Global Majority E-Journal, Vol. 16, No. 1 (June 2025), pp. 18–32

Water and Sanitation Services in Honduras and Guatemala: The Rural-Urban Divide

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Abstract

This article examines access to potable water and sanitation services in Honduras and Guatemala. While in recent years both countries have experienced marginal increases in clean water access, over a third of each population still goes without, and an even larger proportion lacks access to basic sanitation services. Additionally, a significant disparity has emerged between rural and urban populations, with rural populations tending to suffer more intensely. As water pollution and improper sewage disposal continues to make clean water access more precarious, this article also analyzes the steps each respective government has taken to rectify this issue, as well as their ethical implications.

I. Introduction

In 2023, the United Nations (UN) published a sobering report[1] on the state of water and sanitation in the world, which have long been considered necessities of life and development. While clean water is integral to all forms of life, the report estimated that 1 in 4 people worldwide do not have access to safe drinking water, and an additional 46 percent of the world's population does not have access basic sanitation. The lack of access to these resources continues to drive the entrenchment of poverty and inequality, presenting a complex ethical issue with serious long-term ramifications. Additionally, the issue of water and sanitation access tends to create disparities between rural and urban areas, particularly within developing nations, further disadvantaging populations that already face systemic barriers and underdevelopment.

This article examines access to water and sanitation in two developing countries: Honduras and Guatemala. These two central American countries, which are similar in many respects, have both historically struggled with the provision of water and sanitation services despite having a significant number of freshwater sources. Additionally, both countries have experienced somewhat rapid urbanization since 1990, which has generated disparities in access to water and sanitation in rural vs urban zones and further exacerbated the harm felt by already underprivileged rural communities.

[1] United Nations (2023).

Following this introduction, the next section provides a brief overview of some prominent literature on access to water and sanitation services in Guatemala and Honduras, emphasizing various possible solutions. The subsequent section offers some socioeconomic background of both countries. Section IV then provides an analysis on access to drinking water and sanitation services in both countries, specifically examining the rural-urban divide. The fifth section discusses ethical considerations of the water and sanitation access issue, analyzing various policies implemented by the two nations and their ethical implications before the last section provides some conclusions.

II. Brief Literature Review

In the current age, there is an abundance of literature on access to water and sanitation services, with particular emphasis on the possible solutions. Gomez, Perdiguero, and Sanz (2019) examine the causal connections between socioeconomic factors and access to water services in rural areas of low- and middle-income countries, including in Guatemala and Honduras. Of specific interest for Guatemala are Miller and Schweigart (2019), Nkiaka (2022) and Cheatham, Fernández and Ruiz (2022), while Fogelberg, Betancourt and Wende (2008) and Grillos, Zarychta and Nuñez (2021) focus on Honduras.

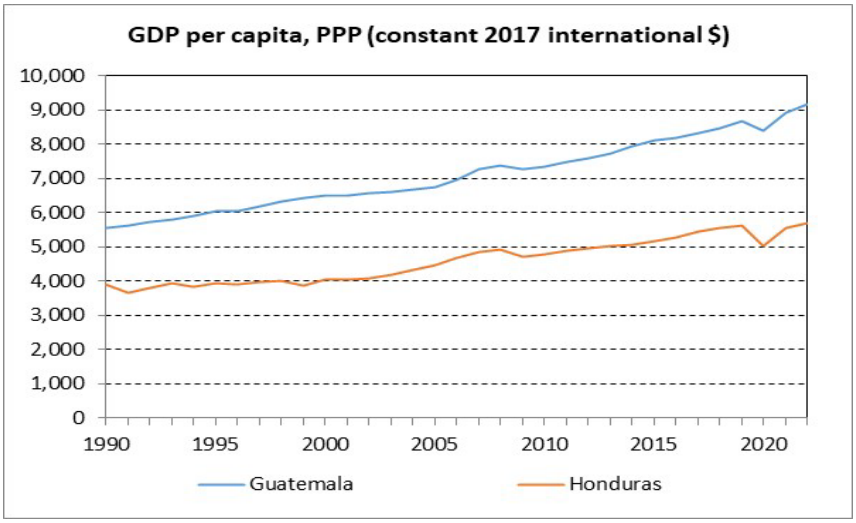
- Gomez, Perdiguero and Sanz (2019) also examine the socioeconomic factors that may impact water access but specifically examine access in rural areas of low- and middle-income countries, including in Guatemala and Honduras. The study claims that Gross National Income and the primary completion rate for women have a positive relationship to water access in rural areas, while the share of agriculture in GDP and population growth in rural areas have a negative relationship with water access in rural areas. They also conclude that richer countries tend to access more piped water sources while poorer countries continue to rely on precarious water sources like groundwater or surface sources.
- Miller and Schweigart (2019) provide close look at Guatemala's top water-related challenges and the government's efforts to address them. They focus on three hotspots related to Guatemala's water problems. First, ongoing conflicts between hydroelectric companies and indigenous communities, which have resulted in the suspension of 16 dam projects. Second, a magic water scandal in which the former Vice President Roxana Baldetti and other high-ranking government officials were found guilty by a Guatemalan court of embezzling millions of dollars from a state fund to decontaminate Lake Amatitlán, the country's fourth largest. Third, that Guatemala is part of the region of dry forest extending throughout Central America, where droughts have driven down food production and increased poverty.
- Nkiaka (2022) pioneers a new metric—the Water Security Index (WSI)—for measuring and comparing water security across the developing regions of Africa, the Asia-Pacific, and the Latin America and Caribbean (LAC). The WSI is the first index on water security that accounts for water availability, environmental conditions, climate risk, water and sanitation accessibility, and integrated water resources management. The study finds that GDP per capita, governance, and female primary school completion rate are all factors that determine water security in developing regions, with female primary school completion in particular having statistically significant correlations in the LAC region. This study is important is specifically relevant for Guatemala as it identifies the LAC region as being generally water-secure, with the exception of Haiti, Nicaragua, and Guatemala.

- Cheatham, Fernández and Ruiz (2022) point out that Guatemala has many times formally established the right to adequate sanitation and drinking water but that its existing water policy is piecemeal. They mention that each of the at least 13 attempts to establish a National Water Policy over the last century has stalled in Congress, resulting in poor water infrastructure and industrial abuse of waterways, which have made water accessibility and sanitation constant concerns for generations of Guatemalans. They investigate the many factors which have led to the recurring failure to establish a National Water Policy in Guatemala, focusing specifically on the powerful mining sector. While several major mines have been closed in Guatemala, Guatemala can learn from El Salvador, where coordinated community involvement from campesinos to the traditional oligarchy, grassroots strategizing which snowballed from local referenda to national policy, and the leveraging of international attention has led to the world's first blanket ban on metal mining.
- Fogelberg, Betancourt and Wende (2008) analyze a mapping project undertaken by a non-profit organization, Water for People – Honduras, that utilized GPS to plot the physical locations of water and sanitation sources in three municipalities in Honduras. The organization also collected data on water quality, specifically testing for the presence of fecal coliforms. The initial data collection found that the data on water and sanitation provided by the government of Honduras was inaccurate, and that the levels of coverage were in fact much lower. The study also found a coverage disparity in rural vs urban areas, with rural areas generally having much less access to water and sanitation coverage than their urban counterparts. Lastly, when controlling for water quality and safety, water coverage is essentially nonexistent in two of the three municipalities studied, with 13 percent of communities in the third municipality also experiencing water quality far below water quality regulations.
- Grillos, Zarychta and Nuñez (2021) conducted a survey experiment with 689 residents across 12 communities in Honduras' "dry corridor" to examine individual perceptions of the decision process for choosing to implement metering, or not, within the context of community-based water management. Three of their five highlights are that (1) metering and user fees are controversial but often used to manage water scarcity, (2) inclusion in the decision process increases acceptance of metering choices, and (3) procedural injustice is an important component of metering backlash.

III. Socioeconomic Background

Figure 1 illustrates the evolution of purchasing power parity (PPP)-adjusted GDP per capita from 1990 to 2022 in Guatemala and Honduras. PPP-adjusted GDP per capita in Guatemala amounted to $5,561 in 1990, increasing to $9,162 by 2022. Meanwhile, PPP-adjusted GDP per capita in Honduras was $3,913 in 1990 and increased to $5,709 in 2022. The data shows that PPP-adjusted GDP per capita in Guatemala is consistently higher than that of Honduras, which is exacerbated by Honduras's slower GDP per capita growth rate, averaging at only 1.25 percent per year, compared to Guatemala's average annual GDP per capita growth of 1.58 percent. Hence, Honduras' PPP-adjusted GDP per capita increased by about 46 percent between 1990 and 2022, while Guatemala's PPP-adjusted GDP per capita increased by almost 65 percent in the past 32 years. Both countries' GDP per capita growth rates are significantly below that of the world's average annual GDP per capita growth rate of 1.87 percent from 1990 to 2022.

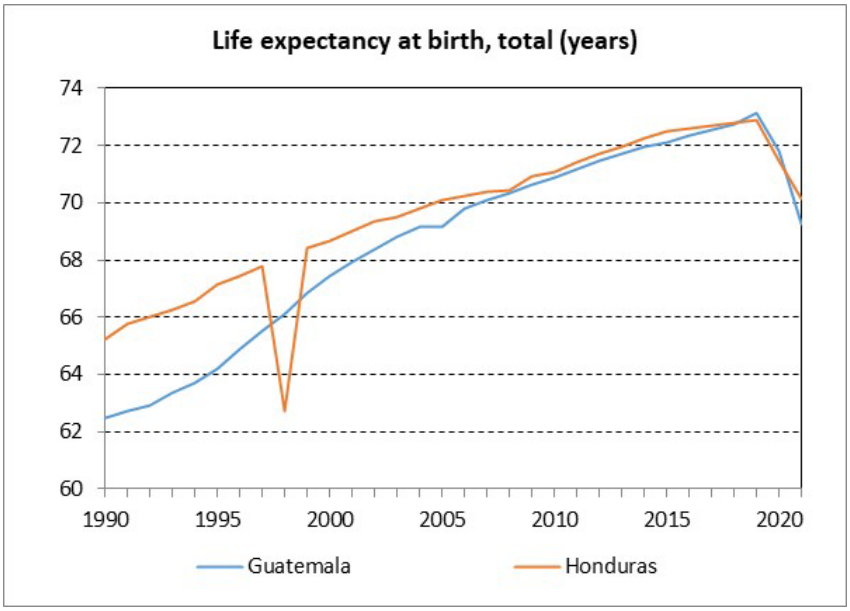
Figure 1: PPP-adjusted GDP per capita, 1990–2022



Source: Created by author based on World Bank (2024).

Figure 2 demonstrates the evolution and differences in total life expectancy in the two countries from 1990 to 2021. While there was a gap of almost 3 years between life expectancy in Honduras and life expectancy in Guatemala in 1990, excluding Honduras' significant drop in life expectancy in 1998 due to the death toll caused by hurricane Mitch, life expectancy of Honduras slowly converges to that of Guatemala, and finally overtakes Guatemala in 2019, even though only marginally. Life expectancy then drops in the subsequent two years related to the COVID-19 pandemic: 1.3 years (from 2019 to 2020) and 2.6 years (from 2020 to 2021) in Guatemala; and 1.4 years (from 2019 to 2020) and 1.3 years (from 2020 to 2021) in Honduras.

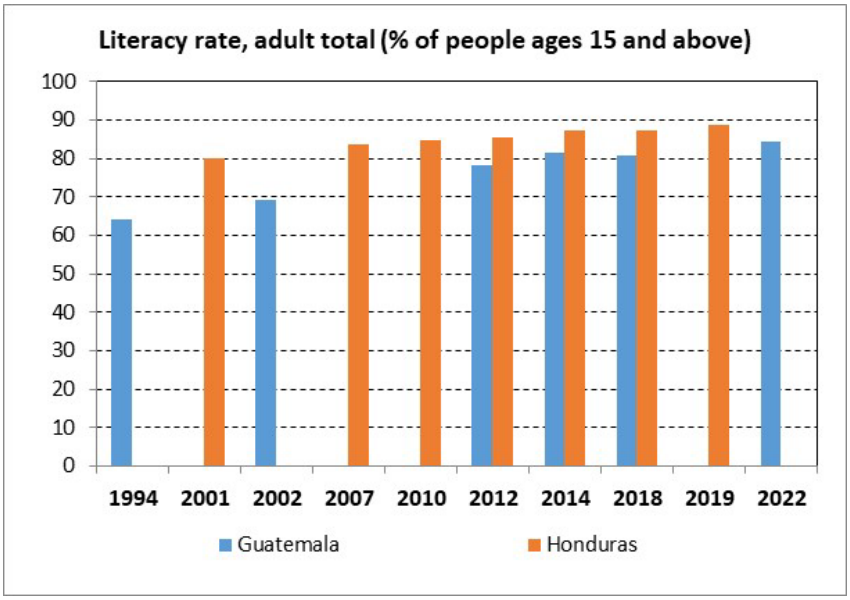
Figure 2: Total Life Expectancy at Birth in Years, 1990–2021



Source: Created by author based on World Bank (2024).

Figure 3 contains the available data on adult literacy rates in Guatemala and Honduras for all available years by the World Bank (2024). Despite the gaps in data availability to properly compare the two countries, there is some indication that Guatemala's literacy rates are always some 5 to 10 percentage points lower than those of Honduras. Guatemala's literacy rates increased from 64.2 percent in 1994 to 84.3 percent in 2022, while Honduras' literacy rates increased from 80.0 percent in 2001 to 88.5 percent in 2019. Comparing Figure 3 with Figure 1, we can see that Guatemala has always a considerably higher GDP per capita than Honduras, despite having consistently lower literacy rates, which is a rather unusual phenomenon.

Figure 3: Adult Literacy Rates (in percent), all available years



Source: Created by author based on World Bank (2024).

IV. Analysis of Facts

This section is divided into two subsections. The first subsection details nation-wide access to drinking water and sanitation services in Honduras and Guatemala, providing data on the use of "basic" water drinking and sanitation services as well as "safely managed" drinking water services. It is important to note that there is no data available for the use of "safely managed" sanitation services in Guatemala from the time period of 1990 to the present, perhaps indicating a severe lack of access to safely managed sanitation services in the country. The second subsection analyzes the use of basic drinking water services, basic sanitation services, and safely managed drinking water services within urban and rural contexts. The data for safely managed sanitation services in Guatemala is similarly unavailable for urban and rural areas.

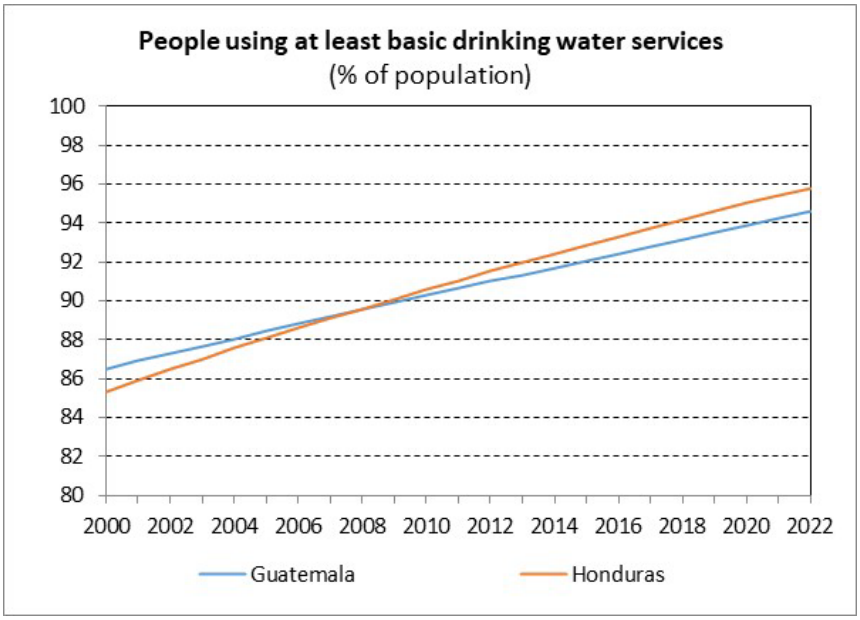
IV.1. General Access to Drinking Water and Sanitation Services

Figure 4 illustrates the percentage of the total population using at least basic drinking water services, which are defined by the World Bank (2024) as "drinking water from an improved source, provided collection time is not more than 30 minutes for a round trip. Improved water sources include piped water, boreholes or tubewells, protected dug wells, protected springs, and packaged

or delivered water." Since the year 2000, which marks the first recorded datapoint, the percentage of the population using at least basic drinking water sources in Honduras and Guatemala has been steadily increasing. At the turn of the century, the percentage of the Honduran population using at least basic drinking water services was 85.4 percent, while the percentage of the Guatemalan population using at least basic drinking water services was slightly higher at 86.5 percent.

Though the growth rate remains somewhat steady, with the average yearly increase being slightly below half a percentage point, the percentage of the population using basic drinking water services in Honduras grew at a more accelerated pace, surpassing the Guatemalan population in 2006 and continuing to its 2022 peak of 95.8 percent. Guatemala's population has slightly less access to basic drinking water services, with a peak of 94.6 percent in 2022. Both countries are slightly above the world average of 91.6 percent of people using at least basic drinking water service.

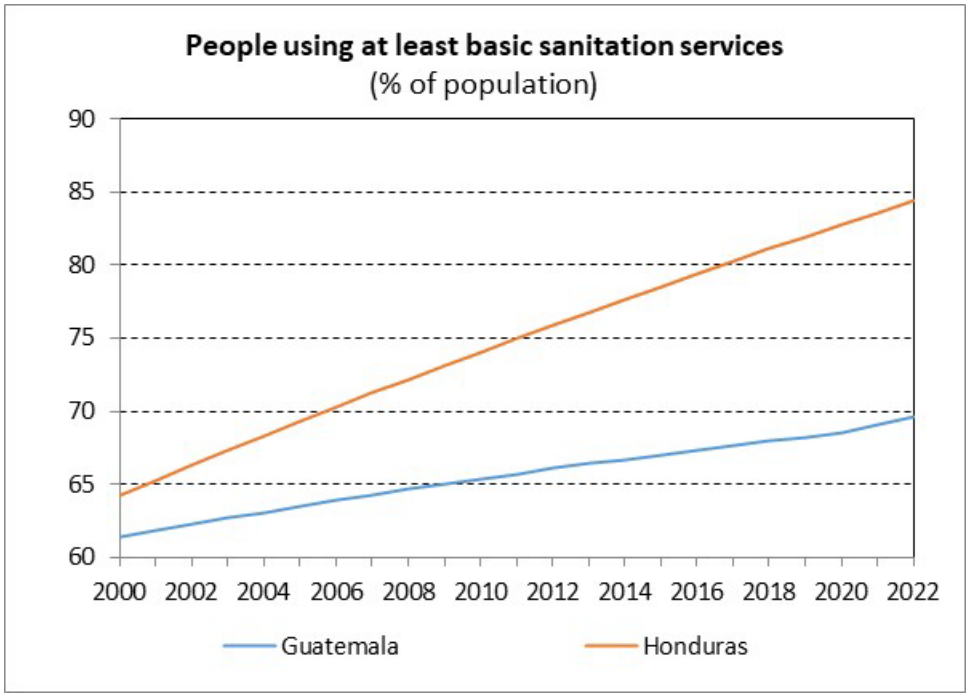
Figure 4: People Using At Least Basic Drinking Water Services, 2000–2022



Source: Created by author based on World Bank (2024).

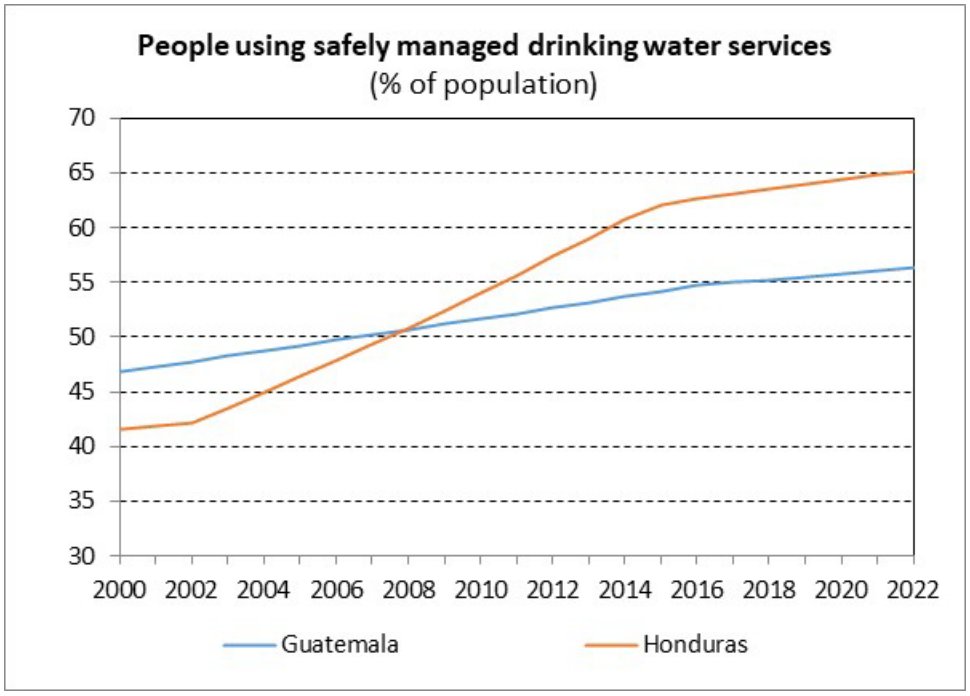
Figure 5 illustrates the population percentage of people with access to at least basic sanitation services in both countries. The data for this indicator also starts in the year 2000, but there is a much more visible disparity between the two countries. Far less of Guatemala's population has access to basic sanitation services, growing from 61.3 percent in 2000 to just 69.6 percent in 2022. Honduras, on the other hand, has experienced much more significant growth in this area: while only 64.25 percent of the population used at least basic sanitation services in 2000, almost 85 percent of the population had access to these services by 2022. While growth in this area has remained relatively steady for both nations, Guatemala did see an increased growth rate in 2020, likely due to health initiatives implemented during the 2020 COVID-19 pandemic. Guatemala is considerably below the world average of 80.6 percent of people using at least basic sanitation service, while Honduras is slightly above the world average.

Figure 5: People Using At Least Basic Sanitation Services, 2000–2022



Source: Created by author based on World Bank (2024).

Figure 6: People Using Safely Managed Drinking Water Services, 2000–2022



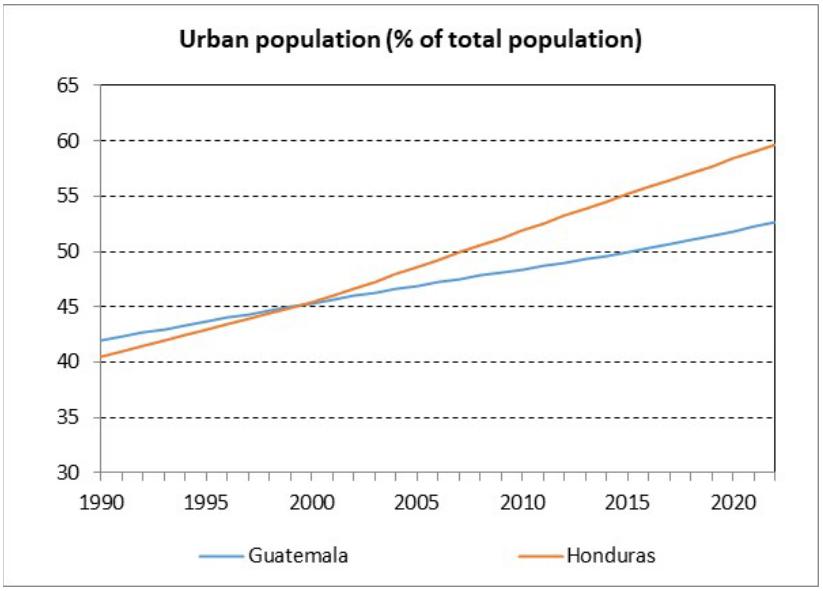
Source: Created by author based on World Bank (2024).

Figure 6 illustrates the percentage of people using "safely managed" drinking water services. The World Bank (2024) defines "safely managed" drinking water services as "an improved source that is accessible on premises, available when needed and free from fecal and priority chemical contamination." This figure demonstrates how access to "safely managed" drinking water services was relatively low in the year 2000, with 41.6 percent of the Honduran population and 46.8 percent of the Guatemalan population having access to such services. The growth rate for Honduras was significantly higher than that of Guatemala, despite the initial almost 5-point difference between the two countries, resulting in access in Honduras surpassing that of Guatemala by 2008. However, both growth rates slowed after 2015, with Honduras peaking at just about 65 percent and Guatemala peaking at just about 56 percent. While both countries are slightly above the world average for the percentage of people using at least basic drinking water service, both countries are below the world average of 72.9 percent of people using safely managed drinking water services.

IV.2. The Rural-Urban Divide

Before showing the rural-urban divide in the access to water and sanitation, we should first point out that both Guatemala and Honduras experienced a relatively rapid urbanization from 1990 to 2022. Figure 7 illustrates the urban population as a percentage of the total population from the period 1990 to 2022. Honduras initially has the least urbanized population in 1990, standing at just 40.5 percent before skyrocketing to just under 60 percent in the subsequent decades. Guatemala starts out with a higher rate of urbanization at 42.0 percent in 1990 but experiences a slower growth rate over time, peaking at 52.7 percent in 2022. Despite the relative fast urbanization in both countries, it is important to note that a significant proportion of the population (some 47.3 percent in Guatemala and 40.4 percent in Honduras) still lives in rural areas, which (as shown below) have far less access to water and sanitation services.

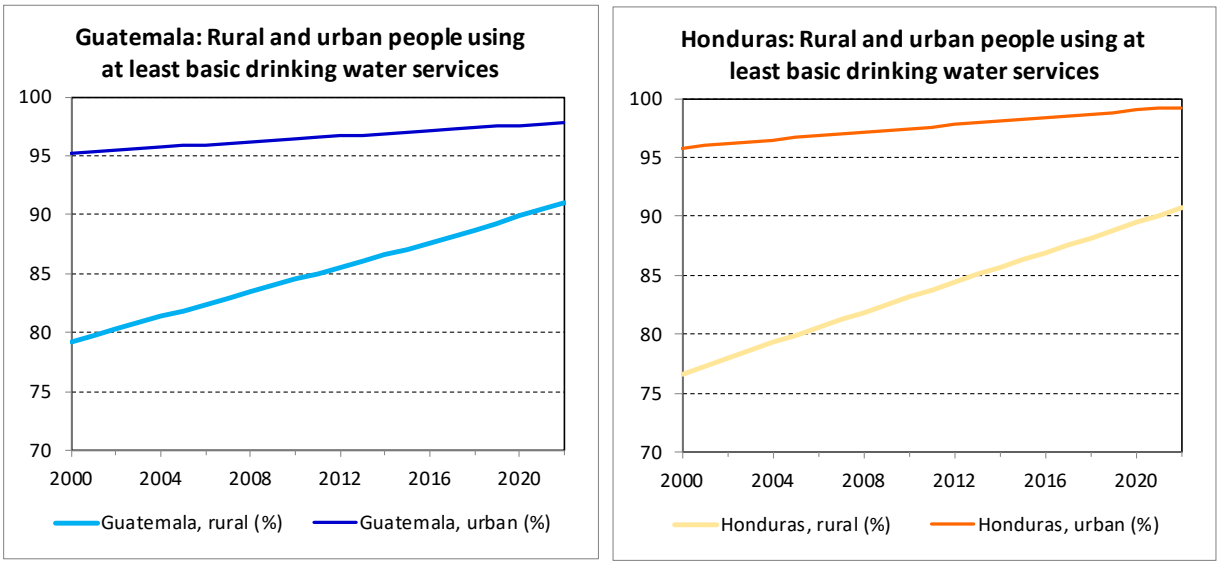
Figure 7: Urban Population (percent), 1990–2022



Source: Created by author based on World Bank (2024).

Figures 8 and 9 illustrate the differences in the percentage of the population using at least basic drinking water services in rural vs. urban areas, respectively in Guatemala and Honduras. As Figure 8 shows, the rural-urban divide in Guatemala was 16.0 percentage points in 2000, reducing to 6.7 percentage points in 2022. As Figure 9 shows, the rural-urban divide in Honduras was 19.2 percentage points in 2000 (3.2 percentage points higher than in Guatemala), reducing to 8.4 percentage points in 2022 (2.7 percentage points higher than in Guatemala). Hence, though the rural-urban divide continues to be larger in Honduras, Honduras has made a little bit more progress in reducing the rural-urban divide in people using at least basic drinking services.

Figures 8 and 9: Rural-Urban Divide for People Using at Least Basic Drinking Water Services in Guatemala and Honduras, 2000–2022,



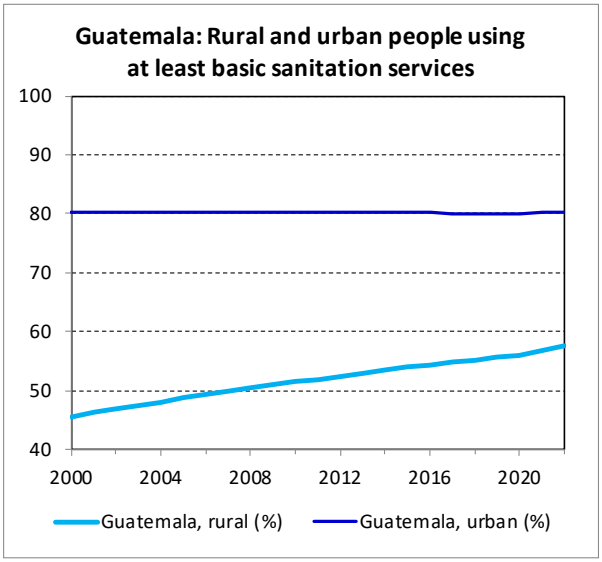
Sources: Created by author based on World Bank (2024).

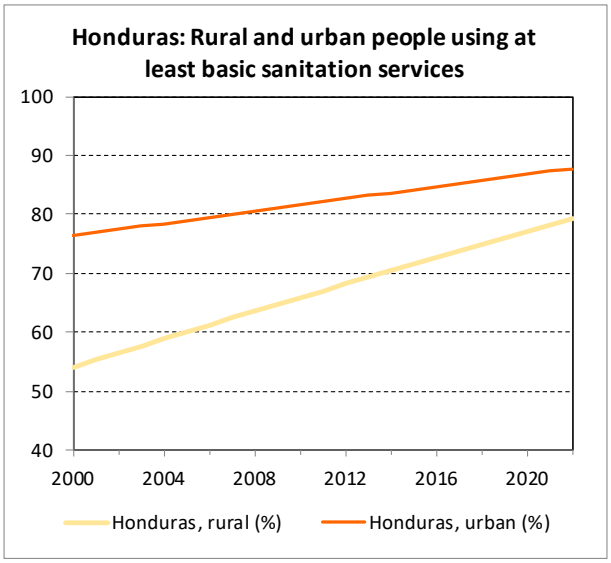
Figures 10 and 11 illustrate the differences in the percentage of the population using at least basic sanitation services in rural vs. urban areas, respectively in Guatemala and Honduras. As Figure 10 shows, the rural-urban divide in Guatemala was 34.6 percentage points in 2000, reducing to 22.6 percentage points in 2022. As Figure 11 shows, the rural-urban divide in Honduras was 22.3 percentage points in 2000 (12.3 percentage points lower than in Guatemala), reducing to 8.4 percentage points in 2022 (14.2 percentage points lower than in Guatemala). Hence, not only does the rural-urban divide continue to be larger in Guatemala than in Honduras, Guatemala has actually experienced a slight decrease in the urban population having access to at least basic sanitation services.

Figures 12 and 13 illustrate the differences in the percentage of the population using safely managed drinking water services in rural vs. urban areas, respectively in Guatemala and Honduras. As Figure 12 shows, the rural-urban divide in Guatemala was 16.1 percentage points in 2000, increasing (instead of decreasing) to 20.9 percentage points in 2016. The rural-urban divide narrows then marginally to 16.9 percentage points from 2016 to 2022, though mainly because of the near stagnation in the urban people using safely managed drinking water services. As Figure 13 shows, the rural-urban divide in Honduras has increased even more than in Guatemala: the rural-urban divide was 7.9 percentage points in 2000, increasing to 34.2 percentage points in 2015.

The rural-urban divide narrows then marginally to 32.7 percentage points from 2015 to 2022, though like in Guatemala, mainly because of the near stagnation in the urban people using safely managed drinking water services.

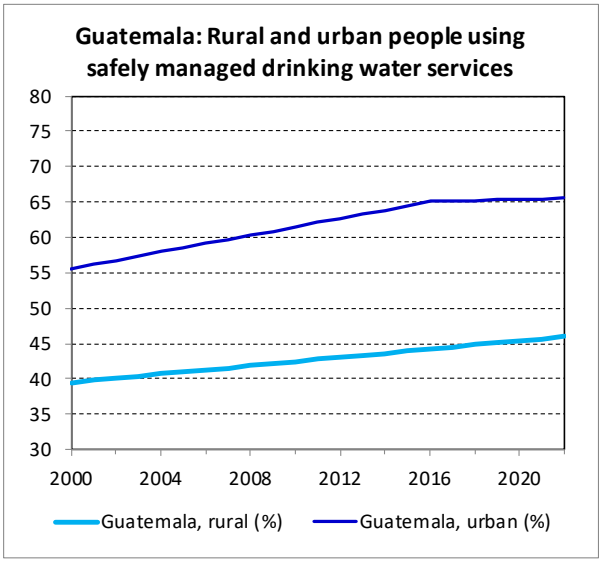
Figures 10 and 11: Rural-Urban Divide for People Using at Least Basic Sanitation Services in Guatemala and Honduras, 2000–2022

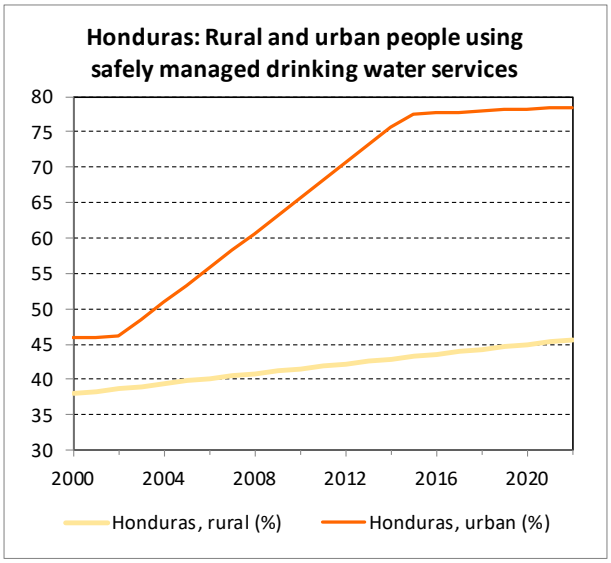




Sources: Created by author based on World Bank (2024).

Figures 12 and 13: Rural-Urban Divide for People Using Safely Managed Drinking Water Services in Guatemala and Honduras, 2000–2022





Sources: Created by author based on World Bank (2024).

V. Ethical Analysis

This section endeavors to illustrate the ethical implications of access to water and sanitation services in Honduras and Guatemala. The first subsection will justify access to water and sanitation as a general ethical issue through an analysis of the dominant arguments surrounding access to the two services. The second and third subsections will then apply these presuppositions to the policies implemented in respectively Honduras and Guatemala since the turn of the century to determine the ethical dimension of such policies, especially in reference to disparities in access between urban and rural areas.

V.1. The Ethics of Water

Before one can analyze the ethical implications of access to water and sanitation services in Honduras and Guatemala, it is necessary to demonstrate how access to these services is an ethical issue. The dominant argument on the ethics of water is best enumerated by Risse (2014), in which he asserts that water is a human right due to the fact that it is life-giving and non-substitutable, and that water is a part of human nature. In this argument, Risse utilizes a human rights approach, consistent with the definition provided by the Markkula Center for Applied Ethics (2021) to underscore the necessity of water to human life. Like air, all humans require water as an element of their basic survival—to live without water is to die. Additionally, because water is naturally occurring and not man-made, no one human or group holds a dominant claim on this collective resource over others.

Ethical arguments on sanitation, though less explicit than those made about water, also tend to follow the human rights approach, as poor sanitation causes disease and violates the human right to life. The fairness and justice approach (as defined by the Markkula Center for Applied Ethics (2021)) is also commonly used when discussing the ethics of access to water and sanitation. This approach, which appropriately argues that human beings should be treated fairly, demonstrates how it is simply unfair for some to have access to water and sanitation while others do not. This approach may also be used to illuminate how the lack of access to these services creates further injustices, such as disparities in time allocation (and thus income or educational attainment) due to time spent fetching clean water or time spent sick from sanitation-related diseases like diarrhea. Thus, the lack of or poor access to water and sanitation can be linked to other ethical issues like poverty, illness, and death, creating further inequality and injustice.

V.2. Ethical Perspectives and Water and Sanitation Policies in Honduras

Now that access to water and sanitation have been justified as ethical issues, it is necessary to examine the ethical dimensions of the various policies implemented by Honduras and Guatemala. Our analysis above (Figures 8 to 13) has shown that with exception of Guatemala's urban access to basic sanitation services, access to water and sanitation has increased in both countries since the turn of the century, in both urban and rural areas. In Honduras, this increase can be attributed to a variety of sequential programs, with one of the most influential being the decentralization of the water and sanitation provision center under the Framework Law for the Drinking Water and Sanitation Sector, which was passed in 2003.[2] This law returned authority and powers of provision

[2] World Bank (2017).

back to the municipalities, allowing providers to suit the needs of their unique local environment while holding them directly accountable to their constituencies.[3]

One year later, the Honduran government requested technical assistance from the World Bank in developing the "Honduras Water and Sanitation Sector Modernization Project," which aimed to facilitate the decentralization outlined in the 2003 Framework Law. However, this project only allocated funds to municipalities with a population size between 40,000 and 300,000, inherently advantaging urban areas over rural ones.

In any case, as was shown in the previous section, rural areas experienced faster growth in terms of access to water and sanitation, while they continue to maintain lower levels of access than their urban counterparts. The government's decision to implement this plan, despite the rural-urban divide, might be justified under the utilitarian approach (as defined by the Markkula Center for Applied Ethics (2021)), given that since 2008 more than half of Honduras' population lives in urban areas. According to this approach, this action was justified because it increased the overall benefits while reducing the most possible harm, as it focused on areas that were subject to the most growth and effectively helped a large proportion of the population. This approach was used again by the Honduran government through the implementation of a program that targeted small towns through another World Bank assisted program in 2016.[4]

In addition to targeted programs, the Honduran government has enshrined the right to water and sanitation as an explicit human right in its constitution, through the passage of Article 145, which reads that "access to water and sanitation are declared to be a human right…[and] their enjoyment and use shall be equitable with preference to human consumption."[5] This action, in conjunction with the signing of multiple international treaties affirming the same rights, demonstrates a second approach ethical approach utilized by Honduran government in solving these ethical issues: the human rights approach.

By affirming this right in the constitution, the government committed to providing access to water and sanitation services for all its citizens, and this commitment is further exemplified through the 2023 loan agreement with the Inter-American Development Bank, which allocated millions of US dollars to Honduras to further support the ongoing transition to municipal control and the continued development of water and sanitation services across the country. Thus, while the utilitarian approach provided a certain level of progress, particularly in urban areas, it is clear that the government recognizes that a human rights approach is necessary to ensure provision of water and sanitation services to all.

V.3. Ethical Perspectives and Water and Sanitation Policies in Guatemala

While the use of the rights and utilitarian approaches was vastly successful in Honduras—which maintains relatively high rates of access to water and sanitation services in both urban and rural areas—the same cannot be said for Guatemala. Guatemala has generally been less successful than its Honduran counterpart in providing high levels of water and sanitation services, mainly due to its highly disorganized approach to national water policy as detailed by Cheatham, Fernández and Ruiz (2022).

[3] World Bank (2016).
[4] World Bank (2016).
[5] Constitute (2022), Article 145.

Like Honduras, the Guatemalan government has also attempted to maintain decentralized water and sanitation provision. However, the provision of these services is underfunded, and Guatemala has cooperated less with international organizations to finance supportive endeavors. This has changed though in recent years, with Guatemala co-launching projects with three different partners in 2022 and 2023.

The first project, a joint effort between the Ministry of Public Health and Social Assistance, the United Nations Children's Fund (UNICEF), and the Stockholm International Water Institute, aims to upgrade the National Water and Sanitation Policy in Guatemala and connects this goal to the National Development Plan.[6] The second project will be conducted through financial support from the United States Agency for International Development (USAID) and explicitly targets water and sanitation access in rural communities.[7] This policy in particular privileges the opposite population from similar programs in Honduras, favoring the less well-off rural populations. This approach may be more closely associated with the fairness and justice approach, as the "unequal" assistance to the rural population may make access conditions in these areas more similar to those in urban areas, generating fairer conditions throughout the country.

Guatemala has also recognized the water and sanitation issue through a human rights lens through its signing of multiple international treaties, including the International Convention of Economic, Social, and Cultural Rights (ICESCR), the Convention on the Elimination of Discrimination Against Women (CEDAW), and the Convention of the Rights of the Child, which all provide for a human right to water and/or sanitation services.[8] However, their embrace of this approach has been less internally formalized than that of Honduras, which may be contributing to the lower levels of access in Guatemala than Honduras. For example, while Guatemala's constitution has multiple provisions that may provide for or imply the existence of a right to clean and safe water,[9] the right is not explicitly defined, allowing policymakers to shirk accountability in providing for this human right.

VI. Conclusion

While access to water and sanitation in both Honduras and Guatemala has demonstrably increased over time, there is still much work to be done in order to ensure access to these integral resources for all. In particular, the above analysis suggests that further investment should be undertaken in rural areas, which tend to have lower levels of access. It is paramount that nations take immediate action to rectify this disparity, which can have long-term negative, interconnected consequences on health, educational attainment, and economic prosperity, among others. Additionally, the ethical lenses through which both nations have constructed their policies thus far suggest a continued ethical obligation to resolve this issue. In particular, both nations have acknowledged that water and sanitation access are inherent human rights through the signing of international treaties, which would make inaction on this issue a violation of these recognized rights.

As both nations have received technical assistance, support, and funding from international institutions and developed nations, it is clear that the implementation of programs such as those supported by the World Bank and USAID is at least partially responsible for the current expansion

[6] Stockholm International Water Institute (2023).
[7] United States Agency for International Development (USAID) (2023).
[8] Willamette University College of Law International Human Rights Clinic (2012).
[9] Willamette University College of Law International Human Rights Clinic (2012).

of access to clean water and sanitation services in Honduras and Guatemala. This history of cooperation should provide a framework for further projects, and in combination with the promotion of good governance, the creation of national strategies, and the strengthening of representative institutions, could result in solutions that provide access to water and sanitation for all.

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