

EL NIÑO-SOUTHERN OSCILLATION (ENSO): COMMUNITY PERCEPTION SURVEYS ON VULNERABILITIES AND POTENTIAL IMPACTS



ENSO MONITORING
ACTION AGAINST HUNGER
REPORT 1

SEPTEMBER 2023



ABSTRACT

PRESENTATION	3
ENSO CONTEXT IN COLOMBIA	3
METHODOLOGY.....	5
II. FINDINGS AND COMMUNITY PERCEPTIONS REGARDING ENSO ..;Error! Marcador no definido.	
A. GENERAL PERCEPTIONS REGARDING THE PHENOMENON.....	7
B. PERCEPTIONS REGARDING AREAS OF VULNERABILITIES	10
1. WATER.....	10
2. ENERGY RESOURCES	13
3. FOOD SECURITY	15
4. HEALTH.....	19
CONCLUSIONS.....	21
ANNEX: POPULATION IN TRANSIT	24

ABBREVIATIONS

ENSO	EL NIÑO-SOUTHERN OSCILLATION (ENSO)
IDEAM	Institute of Hydrology, Meteorology and Environmental Studies
AAH	Action Against Hunger

ABSTRACT

In Colombia, the El Niño-Southern Oscillation (ENSO) is characterized by a decrease in the volume of rainfall and an increase in air temperatures¹. According to historical records, the occurrence of ENSO in Colombia has had economic, social, and environmental impacts associated with prolonged water deficit conditions, problems in the water supply through aqueducts, increase in the frequency of fires, reduction of energy generation capacity (hydroelectric plants), reduction in agricultural and livestock productivity, and an increase in tropical diseases.²

In this framework, articulated with Action Against Hunger's ENSO monitoring strategy, this document presents the results of the national survey on "Community perception of vulnerabilities and affectations associated with ENSO carried out in August 2023 with the objective of understanding from the point of view of the most vulnerable communities, the main affectations related to previous ENSO and the forecast of possible impacts. 2,048 household surveys were collected, equivalent to 8,162 people in 17 Colombia departments (60 municipalities).

I. ENSO CONTEXT IN COLOMBIA

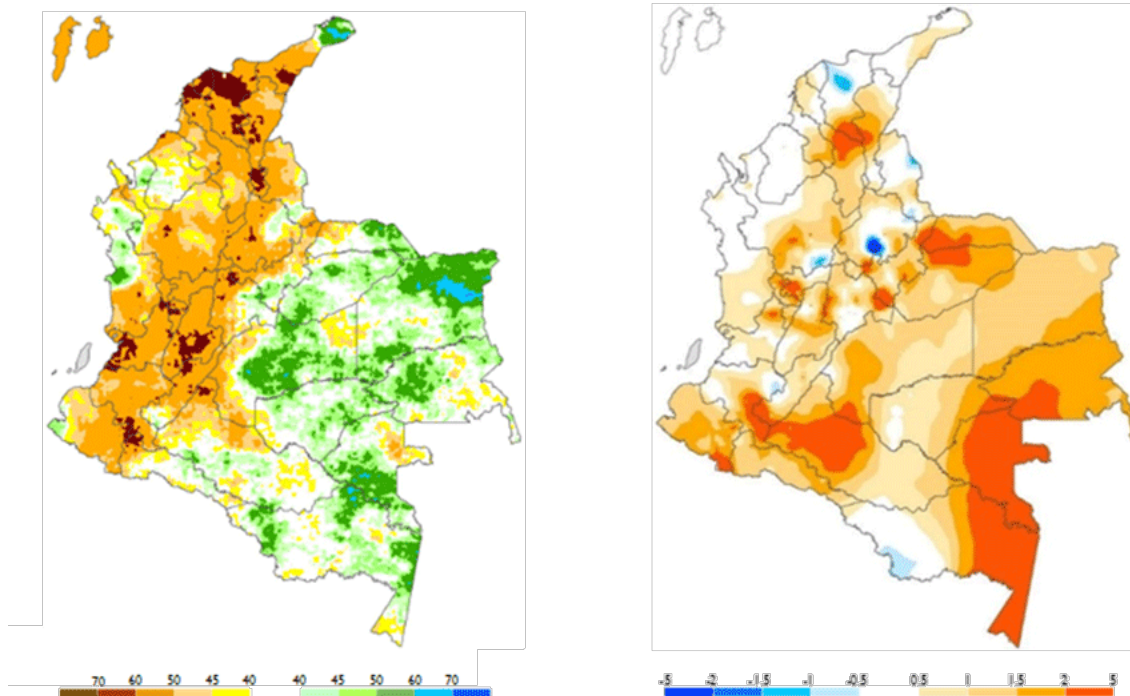
The ENSO is a natural phenomenon characterized by fluctuations of ocean temperatures in the central and eastern parts of the equatorial Pacific, associated with changes in the atmosphere, which may result in heavy rainfall events, floods, and droughts. This climatic phenomenon may also present itself in the form of La Niña, characterized by the variability of cold flows in the ocean, or it may be neutral, i.e., without climatic disturbances³. The intensity with which ENSO manifests itself is associated with the degree of warming and the area affected, in this case, covering parts of Central and South America⁴.

1 DNP (2018) CONPES 3947. Estrategias De Actuación Y Coordinación Para Reducir Las Afectaciones Ante La Eventual Ocurrencia De Un Fenómeno De Variabilidad Climática.

2 UNGRD (2018) National Contingency Plan for a Possible El Niño Phenomenon. Bogota.

3 World Meteorological Organization-WMO (2023) El Niño/La Niña Hoy. Boletín. <https://public.wmo.int/en/our-mandate/climate/el-ni%C3%B1o-la-ni%C3%B1a-update>.

4 Banco de la República (2014) El Fenómeno de El Niño en Colombia: caracterización y posible impacto. Investigación e Información Económica. Número 182. Julio de 2014

**PRECIPITATION DECREASE
PREDICTION - October 2023**
**TEMPERATURE INCREMENT
PREDICTION - October 2023**

Graph 1. Source: ENSO Monitoring. IDEAM

In the case of Colombia, a key element of ENSO is that contrary to other countries such as Peru or Ecuador, its occurrence is mainly characterized by a decrease in rainfall volume and an increase in air temperatures⁵.

In general, ENSO in Colombia usually lasts 11 months, but shorter periods have been recorded (5 months between September 2006 and January 2007) and longer ones (19 months between August 1986 and February 1988)⁶. Among the current records, different intensities of phenomena have been recorded in the country in the last decades, including weak ones (1994-1995 and 2002-2003), moderate (1991-1992 and 2009-2010), and strong (1972-1973, 1982-1983, 1997-1998 and 2015-2016)⁷.

⁵ DNP (2018) Conpes 3947. Estrategias De Actuación Y Coordinación Para Reducir Las Afectaciones Ante La Eventual Ocurrencia De Un Fenómeno De Variabilidad Climática: El Niño 2018 – 2019. Bogotá. 2018.

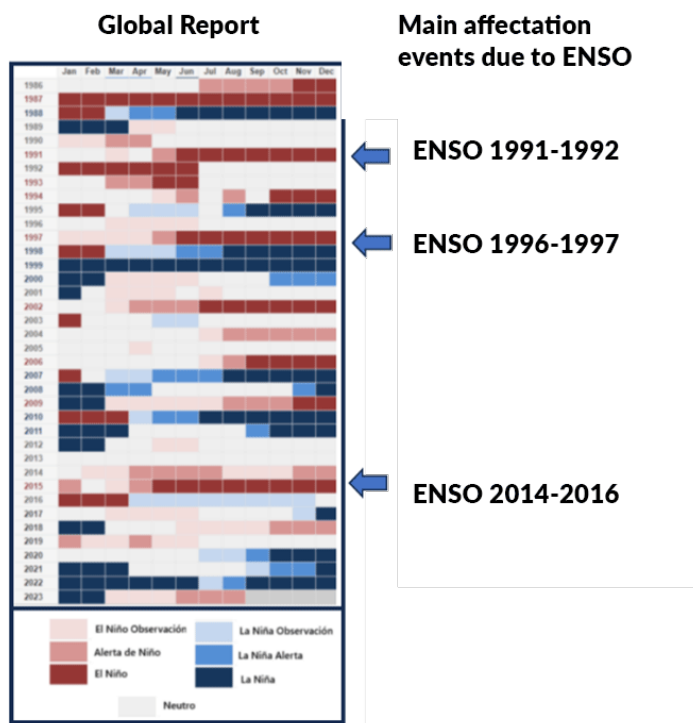
⁶ Banco de la República (2014) El Fenómeno de El Niño en Colombia: caracterización y posible impacto. Investigación e Información Económica. Número 182. Julio de 2014

⁷ DNP (2018) Conpes 3947. Estrategias De Actuación Y Coordinación Para Reducir Las Afectaciones Ante La Eventual Ocurrencia De Un Fenómeno De Variabilidad Climática: El Niño 2018 – 2019. Bogotá. 2018.

The economic, social, and environmental impacts of ENSO have been significant for Colombia. Among the impacts are the prolonged water deficit, problems in the water supply of aqueducts, increase in the frequency of fires, reduction of energy generation capacity (hydroelectric plants), increases in tropical diseases, and the reduction of agricultural and livestock productivity,⁸ Especially the phenomena with the most significant social and economic impact have been those of 1991-1992, 1997-1998 and 2015-2016.

The phenomenon is expected to strengthen from weak to moderate in the current forecasts for ENSO in Colombia in 2023.

This means a reduction in historical rainfall averages between 10% and 20% in the Caribbean, Andean, Orinoco, Amazon, and Pacific regions⁹. Likewise, the average air temperature is expected to increase between 0.5°C and 2.5°C in most of the country by historical averages¹⁰.



METHODOLOGY

The methodology for implementing the perception survey is framed within the ENSO monitoring strategy. The objective of the monitoring strategy is related to the occurrence of the ENSO, associated with a comprehensive, territorial, and intersectoral analysis of the effects of the climatic, social, and economic variables to generate information to strengthen the operation and the positioning in relation to critical actors. The implementation process

⁸ DNP (2018) Conpes 3947. Estrategias De Actuación Y Coordinación Para Reducir Las Afectaciones Ante La Eventual Ocurrencia De Un Fenómeno De Variabilidad Climática: El Niño 2018 – 2019. Bogotá. 2018.

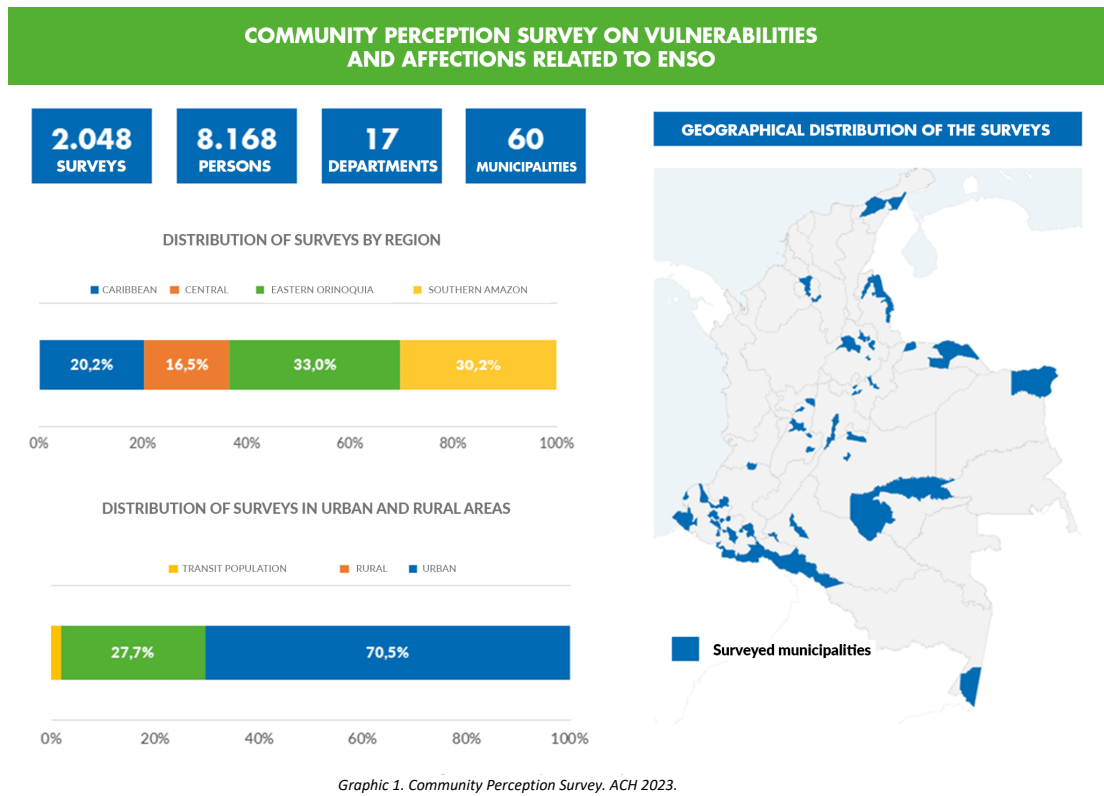
⁹ “Departments of Antioquia, Norte de Santander, Boyacá, Cundinamarca, Tolima and Huila, in the Andean region; in the eastern of the departments of Cauca, and Valle in the Pacific region; south of Casanare and north of Arauca in the Orinoco; and in the foothills of Caquetá and central-eastern Guainía in the Amazon” Gobierno de Colombia (2023) - Comunicado Nacional - Condiciones Actuales de El Niño-La Niña. Comunicado No. 8 agosto de 2023.

¹⁰ Gobierno de Colombia (2023) - Comunicado Nacional - Condiciones Actuales de El Niño-La Niña. Comunicado No. 8 agosto de 2023.

of the monitoring system is based on four phases with a determined duration of twelve (12) months from August 2023 to July 2024.

The monitoring strategy is conceptually based on the characteristics of ENSO (I) and its interaction with vulnerabilities (II) specifically related to water, energy resources, food security, and health; all these dimensions are understood as those that may have a more significant impact on the Colombian population in general, but in particular for the most vulnerable ones. Within this analysis, it is also investigated how these processes of increments in the already existing area of vulnerability (as part of the materialization of ENSO) come to interact with other drivers in front of the hunger impulse (III), such as the armed conflict, economic shocks, and climate change. Finally, the institutional and other stakeholders' responses implemented to prevent and mitigate the impacts of ENSO at the national and local levels will also be investigated.

Within the framework of the ENSO monitoring strategy in the Colombia mission, the survey "Community perception of vulnerabilities and affectations associated with ENSO" was implemented in August 2023 to understand from the communities' point of view the main affectations related to previous ENSO and forecast of possible impacts. Information collection was designed through the random statistical method to guarantee the information's representativeness.



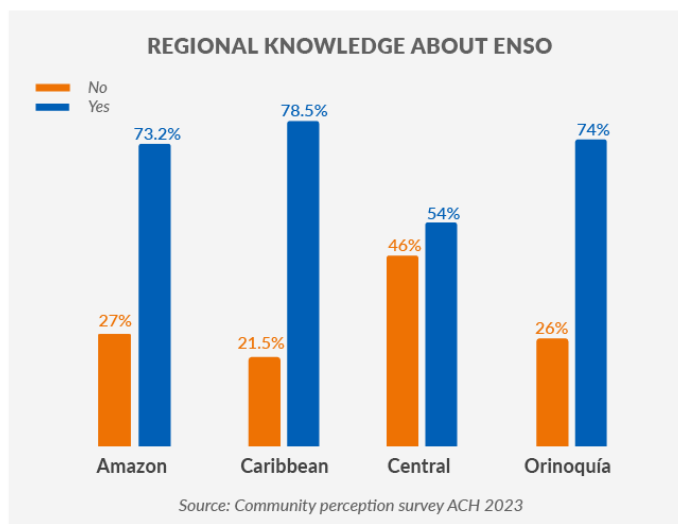
The surveyed population corresponds to beneficiaries of the interventions throughout the country. The territories with the greatest vulnerability to the phenomenon were targeted for information collection. In total, 2,048 household surveys were collected, equivalent to 8,162 people in 17 departments (60 municipalities), 71% of which were collected in urban areas and 29% in rural areas. The field teams of Action Against Hunger carried out the collection of information.

II. FINDINGS AND COMMUNITY PERCEPTIONS REGARDING ENSO

A. GENERAL PERCEPTIONS REGARDING THE PHENOMENON

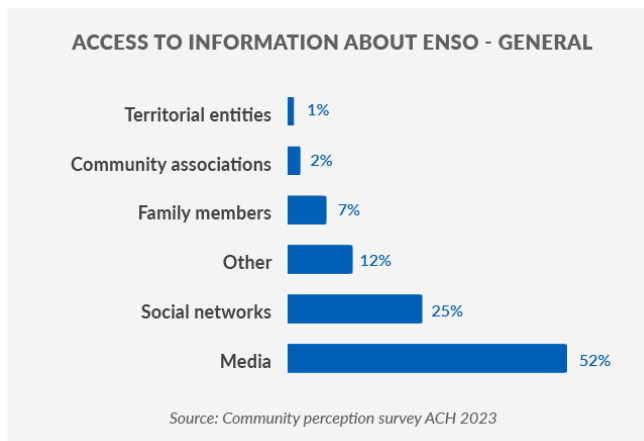
To understand the communities' perception regarding the vulnerabilities and impacts of ENSO, people's knowledge degree regarding the phenomenon's materialization, historical records, and the relationship with climatic events were investigated.

Among the general findings, it was found that 72% of those surveyed indicated that they knew about the phenomenon, having the words "heat," "drought," or "summer" as primary references. The results show that knowledge about ENSO does not differ significantly between rural and urban areas, 72% and 71%, respectively. At the regional level, the main difference is found in the Central Region, where the lack of knowledge of ENSO is double that of other regions (46.1%).

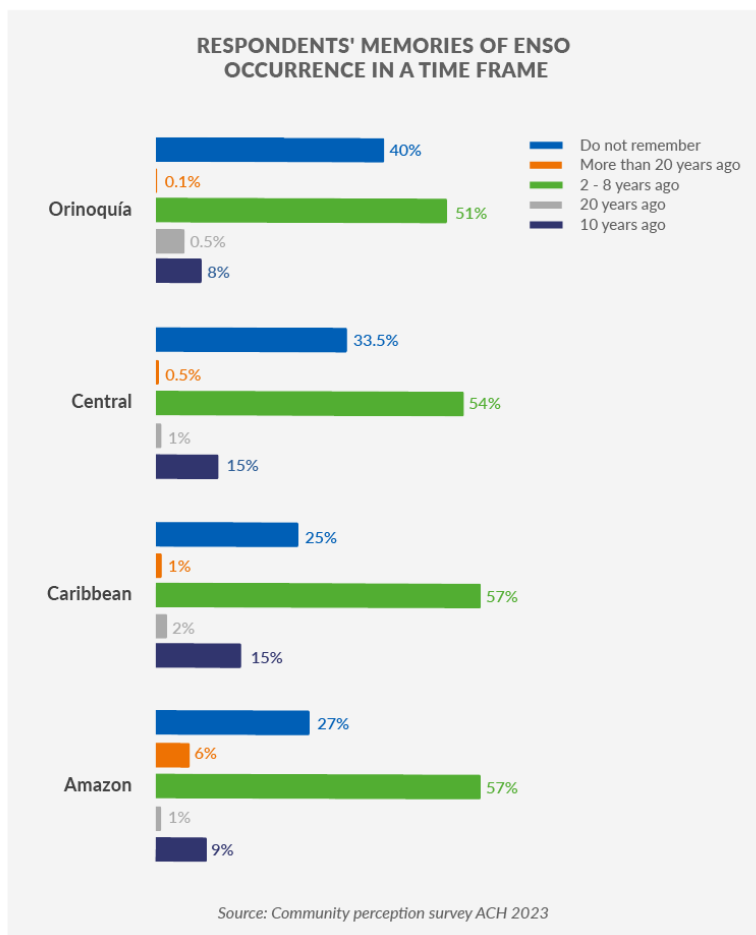


Regarding the source of information with which the communities are informed about ENSO, mass media occupies the first place with 52%, followed by social networks with 25%. Official and communitarian channels represent only 3.2% of the means to obtain information about the phenomenon.

The level of predominant presence of mass media is maintained, being slightly higher in rural areas (67%) than in urban areas (64%). In the case of social networks, there is greater use of them for information on ENSO in urban areas (45%) compared to rural areas (38%).



Concerning the perception with previous ENSO, at a general level, 44.5% had identified an event of these characteristics in a frame of 2-8 years, indicating 25% that they do not accurately remember the date of past events or 18.6% that they do not know. Concerning the rural and urban divisions, there are no significant differences, with 44% (rural population) and 45% (urban population), respectively, identifying the last ENSO in the 2-8-year range.



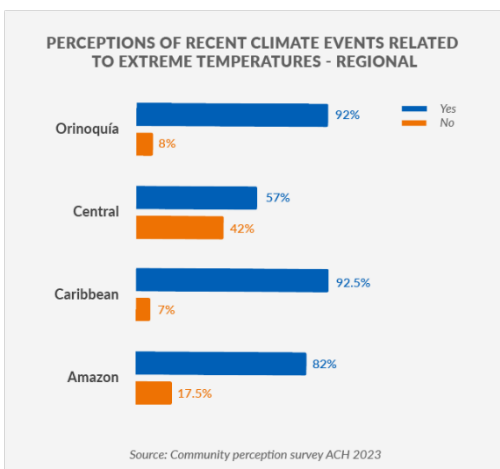
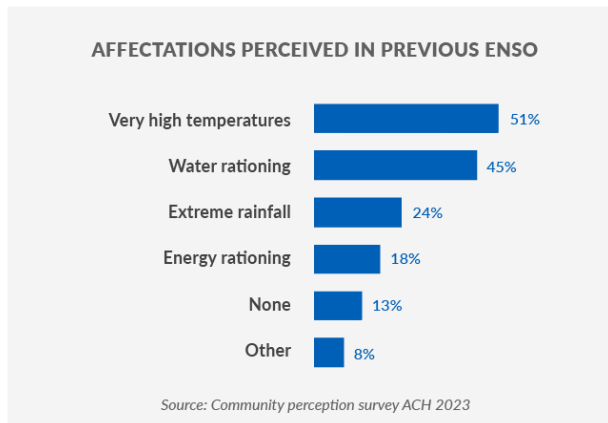
Regarding regional differences, a percentage between 51-56% refers to the ENSO occurrence 2-8 years ago. In the Amazon Region, this is significantly higher than in other regions (7%) that recall ENSO's occurring ten or more years ago.

Specifically, regarding the effects identified in the previous ENSO, 51% of those surveyed by Action Against Hunger indicated that the most significant effects perceived were high temperatures and in 45%, water rationing in addition to extreme rains.

In this aspect, there are significant variations in the relationship between perceptions of urban and rural effects. In the rural context, the perception of temperature effects is higher (63%) than in

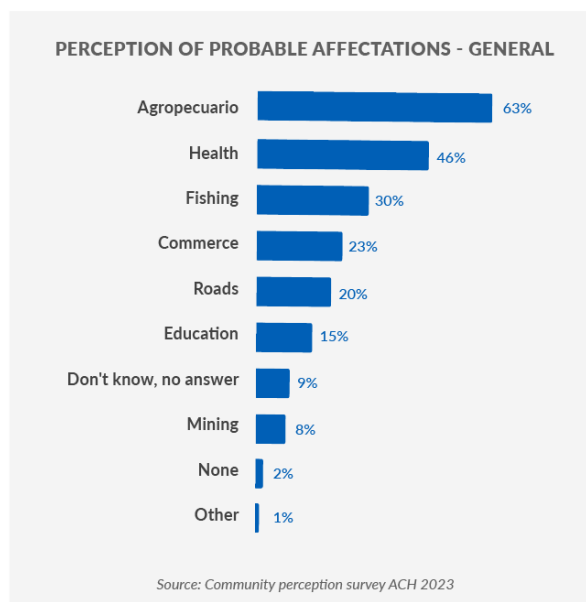
urban environments (48%). Similarly, in rural areas, a greater intensity of water rationing is also mentioned (62%) than in urban areas (42%). On the contrary, extreme rainfall (27%) is mentioned with greater intensity in urban contexts than in rural areas (15%).

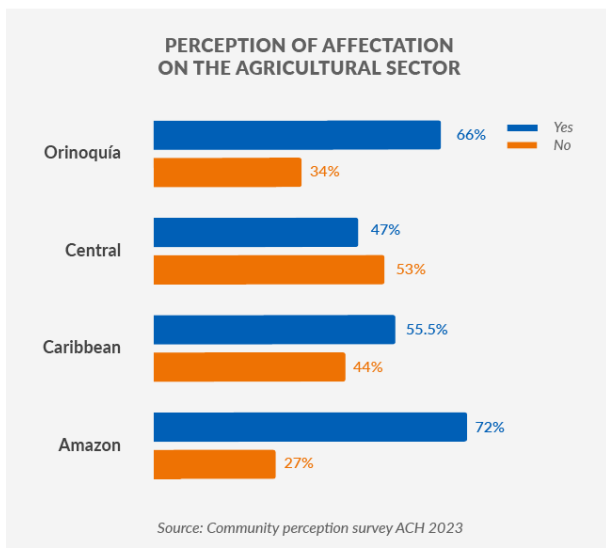
These same communities perceive that, at present, there are already changes in the climate in their areas due to factors such as ENSO. Eighty-four percent of the people surveyed by Action Against Hunger indicate that the arrival of phenomena has increased temperatures and that rain cycles have changed significantly. This perception is more significant in the rural context, where 88% report an increase in temperatures and 43% report variations in rainfall, compared to 81% in the perception of increased temperatures and 27% in rainfall variations in the urban context.



At the regional level, perceptions of recent events, such as extreme temperatures, vary according to the region, with the highest records in the Caribbean Region (92.5%) and Orinoco Region (92%) as opposed to the Central Region (57.6%).

From the perception of the most affected areas, 63% of the communities surveyed by Action Against Hunger estimate that agricultural and livestock activities will be affected as ENSO evolves since climatic conditions affect production cycles and sown areas. In the case of the rural and urban division, there is a perception of a more significant impact in the rural context in sectors such as agriculture (69%) as opposed to urban contexts (60%).



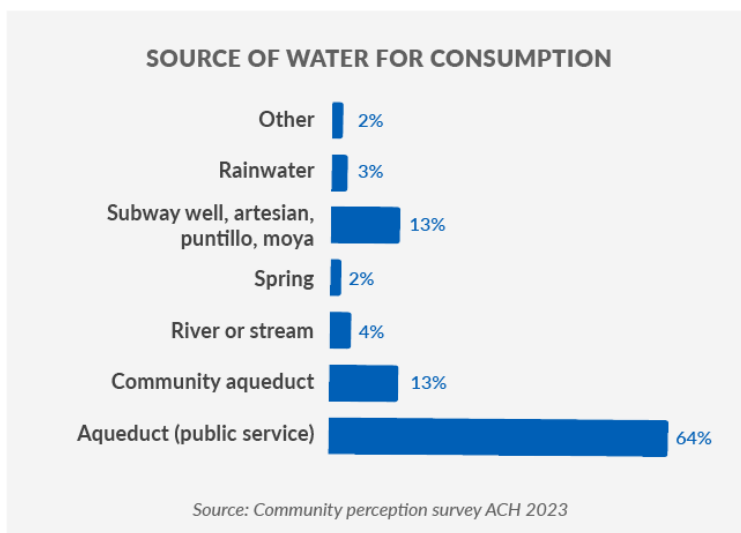


At the regional level, there are certain nuances in the perception of sector-specific responses on behalf of the FEN. In the specific case of the effects on the agricultural sector, regions such as Amazonia find higher levels than other regions with 72.4% as opposed to the central zone, which is more urban, where the perception of affectation is only 47%.

B. PERCEPTIONS OF AREAS OF VULNERABILITY

Faced with perceptions about areas of vulnerability such as access to water, energy resources, health and food security.

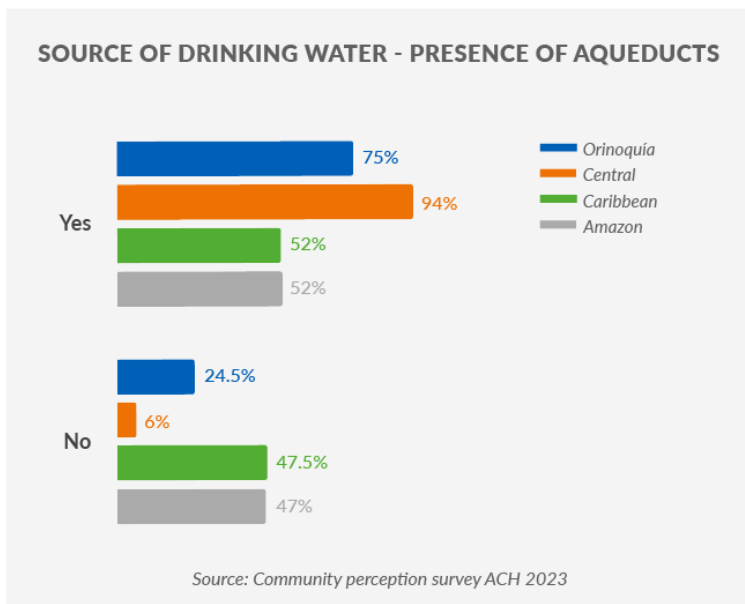
1. WATER



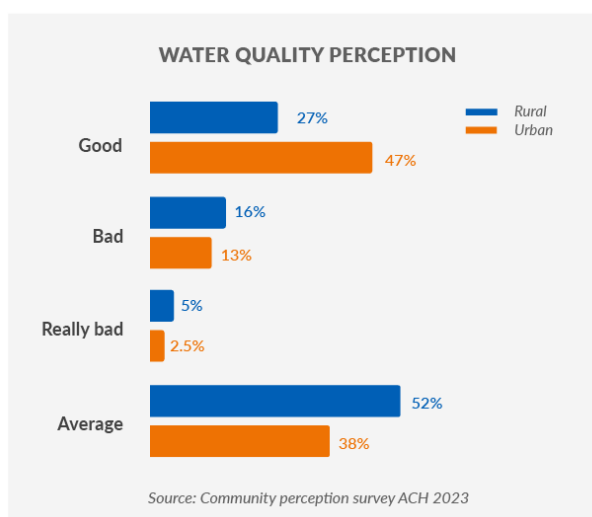
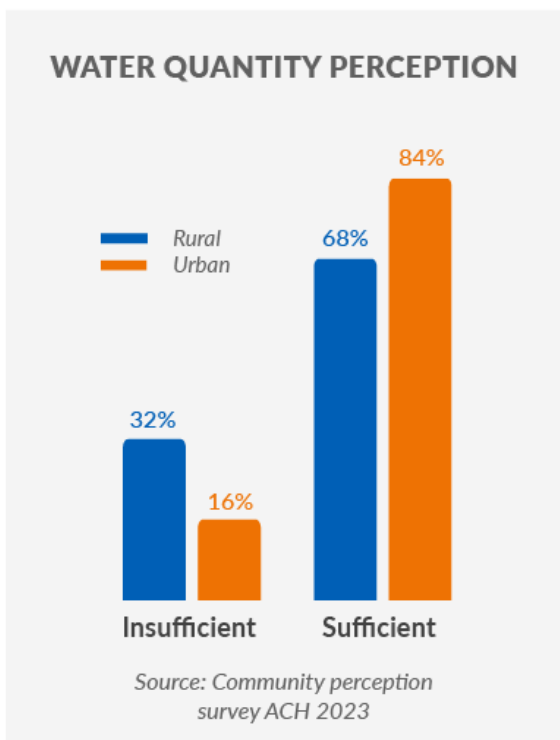
For the most part, the communities surveyed by Action Against Hunger identify public service aqueducts (64%) as their primary source of water for consumption and an additional number of community aqueducts (13%). However, 23% of the population depends on other types of water sources, including groundwater wells (13%), rivers or streams (4%), rainfall (3%) and springs (2%), among others.

Regarding the sources of water consumption, there is a marked difference between urban and rural contexts, with urban areas having a considerably higher presence (86.8%) of aqueducts than rural areas (10.6%).

Water sources vary considerably according to the regions surveyed by Action for Hunger. In terms of aqueduct coverage as a public service, the Amazonas (52.4%) and Caribbean (52.4%) regions have the lowest levels of coverage as opposed to the Central Region (94%). Besides, areas like Amazon show a high dependence on sources for consumption, such as groundwater wells (34%) and rivers (8%), higher than in the other regions addressed in the survey.



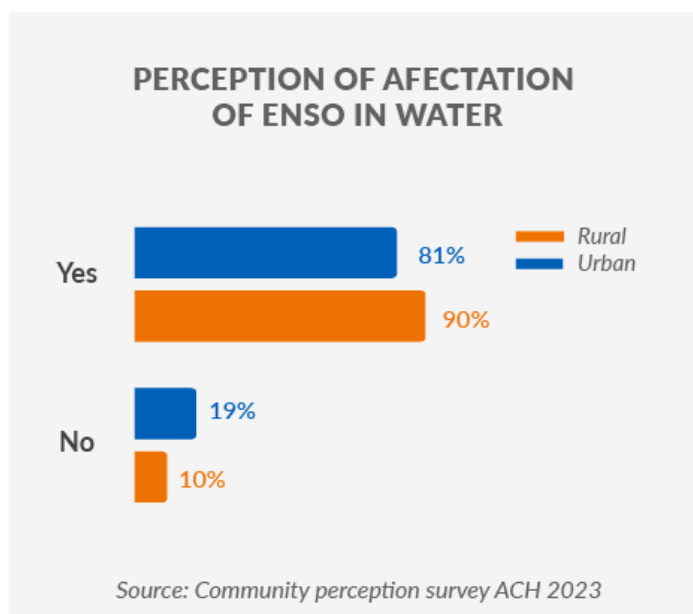
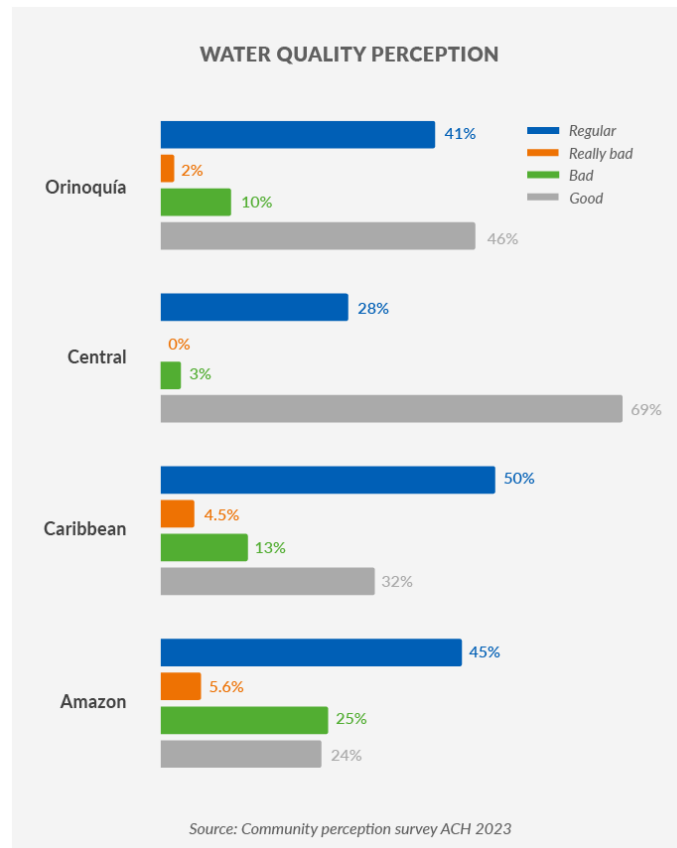
Concerning the amount of water available for consumption, 79% of those surveyed by Action Against Hunger indicated that it was sufficient, compared to 20.8% who stated the opposite. This perception of the amount of water available for consumption increases in urban and rural contexts, with rural contexts showing greater dissatisfaction with insufficient access to water (32.1%) compared to urban contexts (15.9%).



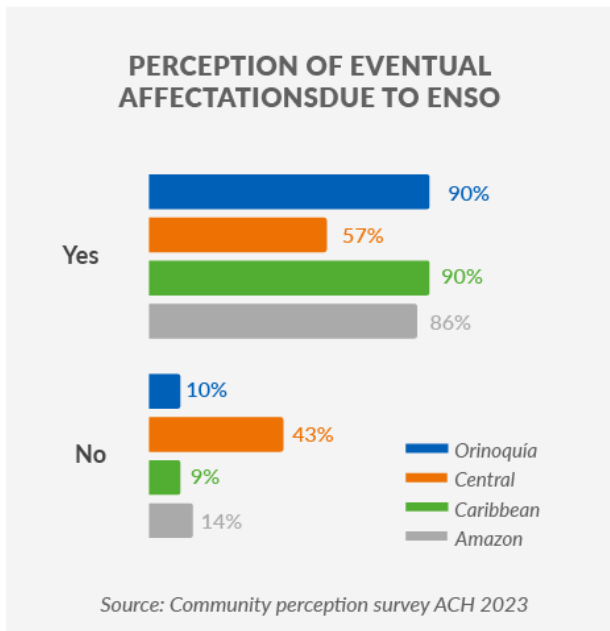
The perception of the quantity of water available for consumption varies considerably by region. The Caribbean zone has the highest levels of dissatisfaction with the availability of resources (34.5%), followed by Amazon (21.6%) and Orinoco (19.2%).

Regarding water quality, only 40.5% of those surveyed by Action Against Hunger indicated that the water quality they consume is good. These perceptions vary between rural and urban areas, with urban areas being more satisfied with water quality (46%) than rural areas (25%).

Perceptions of water quality vary according to the regions surveyed. In the case of the Amazon region, there is the highest level of dissatisfaction with water quality, with 25.4% rating it as bad (25.4%) and terrible (5.6%).



Concerning the communities' perception of the evolution of ENSO, 84% of the people surveyed consider that there will be an impact on the quantity, frequency, and quality of the water supply for agricultural activities, energy generation - through hydroelectric plants - and daily consumption. The perception of the effects of ENSO is higher in rural areas (90%) than in urban areas (80%).

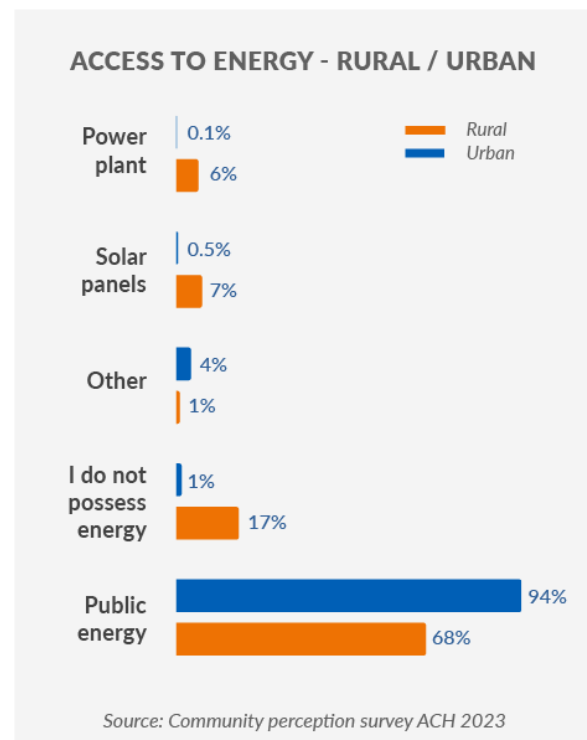


Perceptions of the possible effects also change according to the population in the regions surveyed. The most significant contrast is between the regions where the predominant perception is the possibility of being affected by a phenomenon in a resource such as water, as is the case of the Caribbean (90.3%), Orinoco (90.2%), and Amazon (86%), as opposed to Central (56.8%).

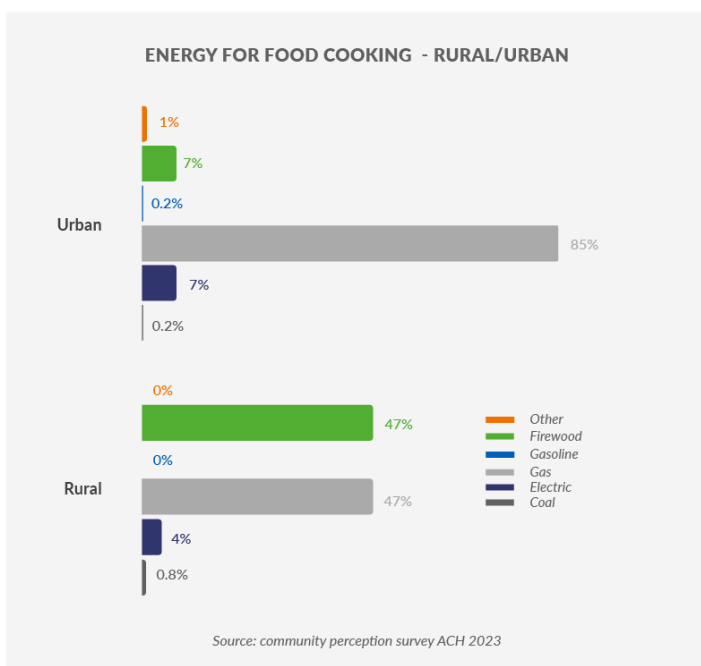
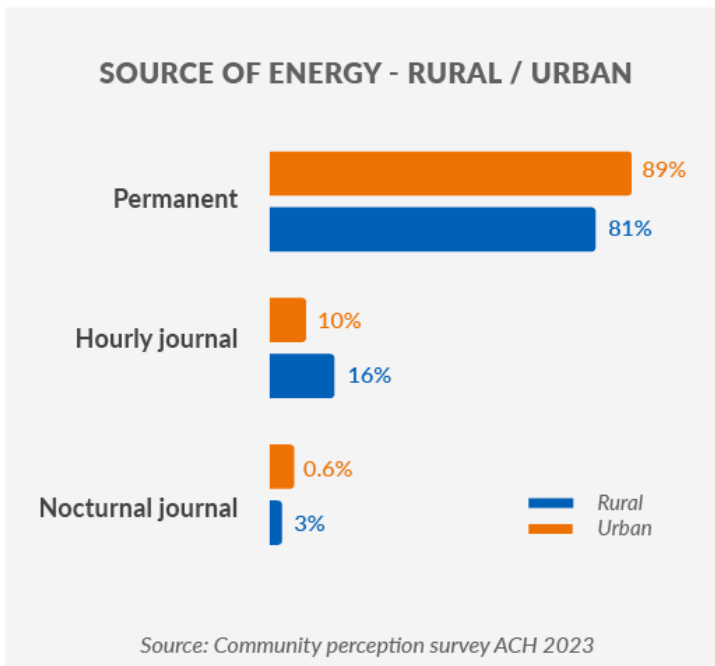
2. ENERGY RESOURCES

Regarding access to energy, 86% of those surveyed by Action Against Hunger indicated that currently, the primary source of access to energy is through public service. However, there is an essential distinction between urban and rural populations, where access to public service in rural areas is reduced to 68.6%, increasing the use of alternative sources such as solar panels or power plants. It should be noted that although there is a greater use of alternative sources in rural areas, the percentage of people who say they do not have access to energy represents an increase of 11% compared to the overall total.

Regarding regional differences, it is worth noting the results for the Caribbean Region, where the percentage of people without access to energy is 20%.



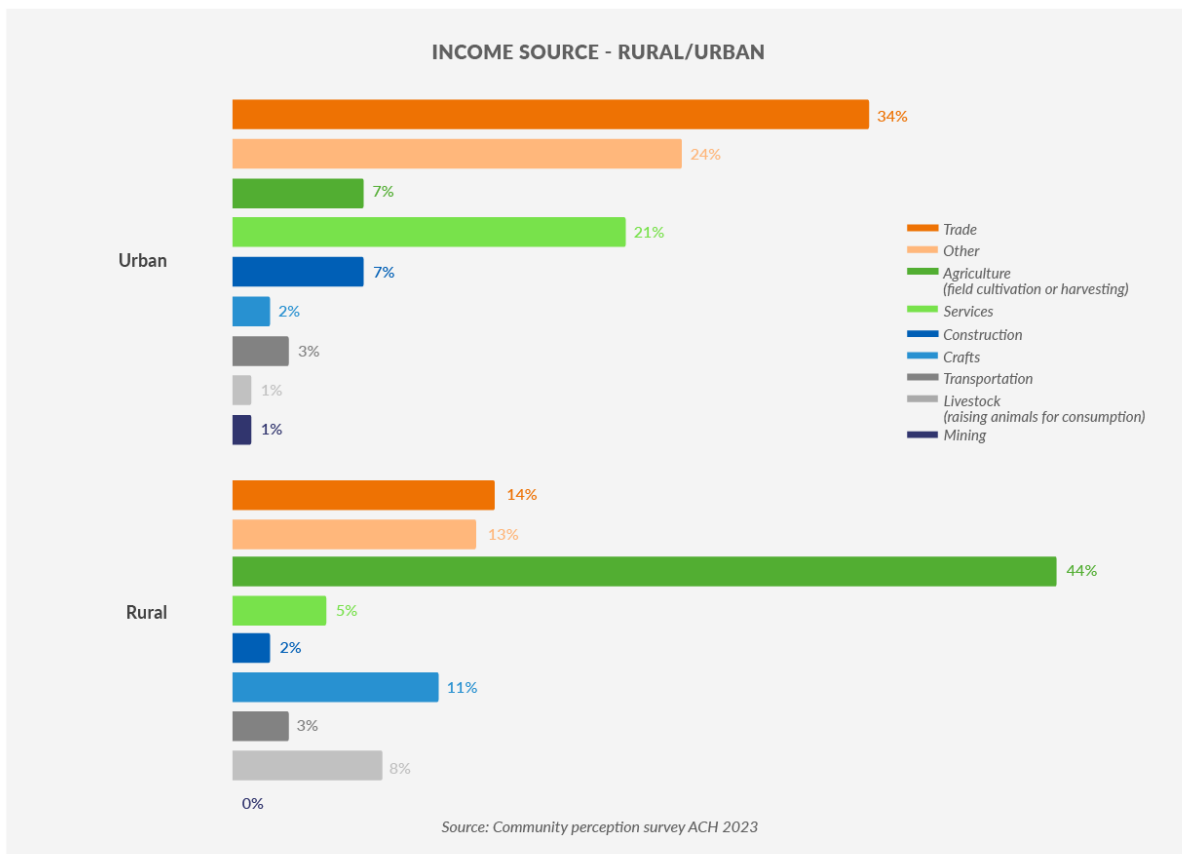
As for energy service frequency, it was found that for most of those surveyed by Action Against Hunger, there is a constant supply of energy (86.52%), followed by 12.2% of the population with a daily frequency of energy access with hourly outages and 1.24% of the people with nightly outages. Regarding regional differences in the frequency of service, the Orinoco region has the lowest percentage of permanent access, showing 22.74% of interrupted access to electricity.



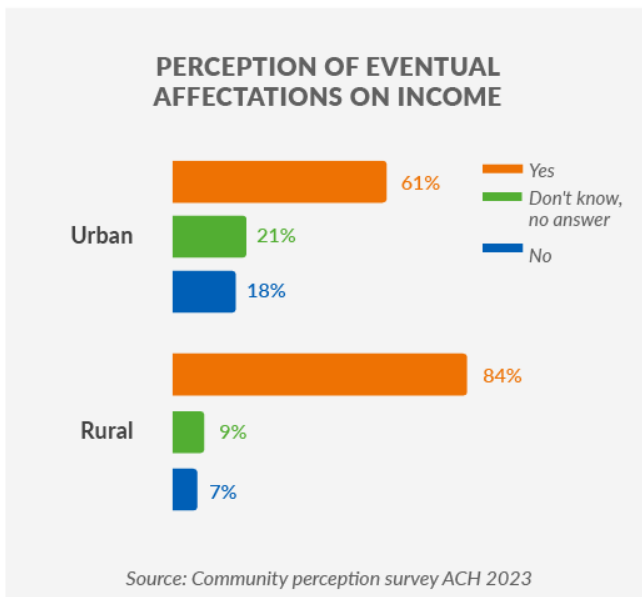
Regarding the use of food by the surveyed population, it is observed that gas is the most used resource for cooking, with 74.2%. However, there are significant contrasts between rural and urban contexts, where in rural areas, the use of gas (47.8%) is parallel to the use of resources such as firewood (47.4%).

3. FOOD SECURITY

The population's perception of the possible effects on food security due to ENSO was considered for the survey implementation. Among the general characteristics of the people, it was found that the main livelihood is commerce (28%), followed by farming or harvesting activities (18%) and services (16%).

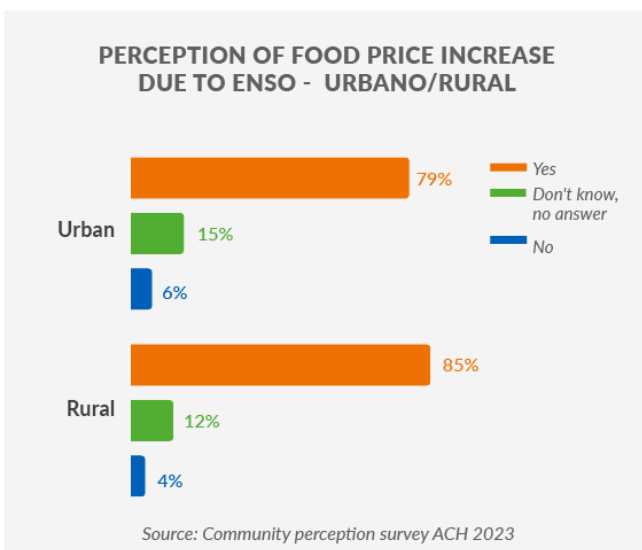


Income sources vary significantly between rural and urban contexts. In urban contexts, the sectors of commerce (34%), services (21%), and other (24%) represent the primary sources of income for those surveyed by Action Against Hunger. On the other hand, in rural areas, agriculture (44%) and livestock (8%) are the main sectors, together representing 52% of those surveyed, with a notable difference with other sectors such as commerce (14%) and handicrafts (11%), showing a decrease in the number of people dedicated to commerce.



Regarding the possible impact of ENSO on the population's income, 68% of those surveyed indicated that it would produce some type of decrease, followed by 14% who do not expect such an impact. The perception of the phenomenon's effects on their income is considerably higher in rural areas (84%) than in urban areas (61%).

Among the different regions, there are also differences in the perception of the possible impact on income due to ENSO, where the most significant concern of those surveyed is found in the Caribbean (85%) and Amazon Region (72%) and, to a lesser extent, in the Central Region (49%).



Regarding the perception of possible increases in food prices, it was identified that 81% of the population generally considers that there will be an increase in food prices due to the phenomenon. This perception of price increase is higher in rural areas (85%) than in urban areas (79%). At the regional level, the Caribbean, Amazon, and Orinoco regions are at 83%, with the Central Region the exception, with 64% of those surveyed indicating the possibility of price increment due to ENSO.

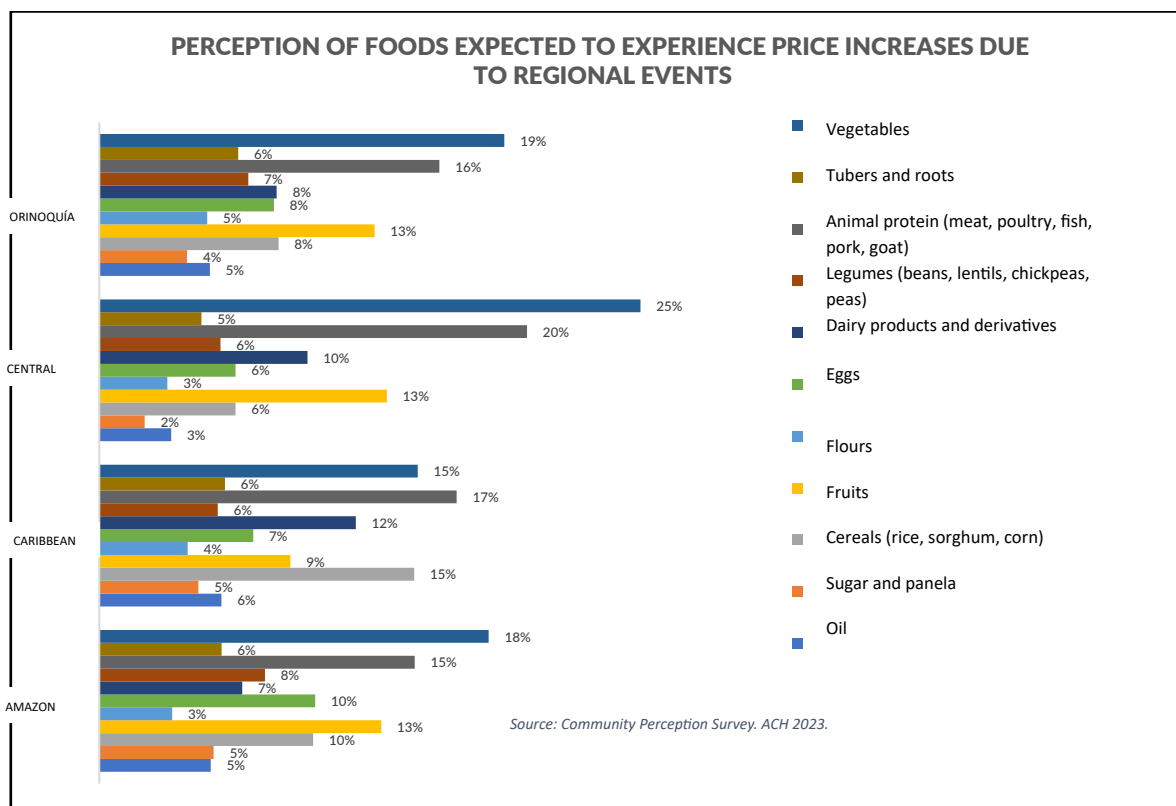
Regarding the perception of the type of food that could have a higher price increment, in general, respondents indicated vegetables (18.42%), followed by animal proteins (15.9%) and fruits (12.2%). In the case of rural and urban perceptions, there are no significant differences apart from the rise in the price of cereals. In the rural context, they are indicated with more substantial concern (14%) compared to the urban context (9%).

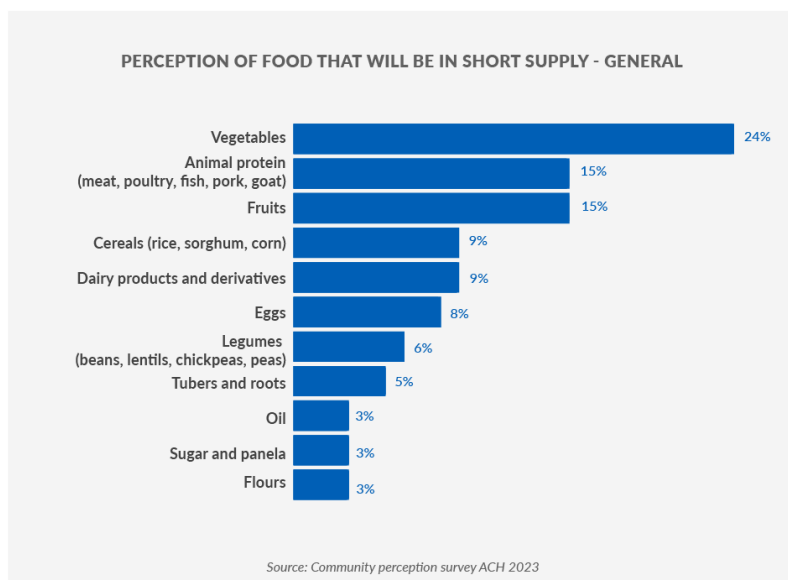


In the case of regional differences, the highest levels of concern for price increment are found in the Central Region, where 25% of respondents indicate the possibility of a 20% rise in vegetable prices; all these levels are higher in other regions. In the case of the Caribbean Region, concerns about price spike for cereals (15%) is also above that found in other regions.

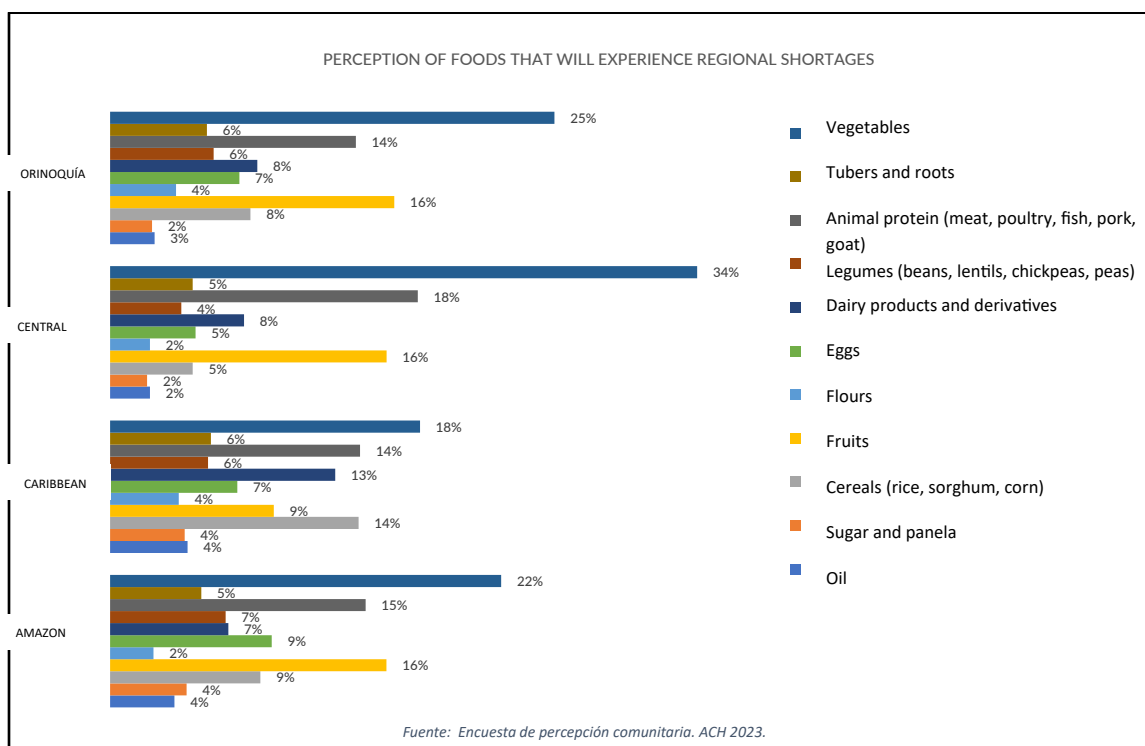
Concerning the perception of those surveyed by Action Against Hunger regarding the

possible shortage of types of food, the main concerns of the communities are centered on vegetables (24%), animal protein (15%), and fruits (15%). Although there are no significant variations in concerns between urban and rural areas, the main difference in rural areas is the possible lack of cereals (13%), more important than in urban areas (8%).



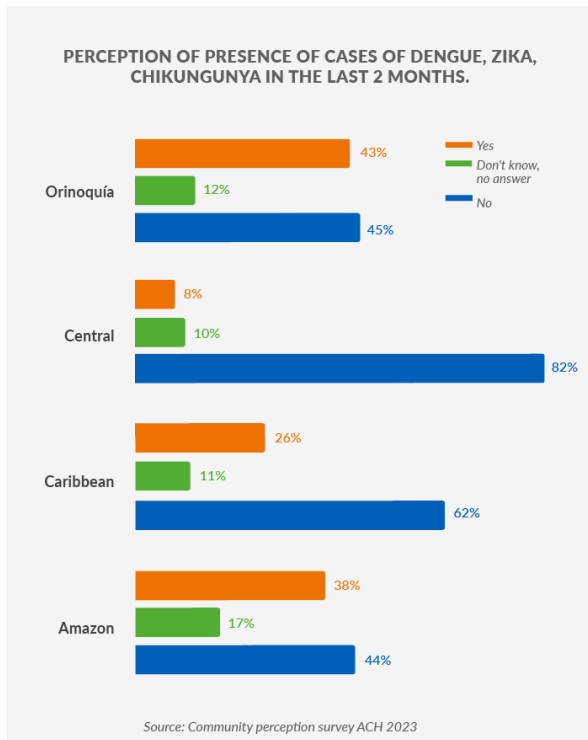


Among the regional differences in terms of types of food that may present shortages due to ENSO, the Central Region presents the most significant concern for the possible absence of foods such as vegetables (35%) and animal protein (18%) compared to other types of results from other regions surveyed.



4. HEALTH

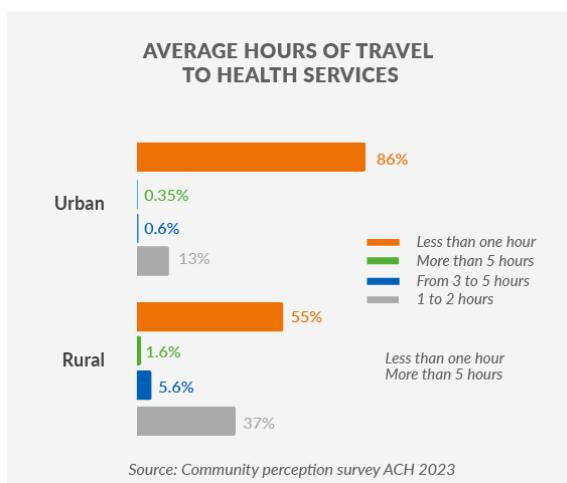
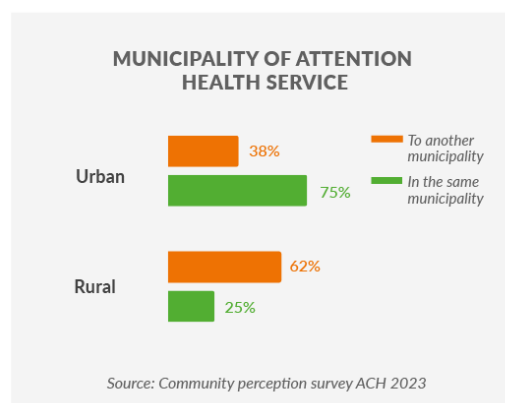
In the context of the beginning of ENSO in Colombia, it is key to establish elements related to the health of the communities understanding how the factors derived from the phenomenon may impact the communities.



Regarding the presence of vector-borne diseases, among the total population surveyed, only 32.4% identified cases related to Dengue, Zika, and Chikungunya, among others, that had occurred within two months in their communities. However, this perception of the recent presence of these diseases decreases in rural settings (29.6%) as opposed to urban contexts (32.6%), where it is higher.

The differences are even more significant in the Orinoco (42.8%) and Amazon (38.5%) regions, where there is more considerable community concern about the presence of vector-borne diseases than in other regions, such as the Central Region (8%).

Concerning factors such as access to health care, 80% of those surveyed indicated they had access to health services. Likewise, 90% reported having access in their municipality of residence. In this case, there are significant variations between urban and rural contexts, with 24.5% of the population receiving health care in their municipality, as opposed to 75% in urban contexts.

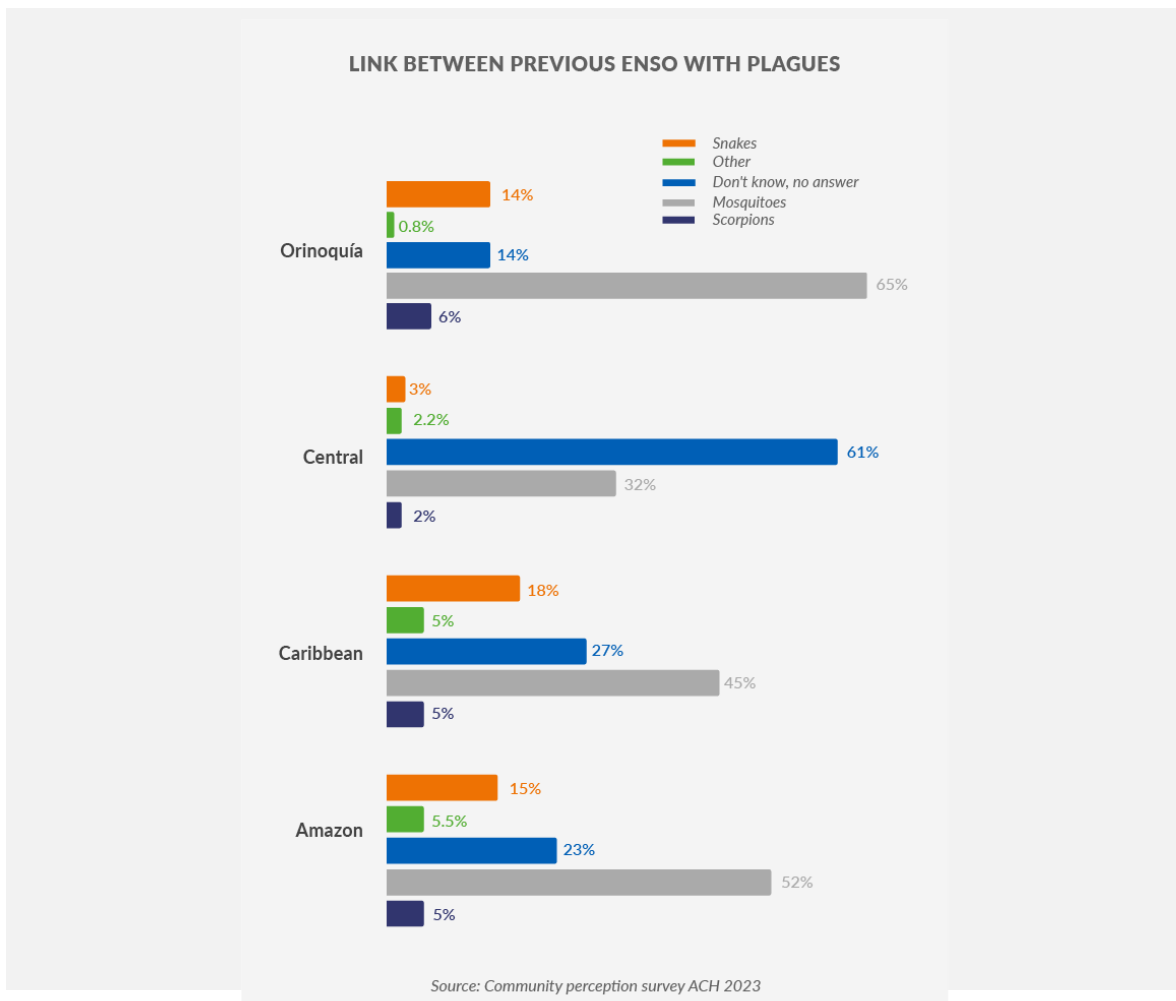
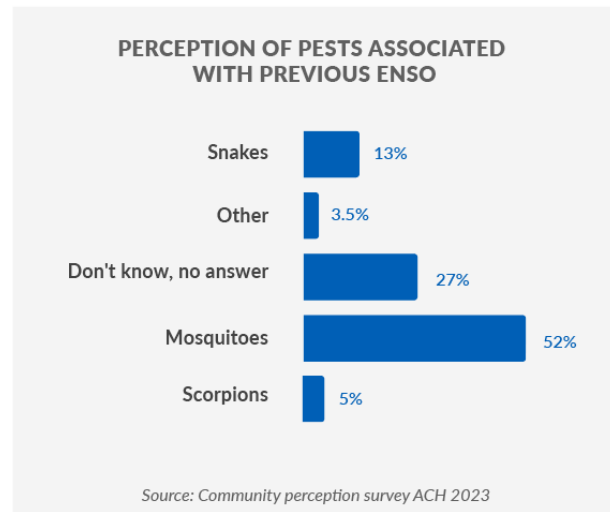


Regarding the time it takes to access health services, 77% of the respondents indicated it is approximately 1 hour from their home. These times vary considerably in rural contexts, where 37% of the population takes between 1 and 2 hours and 6% between 3 and 5 hours.

On the perception of pests associated with previous ENSO, those surveyed indicated

mosquitoes (52%) as the primary pests present. In urban contexts, the perception of the presence of mosquitoes is much higher (55.8%) compared to rural contexts (42.9%). On the contrary, in rural areas, the perception of the presence of snakes (17.2%) and scorpions (5.5%) is higher than in urban areas (11.3% and 4.2%, respectively).

The differences in concerns about the types of pests associated with the occurrence of ENSO have territorial variations, especially between the Central Region and other regions. The Orinoco and Amazon regions have the highest levels of identification of pests such as mosquitoes (65.1% and 51.9%, respectively) compared to the Central Region with 31.8%.



CONCLUSIONS

Among the general conclusions of the community perception survey related to ENSO are:

- **Although there is a transversal vulnerability in the surveyed population, the highest levels of vulnerability are located in the rural population:** from the perception of those surveyed, different types of vulnerabilities related to access to services such as water, energy, livelihoods, and health are identified. Rural areas remain most vulnerable due to their dependence on natural resources in the development of their livelihoods and the structural obstacles to services, which are even more intense than in urban areas.
- **The agricultural sector is perceived as the most affected by ENSO:** the surveyed population identifies that the farm sector has an aggravated perception of the effects of ENSO, but this perception is much more intense in rural contexts where the impact on the decrease in income due to climatic variations is identified. These effects are also more significant in regions with a larger population dedicated to these economic activities, such as the Caribbean and the Amazon regions.
- **The mass media and social networks are the primary sources of information, although there are nuances between urban and rural contexts.** Although the most frequent sources of access to information about ENSO are the mass media and social networks, respondents indicated a greater predisposition to traditional mass media in the rural context. In the urban context, it was social networks. This aspect is crucial in determining the main channels in which information should be disseminated with specific audiences, but also recommendations on establishing control over quality information reaching these contexts according to these channels.
- **Although the different contexts identify changes related to ENSO, rural contexts are more explicit for the population:** the most common perception of affectations associated with ENSO is related to factors of increments in temperatures, absence of rainfall, and extreme rainfall to a lesser extent. Respondents in rural areas identify this pattern variation more efficiently since they directly impact their daily activities, mainly those related to the agricultural sector.
- **There is a differentiated regional vulnerability to ENSO:** there is a significant contrast in the vulnerabilities of the Central Region and the other regions of the survey (Caribbean, Amazon, and Orinoco), both in terms of general perceptions of ENSO and its possible effects, as well as in terms of structural vulnerability factors such as access to water, food, health, and livelihoods.
- **The perception of the hazard to access to water due to ENSO varies widely between rural and urban areas:** Water rationing as an impact of previous ENSO is mainly linked to rural areas, not only due to the absence of public or community water supply services but also because of the high dependence on other types of water resources, such as groundwater wells, rainwater or water from rivers or streams. This is why, in

rural contexts, the hazard of limited drinking water access in the context of ENSO is much more latent than in urban areas.

- **The overlap between factors such as water quality and quantity can result in increased vulnerabilities associated with the health of communities:** the perception of poor water quality and reduced access can have repercussions on health risk factors due to storage strategies, but also in the reduction of the flow of tributaries increases the concentration of pollutants. The combination of vulnerability factors triggers that regions such as the Caribbean and the Amazon are highly likely to be affected by reduced access to this resource.
- **Differing perceptions of food scarcity and availability among regions:** although there is concern about food availability in the different regions, the perception of food scarcity and price increases is considerably higher in the Central Region.
- **Access to perishable food is the most significant concern for the communities within the framework of the ENSO:** across the different contexts, perishable food is the primary concern for the surveyed population, mainly vegetables, animal protein, and fruits. Thus, foods such as flour, oils, or sugars do not present a considerable concern for the population regarding the influence of ENSO in different contexts.
- **Health risk factors:** although mosquitoes continue to be the leading risk factor in different contexts and regions, an increase in pests such as snakes and scorpions has been identified in rural areas and regions such as Amazon and Orinoco due to past ENSO events.
- **Access to energy for food preparation:** gas is perceived as the leading resource for cooking food in rural contexts, which may be affected by transportation difficulties due to climate variation.

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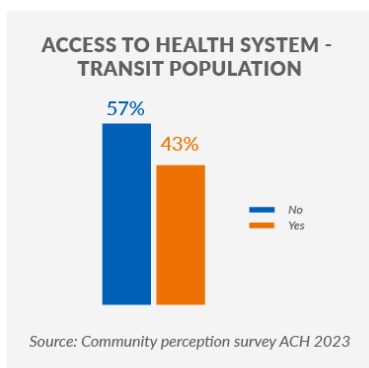
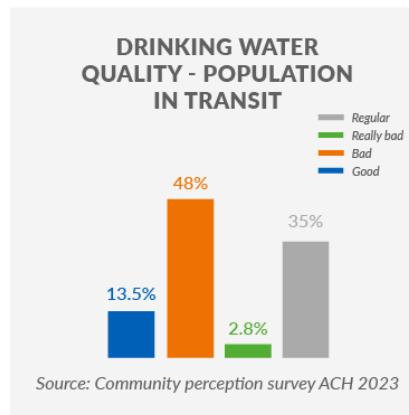
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ANNEX: POPULATION IN TRANSIT

About the population in transit¹² surveyed as part of the exercise, 91.89% indicated they were aware of ENSO. However, it is essential to consider that due to the differences in the territorial contexts of origin (where the same affectations are not necessarily reported as in Colombia), 75% of them stated that they did not remember the most recent event.

It is essential to highlight the issue of access to and quality of water as a priority for the population in transit. This is due to their specific vulnerabilities regarding access, which may be aggravated by climate variability associated with ENSO.

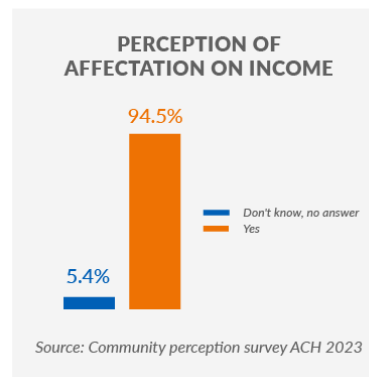
Regarding access to drinking water, 48.6% consider it poor quality. In addition, 89% of those surveyed said that they expect their access to water to be affected during ENSO. It is important to note that gaps in access to clean and safe water can lead to diarrheal diseases. In contrast, poor water quality can lead to vector proliferation, increasing vulnerability during transit.



Apropos to access to health services, significant variations are observed among the population in transit, where 56% consider that if they need medical attention, they would not be able to access it. This reflects a gap in access, which may be related to migratory regulation problems or movement difficulties.

It was observed that 19% of the population in transit expects more significant shortages in animal protein than in other foods; however, it is worth

mentioning that all perishable foods are also considered a concern for this population. On the other hand, the population expects a price increase of 18% for legumes, followed by vegetables with 16%, which implies the heading of perishable products also in this perception.



Finally, concerning livelihoods, an unfavorable perception is observed since 94.5% of the population expects their income to be affected by ENSO, and among the main reasons mentioned are a decrease in income (51.61%), changes in economic activity (14.52%) and changes in production methods (14.52%). This impact on livelihoods implies worsening the conditions for access to food security. It may lead to an increase in the need to resort to coping strategies regarding livelihoods or reduced consumption.