed and more sophisticated cities such as Los Angeles, New York, and Shanghai with 25% or more of the population not having access to broadband. This can be explained by a variety of reasons. However, this situation is primarily due to the high cost of broadband service which a large part of the urban population cannot afford. That segment of the population tends to be dominated by ethnic minorities such as blacks and Latinos, as is the case in the USA. Social inequality is clearly linked to lower broadband penetration.



Second, income levels are closely related to broadband adoption rates in both developed and developing cities. For example, as shown in Figure 2, the average monthly income of the European cities examined is 3,677 USD, with 88% of the population having broadband access. Similarly, in North America the average monthly income is 3,548 USD, with 80% of the population having broadband access. However, in the MEA cities where the average monthly income level is only 1,391 USD, only 27% of the population has broadband access.

A third finding relates to the common reasons why some citizens do not have broadband access. The most common reasons, as mentioned above, are the low level of income in income level of individuals/households, the cost of fixed and mobile broadband services, and the lack of computer and Internet skills. This last reason is particularly common among lower income population and those who are 60 years old and above. Figure 3 highlights the reasons for not having broadband access.

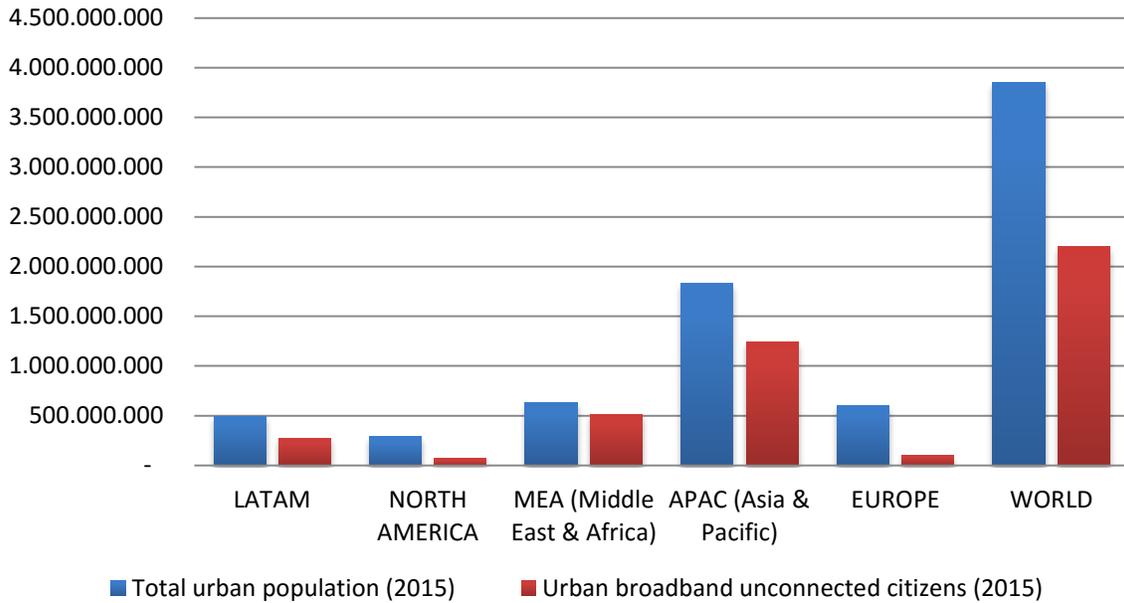
**Figure 3. Main obstacles to broadband urban access**



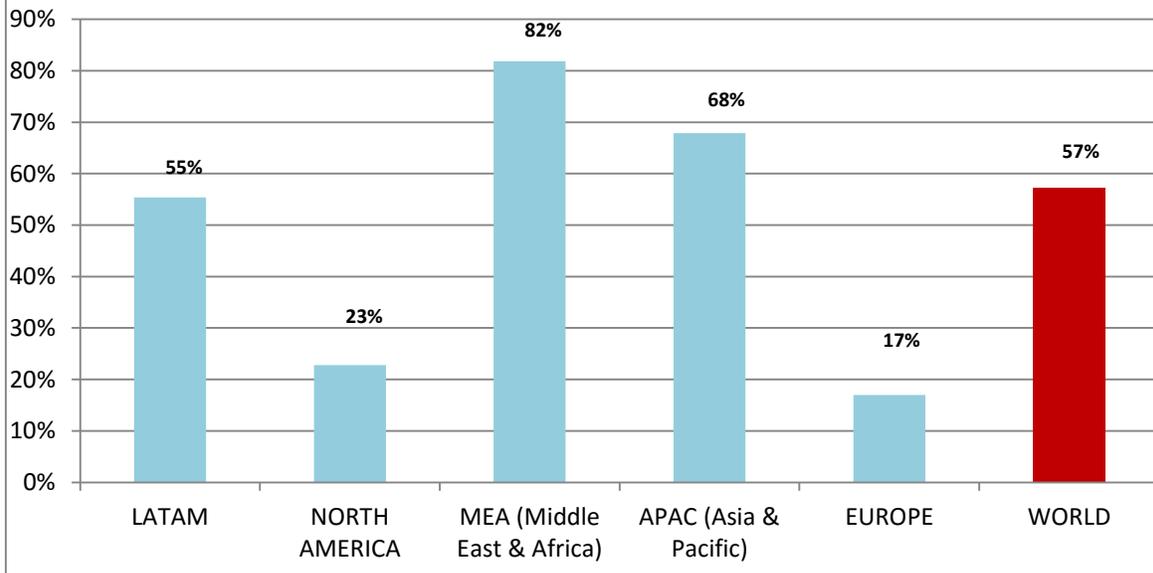
## Key Findings at the Regional Level

The analysis of broadband access at the regional level provides results which are consistent with those at the city level. Figure 4 and 5 show the region with the highest proportion of urban unconnected is MEA (Middle East and Africa) with 82% or 515 million unconnected citizens. That region is followed by APAC (Asia Pacific) with 68% or 1.2 billion urban unconnected citizens. This staggering number can be explained by the high proportion of urban population without broadband access in highly populated and countries, such as China and India.

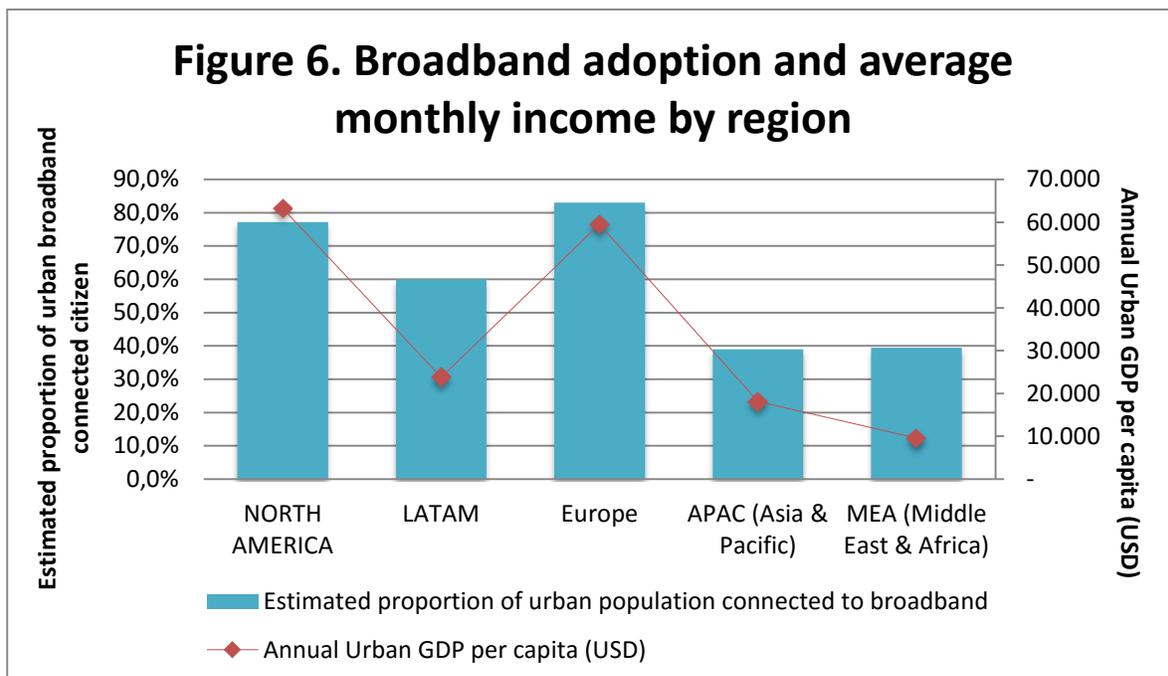
**Figure 4. Urban broadband unconnected by region**



**Figure 5. Proportion of urban population unconnected to broadband, by region**



Not surprisingly, Europe and North America remain the regions with the lowest proportions of urban broadband unconnected, with 17% and 23% respectively, or 102 million and 65 million urban citizens. These numbers are consistent with those at the city level for both regions. In fact, the general average of urban unconnected citizens in all regions is of 57%, with Europe and North America well below the average and the other regions considerably above.



Average monthly income is also closely correlated to the proportion of urban unconnected in all regions. Figure 6 shows that the lowest proportions of broadband adoption and income levels among urban population can be found, again, in the MEA and APAC regions. In the more developed Europe and North America, higher income levels translate into higher proportions of broadband connected citizens (or lower rate of urban connected). It is important to keep in mind that there is generally a higher percentage of unconnected citizens when a country suffers from high levels of social inequality.

As shown in the analysis, data about urban population unconnected to broadband services revealed some important points for discussion related to income levels and definitions about broadband services. It appears that governments still have a long way to go towards delivering broadband access to their populations. This is illustrated by the fact that the cost of broadband services and lack of availability of broadband remain the main obstacles to urban connectivity resulting in 57% of the world’s urban population out of broadband access. These 2.2 billion urban unconnected are left behind an important economic and social opportunity.

Finally, there is another challenge that makes it difficult to estimate broadband users or connected citizens with greater accuracy. Each national telecom regulator uses its own definition of what constitutes broadband service. Additionally, data rates vary greatly among nations making comparisons more hazardous.

## Methodology

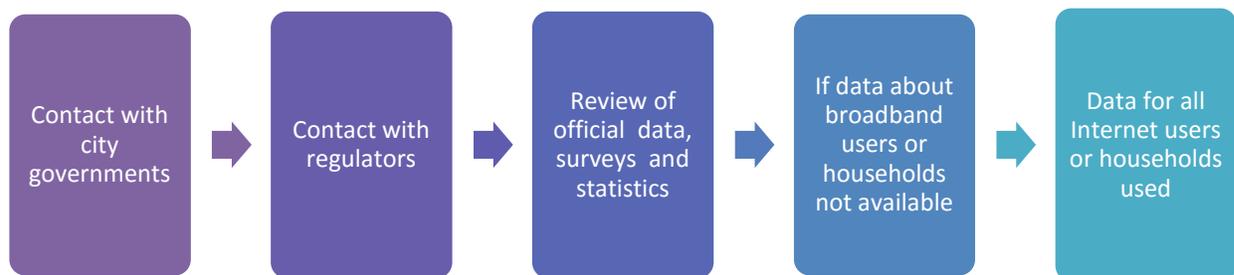
The indicators presented in this report about urban citizens who are unconnected to broadband Internet services cover 18 cities in different countries around the world. The collection of data prioritized contact with the city governments and ICT regulators in each of the countries where the cities are located. In addition, a review of their websites and research from other official agencies was conducted.

In the interviews with the official agencies or city governments, and in the inquiries sent to them, we asked the following questions: 1) the number or proportion of broadband users in the metropolitan area of the city of reference; 2) the average income of people that have access to broadband in the metropolitan area; 3) the major reasons why people are not connected to broadband; and 4) the definitions of broadband given by the ICT governmental agency.

Due to the complexity of gathering comparative data across the cities and, we faced a number of practical challenges with compiling the dataset used in this report. For instance, most of the responses received from regulators or agencies were incomplete since they did not have information about broadband users in specific metropolitan areas that we could use to estimate the unconnected urban citizens.

Moreover, the most recently available data at the city level is usually related to subscriptions and penetration rates, but not users. In many cases we obtained information from surveys about Internet and other ICT usage that were conducted by national statistics offices or by the ICT national regulators. However, the data contained in these surveys typically refer to all Internet users or households with access to Internet. But there were no distinctions between broadband and non-broadband access. The figures gathered in the dataset note when they are referring to broadband, or when all users/households are considered. The broadband definition of download speed was taken from the ICT regulator of each country.

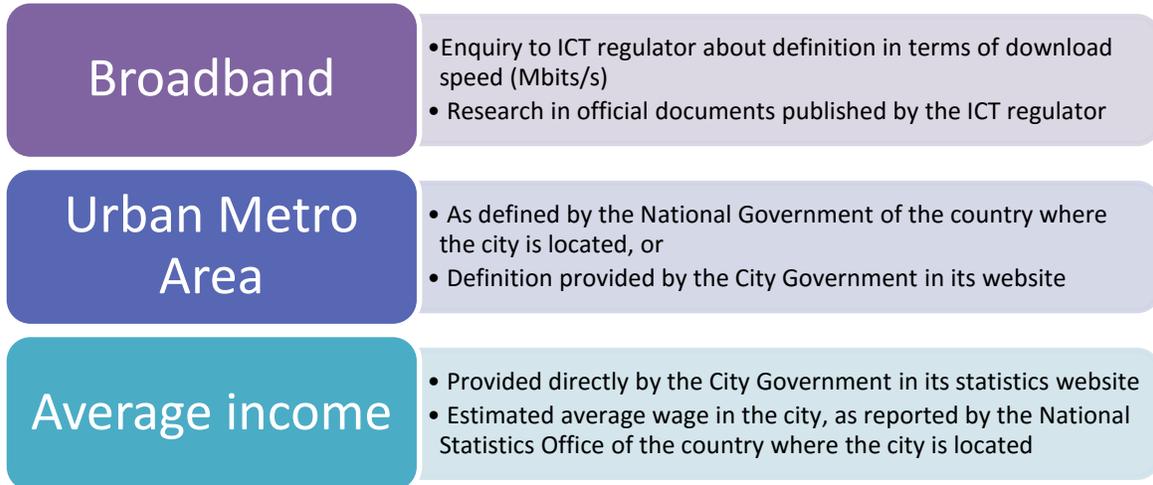
**Figure A. Methodology to Estimate Urban Broadband Unconnected**



The methodology for estimating the proportion of urban unconnected citizens took data about population from the same surveys about Internet use or from national censuses or official population estimates conducted by the governments of the countries where the cities are located. In order to maintain consistency and comparability, the year of reference considered in all cases was not earlier than 2014. When the last year available was earlier than 2014, available data about the population growth rate and the Internet use growth rate was used to estimate the figure for 2015.

In regards to the urban feature, this was defined according to each of the governmental criteria of how the respective metropolitan area is composed. This refers to the municipalities, counties, or prefectures that belong to each metro Area. Therefore, their respective populations were considered to estimate the urban unconnected in each city.

**Figure B. Definitions about broadband and urban unconnected**



As mentioned above, in some cases data about broadband Internet users was not available at the city level, but it was at the country level. In this case, the figure about national proportion of broadband users or households with broadband access was included in the dataset. The population used for this estimate was taken from the latest available official data.

Finally, the data about the primary reasons for not having access to broadband was obtained through surveys, censuses, and official statistics compiled by the respective national governments. The average income was either obtained from statistics reported by city governments or estimated based on the average wage reported by the official statistics of each national government.