DISTRICT RISK PROFILES

SUBNATIONAL ASSESSMENT RESULTS

BELIZE

BELIZE

NDPBA DISTRICTS PROFILE

PDC | GLOBAL

BELIZE
BELIZE

CAPITAL: BELIZE CITY

Area: 3,711 km^2

The Belize District Is located in the Eastern region of Belize. This District is divided into 38 Cities, Towns and Villages: Belize City (The Capital), San Pedro and the main Cities and Towns. The District borders Corozal to the North, Orange Walk and Cayo to the west, Stan Creek to the south and the Atlantic Ocean to the east. The main economic sources for the country of Belize continues to be tourism, sugar, banana, citrus, marine products and crude oil.

RISK AND VULNERABILITY

COMPONENT SCORE

MULTI-HAZARD RISK (MHR) - Very Low
Score: 0.354 • Rank: 6/6

RESILIENCE (R) - Extremely High
Score: 0.591 • Rank: 1/6

MULTI-HAZARD EXPOSURE (MHE) - Low
Score: 0.145 • Rank: 5/6

VULNERABILITY (V) - Low
Score: 0.421 • Rank: 5/6

COPING CAPACITY (CC) - Extremely High
Score: 0.602 • Rank: 1/6

*For more information on data and components please visit: https://bit.ly/2LqVoUO

Population (2010 Census)
95,291

Population in lowest wealth quintile
4.3%

Population with no secondary school education
52.7%

Households with unimproved water access
7.42% households

Infant mortality rate (per 1,000 live births)
10.3

MULTI-HAZARD EXPOSURE (MHE)

RANK: 5 / 6 DISTRICTS
SCORE: 0.145

MHE
0.145

Raw MHE
0.290

Relative MHE
0.000

ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:

Earthquake
0.0%
0
–
Critical Infrastructure Exposed:
0.0%

Extreme Heat
4.1%
4,461
$31.5 Million
Critical Infrastructure Exposed:
8.9%

Flood
22.8%
24,967
$488.6 Million
Critical Infrastructure Exposed:
21.3%

Landslide
0.4%
378
$387,600
Critical Infrastructure Exposed:
0.6%

Storm Surge
37.6%
41,079
$35.4 Million
Critical Infrastructure Exposed:
28.4%

Tropical Cyclone Winds
100.0%
109,356
$1.2 Billion
Critical Infrastructure Exposed:
100.0%

Wildfire
20.9%
22,822
$299 Million
Critical Infrastructure Exposed:
20.7%

VULNERABILITY (V)

RANK: 5 / 6 DISTRICTS ASSESSED
SCORE: 0.421

Vulnerability in Belize is primarily driven by Vulnerable Health Status and Environmental Stress. The bar charts indicate the socioeconomic themes contributing to the overall Vulnerability score.

Environmental Stress

SCORE: 0.591 **RANK: 4/6** DISTRICTS ASSESSED

7.1%
Tree cover loss

-7.0%
Projected changes in annual precipitation

23.7%
Decline in land productivity

Vulnerable Health Status

SCORE: 0.793 **RANK: 2/6** DISTRICTS ASSESSED

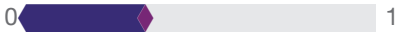
209.11
TB infections per 10k persons

322.98
Dengue incidence per 100k persons

27.95
Malaria incidence per 100k persons

Clean Water Vulnerability

SCORE: 0.346 **RANK: 5/6** DISTRICTS ASSESSED

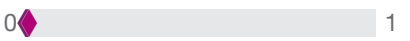


7.42%
Households with unimproved water access

2.87%
Households with unimproved sanitation

Information Access Vulnerability

SCORE: 0.01 **RANK: 6/6** DISTRICTS ASSESSED



91.4%
Adult literacy

97.9
Primary to secondary school transition rate

16.7%
Working population with no secondary school education

16.7%
Households without radio access

9.7%
Households without television access

79.0%
Households without Internet access

Economic Constraints **SCORE: 0.263** **RANK: 6/6** DISTRICTS ASSESSED

0 — 1

9.7% Average unemployment (2019)	**16.1%** Under-employment (2019)	**56.9** Economic dependency ratio	**4.3%** Population in lowest wealth quintile

Gender Inequality **SCORE: 0.461** **RANK: 3/6** DISTRICTS ASSESSED

0 — 1

355.01 Domestic violence cases per 10k persons	**0,048** Female economic opportunity score	**6** Female economic opportunity rank	**1.03** Female to male secondary school transition ratio	**0.02** Female to male income ratio	**0.23** Female to male labor force participation ratio	**0.336** Female healthcare access score

4 Female healthcare access rank	**10.3** Infant mortality rate (per 1,000 live births)	**221.9** Maternal mortality rate (per 100k live births)	**62.5** Adolescent birth rate (per 1,000 women)	**22.0%** Unmet need for contraception

Population Pressures **SCORE: 0.479** **RANK: 4/6** DISTRICTS ASSESSED

0 — 1

3.36% Average annual population change	**2.50%** Average annual urban population change	**9.20%** Prevalence of stunting

COPING CAPACITY (CC)

RANK: 1 / 6 DISTRICTS ASSESSED
SCORE: 0.602

Belize exhibits weaker Coping Capacity in the areas of Transportation Capacity and Governance. The bar charts indicate the socioeconomic themes contributing to the overall Coping Capacity score.

Economic Capacity **SCORE: 0.833** **RANK: 1/6** DISTRICTS ASSESSED

48.5%	25.4%	$611.02	$1,495.96	72.45	29.1%
Households owning homes	Change in active tourism business	Average revenue per room (BZ$)	Median monthly income (BZ$)	Labor force participation rate	Population in highest wealth quintile

Governance **SCORE: 0.484** **RANK: 4/6** DISTRICTS ASSESSED

81.7%	65.9%	53.43
Voter participation	Households with municipal garbage collection	Crime rate per 10k persons

Environmental Capacity **SCORE: 0.560** **RANK: 4/6** DISTRICTS ASSESSED

100.0%	19.1%
Land area with low interannual water variability	Percent protected land area

Infrastructure Capacity **SCORE: 0.731** **RANK: 2/6** DISTRICTS ASSESSED

Health Care Capacity **SCORE: 0.549** **RANK: 1/6** DISTRICTS ASSESSED

1.82	11.44	25.19	76.2%	14.31	12.59
Health care centers per 10,000 persons	Physicians per 10,000 persons	Nurses per 10,000 persons	Immunization coverage	Average distance to hospital (km)	Hospital beds per 10,000 persons

Transportation Capacity **SCORE: 0.442** **RANK: 4/6** DISTRICTS ASSESSED

0.4	7.1
Road density (km)	Average distance to port facility (km)

Communications Capacity **SCORE: 1.000** **RANK: 1/6** DISTRICTS ASSESSED

0.98
Average distance to cell tower (km)

30.6%
Households with fixed phone

86.8%
Households with mobile phone

Energy Capacity **SCORE: 0.984** **RANK: 1/6** DISTRICTS ASSESSED

97.3%
Households with electricity

91.5%
Households using gas for cooking

Emergency Services Capacity **SCORE: 0.681** **RANK: 2/6** DISTRICTS ASSESSED

741
Emergency shelter capacity per 10,000 persons

13.7
Average distance to warehouse (km)

2.1
Average distance to emergency shelter (km)

8.1
Average distance to fire station (km)

3.9
Average distance to police station (km)

RESILIENCE (R)

RANK: 1 / 6 DISTRICTS ASSESSED
SCORE: 0.591

Belize's score and ranking are due to Low Vulnerability combined with Extremely High Coping Capacity scores.

Below are the four thematic areas with the weakest relative scores:

- **Vulnerable Health Status**
- **Environmental Stress**
- **Transportation Capacity**
- **Governance**

HAZARD-SPECIFIC RISK (HSR)

Earthquake
RANK: 3 / 6 DISTRICTS ASSESSED
SCORE: 0.000

Extreme Heat
RANK: 4 / 6 DISTRICTS ASSESSED
SCORE: 0.054

Flood
RANK: 3 / 6 DISTRICTS ASSESSED
SCORE: 0.230

Landslide
RANK: 5 / 6 DISTRICTS ASSESSED
SCORE: 0.022

Storm Surge
RANK: 1 / 6 DISTRICTS ASSESSED
SCORE: 0.344

Tropical Cyclone Winds
RANK: 3 / 6 DISTRICTS ASSESSED
SCORE: 0.326

Wildfire
RANK: 6 / 6 DISTRICTS ASSESSED
SCORE: 0.002

MULTI-HAZARD RISK (MHR)

6 / 6
RANK WITHIN DISTRICTS
SCORE: 0.354

Belize's score and ranking are due to Low Multi-hazard Exposure combined with Low Vulnerability and Extremely High Coping Capacity scores.

Multi-hazard risk component scores compared to overall average country scores:

BELIZE SCORE
COUNTRY SCORE

Multi-Hazard Exposure

0.145
0.371

Vulnerability

0.421
0.509

Coping Capacity

0.602
0.470

BELIZE RECOMMENDATIONS

1

Vulnerable Health Status

Belize ranks the second highest in the country for Vulnerable Health Status. Contributing to the high score is high Dengue Fever rates and high Tuberculosis rates. Public health campaigns can help address vaccinating against Dengue. In addition to vaccination campaigns for citizens, practice and develop mosquito mitigation plans. Mosquitos that carry Dengue can also carry chikungunya and zika. Standing water, inadequate sanitation, as well as inadequate and irregular garbage collection can all contribute to higher levels of mosquitos.

Belize is one of the countries reporting zero malaria cases since 2019 (PAHO/WHO, 2021). Lessons learned from this success could prove integral in the control of Dengue. Strengthen continuous capacity building for prompt and accurate testing, create programs for surveillance, case investigations and management, as well as conducting risk assessments to identify areas with a higher risk of transmission. In addition to mosquito mitigation, educate on the proper use of mosquito netting and prevention of mosquito bites through garments and repellants. Identify areas following hurricanes and storms that may collect water and develop a plan to remove the standing water at first opportunity.

In the case of Tuberculosis, immunization campaigns can be helpful, but so can improving environmental health conditions like indoor air quality during cooking, reducing overcrowded living circumstances and improving nutrition among the impoverished. Early diagnosis of tuberculosis, systematic screening and treatment, collaborative tuberculosis/HIV activities, and preventive treatment of persons at high risk are among the pillars of the World Health Organization's Global Tuberculosis Strategy to end Tuberculosis worldwide (WHO, 2014).

BELIZE RECOMMENDATIONS

2

Environmental Stress

Environmental stressors such as the depletion, degradation, or contamination of natural resources can exacerbate natural hazards and negatively impact the health, safety, and economic security of Belize's population. Although Belize district only ranks fourth in the country in environmental stress, high poverty rates, income inequality, clean water access vulnerability, and hazard exposures can be further exacerbated by environmental stressors. Unsustainable development contributes to increased risk of economic upheaval, force migration, and depletion of already limited resources. Promoting environmental health and mitigating sources of environmental stress will also help to safeguard against negative impacts to the tourism industry in Belize.

Environmental protection is vital to ensuring sustainable development within Belize. Continue to monitor and address sustainable development goals across all sectors (health, education, housing) to mitigate negative impacts associated with development. Identify areas where sustainable development and improvement may help mitigate mosquitos. Areas such as building window improvements, creation of proper outdoor drainage systems, and identifying areas that can hold standing water can all address both environmental stress and reducing vulnerable health status and the spread of disease.

BELIZE RECOMMENDATIONS

3

Transportation Capacity

Belize ranks 4th of 6 Districts in Transportation Capacity. Limited transportation capacity can hamper emergency response activities and decrease public access to vital resources such as adequate healthcare and food. Additionally, it can create further strain on citizens and the economy due to the need to travel greater distances for job opportunities, health care, and education. Reduce the distances to airports and ports from populated areas and identify new or improve emergency routes for densely populated areas. 100% of Belize district's population is exposed to hurricane winds, with 38% exposed to storm surge and 22% to other inland flooding, so it is important to maintain evacuation routes and supply chain pathways.

Identify areas with limited transportation opportunities to identify the best project areas where increasing transportation capacity has the highest impact. Ensure new transportation routes are developed within sustainable development guidelines with proper materials. Evaluate land, sea, and air transportation routes to ensure sufficient access during normal operations and times of disaster.

In the case of Tuberculosis, immunization campaigns can be helpful, but so can improving environmental health conditions like indoor air quality during cooking, reducing overcrowded living circumstances and improving nutrition among the impoverished. Early diagnosis of tuberculosis, systematic screening and treatment, collaborative tuberculosis/HIV activities, and preventive treatment of persons at high risk are among the pillars of the World Health Organization's Global Tuberculosis Strategy to end Tuberculosis worldwide (WHO, 2014).

BELIZE RECOMMENDATIONS

4

Governance

Belize ranks 4th of 6 districts in Governance. Contributing to the low score is the highest major crime rate per 10,000 persons. High crime rates break down neighborhoods, degrade social and community ties, and destabilize civil society. Belize also ranks 3rd of 6 for voter participation. Low voter participation can mean disillusionment, indifference with the government, or lack of faith in government functions. This can directly impact a person's choices to participate in criminal activities.

Address high crime rates through addressing the drivers of criminal activity in society. Create social programs to assist lower income populations in adequate shelters and needs. Additionally, increase community presence to reduce criminal activity through programs such as COMPSTAT. Work to build faith in the citizens through community outreach and education programs to increase civic participation.

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BELIZE

CAYO

NDPBA DISTRICTS PROFILE

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BELIZE
CAYO

CAPITAL: SAN IGNACIO

Area: 5,820 km^2

The Cayo District Is located in the Western region of Belize. This District is divided into 47 Cities, Towns and Villages: San Ignacio (The Capital), Belmopan, Benque Viejo del Carmen and Santa Elena and the main Cities and Towns. The District borders Guatemala to the west, Orange Walk to the north, Belize and Stann Creek to the east and Toledo to the south. The main economic sources for the country of Belize continues to be tourism, sugar, banana, citrus, marine products and crude oil.

RISK AND VULNERABILITY

COMPONENT SCORE

MULTI-HAZARD RISK (MHR) - Very High
Score: 0.531 • Rank: 2/6

RESILIENCE (R) - High
Score: 0.515 • Rank: 3/6

MULTI-HAZARD EXPOSURE (MHE) - Extremely High
Score: 0.763 • Rank: 1/6

VULNERABILITY (V) - High
Score: 0.530 • Rank: 3/6

COPING CAPACITY (CC) - Very High
Score: 0.560 • Rank: 2/6

*For more information on data and components please visit: https://bit.ly/2LqVoUO

Population (2010 Census)
75,046

Population in lowest wealth quintile
21.1%

Population with no secondary school education
62.3%

Households with unimproved water access
6.87% households

Infant mortality rate (per 1,000 live births)
10.7

MULTI-HAZARD EXPOSURE (MHE)

RANK: 1 / 6 DISTRICTS
SCORE: 0.763

MHE
0.763

Raw MHE
1.000

Relative MHE
0.525

ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:

Earthquake
0.0%
0
–
Critical Infrastructure Exposed:
0.0%

Extreme Heat
88.2%
75,352
$1.2 Billion
Critical Infrastructure Exposed:
84.4%

Flood
17.8%
15,200
$2 Billion
Critical Infrastructure Exposed:
20.0%

Landslide
4.2%
3,602
$43 Million
Critical Infrastructure Exposed:
0.5%

Storm Surge
0.0%
0
–
Critical Infrastructure Exposed:
0.0%

Tropical Cyclone Winds
100.0%
85,402
$6.7 Billion
Critical Infrastructure Exposed:
100.0%

Wildfire
91.9%
78,447
$6.6 Billion
Critical Infrastructure Exposed:
91.7%

VULNERABILITY (V)

RANK: 3 / 6 DISTRICTS ASSESSED
SCORE: 0.530

Vulnerability in Cayo is primarily driven by Environmental Stress and Population Pressures. The bar charts indicate the socioeconomic themes contributing to the overall Vulnerability score.

Environmental Stress

SCORE: 0.886 **RANK: 2/6** DISTRICTS ASSESSED

19.8%
Tree cover loss

-7.3%
Projected changes in annual precipitation

37.4%
Decline in land productivity

Vulnerable Health Status

SCORE: 0.217 **RANK: 4/6** DISTRICTS ASSESSED

103.9
TB infections per 10k persons

155.84
Dengue incidence per 100k persons

536.36
Malaria incidence per 100k persons

Clean Water Vulnerability

SCORE: 0.522 **RANK: 4/6** DISTRICTS ASSESSED

6.87%
Households with unimproved water access

21.66%
Households with unimproved sanitation

Information Access Vulnerability

SCORE: 0.481 **RANK: 4/6** DISTRICTS ASSESSED

73.3%
Adult literacy

82.4
Primary to secondary school transition rate

19.9%
Working population with no secondary school education

19.9%
Households without radio access

22.0%
Households without television access

87.4%
Households without Internet access

Economic Constraints **SCORE: 0.632** **RANK: 2/6** DISTRICTS ASSESSED

0 — 1

9.9% Average unemployment (2019)	**27.9%** Under-employment (2019)	**72.2** Economic dependency ratio	**21.1%** Population in lowest wealth quintile

Gender Inequality **SCORE: 0.218** **RANK: 6/6** DISTRICTS ASSESSED

0 — 1

89.28 Domestic violence cases per 10k persons	**0,246** Female economic opportunity score	**4** Female economic opportunity rank	**1.02** Female to male secondary school transition ratio	**0.14** Female to male income ratio	**0.30** Female to male labor force participation ratio	**0.335** Female healthcare access score

5 Female healthcare access rank	**10.7** Infant mortality rate (per 1,000 live births)	**149.6** Maternal mortality rate (per 100k live births)	**62.0** Adolescent birth rate (per 1,000 women)	**28.3%** Unmet need for contraception

Population Pressures **SCORE: 0.752** **RANK: 1/6** DISTRICTS ASSESSED

0 — 1

3.56% Average annual population change	**4.64%** Average annual urban population change	**12.80%** Prevalence of stunting

COPING CAPACITY (CC)

RANK: 2 / 6 DISTRICTS ASSESSED
SCORE: 0.560

Cayo exhibits weaker Coping Capacity in the areas of Governance and Economic Capacity. The bar charts indicate the socioeconomic themes contributing to the overall Coping Capacity score.

Economic Capacity **SCORE: 0.526** **RANK: 3/6** DISTRICTS ASSESSED

0 — 1

65.3%	15.1%	$458.68	$1,242.97	64.08	15.2%
Households owning homes	Change in active tourism business	Average revenue per room (BZ$)	Median monthly income (BZ$)	Labor force participation rate	Population in highest wealth quintile

Governance **SCORE: 0.490** **RANK: 3/6** DISTRICTS ASSESSED

0 — 1

79.7%	52.5%	31.38
Voter participation	Households with municipal garbage collection	Crime rate per 10k persons

Environmental Capacity **SCORE: 1.000** **RANK: 1/6** DISTRICTS ASSESSED

0 — 1

99.99%	55.2%
Land area with low interannual water variability	Percent protected land area

Infrastructure Capacity **SCORE: 0.744** **RANK: 1/6** DISTRICTS ASSESSED

0 — 1

Health Care Capacity **SCORE: 0.375** **RANK: 5/6** DISTRICTS ASSESSED

1.56	4.80	10.39	85.3%	7.80	8.26
Health care centers per 10,000 persons	Physicians per 10,000 persons	Nurses per 10,000 persons	Immunization coverage	Average distance to hospital (km)	Hospital beds per 10,000 persons

Transportation Capacity **SCORE: 0.961** **RANK: 1/6** DISTRICTS ASSESSED

0.7	6.1
Road density (km)	Average distance to port facility (km)

Communications Capacity **SCORE: 0.719** **RANK: 2/6** DISTRICTS ASSESSED

1.83	17.8%	84.5%
Average distance to cell tower (km)	Households with fixed phone	Households with mobile phone

Energy Capacity **SCORE: 0.887** **RANK: 2/6** DISTRICTS ASSESSED

91.3%	92.6%
Households with electricity	Households using gas for cooking

Emergency Services Capacity **SCORE: 0.777** **RANK: 1/6** DISTRICTS ASSESSED

1,270	21.3	1.6	5.5	4.0
Emergency shelter capacity per 10,000 persons	Average distance to warehouse (km)	Average distance to emergency shelter (km)	Average distance to fire station (km)	Average distance to police station (km)

RESILIENCE (R)

RANK: 3 / 6 DISTRICTS ASSESSED
SCORE: 0.515

Cayo's score and ranking are due to High Vulnerability combined with Very High Coping Capacity scores.

Below are the four thematic areas with the weakest relative scores:

- **Environmental Stress**
- **Population Pressures**
- **Governance**
- **Economic Capacity**

HAZARD-SPECIFIC RISK (HSR)

Earthquake
RANK: 3 / 6 DISTRICTS ASSESSED
SCORE: 0.000

Extreme Heat
RANK: 2 / 6 DISTRICTS ASSESSED
SCORE: 0.479

Flood
RANK: 2 / 6 DISTRICTS ASSESSED
SCORE: 0.247

Landslide
RANK: 3 / 6 DISTRICTS ASSESSED
SCORE: 0.264

Storm Surge
RANK: 5 / 6 DISTRICTS ASSESSED
SCORE: 0.000

Tropical Cyclone Winds
RANK: 1 / 6 DISTRICTS ASSESSED
SCORE: 0.460

Wildfire
RANK: 1 / 6 DISTRICTS ASSESSED
SCORE: 0.472

MULTI-HAZARD RISK (MHR)

2 / 6
RANK WITHIN DISTRICTS
SCORE: 0.531

Cayo's score and ranking are due to Extremely High Multi-hazard Exposure combined with High Vulnerability and Very High Coping Capacity scores.

Multi-hazard risk component scores compared to overall average country scores:

CAYO SCORE
COUNTRY SCORE

Multi-Hazard Exposure

0.763
0.371

Vulnerability

0.530
0.509

Coping Capacity

0.560
0.470

CAYO RECOMMENDATIONS

1

Environmental Stress

Belize ranks 2nd highest of the six districts for environmental stress. Driving this trend is the highest rates of tree cover loss in the country from 2000-2020 and the second highest values in percent of land area with declining productivity. Changing climate will be exacerbating these stresses and making agricultural lands more susceptible to temperature and precipitation extremes. Adopting Climate Smart Agricultural Practices (CSAs) and technologies can help reduce the need for further land clearing as well as maintaining or improving efficiencies in agricultural work (CIAT,2018). Crop rotations and changing plant density can be low cost ways to improve soil conditions and prevent erosion (CIAT,2018). Government incentives for sustainable farming, including more equitable access to credit and purchasing options can allow for environmental conservation efforts when land productivity needs long term maintenance.

Cayo also has the highest percentage of protected land of all the districts and has very low levels of interannual water variability. Capitalizing on the stability of its reserves and protected areas and long term agricultural planning can help to lessen the burden of climate change. Environmental protection is vital to ensuring sustainable development within Cayo.

CAYO RECOMMENDATIONS

2

Population Pressures

Cayo ranks the highest in population pressures of the six districts in Belize. Contributing to the high score is high amounts of annual population change and urban population change in the district. High rates of migration into or out of urban centers can strain government services, making planning difficult for disasters. Sharp rises in population growth can exacerbate poverty and lead to the degradation of the environment (Ministry of Natural Resources and Agriculture, 2012). Slowing population growth can alleviate stress on the environment and build on sustainable development goals (Ministry of Natural Resources and Agriculture, 2012).

While it may be difficult to reduce the physical numbers of people moving in and out of the area, recognizing and planning for the strain that this puts onto services, infrastructure and natural resources will be important, especially during disasters. 91% of Cayo's population is exposed to wildfire hazards and 88% to extreme heat hazards. Both hazards will likely increase in likelihood with the changing climate. Disaster management planning and investment for sufficient shelters, emergency services and routes, as well as other critical infrastructure like hospitals and schools will help to alleviate these pressures on society and the natural environment.

CAYO RECOMMENDATIONS

3

Governance

Cayo ranks 3rd of 6 districts in Governance. Contributing to the score is lower rates of voter participation. This can mean disillusionment, indifference with the government, or lack of faith in government functions. Cayo additionally has the highest rates of unemployment as well as the second highest economic dependency ratio. Lack of confidence in economic and social programs due to economic hardship can lead to other social issues like rising crime, poverty, and declining education.

Work to build faith in the citizens through community outreach and education programs to increase civic participation. Develop social programs that create community in the predominant economies like agriculture and tourism.

CAYO RECOMMENDATIONS

4

Economic Capacity

Cayo scores third in economic capacity. Cayo shows the second lowest increase in tourism businesses in the country while maintaining a higher than average rate per accommodation room than other districts. It also has the third lowest labor force participation rate. Low economic capacity can exacerbate access to adequate health care, food stability, proper nutrition, and strain the environment and social services.

Cayo has only 15% of its population in the highest wealth quintile, meaning that the majority of its population is economically vulnerable. Evaluate disaster response and recovery plans to ensure the inclusion of these populations in long- and short-term recovery processes. Additionally, 30% of Cayo's capital stock is exposed to floods, and nearly 100% is exposed to wildfire and hurricane force winds.

Review and incentivize short term economic activities that could help to maintain economic viability, food security and nutrition requirements in the event of natural disasters. Analyze if nutritional needs are being met and that in the case of disaster nutritional requirements are planned for. Create public policies guaranteeing equal opportunity and fair wages for all. Assess feasibility of government programs to assist in job creation and economic growth through education and short-term assistance designed to promote self-sustaining economic opportunities and decrease long-term reliance on government programs.

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BELIZE

COROZAL

NDPBA DISTRICTS PROFILE

PDC | GLOBAL

BELIZE
COROZAL

CAPITAL: COROZAL TOWN

Area: 2,235 km^2

The Corozal District Is located in the Northern region of Belize. This District is divided into 31 Cities, Towns and Villages: Corozal Town (The Capital), is the main city. The District borders Mexico to the Northwest, Orange walk to the southwest, Belize to the south, and the Atlantic Ocean to the east. The main economic sources for the country of Belize continues to be tourism, sugar, banana, citrus, marine products and crude oil.

RISK AND VULNERABILITY

COMPONENT SCORE

MULTI-HAZARD RISK (MHR) - Low
Score: 0.437 • Rank: 5/6

RESILIENCE (R) - Low
Score: 0.466 • Rank: 5/6

MULTI-HAZARD EXPOSURE (MHE) - Very Low
Score: 0.068 • Rank: 6/6

VULNERABILITY (V) - Very High
Score: 0.553 • Rank: 2/6

COPING CAPACITY (CC) - High
Score: 0.485 • Rank: 3/6

*For more information on data and components please visit: https://bit.ly/2LqVoUO

Population (2010 Census)
41,061

Population in lowest wealth quintile
18.4%

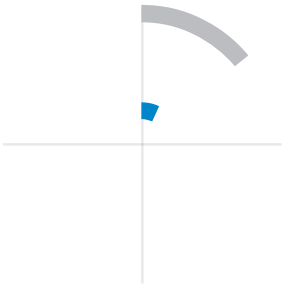
Population with no secondary school education
67.8%

Households with unimproved water access
6.36% households

Infant mortality rate (per 1,000 live births)
17.8

MULTI-HAZARD EXPOSURE (MHE)

RANK: 6 / 6 DISTRICTS
SCORE: 0.068



MHE
0.068

Raw MHE
0.000

Relative MHE
0.136

ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:

Earthquake
0.0%
0
–
Critical Infrastructure Exposed:
0.0%

Extreme Heat
0.0%
0
–
Critical Infrastructure Exposed:
0.0%

Flood
14.6%
7,094
$112.7 Million
Critical Infrastructure Exposed:
10.9%

Landslide
0.0%
0
–
Critical Infrastructure Exposed:
0.0%

Storm Surge
4.3%
2,060
$76.2 Million
Critical Infrastructure Exposed:
3.9%

Tropical Cyclone Winds
100.0%
48,467
$848.4 Million
Critical Infrastructure Exposed:
100.0%

Wildfire
80.5%
39,027
$804.2 Million
Critical Infrastructure Exposed:
76.6%

VULNERABILITY (V)

RANK: 2 / 6 DISTRICTS ASSESSED
SCORE: 0.553

Vulnerability in Corozal is primarily driven by Environmental Stress and Clean Water Access Vulnerability. The bar charts indicate the socioeconomic themes contributing to the overall Vulnerability score.

Environmental Stress

SCORE: 1.000 **RANK: 1/6** DISTRICTS ASSESSED

21.8%	**-6.9%**	**–**
Tree cover loss	Projected changes in annual precipitation	Decline in land productivity

Vulnerable Health Status

SCORE: 0.189 **RANK: 5/6** DISTRICTS ASSESSED

127.72	**494.57**	**84.24**
TB infections per 10k persons	Dengue incidence per 100k persons	Malaria incidence per 100k persons

Clean Water Vulnerability

SCORE: 0.63 **RANK: 3/6** DISTRICTS ASSESSED

6.36%	**34.06%**
Households with unimproved water access	Households with unimproved sanitation

Information Access Vulnerability

SCORE: 0.616 **RANK: 3/6** DISTRICTS ASSESSED

75.7%	**70.0**	**23.2%**	**23.2%**	**15.7%**	**90.6%**
Adult literacy	Primary to secondary school transition rate	Working population with no secondary school education	Households without radio access	Households without television access	Households without Internet access

Economic Constraints **SCORE: 0.385** **RANK: 5/6** DISTRICTS ASSESSED

0 — 1

7.7% Average unemployment (2019)	**24.9%** Under-employment (2019)	**63.6** Economic dependency ratio	**18.4%** Population in lowest wealth quintile

Gender Inequality **SCORE: 0.596** **RANK: 1/6** DISTRICTS ASSESSED

0 — 1

316.85 Domestic violence cases per 10k persons	**0,489** Female economic opportunity score	**3** Female economic opportunity rank	**1.06** Female to male secondary school transition ratio	**0.16** Female to male income ratio	**0.39** Female to male labor force participation ratio	**0.434** Female healthcare access score

3 Female healthcare access rank	**17.8** Infant mortality rate (per 1,000 live births)	**122.1** Maternal mortality rate (per 100k live births)	**104.0** Adolescent birth rate (per 1,000 women)	**11.7%** Unmet need for contraception

Population Pressures **SCORE: 0.459** **RANK: 5/6** DISTRICTS ASSESSED

0 — 1

2.27% Average annual population change	**2.83%** Average annual urban population change	**15.80%** Prevalence of stunting

COPING CAPACITY (CC)

RANK: 3 / 6 DISTRICTS ASSESSED
SCORE: 0.485

Corozal exhibits weaker Coping Capacity in the areas of Emergency Service Capacity and Economic Capacity. The bar charts indicate the socioeconomic themes contributing to the overall Coping Capacity score.

Economic Capacity **SCORE: 0.356** **RANK: 5/6** DISTRICTS ASSESSED

0 — 1

77.3%	3.8%	$73.88	$854.83	65.86	20.3%
Households owning homes	Change in active tourism business	Average revenue per room (BZ$)	Median monthly income (BZ$)	Labor force participation rate	Population in highest wealth quintile

Governance **SCORE: 0.629** **RANK: 1/6** DISTRICTS ASSESSED

0 — 1

86.5%	28.4%	23.86
Voter participation	Households with municipal garbage collection	Crime rate per 10k persons

Environmental Capacity **SCORE: 0.274** **RANK: 6/6** DISTRICTS ASSESSED

0 — 1

76.2%	14.3%
Land area with low interannual water variability	Percent protected land area

Infrastructure Capacity **SCORE: 0.592** **RANK: 4/6** DISTRICTS ASSESSED

0 — 1

Health Care Capacity **SCORE: 0.430** **RANK: 4/6** DISTRICTS ASSESSED

4.13	8.04	4.14	86.1%	12.96	8.52
Health care centers per 10,000 persons	Physicians per 10,000 persons	Nurses per 10,000 persons	Immunization coverage	Average distance to hospital (km)	Hospital beds per 10,000 persons

Transportation Capacity **SCORE: 0.864** **RANK: 2/6** DISTRICTS ASSESSED

0.7	6.8
Road density (km)	Average distance to port facility (km)

Communications Capacity **SCORE: 0.644** **RANK: 4/6** DISTRICTS ASSESSED

1.96
Average distance to cell tower (km)

19.0%
Households with fixed phone

76.7%
Households with mobile phone

Energy Capacity **SCORE: 0.714** **RANK: 5/6** DISTRICTS ASSESSED

93.5%
Households with electricity

78.0%
Households using gas for cooking

Emergency Services Capacity **SCORE: 0.306** **RANK: 5/6** DISTRICTS ASSESSED

1,311
Emergency shelter capacity per 10,000 persons

36.1
Average distance to warehouse (km)

2.1
Average distance to emergency shelter (km)

13.8
Average distance to fire station (km)

10.2
Average distance to police station (km)

RESILIENCE (R)

RANK: 5 / 6 DISTRICTS ASSESSED
SCORE: 0.466

Corozal's score and ranking are due to Very High Vulnerability combined with High Coping Capacity scores.

Below are the four thematic areas with the weakest relative scores:

- **Environmental Stress**
- **Clean Water Access Vulnerability**
- **Emergency Service Capacity**
- **Economic Capacity**

HAZARD-SPECIFIC RISK (HSR)

Earthquake

RANK: 3 / 6 DISTRICTS ASSESSED
SCORE: 0.000

Extreme Heat

RANK: 5 / 6 DISTRICTS ASSESSED
SCORE: 0.000

Flood

RANK: 6 / 6 DISTRICTS ASSESSED
SCORE: 0.004

Landslide

RANK: 6 / 6 DISTRICTS ASSESSED
SCORE: 0.000

Storm Surge

RANK: 3 / 6 DISTRICTS ASSESSED
SCORE: 0.249

Tropical Cyclone Winds

RANK: 4 / 6 DISTRICTS ASSESSED
SCORE: 0.303

Wildfire

RANK: 4 / 6 DISTRICTS ASSESSED
SCORE: 0.318

MULTI-HAZARD RISK (MHR)

5 / 6
RANK WITHIN DISTRICTS
SCORE: 0.437

Corozal's score and ranking are due to Very Low Multi-hazard Exposure combined with Very High Vulnerability and High Coping Capacity scores.

Multi-hazard risk component scores compared to overall average country scores:

COROZAL SCORE
COUNTRY SCORE

Multi-Hazard Exposure

0.068
0.371

Vulnerability

0.553
0.509

Coping Capacity

0.485
0.470

COROZAL RECOMMENDATIONS

1

Environmental Stress

Corozal ranks the highest in Belize in environmental stress. According to data from the Global Forest Watch, this district has lost nearly 22% of its tree cover since the year 2000 and has the lowest acreage in protected areas of any district. High poverty rates, income inequality, food insecurity, and clean water access vulnerability can be further exacerbated by environmental stressors. Unsustainable development contributes to an increased risk of economic upheaval, force unsustainable migration patterns, and deplete already limited resources.

Environmental protection is vital to ensuring sustainable development within Belize. Developing and following sustainable development goals can address and mitigate factors that may be exacerbated during development phases. Improving land tenure legislation to remove “development” requirements on leased lands can allow for alternative land uses of natural areas (Ministry Agriculture et al., 2020). Promoting environmental health and mitigating sources of environmental stress will also help to safeguard against negative impacts to the growing tourism industry in Corozal. Additionally, expanding and diversifying protected areas can promote the sustainable use and protection of unique resources in the district, in addition to acting as a natural buffer against hazard impacts.

COROZAL RECOMMENDATIONS

2

Clean Water Access Vulnerability

Corozal ranks third in Belize for Clean Water Access Vulnerability with 34% of households lacking access to improved sanitation. Lack of access to improved sanitation is a leading risk factor for infectious diseases such as cholera, dysentery, typhoid, and polio. Lack of reliable sanitation also increases the spread of mosquitos contributing to incidents of chikungunya, zika, and dengue. Those without easy or adequate access to water distribution and containment systems face significant demands on daily routines that effectively limit their response and recovery capacity and the ability to maintain livelihoods.

Increasing access to improved water and sanitation in Corozal improves health outcomes and frees up resources to decrease further susceptibility to impacts, as growing populations and climate change will only exacerbate existing vulnerabilities.

COROZAL RECOMMENDATIONS

3

Emergency Service Capacity

Corozal has the 2nd lowest Emergency Services Capacity when compared to the other 5 districts in Belize. The entire district only has one mapped fire station and two mapped police stations. Decreasing the distance between populations and emergency services infrastructure will help to manage emergencies that scale from day-to-day events up to catastrophes that impact all of society. Corozal has a higher travel distance to warehouses and shelters. This could be due in part to the number of approved shelter locations which were not able to be mapped. However, a review of the locations and capacities of emergency shelters in the district can help save lives and make shelter more accessible to vulnerable populations. Ensure that new shelters can withstand wind and flood impacts annually prior to the start of the Atlantic Hurricane Season.

There are no emergency storage warehouses located within the district so emergency supplies travel on average 36 miles from Orange Walk to populated places in Corozal. Designating existing structures located within Corozal or investing in new purpose-built warehouse locations in the district will strengthen emergency services capacity. Update existing disaster management and logistics plans to ensure that adequate resources and equipment are available to support mass care of affected populations during a disaster.

COROZAL RECOMMENDATIONS

4

Economic Capacity

A strong economic foundation provides an indication of a district's ability to absorb economic losses and quickly mobilize financial assets for preparedness, response, and recovery activities. Corozal's limited economic capacity correlates to disproportionate disaster impacts. Corozal ranks second lowest in overall economic capacity in Belize. Contributing to this low ranking is the lowest median monthly income in Belize, more than $300 Belizean less per month than the average of other districts. Additionally, low ratios of women to men in the workforce and high levels of underemployment may point to an uneven economy. Low economic capacity can exacerbate access to adequate health care, food stability, proper nutrition, and strain the environment and social services.

While the tourism industry in Corozal is still developing, the district has the highest rate of home ownership in the country, and the second lowest unemployment rate. Expanding public policies guaranteeing equal opportunity and fair wages for all could rapidly improve the district's economic capacity. Assess the feasibility of government programs to assist in job creation and economic growth through education and short-term assistance designed to promote self-sustaining economic opportunities and decrease long-term reliance on government programs.

Evaluate disaster response and recovery plans to ensure the inclusion of economically vulnerable populations in long- and short-term recovery processes. Review food security and nutrition requirements for a population and analyze if nutritional needs are being met and that in the case of disaster, nutritional requirements are planned for.

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BELIZE

ORANGE WALK

NDPBA DISTRICTS PROFILE

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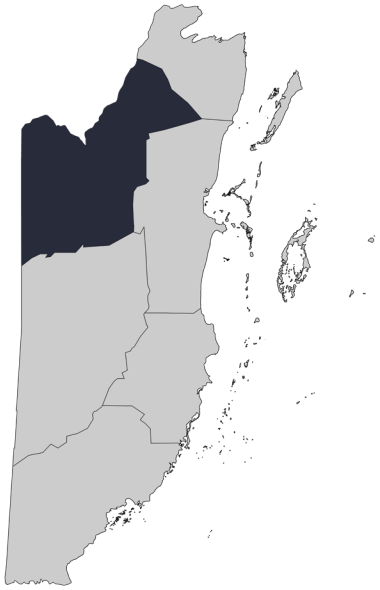
BELIZE
ORANGE WALK

CAPITAL: ORANGE WALK TOWN

Area: 5,106 km^2

The Orange Walk District Is located in the Northwest region of Belize. This District is divided into 37 Cities, Towns and Villages: Orange Walk Town (The Capital), is the main city. The District borders Mexico to the north, Guatemala to the west, Cayo to the south, Belize to the east and Corozal to the northeast. The main economic sources for the country of Belize continues to be tourism, sugar, banana, citrus, marine products and crude oil.



RISK AND VULNERABILITY

COMPONENT SCORE

MULTI-HAZARD RISK (MHR) - Moderate
Score: 0.449 • Rank: 4/6

RESILIENCE (R) - Moderate
Score: 0.500 • Rank: 4/6

MULTI-HAZARD EXPOSURE (MHE) - Moderate
Score: 0.218 • Rank: 4/6

VULNERABILITY (V) - Moderate
Score: 0.473 • Rank: 4/6

COPING CAPACITY (CC) - Moderate
Score: 0.474 • Rank: 4/6

*For more information on data and components please visit: https://bit.ly/2LqVoUO

Population (2010 Census)
45,946

Population in lowest wealth quintile
15.4%

Population with no secondary school education
76.2%

Households with unimproved water access
10.42% households

Infant mortality rate (per 1,000 live births)
7.9

MULTI-HAZARD EXPOSURE (MHE)

RANK: 4 / 6 DISTRICTS
SCORE: 0.218

MHE
0.218

Raw MHE
0.148

Relative MHE
0.288

ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:

Earthquake
0.0%
0
–
Critical Infrastructure Exposed:
0.0%

Extreme Heat
35.4%
14,737
$138.1 Million
Critical Infrastructure Exposed:
18.8%

Flood
16.0%
6,671
$240.6 Million
Critical Infrastructure Exposed:
11.1%

Landslide
1.4%
571
$20.4 Million
Critical Infrastructure Exposed:
1.7%

Storm Surge
0.0%
0
–
Critical Infrastructure Exposed:
0.0%

Tropical Cyclone Winds
100.0%
41,656
$1.7 Billion
Critical Infrastructure Exposed:
100.0%

Wildfire
97.2%
40,470
$1.7 Billion
Critical Infrastructure Exposed:
99.2%

VULNERABILITY (V)

RANK: 4 / 6 DISTRICTS ASSESSED
SCORE: 0.473

Vulnerability in Orange Walk is primarily driven by Information Access Vulnerability and Clean Water Access Vulnerability. The bar charts indicate the socioeconomic themes contributing to the overall Vulnerability score.

Environmental Stress

SCORE: 0.712 **RANK: 3/6** DISTRICTS ASSESSED

17.3%
Tree cover loss

-8.0%
Projected changes in annual precipitation

37.9%
Decline in land productivity

Vulnerable Health Status

SCORE: 0.033 **RANK: 6/6** DISTRICTS ASSESSED

62.11
TB infections per 10k persons

64.18
Dengue incidence per 100k persons

89.03
Malaria incidence per 100k persons

Clean Water Vulnerability

SCORE: 0.751 **RANK: 2/6** DISTRICTS ASSESSED

10.42%
Households with unimproved water access

26.04%
Households with unimproved sanitation

Information Access Vulnerability

SCORE: 0.826 **RANK: 2/6** DISTRICTS ASSESSED

72.6%
Adult literacy

65.7
Primary to secondary school transition rate

27.3%
Working population with no secondary school education

27.3%
Households without radio access

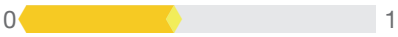
22.7%
Households without television access

91.6%
Households without Internet access

Economic Constraints **SCORE: 0.473** **RANK: 3/6** DISTRICTS ASSESSED

9.4%	24.6%	64.1	15.4%
Average unemployment (2019)	Under-employment (2019)	Economic dependency ratio	Population in lowest wealth quintile

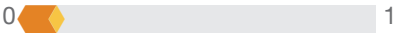
Gender Inequality **SCORE: 0.429** **RANK: 4/6** DISTRICTS ASSESSED



155.40	0,900	1	1.33	0.20	0.52	0.084
Domestic violence cases per 10k persons	Female economic opportunity score	Female economic opportunity rank	Female to male secondary school transition ratio	Female to male income ratio	Female to male labor force participation ratio	Female healthcare access score

6	7.9	97.7	67.0	15.9%
Female healthcare access rank	Infant mortality rate (per 1,000 live births)	Maternal mortality rate (per 100k live births)	Adolescent birth rate (per 1,000 women)	Unmet need for contraception

Population Pressures **SCORE: 0.090** **RANK: 6/6** DISTRICTS ASSESSED



1.60%	-0.03%	13.00%
Average annual population change	Average annual urban population change	Prevalence of stunting

COPING CAPACITY (CC)

RANK: 4 / 6 DISTRICTS ASSESSED
SCORE: 0.474

Orange Walk exhibits weaker Coping Capacity in the areas of Emergency Service Capacity and Transportation Capacity. The bar charts indicate the socioeconomic themes contributing to the overall Coping Capacity score.

Economic Capacity **SCORE: 0.381** **RANK: 4/6** DISTRICTS ASSESSED

0 — 1

61.2%	18.4%	$213.87	$1,016.05	59.92	21.1%
Households owning homes	Change in active tourism business	Average revenue per room (BZ$)	Median monthly income (BZ$)	Labor force participation rate	Population in highest wealth quintile

Governance **SCORE: 0.551** **RANK: 2/6** DISTRICTS ASSESSED

0 — 1

85.6%	33.0%	33.11
Voter participation	Households with municipal garbage collection	Crime rate per 10k persons

Environmental Capacity **SCORE: 0.418** **RANK: 5/6** DISTRICTS ASSESSED

0 — 1

47.3%	48.4%
Land area with low interannual water variability	Percent protected land area

Infrastructure Capacity **SCORE: 0.492** **RANK: 5/6** DISTRICTS ASSESSED

0 — 1

Health Care Capacity **SCORE: 0.455** **RANK: 2/6** DISTRICTS ASSESSED

5.80	6.09	13.06	82.5%	19.05	12.41
Health care centers per 10,000 persons	Physicians per 10,000 persons	Nurses per 10,000 persons	Immunization coverage	Average distance to hospital (km)	Hospital beds per 10,000 persons

Transportation Capacity **SCORE: 0.309** **RANK: 5/6** DISTRICTS ASSESSED

0.4	9.8
Road density (km)	Average distance to port facility (km)

Communications Capacity **SCORE: 0.618** **RANK: 5/6** DISTRICTS ASSESSED

2.49	20.7%	75.7%
Average distance to cell tower (km)	Households with fixed phone	Households with mobile phone

Energy Capacity **SCORE: 0.810** **RANK: 3/6** DISTRICTS ASSESSED

93.2%	84.9%
Households with electricity	Households using gas for cooking

Emergency Services Capacity **SCORE: 0.266** **RANK: 6/6** DISTRICTS ASSESSED

1,507	18.8	3.5	18.8	11.3
Emergency shelter capacity per 10,000 persons	Average distance to warehouse (km)	Average distance to emergency shelter (km)	Average distance to fire station (km)	Average distance to police station (km)

RESILIENCE (R)

RANK: 4 / 6 DISTRICTS ASSESSED
SCORE: 0.500

Orange Walk's score and ranking are due to Moderate Vulnerability combined with Moderate Coping Capacity scores.

Below are the four thematic areas with the weakest relative scores:

- **Information Access Vulnerability**
- **Clean Water Access Vulnerability**
- **Emergency Service Capacity**
- **Transportation Capacity**

HAZARD-SPECIFIC RISK (HSR)

Earthquake

RANK: 3 / 6 DISTRICTS ASSESSED
SCORE: 0.000

Extreme Heat

RANK: 3 / 6 DISTRICTS ASSESSED
SCORE: 0.164

Flood

RANK: 5 / 6 DISTRICTS ASSESSED
SCORE: 0.020

Landslide

RANK: 4 / 6 DISTRICTS ASSESSED
SCORE: 0.178

Storm Surge

RANK: 5 / 6 DISTRICTS ASSESSED
SCORE: 0.000

Tropical Cyclone Winds

RANK: 5 / 6 DISTRICTS ASSESSED
SCORE: 0.295

Wildfire

RANK: 2 / 6 DISTRICTS ASSESSED
SCORE: 0.376

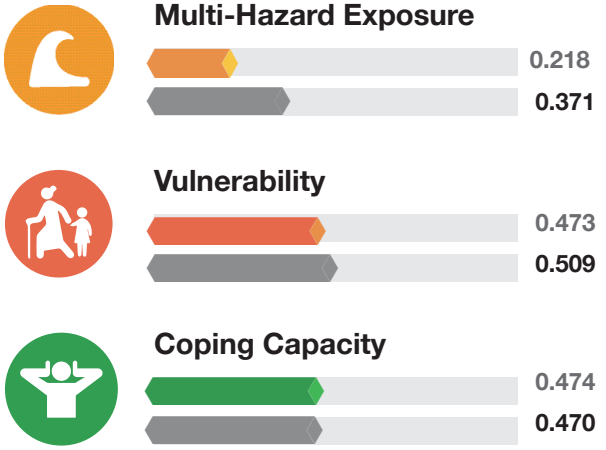
MULTI-HAZARD RISK (MHR)

4 / 6
RANK WITHIN DISTRICTS
SCORE: 0.449

Orange Walk's score and ranking are due to Moderate Multi-hazard Exposure combined with Moderate Vulnerability and Moderate Coping Capacity scores.

Multi-hazard risk component scores compared to overall average country scores:

ORANGE WALK SCORE
COUNTRY SCORE



ORANGE WALK RECOMMENDATIONS

1

Information Access Vulnerability

Limitations in information access can impede a population's ability to receive, understand, and take action. Emergency messages must take into account the unique information access constraints of the district. Emergency messages presented to the population of Orange Walk must contain clear and simple information to ensure an appropriate response to save lives and reduce losses. Orange Walk ranks the second highest in Belize for Information Access Vulnerability. 92% of homes in Orange Walk do not have internet leaving many to rely on broadband radio and television to receive their information. Orange Walk also show the second largest average distance to a cell phone tower from populated places. Lack of access to information hinders the ability of government agencies to share critical information during disasters.

Increase network infrastructure to increase coverage, accessibility, and reliability of communications for day-to-day use and especially during disasters. Encourage telecommunication infrastructure development at a sustainable pace and alongside more environmentally friendly technology.

Lack of access to information can also be dependent on access to education, healthcare, and other needs. Orange Walk ranks second lowest in adult literacy as well as the working population with no secondary school. It also ranks the lowest for the transition from primary to secondary school. Investing in the continuity and quality of education for the district population will improve the access to and understanding of important emergency messages and empower communities with the knowledge to make better decisions during a disaster.

ORANGE WALK RECOMMENDATIONS

2

Clean Water Access Vulnerability

Those without easy or adequate access to water distribution and containment systems face significant demands on daily routines that effectively limit their response and recovery capacity and the ability to maintain livelihoods. Increasing access to improved water and sanitation in Orange Walk improves health outcomes and frees up resources to decrease further susceptibility to impacts.

Corozal ranks second in Belize for Clean Water Access Vulnerability with over ten percent of households lacking access to improved drinking water, the highest in Belize. Lack of access to improved drinking water is linked to the transmission of diseases such as cholera and chronic diseases caused by inadequate drinking water strain medical resources.

Invest in the expansion of piped water and sewer systems to underserved areas, as growing population and climate change will only exacerbate existing vulnerabilities. Ensure that all clean drinking water is easily accessed for all households within a certain distance. Ensure clean drinking water plans are made for disasters.

ORANGE WALK RECOMMENDATIONS

3

Emergency Service Capacity

Orange Walk has the lowest Emergency Services Capacity when compared to the other five districts in Belize and nearly 100% of its critical infrastructure locations are exposed to Wildfire. However, it is an average of over 18 kilometers from any populated area in Orange Walk to the only fire station in the district and over 3.5 kilometers to an emergency shelter, the furthest in the country. Wildfire impacts over 99% of critical infrastructure in the district, making it difficult for first responders to respond or for citizens to travel to safety. Orange Walk has higher-than-average distances to most of its emergency services.

Strengthen emergency service capacity by reducing distance traveled to reach shelters, warehouses and other emergency infrastructure. Expand shelter capacity by designating existing structures located in Orange Walk or investing in new purpose-built shelter locations. Ensure that new shelters can withstand wind or flood impacts annually prior to the start of the Atlantic Hurricane Season. Locate new shelters away from fire-prone areas and use fire safe landscaping and defensible space techniques to protect critical infrastructure. Update existing disaster management and logistics plans to ensure that adequate resources and equipment are available to support mass care of affected populations during a disaster.

Lack of access to information can also be dependent on access to education, healthcare, and other needs. Orange Walk ranks second lowest in adult literacy as well as the working population with no secondary school. It also ranks the lowest for the transition from primary to secondary school. Investing in the continuity and quality of education for the district population will improve the access to and understanding of important emergency messages and empower communities with the knowledge to make better decisions during a disaster.

ORANGE WALK RECOMMENDATIONS

4

Transportation Capacity

Denser and more diverse transportation networks provide more options for bringing outside resources into an impacted area and increase the ability of response stakeholders to access provincial populations. Improved transportation capacity supports all aspects of Orange Walk's ability to distribute resources before, during, and after a disaster. Orange Walk ranks the second lowest in Transportation Capacity. This is reflected in high distances to ports and airports and a low density of roads per area.

Orange Walk is a large district with many uninhabited areas where roads are scarce, and some infrastructure repairs have been underway since Hurricanes Eta and Iota. However additional investments in the quality and maintenance of existing transportation infrastructure as well as the creation of new roadways will not only alleviate supply chain issues during an emergency but can also improve economic opportunity, tourism and every day goods and services distribution for residents.

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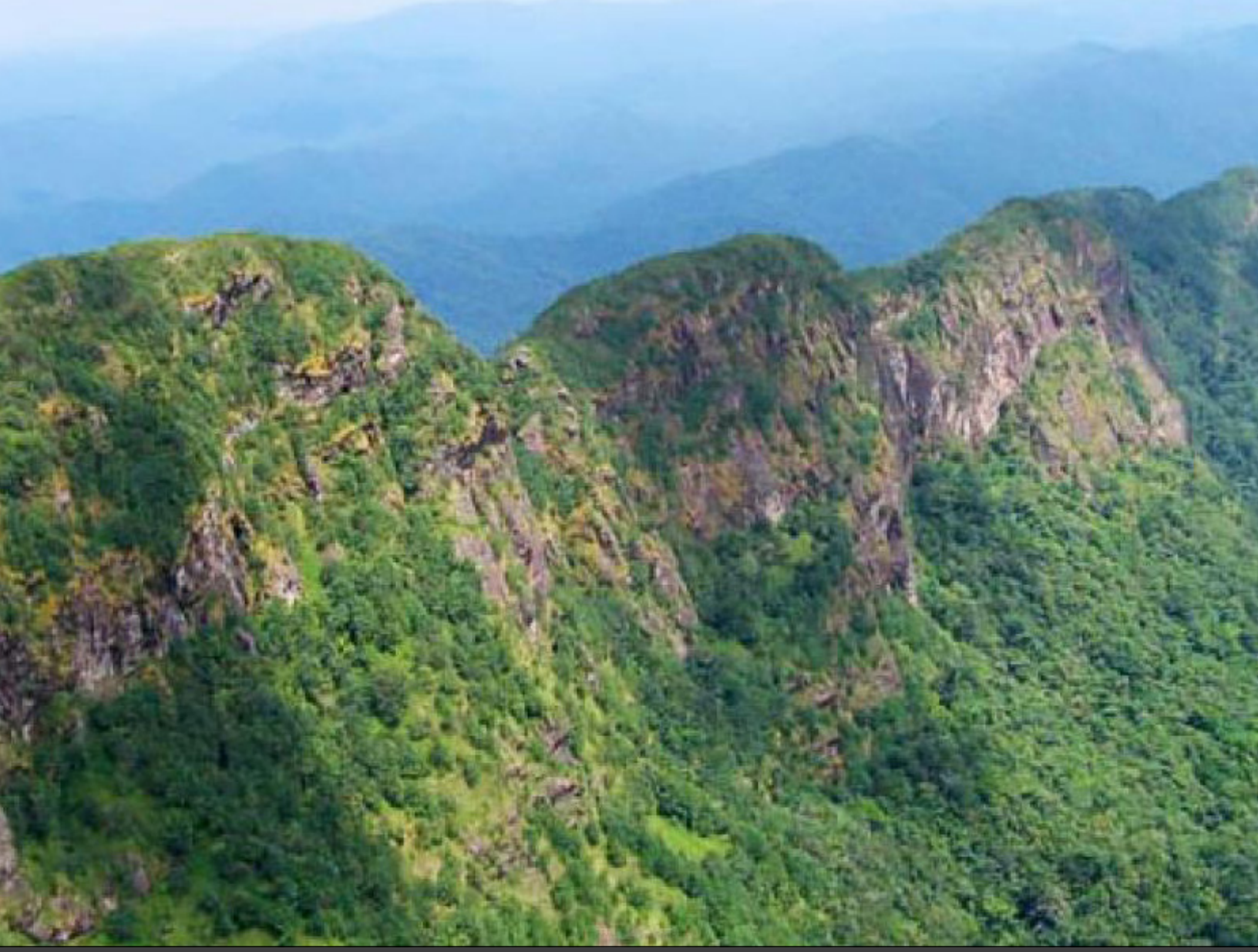


BELIZE

STANN CREEK

NDPBA DISTRICTS PROFILE

PDC | GLOBAL

BELIZE
STANN CREEK

CAPITAL: DANGRIGA

Area: 2,550 km^2

The Stann Creek District Is located in the Eastern region of Belize. This District is divided into 30 Cities, Towns and Villages: Dangriga (The Capital), is the main city. The District borders Belize to the north, Cayo to the west, Toledo to the south and the Atlantic Ocean to the east. The main economic sources for the country of Belize continues to be tourism, sugar, banana, citrus, marine products and crude oil.

RISK AND VULNERABILITY

COMPONENT SCORE

MULTI-HAZARD RISK (MHR) - High
Score: 0.459 • Rank: 3/6

RESILIENCE (R) - Very High
Score: 0.528 • Rank: 2/6

MULTI-HAZARD EXPOSURE (MHE) - High
Score: 0.276 • Rank: 3/6

VULNERABILITY (V) - Very Low
Score: 0.341 • Rank: 6/6

COPING CAPACITY (CC) - Low
Score: 0.397 • Rank: 5/6

*For more information on data and components please visit: https://bit.ly/2LqVoUO

Population (2010 Census)
34,324

Population in lowest wealth quintile
26.3%

Population with no secondary school education
62.4%

Households with unimproved water access
0.65% households

Infant mortality rate (per 1,000 live births)
10.6

MULTI-HAZARD EXPOSURE (MHE)

RANK: 3 / 6 DISTRICTS
SCORE: 0.276

ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:

Earthquake
41.2%
16,969
$409.5 Million
Critical Infrastructure Exposed:
44.6%

Extreme Heat
0.0%
0
–
Critical Infrastructure Exposed:
0.0%

Flood
30.4%
12,533
$359.6 Million
Critical Infrastructure Exposed:
28.2%

Landslide
5.7%
2,339
$6.5 Million
Critical Infrastructure Exposed:
10.9%

Storm Surge
27.1%
11,175
$33.9 Million
Critical Infrastructure Exposed:
22.7%

Tropical Cyclone Winds
100.0%
41,219
$1.4 Billion
Critical Infrastructure Exposed:
100.0%

Wildfire
53.3%
21,954
$1.2 Billion
Critical Infrastructure Exposed:
54.6%

VULNERABILITY (V)

RANK: 6 / 6 DISTRICTS ASSESSED
SCORE: 0.341

Vulnerability in Stann Creek is primarily driven by Population Pressures and Economic Constraints. The bar charts indicate the socioeconomic themes contributing to the overall Vulnerability score.

Environmental Stress

SCORE: 0.226 **RANK: 6/6** DISTRICTS ASSESSED

0 — 1

7.7% Tree cover loss	**-7.4%** Projected changes in annual precipitation	**23.3%** Decline in land productivity

Vulnerable Health Status

SCORE: 0.426 **RANK: 3/6** DISTRICTS ASSESSED

0 — 1

174.17 TB infections per 10k persons	**93.09** Dengue incidence per 100k persons	**2957.96** Malaria incidence per 100k persons

Clean Water Vulnerability

SCORE: 0.081 **RANK: 6/6** DISTRICTS ASSESSED

0 — 1

0.65% Households with unimproved water access	**10.33%** Households with unimproved sanitation

Information Access Vulnerability

SCORE: 0.437 **RANK: 5/6** DISTRICTS ASSESSED

0 — 1

81.3% Adult literacy	**100.0** Primary to secondary school transition rate	**23.7%** Working population with no secondary school education	**23.7%** Households without radio access	**27.8%** Households without television access	**89.2%** Households without Internet access

Economic Constraints **SCORE: 0.463** **RANK: 4/6** DISTRICTS ASSESSED

0 — 1

9.5% Average unemployment (2019)	**13.8%** Under-employment (2019)	**70.6** Economic dependency ratio	**26.3%** Population in lowest wealth quintile

Gender Inequality **SCORE: 0.253** **RANK: 5/6** DISTRICTS ASSESSED

0 — 1

68.18 Domestic violence cases per 10k persons	**0,177** Female economic opportunity score	**5** Female economic opportunity rank	**1.03** Female to male secondary school transition ratio	**0.01** Female to male income ratio	**0.35** Female to male labor force participation ratio	**0.582** Female healthcare access score

2 Female healthcare access rank	**10.6** Infant mortality rate (per 1,000 live births)	**185.7** Maternal mortality rate (per 100k live births)	**101.0** Adolescent birth rate (per 1,000 women)	**26.2%** Unmet need for contraception

Population Pressures **SCORE: 0.500** **RANK: 3/6** DISTRICTS ASSESSED

0 — 1

3.37% Average annual population change	**1.09%** Average annual urban population change	**14.60%** Prevalence of stunting

COPING CAPACITY (CC)

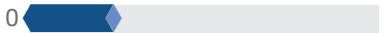
RANK: 5 / 6 DISTRICTS ASSESSED
SCORE: 0.397

Stann Creek exhibits weaker Coping Capacity in the areas of Governance and Economic Capacity. The bar charts indicate the socioeconomic themes contributing to the overall Coping Capacity score.

Economic Capacity **SCORE: 0.596** **RANK: 2/6** DISTRICTS ASSESSED

55.9%	21.2%	$510.46	$1,350.31	66.54	15.6%
Households owning homes	Change in active tourism business	Average revenue per room (BZ$)	Median monthly income (BZ$)	Labor force participation rate	Population in highest wealth quintile

Governance **SCORE: 0.240** **RANK: 6/6** DISTRICTS ASSESSED



77.9%	45.2%	46.51
Voter participation	Households with municipal garbage collection	Crime rate per 10k persons

Environmental Capacity **SCORE: 0.883** **RANK: 3/6** DISTRICTS ASSESSED

100.0%	45.6%
Land area with low interannual water variability	Percent protected land area

Infrastructure Capacity **SCORE: 0.649** **RANK: 3/6** DISTRICTS ASSESSED

Health Care Capacity **SCORE: 0.436** **RANK: 3/6** DISTRICTS ASSESSED

3.22	6.12	14.57	82.7%	24.92	15.15
Health care centers per 10,000 persons	Physicians per 10,000 persons	Nurses per 10,000 persons	Immunization coverage	Average distance to hospital (km)	Hospital beds per 10,000 persons

Transportation Capacity **SCORE: 0.804** **RANK: 3/6** DISTRICTS ASSESSED

0.6	5.6
Road density (km)	Average distance to port facility (km)

Communications Capacity **SCORE: 0.645** **RANK: 3/6** DISTRICTS ASSESSED

2.11
Average distance to cell tower (km)

21.1%
Households with fixed phone

75.0%
Households with mobile phone

Energy Capacity **SCORE: 0.762** **RANK: 4/6** DISTRICTS ASSESSED

90.5%
Households with electricity

85.1%
Households using gas for cooking

Emergency Services Capacity **SCORE: 0.598** **RANK: 3/6** DISTRICTS ASSESSED

2,196
Emergency shelter capacity per 10,000 persons

34.4
Average distance to warehouse (km)

2.3
Average distance to emergency shelter (km)

9.9
Average distance to fire station (km)

5.9
Average distance to police station (km)

RESILIENCE (R)

RANK: 2 / 6 DISTRICTS ASSESSED
SCORE: 0.528

Stann Creek's score and ranking are due to Very Low Vulnerability combined with Low Coping Capacity scores.

Below are the four thematic areas with the weakest relative scores:

- **Population Pressures**
- **Economic Constraints**
- **Governance**
- **Economic Capacity**

HAZARD-SPECIFIC RISK (HSR)

Earthquake

RANK: 2 / 6 DISTRICTS ASSESSED
SCORE: 0.309

Extreme Heat

RANK: 5 / 6 DISTRICTS ASSESSED
SCORE: 0.000

Flood

RANK: 4 / 6 DISTRICTS ASSESSED
SCORE: 0.221

Landslide

RANK: 2 / 6 DISTRICTS ASSESSED
SCORE: 0.309

Storm Surge

RANK: 2 / 6 DISTRICTS ASSESSED
SCORE: 0.293

Tropical Cyclone Winds

RANK: 6 / 6 DISTRICTS ASSESSED
SCORE: 0.265

Wildfire

RANK: 5 / 6 DISTRICTS ASSESSED
SCORE: 0.184

MULTI-HAZARD RISK (MHR)

3 / 6
RANK WITHIN DISTRICTS
SCORE: 0.459

Stann Creek's score and ranking are due to High Multi-hazard Exposure combined with Very Low Vulnerability and Low Coping Capacity scores.

Multi-hazard risk component scores compared to overall average country scores:

STANN CREEK SCORE
COUNTRY SCORE

Multi-Hazard Exposure

0.276
0.371

Vulnerability

0.341
0.509

Coping Capacity

0.397
0.470

STANN CREEK RECOMMENDATIONS

1

Population Pressures

Stann Creek ranks the 3rd of 6 in population pressures in Belize. Contributing to the high score is high amounts of annual population change in the district. Migration into or out of urban centers makes planning difficult for disasters, community policing, providing of healthcare, and can strain government services. Stann Creek also has the second highest unemployment rate.

Rapid changes in population size and distribution can alter population vulnerability characteristics presenting planning challenges and destabilizing social, economic, and environmental systems. Increased population pressures require disaster managers to realign needs, institutional structures, and available resources to support delivery of basic resources before, during, and after an event.

STANN CREEK RECOMMENDATIONS

2

Economic Constraints

Stann Creek ranks 4th of 6 for economic constraints. This district has close to average unemployment in Belize, however it was a high 9.45%. Increasing funding for job training, trade skills, and continuing education can help the population gain new skills for the workforce. Additionally encouraging investment in sustainable agriculture, tourism and eco-tourism can build a long term, educated workforce.

Stann Creek also has a high economic dependency ratio (70.6). This can be seen as a measure of the financial pressure on the working population of a community. The higher the ratio, the more non-workers there are relative to the number of workers. With low levels of underemployment, this most likely points to a higher population of young or elderly within the care of the working population. Therefore, increasing support services for these particularly vulnerable populations will ease the burden on those who are working. This could include childcare subsidies, elderly daycares, and better access to healthcare services.

Additionally, catalyzing growth using the wealth of environmental assets that Stann Creek has to offer can help to increase economic capacity and protect the natural resources. Over 45% of the district is already in protection status. Creating economic opportunity through sustainable eco-tourism and cultural tourism, with input from the indigenous populations, can offer unique experiences for tourists, while bringing in economic stability and long term funding for continued conservation efforts

STANN CREEK RECOMMENDATIONS

3

Governance

Stann Creek ranks the lowest in Governance of the 6 districts in Belize. Contributing to the low score is the second highest major crime rate per 10,000 persons. High crime rates break down neighborhoods, degrade social and community ties, and destabilize civil society. Stann Creek also ranks 5th of 6 for voter participation. Low voter participation can mean disillusionment, indifference with the government, or lack of faith in government functions. This can directly impact a person's choices to participate in criminal activities.

Lower crime rates by addressing the drivers of criminal activity in society. Stann Creek has the second highest unemployment rate in the country, although it has moderate scores in economic capacity. Diversifying the types of available employment options may help bridge the gap and creating social programs for indigenous populations and lower income populations that are specific to their needs can help to build trust and community. Work to build faith in the citizens through community outreach and education programs to increase civic participation.

STANN CREEK RECOMMENDATIONS

4

Economic Capacity

Stann Creek has a moderate score in economic capacity. Lower economic capacity can exacerbate access to adequate health care, food stability, proper nutrition, and strain the environment and social services. Low amounts of home ownership are driving this score.

Evaluate disaster response and recovery plans to ensure the inclusion of economically vulnerable populations in long- and short-term recovery processes. Residents who rent properties are especially vulnerable in disasters due to lack of insurance or protection plans if their housing or jobs or destroyed. More renters can also mean changing or flexible populations who are not as invested in their community's success as a whole. Use opportunities in the growing tourism business sector (second highest growth in Belize from 2016-2019 and second highest revenue per room) to build community consensus on growth and sustainable development. This can mean creating industry and community partnerships that can be useful during disaster recovery. Create public policies guaranteeing equal opportunity and fair wages for all, even outside of tourism-based business.

Assess feasibility of government programs to assist in job creation and economic growth through education and short-term assistance designed to promote self-sustaining economic opportunities and decrease long-term reliance on government programs.

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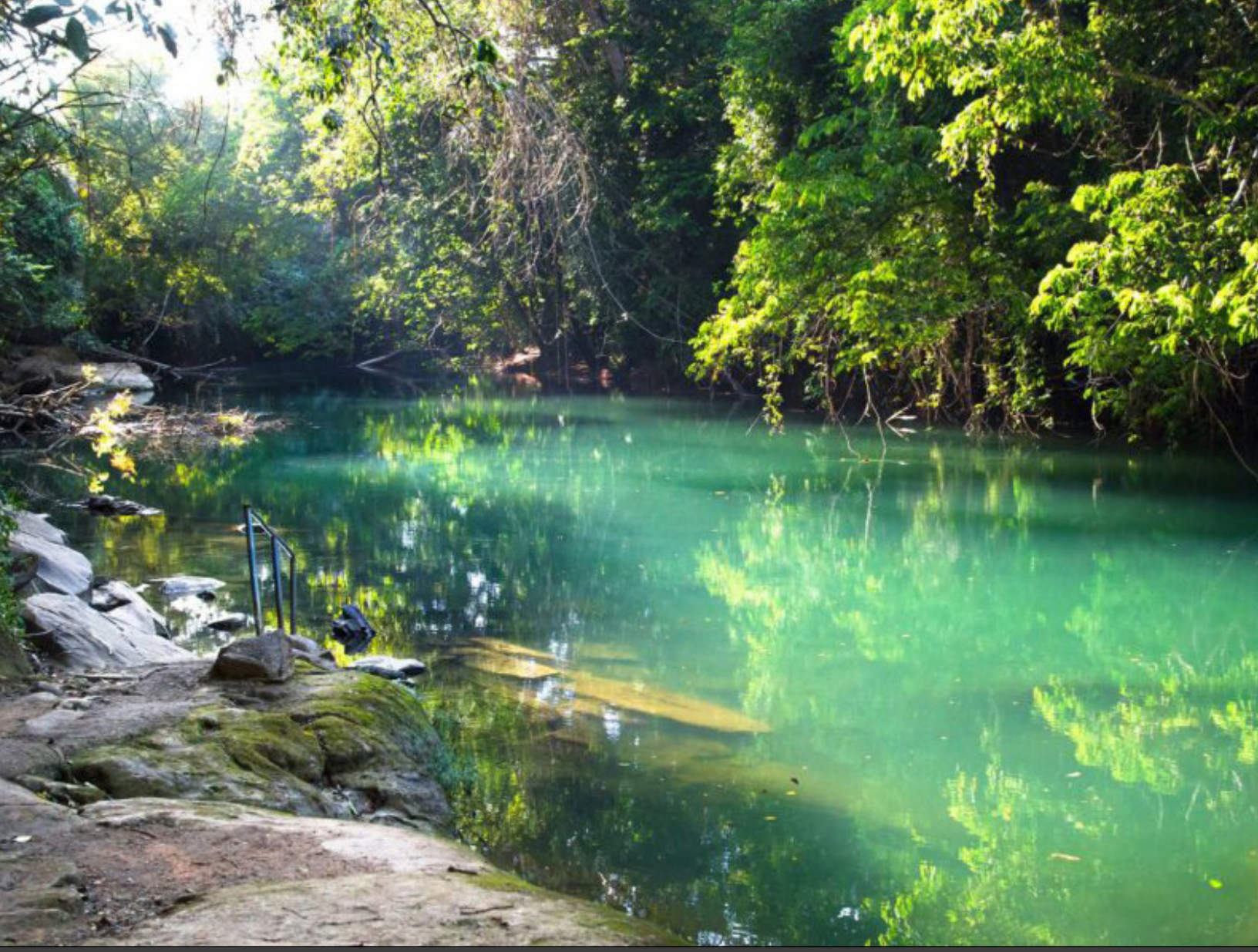

BELIZE

TOLEDO

NDPBA DISTRICTS PROFILE

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BELIZE
TOLEDO

CAPITAL: PUNTA GORDA

Area: 4,813 km^2

The Toledo District Is located in the Southern region of Belize. This District is divided into 63 Cities, Towns and Villages: Punta Gorda (The Capital), is the main city. The District borders Stann Creek to the north, Cayo to the northwest, Guatemala to the west and south, and the Atlantic Ocean to the east. The main economic sources for the country of Belize continues to be tourism, sugar, banana, citrus, marine products and crude oil.

RISK AND VULNERABILITY

COMPONENT SCORE

MULTI-HAZARD RISK (MHR) - Extremely High
Score: 0.719 • Rank: 1/6

RESILIENCE (R) - Very Low
Score: 0.285 • Rank: 6/6

MULTI-HAZARD EXPOSURE (MHE) - Very High
Score: 0.756 • Rank: 2/6

VULNERABILITY (V) - Extremely High
Score: 0.733 • Rank: 1/6

COPING CAPACITY (CC) - Very Low
Score: 0.304 • Rank: 6/6

*For more information on data and components please visit: https://bit.ly/2LqVoUO

Population (2010 Census)
30,785

Population in lowest wealth quintile
65.1%

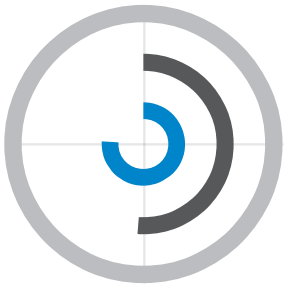
Population with no secondary school education
76.4%

Households with unimproved water access
6.78% households

Infant mortality rate (per 1,000 live births)
29.5

MULTI-HAZARD EXPOSURE (MHE)

RANK: 2 / 6 DISTRICTS
SCORE: 0.756



MHE
0.756

Raw MHE
0.511

Relative MHE
1.000

ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:

Earthquake
100.0%
31,346
$1.7 Billion
Critical Infrastructure Exposed:
99.3%

Extreme Heat
61.7%
19,333
$318.2 Million
Critical Infrastructure Exposed:
75.4%

Flood
32.5%
10,178
$971.8 Million
Critical Infrastructure Exposed:
38.4%

Landslide
6.9%
2,169
$19.6 Million
Critical Infrastructure Exposed:
9.4%

Storm Surge
5.3%
1,664
$47.7 Million
Critical Infrastructure Exposed:
4.4%

Tropical Cyclone Winds
100.0%
31,346
$1.7 Billion
Critical Infrastructure Exposed:
100.0%

Wildfire
77.1%
24,171
$829.4 Million
Critical Infrastructure Exposed:
83.3%

VULNERABILITY (V)

RANK: 1 / 6 DISTRICTS ASSESSED
SCORE: 0.733

Vulnerability in Toledo is primarily driven by Vulnerable Health Status and Information Access Vulnerability. The bar charts indicate the socioeconomic themes contributing to the overall Vulnerability score.

Environmental Stress

SCORE: 0.451 **RANK: 5/6** DISTRICTS ASSESSED

13.7%
Tree cover loss

-9.2%
Projected changes in annual precipitation

15.5%
Decline in land productivity

Vulnerable Health Status

SCORE: 0.930 **RANK: 1/6** DISTRICTS ASSESSED

189.37
TB infections per 10k persons

33.22
Dengue incidence per 100k persons

3770.76
Malaria incidence per 100k persons

Clean Water Vulnerability

SCORE: 0.814 **RANK: 1/6** DISTRICTS ASSESSED

6.78%
Households with unimproved water access

49.09%
Households with unimproved sanitation

Information Access Vulnerability

SCORE: 0.909 **RANK: 1/6** DISTRICTS ASSESSED

69.2%
Adult literacy

81.7
Primary to secondary school transition rate

26.5%
Working population with no secondary school education

26.5%
Households without radio access

52.7%
Households without television access

96.6%
Households without Internet access

Economic Constraints **SCORE: 0.750** **RANK: 1/6** DISTRICTS ASSESSED

0 — 1

5.7% Average unemployment (2019)	**36.7%** Under-employment (2019)	**88.1** Economic dependency ratio	**65.1%** Population in lowest wealth quintile

Gender Inequality **SCORE: 0.585** **RANK: 2/6** DISTRICTS ASSESSED

0 — 1

99.72 Domestic violence cases per 10k persons	**0,680** Female economic opportunity score	**2** Female economic opportunity rank	**1.05** Female to male secondary school transition ratio	**0.28** Female to male income ratio	**0.44** Female to male labor force participation ratio	**0.964** Female healthcare access score

1 Female healthcare access rank	**29.5** Infant mortality rate (per 1,000 live births)	**304.9** Maternal mortality rate (per 100k live births)	**98.0** Adolescent birth rate (per 1,000 women)	**31.0%** Unmet need for contraception

Population Pressures **SCORE: 0.692** **RANK: 2/6** DISTRICTS ASSESSED

0 — 1

2.81% Average annual population change	**2.12%** Average annual urban population change	**33.20%** Prevalence of stunting

COPING CAPACITY (CC)

RANK: 6 / 6 DISTRICTS ASSESSED
SCORE: 0.304

Toledo exhibits weaker Coping Capacity in the areas of Communications Capacity and Communications Capacity. The bar charts indicate the socioeconomic themes contributing to the overall Coping Capacity score.

Economic Capacity **SCORE: 0.213** **RANK: 6/6** DISTRICTS ASSESSED

0 — 1

77.3% Households owning homes

2.3% Change in active tourism business

$83.57 Average revenue per room (BZ$)

$988.84 Median monthly income (BZ$)

60.57 Labor force participation rate

7.2% Population in highest wealth quintile

Governance **SCORE: 0.333** **RANK: 5/6** DISTRICTS ASSESSED

0 — 1

77.8% Voter participation

21.6% Households with municipal garbage collection

13.23 Crime rate per 10k persons

Environmental Capacity **SCORE: 0.966** **RANK: 2/6** DISTRICTS ASSESSED

0 — 1

100.0% Land area with low interannual water variability

52.4% Percent protected land area

Infrastructure Capacity **SCORE: 0.175** **RANK: 6/6** DISTRICTS ASSESSED

0 — 1

Health Care Capacity **SCORE: 0.340** **RANK: 6/6** DISTRICTS ASSESSED

12.76 Health care centers per 10,000 persons

4.55 Physicians per 10,000 persons

7.80 Nurses per 10,000 persons

78.6% Immunization coverage

21.15 Average distance to hospital (km)

11.04 Hospital beds per 10,000 persons

Transportation Capacity **SCORE: 0.000** **RANK: 6/6** DISTRICTS ASSESSED

0.3 Road density (km)

12.5 Average distance to port facility (km)

Communications Capacity **SCORE: 0.000** **RANK: 6/6** DISTRICTS ASSESSED

5.37
Average distance to cell tower (km)

8.5%
Households with fixed phone

55.5%
Households with mobile phone

Energy Capacity **SCORE: 0.000** **RANK: 6/6** DISTRICTS ASSESSED

70.8%
Households with electricity

58.4%
Households using gas for cooking

Emergency Services Capacity **SCORE: 0.536** **RANK: 4/6** DISTRICTS ASSESSED

1,674
Emergency shelter capacity per 10,000 persons

12.9
Average distance to warehouse (km)

1.5
Average distance to emergency shelter (km)

19.7
Average distance to fire station (km)

11.0
Average distance to police station (km)

RESILIENCE (R)

RANK: 6 / 6 DISTRICTS ASSESSED
SCORE: 0.285

Toledo's score and ranking are due to Extremely High Vulnerability combined with Very Low Coping Capacity scores.

Below are the four thematic areas with the weakest relative scores:

- **Vulnerable Health Status**
- **Information Access Vulnerability**
- **Communications Capacity**
- **Communications Capacity**

HAZARD-SPECIFIC RISK (HSR)

	RANK	SCORE
Earthquake	1 / 6 DISTRICTS ASSESSED	0.715
Extreme Heat	1 / 6 DISTRICTS ASSESSED	0.503
Flood	1 / 6 DISTRICTS ASSESSED	0.570
Landslide	1 / 6 DISTRICTS ASSESSED	0.583
Storm Surge	4 / 6 DISTRICTS ASSESSED	0.242
Tropical Cyclone Winds	2 / 6 DISTRICTS ASSESSED	0.432
Wildfire	3 / 6 DISTRICTS ASSESSED	0.330

MULTI-HAZARD RISK (MHR)

1 / 6
RANK WITHIN DISTRICTS
SCORE: 0.719

Toledo's score and ranking are due to Very High Multi-hazard Exposure combined with Extremely High Vulnerability and Very Low Coping Capacity scores.

Multi-hazard risk component scores compared to overall average country scores:

TOLEDO SCORE
COUNTRY SCORE

Multi-Hazard Exposure

0.756
0.371

Vulnerability

0.733
0.509

Coping Capacity

0.304
0.470

TOLEDO RECOMMENDATIONS

1

Vulnerable Health Status

Toledo scores the highest in the country for Vulnerable Health Status. Contributing to the high score is the highest rate of Malaria (from 2010) and the second highest for Tuberculosis rates (2010). While Malaria may be mostly eradicated in the country since 2019, in the case of Tuberculosis, immunization campaigns can be helpful, but so can improving environmental health conditions like indoor air quality during cooking, reducing overcrowded living circumstances and improving nutrition among the impoverished (PAHO/WHO, 2021). Early diagnosis of tuberculosis, systematic screening and treatment, collaborative tuberculosis/HIV activities, and preventive treatment of persons at high risk are among the pillars of the World Health Organization's Global Tuberculosis Strategy to end Tuberculosis worldwide (WHO, 2014).

Toledo also has the highest numbers of homes with unimproved sanitation (49%), the highest numbers for unmet need of contraception in women, and the highest numbers of infant and maternal mortality. It also has the highest percentage of its critical infrastructure exposed to hazards. Investing in public health campaigns for women and families, inclusive of immunization campaigns, can trickle to better long term health and nutrition. Increase clean sanitation access to lessen the spread of infectious disease in the community and increase access to critical care infrastructure like clinics and hospitals. Building protected health care infrastructure that caters to these needs in disaster prone areas is critical to providing short and long term emergency services.

TOLEDO RECOMMENDATIONS

2

Information Access Vulnerability

Toledo scores the highest in Belize for Information Access Vulnerability. 96% of homes in Toledo do not have internet leaving many to rely on broadband radio and television to receive their information. However, in Toledo, only 47% of households have television and 75% have radio. Lack of access to information hinders the ability of government agencies to share critical information during disasters. Lack of access to information can also contribute to limited access to education, healthcare, and other needs. In a district with highly vulnerable health status, the access to information is critical, especially to educate to reduce disease vectors of communicable diseases and ensure vaccination rates.

Increase network infrastructure to increase coverage, accessibility, and reliability of communications for day-to-day use and especially during disasters. Encourage telecommunication infrastructure development at a sustainable pace. Encourage education and the use public resources for access to the internet and television.

Furthermore, access to education and the ability to digest complex information can significantly improve a population's ability to find shelter, economic stability and fulfil nutritional needs during and after a disaster. 76% of Toledo's working population has had no secondary school and only 69% of the district's adults are literate (the lowest ranking in the nation). Advancing formal and informal education and job training programs and providing opportunities for secondary education for adults can improve these rankings and provide stability for the economy, as well as improving access to important health information.

TOLEDO RECOMMENDATIONS

3

Communications Capacity

Building upon the deficiencies in information access, Toledo also ranks the lowest of all 6 districts in Communications Capacity. Contributing to the low score is the lowest number of households with a mobile or landline telephone. Couple this with the lowest numbers of homes having access to internet, radio, or television and there is a significant barrier to getting information to the local population. Lack of capability to quickly communicate messages from government to citizens can greatly exacerbate the effects of a natural disaster. It also increases response times for first responders because many lack access to place a call.

Develop a sustainable plan to have every household have at least one kind of phone access. This ensures that messages can be passed during emergencies. Offer low or reduced cost mobile phone or offer incentives to increase the number of households with a mobile telephone line. This will need to be coupled with building out cell tower infrastructure, as Toledo also has the third furthest distance to cell towers from populated places. Identify secondary and tertiary communication plans in the event of emergencies that do not require the use of telephone lines. Work with nonprofits like the Red Cross or PAHO to help distribute emergency radios and encourage investment for telecommunications like Broadband.

TOLEDO RECOMMENDATIONS

4

Communications Capacity

Energy and Transportation Capacity are often linked. In Toledo, only 71% of households had access to electricity and only 58% had access to Gas for cooking. These two indicators were the lowest rates of any of the districts for energy capacity. Improve access to electricity from the Hydroelectric facility in the district and offer subsidies for more off-grid electricity options in areas where direct connections are not economically feasible.

Electrical access often follows maintained roadways. The Toledo district has the lowest road density of all the districts. It is a large district but there are populated areas without direct road access. This also usually correlates with these areas not having access to energy. Toledo also has the longest distance to ports and airports of all the districts. Building transportation capacity in the district will allow for additional energy and economic development to occur and can speed up the delivery of emergency and recovery supplies and materials after a disaster. Clear and direct access to ports and airports are critical to the flow of emergency relief.

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