



Humanitarian Needs in a Protracted Crisis: Systemic Impact of the June 2026 Venezuelan Earthquakes

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Abstract

The Venezuelan humanitarian crisis is a protracted emergency characterized by systemic stagnation. This study measures the trend of humanitarian needs from 2020 to 2026 using the 7eed framework. The severity score reached a plateau of 16.5 (High Severity); additionally, the 2026 Need Score (130.5) represents an official baseline projection formulated prior to the June 24 seismic events. The twin earthquakes caused an estimated \$37 million in losses and added 1.3 million people to the 2026 population in need.

This methodology identified a significant correlation between the collapsed health system and crisis stagnation at a high-severity level. The Syrian emergency serves as the most accurate comparative proxy for managing this health system collapse. Addressing a health system collapsed prior to seismic events requires holistic strategies; isolated, disaster-focused interventions risk becoming temporary solutions that deepen the crisis.

Comparing pre- and post-disaster severity and need scores validates the utility of this model in recognizing acute disaster impacts within a protracted emergency. Medium- and long-term planning must adopt a Triple Nexus approach, integrating humanitarian aid, peacebuilding, and development. Ultimately, utilizing the Need Score to guide funding allocation presents a critical opportunity to reduce human suffering by overcoming inefficiencies inherent in delayed emergency decision-making.

Keywords: Humanitarian Needs, Venezuela, 7eed Framework, Health System Collapse, Protracted Crisis.



1. Introduction

The Bolivarian Republic of Venezuela encompasses a surface area of 916,447 Km² with an estimated population of 28,598,076 inhabitants, yielding a population density of 32 individuals per Km² (Spain Embassy, 2026). Over nearly three decades, the nation has grappled with a prolonged socio-political and economic crisis deeply tied to global oil price volatility (Venezuelan and Ausman, 2019). This structural vulnerability deteriorated severely after 2013, characterized by systemic institutional decay, the erosion of basic public utility provision, and widespread resource scarcity. This complex environment culminated in a multi-dimensional humanitarian and migration emergency with profound global ramifications (Venezuelan and Ausman, 2019; Weitzman and Huss, 2024).

This protracted crisis, marked by severe hyperinflation, has crippled household coping capacities. The cost of the basic food basket has risen by 350%, leaving an estimated 94% of households unable to afford essential goods and services. Concurrently, the collapse of public utility networks has systematically restricted community access to clean water, nutrition, healthcare, and electricity (IOM, 2026).

Within the healthcare sector, the degradation of services directly impacts over 70% of the population, severely compounding baseline epidemiological risks. Currently, approximately 80% of national healthcare facilities are functionally compromised due to chronic water supply failures, lack of infrastructure maintenance, and critical shortages of essential medical equipment and supplies. Furthermore, child malnutrition rates remain high in 90% of municipalities, with 40% of the population facing critical food insecurity. Reflecting these compounding vulnerabilities, the Swedish International Cooperation Agency (Sida) ranked Venezuela 13th globally in its humanitarian crisis index (Sida, 2026).

A defining feature of this crisis is the systemic fragmentation and suppression of official public health data; the country's last comprehensive health profile relies on data from 2018. According to the Pan-American Health Organization (PAHO), life expectancy at birth stood at 72.7 years in 2024, within an aging demographic where 9.7% of the population is over 65 years old. The nation's Human Development Index (HDI) has stagnated at 0.699. This stagnation is driven by a historically low investment in health systems infrastructure, with public health expenditure accounting for a mere 1.35% of the Gross Domestic Product (GDP) and 5.46% of total public spending. Consequently, out-of-pocket health expenditures account for 28.06% of total household healthcare costs, ranking as the second lowest public healthcare investment ratio in the Americas, surpassed only by Haiti (Venezuela - Country Profile, 2026).

This chronic underfunding has left the population under continuous epidemiological alert since 2020 for re-emerging infectious diseases, including cholera, dengue, malaria, and acute respiratory illness (PAHO/OPS, 2000). Immunization infrastructure has similarly weakened, with measles vaccine coverage dropping to 68%, alongside an infant mortality rate of



18 per 1,000 live births (PAHO/OPS, 2000; Venezuela - Country Profile, 2026). This baseline fragility is further quantified by the INFORM Risk Index 2026, which ranks Venezuela 65 with an overall risk score of 4.5. This index highlights a critical natural hazard exposure score of 4.8, dominated by an earthquake vulnerability rating of 9.2, coupled with a lack of coping capacity score of 4.9, driven heavily by systemic deficits in institutional governance and healthcare access (DRMKC-
70 INFORM, 2026).

The tipping point of this multi-layered emergency occurred on June 24, 2026, at 18:00 local time, when two consecutive earthquakes struck the country. The initial seismic event measured 7.2 on the Richter scale, followed immediately by a 7.5 magnitude earthquake and more than 20 aftershocks recorded into the early hours of June 25. The severe physical
75 destruction concentrated heavily across the Capital District, La Guaira, Miranda, Carabobo, and Yaracuy (OCHA, 2026a).

Ultimately, the compounding humanitarian crisis in Venezuela perfectly represents the cumulative effect of chronic political, economic, social, and disaster risk conditions. This deeply fragmented environment steadily amplifies population vulnerability and exposure, forcing public health researchers to continuously monitor evolving humanitarian needs. To
80 address this crisis, the main purpose of this study is to measure the trend of humanitarian needs in Venezuela from 2020 to 2026 using the 7eed index framework. By comparing this timeline with national health indicators and post-disaster data, this study looks beyond immediate deaths. Instead, the primary goal is to evaluate how pre-existing healthcare capacity influenced the medium-term health impacts, service interruptions, and humanitarian needs caused by the June 24th, 2026, twin earthquakes.

85 2. Method

2.1. Study Design and Data Collection: This study employed a descriptive, retrospective design utilizing document review and secondary data synthesis to evaluate humanitarian needs in the context (CDC, 2018) of the Venezuelan protracted crisis and the June 2026 seismic events. The data period covers 2020 through 2026. Official reports and statistical datasets were systematically retrieved from The World Bank, IOM, UNO OCHA, the Global Humanitarian Overview,
90 ReliefWeb, and the Disaster Risk Management Knowledge Centre (DRMKC) (IOM, 2026; OCHA, 2024; World Bank Open Data- Venezuela, 2026; Venezuela situation, 2026). It is critical to note that the 2026 data point within the 7eed framework represents an official projection generated prior to the June 24 seismic events. Consequently, this score serves as a pre-disaster baseline for the year 2026, capturing the projected trajectory of the protracted crisis independently of the subsequent environmental shock.

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Data integration prioritized official state reports; however, given the systemic fragmentation of official health data in Venezuela, supplementary data were triangulated using published academic research and grey literature. This secondary



material was included only when it was referenced within peer-reviewed or official institutional repositories, ensuring a consistent evidence chain.

2.2. Analytical Framework: The 7eed Model: Statistical modelling and programmatic validation were conducted using IBM SPSS Statistics (v. 32.0). The study applied the 7eed framework, which utilizes eight operational proxies to quantify structural need in complex emergencies. These indicators are categorized into two core dimensions:

- Vulnerability: Gross National Income (GNI) per capita Purchasing Power Parity (PPP), Under-5 Mortality Rate, Adult Literacy Rate, and Under-5 Underweight prevalence.
- Exposure: Absolute and proportional numbers of uprooted individuals, and absolute and proportional numbers of affected individuals.

Each indicator was programmatically assigned a categorical intensity weight (0.5 for low-medium, 1 for high, and 1.5 for extreme) based on standardized threshold boundaries. The composite index construction followed a two-tier aggregation protocol: (Eriksson et al., 2015). The composite mathematical construction of the index followed a two-tier aggregation protocol. First, as expressed in equation (1), the arithmetic sum of the intensity weights within the Vulnerability ($\sum V$) and Exposure ($\sum E$) categories was calculated independently. These dimension scores were subsequently multiplied to derive the comprehensive Severity Score:

- Equation (1): $\text{Severity Score} = (\sum V) \times (\sum E)$

The final, scaled Need Score is generated by multiplying this composite Severity Score by the total volume of the population affected within the humanitarian crisis (expressed in millions) as shown in equation (2):

- Equation (2): $\text{Need Score} = \text{Severity Score} \times \text{Naffected}$

Where Naffected represent the total affected population in Millions (Eriksson et al., 2015, 2016).

Table 1: Scoring Criteria for Vulnerability and Exposure Proxies within the 7eed Framework.

Indicator	Value		
	Low-medium 0.5	High 1	Extreme 1.5
Categories	Vulnerabilities		
GNI per Inhabitant on PPP (GNIPPP)	>1960	1110 - 1960	<1110
Mortality Rate U5/1000 Live (MR-U5P)	<75	75 - 110	>111
Literacy Adult: % (>14 y) (LA>14)	>70	56 - 69	<55
Underweight: (Weight for Height) % population U5 (UW-U5P)	<15	16 - 30	>30
Categories	Exposure		
Nb Uprooted in Million (Nb-UPM)	<0.6	0.6 - 1	>1
Proportion of Uprooted: % total population (%UP)	<4%	4% - 6%	>6%
Nb Affected in Million (Nb-APM)	<2.6	2.6 - 4	>4
Proportion of Affected: % total population (%AP)	<18%	18% - 33%	>33%



2.3. Contextual Analysis: To map the cumulative impact of the protracted crisis against the acute exacerbation caused by the twin earthquakes, we performed a secondary categorization. Health system performance indicators; specifically medical staff distribution per 10,000 population, basic service provision network density, and regional nutritional profiles, were mapped alongside post-disaster impact reports. This allows for an analysis of how pre-existing systemic fragility (protracted crisis) conditions the outcomes of acute environmental shocks.

2.4. Ethical consideration: As this study is based exclusively on the review and synthesis of publicly available secondary data, official reports, and de-identified institutional statistics, it does not involve direct human subject participation. Consequently, it is exempt from institutional review board (IRB) approval regarding informed consent. The study adheres to the principles of data integrity, transparency in source selection, and the objective reporting of secondary humanitarian data, ensuring no identifiable individual data was processed (CIOMS and WHO, 2016).

3. Results

3.1. Humanitarian Needs trend and health indicator in Venezuela from 2020 to 2026

The 7eed framework classifies indicators into two dimensions: Vulnerability and Exposure. Throughout the 2020–2026 period, Venezuelan vulnerability indicators reached a plateau. This is evidenced by GNI per capita (PPP), for which official World Bank data has been unavailable since 2018. While indicators such as the Under-5 Mortality Rate, literacy levels, and Under-5 underweight prevalence appeared stable in humanitarian reports, these figures often masked localized, extreme severity within the southern Venezuelan region (Caritas Venezuela, 2026; OCHA, 2025). Concurrently, exposure indicators; specifically, the number of uprooted and affected individuals, reached extreme levels, peaking in 2023 with 10.4 and 9.3 million people, respectively. Exposure metrics demonstrated fluctuations but showed a consistent upward trend, with the proportion of affected populations approaching the threshold for extreme severity, as shown in table 2.

Based on the 7eed framework calculations for the 2020–2026 period, the baseline humanitarian crisis in Venezuela displays a highly stable yet severe trajectory. Table two evidence the composite Severity Score remained completely unchanged at an elevated threshold of 16.5 across all evaluated years. In contrast, the overall Need Score fluctuated over the timeline, expanding from 115.5 in 2020 to an acute peak of 153.5 in 2023, before contracting to 118.8 in 2025. Crucially, the 2026 Need Score (130.5) represents an official annual baseline projection formulated prior to the June 24 seismic events, establishing the pre-disaster state of the population independently of the subsequent environmental shock.

In table three the selected macroeconomic and health workforce indicators demonstrate significant structural constraints within the national infrastructure leading up to 2026. According to World Bank registries, Gross National Income (GNI) per capita via the Atlas method increased steadily, rising from 1,670 to 3,860 between 2020 and 2025. However, this macro-



155 fiscal growth occurred alongside a contraction in public healthcare financing, with current health expenditures decreasing from 4.12% to 3.78% of the Gross Domestic Product (GDP) by 2023, while out-of-pocket spending remained high at nearly 28.06%. Additionally, vital health workforce registries exhibit a severe reporting deficit, as active data for the density of doctors, nurses, and midwives completely stall after the 2017–2018 reporting periods.

Table 2: Trends in Venezuelan Humanitarian Needs During the 2020–2026 Period Based on the 7eed Framework.

7eed Indicators	Period						
	2020	2021	2022	2023	2024	2025	2026*
Vulnerability							
GNIPPP	Extreme	Extreme	Extreme	Extreme	Extreme	Extreme	Extreme
MR-U5P	Low-Medium	Low-Medium	Low-Medium	Low-Medium	Low-Medium	Low-Medium	Low-Medium
LA>14	Low-Medium	Low-Medium	Low-Medium	Low-Medium	Low-Medium	Low-Medium	Low-Medium
UW-U5P	Low-Medium	Low-Medium	Low-Medium	Low-Medium	Low-Medium	Low-Medium	Low-Medium
Exposures							
Nb-UPM	Extreme	Extreme	Extreme	Extreme	Extreme	Extreme	Extreme
%UP	Extreme	Extreme	Extreme	Extreme	Extreme	Extreme	Extreme
Nb-APM	Extreme	Extreme	Extreme	Extreme	Extreme	Extreme	Extreme
%AP	High	High	High	High	High	High	High
Score							
Severity	16.5	16.5	16.5	16.5	16.5	16.5	16.5
Need	High	High	High	High	High	High	High
	115.5	118.8	138.6	153.5	146.9	118.8	130.5
							151.8**

Note: *2026 data is related to the projection of the 2026 operational plan of Humanitarian Agencies. ** Adjusted Need score with the increase of 1.3 million of people in need from the 24 June 2026 earthquake.

Table 3: Selected Macroeconomic and Health System Indicators for Venezuela (2020-2026)

Indicator	Period						
	2020	2021	2022	2023	2024	2025	2026
GNI per Capita Atlas Method	1670	1790	2260	3040	3840	3860	-
Current health expenditure (% of GDP)	4.12	4.1	4.55	3.78	-	-	-
Out-of-pocket expenditure	28.95	28.06	24.89	29.69	-	-	-
Population growth (annual %)	-1.7	-0.7	-0.1	0.3	0.4	0.4	-
Consumer price index (2010 = 100)	Latest data 2016= 2704.3						
Poverty headcount ratio at national poverty lines (% of population)	Latest data in 2015= 33.1						
Doctors, nursing and midwives per 10,000 population	Latest data in 2018= 36.7						
Doctors per 10,000 population	Latest data in 2017= 16.6						
Nursing and midwives per 10,000 population	Latest data in 2018= 20						



160 3.2. The Venezuelan health system condition prior to the 24 June 2026 earthquake.

Venezuela's public healthcare infrastructure operates nominally as a fragmented, multi-tiered network under the historical administrative framework established by Bonvecchio et al. in 2011 (Bonvecchio et al., 2011). Although this blueprint persists as the state's formal legal design, systemic structural decay has severely compromised its contemporary operational capacity (Días Polanco, 2026). To establish a rigorous pre-disaster baseline, the systemic functionality and institutional
165 limitations of this network are evaluated using the standardized WHO Six Building Blocks framework (WHO, 2010).

3.2.1. Leadership and Governance: Venezuela's health system features a highly fragmented architecture split into private and public sectors, resulting in deep inequalities in service access. The public sector, nominally coordinated by the Ministry of Health, comprises six disjointed subsystems: the States Directorate of Health and Social Development, the Venezuelan
170 Institute of Social Security (IVSS), the Army's Institute of Social Provision (IPSFA), the Ministry of Education's IPASME, the state oil company (PDVSA), and the Barrio Adentro primary care program (Bonvecchio et al., 2011). Beyond this structural segmentation, explicit ministerial rectorship is severely compromised by a lack of statutory regulation and institutional transparency. This regulatory deficit is further compounded by a shared leadership model with the Misión Médica Cubana, a cooperation agreement that splits decision-making authorities across multiple healthcare facilities and
175 subsystems (Días Polanco, 2026).

3.2.2. Financing: Governance fragmentation creates a structurally complex financing mechanism split into three primary funding channels: social security coverage for formal sector employees, direct Ministry of Health allocations for informal or unemployed populations, and household out-of-pocket spending (Bonvecchio et al., 2011). This disjointed fiscal architecture
180 prevents the effective pooling of public taxation funds for systematic healthcare investment. Furthermore, systemic corruption and the diversion of resources toward political activities inside the facilitates, compound these budgetary deficits. Consequently, public sector users face high out-of-pocket expenditures, forcing patients to directly finance basic medical supplies or informally subsidize medical staff to secure essential surgical and clinical procedures (Días Polanco, 2026).

3.2.3. Access to Essential Medicines: The 2024 National Hospital Survey documented profound shortages in essential pharmaceuticals and clinical supplies across tertiary networks, led by deficits in asthma inhalers, analgesics, and antihypertensives. Emergency departments experienced a 36% supply shortage, highlighted by an 85% scarcity of medical oxygen, with Carabobo State most acutely affected Operating rooms faced a 74% resource deficit—peaking in Táchira State; while national blood banks reported a 100% supply failure. Consequently, 91% of hospitals required patients to
185 independently provide surgical inputs, averaging \$103 per procedure. Relative to the national monthly minimum wage (\$3.50), this cost represents an insurmountable 29-month salary barrier for basic surgical access. Additionally, 46% of institutional liaisons reported informal, illicit patient payment solicitations, while primary healthcare pharmaceutical metrics remained entirely unavailable (ENH, 2024).
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195 3.2.4. Health Information Systems: A defining systemic constraint is the chronic deficit of public health data, marked by
the complete cessation of official epidemiological bulletins since 2016. Prior to this data blackout, historical registries from
2016–2017 documented unprecedented global increases in malaria incidence alongside severe outbreaks of measles and
diphtheria. This prolonged absence of standardized, up-to-date data completely paralyzes routine disease surveillance,
laboratory diagnostics, and outbreak preparedness, severely undermining institutional decision-making and resource
200 allocation protocols during crises (Lancet, 2026).

3.2.5. Health Workforce: Historically, Venezuela recorded 1.94 physicians and 0.08 nurses per 1,000 inhabitants; a
baseline altered when the Barrio Adentro program deployed 15,356 primary care practitioners, of whom fewer than 8% were
Venezuelan and the remainder Cuban cooperants. This foreign reliance exacerbated local medical unemployment and
205 accelerated a brain drain where 40% of newly graduated domestic physicians migrated, leaving 30% of primary health posts
vacant by 2011 after Cuban personnel were redeployed abroad (Bonvecchio et al., 2011).

This workforce depletion has intensified alongside a broader migration of 7.7 million citizens, driven by hyper-depressed
salaries (US\$20/month), institutional violence across 80% of hospitals, and severe state criminalization of health workers
210 speaking out on biosafety risks (Lancet, 2026). Frontline monitoring indicates that while critical care staffing (emergency,
intensive care, operating rooms) appears stable, this stasis does not reflect workforce retention, but rather the systematic,
internal diversion of dwindling personnel from secondary departments to cover immediate clinical emergencies (ENH, 2024)

3.2.6. Service Delivery: Current institutional data regarding the national health delivery infrastructure remains heavily
215 restricted; the last comprehensive information from 2011 outlined a network of 5,089 facilities, including 4,793 primary care
units and 296 hospitals. While the Ministry of Health administratively controls the majority, parallel public subsystems
manage 10% of primary units and 20% of hospitals, while the private sector operates 344 secondary and tertiary centres with
no formal registration of private ambulatory facilities (Bonvecchio et al., 2011). This fragmented architecture exhibits
profound operational deficits (Lancet, 2026).

220 Contemporary data from 2024 reveals a 60% deficit in national surgical capacity, reducing functional operating rooms to an
average of four per tertiary centre and completely stalling elective and oncological backlogs. Furthermore, a decade of
diagnostic underinvestment has left tomography and MRI networks non-functional, extending emergency latency to 74
minutes for acute myocardial infarctions and two hours for pneumonia (ENH, 2024).

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3.3. The Compounding Impact of the June 24, 2026, Earthquakes

230 3.3.1. Human Toll and Acute Health Demands: Following the twin consecutive earthquakes on June 24, 2026, with magnitudes of 7.2 and 7.5 respectively (OCHA, 2026a), more than 1,170 aftershocks severely disrupted search and rescue operations, generating a death toll of 4,333 reported by July 12, 2026 (OCHA, 2026b). Cumulative registries documented 6,480 rescues, 16,740 injuries, and 31,193 patients treated by different local and international medical teams. The affected regions include the Capital District (Caracas), Miranda, La Guaira, Carabobo, Yaracuy, and Falcón, with La Guaira
235 remaining the most severely impacted area (OCHA, 2026b; PAHO/OPS, 2026).

3.3.2. The infrastructure and health service provision network compromise: The combined physical impact of the twin earthquakes and subsequent aftershocks on buildings and infrastructure resulted in an estimated \$37 million in losses corresponding in a return period of 180 years base on Venezuela risk profile (UNDRR, 2026). Approximately 24 billion of
240 these losses are concentrated in housing, commerce, schools, healthcare facilities, and public infrastructure, with at least 856 buildings damaged, including 190 total collapses (OCHA, 2026b).

As of July 12, PAHO/WHO post-disaster assessments across three geographic jurisdictions (Distrito Capital, Miranda, and La Guaira) evaluated 73 facilities. The assessments revealed that 38 hospitals were affected, with 20 reporting severe
245 resource shortages, and three facilities in La Guaira rendered completely non-operational or severely limited. Figure 1 illustrates these operational capacities and patient referral pathways. Notably, the specialized Maternidad Ana Teresa de Jesús remains non-operational, while Type III facilities such as Hospital Dr. Rafael Medina Jiménez and Hospital Dr. José María Vargas exhibit highly limited functionality (PAHO/OPS, 2026). Conversely, while high-complexity Type IV referral hospitals (Hospital Dr. Miguel Pérez Carreño and Hospital Dr. Domingo Luciani) and the Type II Hospital Ciudad
250 Cariba remain fully operational, their geographic distance from the most severely impacted zones severely hinders the timely mobilization of critically ill, time-dependent patients (PAHO/OPS, 2026).

3.3.3. Service Transition and Operational Bottlenecks: The transition from acute emergency response to healthcare service restoration has highlighted severe operational challenges that compromise service continuity beyond direct structural
255 damage. Out of more than 31,000 clinical consultations, assessments documented 197 referrals, 307 hospitalizations, and 29,048 discharges due to clinical improvement. Concurrently, rapid needs assessments revealed high mental health and psychosocial support (MHPSS) needs, cited by 68% of key informants in La Guaira and 64% in Yaracuy.

Local surge capacity remains constrained by reduced bed availability, temporary service relocations, and damaged utility
260 infrastructure. This infrastructure compromise has intensified referral dependency on fully functional, high-complexity facilities, saturating tertiary networks due to weak inter-hospital coordination and unregulated patient distribution. While



emergency surgical capacity persists, it is restricted by limited operating theatre availability and supply deficits. To preserve essential system functionality, the depleted healthcare workforce faces extreme workloads and frequent emergency redeployments. Consequently, recovery priorities focus on restoring utilities, biomedical equipment, waste management, and basic support systems. Meanwhile, active epidemiological surveillance has identified high risks for communicable disease transmission, driven by overcrowding, inadequate food safety, and critical water, sanitation, and hygiene (WASH) deficits in temporary shelters (PAHO/OPS, 2026).

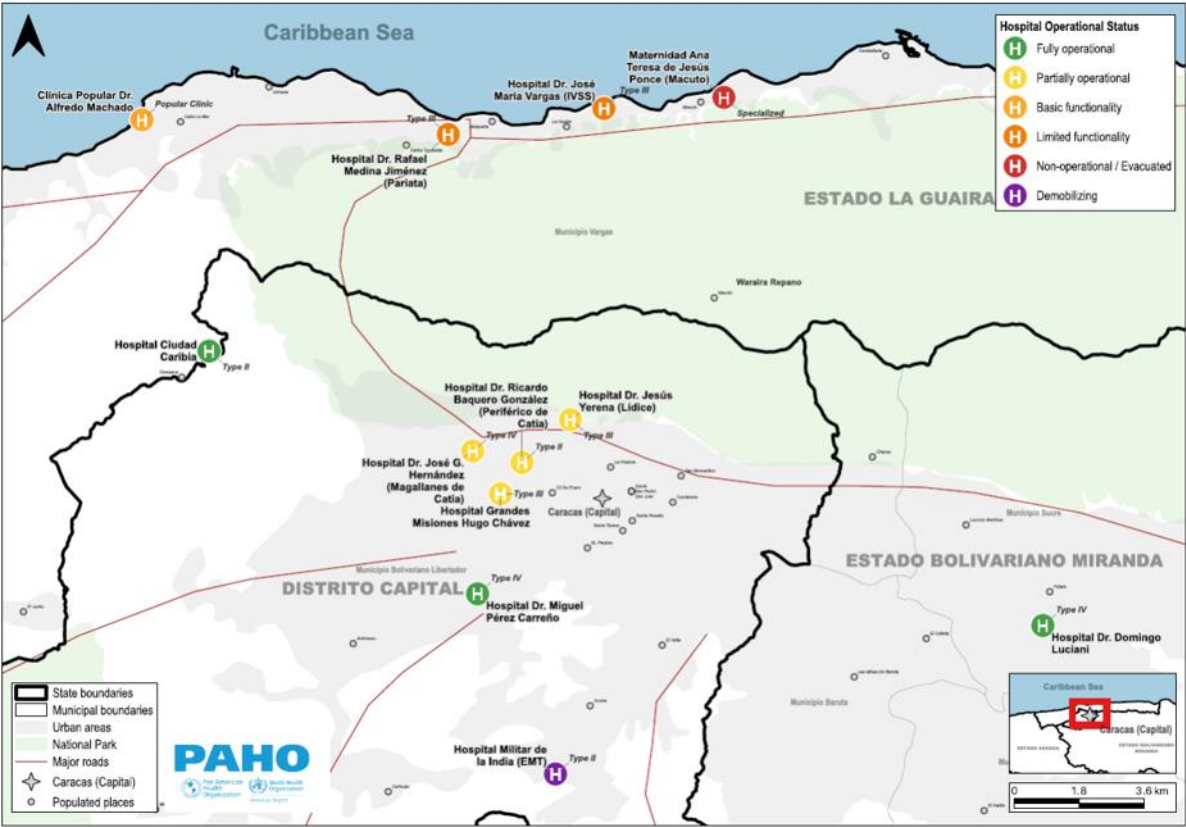


Figure 1. Operational status of assessed hospitals and patient referral pathways in Distrito Capital, Miranda, and La Guaira as of July 12, 2026. Coloured markers indicate operational functionality levels across the health network (fully operational, partially operational, basic functionality, limited functionality, non-operational/evacuated, and demobilizing). Reproduced from PAHO/OPS, 2026; © Pan American Health Organization

3.4. The Compounding Humanitarian Cascade and Displacement Risks

The disaster left approximately 17,970 individuals homeless and added 1.3 million people to the 2026 population in need, requiring a US\$298 million Humanitarian Response Plan addendum. This displaced population was mobilized across 94



280 camps (40 in Caracas, 28 in La Guaira, and 26 in Miranda). Though planned for 24,129 people, these shelters registered 18,437 occupants as of July 12 (OCHA, 2026b). Shelters face intense operational pressure and severe overcrowding, particularly in La Guaira, which hosts the highest concentration of displaced persons (PAHO/OPS, 2026).

285 Evaluations of 16 transitional camps exposed critical protection and health risks, revealing fragmented coordination between shelters and primary healthcare networks (ASICs). These assessments highlighted unclear health governance roles, non-standardized population profiling, and severe gaps in primary care access, emergency referral pathways, pharmaceutical supplies, and chronic disease treatment continuity.

290 Assessments across the 16 camps highlighted acute health and environmental vulnerabilities. All shelters required adult MHPSS spaces, while subset needs included chronic disease medications (n=12), paediatric vaccinations (n=4), nutritional screening (n=3), and antenatal consultations (n=3), emphasizing the need for integrated, shelter-based primary care. Critically, high emotional distress contrasted with limited structured psychological support. Severe WASH deficits persist: 12 camps lacked safe water storage, 5 lacked waste management plans, and several had inadequate shower facilities. In La Guaira, surveillance identified open defecation, vector risks, and unsafe food handling, elevating risks for gastrointestinal and dermatological outbreaks (PAHO/OPS, 2026). Notably, these findings represent a fluid snapshot based on evolving
295 inter-agency evaluations as of July 12, 2026.

4. Discussion

Quantifying humanitarian needs in protracted crises requires translating profound human suffering into systemic, actionable metrics. To navigate this methodological challenge, this study utilizes the 7eed framework to evaluate the synergistic relationship between structural vulnerability and population exposure in protracted crisis (Eriksson et al., 2015). Applied to
300 the Venezuelan complex emergency (the most severe contemporary humanitarian crisis in Latin America) The data demonstrate a stagnant but with a high level of crisis severity from 2020 to 2026. Driven by a failed state, the 7eed Need Score fluctuated yet remained critically high, escalating from 115.5 in 2020 to an acute peak of 153.5 in 2023, before closing the observed pre-disaster period at 130.5. Fuelled by continuous mass displacement and exacerbating geopolitical conditions, the risk that this protracted emergency will worsen is imminent.

305 The application of the 7eed framework offers an innovative approach to understanding Venezuela's protracted emergency, shifting the analysis from descriptive reporting to capturing systemic, long-term evolutionary trends. By evaluating indicators such as mortality rates, malnutrition, and coping capacities, specifically literacy and GNI per capita (Eriksson et al., 2015), the model exposes a dangerous, stagnant equilibrium. The absence of official GNI PPP data since 2016 is not
310 merely a reporting gap; it represents an extreme deficiency in household economic coping capacity, where any external shock triggers a cascading domino effect that exacerbates underlying vulnerabilities (World Bank Open Data- Venezuela, 2026). Unlike isolated reports, the 7eed framework systematically integrates these metrics, providing a comprehensive diagnostic tool that identifies the structural origins of the crisis rather than just its immediate symptoms.



315 Furthermore, the 7eed framework consolidates Venezuelan exposure metrics by unifying fragmented datasets, Such as IOM
reports on uprooted populations and the Global Humanitarian Overview's affected population figures; thereby minimizing
the extreme variability often found between different agency estimations (Eriksson et al., 2015). This standardized approach
validates the crisis's persistent high severity, aligning with PAHO Health Cluster classifications that assign Venezuela a
severity score of 3 out of 5, reaching 4 in localized regions (Health Cluster and PAHO/OPS, 2026). Consequently, the
320 model not only captures the limited impact of humanitarian interventions against the more than 50% of national exposure but
also provides a dynamic Need Score that mirrors the sector-wide increase in resource demands (Caritas Venezuela, 2026;
Health Cluster and PAHO/OPS, 2026; OCHA, 2025, 2026c). This efficacy demonstrates the model's value as a high-level
decision-support tool, streamlining the collection of disparate data and enabling policymakers to accelerate evidence-based
responses in time-sensitive complex emergencies.

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This baseline crisis stems from the compounding effects of political, economic, and social instability, which are severely
exacerbated by state coercion and the systematic suppression of humanitarian data (Jiménez and de Alba, 2026; Sida, 2026).
Macroeconomic metrics, notably the Gross National Income (GNI) per capita Atlas Method, reveal a state entirely stripped
of its capacity for public investment in health, education, and disaster preparedness. Consequently, Venezuela maintains the
330 second-lowest public health expenditure in the Americas (surpassed only by Haiti) forcing citizens to bear nearly 30% of
healthcare costs through out-of-pocket payments. This financial burden is magnified by a 33.1% national poverty rate and an
extreme Consumer Price Index (CPI) of 2704.

Ultimately, this hyper-inflationary environment forces an already vulnerable population to choose between financing their
335 own medical care and purchasing basic food, directly accelerating the risks of extreme poverty, undernutrition, and untreated
disease. Contrasting the 7eed framework with this macro indicator is possible to understand the evaluation as extreme of
the GNI PPP, with an extreme low household economic coping capacity that is exacerbated by the low level of investment of
public service including health services and with a high level of out-of-pocket health expenditure, this situation create a
structural economic crisis since the household level escalating to a systemic approach, increasing the number of affect people
340 forcing to the economic active population to emigrate and increasing the uprooted percentage on the country. This represents
a loop cycle of existing need and inadequate coping capacities that exacerbate the humanitarian complexity since an
individual, household and national level.

Contextualizing these dynamics requires comparing Venezuela to similar protracted crises to understand the evolution of
345 humanitarian needs (Eriksson et al., 2016). Because Latin America currently lacks a contemporary equivalent of this specific
state failure, the most accurate global proxy is the Syrian complex emergency (Manirambona et al., 2023). This comparison
is vital for understanding a systemic baseline just before a severe earthquake exacerbates an existing crisis, as occurred in
Syria in 2023. Although Venezuela does not experience direct armed conflict, continuous state coercion and economic



collapse have replicated the exact public health conditions typical of war zones. These include the severe breakdown of
350 community structures, extreme poverty, mass migration, and systemic unemployment, which collectively paralyze social
coping mechanisms. Furthermore, severe food insecurity, driven by physical scarcity and economic barriers; compounds
these vulnerabilities and fatally compromises access to adequate, affordable healthcare (Garry and Checchi, 2020). These
exact conditions define the contemporary Venezuelan baseline demonstrated in this study

355 The fundamental drivers of poor public health conditions in the Venezuelan crisis are intrinsically linked to health system
governance. In Syria, armed conflict and territorial control by various combatant groups resulted in highly fragmented health
governance (Alaref et al., 2023). Venezuela presents a comparable scenario, where the public health system is fractured into
six distinct subsystems driven by entirely opposing organizational visions. Specifically, the divided control between the
Ministry of Health and the Mision Medica Cubana paralyzes any strategic planning necessary to enhance the national health
360 system and service delivery network. Consequently, this study mirrors the systemic failures identified in the Syrian context,
most notably the low perceived legitimacy of current health governance, a profound lack of sectoral unification, and critical
weaknesses in operational planning models (Alaref et al., 2023).

The extreme suppression of information, lack of accountability, critical workforce deficits, and profound systemic
365 inefficiency (Alaref et al., 2023; Manirambona et al., 2023) are parallel realities observed in the Syrian context. These
identical conditions define the current health system building blocks in Venezuela, demonstrating two protracted
humanitarian crises separated only by geography. Consequently, recognizing this deteriorated baseline raises a critical
inquiry regarding the health system's capacity to prevent the escalation of humanitarian needs: its fundamental lack of
resilience against acute external threats.

370 The global response to the Ebola outbreak established the core pillars of a resilient health system: the capacity to prepare for
and respond to crises, maintain core functions during a shock, and reorganize based on learned lessons (Kruk et al., 2015).
The first pillar requires the ability to recognize a crisis and establish clear organizational roles. Venezuela's hyper-
fragmented health network and ambiguous subsystem mandates make achieving this baseline readiness a paramount
375 challenge. The second pillar demands a strong legal and political foundation to guide responses and establish accountability.
Because Venezuela lacks transparent healthcare legislation and has systematically suppressed public data since 2013, the
system remains entirely unprepared for acute shocks. The final pillar requires a stable, committed health workforce capable
of functioning in dangerous environments. As macroeconomic statistics and health block indicators demonstrate, Venezuela
suffers from a profound deficit of both medical personnel and essential supplies. Lacking all three foundational pillars of
380 resilience, any acute external threat to Venezuela is guaranteed to trigger a catastrophic humanitarian collapse.



Analysing the systemic collapse of the Venezuelan health system; specifically, regarding governance, accountability, workforce and supply deficits, and diminished resilience, reveals a profound correlation with the severity and humanitarian need scores produced by the 7eed model. The stagnation of the 7eed Severity Score at 16.5 functions as an analytical proxy for the structural inertia of the Venezuelan state; when triangulated with the WHO health system building blocks, this plateau suggests the system has reached a terminal ceiling of functionality. This crisis is not merely a consequence of inadequate humanitarian intervention but a reflection of an unviable health system that shifts the economic burden of care onto the impoverished Venezuelan household, pushing humanitarian needs beyond the capacity of aid agencies to maintain stability (Caritas Venezuela, 2026; Health Cluster and PAHO/OPS, 2026; OCHA, 2025). Consequently, humanitarian aid infrastructure acts only as a fragile barrier preventing further deterioration, but it does not address the underlying systemic failures; the 7eed model reveals that the current response is mathematically insufficient to reduce baseline severity, merely maintaining the population at a threshold of extreme, unresolved need and increasing the risk of an unstoppable exacerbation of the crisis should any external threat occur.

The fragile baseline of humanitarian need and low system resilience multiplied the destructive impact of the June 2026 earthquakes. The failure of three hospitals in La Guaira; the most severely impacted region, forced a dangerous reliance on remote facilities, overwhelming surgical and emergency networks in Distrito Capital and Miranda. This direct structural collapse was exacerbated by the delayed activation of national rescue bodies; consequently, most initial interventions were conducted by untrained volunteers and victims' families, further endangering survivors. Furthermore, the emergency response has been characterized by state coercion and the deployment of paramilitary forces. This profound lack of community trust in government bodies, combined with the collapse of essential services, significantly increases the risk of rapidly escalating violent social conflict (Jiménez and de Alba, 2026).

Integrating the 7eed framework into post-earthquake analysis provides an innovative, evidence-based approach to quantifying humanitarian needs within Venezuela's collapsed system. The model effectively captures the impact of the June 24 seismic events, where the Need Score surged from a pre-disaster baseline of 130.5 to 151.8 following the addition of 1.3 million affected individuals. Crucially, the model differentiates between chronic systemic failure; reflected in the stagnant Severity Score of 16.5, and acute disaster-induced surges. By distinguishing this static fragile wall of vulnerability from the immediate impact of environmental shocks, the model provides policymakers with a robust tool for evidence-based resource allocation, bypassing media-biased narratives in favour of standardized, quantitative analysis (Eriksson et al., 2015, 2016).

The 2023 Syrian earthquakes, which occurred amidst a profound sociopolitical crisis, offer critical lessons for the Venezuelan context. Initial responses in both settings were characterized by inadequate preparedness, critical gaps in WASH and food security, the destruction of health infrastructure, and widespread psychosocial trauma (Manirambona et al., 2023). This comparison is essential for humanitarian decision-makers; the Syrian experience demonstrates how these vulnerabilities



can trigger epidemiological crises; specifically outbreaks of cholera and vaccine-preventable diseases within four months. Given Venezuela's 68% measles vaccination coverage, these risks are acute (IMPACT, 2023; Manirambona et al., 2023). Consequently, all medium- and long-term planning must adopt a "Triple Nexus" approach (humanitarian, peace, and development). Addressing the recovery of a health system that was already collapsed prior to the seismic events requires
420 holistic strategies; isolated, disaster-focused interventions risk becoming temporary solutions that deepen the humanitarian crisis and exacerbate the negative regional impacts of the Venezuelan emergency.

This comparative analysis reinforces the utility of the 7eed framework as a standardized statistical method for evaluating protracted crises. By quantifying chronic systemic vulnerabilities and cumulative exposure, the model provides a robust
425 alternative to subjective descriptive analyses. The post-earthquake data further validates this precision: the June 24 seismic events increased the affected population by 1.3 million, triggering a quantifiable surge in the Need Score, while the static Severity Score (16.5) remained unchanged. This separation of chronic systemic vulnerability, the fragile wall, from acute disaster-induced need offers policymakers a superior, evidence-based metric for resource allocation, enabling rapid, objective comparability across complex emergency settings

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4.1. Limitation: Several limitations must be acknowledged regarding the scope and reliability of the data presented. First, the scarcity of available information should not be viewed as an isolated analytical gap, but rather as an indicator of the health system's total systemic collapse. Consequently, pre-earthquake data for 2026 relies on projections from humanitarian agency response plans, which may be subject to inherent estimation biases. Finally, this study is time-bound; the rapidly
435 evolving nature of the Venezuelan crisis implies that the cited statistics and contextual data may be subject to change as the situation develops. Future research should prioritize continuous data monitoring to adjust for these shifting variables.

5. Conclusions

The humanitarian crisis in Venezuela is the direct result of a protracted emergency characterized by systemic stagnation. The implementation of the 7eed framework proved essential, providing a standardized methodology to identify a consistent,
440 high-severity baseline that escalated sharply over the last six years. This methodology identified a significant correlation between the collapsed health system and the stagnation of the crisis at a high-severity level, a finding consistent with WHO crisis classifications. The innovative approach of comparing pre- and post-disaster severity and need scores validates the utility of this model in recognizing the acute impact of natural disasters within a protracted emergency.

445 This crisis, compounded by a severely compromised health infrastructure, created a catastrophic vulnerability that magnified the impact of the consecutive earthquakes on June 24, 2026. The Syrian emergency serves as the most accurate comparative proxy, offering critical lessons for managing health system collapse. These insights are vital for implementing evidence-



based strategic planning, specifically through the Triple Nexus approach; integrating humanitarian aid, peacebuilding, and long-term development. By treating these parallel crises as linked case studies, policymakers can better project future vulnerabilities and intervene early to mitigate humanitarian needs in other protracted settings. Ultimately, utilizing the 7eed Need Score to guide humanitarian funding allocation presents a critical opportunity to reduce human suffering by overcoming the inefficiencies inherent in delayed, time-bound emergency decision-making.

Appendix

Appendix A: Raw Data Inputs for 7eed Framework Analysis.

7eed Indicators	Period						
	2020	2021	2022	2023	2024	2025	2026*
Vulnerability							
GNIPPP	ND	ND	ND	ND	ND	ND	ND
MR-U5P	24.3	24.3	24.3	24.3	24.3	24.3	24.3
LA>14	97.6	97.6	97.6	97.6	97.6	97.6	97.6
UW-U5P	4.1	4.1	4.1	4.1	4.1	4.1	4.1
Exposures							
Nb-UPM	5.5	6.8	9.8	10.4	8.2	7.6	7.9
%UP	19.3	24.1	34.7	36.7	28.9	26.7	27.7
Nb-APM	7.0	7.2	8.4	9.3	8.9	7.2	7.9
%AP	24.6	25.5	29.8	32.8	31.3	25.2	27.7

Note: *2026 data is related to the projection of the 2026 operational plan of Humanitarian Agencies.

Data availability: The datasets analyzed during the current study are publicly available in open repositories maintained by the World Bank Group (data.worldbank.org), the International Organization for Migration (IOM) Displacement Tracking Matrix (dtm.iom.int), and the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) via the Humanitarian Data Exchange (data.humdata.org).

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Author contributions: Conceptualization: LFGG, AE; Data curation: LFGG, MH, ETW, LDV, YJJR; Formal Analysis: LFGG, AE; Investigation: LFGG, MH, ETW, LDV, YJJR; Methodology: LFGG, MH, ETW, LDV, YJJR; Project administration: AE; Resources: LFGG, AE; Software: LFGG; Supervision: AE; Data Validation: LFGG; Writing – original draft: LFGG, MH, ETW, LDV, YJJR; Writing – review & editing: LFGG, AE. Competing interests

Statement on inclusion in global research

This study relies exclusively on publicly accessible, anonymized secondary datasets provided by international organizations (World Bank Group, IOM, and UN OCHA). No primary field sampling, human subject intervention, or direct research on



Indigenous populations or protected lands was conducted by the authors. The conceptual framework was applied in alignment with international humanitarian research ethics and open data principles to ensure transparent, equitable analysis of global crisis trends

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