mais **dados**
mais **saúde**

CLIMATE AND HEALTH IN THE LEGAL AMAZON

Brazil, November 2025

mais dados mais saúde

CLIMATE AND HEALTH IN THE LEGAL AMAZON

Support by devive

Conducted by UMANE Vital Strategies

PROJECT TEAM

VITAL STRATEGIES

Country Director
Pedro de Paula
Deputy Director, Chronic Noncommunicable Diseases
Luciana Vasconcelos Sardinha
Communication Manager
Luiza Borges
Data Science Expert
Renato Teixeira
Technical Experts
Gabriel Cortes
Érika Pellegrino
Data Analysis Consultant
Luiza Eunice Sá da Silva
Communication Analyst
Beatriz Bethlem
Design and Layout
Beatriz Ferreira
Proofreading and Translation
Cauê Silva

UMANE

General Superintendent
Thais Junqueira
Investment and Social Impact Manager
Evelyn Santos
Communication Coordinator
Isabel Albuquerque
Project Coordinator
Fabiana Mussato
Monitoring and Evaluation Coordinator
Erika Lopes
Social Investment Analyst
Aline Rocha
Project Analyst
Caroline Ortiz
Monitoring and Evaluation Analyst
Maria Victoria Rosa

DEVIVE INSTITUTE

Executive Superintendent
Renata Cavalcanti Biselli
Executive Manager
Maria Manoela Soubihe

The research project was submitted to the Research Ethics Committee of the School of Medicine of the Federal University of Pelotas and approved under ruling Nr. 7.044.351.

Vital Strategies Brazil

ISBN nº 978-65-85591-11-9.

Macapá, and the state of Amapá, are part of the Legal Amazon. In the picture, a panoramic view of the coast. Photo: Shutterstock, ID: 2437308647.

LIST OF TABLES

Executive Summary

More Data Better Health - Climate and Health in the Legal Amazon is a survey that presents data from the nine states of the Legal Amazon and that gathered perceptions from 4,037 people over the age of 18 between May and July 2025. This module had thematic blocks, whose divisions are reflected in the organization of this report. These are: perceptions and impacts of climate change on the daily life of the population and perceptions of access to food in sufficient quantity and quality.

In the first block, the results show that a third of the population (32%) says they have already been directly affected by climate change. This percentage reaches 42.2% among traditional peoples and communities, such as indigenous peoples, quilombolas, ribeirinhos and extractivists, among others. These groups also reported greater experience with issues related to worsening water quality and to food production, providing evidence of their vulnerability in areas of climate risk and dependence on natural resources for subsistence.

The perceived consequences of global warming include increased energy bills (83.4%), rising average temperatures (82.4%), increased air pollution (75%), increased occurrence of environmental disasters (74.4%) and increased food prices (73%). Specific climate events reported in the past two years include heat waves (64.7%), persistent droughts (29.6%), forest fires with intense smoke (29.2%), deforestation (28.7%) and worsening air quality (26.7%).

The survey confirms that the perception of the climate crisis is widespread: 90.6% believe that we are already experiencing global warming, and 88.4% recognize that climate change has been occurring in Brazil and in the world in the last two years. Almost 40% said they knew someone directly affected by the phenomenon, a figure that rises to 48.4% among traditional peoples and communities.

The research also revealed relevant behavioral changes. More than half of the residents (53.3%) reduced practices that they believe contributed to worsening the climate crisis, and 38.4% reported feeling guilty for wasting energy. The separation of garbage for recycling is common practice for 64% of the population, reaching 70.1% among traditional peoples and communities. These groups also showed greater belief in the possibility of acting against the effects of the crisis: 55.7% said they believed they could help solve the problem, compared to 39.8% of the general population of the region.

For the second block, questions based on the Brazilian Food Insecurity Scale (EBIA) were used, a survey which assesses the perception of access to food in sufficient quality and quantity in Brazilian households. In this study, an adapted version of the short EBIA was used, consisting of five questions, with the aim of understanding the individual perceptions of the population residing in the Legal Amazon, especially among traditional peoples and communities, about their daily experiences of food access.

The main methodological innovation lies in the fact that, unlike the conventional application of the EBIA, which is answered in person by those responsible for the households, the present adaptation was directed to individuals and collected digitally through a self-administered online instrument—characteristics that explain the individual presentation of the questions in the study. This approach expanded the capillarity of the collection and enabled the inclusion of participants from different territorial contexts, favoring the representativeness of populations historically underrepresented in traditional research, such as indigenous peoples, ribeirinhos, quilombolas and extractivists. In addition, the digital application of the scale demonstrated innovative potential for large-scale investigations in the Amazon region, overcoming part of the logistical barriers associated with conducting face-to-face surveys in hard-to-reach areas.

The detailed analysis of the five selected questions shows that 72% of people belonging to traditional peoples or communities reported having run out of money to ensure a healthy and varied diet, and 66.4% expressed concern that food would run out before they could get new resources. In addition, 60.8% stated that food ran out before they could afford to buy more, 55.9% said they had eaten less than they considered necessary due to lack of resources, and 46.6% reported having reduced or skipped meals due to lack of money.

In addition to the questions based on the short EBIA, it was observed that 41.7% of the population of the Legal Amazon showed concern about the lack of food associated with drought and flood cycles. Among traditional peoples and communities, this percentage rises to 53.8%, reinforcing the vulnerability of the region to environmental factors and the potential consequences of climate change.

In summary, the findings reaffirm the urgency of integrated policies that connect health, climate and equity, and offer subsidies to guide public policies and strengthen the resilience of Amazonian populations.

Manaus, Amazonas state.
Scenes from the Amazon.
Sunset over Rio Negro. Photo:
Fabio Rodrigues-Pozzebom.

Table of Contents

Manaus, Amazonas state. Scenes from the city of Manaus, Mirante de São Vicente. Photo: Fabio Rodrigues-Pozzebom/ Agência Brasil.

Introduction

This report presents the first part of the results of More Data Better Health - Climate and Health in the Legal Amazon. The survey is part of a program of innovation in public health data collection, developed by Vital Strategies and Umane with support from the Devive Institute.

More Data Better Health is based on the premise that understanding in depth the challenges faced by public health systems is the first step to strengthening more equitable and effective public policies. By generating **more data** centered in the public, it is possible to support governments, organizations and people in their everyday lives in making decisions that help ensure **better health** for everyone.

The program focuses on innovation in two main areas: (I) testing effective data collection methodologies and (ii) monitoring emerging or under-explored themes.

Continuing the monitoring process, we present the third edition of More Data Better Health, focusing on the nine states that make up the Legal Amazon. The survey aimed to analyze emerging themes that are still little explored, in addition to expanding knowledge in a region that is historically underrepresented in population surveys. In the first block, the perceptions and behaviors of the local population related to weather events, environment and pollution were analyzed. In the same collection process, participants also answered questions about food insecurity and risk factors for noncommunicable diseases.

Good reading!

Methodological Aspects

DATA COLLECTION

Data collection took place between May 27 and July 24, 2025, totaling 59 days. The response rate, calculated from the ratio between the number of invites issued and the questionnaires actually completed, was 20%, with a variation from 10% in the state of Mato Grosso to 34.5% in Amazonas.

Participants were recruited exclusively through directed ad banners served on the internet. When a user visited a website or interacted with online content, they could see a banner inviting them to take the survey. Only participants who accessed the survey via a valid link from these ads were able to complete their participation. There was no reward or incentive for participation.

From the ad, the participant was automatically directed to the digital questionnaire (Annex 1), without any type of human interaction in the process. There are some compelling advantages to eliminating human interaction. This helps to avoid a phenomenon called respondent shyness, which occurs when people are not honest when answering some questions, perhaps because they are embarrassed to express genuine but controversial opinions; they notice some kind of inconsistency in their thoughts/answers; they want to make a particularly good impression on the interviewer or even if they are afraid to tell the truth for security reasons.

SAMPLING

The sampling procedures adopted aimed to obtain probabilistic samples of the population aged 18 years or older, resident in the nine states of the Legal Amazon (Acre, Amapá, Amazonas, Maranhão, Mato Grosso, Pará, Rondônia, Roraima and Tocantins).

For the statistical inference of the results in each state, sociodemographic variables of the total population (sex, age and race/color) were considered in the construction of sample weights, based on data from the 2022 demographic census, conducted by the Brazilian Institute of Geography and Statistics (IBGE). Subsequently, an additional adjustment was made regarding the level of education, using the proportions observed in the 2019 National Health Survey (PNS), recalibrated for the population of the 2022 Census.

The weighting process is essential to assign specific values to each respondent, correcting any disproportions of subpopulations that could distort the final estimates. Proportions of key variables, such as those mentioned, were considered to ensure the representativeness and accuracy of the results.

Due to the small number of individuals who self-declared as "yellow" (one of IBGE's racial classifications) in the sample, this category was excluded from the stratified analyses conducted in the study.

STATISTICAL ANALYSIS

The analyses of More Data Better Health – Climate and Health in the Legal Amazon were carried out with the data duly weighted, to make the sample representative of the population residing in the states of the Legal Amazon aged 18 years or more.

For prevalence estimates, frequencies were calculated, followed by their respective 95% confidence intervals, based on the binomial distribution.

The confidence interval of a sample estimate may or may not coincide with the true population average. This means that it is the range of values that, with 95% confidence, will include the estimated parameter of that population. Therefore, the significant difference in prevalence estimates in those indicators and categories in which there was no overlap of the lower and upper limits of the 95% confidence intervals was considered.

OPERATIONALIZATION OF INDICATORS

All indicators were calculated from the questionnaire (Annex 1).

For each indicator calculated, the denominator considered the entire sample included in the study. To facilitate understanding and highlight relevant topics, the results were organized by subheadings, according to the following chapters:

- Chapter 1: Population Profile
- Chapter 2: Climate Anxiety
- Chapter 3: Environment
- Chapter 4: Climate Events in The Last Two Years
- Chapter 5: Influence of Global Warming on The Region Where You Live
- Chapter 6: Pollution
- Chapter 7: Traditional Peoples and Communities of The Amazon

The frequency of the indicators of each chapter is presented for the total set of the nine analyzed States, according to the following variables: sex (male and female); age group (up to 24 years, from 25 to 59 years and 60 years or more); household income per capita (up to R$2,000, from R$2,000 to R$3,000, from R$3,000 to R$5,000, from R$5,000 to R$10,000 and above R$10,000); use of the Unified Health System (SUS) (no/yes); identification as belonging to a traditional people or community (no/yes) and race/skin color (white, indigenous, brown, Black).

The "use of SUS" criterion was defined as SUS dependent, comprising the exclusive use of the public healthcare network, including health posts and basic healthcare units, Emergency Care Units (UPA) and public hospitals.

The variable for "identification as belonging to traditional peoples or communities" refers to the self-report of belonging to at least one of the following groups: extractivists, rafters, artisanal fishermen, indigenous peoples, quilombolas, terreiro peoples/African Matrix peoples, babaçu coconut breakers, ribeirinhos or rubber tappers.

Results

Here, we present the main findings of More Data Better Health's Climate and Health in the Legal Amazon module. All the results presented below represent estimates after the application of sample weights, aiming at the best representativeness of the region.

POPULATION PROFILE

4,037 people were interviewed and are described below. The figures presented in Table 1 represent the estimated proportions of the main sociodemographic variables considered in the survey.

Variables	Total population			
	%	CI95%		
Sex				
Male	54,4	51,1	-	57,6
Female	45,6	42,4	-	48,9
Race/skin color				
White	19,4	17,3	-	21,8
Indigenous	1,9	1,3	-	2,8
Brown	67,0	64,0	-	69,9
Black	11,6	9,6	-	13,9
Age range				
Up to 24 years	26,9	24,2	-	29,9
25 to 59 years	63,9	60,5	-	67,2
≥ 60 years	9,2	6,7	-	12,4
Income				
Up to R$2.000	54,9	51,6	-	58,1
R$2.000-R$3.000	20,2	17,5	-	23,2
R$3.000-R$5.000	10,8	9,1	-	12,7
R$5.000-R$10.000	7,3	6,2	-	8,7
Above R$10.000	6,8	5,6	-	8,3
Level of education				
Incomplete Basic Education	22,6	19,6	-	26,0
Complete Basic Education	31,8	28,4	-	35,3
Complete High School	30,6	28,2	-	33,0
Complete Higher Education	12,0	10,9	-	13,3
Did not go to school	3,0	1,9	-	4,7
Region of residence				
Capital or Metropolitan Region	37,6	34,5	-	40,9
Countryside	27,5	24,8	-	30,5
Urban Area	20,6	18,2	-	23,2
Rural Area	14,2	12,1	-	16,7
State				
Acre	2,3	2,0	-	2,8
Amapá	2,6	2,2	-	3,2
Amazonas	12,2	10,4	-	14,4
Maranhão	23,9	20,9	-	27,3
Mato Grosso	16,3	14,2	-	18,8
Pará	27,8	24,7	-	31,0
Rondônia	7,0	5,9	-	8,3
Roraima	2,4	2,0	-	2,9
Tocantins	5,3	4,5	-	6,3
Dependent on SUS				
No	21,6	19,0	-	24,4
Yes	78,4	75,6	-	81,0
Traditional people or community				
Artisanal fishermen	7,4	5,7	-	9,6
Indigenous Peoples	7,2	5,5	-	9,3
Ribeirinhos	5,4	4,1	-	7,0
Extractivists	3,4	1,9	-	6,1
Quilombola peoples	2,2	1,5	-	3,3
Other	18,6	16,3	-	21,1
I am not part of any traditional people or community	55,8	52,5	-	59,1
Belongs to some traditional people or community				
No	55,8	52,5	-	59,1
Yes	44,2	40,9	-	47,5

Table 1. Proportional distribution of sociodemographic variables. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Note: In traditional peoples or communities, the "other" category includes extractivists, rafters, terreiro peoples/people of the African matrix, babaçu coconut breakers, rubber tappers, in addition to the "other" option provided for in the questionnaire.

Most of the respondents (54.4%) were male. Most reported brown skin color (67.0%), followed by white (19.4%). In relation to per capita household income, 54.9% were in the range of up to R$2,000. The same pattern was identified in relation to the level of education. The sample showed a higher proportion of residents in capitals or metropolitan regions (37.6%) and 20.6% in urban areas, and, for the most part, in the state of Pará (27.8%).

One piece of information that proved relevant in the survey was the use of the Unified Health System (SUS). Almost 80% of respondents said they exclusively use the public healthcare network, including health posts and basic healthcare units, Emergency Care Units (UPA) and public hospitals.

Regarding identification as belonging to traditional peoples or communities, artisanal fishermen (7.4%) and indigenous peoples (7.2%) stood out, both with similar prevalences. The proportion of ribeirinhos was 5.4% while extractivists corresponded to 3.4%. The lowest frequency was recorded among the quilombola peoples, who represented 2.2% of the sample.

CLIMATE ANXIETY

The approach to climate anxiety has been recognized for presenting different threats to human health, which may reflect cognitive and functional impairment, even associated with behavioral engagement.

In the face of increasing attention to negative emotional responses associated with climate change awareness, we address two areas in this edition of More Data Better Health: 1) personal experience with climate change and 2) behavioral engagement.

The results found in Tables 2 to 7 refer to Personal experiences with climate change:

A third of the population living in the Legal Amazon has been directly affected by climate change (32.4%), with no differences between men and women, income groups and whether SUS dependent or not. However, a gradient of increase was observed among older people. The results draw attention to the higher frequency among the population that declares to belong to some traditional people or community (42.2% versus 24.6%).

On the topic of knowing someone who has been directly affected by climate change, 39.7% said they did, with women and older people reporting this more often. The impression is consolidated for all income groups and SUS dependence/non-dependence. Again, the largest difference observed was among the population that declares to belong to some traditional people or community (48.4% versus 32.8%).

One in three people noticed climate change in a place that is important for their lives (31.6%). The scope of this perception was equal between men and women and all income groups, with a slight increase among older people and in the population that is not SUS dependent. However, the group in which more people perceived these changes is that of those belonging to some traditional people or community (38.2%).

The three indicators of personal experience with climate change show higher percentages among people belonging to traditional peoples and communities when compared to those who do not identify in this way. People belonging to traditional peoples or communities showed higher percentages of having been directly affected by climate change. This difference shows these groups are in a position of greater vulnerability and exposure to environmental effects, probably because they live in areas of greater climatic risk, which may be related to greater direct dependence on natural resources for their subsistence.

Similarly, almost half (48.4%) of those belonging to traditional peoples and communities said they knew someone directly affected by climate change, compared to only 32.8% among non-members. This result highlights the collective and interconnected nature of the impacts in these contexts, in which the climatic experience is not restricted to the individual and is related to the lifestyles and community practices of these groups.

The perception of climate change in places important to their lives was higher for traditional peoples and communities (38.2%). This difference may be associated with the centrality of the territory and symbolic spaces for these groups, since environmental changes not only affect economic subsistence, but also have an intimate relationship with sociocultural, spiritual and identity dimensions, amplifying the perception and experience of climate impact.

These findings reinforce the understanding that traditional peoples and communities are not only more exposed to climate change, but also more aware of its effects, precisely because they experience direct transformations in their territories, in their ways of life, in their socio-cultural and economic practices, as well as in their community life networks.

BEHAVIORAL ENGAGEMENT WITH CLIMATE CHANGE:

For behavioral engagement, we found some attitudes and actions that can positively impact the relationship between health and climate. Almost half of the population reports that they could have behaved more sustainably (46.6%), a third said they recycle (36.1%), half reduced behaviors that possibly contribute to climate change (53.3%), 38.4% feel guilty for wasting energy and half the population believes they can do something to help solve climate change (46.8%).

The result that presented the greatest difference for the questions addressed was about turning off lights, a habit that 3 out of 4 people said they had, being more frequent among women (79.7% versus 70.9%).

When analyzing the questions, a significant difference is observed for the prevalences found in the population that belongs to some traditional people or community, indicating that they not only perceive the effects of climate change more intensely, but also present higher levels of behavioral engagement in almost all the indicators analyzed.

It is observed that more than half of the population that reports belonging to a traditional people or community (54.4%) stated that they would like to have behaved more sustainably, in contrast to 40.5% among those not belonging to these groups. This data suggests an increased recognition of the need to change habits, possibly associated with the direct and daily experience of environmental transformations that impact their lives.

Likewise, the practice of recycling was reported by 43.7% of those belonging to traditional peoples and communities, against 30.1% among the rest. This difference reflects not only a greater environmental engagement but may also be associated with the valorization of community practices of reuse and rational use of resources.

Regarding the reduction of behaviors that contribute to climate change, the prevalence was also higher among traditional peoples and communities (57.3%) compared to the general population (50.1%). Although both groups show engagement and the difference is within the confidence interval, the higher percentage reaffirms the willingness of these people to align their daily practices with the mitigation of environmental impacts.

The feeling of guilt for wasting energy was also significantly more frequent among traditional peoples and communities (45.1% versus 33.0%), which may indicate a stronger internalization of individual responsibility and a collective sense of resource use.

Another important finding is the belief that it is possible to act to help solve climate change, shared by 55.7% of those belonging to traditional peoples and communities, against 39.8% of the rest. This result points to an expanded sense of autonomy and active role in solving the problem, which may be related to the tradition of community organization and the valorization of collective practices.

In terms of turning off the lights, no relevant differences were observed between the groups (75.5% among traditional peoples and communities and 74.4% among the others), indicating that this habit is equally consolidated in both population segments.

In general, these results suggest that traditional peoples and communities present not only a greater perception of climate impacts, but also a greater predisposition to adopt mitigation practices in their daily lives. Such engagement is possibly linked to the intimate relationship of these groups with the territory and the environment and to the appreciation of the collective.

Table 2. Percentage of the population who reported always having a personal experience and behavioral engagement with climate change, according to sex. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Total				Male				Female			
	%	CI95%			%	CI95%			%	CI95%		
Personal experience with climate change												
I was directly affected by climate change	32.4	29.1	-	35.8	30.1	25.6	-	35.0	35.1	30.5	-	40.0
I know someone who has been directly affected by climate change	39.7	36.4	-	43.1	37.0	32.4	-	41.8	43.0	38.4	-	47.7
I noticed a change in a place that is important to me due to climate change	31.6	28.4	-	35.0	31.6	27.1	-	36.4	31.6	27.2	-	36.4
Behavioral engagement with climate change												
I wish I had behaved more sustainably	46.6	43.4	-	50.0	45.2	40.5	-	49.9	48.4	43.9	-	53.0
I recycle	36.1	33.0	-	39.3	38.4	34.0	-	43.1	33.4	29.3	-	37.6
I turn off the lights	74.9	72.1	-	77.5	70.9	66.6	-	74.9	79.7	76.2	-	82.8
I try to reduce my behaviors that contribute to climate change	53.3	50.0	-	56.5	50.8	46.1	-	55.4	56.2	51.8	-	60.6
I feel guilty about wasting energy	38.4	35.1	-	41.8	38.5	33.8	-	43.3	38.3	33.9	-	42.9
I believe I can do something to help solve climate change	46.8	43.6	-	50.1	48.4	43.7	-	53.1	45.0	40.6	-	49.5

Note: The information presented refers exclusively to the "Always" option for this survey question: "How often are these statements true for you?" (Response scale: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Always).

Table 3. Percentage of the population who reported always having a personal experience and behavioral engagement with climate change, according to age in years. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Up to 24 years				25 to 59 years				60 years or older			
	%	CI95%			%	CI95%			%	CI95%		
Personal experience with climate change												
I was directly affected by climate change	34,4	28,6	-	40,6	30,3	26,8	-	34,0	41,0	24,6	-	59,7
I know someone who has been directly affected by climate change	42,0	36,1	-	48,3	37,6	34,0	-	41,3	47,5	31,4	-	64,2
I noticed a change in a place that is important to me due to climate change	33,4	27,8	-	39,6	29,1	25,8	-	32,5	43,9	27,6	-	61,7
Behavioral engagement with climate change												
I wish I had behaved more sustainably	45,8	39,8	-	51,9	46,0	42,3	-	49,8	53,6	38,0	-	68,6
I recycle	44,4	38,3	-	50,6	33,3	29,8	-	37,0	31,2	19,7	-	45,7
I turn off the lights	72,5	66,8	-	77,6	75,0	71,5	-	78,1	81,3	70,3	-	88,9
I try to reduce my behaviors that contribute to climate change	49,5	43,5	-	55,6	54,2	50,4	-	57,9	58,0	41,0	-	73,2
I feel guilty about wasting energy	48,0	41,9	-	54,1	34,3	30,9	-	38,0	38,5	22,1	-	57,9
I believe I can do something to help solve climate change	46,9	40,8	-	53,0	46,7	43,0	-	50,4	47,8	32,1	-	64,0

Note: The information presented refers exclusively to the "Always" option for this survey question: "How often are these statements true for you?" (Response scale: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Always).

Table 4. Percentage of the population who reported always having a personal experience and behavioral engagement with climate change, according to per capita income. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Up to R$2.000			R$2.000-R$3.000			R$3.000-R$5.000			R$5.000-R$10.000			Above R$10.000		
	%	CI95%		%	CI95%		%	CI95%		%	CI95%		%	CI95%	
Personal experience with climate change															
I was directly affected by climate change	37,3	32,7	42,2	25,5	18,1	34,7	21,4	15,3	29,1	29,2	20,6	39,6	33,8	24,3	44,7
I know someone who has been directly affected by climate change	42,9	38,3	47,7	34,9	27,0	43,7	33,3	25,8	41,7	37,4	29,0	46,5	40,9	31,2	51,4
I noticed a change in a place that is important to me due to climate change	34,1	29,7	38,9	24,4	17,2	33,5	27,0	20,0	35,2	30,4	22,7	39,4	40,9	31,0	51,6
Behavioral engagement with climate change															
I wish I had behaved more sustainably	48,1	43,5	52,8	46,7	38,7	54,8	41,6	33,6	50,1	47,5	38,7	56,4	41,5	31,8	51,8
I recycle	37,6	33,3	42,0	36,2	29,0	44,0	35,6	27,5	44,6	31,3	22,9	41,2	29,8	20,7	40,8
I turn off the lights	75,9	72,0	79,4	74,1	66,8	80,2	77,0	68,8	83,5	73,4	65,0	80,4	67,7	56,3	77,3
I try to reduce my behaviors that contribute to climate change	54,0	49,4	58,6	56,4	48,6	63,9	50,4	42,0	58,8	49,2	40,4	58,0	46,9	37,1	56,9
I feel guilty about wasting energy	40,9	36,3	45,6	37,9	29,9	46,5	30,8	23,6	39,0	38,5	29,7	48,2	31,7	23,0	41,9
I believe I can do something to help solve climate change	49,3	44,7	54,0	40,6	33,3	48,4	46,9	38,5	55,4	45,6	36,8	54,7	46,5	36,6	56,7

Note: The information presented refers exclusively to the "Always" option for this survey question: "How often are these statements true for you?" (Response scale: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Always).

Table 5. Percentage of the population that reported always having a personal experience and behavioral engagement with climate change, according to use of the Unified Health System (SUS). More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Dependent on SUS					
	No			Yes		
	%	CI95%		%	CI95%	
Personal experience with climate change						
I was directly affected by climate change	33,0	25,9	41,0	32,2	28,6	36,1
I know someone who has been directly affected by climate change	39,1	32,1	46,6	39,9	36,1	43,7
I noticed a change in a place that is important to me due to climate change	33,6	26,6	41,4	31,0	27,5	34,8
Behavioral engagement with climate change						
I wish I had behaved more sustainably	46,5	39,5	53,5	46,7	43,0	50,4
I recycle	33,3	27,4	39,8	36,9	33,4	40,5
I turn off the lights	70,8	64,2	76,6	76,0	72,9	78,9
I try to reduce my behaviors that contribute to climate change	53,1	46,3	59,8	53,9	49,6	57,0
I feel guilty about wasting energy	35,6	28,7	43,1	35,3	35,5	43,0
I believe I can do something to help solve climate change	43,6	37,1	50,3	46,8	44,0	51,5

Note: The information presented refers exclusively to the "Always" option for this survey question: "How often are these statements true for you?" (Response scale: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Always).

Table 6. Percentage of the population that reported always having a personal experience and behavioral engagement with climate change, according to identification as part of a traditional people or community. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Does not belong to any traditional people or community				Belongs to some traditional people or community			
	%	CI95%						
Personal experience with climate change								
I was directly affected by climate change	24.6	20.8	-	28.8	42.2	36.9	-	47.8
I know someone who has been directly affected by climate change	32.8	28.8	-	37.0	48.4	43.1	-	53.8
I noticed a change in a place that is important to me due to climate change	26.3	22.5	-	30.6	38.2	33.1	-	43.7
Behavioral engagement with climate change								
I wish I had behaved more sustainably	40.5	36.5	-	44.6	54.4	49.1	-	59.6
I recycle	30.1	26.4	-	34.0	43.7	38.6	-	49.0
I turn off the lights	74.4	70.8	-	77.7	75.5	70.8	-	79.6
I try to reduce my behaviors that contribute to climate change	50.1	46.0	-	54.1	57.3	51.8	-	62.6
I feel guilty about wasting energy	33.0	29.1	-	37.3	45.1	39.8	-	50.6
I believe I can do something to help solve climate change	39.8	36.0	-	43.8	55.7	50.4	-	60.8

Note: The information presented refers exclusively to the "Always" option for this survey question: "How often are these statements true for you?" (Response scale: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Always).

Table 7. Percentage of the population who reported always having a personal experience and behavioral engagement with climate change, according to race/skin color. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	White				Indigenous				Brown				Black			
	%	CI95%			%	CI95%			%	CI95%			%	CI95%		
Personal experience with climate change																
I was directly affected by climate change	28,2	22,7	-	34,4	30,1	15,3	-	50,7	33,0	28,7	-	37,5	36,6	27,6	-	46,7
I know someone who has been directly affected by climate change	35,0	29,3	-	41,2	35,0	19,1	-	55,0	40,1	35,9	-	44,5	45,9	36,3	-	55,8
I noticed a change in a place that is important to me due to climate change	30,3	24,7	-	36,6	35,3	19,3	-	55,4	32,4	28,2	-	36,8	28,8	21,3	-	37,6
Behavioral engagement with climate change																
I wish I had behaved more sustainably	43,3	37,2	-	49,6	63,7	42,6	-	80,5	47,0	42,8	-	51,2	47,3	37,7	-	57,1
I recycle	40,4	34,1	-	46,9	38,2	20,8	-	59,2	34,6	30,9	-	38,6	37,0	28,0	-	47,0
I turn off the lights	72,1	66,1	-	77,5	58,7	37,5	-	77,2	76,2	72,7	-	79,4	74,5	64,7	-	82,2
I try to reduce my behaviors that contribute to climate change	54,5	48,3	-	60,6	61,0	40,1	-	78,5	52,4	48,2	-	56,6	54,8	44,9	-	64,3
I feel guilty about wasting energy	41,5	35,3	-	48,0	53,2	33,6	-	71,9	35,9	31,8	-	40,3	44,9	35,4	-	54,8
I believe I can do something to help solve climate change	44,8	38,6	-	51,1	51,2	31,8	-	70,3	46,2	42,1	-	50,4	53,1	43,3	-	62,7

Note: The information presented refers exclusively to the "Always" option for this survey question: "How often are these statements true for you?" (Response scale: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Always).

ENVIRONMENT

Although climate change has been part of the history of the planet since the beginning, its effects on the environment have been accelerated in recent years because of human activities, and some of the consequences of these changes can already be perceived in Brazil and the world. However, it is still possible to implement measures that help reduce these impacts, with the adoption of responsible environmental attitudes in daily life.

This survey presented questions about recycling garbage and buying products that harm the environment, and about the belief that we are already experiencing climate change and global warming. The results are presented in Tables 8 to 13.

The results indicated that most residents of the Legal Amazon usually separate garbage for recycling (64.0%), without marked differences between men and women, age and income groups, or use of SUS. However, they showed greater differences between those who identify as part of a traditional people or community (70.1%) and the population that does not identify as such (59.2%).

The results show that an important part of the population of the Legal Amazon already adopts environmental practices daily. This data is especially relevant because, in most municipalities in the region, municipal services for separately collecting recyclables are not yet a reality. That is, even without having a structured system to properly dispose of waste, many people already show environmental awareness and daily attitudes to environmental care.

It is noteworthy that those belonging to traditional peoples or communities presented a higher percentage in the practice of separating garbage for recycling. This result deserves to be better explored, as it may be linked to factors such as the use of garbage as a form of income generation, the community organization of these groups, among others.

On the topic of not buying or using products that harm the environment, two-thirds of the studied population report they have adopted this practice (63.1%), reaching the same levels among men and women, age and income groups, in addition to use of SUS. Again, there was a difference between people who recognize themselves as part of a traditional people or community (68.6%) compared to those who do not (59.2%).

These findings are relevant because they show that most of the population has been changing their consumption habits, prioritizing the acquisition of more sustainable products. This movement highlights the positive impact of awareness strategies and greater access to information about production processes and the effects that products have on the environment, directly influencing consumer choices.

Another important result was that 9 out of 10 people believe that climate change has been occurring in Brazil and the world in the last 2 years (88.4%) and that the world is already experiencing global warming (90,6%). Women report the experience of these two realities of climate change (92.4%) and global warming (94.0%) more often, compared to men (85.1% and 87.8%, respectively). For the affirmative that global warming is already being experienced worldwide, the population that reported being SUS dependent (92.0%) answered affirmatively more often than the population that does not exclusively use SUS (85.6%).

The high percentages in all groups show that the population of the Legal Amazon has been experiencing and recognizes the effects of climate change. There is a gender difference in the perception of climate change and global warming, with this perception being more present among women.

This result may be related to the fact that climate impacts do not affect men and women the same way, but reflect already existing social, economic and cultural inequalities. In many contexts, women face greater vulnerability due to unequal division of labor, limited access to productive resources (such as land, credit, and technology), less participation in decision-making processes, and an overburden of responsibilities to family and community.

The findings in this survey reaffirm the importance of deepening studies that consider the Amazonian context to better understand the factors that explain the greater perception of women in relation to the impacts of climate change.

Another relevant finding is that the greater perception in the SUS dependent population may be associated with a more intense experience of the consequences of extreme weather events on health and daily life.

Table 8. Percentage of the population that reported environmental attitudes, according to sex. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Total				Male				Female			
	%	CI95%			%	CI95%			%	CI95%		
Usually separates garbage for recycling	64,0	60,9	-	67,1	64,8	60,2	-	69,2	63,0	58,8	-	67,0
Stopped buying or using any product that harms the environment	63,1	59,9	-	66,2	60,0	55,3	-	64,6	66,9	62,8	-	70,7
Believes that climate change is occurring in Brazil and the world in the last 2 years	88,4	86,3	-	90,2	85,1	81,8	-	88,0	92,4	90,0	-	94,2
Believes that the world is experiencing global warming	90,6	88,9	-	92,2	87,8	85,0	-	90,2	94,0	91,9	-	95,6

Table 9. Percentage of the population that reported environmental attitudes, according to age in years. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Up to 24 years				25 to 59 years				60 years or older			
	%	CI95%			%	CI95%			%	CI95%		
Usually separates garbage for recycling	61,8	55,7	-	67,5	64,2	60,8	-	67,6	69,0	50,3	-	83,0
Stopped buying or using any product that harms the environment	61,3	55,2	-	67,0	63,7	60,1	-	67,1	64,9	46,8	-	79,6
Believes that climate change is occurring in Brazil and the world in the last 2 years	88,1	83,6	-	91,5	88,4	85,9	-	90,6	89,2	80,1	-	94,5
Believes that the world is experiencing global warming	91,4	87,6	-	94,1	90,6	88,5	-	92,3	88,7	78,5	-	94,4

Table 10. Percentage of the population that reported environmental attitudes, according to per capita income. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Up to R$2.000				R$2.000-R$3.000				R$3.000-R$5.000				R$5.000-R$10.000				Above R$10.000			
	%	CI95%			%	CI95%			%	CI95%			%	CI95%			%	CI95%		
Usually separates garbage for recycling	63,9	59,2	-	68,3	71,1	64,5	-	76,9	59,0	50,5	-	67,1	57,9	49,5	-	65,9	58,4	48,4	-	67,8
Stopped buying or using any product that harms the environment	63,2	58,6	-	67,6	67,3	59,9	-	73,9	61,2	52,6	-	69,2	58,0	49,4	-	66,3	58,6	48,2	-	68,2
Believes that climate change is occurring in Brazil and the world in the last 2 years	88,8	85,8	-	91,3	91,9	87,6	-	94,8	86,3	79,4	-	91,2	77,6	68,0	-	85,0	89,7	85,1	-	93,0
Believes that the world is experiencing global warming	92,1	89,7	-	94,0	93,2	88,9	-	95,9	87,2	81,4	-	91,5	82,6	75,7	-	87,9	85,4	75,3	-	91,8

Table 11. Percentage of the population that reported environmental attitudes, according to use of the Unified Health System (SUS). More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Dependent on SUS							
	No				Yes			
	%	CI95%			%	CI95%		
Usually separates garbage for recycling	62,2	55,8	-	68,1	64,5	60,9	-	68,0
Stopped buying or using any product that harms the environment	64,5	58,2	-	70,3	62,8	59,0	-	66,3
Believes that climate change is occurring in Brazil and the world in the last 2 years	85,1	80,3	-	88,9	89,3	87,0	-	91,3
Believes that the world is experiencing global warming	85,6	81,0	-	89,2	92,0	90,1	-	93,6

Table 12. Percentage of the population that reported environmental attitudes, according to identification as part of some traditional people or community. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Does not belong to any traditional people or community				Belongs to some traditional people or community			
	%	CI95%			%	CI95%		
Usually separates garbage for recycling	59,2	55,3	-	63,0	70,1	64,7	-	75,0
Stopped buying or using any product that harms the environment	58,8	54,8	-	62,7	68,6	63,1	-	73,5
Believes that climate change is occurring in Brazil and the world in the last 2 years	89,2	86,8	-	91,2	87,5	83,7	-	90,5
Believes that the world is experiencing global warming	89,9	87,4	-	91,9	91,6	88,8	-	93,8

Table 13. Percentage of the population that reported environmental attitudes, according to race/skin color. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	White				Indigenous				Brown				Black			
	%	CI95%			%	CI95%			%	CI95%			%	CI95%		
Usually separates garbage for recycling	59,9	53,8	-	65,8	77,8	60,9	-	88,7	65,0	61,0	-	68,9	62,8	53,1	-	71,5
Stopped buying or using any product that harms the environment	65,2	59,3	-	70,7	81,5	67,6	-	90,2	62,5	58,4	-	66,4	60,1	50,0	-	69,4
Believes that climate change is occurring in Brazil and the world in the last 2 years	87,0	83,1	-	90,1	97,0	87,1	-	99,4	89,0	86,4	-	91,1	86,4	77,0	-	92,3
Believes that the world is experiencing global warming	85,7	81,6	-	89,0	95,5	83,0	-	98,9	91,9	89,6	-	93,6	91,2	84,1	-	95,3

CLIMATE EVENTS IN THE LAST TWO YEARS

Extreme weather events can be climatological in nature (drought, hail, frost, cold and heatwaves), meteorological in nature (local storms and extreme temperature events), hydrological in nature (various types of floods) or geological in nature (erosive processes, mass movement processes and landslides). Despite the diversity of scenarios in the last two years, all point to a growing concern: the increase in the frequency and intensity of events and their direct relationship with the risks they bring to public health and impact on health services.

More Data Better Health - Climate and Health in the Legal Amazon explored which scenarios most affect the population living in the nine states that make up the Legal Amazon. Below, we present the results arranged in Tables 14 to 19.

Among residents of the Legal Amazon, two-thirds reported observing heatwaves, with temperatures above the local average (64.7%). This result reflects the intensification of periods of extreme heat in the region, perceived broadly and transversely among different population groups.

Additionally, about a third of the population reported following climate events of persistent drought, exacerbated by more heat and less rain (29.6%), followed by forest fires with intense smoke affecting daily activities (29.2%), environmental deforestation (28.7%) and worsening air quality (26.7%). For those felt less frequently, we have worsening water quality (19.9%), flooding with changing rainfall patterns (19.6%), problems in food production (17.1%) and colder than normal (11.5%). These findings highlight the perception of climate change and anthropogenic pressures, such as deforestation and fires, in the direct impact on the quality of life and health of the population.

For none of the items was there a difference in reporting between men and women and different age groups. For the observation of colder than normal, a difference was identified between people with lower income (up to R$2,000.00), with 11.9%, compared to those with higher income (above R$10,000.00), with 3.9%. This result may be associated with poorer housing conditions and less access to means of mitigating the cold.

Among the population that declares itself dependent on SUS, there was a lower frequency of reports of forest fires with intense smoke affecting daily activities (27.0%), compared to people who do not exclusively use SUS (37.1%).

In the population that identifies as part of some traditional people or community, there was a greater experience of worsening water quality (24.1%) and problems in food production (21.4%) compared to the general population (16.5% and 13.8% respectively). This finding may be related to the greater dependence of these groups on local natural resources, which makes them particularly vulnerable to environmental changes.

Table 14. Percentage of the population that reported weather events in the last two years, according to sex. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Total				Male				Female			
	%	CI95%			%	CI95%			%	CI95%		
Worsening water quality	19,9	17,4	-	22,7	20,5	17,0	-	24,5	19,2	15,8	-	23,2
Heatwave with temperatures above local average	64,7	61,6	-	67,7	61,1	56,5	-	65,4	69,0	65,0	-	72,8
Persistent drought, exacerbated by more heat and less rain	29,6	26,8	-	32,6	29,6	25,7	-	33,8	29,6	25,7	-	33,9
Environmental deforestation	28,7	25,9	-	31,7	28,9	24,9	-	33,2	28,5	24,6	-	32,6
Forest fires with intense smoke affecting daily activities	29,2	26,4	-	32,1	28,8	25,0	-	33,0	29,5	25,7	-	33,7
Issue with food production	17,1	14,8	-	19,7	17,8	14,6	-	21,5	16,3	13,1	-	20,1
Flooding with changing rainfall patterns	19,6	17,2	-	22,3	20,7	17,4	-	24,4	18,4	15,1	-	22,3
Worsening air quality	26,7	24,0	-	29,6	25,4	21,8	-	29,5	28,2	24,4	-	32,4
Colder than normal	11,5	9,6	-	13,7	13,1	10,1	-	16,7	9,6	7,6	-	12,1

Table 15. Percentage of the population that reported weather events in the last two years, according to age in years. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Up to 24 years				25 to 59 years				60 years or older			
	%	CI95%			%	CI95%			%	CI95%		
Worsening water quality	16,5	12,3	-	21,8	20,7	17,6	-	24,1	24,7	14,9	-	38,1
Heatwave with temperatures above local average	64,2	58,3	-	69,7	63,7	60,0	-	67,3	72,8	60,0	-	82,7
Persistent drought, exacerbated by more heat and less rain	28,2	22,9	-	34,3	30,0	26,7	-	33,5	30,9	19,8	-	44,6
Environmental deforestation	22,9	18,0	-	28,8	29,7	26,4	-	33,2	38,5	25,3	-	53,7
Forest fires with intense smoke affecting daily activities	22,9	17,9	-	28,7	30,5	27,2	-	33,9	38,3	25,2	-	53,4
Issue with food production	12,9	9,3	-	17,6	17,7	14,9	-	20,9	25,6	15,4	-	39,5
Flooding with changing rainfall patterns	17,2	12,9	-	22,6	20,4	17,6	-	23,6	21,3	12,5	-	33,7
Worsening air quality	19,0	14,9	-	23,9	28,5	25,3	-	32,0	36,7	23,9	-	51,6
Colder than normal	10,9	7,7	-	15,3	12,1	9,7	-	15,0	8,7	3,7	-	18,8

Table 16. Percentage of the population that reported weather events in the last two years, according to per capita income. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Up to R$2.000				R$2.000-R$3.000				R$3.000-R$5.000				R$5.000-R$10.000				Above R$10.000			
	%	CI95%			%	CI95%			%	CI95%			%	CI95%			%	CI95%		
Worsening water quality	19,8	16,3	-	23,8	19,5	14,5	-	25,6	18,6	12,3	-	27,2	25,2	17,2	-	35,2	18,6	11,6	-	28,3
Heatwave with temperatures above local average	65,6	61,2	-	69,6	68,9	61,9	-	75,2	50,0	41,6	-	58,5	64,5	55,7	-	72,4	68,5	57,8	-	77,5
Persistent drought, exacerbated by more heat and less rain	28,0	24,1	-	32,3	29,9	23,6	-	37,0	31,9	24,6	-	40,2	35,5	27,2	-	44,8	31,6	23,9	-	40,5
Environmental deforestation	26,5	22,6	-	30,7	31,5	25,0	-	38,8	28,6	21,5	-	36,9	31,5	23,8	-	40,4	35,4	26,9	-	44,9
Forest fires with intense smoke affecting daily activities	26,2	22,3	-	30,4	28,7	22,6	-	35,7	34,1	26,6	-	42,4	42,6	34,2	-	51,4	32,4	25,3	-	40,5
Issue with food production	17,5	14,1	-	21,4	17,5	12,9	-	23,3	12,7	8,2	-	19,2	19,4	12,5	-	28,9	17,7	10,9	-	27,4
Flooding with changing rainfall patterns	18,1	14,8	-	22,0	18,9	14,3	-	24,6	20,9	14,3	-	29,5	27,9	20,1	-	37,3	22,9	15,6	-	32,3
Worsening air quality	22,7	19,1	-	26,7	31,9	25,2	-	39,4	25,8	19,6	-	33,3	42,6	34,0	-	51,6	28,1	21,2	-	36,3
Colder than normal	11,9	9,4	-	15,1	12,2	7,9	-	18,2	11,3	6,7	-	18,5	13,4	7,1	-	24,0	3,9	1,6	-	9,1

Table 17. Percentage of the population that reported weather events in the last two years, according to use of the Unified Health System (SUS). More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Dependent on SUS							
	No				Yes			
	%	CI95%			%	CI95%		
Worsening water quality	20,4	15,8	-	26,0	19,8	16,9	-	23,0
Heatwave with temperatures above local average	64,4	57,9	-	70,4	64,8	61,3	-	68,2
Persistent drought, exacerbated by more heat and less rain	32,8	27,2	-	38,8	28,7	25,5	-	32,2
Environmental deforestation	33,7	28,0	-	39,9	27,3	24,1	-	30,7
Forest fires with intense smoke affecting daily activities	37,1	31,3	-	43,3	27,0	23,8	-	30,4
Issue with food production	16,9	13,0	-	21,6	17,2	14,5	-	20,3
Flooding with changing rainfall patterns	21,5	16,9	-	26,9	19,1	16,4	-	22,2
Worsening air quality	31,4	26,1	-	37,3	25,4	22,3	-	28,8
Colder than normal	11,4	7,9	-	16,1	11,5	9,3	-	14,1

Table 18. Percentage of the population that reported weather events in the last two years, according to identification as part of a traditional people or community. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Does not belong to any traditional people or community				Belongs to some traditional people or community			
	%	CI95%			%	CI95%		
Worsening water quality	16,5	13,9	-	19,5	24,1	19,7	-	29,2
Heatwave with temperatures above local average	63,0	59,1	-	66,8	66,8	61,8	-	71,4
Persistent drought, exacerbated by more heat and less rain	28,8	25,5	-	32,4	30,6	25,9	-	35,7
Environmental deforestation	26,5	23,4	-	29,9	31,4	26,6	-	36,7
Forest fires with intense smoke affecting daily activities	29,6	26,3	-	33,1	28,6	24,0	-	33,7
Issue with food production	13,8	11,4	-	16,6	21,4	17,2	-	26,2
Flooding with changing rainfall patterns	18,8	16,1	-	21,8	20,7	16,6	-	25,5
Worsening air quality	28,1	24,7	-	31,6	25,0	20,7	-	29,8
Colder than normal	9,7	7,5	-	12,4	13,8	10,6	-	17,7

Table 19. Percentage of the population that reported weather events in the last two years, according to race/skin color. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	White				Indigenous				Brown				Black			
	%	CI95%			%	CI95%			%	CI95%			%	CI95%		
Worsening water quality	17,1	13,1	-	22,2	11,4	5,2	-	23,4	21,0	17,8	-	24,6	19,6	12,7	-	29,0
Heatwave with temperatures above local average	64,2	58,4	-	69,6	66,2	46,9	-	81,3	65,2	61,3	-	68,9	62,5	52,3	-	71,7
Persistent drought, exacerbated by more heat and less rain	29,3	24,0	-	35,2	23,3	12,4	-	39,2	30,4	26,8	-	34,2	26,7	19,0	-	36,3
Environmental deforestation	24,5	19,8	-	29,9	23,0	12,4	-	38,8	31,2	27,6	-	35,1	22,1	15,3	-	30,8
Forest fires with intense smoke affecting daily activities	30,5	25,2	-	36,5	20,9	11,1	-	35,8	30,7	27,1	-	34,5	19,4	13,8	-	26,7
Issue with food production	15,2	11,2	-	20,3	15,6	7,3	-	30,0	18,4	15,4	-	21,9	13,3	8,4	-	20,7
Flooding with changing rainfall patterns	15,8	12,0	-	20,5	23,2	12,4	-	39,2	20,7	17,6	-	24,2	19,4	12,9	-	28,1
Worsening air quality	24,6	20,0	-	29,7	18,9	10,0	-	33,0	27,6	24,2	-	31,4	26,3	18,6	-	35,8
Colder than normal	9,7	6,4	-	14,5	6,9	2,9	-	15,8	11,3	9,1	-	14,0	16,0	9,4	-	26,1

INFLUENCE OF GLOBAL WARMING ON THE REGION WHERE YOU LIVE

Brazil is considered one of the largest polluters in the world, with the emission of greenhouse gases from various practices, such as deforestation, fires and extensive agricultural activity. Consequently, there is a change in the weather pattern with extreme and out-of-season events, from very voluminous rains to prolonged droughts that affect the population of all regions of the country. The influence of global warming on the region in which a person lives can vary significantly, depending on the location and climatic characteristics of the area, and has direct repercussions on health, economy and people's quality of life.

More Data Better Health - Climate and Health in the Legal Amazon explored people's perceptions of some of these impacts (Tables 20 to 25). The results indicate that at least three quarters of respondents identify consistent changes in their daily lives, associated with global warming: increase in electricity bill (83.4%), increased average temperature (82.4%), increased air pollution (75.0%), increased occurrence of environmental disasters (74.4%) and rising food prices (73.0%). Less frequently, residents reported rainfall instability, be it decreased rainfall (62.2%) or increased rainfall (47.8%).

In the analysis of results by sex (Table 20), women reported more frequently increased energy bills (88.0%), rising food prices (78.7%) and decreased rainfall (67.8%) compared to men. These findings reaffirm the central role of women in household management, particularly concerning resource management and food security, possibly making them more sensitive to the socioeconomic effects of climate change.

Although no significant differences were found according to age (Table 21), income (Table 22) or dependence on SUS (Table 23), there was a differentiated impact among traditional peoples and communities (Table 24). In this group, the increase in food prices was perceived by 79.1%, a percentage significantly higher than that of the general population (68.2%). This data reaffirms the specific vulnerability of these peoples, who, despite their strong relationship with their territories and sustainable lifestyles, face structural barriers in access to consumer goods and suffer more intensely from economic fluctuations aggravated by climate change.

The results show that the impacts of climate change in the Legal Amazon are already felt directly by the population, translating into increased cost of living, climate instability and increased occurrence of environmental disasters. These elements not only affect economic and social daily life but also produce significant health consequences. Recent studies reaffirm that deforestation and changes in the climatic regime intensify thermal stress, increase exposure to heat-related diseases and compromise the work capacity and well-being of communities. Thus, the findings described here should be understood not only as environmental perceptions but as indicators of concrete risks to public health.

In this sense, integrated mitigation and adaptation policies become urgent. Strengthening climate monitoring, reducing emissions linked to deforestation and fires, and encouraging sustainable agricultural practices are essential measures to reduce the vulnerability of the Amazon population. Likewise, social protection policies aimed at women, traditional peoples and low-income families are fundamental, since these groups show greater perception of and exposure to the effects of the climate crisis.

Finally, it is important to recognize that the climate impacts observed here are directly connected to food security issues. The increase in food prices, associated with rainfall fluctuations and environmental degradation, points to a scenario in which food insecurity tends to worsen. Thus, addressing the climate crisis in the Amazon is not only an environmental agenda, but also an agenda of public health and ensuring fundamental rights.

Table 20. Percentage of the population that reported influence of global warming in the region where they live, according to sex. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Total				Male				Female			
	%	CI95%			%	CI95%			%	CI95%		
Rising food prices	73,0	70,0	-	75,8	68,2	63,6	-	72,4	78,7	75,1	-	81,9
Increased air pollution	75,0	72,2	-	77,5	72,4	68,3	-	76,1	78,1	74,4	-	81,4
Increase in average temperature	82,4	79,9	-	84,6	80,1	76,4	-	83,4	85,1	81,8	-	87,9
Increased energy bill	83,4	81,0	-	85,5	79,5	75,8	-	82,8	88,0	85,3	-	90,3
More environmental disasters happening	74,4	71,5	-	77,0	71,6	67,3	-	75,5	77,7	73,9	-	81,1
Increased rainfall	47,8	44,5	-	51,1	47,0	42,3	-	51,8	48,8	44,2	-	53,3
Decreased rainfall	62,2	58,9	-	65,4	57,5	52,8	-	62,2	67,8	63,6	-	71,8

Table 21. Percentage of the population that reported influence of global warming in the region where they live, according to age in years. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Up to 24 years				25 to 59 years				60 years or older			
	%	CI95%			%	CI95%			%	CI95%		
Rising food prices	76,5	71,6	-	80,8	73,3	70,0	-	76,4	60,4	43,1	-	75,4
Increased air pollution	69,2	63,4	-	74,5	76,8	73,6	-	79,7	79,1	67,8	-	87,1
Increase in average temperature	75,0	69,3	-	80,0	85,0	82,3	-	87,4	85,6	76,1	-	91,8
Increased energy bill	76,1	70,4	-	80,9	86,1	83,5	-	88,3	85,8	77,1	-	91,6
More environmental disasters happening	66,1	59,9	-	71,7	77,3	74,1	-	80,3	78,0	66,1	-	86,6
Increased rainfall	46,1	40,0	-	52,3	48,1	44,3	-	51,8	51,3	35,5	-	66,9
Decreased rainfall	61,5	55,2	-	67,3	63,4	59,6	-	66,9	56,5	39,8	-	71,9

Table 22. Percentage of the population that reported influence of global warming in the region where they live, according to per capita income. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Up to R$2.000				R$2.000-R$3.000				R$3.000-R$5.000				R$5.000-R$10.000				Above R$10.000			
	%	CI95%			%	CI95%			%	CI95%			%	CI95%			%	CI95%		
Rising food prices	75,3	70,7	-	79,3	78,1	72,3	-	82,9	59,5	50,7	-	67,7	64,8	56,3	-	72,4	69,3	59,3	-	77,8
Increased air pollution	75,4	71,5	-	79,0	79,0	73,1	-	84,0	70,6	62,3	-	77,7	68,2	59,4	-	75,8	73,2	63,3	-	81,2
Increase in average temperature	84,5	81,1	-	87,4	87,4	82,9	-	90,9	71,1	62,1	-	78,7	72,1	62,3	-	80,1	79,5	69,8	-	86,7
Increased energy bill	84,7	81,3	-	87,6	88,1	84,3	-	91,1	76,5	68,2	-	83,2	71,7	61,9	-	79,8	82,2	75,1	-	87,6
More environmental disasters happening	74,8	70,8	-	78,5	78,4	71,9	-	83,7	69,6	60,9	-	77,1	63,5	54,2	-	71,9	77,9	67,7	-	85,6
Increased rainfall	49,5	44,9	-	54,1	53,1	45,2	-	60,8	40,6	32,6	-	49,2	35,8	27,7	-	44,9	43,4	33,5	-	53,9
Decreased rainfall	62,4	57,7	-	66,9	66,4	59,0	-	73,2	58,7	49,9	-	66,9	58,6	49,8	-	66,9	57,7	46,7	-	68,0

Table 23. Percentage of the population that reported the influence of global warming in the region where they live, according to use of the Unified Health System (SUS). More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Dependent on SUS							
	No				Yes			
	%	CI95%			%	CI95%		
Rising food prices	71,6	66,1	-	76,6	73,3	69,8	-	76,6
Increased air pollution	70,0	63,7	-	75,6	76,3	73,2	-	79,1
Increase in average temperature	78,9	73,1	-	83,8	83,4	80,6	-	85,8
Increased energy bill	79,2	73,7	-	83,8	84,5	81,9	-	86,8
More environmental disasters happening	71,9	65,6	-	77,5	75,0	71,8	-	78,0
Increased rainfall	44,8	37,8	-	52,0	48,7	44,9	-	52,4
Decreased rainfall	59,9	53,2	-	66,3	62,9	59,0	-	66,5

Table 24. Percentage of the population that reported influence of global warming in the region where they live, according to identification as part of a traditional people or community. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Does not belong to any traditional people or community			Belongs to some traditional people or community		
	%	CI95%		%	CI95%	
Rising food prices	68,2	64,3	71,7	79,1	74,0	83,4
Increased air pollution	73,3	69,7	76,7	77,0	72,7	80,8
Increase in average temperature	82,6	79,5	85,3	82,1	78,0	85,7
Increased energy bill	83,9	81,0	86,4	82,8	78,7	86,2
More environmental disasters happening	73,1	69,4	76,5	76,0	71,4	80,0
Increased rainfall	47,4	43,3	51,5	48,4	43,0	53,7
Decreased rainfall	58,6	54,5	62,5	66,9	61,4	71,9

Table 25. Percentage of the population that reported influence of global warming in the region where they live, according to race/skin color. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	White				Indigenous				Brown				Black			
	%	CI95%			%	CI95%			%	CI95%			%	CI95%		
Rising food prices	69,6	63,8	-	74,8	68,6	48,7	-	83,3	74,1	70,2	-	77,7	72,7	63,7	-	80,1
Increased air pollution	72,9	67,2	-	77,9	75,4	57,7	-	87,3	76,4	73,0	-	79,5	69,9	60,2	-	78,0
Increase in average temperature	78,6	73,5	-	83,0	80,2	60,9	-	91,4	83,9	80,8	-	86,6	80,5	71,8	-	87,0
Increased energy bill	79,0	74,0	-	83,3	88,8	75,6	-	95,3	84,8	81,9	-	87,3	81,4	72,5	-	88,0
More environmental disasters happening	70,7	64,8	-	76,0	83,0	67,9	-	91,8	75,7	72,2	-	79,0	71,3	61,4	-	79,6
Increased rainfall	45,6	39,5	-	52,0	49,3	30,1	-	68,6	47,5	43,3	-	51,7	53,2	43,6	-	62,7
Decreased rainfall	61,9	55,6	-	67,9	61,8	40,1	-	79,7	62,6	58,4	-	66,6	60,6	50,5	-	69,9

POLLUTION

Air pollution has significant impacts on human health, contributing to respiratory and cardiovascular diseases and even cancer, resulting in millions of premature deaths annually. It is considered by the World Health Organization as one of the greatest environmental risks to health. In this section, there is a description of the perception of the peoples of the Legal Amazon about the level of pollution of the places where they live and its possible impact on health. Tables 26 to 31 detail the results.

In the context of the Legal Amazon, the results of this survey reveal relevant perceptions of people's exposure to pollution and its potential impact on health. Approximately 12.1% of residents stated they lived in places considered "very polluted", while 11.2% directly associated this environment with a major health risk. These findings indicate that, although the perception of pollution is not in the majority, it reaches an important portion of the population and should not be neglected, especially in a region marked by seasonal fires, mining, disorderly urban expansion and extractive industrial activities.

An analysis of sociodemographic differences reveals patterns that deserve attention. The prevalence of reporting living in an unpolluted place was twice as high among men (31.5%) than among women (18.1%), suggesting an unequal perception of risk between the sexes, which may be related to both social roles and differentiated exposure to domestic and occupational environments. In addition, the younger population showed greater sensitivity: 13.1% reported that living in a polluted area compromises their health, a value three times higher than that observed among the older population (3.8%). This difference may reflect both increased awareness among young people and naturalization of environmental exposure by previous generations.

Regarding income and use of SUS, no differences were found, indicating that the perception of pollution is not strongly linked to these variables in the context analyzed. However, it is worth highlighting the result among traditional peoples and communities, among which 31.4% reported living in unpolluted places, a signi-

ficantly higher proportion than among the general population (20.7%). This finding highlights both the importance of territorial and environmental preservation for the health of these populations and the vulnerability of other Amazonian groups living in areas more exposed to anthropogenic pressures.

The results reaffirm the urgency of intersectoral policies aimed at preventing and mitigating air pollution in the Legal Amazon. Strengthening environmental and epidemiological monitoring measures is essential, ensuring systematic data on air quality and its impacts on population health. Priority strategies should include the control of fires and deforestation, the strict supervision of industrial activities and inadequate disposal of waste, as well as tackling the polluting activities with the greatest direct impact, such as mining. In addition, environmental and health education must be incorporated in a transversal way: in the school curriculum, in community campaigns, and in actions aimed especially at the elderly population, who have less perception of impacts while also showing greater vulnerability to direct health consequences; all of this to inform the population of the risks of pollution and strengthen the capacity for collective action.

Strengthening territories and policies for the protection of traditional peoples is also fundamental from a Planetary Health perspective. The lower perception of pollution reported by these groups may reflect not only a lower exposure, but above all the beneficial effects of lifestyles that are structured in balance with the environment. The protection of these territories, therefore, represents more than the defense of cultural and social rights: it is a concrete strategy for the preservation of Amazonian ecosystems, with impacts that go beyond the local and regional level. The maintenance of traditional practices contributes to climate regulation, the protection of biodiversity and the mitigation of climate change, becoming an essential pillar both for the health of Amazonian populations and for the environmental balance of the planet.

Table 26. Percentage of the population that reported problems with pollution, according to sex. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Total				Male				Female			
	%	CI95%			%	CI95%			%	CI95%		
Lives in a place that is												
Very polluted	12,1	10,3	-	14,1	10,4	8,1	-	13,3	14,0	11,5	-	17,1
Little polluted	53,7	50,4	-	57,0	49,9	45,2	-	54,5	58,3	53,9	-	62,5
Unpolluted	25,4	22,5	-	28,6	31,5	27,0	-	36,4	18,1	15,1	-	21,5
Living in this place can harm your health												
Does a lot of harm	11,2	9,4	-	13,2	9,5	7,3	-	12,4	13,2	10,5	-	16,3
Does little harm	34,3	31,4	-	37,4	33,1	29,0	-	37,5	35,7	31,7	-	40,0
Does not harm	47,7	44,4	-	51,0	51,0	46,3	-	55,6	43,9	39,3	-	48,5

Table 27. Percentage of the population that reported problems with pollution, according to age in years. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Up to 24 years			25 to 59 years			60 years or older		
	%	CI95%		%	CI95%		%	CI95%	
Lives in a place that is									
Very polluted	11,5	8,4	15,5	12,9	10,7	15,4	8,1	3,4	18,0
Little polluted	49,1	43,1	55,2	54,6	50,9	58,3	60,9	43,4	76,0
Unpolluted	25,1	20,1	31,0	24,9	21,8	28,3	29,8	15,7	49,1
Living in this place can harm your health									
Does a lot of harm	13,1	9,5	17,8	11,4	9,3	14,0	3,8	2,0	7,4
Does little harm	35,6	29,9	41,6	34,4	31,0	38,0	29,9	19,1	43,6
Does not harm	44,1	38,1	50,2	47,3	43,6	51,1	61,2	46,3	74,3

Table 28. Percentage of the population that reported problems with pollution, according to per capita income. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Up to R$2.000				R$2.000-R$3.000				R$3.000-R$5.000				R$5.000-R$10.000				Above R$10.000			
	%	CI95%			%	CI95%			%	CI95%			%	CI95%			%	CI95%		
Lives in a place that is																				
Very polluted	12,3	9,8	-	15,3	11,0	7,4	-	16,2	11,1	7,1	-	17,1	12,8	8,4	-	18,9	14,1	9,9	-	19,6
Little polluted	53,2	48,5	-	57,8	57,5	49,6	-	65,0	49,8	41,3	-	58,2	48,9	40,3	-	57,6	58,1	47,9	-	67,6
Unpolluted	24,9	20,8	-	29,5	26,7	20,3	-	34,2	29,7	22,5	-	38,1	28,0	19,7	-	38,2	16,3	11,1	-	23,4
Living in this place can harm your health																				
Does a lot of harm	12,9	10,2	-	16,2	9,9	6,6	-	14,5	6,5	4,5	-	9,3	8,2	5,5	-	12,1	11,6	6,8	-	19,1
Does little harm	34,6	30,5	-	38,9	38,1	30,8	-	46,0	27,7	21,0	-	35,5	36,9	29,3	-	45,1	28,2	20,8	-	37,0
Does not harm	45,1	40,5	-	49,8	46,5	38,5	-	54,6	62,6	54,6	-	70,0	45,9	37,2	-	54,8	51,3	41,2	-	61,3

Table 29. Percentage of the population that reported problems with pollution, according to use of the Unified Health System (SUS). More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Dependent on SUS							
	No				Yes			
	%	CI95%			%	CI95%		
Lives in a place that is								
Very polluted	13,8	10,7	-	17,6	11,6	9,5	-	14,0
Little polluted	54,5	47,7	-	61,2	53,5	49,7	-	57,2
Unpolluted	24,2	18,7	-	30,6	25,8	22,4	-	29,4
Living in this place can harm your health								
Does a lot of harm	11,7	8,7	-	15,5	11,0	9,0	-	13,5
Does little harm	34,9	29,1	-	41,2	34,1	30,8	-	37,7
Does not harm	48,7	41,8	-	55,6	47,5	43,8	-	51,2

Table 30. Percentage of the population that reported problems with pollution, according to identification as part of a traditional people or community. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Does not belong to any traditional people or community				Belongs to some traditional people or community			
	%	CI95%			%	CI95%		
Lives in a place that is								
Very polluted	12,7	10,5	-	15,4	11,2	8,6	-	14,6
Little polluted	57,4	53,4	-	61,3	49,1	43,8	-	54,4
Unpolluted	20,7	17,8	-	24,0	31,4	26,2	-	37,0
Living in this place can harm your health								
Does a lot of harm	9,3	7,6	-	11,5	13,5	10,3	-	17,4
Does little harm	34,4	30,7	-	38,3	34,2	29,5	-	39,1
Does not harm	48,7	44,6	-	52,8	46,5	41,2	-	52,0

Table 31. Percentage of the population that reported problems with pollution, according to race/skin color. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	White				Indigenous				Brown				Black			
	%	CI95%			%	CI95%			%	CI95%			%	CI95%		
Lives in a place that is																
Very polluted	12,8	9,6	-	16,9	10,0	3,6	-	24,8	12,0	9,8	-	14,7	11,4	7,1	-	17,9
Little polluted	52,8	46,5	-	59,0	47,0	28,4	-	66,4	53,9	49,7	-	58,0	55,4	45,7	-	64,8
Unpolluted	25,3	20,0	-	31,4	38,1	20,0	-	60,1	24,6	21,0	-	28,7	28,2	20,1	-	38,0
Living in this place can harm your health																
Does a lot of harm	48,7	42,5	-	54,9	27,1	14,0	-	46,1	48,4	44,2	-	52,6	45,8	36,2	-	55,7
Does little harm	12,5	8,9	-	17,2	16,0	5,7	-	37,2	10,3	8,3	-	12,8	13,4	7,9	-	21,8
Does not harm	33,4	27,7	-	39,7	54,1	34,6	-	72,4	33,9	30,3	-	37,7	34,8	26,1	-	44,6

PERCEPTIONS ABOUT FOOD

The module on food aimed to understand the perceptions of the population of the Legal Amazon about access to quality food in sufficient quantity in daily life, as well as identify how environmental events, such as droughts and floods, affect the availability and consumption of food.

Of the six questions applied in this module, five were based on the short version of the Brazilian Food Insecurity Scale (EBIA)[2], an instrument used to understand the situation of access to food in sufficient quality and quantity in Brazilian households. In the present study, however, the questions were adapted according to the collection strategy adopted, characterized by individualized application, in digital format and self-administered. This approach differs from the traditional use of EBIA, which is answered in person by the person responsible for the household, with the family household as the unit of analysis. These methodological innovations, especially regarding an online collection focused on individual experience, made it possible to expand the scope of the research, including residents in hard-to-reach areas. This strategy contributed to strengthening regional representativeness and incorporating groups that are historically underrepresented in conventional face-to-face surveys.

In this sense, the fully digital methodology allowed the survey to reach a 44.2% response rate from people belonging to traditional peoples or communities, expanding the territorial and social representativeness of the data collection and offering a more diverse perspective on living conditions in the region.

On the other hand, the adaptations brought limitations: the EBIA was designed to measure the food situation of households, not individuals, which allows the separate analysis of the questions, but not the classification of people in levels of food insecurity.

Still, the digital approach adopted represents a relevant methodological advance, allowing the collection of perceptions in large and heterogeneous territories, such as the Legal Amazon, in an agile, economic and inclusive way. It is an example of a complementary strategy to traditional national surveys, expanding the capacity to generate timely and contextualized information on the living conditions of

[2]Santos, L. P. dos ., Lindemann, I. L., Motta, J. V. dos S., Mintem, G., Bender, E., & Gigante, D. P. (2014). Proposal of a short-form version of the Brazilian Food Insecurity Scale. Revista De Saúde Pública, 48(5), 783–789. https://doi.org/10.1590/S0034-8910.2014048005195

the population. This methodology favors the participation of traditional peoples and communities, often underrepresented in conventional surveys, and offers an innovative tool to quickly capture local conditions in emergency contexts, such as extreme weather events. Thus, it contributes to subsidize timely decisions of public administration and strengthen monitoring in health and food safety in territories of great sociocultural and geographical diversity.

The analysis of the responses shows that a significant portion of the population of the Legal Amazon reported facing difficulties in access to quality food in sufficient quantity.

Among people belonging to traditional peoples and communities, 72% reported having run out of money to ensure a healthy and diverse diet, and 66.4% said they felt worried that food would run out before they could get new resources. In addition, 60.8% stated that food ran out before they could afford to buy more, 55.9% said they had eaten less than they considered necessary due to lack of money, and 46.6% reported having reduced or skipped meals due to lack of resources.

In addition to these questions based on the short EBIA, 41.7% of the population of the Legal Amazon expressed concern about the lack of food associated with the cycles of drought and flooding of rivers—a figure that rises to 53.8% among traditional peoples and communities. This perception reinforces how natural cycles shape the daily diet in the region, especially in ribeirinho territories and communities that depend directly on fishing, subsistence agriculture and extractivism.

The results according to sex showed differences between men and women in the perception of access to food. Table 32 shows that, in all questions, women reported greater concern with access to food and food diversity. This difference highlights the centrality of women in household food management and their greater exposure to the social and economic consequences of scarcity, possibly associated with fewer income generation opportunities and persistent wage inequality.

Age differences (Table 33) showed that younger people reported more frequently experiences of food restriction or concern with supply, while these reports were less common among older people. One possible explanation for this finding is greater income stability among retirees and pensioners, with fewer dependents such as children and adolescents.

Income also stood out as a determining factor in perceptions about access to food (Table 34). Among people with incomes up to R$2,000, reports of worrying about or restricting/reducing meals were significantly more frequent than among those with higher incomes. It was also observed that people who depend exclusively on the Unified Health System (SUS) (Table 35) reported more difficulties in maintaining a healthy and varied diet.

In general, the results reveal a landscape of structural challenges in access to food in the Legal Amazon, crossed by social, economic and territorial inequalities. The intersection between factors such as income, sex, age and belonging to traditional peoples and communities points to the need for public policies that are more sensitive to local specificities and the interactions between the environment, health and ways of life.

Table 32. Proportional distribution of responses on food access and quality, according to sex. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Total				Male				Female			
	%	CI95%			%	CI95%			%	CI95%		
Did you worry that the food in your home would run out before you could buy, receive or produce more?	59.9	56.6	-	63.1	52.7	48.0	-	57.4	68.4	64.4	-	72.2
Did the food run out before you could afford to buy more?	50.9	47.6	-	54.1	45.2	40.5	-	49.9	57.7	53.3	-	61.9
Did you run out of money to have a healthy and varied diet?	63.9	60.9	-	66.9	57.2	52.6	-	61.6	71.9	68.2	-	75.4
Have any adults in your household decreased the amount of food in their meals or skipped meals for lack of money?	38.3	35.2	-	41.6	33.7	29.5	-	38.2	43.8	39.3	-	48.5
Did you eat less than you thought you should for lack of money?	47.5	44.3	-	50.8	41.6	37.1	-	46.3	54.5	50.0	-	58.9
In the last year have you worried that the food in your home would run out due to the impact of a drought or flood period?	41.7	38.6	-	45.0	36.8	32.4	-	41.4	47.7	43.2	-	52.2

Table 33. Proportional distribution of responses on food access and quality, according to age in years. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Up to 24 years			25 to 59 years			60 years or older		
	%	CI95%		%	CI95%		%	CI95%	
Did you worry that the food in your home would run out before you could buy, receive or produce more?	61.1	54.9	67.0	62.2	58.5	65.7	40.4	25.2	57.5
Did the food run out before you could afford to buy more?	53.1	46.9	59.1	51.7	48.0	55.4	38.6	22.3	58.0
Did you run out of money to have a healthy and varied diet?	66.1	60.1	71.7	64.7	61.2	68.1	52.0	36.3	67.4
Have any adults in your household decreased the amount of food in their meals or skipped meals for lack of money?	41.6	35.7	47.7	39.9	36.3	43.7	17.7	6.7	39.3
Did you eat less than you thought you should for lack of money?	52.4	46.3	58.4	48.6	44.8	52.3	25.8	13.0	44.8
In the last year have you worried that the food in your home would run out due to the impact of a drought or flood period?	45.2	39.2	51.4	44.3	40.6	48.1	13.4	7.3	23.3

Table 34. Proportional distribution of responses on food access and quality, according to per capita income. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Up to R$2.000			R$2.000-R$3.000			R$3.000-R$5.000			R$5.000-R$10.000			Above R$10.000		
	%	CI95%		%	CI95%		%	CI95%		%	CI95%		%	CI95%	
Did you worry that the food in your home would run out before you could buy, receive or produce more?	70.6	65.8	75.0	62.6	55.1	69.5	35.9	28.6	44.0	41.0	32.1	50.6	23.7	15.6	34.3
Did the food run out before you could afford to buy more?	63.8	59.4	68.0	51.4	43.5	59.3	21.6	16.1	28.4	25.3	16.9	36.1	18.8	10.5	31.2
Did you run out of money to have a healthy and varied diet?	75.8	71.9	79.3	68.6	61.5	75.0	35.5	28.4	43.4	38.8	30.0	48.3	26.3	17.8	37.0
Have any adults in your household decreased the amount of food in their meals or skipped meals for lack of money?	49.2	44.6	53.8	36.3	28.4	45.0	14.3	10.6	19.0	20.1	12.3	31.2	14.8	7.9	26.1
Did you eat less than you thought you should for lack of money?	59.0	54.2	63.6	43.6	35.7	52.0	25.1	18.4	33.4	31.0	22.4	41.2	19.7	11.6	31.5
In the last year have you worried that the food in your home would run out due to the impact of a drought or flood period?	52.0	47.3	56.6	39.7	32.5	47.4	17.2	12.8	22.8	26.7	18.2	37.5	20.3	12.6	31.1

Table 35. Proportional distribution of responses on food access and quality, according to use of the Unified Health System (SUS). More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Dependent on SUS							
	No				Yes			
	%	CI95%			%	CI95%		
Did you worry that the food in your home would run out before you could buy, receive or produce more?	39.5	32.5	-	47.0	65.5	61.7	-	69.1
Did the food run out before you could afford to buy more?	34.0	26.8	-	42.0	55.5	51.9	-	59.1
Did you run out of money to have a healthy and varied diet?	41.7	34.7	-	49.2	70.0	66.6	-	73.2
Have any adults in your household decreased the amount of food in their meals or skipped meals for lack of money?	28.6	21.4	-	37.1	41.0	37.5	-	44.6
Did you eat less than you thought you should for lack of money?	31.6	24.5	-	39.7	51.9	48.2	-	55.6
In the last year have you worried that the food in your home would run out due to the impact of a drought or flood period?	27.2	21.5	-	33.6	45.8	42.1	-	49.4

Table 36. Proportional distribution of responses on food access and quality, according to identification as part of a traditional people or community. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Does not belong to any traditional people or community				Belongs to some traditional people or community			
	%	CI95%			%	CI95%		
Did you worry that the food in your home would run out before you could buy, receive or produce more?	54.8	50.7	-	58.7	66.4	60.9	-	71.4
Did the food run out before you could afford to buy more?	43.0	38.9	-	47.2	60.8	55.7	-	65.7
Did you run out of money to have a healthy and varied diet?	57.5	53.5	-	61.4	72.0	67.3	-	76.2
Have any adults in your household decreased the amount of food in their meals or skipped meals for lack of money?	31.8	27.9	-	36.0	46.6	41.4	-	51.9
Did you eat less than you thought you should for lack of money?	40.9	36.8	-	45.1	55.9	50.4	-	61.2
In the last year have you worried that the food in your home would run out due to the impact of a drought or flood period?	32.2	28.7	-	36.0	53.8	48.4	-	59.1

TRADITIONAL PEOPLES OR COMMUNITIES

In this chapter, the identification of research participants as belonging to traditional peoples or communities was analyzed. This aspect is especially relevant in the Legal Amazon region, where cultural and social diversity is marked by the significant presence of these groups. However, the analysis of results presented in the tables should be interpreted carefully, since the small number of respondents in each group generated wide confidence intervals. This methodological limitation reduces the identification of significant differences between groups, although some percentage variations may suggest trends. In general, the results are quite similar, which may indicate that these are populations with similar characteristics in terms of sociocultural, economic and living conditions, aspects that directly influence their perceptions, attitudes and practices investigated.

Regarding personal experience with climate change and behavioral engagement, the results show that all traditional peoples and communities of the Legal Amazon studied report direct or indirect experiences with climate change. Engagement in sustainable practices is common among these groups, especially in simple actions such as turning off the lights, and most believe they can contribute to facing the issue, showing convergent perceptions and behaviors.

When observing environmental attitudes, it is verified that the perception that climate change is ongoing and that the world is going through global warming is widely shared, with emphasis on ribeirinhos and extractivists, whose proportions exceed 90%. All groups show significant percentages in separating waste for recycling and reducing the use of products that harm the environment. The results show a pattern of pro-environmental attitudes and strong recognition of climate effects in all groups.

Regarding self-reporting of weather events, the traditional peoples and communities of the Legal Amazon similarly reported experience of climatic events. Heat waves above the local average were the most frequently perceived phenomenon, with high prevalences in all groups. Then, persistent drought, deforestation and forest fires with intense smoke, reported in intermediate proportions, stand out. On the other hand, events such as problems in food production, floods, worsening water and air quality, and the perception of cold above normal were less frequent.

Overall, a homogeneous pattern is observed, marked by the strong perception of extreme heat and the relevant presence of phenomena linked to water scarcity and deforestation, while other events appear less intensely.

The perception of influence of global warming on the region is high across all groups, particularly in terms of rising food prices, energy bills and average temperatures, all above 75 per cent.

Perceptions about environmental pollution show similar patterns: most consider their places of residence to be "little polluted" and assess that pollution "does not harm" or "does little harm" to their health.

Regarding food access and quality, there is a generalized and persistent record of difficulties in all groups. Finally, in the field of health conditions and risk factors, the results indicate that all the traditional peoples and communities studied have relevant prevalences of chronic diseases, mental disorders and risk factors.

The results reaffirm the importance of recognizing traditional peoples and communities as protagonists in the health and climate agenda in the Legal Amazon. Despite methodological limitations, the findings reveal both shared vulnerabilities, such as the high prevalence of food insecurity and chronic diseases, and unique potentialities, expressed in pro-environmental practices and clear perceptions about the impacts of climate change. This combination shows that strengthening public policies that respect sociocultural diversity, protect traditional territories and expand access to health is strategic not only to reduce regional inequalities, but also to promote sustainable solutions of global reach, given the importance of the Amazon and its peoples for the regulation of the planet's climate.

Table 37. Proportional distribution of sociodemographic variables, according to traditional peoples or communities. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Artisanal fishermen			Indigenous Peoples			Ribeirinhos			Extractivists			Quilombola peoples			Other		
	%	CI95%		%	CI95%		%	CI95%		%	CI95%		%	CI95%		%	CI95%	
Sex																		
Male	60,1	47,0	71,9	50,4	36,8	63,9	73,3	61,5	82,4	79,5	61,2	90,5	62,5	43,4	78,4	50,8	43,9	57,8
Female	39,9	28,1	53,0	49,6	36,1	63,2	26,7	17,6	38,5	20,5	9,5	38,8	37,5	21,6	56,6	49,2	42,2	56,1
Race/skin color																		
White	11,6	5,6	22,5	4,8	2,0	11,1	12,4	6,5	22,1	24,0	10,7	45,4	16,2	4,4	45,0	19,4	14,5	25,5
Indigenous	0,2	0,0	1,8	17,2	10,5	27,0	0,0	0,0	0,3	1,8	0,4	8,1	-	-	-	0,3	0,1	1,3
Brown	75,4	62,3	85,0	63,6	50,3	75,0	73,2	59,8	83,3	64,4	38,5	84,0	61,8	41,3	78,8	68,1	61,2	74,3
Black	12,8	6,1	24,8	14,2	6,7	27,6	14,4	6,8	27,9	9,6	2,0	35,7	22,0	12,5	35,8	12,0	8,0	17,7
Age range																		
Up to 24 years	27,8	17,4	41,3	40,9	28,5	54,6	32,4	20,0	47,9	26,8	11,6	50,5	45,5	26,8	65,6	24,6	19,2	31,0
25 to 59 years	71,9	58,5	82,3	54,0	40,3	67,1	64,7	49,6	77,4	41,8	18,8	69,1	51,4	31,9	70,6	67,3	60,3	73,6
≥ 60 years	0,3	0,1	1,0	5,1	1,6	14,6	2,9	0,7	11,4	31,4	7,3	72,8	3,1	0,4	18,9	8,1	4,5	14,1
Income																		
Up to R$2.000	70,7	56,8	81,7	67,2	53,8	78,3	55,1	41,3	68,2	81,0	63,5	91,3	53,6	33,6	72,5	65,1	58,4	71,2
R$2.000-R$3.000	15,7	7,9	28,8	16,4	8,5	29,1	19,9	11,3	32,8	9,7	4,0	21,8	32,7	16,1	55,1	18,1	13,4	24,1
R$3.000-R$5.000	2,3	0,8	6,6	8,5	3,3	20,5	9,5	4,5	19,1	1,2	0,4	3,8	11,5	3,6	31,1	8,1	5,1	12,4
R$5.000-R$10.000	7,1	2,0	22,2	5,1	2,5	10,0	5,5	1,6	17,0	2,9	0,5	14,2	2,2	0,7	7,0	5,4	3,6	8,0
Above R$10.000	4,1	1,6	10,3	2,8	0,9	8,1	9,9	3,7	23,8	5,2	1,7	14,7	-	-	-	3,4	1,7	6,4
Region of residence																		
Capital or Metropolitan Region	26,1	15,8	39,9	25,0	16,0	36,9	29,9	20,1	42,0	50,3	22,9	77,5	16,0	5,4	39,0	29,4	23,4	36,1
Countryside	38,5	26,5	52,2	26,6	14,5	43,5	34,2	21,9	49,0	28,4	11,5	54,8	33,4	18,6	52,5	26,3	20,8	32,6
Urban Area	12,2	6,5	21,6	31,3	20,0	45,4	13,9	7,4	24,4	7,3	2,8	17,8	29,6	14,2	51,6	26,6	20,7	33,5
Rural Area	23,2	13,5	37,1	17,1	10,7	26,3	22,0	11,6	37,9	14,0	4,2	37,5	21,0	8,5	43,1	17,8	12,9	23,9
State																		
Acre	1,2	0,4	3,0	2,3	1,1	4,7	1,2	0,6	2,1	3,8	1,4	10,0	0,1	0,0	1,1	3,2	2,3	4,4
Amapá	2,4	1,2	4,5	2,9	1,3	6,1	5,2	3,1	8,7	2,0	0,7	5,7	3,6	1,4	8,7	1,7	1,1	2,6
Amazonas	10,5	5,0	20,9	23,2	14,3	35,4	21,7	12,6	34,9	9,1	2,9	24,7	13,1	4,3	33,5	12,4	8,5	17,7
Maranhão	43,8	31,0	57,5	22,3	11,1	39,8	5,3	2,5	10,8	47,4	20,0	76,4	17,6	8,8	32,0	25,3	19,1	32,5
Mato Grosso	6,2	2,7	13,6	4,2	1,7	10,0	9,3	3,9	20,6	7,6	2,2	23,0	10,8	3,9	26,4	17,5	12,6	24,0
Pará	31,8	20,2	46,3	31,8	20,0	46,5	45,9	32,4	60,1	16,0	5,4	38,9	45,0	25,8	65,9	20,4	15,0	27,2
Rondônia	2,0	0,6	6,6	2,6	1,2	5,3	6,3	2,7	13,9	10,1	3,8	23,9	0,5	0,1	3,9	10,2	7,3	13,9
Roraima	0,1	0,0	0,5	6,0	3,6	9,7	0,7	0,2	2,9	0,5	0,2	1,6	1,3	0,4	4,2	2,9	1,9	4,3
Tocantins	1,9	0,6	5,7	4,8	2,1	10,3	4,3	1,5	11,7	3,6	0,9	13,3	7,9	3,5	16,6	6,5	4,5	9,3
Dependent on SUS																		
No	9,5	4,6	18,9	21,2	12,1	34,5	20,8	11,4	34,9	9,1	3,2	23,4	7,1	2,8	17,0	18,4	13,6	24,3
Yes	90,5	81,1	95,4	78,8	65,5	87,9	79,2	65,1	88,6	90,9	76,6	96,8	92,9	83,0	97,2	81,6	75,7	86,4

Notes: " - " = No respondents for the category. The "other" category includes extractivists, rafters, terreiro people/people of the African matrix, babaçu coconut breakers, rubber tappers, in addition to the "other" option provided for in the questionnaire.

Table 38. Prevalence of personal experience and behavioral engagement with climate change, according to traditional peoples or communities. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Artisanal fishermen			Indigenous Peoples			Ribeirinhos			Extractivists			Quilombola peoples			Other		
	%	CI95%		%	CI95%		%	CI95%		%	CI95%		%	CI95%		%	CI95%	
Personal experience with climate change																		
I was directly affected by climate change	43,3	30,4	57,1	41,4	27,9	56,3	39,7	27,1	54,0	56,8	28,9	81,0	45,4	26,3	65,9	39,8	33,1	46,9
I know someone who has been directly affected by climate change	44,7	31,8	58,4	45,6	32,1	59,7	50,3	36,6	63,9	74,0	50,4	88,9	63,0	43,8	78,8	44,1	37,2	51,2
I noticed a change in a place that is important to me due to climate change	35,8	23,8	49,8	30,6	20,2	43,5	41,7	28,8	55,9	61,1	33,2	83,3	29,9	14,8	51,2	37,9	31,4	45,0
Behavioral engagement with climate change																		
I wish I had behaved more sustainably	55,3	41,9	68,1	56,2	42,3	69,1	56,0	41,9	69,2	60,0	32,0	82,7	59,2	38,4	77,2	51,3	44,3	58,2
I recycle	52,8	39,3	65,9	43,7	30,8	57,4	49,3	35,6	63,0	24,8	11,1	46,7	50,7	30,9	70,2	41,1	34,4	48,2
I turn off the lights	78,6	66,7	87,1	68,4	54,2	79,8	80,4	67,1	89,2	66,6	39,6	85,8	87,1	72,4	94,5	75,9	69,0	81,6
I try to reduce my behaviors that contribute to climate change	62,0	48,6	73,8	55,4	41,0	69,0	57,4	43,2	70,5	43,5	19,4	71,0	46,9	28,0	66,7	59,9	52,9	66,6
I feel guilty about wasting energy	46,0	32,8	59,7	51,5	37,7	65,1	44,6	31,3	58,8	52,3	24,4	78,9	60,2	39,9	77,4	39,4	32,8	46,4
I believe I can do something to help solve climate change	51,4	38,0	64,7	51,0	37,3	64,6	59,2	45,3	71,8	75,4	52,2	89,6	52,1	32,0	71,6	55,0	47,9	61,8

Note: The "other" category includes extractivists, rafters, terreiro people/people of the African matrix, babaçu coconut breakers, rubber tappers, in addition to the "other" option provided for in the questionnaire.

Table 39. Prevalence of environmental attitudes, according to traditional peoples or communities. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Artisanal fishermen			Indigenous Peoples			Ribeirinhos			Extractivists			Quilombola peoples			Other		
	%	CI95%		%	CI95%		%	CI95%		%	CI95%		%	CI95%		%	CI95%	
Usually separates garbage for recycling	71,2	57,7	81,8	69,8	56,5	80,4	74,8	62,6	84,0	58,1	25,8	84,7	68,5	46,9	84,3	70,7	64,2	76,5
Stopped buying or using any product that harms the environment	69,2	56,5	79,5	69,4	55,7	80,4	66,5	51,9	78,5	46,8	21,2	74,1	66,8	46,3	82,5	72,8	66,4	78,4
Believes that climate change is occurring in Brazil and the world in the last 2 years	84,4	72,2	91,9	90,3	79,1	95,8	94,9	90,2	97,4	93,4	82,1	97,8	77,2	52,6	91,2	85,6	79,2	90,3
Believes that the world is experiencing global warming	90,7	82,1	95,4	89,7	77,4	95,7	95,7	90,5	98,1	92,8	78,5	97,9	88,0	65,5	96,6	91,7	88,1	94,3

Table 40. Prevalence of self-reporting on climatic events, according to traditional peoples or communities. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Artisanal fishermen			Indigenous Peoples			Ribeirinhos			Extractivists			Quilombola peoples			Other		
	%	CI95%		%	CI95%		%	CI95%		%	CI95%		%	CI95%		%	CI95%	
Worsening water quality	21,1	12,1	34,4	30,9	17,9	47,8	37,6	25,2	51,9	17,1	5,9	40,6	10,2	4,7	20,9	21,7	16,4	28,3
Heatwave with temperatures above local average	68,8	55,1	79,9	66,7	53,0	78,0	73,5	59,2	84,1	77,5	57,2	89,9	64,3	45,5	79,5	62,4	55,4	68,9
Persistent drought, exacerbated by more heat and less rain	28,4	17,8	42,1	36,2	22,9	52,0	49,7	36,1	63,3	13,5	5,7	28,7	12,7	6,4	23,7	29,0	23,1	35,7
Environmental deforestation	25,4	15,3	38,9	38,5	25,0	53,9	48,8	35,3	62,5	12,0	5,1	25,6	13,2	6,8	24,1	31,9	25,4	39,1
Forest fires with intense smoke affecting daily activities	26,2	15,8	40,1	35,7	22,5	51,5	44,2	31,2	58,2	9,7	4,1	21,2	9,6	4,9	18,0	28,1	22,1	35,0
Issue with food production	24,7	14,6	38,6	23,8	12,4	40,7	36,4	23,9	51,1	7,8	3,0	18,5	10,7	5,2	20,8	18,5	13,6	24,6
Flooding with changing rainfall patterns	17,9	9,5	31,1	30,8	17,8	47,7	24,2	14,3	37,9	12,3	3,4	36,0	8,8	4,0	18,4	19,9	15,2	25,7
Worsening air quality	16,0	8,7	27,7	27,1	15,4	43,2	42,0	29,2	56,0	8,4	3,4	19,2	8,3	4,0	16,6	27,9	21,8	34,9
Colder than normal	22,1	12,5	36,0	7,0	4,3	11,3	18,5	8,9	34,5	3,6	0,7	15,9	5,3	1,0	23,1	14,5	10,1	20,3

Table 41. Prevalence of self-reporting on the influence of global warming in the region where they live, according to traditional peoples or communities. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Artisanal fishermen				Indigenous Peoples				Ribeirinhos				Extractivists				Quilombola peoples				Other			
	%	CI95%			%	CI95%			%	CI95%			%	CI95%			%	CI95%			%	CI95%		
Rising food prices	80,2	68,3	-	88,4	83,8	73,2	-	90,7	87,8	80,3	-	92,7	59,1	26,0	-	85,6	79,8	60,9	-	90,9	77,8	72,2	-	82,6
Increased air pollution	75,5	62,6	-	85,0	84,8	73,3	-	91,9	82,7	71,4	-	90,1	73,3	49,6	-	88,5	80,9	61,6	-	91,8	73,2	66,9	-	78,7
Increase in average temperature	79,3	66,6	-	88,0	76,0	62,0	-	86,1	88,7	76,9	-	94,8	84,4	66,9	-	93,6	87,6	65,6	-	96,4	82,7	76,9	-	87,2
Increased energy bill	76,4	62,6	-	86,2	81,2	68,6	-	89,5	88,9	81,4	-	93,6	79,1	58,6	-	91,0	88,7	69,3	-	96,5	84,2	78,4	-	88,6
More environmental disasters happening	63,7	49,9	-	75,5	76,0	62,3	-	85,8	85,8	77,2	-	91,5	79,9	58,0	-	92,0	83,3	63,7	-	93,4	76,5	70,1	-	81,9
Increased rainfall	43,7	30,9	-	57,4	56,7	43,1	-	69,4	46,8	33,5	-	60,6	70,1	46,1	-	86,5	47,2	28,3	-	66,9	43,6	36,8	-	50,6
Decreased rainfall	76,5	63,3	-	86,0	65,0	51,5	-	76,4	69,7	56,4	-	80,4	43,0	19,7	-	70,0	56,8	36,3	-	75,2	68,4	61,6	-	74,5

Table 42. Proportional distribution of responses on food access and quality, according to traditional peoples or communities. (Climate and Health in the Legal Amazon, 2025).

Variables	Artisanal fishermen				Indigenous peoples				Ribeirinhos				Extractivists				Quilombola peoples				Other			
	%	CI95%			%	CI95%			%	CI95%			%	CI95%			%	CI95%			%	CI95%		
Did you worry that the food in your home would run out before you could buy, receive or produce more?	73.2	60.1	-	83.3	65.6	51.4	-	77.4	74.1	61.7	-	83.6	40.4	18.5	-	66.9	69.6	50.5	-	83.6	54.8	50.7	-	58.7
Did the food run out before you could afford to buy more?	72.0	59.3	-	81.9	59.3	45.6	-	71.6	59.2	45.1	-	71.9	59.8	32.8	-	82.0	67.7	48.0	-	82.6	43.0	38.9	-	47.2
Did you run out of money to have a healthy and varied diet?	77.6	65.2	-	86.6	67.3	53.6	-	78.5	69.3	54.6	-	80.9	78.2	54.0	-	91.6	82.5	64.4	-	92.5	57.5	53.5	-	61.4
Have any adults in your household decreased the amount of food in their meals or skipped meals for lack of money?	61.3	48.0	-	73.2	46.6	33.6	-	60.2	41.7	29.4	-	55.2	30.2	13.2	-	55.0	49.9	30.6	-	69.2	31.8	27.9	-	36.0
Did you eat less than you thought you should for lack of money?	66.0	53.0	-	76.9	59.2	44.6	-	72.4	53.2	39.2	-	66.7	35.1	15.9	-	60.9	57.2	37.6	-	74.7	40.9	36.8	-	45.1
In the last year have you worried that the food in your home would run out due to the impact of a drought or flood period?	68.4	55.6	-	78.9	54.0	39.9	-	67.5	65.2	51.3	-	76.9	30.2	13.2	-	55.1	66.3	46.9	-	81.4	32.2	28.7	-	36.0

Table 43. Prevalence of self-reporting on problems with pollution, according to traditional peoples or communities. More Data Better Health (Climate and Health in the Legal Amazon, 2025).

Variables	Artisanal fishermen				Indigenous Peoples				Ribeirinhos				Extractivists				Quilombola peoples				Other			
	%	CI95%			%	CI95%			%	CI95%			%	CI95%			%	CI95%			%	CI95%		
Lives in a place that is																								
Very polluted	13,4	6,6	-	25,3	8,5	3,5	-	19,1	7,6	4,1	-	13,8	8,9	3,1	-	22,8	20,7	7,3	-	46,3	11,8	8,1	-	16,7
Little polluted	47,6	34,6	-	60,9	53,1	39,5	-	66,3	68,4	55,4	-	79,1	27,3	11,7	-	51,4	49,5	30,3	-	68,9	46,4	39,5	-	53,5
Unpolluted	34,1	22,2	-	48,4	32,7	21,2	-	46,7	15,8	8,5	-	27,5	59,5	33,0	-	81,5	26,5	12,5	-	47,7	29,6	23,6	-	36,5
Living in this place can harm your health																								
Does a lot of harm	20,0	11,0	-	33,4	15,4	8,6	-	26,1	15,5	7,1	-	30,8	10,3	2,3	-	35,5	5,2	1,7	-	14,6	11,1	7,5	-	16,2
Does little harm	37,5	25,5	-	51,2	38,1	26,4	-	51,4	39,2	27,1	-	52,8	17,1	7,3	-	35,1	36,5	19,9	-	57,2	32,7	26,5	-	39,5
Does not harm	38,7	26,7	-	52,3	43,8	30,3	-	58,3	37,2	24,9	-	51,4	72,0	47,6	-	87,9	56,4	36,6	-	74,4	47,6	40,6	-	54,6

Conclusion

The findings in this report converge to a clear picture: in the Legal Amazon, climate change, the environment and health are intrinsically connected, and traditional peoples and communities occupy a central position both in the perception and in the response to this crisis.

In the field of climate anxiety, it is evident that these groups not only experience more direct exposures to climatic events but also develop a more acute awareness of their effects, as the transformations affect territories, ways of life, socio-cultural and economic practices, and community networks. This situated experience produces a detailed reading of risks and reaffirms the value of solutions anchored in local realities.

In terms of behavioral engagement, there is a greater predisposition among traditional peoples and communities to adopt daily mitigation practices. This disposition seems to emerge from the intimate relationship with the territory, the care for common goods and the appreciation of collectivity. This engagement, when supported by consistent public policy, has the potential to radiate lasting behavioral changes beyond these groups.

In the environmental axis, an important portion of the population of the Legal Amazon already practices sustainable actions even without adequate infrastructure. An emblematic case is the separation of waste in contexts where municipal separate collection is not a reality. Attention is drawn to the superior performance of traditional peoples and communities in this practice, possibly associated with community organization, forms of income generation and cultural processes of care. In parallel, the advancement of more sustainable consumption habits shows the positive effects of informative strategies and greater access to information on production and environmental impacts, influencing choices in retail and household routines. The data also reinforce the need for studies that consider Amazonian specificities, to understand, for example, why women report greater perception of climate impacts, a crucial point for policies focused on communication, social protection and health.

The pollution chapter signals the urgency of intersectoral policies that integrate prevention, surveillance and environmental and epidemiological monitoring. Measures

for controlling fires and deforestation, strict regulation of industrial activities and waste disposal, and tackling highly polluting activities, such as mining, are strategic. Environmental and health education should permeate school curricula, as well as community campaigns and initiatives aimed at the elderly population. This group shows a reduced perception of impacts, although it may be more vulnerable to direct effects. Considering a Planetary Health perspective, protecting traditional territories is simultaneously securing rights and preserving key ecosystems for climate regulation and biodiversity. Lifestyles in balance with the environment tend to reduce exposure to pollutants and produce environmental and health co-benefits that go beyond the local scale.

By bringing a specific look at the traditional communities of the region, the importance of investing in public policies that respect sociocultural diversity, protect territories and expand access to health becomes evident, since these measures are strategically important to reducing regional inequalities and enabling sustainable solutions with global impact, given the role of the Amazon in climate regulation.

The survey makes clear the influence of global warming in the territory, with climate impacts already making themselves felt in everyday life: increased cost of living, instability of rainfall, intensification of environmental disasters and direct effects on health, from thermal stress to the increased risk of heat-related diseases, with losses to work capacity and well-being. These effects are directly connected to food security, which tends to deteriorate in the face of rising prices and environmental degradation. Thus, the necessary response is twofold and integrated: mitigation (reducing emissions associated with deforestation and burning, encouraging sustainable agricultural practices) and adaptation (climate and epidemiological monitoring, social protection and design of policies that prioritize women, traditional peoples and low-income families, more exposed and often with an increased perception of risks).

Addressing the climate crisis in the Amazon is more than an environmental agenda: it is an agenda of public health, social protection and insurance of rights. The data point to concrete paths: strengthening the role of traditional peoples and communities; expanding education and communication in health and the environment; improving monitoring and enforcement; and integrating mitigation and adaptation with a focus on the most vulnerable groups. The adoption of these guidelines increases the capacity for collective action, preserves vital ecosystems and promotes lasting co-benefits for the health of Amazonian populations and for the planet's climate balance.

When we look at the findings related to food access and quality, we see a broad and unequal picture of challenges in the Legal Amazon, strongly influenced by social, economic, environmental and cultural determinants. The perceptions collected show that ensuring access to healthy, varied and sufficient food still constitutes a daily challenge for a large part of the population, especially among traditional peoples and communities and groups in greater socioeconomic vulnerability.

Given this scenario, public policies aimed at food and nutrition security need to recognize and address the interconnection between poverty, climate vulnerability and access to food, promoting intersectoral actions that articulate the health, social assistance, agriculture, environment, education and regional development sectors.

Intersectorality is essential for formulating integrated strategies for territorial protection, valorization of local food and cultural practices, and strengthening community resilience to climate change. This ranges from supporting the production and marketing of local and sustainable food to promoting adequate and healthy food in schools, participatory monitoring of food insecurity and strengthening Primary Health Care as a gateway to food and nutrition promotion and surveillance actions.

Acknowledgement

We thank Atlas Intel, the company responsible for conducting the data collection for this survey, for its technical partnership and commitment to the methodological quality of the research. We also extend our sincere appreciation to all the people who took the time to answer the questionnaire. Their participation was essential to produce evidence that contributes to the strengthening of public health policies in Brazil.

Annex 1

AtlasIntel

Quantitative Survey 2025
Vital Strategies <> AtlasIntel
More Data Better Health

Questionnaire - More Data Better Health - Legal Amazon (Second Round)

Block 1: Profile questions

1. **What is the state of the Legal Amazon that you currently live in? [Selection Menu]**

- Acre
- Amapá
- Amazonas
- Mato Grosso
- Pará
- Rondônia
- Roraima
- Tocantins
- Part of Maranhão

2. **What is the municipality where you live?**

[Conditional on the option checked in the previous question]

3. **Which region do you live in?**

- Capital/Metropolitan Region
- Countryside
- Rural area

4. **What is your sex?**

- Male
- Female
- Other
- I'd rather not say

5. **What is your skin color/race?**

[IBGE categories]

- White
- Black
- Brown
- Yellow
- Indigenous

6. **Do you identify as part of any traditional peoples or communities listed below?**

- Extractivists
- Rafters
- Artisanal fishermen
- Indigenous peoples
- *Quilombola* peoples

- *Terreiro* peoples/African Matrix peoples
- *Babaçu* coconut breakers
- *Ribeirinhos*
- Rubber tappers
- Other
- I am not part of any traditional people or community

7. **Are you Brazilian?**
- Yes
- No

8. **What is your age?**

List of ages

9. **What is your income?**
- Up to R$2.000
- R$2.000-R$3.000
- R$3.000-R$5.000
- R$5.000-R$10.000
- Above R$10.000

10. **What is your level of education?**
- Did not go to school
- Incomplete basic education
- Complete basic education
- Complete high school
- Complete higher education

11. **Do you use the Unified Health System (SUS)?**
- Yes
- No

12. **What type(s) of Health Service(s) do you usually use?**

Check all relevant options.
- Public Health Network (Health Post, Basic Healthcare Unit, UPA, public hospital)
- Private Health Network
- Health Insurance/Health Plan

Block 2: Questions equal to Vigitel (2023) and Covitel (2023)

13. **In the last three months, have you practiced any kind of physical activity?**
- Yes
- No

14. [Conditional for those who answered yes in the previous one] What is the main type of physical activity you practiced?

In the case of multiple activities practiced, indicate the main modality.

- Walking (aside from commuting to work)
- Treadmill walking
- Running (outdoor/street running)
- Treadmill running
- Bodybuilding
- Aerobic gymnastics (spinning, step, jump, functional)
- Water aerobics
- General gymnastics (stretching, pilates, yoga)
- Swimming
- Martial arts and fighting (jiu-jitsu, karate, judo, boxing, muay thai, capoeira)
- Bicycle (includes exercise bike)
- Football/futsal
- Basketball
- Volleyball/footvolley
- Tennis
- Dance (ballet, ballroom dancing, belly dancing)
- Other

15. [Conditional to positive answer in question 13] Do you practice this activity at least once a week?

- Yes
- No

16. [Conditional to positive answer in question 13] How often do you usually practice this activity?

- 1 to 2 days a week
- 3 to 4 days a week
- 5 to 6 days a week
- Every day (including Saturday and Sunday)

17. [Conditional to positive answer in question 13] What is the duration of this activity?

- Less than 10 minutes
- Between 10 and 19 minutes
- Between 20 and 29 minutes
- Between 30 and 39 minutes
- Between 40 and 49 minutes
- Between 50 and 59 minutes
- 60 minutes or more

18. How often do you consume the following items?

	1 to 2 days a week	3 to 4 days a week	5 to 6 days a week	Every day (including Saturday and Sunday)	Almost never	Never
Beans						
Soda or artificial juice (boxed, canned or powdered juice)						

19. Do you usually consume alcohol?

- Yes
- No
- Never
- I don't want to inform this

20. **[Conditional to positive answer in question 19] How often do you usually consume?**

- 1 to 2 days a week
- 3 to 4 days a week
- 5 to 6 days a week
- Every day (including Saturday and Sunday)
- Less than 1 day per week
- Less than 1 day per month

21. **[Conditional for those who answered MEN in the profile question] In the past month, have you ever consumed five or more drinks on a single occasion?**

Five drinks for an alcoholic beverage would be five cans of beer, five glasses of wine, or five doses of cachaça, whiskey, or any other spirit.

- Yes
- No
- I do not consume alcohol

22. **[Conditional for those who answered WOMEN in the profile question] In the past month, have you ever consumed four or more drinks on a single occasion?**

Four drinks for an alcoholic beverage would be four cans of beer, four glasses of wine, or four doses of cachaça, whiskey, or any other spirit.

- Yes
- No
- I do not consume alcohol

23. Do you smoke?

- Yes, daily
- Yes, but not daily
- No

24. Do you use electronic devices with liquid nicotine or chopped tobacco leaf (electronic cigarette, electronic hookah, heated tobacco or other electronic device) to smoke or vape?

Marijuana consumption does not count.

- Yes, daily
- Yes, less than daily
- No, but I've used it in the past
- Never used

25. Has any doctor ever told you that you have any of the following conditions?

	Yes	No	Does not remember
High blood pressure			
Diabetes			
Depression			
Anxiety			
Asthmatic bronchitis			

26. In the last three months:

	Yes	No	Does not remember
Did you worry that the food in your home would run out before you could buy, receive or produce more?			
Did the food run out before you could afford to buy more?			
Did you run out of money to have a healthy and varied diet?			
Have any adults in your household decreased the amount of food in their meals or skipped meals for lack of money?			
Did you eat less than you thought you should for lack of money?			

27. In the last year have you worried that the food in your home would run out due to the impact of a drought or flood period?

- Yes
- No
- I don't remember

28. In your perception, you live in a place that is:

- Unpolluted
- Little polluted
- Very polluted
- Do not know/do not want to inform

29. Do you believe that living in this place can harm your health?

- Does not harm
- Does little harm
- Does a lot of harm
- Do not know/do not want to inform

30. How often are these statements true for you?

Use the following scale: 1 = Never, 2 = Rarely, 3 = Frequently, 4 = Always.

- I was directly affected by climate change ☆ ☆ ☆ ☆
- I know someone who has been directly affected by climate change ☆ ☆ ☆ ☆
- I noticed a change in a place that is important to me due to climate change ☆ ☆ ☆ ☆
- I wish I had behaved more sustainably ☆ ☆ ☆ ☆
- I recycle ☆ ☆ ☆ ☆
- I turn off the lights ☆ ☆ ☆ ☆
- I try to reduce my behaviors that contribute to climate change ☆ ☆ ☆ ☆
- I feel guilty about wasting energy ☆ ☆ ☆ ☆
- I believe I can do something to help solve climate change ☆ ☆ ☆ ☆

31. Thinking about issues that concern the environment, you:

	Yes	**No**
Usually separate garbage for recycling		
Stopped buying or using any product that harms the environment		
Believe that climate change is occurring in Brazil and the world in the last 2 years		
Believe that the world is experiencing global warming		

32. **In the last 2 years, have you experienced any extreme weather events/climate disasters in the region where you live?**

Check all applicable alternatives

- Yes, heatwave, with temperatures above the local average
- Yes, persistent drought, exacerbated by more heat and less rain
- Yes, environmental deforestation
- Yes, forest fires with intense smoke affecting daily activities
- Yes, floods with changing rainfall patterns

- Yes, worsening water quality
- Yes, worsening air quality
- Yes, issue with food production
- Yes, colder than normal
- No [CANCELS CHECKING OTHER OPTIONS]

33. In the region where you live, do you believe that global warming is influencing the following events?

	Yes	No	Do not know
Rising food prices			
Increased air pollution			
Increase in average temperature			
Increased energy bill			
More environmental disasters happening			
Decreased rainfall			
Increased rainfall			

mais **dados**
mais **saúde**

Support by

devive

Conducted by

UMANE

Vital Strategies