



NDPBA

TRINIDAD AND TOBAGO MUNICIPAL RISK PROFILES

**SUBNATIONAL ASSESSMENT
RESULTS**





TRINIDAD AND TOBAGO

ARIMA

NDPBA MUNICIPALITIES PROFILE

TRINIDAD AND TOBAGO

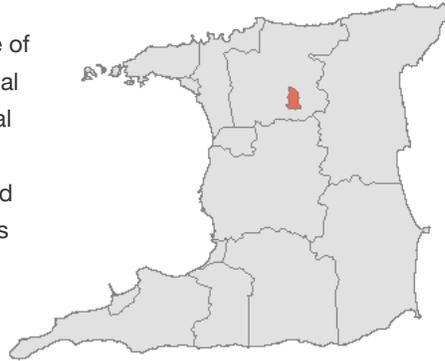
ARIMA



CAPITAL: ARIMA

Area: 12 km²

Located in northern Trinidad, the Borough of Arima is the one of the smallest and second least populous municipalities/regional corporations in the country. Arima is bordered by the Regional Corporation of Tunapuna-Piarco on all sides. Geographic features include generally flat to gently sloping terrain, drained by the Arima and Mausica rivers. The predominant land use is urban. Primary economic drivers are retail and distribution, assembly and related industries, and construction.



RISK AND VULNERABILITY COMPONENT SCORE



MULTI-HAZARD RISK (MHR) - Low
Score: 0.426 • Rank: 12/15



RESILIENCE (R) - Very High
Score: 0.581 • Rank: 2/15



MULTI-HAZARD EXPOSURE (MHE) - Moderate
Score: 0.441 • Rank: 7/15



VULNERABILITY (V) - Very Low
Score: 0.304 • Rank: 15/15



COPING CAPACITY (CC) - Moderate
Score: 0.467 • Rank: 9/15



Population (2011 Census)
33,606



Population in Poverty
4.5%



Population with less than a secondary education
20.9%



Access to improved water
99.3% households



Infant mortality rate (per 1,000 live births)
83

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



MULTI-HAZARD EXPOSURE (MHE)

RANK: 7 / 15 MUNICIPALITIES
SCORE: 0.441



MHE
0.441

Raw MHE
0.128

Relative MHE
0.754

ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:



Earthquake

100.0%

36,604

\$1.7 Billion



Flood

97.2%

35,590

\$1.7 Billion



Landslide

100.0%

36,604

\$1.7 Billion



Coastal Flood

0.0%

0

-



Tropical Cyclone Winds

100.0%

36,604

\$1.7 Billion



Wildfire

0.0%

0

-



VULNERABILITY (V)

RANK: 15 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.304

Vulnerability in Arima is primarily driven by Gender Inequality and Vulnerable Health Status. The bar charts indicate the socioeconomic themes contributing to the overall Vulnerability score.



Environmental Stress

0 1 **SCORE: 0.186** **RANK: 14/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|---|--|--|--|--|--|---|---|
| 0.2% Households affected by deforestation | 15% Households affected by drainage issues | 7.3% Households affected by flooding | 1.59% Households affected by sewage issues | 1.7% Households affected by soil erosion | 1.6% Households affected by solid waste issues | 0.9% Households affected by wastewater issues | 1.5% Households affected by water contamination |
|---|--|--|--|--|--|---|---|



Vulnerable Health Status

0 1 **SCORE: 0.457** **RANK: 6/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|--|---|--|---|--|-------------------------------------|-----------------------------------|--|
| 19.0% Persons with chronic illness | 83.1 Infant mortality rate (per 1k live births) | 3.4% Persons with long-standing disability | 0.6% Population in collective living quarters | 1.49 Chikungunya cases per 10k | 0.60 Dengue cases per 10k | 7.14 Zika cases per 10k | 0.30 Leptospirosis cases per 10k |
|--|---|--|---|--|-------------------------------------|-----------------------------------|--|



Clean Water Vulnerability

0 1 **SCORE: 0.000** **RANK: 15/15 MUNICIPALITIES ASSESSED**

| | |
|--|---|
| 99.3% Households with access to improved water | 2.6% Households with inadequate toilet facilities |
|--|---|



Information Access Vulnerability

0 1 **SCORE: 0.181** **RANK: 14/15 MUNICIPALITIES ASSESSED**

| | | | |
|---|---|---------------------------------------|---------------------------------------|
| 20.9% Population with less than secondary education | 45.3% Households with no Internet | 10.2% Households with no TV | 16.9% Households with radio |
|---|---|---------------------------------------|---------------------------------------|



Economic Constraints

0 1 **SCORE: 0.219** **RANK: 12/15 MUNICIPALITIES ASSESSED**

| | | | |
|-------------------------------------|--|---|-----------------------------|
| 43.0 Age dependency ratio | 45.8% Households with no vehicle | 8.7% Population with unmet housing need | 4.5% Poverty rate |
|-------------------------------------|--|---|-----------------------------|



Gender Inequality

0  1 **SCORE: 0.638** **RANK: 4/15 MUNICIPALITIES ASSESSED**

0.79

Female to male labor participants

0.90

Female to male secondary education attainment



Population Pressures

0  1 **SCORE: 0.450** **RANK: 7/15 MUNICIPALITIES ASSESSED**

0.4%

Average annual population change

-37.6

Net migration rate



COPING CAPACITY (CC)

RANK: 9 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.467

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



Economic Capacity

0  1 **SCORE: 0.602** **RANK: 4/15 MUNICIPALITIES ASSESSED**

45.6% Labor force participation rate
\$5,995 Annual household income per capita (USD)
3.8 Financial institutions per 10k persons



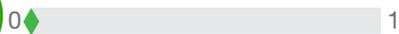
Governance

0  1 **SCORE: 0.347** **RANK: 14/15 MUNICIPALITIES ASSESSED**

232.5 Serious crimes reported per 10k persons
36.4% Voter participation
3.1% Households with unmet need for refuse collection



Environmental Capacity

0  1 **SCORE: 0.000** **RANK: 13/15 MUNICIPALITIES ASSESSED**

0.0% Protected areas (sq km)



Infrastructure Capacity

0  1 **SCORE: 0.606** **RANK: 5/15 MUNICIPALITIES ASSESSED**



Health Care Capacity

SCORE: 0.392 **RANK: 8/15 MUNICIPALITIES ASSESSED**

0.3 Health care facilities (per 10k persons)
10.6 Average distance to hospital (km)
22.1% Population with private health insurance



Transportation Capacity

SCORE: 0.882 **RANK: 2/15 MUNICIPALITIES ASSESSED**

28.6 Road density (km per sq. km)
7.4 Average distance to nearest port (km)



Communications Capacity

SCORE: 0.500 **RANK: 6/15 MUNICIPALITIES ASSESSED**

89.0% Population using mobile phones
5.2 Mobile and wireless infrastructure (per 10k persons)



Emergency Services Capacity

SCORE: 0.652 **RANK: 5/15 MUNICIPALITIES ASSESSED**

2.2 Average distance to fire station (km)
0.9 Average distance to police station (km)
1.9 Emergency shelters (per 10k persons)



RESILIENCE (R)

RANK: 2 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.581

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

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



Gender Inequality



Vulnerable Health Status



Governance



Health Care Capacity



HAZARD-SPECIFIC RISK (HSR)



Earthquake

RANK: 14 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.225



Coastal Flood

RANK: 15 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.000



Flood

RANK: 10 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.231



Landslide

RANK: 5 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.283



Wildfire

RANK: 14 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.000



Tropical Cyclone Winds

RANK: 14 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.225



MULTI-HAZARD RISK (MHR)

12 / 15

RANK WITHIN MUNICIPALITIES
Score: 0.426



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



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



Multi-Hazard Exposure



Vulnerability



Coping Capacity



ARIMA RECOMMENDATIONS

1

Gender Inequality

Findings show that Arima ranks 4th for overall Gender Inequality, driven by the highest gender disparity related to Secondary School Enrollment. Design and implement intervention strategies to promote and sustain engagement of both male and female students in secondary-level education and reduce dropout rates.

Promote development and empowerment of young people through social support structures and employment opportunities. This may help in reducing the number of adolescent births among young women and lower the likelihood of young people engaging in criminal activities.

In Arima, just over 50% of females age 15 and above participate in the Labor Force. Promote workforce opportunities for women that include quality, affordable childcare to boost economic growth and reduce economic dependency.

2

Vulnerable Health Status

Arima ranks 6th for overall Vulnerable Health Status in the country, driven by the 2nd highest Infant Mortality Rate, and the 4th highest percentage of Populations in Collective Living Quarters.

Continue efforts by Regional Health Authorities to educate and deliver high-quality pre- and ante-natal care to pregnant women.

Improve delivery of health services to populations in collective living institutions, such as correctional facilities, orphanages, homes for the aged and differently abled, or worker camps where access to routine health care services may be limited or unavailable.

ARIMA RECOMMENDATIONS

3

Governance

Arima has the 2nd lowest overall Governance ranking, driven by the 2nd highest number of Serious Crimes Reported in the country (232 crimes per 10,000 persons), and the 5th lowest Voter Participation Rate. Continue implementation of the Ministry of National Security's (MNS) Citizen Security Programme (CSP) in high needs communities to strengthen institutional capacities of the MNS and local police, build public confidence and citizen support of measures to improve safety and security, and coordinate implementation of community-based crime prevention strategies.

Strengthen intervention programs and services that promote development and empowerment of young people, including reduction of risk factors (i.e., use of firearms, juvenile delinquency, domestic violence, child maltreatment, etc.)

Strengthen partnerships between government and civil society organizations to implement programs that engage youth in violence reduction/prevention and promote rehabilitation rather than institutionalization of first-time offenders.

4

Health Care Capacity

Arima's Health Care Capacity score is influenced by the 2nd lowest number of Health Care Facilities per 10,000 persons.

Continue working with the North Central Regional Health Authority to improve availability of health care services through expansion of health care infrastructure in the municipality. The average Distance to a Hospital in the Borough is over 10 kilometers away.

Strengthen programs focused on improving maternal and child health, particularly for those who are most vulnerable.

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Fewer disasters.**

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TRINIDAD AND TOBAGO

CHAGUANAS

NDPBA MUNICIPALITIES PROFILE

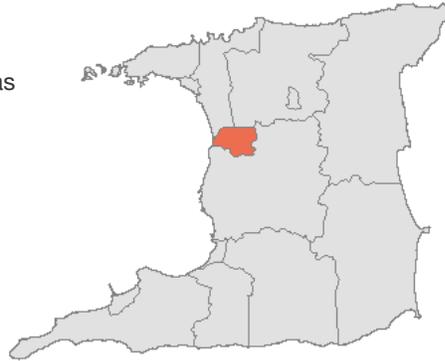
TRINIDAD AND TOBAGO CHAGUANAS



CAPITAL: CHAGUANAS

Area: 59 km²

The Borough of Chaguana is the one of the smaller municipalities/regional corporations in the country. Chaguana is bordered by the San Juan-Laventille and Tunapuna-Piarco Regional Corporations to the north, the Municipality of Couva-Tabaquite-Talparo to the south and east, and a small portion of coastline to the west. Geographic features include proximity to the Caroni Swamp, river systems, low-lying arable land, and coastline. Conversion of large expanses of agricultural land for urban residential and commercial development purposes are predominant land uses. Primary economic drivers are retail activity and some light industrial manufacturing.



RISK AND VULNERABILITY COMPONENT SCORE



MULTI-HAZARD RISK (MHR) - High
Score: 0.516 • Rank: 5/15



RESILIENCE (R) - Moderate
Score: 0.512 • Rank: 10/15



MULTI-HAZARD EXPOSURE (MHE) - High
Score: 0.571 • Rank: 5/15



VULNERABILITY (V) - Moderate
Score: 0.425 • Rank: 9/15



COPING CAPACITY (CC) - Low
Score: 0.449 • Rank: 11/15



Population (2011 Census)
83,516



Population in Poverty
8.9%



Population with less than a secondary education
24.5%



Access to improved water
98.8% households



Infant mortality rate (per 1,000 live births)
99

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



MULTI-HAZARD EXPOSURE (MHE)

RANK: 5 / 15 MUNICIPALITIES
SCORE: 0.571



MHE
0.571

Raw MHE
0.405

Relative MHE
0.738

ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:



Earthquake

100.0%

91,010

\$3.7 Billion



Flood

99.0%

90,115

\$3.7 Billion



Landslide

3.9%

3,544

\$294.9 Million



Coastal Flood

15.0%

13,614

\$353.4 Million



Tropical Cyclone Winds

100.0%

91,010

\$3.7 Billion



Wildfire

72.6%

66,070

\$3.1 Billion



VULNERABILITY (V)

RANK: 9 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.425

Vulnerability in Chaguanas is primarily driven by Population Pressures and Gender Inequality. The bar charts indicate the socioeconomic themes contributing to the overall Vulnerability score.



Environmental Stress

0 1 **SCORE: 0.478** **RANK: 9/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|---|--|---|--|--|--|---|---|
| 0.3% Households affected by deforestation | 28% Households affected by drainage issues | 17.0% Households affected by flooding | 2.89% Households affected by sewage issues | 0.8% Households affected by soil erosion | 1.8% Households affected by solid waste issues | 2.0% Households affected by wastewater issues | 2.4% Households affected by water contamination |
|---|--|---|--|--|--|---|---|



Vulnerable Health Status

0 1 **SCORE: 0.472** **RANK: 4/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|--|---|--|---|--|-------------------------------------|-----------------------------------|--|
| 20.6% Persons with chronic illness | 99.4 Infant mortality rate (per 1k live births) | 3.9% Persons with long-standing disability | 0.0% Population in collective living quarters | 0.84 Chikungunya cases per 10k | 0.60 Dengue cases per 10k | 5.51 Zika cases per 10k | 0.48 Leptospirosis cases per 10k |
|--|---|--|---|--|-------------------------------------|-----------------------------------|--|



Clean Water Vulnerability

0 1 **SCORE: 0.058** **RANK: 13/15 MUNICIPALITIES ASSESSED**

| | |
|--|---|
| 98.8% Households with access to improved water | 3.6% Households with inadequate toilet facilities |
|--|---|



Information Access Vulnerability

0 1 **SCORE: 0.315** **RANK: 12/15 MUNICIPALITIES ASSESSED**

| | | | |
|---|---|--------------------------------------|---------------------------------------|
| 24.5% Population with less than secondary education | 53.2% Households with no Internet | 9.4% Households with no TV | 19.0% Households with radio |
|---|---|--------------------------------------|---------------------------------------|



Economic Constraints

0 1 **SCORE: 0.074** **RANK: 14/15 MUNICIPALITIES ASSESSED**

| | | | |
|-------------------------------------|--|---|-----------------------------|
| 36.9 Age dependency ratio | 40.1% Households with no vehicle | 8.7% Population with unmet housing need | 8.9% Poverty rate |
|-------------------------------------|--|---|-----------------------------|



Gender Inequality

0  1 **SCORE: 0.689** **RANK: 2/15 MUNICIPALITIES ASSESSED**

0.66

Female to male labor participants

0.93

Female to male secondary education attainment



Population Pressures

0  1 **SCORE: 0.890** **RANK: 2/15 MUNICIPALITIES ASSESSED**

2.0%

Average annual population change

54.2

Net migration rate



COPING CAPACITY (CC)

RANK: 11 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.449

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



Economic Capacity

0  1 **SCORE: 0.405** **RANK: 9/15 MUNICIPALITIES ASSESSED**

46.2% Labor force participation rate
\$5,453 Annual household income per capita (USD)
1.3 Financial institutions per 10k persons



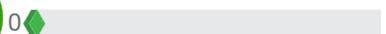
Governance

0  1 **SCORE: 0.666** **RANK: 6/15 MUNICIPALITIES ASSESSED**

117.1 Serious crimes reported per 10k persons
42.8% Voter participation
2.0% Households with unmet need for refuse collection



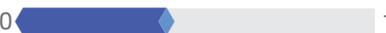
Environmental Capacity

0  1 **SCORE: 0.017** **RANK: 11/15 MUNICIPALITIES ASSESSED**

0.8% Protected areas (sq km)



Infrastructure Capacity

0  1 **SCORE: 0.419** **RANK: 9/15 MUNICIPALITIES ASSESSED**



Health Care Capacity

SCORE: 0.239 **RANK: 11/15 MUNICIPALITIES ASSESSED**

0.2 Health care facilities (per 10k persons)
13.3 Average distance to hospital (km)
18.3% Population with private health insurance



Transportation Capacity

SCORE: 0.629 **RANK: 5/15 MUNICIPALITIES ASSESSED**

10.9 Road density (km per sq. km)
9.7 Average distance to nearest port (km)



Communications Capacity

SCORE: 0.300 **RANK: 13/15 MUNICIPALITIES ASSESSED**

87.0% Population using mobile phones
5.4 Mobile and wireless infrastructure (per 10k persons)



Emergency Services Capacity

SCORE: 0.510 **RANK: 8/15 MUNICIPALITIES ASSESSED**

3.0 Average distance to fire station (km)
2.0 Average distance to police station (km)
1.2 Emergency shelters (per 10k persons)



RESILIENCE (R)

RANK: 10 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.512

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

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



Population Pressures



Gender Inequality



Communications Capacity



Economic Capacity



HAZARD-SPECIFIC RISK (HSR)



Earthquake

RANK: 8 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.319



Coastal Flood

RANK: 10 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.197



Flood

RANK: 4 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.334



Landslide

RANK: 14 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.008



Wildfire

RANK: 1 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.430



Tropical Cyclone Winds

RANK: 8 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.319



MULTI-HAZARD RISK (MHR)

5 / 15

RANK WITHIN MUNICIPALITIES
Score: 0.516



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



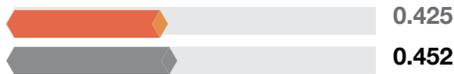
Multi-hazard risk component scores compared to overall average country scores:



Multi-Hazard Exposure



Vulnerability



Coping Capacity



CHAGUANAS RECOMMENDATIONS

1

Population Pressures

Chaguanas ranks 2nd overall for Population Pressures, with the 2nd highest Average Annual Population Growth (2%) and 3rd highest Net Migration Rate (54.2 per 1,000). Rapid population growth and urbanization in Chaguanas has led to a number of issues related to rapid and unplanned development. Pollution, traffic congestion, illegal land and building development practices, inadequate social facilities, poor drainage infrastructure and waste management practices, and damage to fragile ecosystems are among the issues cited in the Chaguanas Regional Corporation Local Area Economic Profile.

Strengthen short- and long-term development planning through multi-stakeholder engagement. Increase oversight in planning processes to anticipate the needs of the growing population and encourage equitable distribution of services and infrastructure – including housing, transportation, health care, and communications.

Strengthen enforcement of engineering standards and building codes and provide incentives for the implementation of risk reduction initiatives as new infrastructure and housing developments ensue to minimize future damages and losses resulting from the impacts of natural hazards.

2

Gender Inequality

Findings show that Chaguanas ranks 2nd for overall Gender Inequality, driven by the 3rd highest gender disparity related to Secondary School Enrollment, and the 7th highest disparity with regards to Labor Ratio.

Partner with government ministries and non-governmental organizations (NGOs) to expand implementation of programs and support centers such as the Unemployment Relief Programme (URP) and the Women's Entrepreneurship Resource Centre (WERC) to increase opportunities for employment and self-employment for women and girls.

Chaguanas has a high adolescent birth rate (52 per 1,000 women age 15-19) according to the Chaguanas Local Area Economic Profile. Promote workforce opportunities for women that include quality, affordable childcare to increase participation in the labor force and reduce economic dependency.

CHAGUANAS RECOMMENDATIONS

3

Communications Capacity

Chaguanas has the 3rd lowest Communications Capacity score, driven by the 3rd lowest density of Mobile and Wireless Infrastructure in the country.

Invest in and plan for expansion of communications infrastructure to accommodate the information needs of the growing population.

Strengthen local government initiatives to increase the use of information communication technologies that allow residents to access online services and information.

4

Economic Capacity

Chaguanas has the 7th lowest overall Economic Capacity in the country, driven by the 4th lowest Household Income per Capita (\$5,453). Once largely agriculture-based, the local economy is now based primarily on retail activity and light industrial manufacturing. Areas of economic expansion and diversification include non-sugar related agriculture, agro-processing, the food and beverage market, construction, transport, cultural and creative industries, and tourism.

Implement programs geared toward building vocational, entrepreneurial, and technical skills of residents and small business owners to support transition into higher wage jobs as employment opportunities in Chaguanas grow.

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TRINIDAD AND TOBAGO

COUVA-TABAQUITE-TALPARO

NDPBA MUNICIPALITIES PROFILE

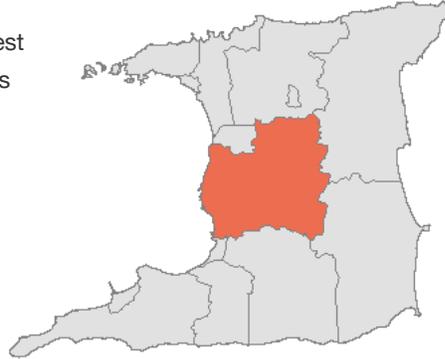
TRINIDAD AND TOBAGO COUVA-TABAQUITE-TALPARO



CAPITAL: COUVA

Area: 723 km²

The Municipality of Couva-Tabaquite-Talparo is the third largest and second most populous municipality/regional corporations in the country. Couva-Tabaquite-Talparo is bordered by the Chaguanas Borough and the Tunapuna/Piarco Regional Corporation in the north, the Sangre Grande and Mayaro/Rio Claro Regional Corporations in the east, the San Fernando and Princes Town Regional Corporations in the south, and the Gulf of Paria in the west. Geographic features include river systems originating from the Central Range, forest reserves, mangrove swamps, and reservoirs. Land use is mixed, with tree crop and agricultural areas, old sugarcane lands, large sporting facilities, light and heavy industrial parks, and rural and urban settlements. Primary economic drivers are retail and distribution, personal services, and construction.



RISK AND VULNERABILITY COMPONENT SCORE



MULTI-HAZARD RISK (MHR) - Very High
Score: 0.561 • Rank: 3/15



RESILIENCE (R) - Moderate
Score: 0.509 • Rank: 9/15



MULTI-HAZARD EXPOSURE (MHE) - Very High
Score: 0.702 • Rank: 3/15



VULNERABILITY (V) - Moderate
Score: 0.426 • Rank: 8/15



COPING CAPACITY (CC) - Very Low
Score: 0.444 • Rank: 13/15



Population (2011 Census)
178,410



Population in Poverty
10.5%



Population with less than a secondary education
30.6%



Access to improved water
95.4% households



Infant mortality rate (per 1,000 live births)
58

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



MULTI-HAZARD EXPOSURE (MHE)

RANK: 3 / 15 MUNICIPALITIES
SCORE: 0.702



MHE
0.702

Raw MHE
0.759

Relative MHE
0.645

ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:



Earthquake

100.0%
182,698
\$8.7 Billion



Flood

93.2%
170,353
\$8.2 Billion



Landslide

20.9%
38,215
\$2.4 Billion



Coastal Flood

8.3%
15,066
\$688.6 Million



Tropical Cyclone Winds

100.0%
182,698
\$8.7 Billion



Wildfire

47.3%
86,316
\$5.4 Billion



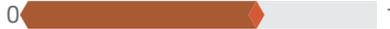
VULNERABILITY (V)

RANK: 8 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.426

Vulnerability in Couva-Tabaquite-Talparo is primarily driven by Environmental Stress and Gender Inequality. The bar charts indicate the socioeconomic themes contributing to the overall Vulnerability score.



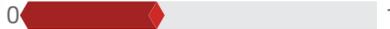
Environmental Stress

0  1 **SCORE: 0.667** **RANK: 1/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|---|--|---|--|--|--|---|---|
| 0.6% Households affected by deforestation | 34% Households affected by drainage issues | 23.4% Households affected by flooding | 2.10% Households affected by sewage issues | 4.9% Households affected by soil erosion | 3.2% Households affected by solid waste issues | 2.3% Households affected by wastewater issues | 3.6% Households affected by water contamination |
|---|--|---|--|--|--|---|---|



Vulnerable Health Status

0  1 **SCORE: 0.375** **RANK: 11/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|--|---|--|---|--|-------------------------------------|-----------------------------------|--|
| 20.5% Persons with chronic illness | 57.9 Infant mortality rate (per 1k live births) | 3.7% Persons with long-standing disability | 0.1% Population in collective living quarters | 0.73 Chikungunya cases per 10k | 0.39 Dengue cases per 10k | 3.36 Zika cases per 10k | 1.18 Leptospirosis cases per 10k |
|--|---|--|---|--|-------------------------------------|-----------------------------------|--|



Clean Water Vulnerability

0  1 **SCORE: 0.450** **RANK: 8/15 MUNICIPALITIES ASSESSED**

| | |
|--|--|
| 95.4% Households with access to improved water | 11.0% Households with inadequate toilet facilities |
|--|--|



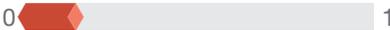
Information Access Vulnerability

0  1 **SCORE: 0.415** **RANK: 9/15 MUNICIPALITIES ASSESSED**

| | | | |
|---|---|--------------------------------------|---------------------------------------|
| 30.6% Population with less than secondary education | 68.1% Households with no Internet | 8.4% Households with no TV | 17.9% Households with radio |
|---|---|--------------------------------------|---------------------------------------|



Economic Constraints

0  1 **SCORE: 0.146** **RANK: 13/15 MUNICIPALITIES ASSESSED**

| | | | |
|-------------------------------------|--|---|------------------------------|
| 38.4 Age dependency ratio | 41.2% Households with no vehicle | 9.3% Population with unmet housing need | 10.5% Poverty rate |
|-------------------------------------|--|---|------------------------------|



Gender Inequality

0  1 **SCORE: 0.487** **RANK: 8/15 MUNICIPALITIES ASSESSED**

0.70

Female to male labor participants

0.95

Female to male secondary education attainment



Population Pressures

0  1 **SCORE: 0.442** **RANK: 8/15 MUNICIPALITIES ASSESSED**

0.9%

Average annual population change

22.8

Net migration rate



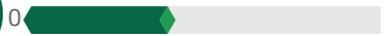
COPING CAPACITY (CC)

RANK: 13 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.444

Couva-Tabaquite-Talparo exhibits weaker Coping Capacity in the areas of Economic Capacity and Communications Capacity. The bar charts indicate the socioeconomic themes contributing to the overall Coping Capacity score.



Economic Capacity

0  1 **SCORE: 0.398** **RANK: 10/15 MUNICIPALITIES ASSESSED**

44.1% Labor force participation rate
\$6,716 Annual household income per capita (USD)
0.6 Financial institutions per 10k persons



Governance

0  1 **SCORE: 0.540** **RANK: 11/15 MUNICIPALITIES ASSESSED**

64.5 Serious crimes reported per 10k persons
41.1% Voter participation
6.0% Households with unmet need for refuse collection



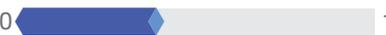
Environmental Capacity

0  1 **SCORE: 0.465** **RANK: 5/15 MUNICIPALITIES ASSESSED**

22.5% Protected areas (sq km)



Infrastructure Capacity

0  1 **SCORE: 0.389** **RANK: 10/15 MUNICIPALITIES ASSESSED**



Health Care Capacity

SCORE: 0.167 **RANK: 13/15 MUNICIPALITIES ASSESSED**

0.7 Health care facilities (per 10k persons)
15.4 Average distance to hospital (km)
12.8% Population with private health insurance



Transportation Capacity

SCORE: 0.528 **RANK: 7/15 MUNICIPALITIES ASSESSED**

3.3 Road density (km per sq. km)
6.3 Average distance to nearest port (km)



Communications Capacity

SCORE: 0.425 **RANK: 12/15 MUNICIPALITIES ASSESSED**

87.1% Population using mobile phones
7.8 Mobile and wireless infrastructure (per 10k persons)



Emergency Services Capacity

SCORE: 0.436 **RANK: 10/15 MUNICIPALITIES ASSESSED**

6.4 Average distance to fire station (km)
3.0 Average distance to police station (km)
3.5 Emergency shelters (per 10k persons)



RESILIENCE (R)

RANK: 9 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.509

Couva-Tabaquite-Talparo's score and ranking are due to Moderate Vulnerability combined with Very Low Coping Capacity scores.

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



Environmental Stress



Gender Inequality



Economic Capacity



Communications Capacity



HAZARD-SPECIFIC RISK (HSR)



Earthquake

RANK: 1 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.436



Coastal Flood

RANK: 9 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.210



Flood

RANK: 2 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.365



Landslide

RANK: 10 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.145



Wildfire

RANK: 2 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.398



Tropical Cyclone Winds

RANK: 1 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.436



MULTI-HAZARD RISK (MHR)

3 / 15

RANK WITHIN MUNICIPALITIES
Score: 0.561



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

█
█
█ COUVA-TABAQUITE-TALPARO SCORE
█ COUNTRY SCORE

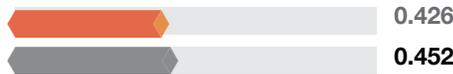
Multi-hazard risk component scores compared to overall average country scores:



Multi-Hazard Exposure



Vulnerability



Coping Capacity



COUVA-TABAQUITE-TALPARO RECOMMENDATIONS

1

Environmental Stress

Couva-Tabaquite-Talparo has the highest Environmental Stress of all municipalities in Trinidad and Tobago. Top issues affecting households include Flooding (23% of households) and Drainage (34% of households). Other significant environmental issues reported were Water Contamination, Solid Waste, Sewerage, and Deforestation. Findings also show that Couva-Tabaquite-Talparo has some of the highest exposure to multiple hazards, including flood, earthquake, wildfire and tropical cyclone winds. These hazards can exacerbate existing environmental issues.

Implement and/or strengthen community-based programs focused on enhancing hazard awareness and preparedness among local residents. Provide incentives to homeowners and businesses to invest in hazard mitigation activities to reduce hazard impacts.

Reduce environmental impacts related to waste disposal and drainage issues through improved planning, management and maintenance, especially in areas with frequent hazard impacts. Promote and organize community workdays to engage residents in activities that beautify and protect their neighborhoods, such as cleaning up rubbish, clearing drains and culverts, planting trees, dune restoration, etc.

2

Gender Inequality

Couva-Tabaquite-Talparo ranks 8th for overall Gender Inequality, driven primarily by a disparity in Secondary School Enrollment. Just 42% of women of working-age participate in the labor force as opposed to 69% of working-age men.

Design and implement education intervention strategies to promote and sustain engagement of both male and female students in secondary-level education to reduce dropout rates.

Promote involvement of women in the labor force by offering quality, affordable childcare to boost economic participation and reduce economic dependency.

COUVA-TABAQUITE-TALPARO

RECOMMENDATIONS

3

Economic Capacity

Couva-Tabaquite-Talparo has the 6th lowest overall Economic Capacity score and the 4th lowest number of Financial Institutions per 10,000 people. Once driven largely by sugar cane production, the regional corporation's economy is now a composite of energy, industry, construction, agricultural and commercial activities.

Increase access to financing and support structures (e.g. microfinance services and loans) for farmers, small business owners and medium-scale enterprises to expand production and marketability of produce, goods and services.

Continue efforts to provide access to vocational, technical and entrepreneurial training programs geared toward labor market needs to increase economic opportunities and household incomes.

4

Communications Capacity

Couva-Tabaquite-Talparo has the 4th lowest Communications Capacity in the country. In industrial, commercial and urban areas access to Information and Communications Technology (ICT) is reported to be of high quality, however there are some remote and rural locations in Couva-Tabaquite-Talparo that lack reliable service.

Improve access and reliability of ICT services to populations in remote areas. These services will provide alternative means by which residents can receive hazard alerts and warning messages and communicate during emergencies. Improved communications capacity will also help support business operations in rural areas.

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TRINIDAD AND TOBAGO

DIEGO MARTIN

NDPBA MUNICIPALITIES PROFILE

TRINIDAD AND TOBAGO DIEGO MARTIN



CAPITAL: DIEGO MARTIN

Area: 126 km²

Situated in northeast Trinidad, the Municipality of Diego Martin is the fourth most populous municipality/regional corporation in the country. Diego Martin is bordered by San Juan-Laventille to the east, Port of Spain to the southeast, the Gulf of Paria to the south, and the Caribbean Sea to the north. Geographic features include the Northern Range with mostly forested hillsides and valleys, rivers and watersheds, and extensive shoreline with the Gulf of Paria to the south and Caribbean Sea to the north. Land use is predominantly agricultural and commercial with some industry. Primary economic drivers are retail and distribution, finance, insurance, real estate and business services, and transportation, communication and storage.



RISK AND VULNERABILITY COMPONENT SCORE



MULTI-HAZARD RISK (MHR) - High
Score: 0.506 • Rank: 6/15



RESILIENCE (R) - Very High
Score: 0.580 • Rank: 4/15



MULTI-HAZARD EXPOSURE (MHE) - High
Score: 0.679 • Rank: 4/15



VULNERABILITY (V) - Very Low
Score: 0.373 • Rank: 13/15



COPING CAPACITY (CC) - High
Score: 0.534 • Rank: 4/15



Population (2011 Census)
102,957



Population in Poverty
14.9%



Population with less than a secondary education
19.5%



Access to improved water
91.7% households



Infant mortality rate (per 1,000 live births)
42

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



MULTI-HAZARD EXPOSURE (MHE)

RANK: 4 / 15 MUNICIPALITIES
SCORE: 0.679



MHE
0.679

Raw MHE
0.596

Relative MHE
0.761

ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:



Earthquake

100.0%

104,844

\$7.5 Billion



Flood

79.6%

83,438

\$6.2 Billion



Landslide

65.1%

68,285

\$5.8 Billion



Coastal Flood

10.4%

10,891

\$975.6 Million



Tropical Cyclone Winds

100.0%

104,844

\$7.5 Billion



Wildfire

37.4%

39,252

\$2.7 Billion



VULNERABILITY (V)

RANK: 13 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.373

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



Environmental Stress

0 1 **SCORE: 0.557** **RANK: 4/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|---|--|---|--|--|--|---|---|
| 1.1% Households affected by deforestation | 17% Households affected by drainage issues | 10.9% Households affected by flooding | 1.46% Households affected by sewage issues | 7.8% Households affected by soil erosion | 4.0% Households affected by solid waste issues | 1.9% Households affected by wastewater issues | 2.2% Households affected by water contamination |
|---|--|---|--|--|--|---|---|



Vulnerable Health Status

0 1 **SCORE: 0.399** **RANK: 10/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|--|---|--|---|--|-------------------------------------|------------------------------------|--|
| 19.7% Persons with chronic illness | 42.2 Infant mortality rate (per 1k live births) | 3.5% Persons with long-standing disability | 0.6% Population in collective living quarters | 5.05 Chikungunya cases per 10k | 0.58 Dengue cases per 10k | 11.56 Zika cases per 10k | 0.29 Leptospirosis cases per 10k |
|--|---|--|---|--|-------------------------------------|------------------------------------|--|



Clean Water Vulnerability

0 1 **SCORE: 0.655** **RANK: 5/15 MUNICIPALITIES ASSESSED**

| | |
|--|---|
| 91.7% Households with access to improved water | 9.4% Households with inadequate toilet facilities |
|--|---|



Information Access Vulnerability

0 1 **SCORE: 0.218** **RANK: 13/15 MUNICIPALITIES ASSESSED**

| | | | |
|---|---|---------------------------------------|---------------------------------------|
| 19.5% Population with less than secondary education | 46.0% Households with no Internet | 11.1% Households with no TV | 17.4% Households with radio |
|---|---|---------------------------------------|---------------------------------------|



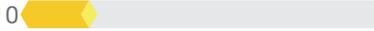
Economic Constraints

0 1 **SCORE: 0.506** **RANK: 8/15 MUNICIPALITIES ASSESSED**

| | | | |
|-------------------------------------|--|--|------------------------------|
| 47.6 Age dependency ratio | 45.6% Households with no vehicle | 12.1% Population with unmet housing need | 14.9% Poverty rate |
|-------------------------------------|--|--|------------------------------|



Gender Inequality

0  1 **SCORE: 0.177** **RANK: 14/15 MUNICIPALITIES ASSESSED**

0.81

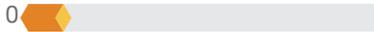
Female to male labor participants

0.97

Female to male secondary education attainment



Population Pressures

0  1 **SCORE: 0.102** **RANK: 15/15 MUNICIPALITIES ASSESSED**

-0.3%

Average annual population change

0.5

Net migration rate



COPING CAPACITY (CC)

RANK: 4 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.534

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



Economic Capacity

0  1 **SCORE: 0.604** **RANK: 3/15 MUNICIPALITIES ASSESSED**

47.2% Labor force participation rate
\$7,176 Annual household income per capita (USD)
1.1 Financial institutions per 10k persons



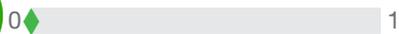
Governance

0  1 **SCORE: 0.573** **RANK: 9/15 MUNICIPALITIES ASSESSED**

74.1 Serious crimes reported per 10k persons
24.6% Voter participation
1.6% Households with unmet need for refuse collection



Environmental Capacity

0  1 **SCORE: 0.000** **RANK: 13/15 MUNICIPALITIES ASSESSED**

0.0% Protected areas (sq km)



Infrastructure Capacity

0  1 **SCORE: 0.604** **RANK: 6/15 MUNICIPALITIES ASSESSED**



Health Care Capacity **SCORE: 0.584** **RANK: 4/15 MUNICIPALITIES ASSESSED**

0.4 Health care facilities (per 10k persons)
6.7 Average distance to hospital (km)
25.7% Population with private health insurance



Transportation Capacity **SCORE: 0.617** **RANK: 6/15 MUNICIPALITIES ASSESSED**

4.8 Road density (km per sq. km)
4.5 Average distance to nearest port (km)



Communications Capacity **SCORE: 0.628** **RANK: 5/15 MUNICIPALITIES ASSESSED**

88.3% Population using mobile phones
9.7 Mobile and wireless infrastructure (per 10k persons)



Emergency Services Capacity **SCORE: 0.588** **RANK: 7/15 MUNICIPALITIES ASSESSED**

3.1 Average distance to fire station (km)
1.5 Average distance to police station (km)
2.1 Emergency shelters (per 10k persons)



RESILIENCE (R)

RANK: 4 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.580

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

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



**Clean Water
Access
Vulnerability**



**Environmental
Stress**



Governance



**Emergency Service
Capacity**



HAZARD-SPECIFIC RISK (HSR)



Earthquake

RANK: 9 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.319



Coastal Flood

RANK: 7 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.221



Flood

RANK: 13 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.130



Landslide

RANK: 6 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.281



Wildfire

RANK: 6 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.233



Tropical Cyclone Winds

RANK: 9 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.319



MULTI-HAZARD RISK (MHR)

6 / 15

RANK WITHIN MUNICIPALITIES
Score: 0.506



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



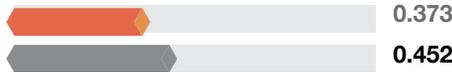
Multi-hazard risk component scores compared to overall average country scores:



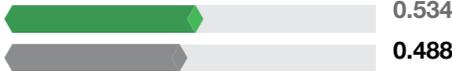
Multi-Hazard Exposure



Vulnerability



Coping Capacity



DIEGO MARTIN RECOMMENDATIONS

1

Clean Water Access Vulnerability

Diego Martin has the 5th highest Clean Water Access Vulnerability ranking in the country due to nearly 9% of households lacking access to an Improved Water Source.

Invest in clean water infrastructure enhancements, implementing risk reduction initiatives to protect infrastructure and water resources from hazard impacts.

2

Environmental Stress

Diego Martin ranks 4th for overall Environmental Stress. Top environmental issues reported by households in the municipality include Deforestation, Soil Erosion, and Solid Waste. Additionally, more than 17% of households are affected by Drainage issues, and 11% are affected by Flooding. In addition, the municipality has some of the highest exposure to several hazards, including earthquake, landslide, and tropical cyclone winds. These hazards can exacerbate existing environmental issues and damage infrastructure.

Implement and/or strengthen community-based programs focused on enhancing hazard awareness and preparedness among local residents, such as the Storm Water Management Education Programme.

Provide incentives to homeowners and businesses to invest in hazard mitigation activities to reduce hazard impacts.

DIEGO MARTIN RECOMMENDATIONS

3

Governance

Diego Martin's Governance ranking is driven by the lowest Voter Participation Rate in the country. Fewer than 25% of eligible voters cast a vote in the most recent local government election.

Enhance opportunities for community involvement in local government by creating forums to voice public opinion on pending legislation and issues affecting the municipality.

Garner public support for local government through increased transparency and reporting on issues of regional importance.

4

Emergency Service Capacity

Diego Martin's Emergency Service Capacity could be strengthened by increasing the number of available emergency shelters. The municipality has just two Emergency Shelters per 10,000 persons. Expand sheltering capacity through the designation of existing structures or investments in new shelters. Given Diego Martin's exposure to tropical cyclone winds, ensure that new shelters or existing structures are built to withstand hazard impacts.

Update existing disaster management plans to include expanded sheltering capacity and ensure that adequate resources and equipment are available to support mass care of affected populations during a disaster.

Include special considerations in disaster management and sheltering plans for those with chronic health conditions, mobility challenges or other disabilities. These individuals will require extra precautions to protect against transmission of COVID-19 during sheltering.

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TRINIDAD AND TOBAGO

MAYARO-RIO CLARO

NDPBA MUNICIPALITIES PROFILE

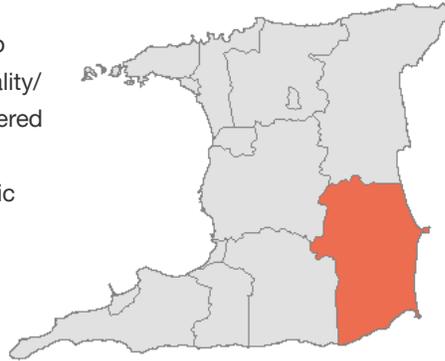
TRINIDAD AND TOBAGO MAYARO-RIO CLARO



CAPITAL: MAYARO

Area: 814 km²

Located in southeast Trinidad, the Municipality of Mayaro-Rio Claro is the second largest and third least populous municipality/regional corporation in the country. Mayaro-Rio Claro is bordered by Sangre Grande to the north, Couva-Tabaquite-Talparo to the northwest, Princes Town in the southwest, and the Atlantic Ocean to the south and east. Geographic features include portions of the Central Range in the north and the Southern Range in the south, with mostly gently sloping or low-lying areas and mangrove forest along portions of the coast. Land use is predominantly rural and agricultural, with extensive protected areas, including the Nariva Swamp and the Victoria Mayaro Forest Reserve. Primary economic drivers include energy, retail and distribution, personal services, and construction.



RISK AND VULNERABILITY COMPONENT SCORE



MULTI-HAZARD RISK (MHR) - Moderate
Score: 0.478 • Rank: 9/15



RESILIENCE (R) - Very Low
Score: 0.414 • Rank: 15/15



MULTI-HAZARD EXPOSURE (MHE) - Very Low
Score: 0.261 • Rank: 14/15



VULNERABILITY (V) - Very High
Score: 0.621 • Rank: 2/15



COPING CAPACITY (CC) - Low
Score: 0.448 • Rank: 12/15



Population (2011 Census)
35,650



Population in Poverty
26.6%



Population with less than a secondary education
41.0%



Access to improved water
92.5% households



Infant mortality rate (per 1,000 live births)
45

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



MULTI-HAZARD EXPOSURE (MHE)

RANK: 14 / 15 MUNICIPALITIES
SCORE: 0.261



ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:

Earthquake

100.0%

37,848
\$1.4 Billion

Flood

82.6%

31,279
\$1.1 Billion

Landslide

45.7%

17,295
\$573.3 Million

Coastal Flood

22.1%

8,377
\$315.9 Million

Tropical Cyclone Winds

100.0%

37,848
\$1.4 Billion

Wildfire

1.1%

413
\$35.2 Million



VULNERABILITY (V)

RANK: 2 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.621

Vulnerability in Mayaro-Rio Claro 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

0  1 **SCORE: 0.521** **RANK: 6/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|---|--|---|--|--|--|---|---|
| 0.5% Households affected by deforestation | 30% Households affected by drainage issues | 17.0% Households affected by flooding | 1.39% Households affected by sewage issues | 8.8% Households affected by soil erosion | 2.0% Households affected by solid waste issues | 2.3% Households affected by wastewater issues | 1.6% Households affected by water contamination |
|---|--|---|--|--|--|---|---|



Vulnerable Health Status

0  1 **SCORE: 0.454** **RANK: 7/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|--|---|--|--|--|-------------------------------------|-----------------------------------|--|
| 22.3% Persons with chronic illness | 45.1 Infant mortality rate (per 1k live births) | 4.6% Persons with long-standing disability | - Population in collective living quarters | 3.09 Chikungunya cases per 10k | 0.00 Dengue cases per 10k | 0.84 Zika cases per 10k | 0.00 Leptospirosis cases per 10k |
|--|---|--|--|--|-------------------------------------|-----------------------------------|--|



Clean Water Vulnerability

0  1 **SCORE: 0.919** **RANK: 1/15 MUNICIPALITIES ASSESSED**

| | |
|--|--|
| 92.5% Households with access to improved water | 23.1% Households with inadequate toilet facilities |
|--|--|



Information Access Vulnerability

0  1 **SCORE: 0.959** **RANK: 1/15 MUNICIPALITIES ASSESSED**

| | | | |
|---|---|---------------------------------------|---------------------------------------|
| 41.0% Population with less than secondary education | 80.3% Households with no Internet | 12.2% Households with no TV | 23.8% Households with radio |
|---|---|---------------------------------------|---------------------------------------|



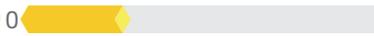
Economic Constraints

0  1 **SCORE: 0.679** **RANK: 4/15 MUNICIPALITIES ASSESSED**

| | | | |
|-------------------------------------|--|--|------------------------------|
| 42.8 Age dependency ratio | 56.4% Households with no vehicle | 13.9% Population with unmet housing need | 26.6% Poverty rate |
|-------------------------------------|--|--|------------------------------|



Gender Inequality

0  1 **SCORE: 0.275** **RANK: 12/15 MUNICIPALITIES ASSESSED**

0.74

Female to male labor participants

1.02

Female to male secondary education attainment



Population Pressures

0  1 **SCORE: 0.537** **RANK: 4/15 MUNICIPALITIES ASSESSED**

1.0%

Average annual population change

-31.5

Net migration rate



COPING CAPACITY (CC)

RANK: 12 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.448

Mayaro-Rio Claro exhibits weaker Coping Capacity in the areas of Transportation Capacity and Economic Capacity. The bar charts indicate the socioeconomic themes contributing to the overall Coping Capacity score.



Economic Capacity

0 1 **SCORE: 0.094** **RANK: 15/15 MUNICIPALITIES ASSESSED**

42.0% Labor force participation rate
\$4,594 Annual household income per capita (USD)
0.5 Financial institutions per 10k persons



Governance

0 1 **SCORE: 0.894** **RANK: 1/15 MUNICIPALITIES ASSESSED**

52.6 Serious crimes reported per 10k persons
56.4% Voter participation
2.6% Households with unmet need for refuse collection



Environmental Capacity

0 1 **SCORE: 1.000** **RANK: 1/15 MUNICIPALITIES ASSESSED**

48.3% Protected areas (sq km)



Infrastructure Capacity

0 1 **SCORE: 0.174** **RANK: 15/15 MUNICIPALITIES ASSESSED**



Health Care Capacity

SCORE: 0.144 **RANK: 14/15 MUNICIPALITIES ASSESSED**

1.1 Health care facilities (per 10k persons)
35.0 Average distance to hospital (km)
8.7% Population with private health insurance



Transportation Capacity

SCORE: 0.072 **RANK: 14/15 MUNICIPALITIES ASSESSED**

0.9 Road density (km per sq. km)
21.5 Average distance to nearest port (km)



Communications Capacity

SCORE: 0.263 **RANK: 14/15 MUNICIPALITIES ASSESSED**

84.2% Population using mobile phones
11.9 Mobile and wireless infrastructure (per 10k persons)



Emergency Services Capacity

SCORE: 0.217 **RANK: 15/15 MUNICIPALITIES ASSESSED**

12.7 Average distance to fire station (km)
5.0 Average distance to police station (km)
7.1 Emergency shelters (per 10k persons)



RESILIENCE (R)

RANK: 15 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.414

Mayaro-Rio Claro's score and ranking are due to Very High Vulnerability combined with Low Coping Capacity scores.

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



Information Access Vulnerability



Clean Water Access Vulnerability



Transportation Capacity



Economic Capacity



HAZARD-SPECIFIC RISK (HSR)



Earthquake

RANK: 10 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.312



Coastal Flood

RANK: 2 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.305



Flood

RANK: 14 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.055



Landslide

RANK: 7 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.165



Wildfire

RANK: 12 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.027



Tropical Cyclone Winds

RANK: 10 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.312



MULTI-HAZARD RISK (MHR)

9 / 15

RANK WITHIN MUNICIPALITIES
Score: 0.478



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



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



Multi-Hazard Exposure



Vulnerability



Coping Capacity



MAYARO-RIO CLARO RECOMMENDATIONS

1

Information Access Vulnerability

Mayaro-Rio Claro has the highest Information Access Vulnerability in the country. More than 80% of municipal households have no Internet access, and 24% do not have radios. This limits the mechanisms by which the populace can receive hazard alerts and warning information. In addition, just over 40% of the population has less than a secondary level education, which may influence understanding of hazard messaging and delay life-saving actions.

Implement preparedness campaigns that educate communities about exposure to potential hazards and socialize alert and warning procedures and protective actions that can be taken to safeguard lives and property.

Increase the number of mediums through which critical warning information is disseminated to the public, giving special consideration to those with disabilities, those living in squatter settlements, and in rural areas with limited connectivity.

2

Clean Water Access Vulnerability

Mayaro-Rio Claro has the highest vulnerability related to Clean Water Access, with nearly 8% of households lacking Improved Water, and 23% with Inadequate Toilet Facilities. According to the Mayaro-Rio Claro Local Area Economic Profile, the municipality has a limited sewer network, with major challenges in wastewater treatment and management.

Secure investments to strengthen clean water and sanitation infrastructure and improve delivery of water and sanitation services in underserved areas.

Ensure that all new infrastructure installations and expanded services include measures that mitigate against hazard-related impacts such as inland and coastal flooding.

MAYARO-RIO CLARO RECOMMENDATIONS

3

Transportation Capacity

Mayaro-Rio Claro has the 2nd lowest Transportation Capacity score in the country, with the lowest Road Density and 2nd greatest Distance to Port Facility. Per the Mayaro-Rio Claro Local Area Economic Profile, existing road infrastructure is of “low quality” and “inadequate relative to the level of traffic that is now carried.” Roadways in the regional corporation have been damaged by flooding and stormwater, and in some coastal areas are subject to erosion. Limited transportation networks hamper timely evacuations and delay response and recovery activities. Damaged roads, seaports and airports can further postpone delivery and transport of much needed relief supplies and hold up recovery processes. Currently, the average distance to the nearest hospital is over 35 km away, the greatest in the country. Delays in receiving urgent medical care put residents of Mayaro-Rio Claro at greater risk.

Secure investments to expand transportation networks, particularly in underserved areas to meet increasing demand and improve response times and access to emergency services. Explore public-private partnerships to improve the quality of existing transportation infrastructure utilized by the oil and gas sector (e.g., ensure that roadways are designed and built to sustain the weight of heavy vehicles). By bolstering transportation capacity, Mayaro-Rio Claro will have the added benefit of supporting sustainable economic growth through greater accessibility of goods and services.

Protect investments and service provision by implementing mitigation strategies (e.g., improve storm water management) to reduce hazard impacts.

4

Economic Capacity

Mayaro-Rio Claro has the lowest Economic Capacity score of all municipalities/regional corporations in the country, with the 2nd lowest Household Income per Capita (\$4,594), the 3rd lowest Labor Force Participation rate and the 3rd lowest density of Financial Institutions. Other socio-economic indicators show that 27% of the population in Mayaro-Rio Claro are living in poverty, and 14% have an unmet need related to housing. The Local Area Economic Profile confirms the presence of poverty and squatter settlements with poor housing conditions. The energy sector is the major driver of the local and national economy due to the large deposits of natural gas and crude oil situated offshore. Other drivers are agriculture, fishing and fish processing, and micro- to large-scale business enterprises.

Strengthen institutional arrangements between ministries, local government entities and other stakeholders to facilitate economic development in the region. Areas already identified for economic expansion and development include agro-processing and food production, fishing and fish processing operations, financial services, commerce and distribution services. Continue efforts to provide access to vocational, technical and entrepreneurial training programs geared toward labor market needs to increase economic opportunities and household incomes.

Increase development of low-income and affordable housing to reduce spontaneous settlement and assist in meeting the housing needs of the poor. Increase collaboration among social service providers, private sector organizations and NGOs to coordinate poverty reduction efforts and delivery of services. Strengthen social assistance programs that provide benefits for elderly, low income, and single-parent households.

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TRINIDAD AND TOBAGO

PENAL-DEBE

NDPBA MUNICIPALITIES PROFILE

TRINIDAD AND TOBAGO

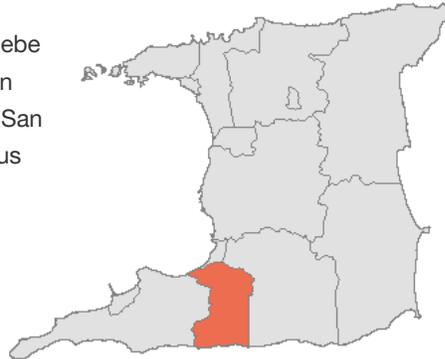
PENAL-DEBE



CAPITAL: PENAL

Area: 246 km²

Located in south central Trinidad, the Municipality of Penal-Debe is the sixth most populous municipality/regional corporation in the country. Penal-Debe is bordered by the Gulf of Paria and San Fernando to the north, Princes Town to the east, the Columbus Channel to the south, and Siparia to the west. Geographic features include a varied topography that spans higher elevations and steep slopes associated with the southern range in the south, to low-lying hills in the north, including wetlands and beaches. Land use is predominantly agricultural, including fisheries and forestry. Primary economic drivers are retail and distribution, and personal service sectors.



RISK AND VULNERABILITY COMPONENT SCORE



MULTI-HAZARD RISK (MHR) - Low
Score: 0.469 • Rank: 10/15



RESILIENCE (R) - Low
Score: 0.506 • Rank: 8/15



MULTI-HAZARD EXPOSURE (MHE) - Moderate
Score: 0.420 • Rank: 9/15



VULNERABILITY (V) - Low
Score: 0.398 • Rank: 11/15



COPING CAPACITY (CC) - Very Low
Score: 0.411 • Rank: 15/15



Population (2011 Census)
89,392



Population in Poverty
12.0%



Population with less than a secondary education
29.9%



Access to improved water
95.0% households



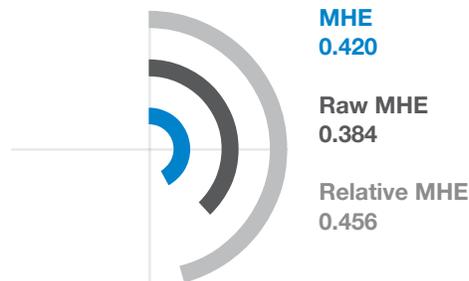
Infant mortality rate (per 1,000 live births)
59

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



MULTI-HAZARD EXPOSURE (MHE)

RANK: 9 / 15 MUNICIPALITIES
SCORE: 0.420



ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:



Earthquake

100.0%
 91,110
 \$4.4 Billion



Flood

97.5%
 88,803
 \$4.4 Billion



Landslide

30.3%
 27,632
 \$1.3 Billion



Coastal Flood

11.5%
 10,510
 \$574.9 Million



Tropical Cyclone Winds

100.0%
 91,110
 \$4.4 Billion



Wildfire

7.2%
 6,569
 \$244.2 Million



VULNERABILITY (V)

RANK: 11 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.398

Vulnerability in Penal-Debe is primarily driven by Gender Inequality and Environmental Stress. The bar charts indicate the socioeconomic themes contributing to the overall Vulnerability score.



Environmental Stress

0  1 **SCORE: 0.581** **RANK: 3/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|---|--|---|--|--|--|---|---|
| 0.4% Households affected by deforestation | 32% Households affected by drainage issues | 22.4% Households affected by flooding | 2.11% Households affected by sewage issues | 4.6% Households affected by soil erosion | 2.3% Households affected by solid waste issues | 2.5% Households affected by wastewater issues | 2.3% Households affected by water contamination |
|---|--|---|--|--|--|---|---|



Vulnerable Health Status

0  1 **SCORE: 0.503** **RANK: 2/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|--|---|--|---|--|-------------------------------------|-----------------------------------|--|
| 23.3% Persons with chronic illness | 58.6 Infant mortality rate (per 1k live births) | 4.6% Persons with long-standing disability | 0.1% Population in collective living quarters | 1.12 Chikungunya cases per 10k | 0.22 Dengue cases per 10k | 5.26 Zika cases per 10k | 0.89 Leptospirosis cases per 10k |
|--|---|--|---|--|-------------------------------------|-----------------------------------|--|



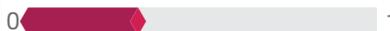
Clean Water Vulnerability

0  1 **SCORE: 0.477** **RANK: 7/15 MUNICIPALITIES ASSESSED**

| | |
|--|--|
| 95.0% Households with access to improved water | 10.9% Households with inadequate toilet facilities |
|--|--|



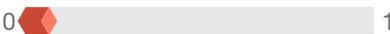
Information Access Vulnerability

0  1 **SCORE: 0.321** **RANK: 10/15 MUNICIPALITIES ASSESSED**

| | | | |
|---|---|--------------------------------------|---------------------------------------|
| 29.9% Population with less than secondary education | 67.7% Households with no Internet | 6.8% Households with no TV | 17.3% Households with radio |
|---|---|--------------------------------------|---------------------------------------|



Economic Constraints

0  1 **SCORE: 0.068** **RANK: 15/15 MUNICIPALITIES ASSESSED**

| | | | |
|-------------------------------------|--|---|------------------------------|
| 37.6 Age dependency ratio | 37.6% Households with no vehicle | 8.3% Population with unmet housing need | 12.0% Poverty rate |
|-------------------------------------|--|---|------------------------------|



Gender Inequality

0  1 **SCORE: 0.585** **RANK: 6/15 MUNICIPALITIES ASSESSED**

0.61

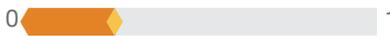
Female to male labor participants

0.96

Female to male secondary education attainment



Population Pressures

0  1 **SCORE: 0.252** **RANK: 12/15 MUNICIPALITIES ASSESSED**

0.6%

Average annual population change

8.5

Net migration rate



COPING CAPACITY (CC)

RANK: 15 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.411

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



Economic Capacity

0 1 **SCORE: 0.331** **RANK: 11/15 MUNICIPALITIES ASSESSED**

| | | |
|--|--|--|
| 42.7% Labor force participation rate | \$6,368 Annual household income per capita (USD) | 0.7 Financial institutions per 10k persons |
|--|--|--|



Governance

0 1 **SCORE: 0.599** **RANK: 8/15 MUNICIPALITIES ASSESSED**

| | | |
|--|-------------------------------------|---|
| 38.9 Serious crimes reported per 10k persons | 44.9% Voter participation | 6.4% Households with unmet need for refuse collection |
|--|-------------------------------------|---|



Environmental Capacity

0 1 **SCORE: 0.403** **RANK: 7/15 MUNICIPALITIES ASSESSED**

19.4%
Protected areas (sq km)



Infrastructure Capacity

0 1 **SCORE: 0.306** **RANK: 13/15 MUNICIPALITIES ASSESSED**



Health Care Capacity

SCORE: 0.205 **RANK: 12/15 MUNICIPALITIES ASSESSED**

| | | |
|--|--|--|
| 0.3 Health care facilities (per 10k persons) | 11.0 Average distance to hospital (km) | 12.4% Population with private health insurance |
|--|--|--|



Transportation Capacity

SCORE: 0.383 **RANK: 11/15 MUNICIPALITIES ASSESSED**

| | |
|--|--|
| 4.7 Road density (km per sq. km) | 14.9 Average distance to nearest port (km) |
|--|--|



Communications Capacity

SCORE: 0.234 **RANK: 15/15 MUNICIPALITIES ASSESSED**

| | |
|--|--|
| 86.4% Population using mobile phones | 5.3 Mobile and wireless infrastructure (per 10k persons) |
|--|--|



Emergency Services Capacity

SCORE: 0.400 **RANK: 13/15 MUNICIPALITIES ASSESSED**

| | | |
|---|---|--|
| 6.8 Average distance to fire station (km) | 3.2 Average distance to police station (km) | 3.3 Emergency shelters (per 10k persons) |
|---|---|--|



RESILIENCE (R)

RANK: 8 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.506

Penal-Debe's score and ranking are due to Low Vulnerability combined with Very Low Coping Capacity scores.

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



Gender Inequality



Environmental Stress



Communications Capacity



Economic Capacity



HAZARD-SPECIFIC RISK (HSR)



Earthquake

RANK: 7 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.331



Coastal Flood

RANK: 8 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.214



Flood

RANK: 5 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.329



Landslide

RANK: 11 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.134



Wildfire

RANK: 9 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.076



Tropical Cyclone Winds

RANK: 7 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.331



MULTI-HAZARD RISK (MHR)

10 / 15

RANK WITHIN MUNICIPALITIES
Score: 0.469



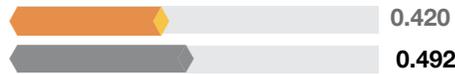
Penal-Debe's score and ranking are due to Moderate Multi-hazard Exposure combined with Low Vulnerability and Very Low Coping Capacity scores.



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



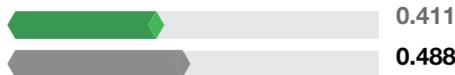
Multi-Hazard Exposure



Vulnerability



Coping Capacity



PENAL-DEBE RECOMMENDATIONS

1

Gender Inequality

Penal-Debe ranks 6th for overall Gender Inequality, driven by the 5th highest gender disparity regarding Female to Male Labor Ratio and 8th highest disparity for Female to Male Secondary Enrollment. Only 38% of women age 15 and older participate in the labor force.

Promote workforce opportunities for women that include quality, affordable childcare to boost economic participation and reduce economic dependency.

2

Environmental Stress

Penal-Debe ranks 3rd for overall Environmental Stress. Findings show that issues related to Flooding, Sewerage, Wastewater and Drainage were among the highest in the country for households living in this municipality. A third of all households reported having issues related to poor Drainage. Much of the regional corporation is low-lying and defined by six rivers, the largest being the Oropouche River. The Oropouche Basin experiences severe flooding during heavy rainfall events, according to the Penal-Debe Local Area Economic Profile, which also confirms the challenges related to drainage, storm water and wastewater management.

Engage public and private stakeholders and government agencies in the development and implementation of a comprehensive storm water management plan to reduce flooding and environmental impacts on human health and infrastructure.

Invest in water infrastructure improvements and enhanced water management practices to protect water supplies from contamination during heavy rainfall and flood events. Secure funding to improve sanitation and sewerage infrastructure and services to reduce environmental impacts resulting from flooding.

PENAL-DEBE RECOMMENDATIONS

3

Communications Capacity

Penal-Debe has the lowest Communications Capacity ranking in Trinidad and Tobago due to a relatively low density of Mobile and Wireless Infrastructure, and Mobile Phone Use.

As mobile and wireless technology is increasingly used to disseminate hazard alert and warning messages, invest in infrastructure enhancements to support broader use and reliability of mobile and wireless devices, with a focus on increasing communications capacity in rural areas.

4

Economic Capacity

Penal-Debe has the 5th lowest Economic Capacity score in the country, driven by the 5th lowest Labor Force Participation rate (43%) and less than one Financial Institution for every 10,000 persons.

Continue to advance partnerships with government and NGOs such as the Ministry of Labour and Small Enterprise Development, the National Entrepreneurship Development Company, Micro-Enterprise Loan Facility and other programs to foster local economic development.

Continue efforts to provide access to vocational, technical and entrepreneurial training programs geared toward labor market needs to increase economic opportunities and household incomes.

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TRINIDAD AND TOBAGO

POINT FORTIN

NDPBA MUNICIPALITIES PROFILE

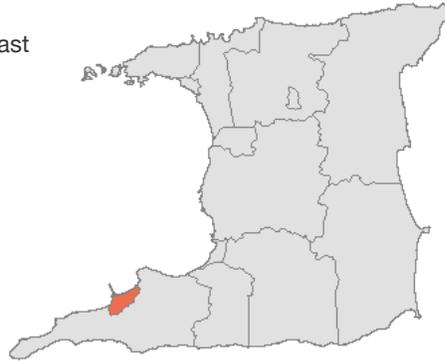
TRINIDAD AND TOBAGO POINT FORTIN



CAPITAL: POINT FORTIN

Area: 25 km²

The Borough of Point Fortin is the among the smallest and least populous municipalities/regional corporations in the country. Point Fortin is bordered by the Gulf of Paria to the north and encompassed on all other sides by Siparia. Geography is predominantly low-lying coastal area. Land use is primarily industrial. Economic drivers include energy, chiefly oil and gas.



RISK AND VULNERABILITY COMPONENT SCORE



MULTI-HAZARD RISK (MHR) - Very Low
Score: 0.422 • Rank: 13/15



RESILIENCE (R) - High
Score: 0.562 • Rank: 3/15



MULTI-HAZARD EXPOSURE (MHE) - Low
Score: 0.390 • Rank: 11/15



VULNERABILITY (V) - Moderate
Score: 0.430 • Rank: 7/15



COPING CAPACITY (CC) - Very High
Score: 0.555 • Rank: 2/15



Population (2011 Census)
20,235



Population in Poverty
24.6%



Population with less than a secondary education
24.1%



Access to improved water
93.2% households



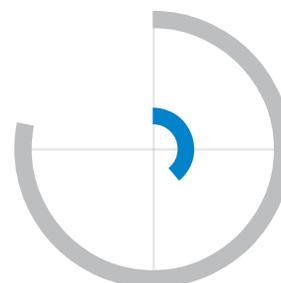
Infant mortality rate (per 1,000 live births)
81

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



MULTI-HAZARD EXPOSURE (MHE)

RANK: 11 / 15 MUNICIPALITIES
SCORE: 0.390



MHE
0.390

Raw MHE
0

Relative MHE
0.78

ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:



Earthquake

100.0%

21,469

\$961.4 Million



Flood

88.4%

18,973

\$883.7 Million



Landslide

18.1%

3,895

\$209.2 Million



Coastal Flood

25.2%

5,417

\$220.3 Million



Tropical Cyclone Winds

100.0%

21,469

\$961.4 Million



Wildfire

58.7%

12,608

\$770.9 Million



VULNERABILITY (V)

RANK: 7 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.430

Vulnerability in Point Fortin is primarily driven by Clean Water Access Vulnerability and Economic Constraints. The bar charts indicate the socioeconomic themes contributing to the overall Vulnerability score.



Environmental Stress

0 1 **SCORE: 0.134** **RANK: 15/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|---|--|---|--|--|--|---|---|
| 0.2% Households affected by deforestation | 21% Households affected by drainage issues | 10.0% Households affected by flooding | 1.09% Households affected by sewage issues | 2.5% Households affected by soil erosion | 1.0% Households affected by solid waste issues | 0.6% Households affected by wastewater issues | 0.4% Households affected by water contamination |
|---|--|---|--|--|--|---|---|



Vulnerable Health Status

0 1 **SCORE: 0.364** **RANK: 13/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|--|---|--|---|--|-------------------------------------|-----------------------------------|--|
| 16.5% Persons with chronic illness | 80.9 Infant mortality rate (per 1k live births) | 4.1% Persons with long-standing disability | 0.4% Population in collective living quarters | 0.00 Chikungunya cases per 10k | 0.49 Dengue cases per 10k | 1.98 Zika cases per 10k | 0.49 Leptospirosis cases per 10k |
|--|---|--|---|--|-------------------------------------|-----------------------------------|--|



Clean Water Vulnerability

0 1 **SCORE: 0.730** **RANK: 3/15 MUNICIPALITIES ASSESSED**

| | |
|--|--|
| 93.2% Households with access to improved water | 16.8% Households with inadequate toilet facilities |
|--|--|



Information Access Vulnerability

0 1 **SCORE: 0.620** **RANK: 3/15 MUNICIPALITIES ASSESSED**

| | | | |
|---|---|---------------------------------------|---------------------------------------|
| 24.1% Population with less than secondary education | 75.9% Households with no Internet | 12.8% Households with no TV | 19.6% Households with radio |
|---|---|---------------------------------------|---------------------------------------|



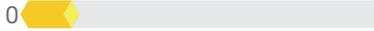
Economic Constraints

0 1 **SCORE: 0.657** **RANK: 5/15 MUNICIPALITIES ASSESSED**

| | | | |
|-------------------------------------|--|--|------------------------------|
| 44.1 Age dependency ratio | 60.4% Households with no vehicle | 11.9% Population with unmet housing need | 24.6% Poverty rate |
|-------------------------------------|--|--|------------------------------|



Gender Inequality

0  1 **SCORE: 0.126** **RANK: 15/15 MUNICIPALITIES ASSESSED**

0.80

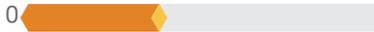
Female to male labor participants

1.02

Female to male secondary education attainment



Population Pressures

0  1 **SCORE: 0.382** **RANK: 9/15 MUNICIPALITIES ASSESSED**

0.6%

Average annual population change

-23.6

Net migration rate



COPING CAPACITY (CC)

RANK: 2 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.555

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



Economic Capacity



| | | |
|--|--|--|
| 41.0% Labor force participation rate | \$7,302 Annual household income per capita (USD) | 2.3 Financial institutions per 10k persons |
|--|--|--|



Governance



| | | |
|--|-------------------------------------|---|
| 80.1 Serious crimes reported per 10k persons | 39.2% Voter participation | 2.1% Households with unmet need for refuse collection |
|--|-------------------------------------|---|



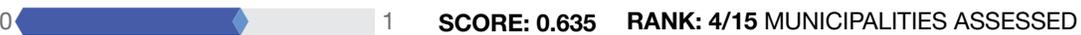
Environmental Capacity



1.1%
Protected areas (sq km)



Infrastructure Capacity



Health Care Capacity

SCORE: 0.609 **RANK: 3/15 MUNICIPALITIES ASSESSED**

| | | |
|--|---|--|
| 1.4 Health care facilities (per 10k persons) | 2.3 Average distance to hospital (km) | 14.2% Population with private health insurance |
|--|---|--|



Transportation Capacity

SCORE: 0.759 **RANK: 4/15 MUNICIPALITIES ASSESSED**

| | |
|---|---|
| 12.1 Road density (km per sq. km) | 4.6 Average distance to nearest port (km) |
|---|---|



Communications Capacity

SCORE: 0.427 **RANK: 11/15 MUNICIPALITIES ASSESSED**

| | |
|--|--|
| 86.9% Population using mobile phones | 8.4 Mobile and wireless infrastructure (per 10k persons) |
|--|--|



Emergency Services Capacity

SCORE: 0.744 **RANK: 4/15 MUNICIPALITIES ASSESSED**

| | | |
|---|---|--|
| 2.1 Average distance to fire station (km) | 1.7 Average distance to police station (km) | 6.1 Emergency shelters (per 10k persons) |
|---|---|--|



RESILIENCE (R)

RANK: 3 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.562

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

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



Clean Water Access Vulnerability



Economic Constraints



Communications Capacity



Economic Capacity



HAZARD-SPECIFIC RISK (HSR)



Earthquake

RANK: 15 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.219



Coastal Flood

RANK: 6 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.221



Flood

RANK: 11 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.141



Landslide

RANK: 13 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.038



Wildfire

RANK: 4 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.270



Tropical Cyclone Winds

RANK: 15 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.219



MULTI-HAZARD RISK (MHR)

13 / 15

RANK WITHIN MUNICIPALITIES
Score: 0.422



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



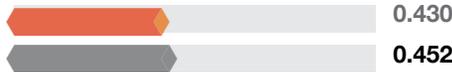
Multi-hazard risk component scores compared to overall average country scores:



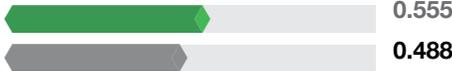
Multi-Hazard Exposure



Vulnerability



Coping Capacity



POINT FORTIN RECOMMENDATIONS

1

Clean Water Access Vulnerability

Point Fortin has the 3rd highest vulnerability regarding Clean Water Access, with 17% of households lacking adequate Toilet Facilities and 7% of households without access to an Improved Water Source. According to Port Fortin's Local Area Economic Profile, informal settlements lack regulation and participation in sanitary and water systems.

Prioritize investments to improve clean water and sanitation infrastructure and delivery systems in underserved areas.

2

Economic Constraints

Point Fortin ranks 5th overall for Economic Constraints, driven by the 2nd highest percentage of Households with No Vehicle (60%), and nearly 25% of the population living in Poverty. Additionally, 12% of the population have an Unmet Need for Housing. Based on available hazard information, Point Fortin has among the highest exposure to wildfire and coastal flood hazards in the country. Poor socio-economic conditions are exacerbated and perpetuated by the negative consequences resulting from repeated hazard exposure.

Strengthen collaboration between social service entities, private sector organizations and NGOs to coordinate poverty reduction efforts and delivery of services. Strengthen social assistance programs that provide benefits for elderly, low income, and single-parent households.

Provide incentives for new development to include affordable and low-income housing to reduce the propensity for informal settlement.

POINT FORTIN RECOMMENDATIONS

3

Communications Capacity

Point Fortin has the 5th lowest Communications Capacity score in the country, driven by the 5th lowest Mobile Phone Usage in the country.

Invest in infrastructure enhancements to support broader use and reliability of mobile and wireless technologies. Increasing communications capacity will not only provide support to local businesses but can be an effective means to disseminate hazard alert and warning messages to the public.

4

Economic Capacity

Point Fortin's Economic Capacity is driven by the lowest Labor Force Participation rate (41%) in Trinidad and Tobago. Once primarily agricultural, Point Fortin is now largely dominated by the energy industry which leases large portions of land. Micro, small, and medium sized business enterprises focused in retail and food and beverage establishments are main contributors to the local economy. While oil and gas companies provide hundreds of relatively high-paying jobs and contribute significantly to the national GDP, many of those employed do not live in Point Fortin and therefore do not directly strengthen the local economy. As Trinidad and Tobago's smallest municipality, Point Fortin's opportunities for economic expansion are limited by the lack of available land for new development.

Continue efforts to strengthen the local workforce and small businesses through the provision of vocational, technical, and entrepreneurial training opportunities.

Forge collaborative partnerships among educational institutions, vocational training centers and local businesses to support transition of youth from school to work.

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TRINIDAD AND TOBAGO

PORT OF SPAIN

NDPBA MUNICIPALITIES PROFILE

TRINIDAD AND TOBAGO

PORT OF SPAIN



CAPITAL: PORT OF SPAIN

Area: 12 km²

The City of Port of Spain is the nation’s capital and one of the smallest and fourth least populous municipalities/regional corporations in the country. Port of Spain is bordered by Diego Martin to the north, San Juan-Laventille to the east, and the Gulf of Paria along its southwest-facing shore. Geographic features include the Northern Range to the north and the Gulf of Paria to the south. Land use is predominantly urban, including residential, commercial and recreational. Primary economic drivers are retail and distribution sectors, and finance, insurance, real-estate and business services.



RISK AND VULNERABILITY COMPONENT SCORE



MULTI-HAZARD RISK (MHR) - Moderate
Score: 0.500 • Rank: 8/15



RESILIENCE (R) - Low
Score: 0.491 • Rank: 12/15



MULTI-HAZARD EXPOSURE (MHE) - High
Score: 0.481 • Rank: 6/15



VULNERABILITY (V) - Very High
Score: 0.586 • Rank: 3/15



COPING CAPACITY (CC) - Very High
Score: 0.568 • Rank: 1/15



Population (2011 Census)
37,074



Population in Poverty
18.0%



Population with less than a secondary education
19.3%



Access to improved water
98.4% households



Infant mortality rate (per 1,000 live births)
69

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



MULTI-HAZARD EXPOSURE (MHE)

RANK: 6 / 15 MUNICIPALITIES
SCORE: 0.481



MHE
0.481

Raw MHE
0.194

Relative MHE
0.768

ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:



Earthquake

100.0%

39,563

\$2.6 Billion



Flood

80.8%

31,952

\$2.3 Billion



Landslide

92.5%

36,596

\$2.4 Billion



Coastal Flood

30.4%

12,017

\$318.1 Million



Tropical Cyclone Winds

100.0%

39,563

\$2.6 Billion



Wildfire

0.0%

0

-



VULNERABILITY (V)

RANK: 3 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.586

Vulnerability in Port of Spain is primarily driven by Population Pressures and Vulnerable Health Status. The bar charts indicate the socioeconomic themes contributing to the overall Vulnerability score.



Environmental Stress

0  1 **SCORE: 0.305** **RANK: 12/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|---|---|--|--|--|--|---|---|
| 0.3% Households affected by deforestation | 5% Households affected by drainage issues | 4.7% Households affected by flooding | 1.45% Households affected by sewage issues | 1.4% Households affected by soil erosion | 4.1% Households affected by solid waste issues | 1.1% Households affected by wastewater issues | 7.0% Households affected by water contamination |
|---|---|--|--|--|--|---|---|



Vulnerable Health Status

0  1 **SCORE: 0.852** **RANK: 1/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|--|---|--|---|--|-------------------------------------|------------------------------------|--|
| 22.8% Persons with chronic illness | 68.6 Infant mortality rate (per 1k live births) | 5.5% Persons with long-standing disability | 1.5% Population in collective living quarters | 7.28 Chikungunya cases per 10k | 1.08 Dengue cases per 10k | 12.95 Zika cases per 10k | 0.27 Leptospirosis cases per 10k |
|--|---|--|---|--|-------------------------------------|------------------------------------|--|



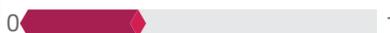
Clean Water Vulnerability

0  1 **SCORE: 0.149** **RANK: 12/15 MUNICIPALITIES ASSESSED**

| | |
|--|---|
| 98.4% Households with access to improved water | 6.6% Households with inadequate toilet facilities |
|--|---|



Information Access Vulnerability

0  1 **SCORE: 0.321** **RANK: 11/15 MUNICIPALITIES ASSESSED**

| | | | |
|---|---|---------------------------------------|---------------------------------------|
| 19.3% Population with less than secondary education | 53.1% Households with no Internet | 11.8% Households with no TV | 18.3% Households with radio |
|---|---|---------------------------------------|---------------------------------------|



Economic Constraints

0  1 **SCORE: 0.826** **RANK: 2/15 MUNICIPALITIES ASSESSED**

| | | | |
|-------------------------------------|--|--|------------------------------|
| 49.9 Age dependency ratio | 61.3% Households with no vehicle | 14.4% Population with unmet housing need | 18.0% Poverty rate |
|-------------------------------------|--|--|------------------------------|



Gender Inequality

0  1 **SCORE: 0.647** **RANK: 3/15 MUNICIPALITIES ASSESSED**

0.57

Female to male labor participants

0.96

Female to male secondary education attainment



Population Pressures

0  1 **SCORE: 1.000** **RANK: 1/15 MUNICIPALITIES ASSESSED**

-2.6%

Average annual population change

-141.0

Net migration rate



COPING CAPACITY (CC)

RANK: 1 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.568

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



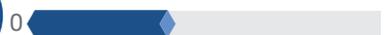
Economic Capacity

0  1 **SCORE: 0.686** **RANK: 1/15 MUNICIPALITIES ASSESSED**

46.0% Labor force participation rate
\$6,215 Annual household income per capita (USD)
4.8 Financial institutions per 10k persons



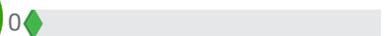
Governance

0  1 **SCORE: 0.387** **RANK: 13/15 MUNICIPALITIES ASSESSED**

521.5 Serious crimes reported per 10k persons
31.0% Voter participation
1.2% Households with unmet need for refuse collection



Environmental Capacity

0  1 **SCORE: 0.011** **RANK: 12/15 MUNICIPALITIES ASSESSED**

0.5% Protected areas (sq km)



Infrastructure Capacity

0  1 **SCORE: 0.818** **RANK: 1/15 MUNICIPALITIES ASSESSED**



Health Care Capacity **SCORE: 0.754** **RANK: 1/15 MUNICIPALITIES ASSESSED**

1.8 Health care facilities (per 10k persons)
1.7 Average distance to hospital (km)
18.9% Population with private health insurance



Transportation Capacity **SCORE: 0.969** **RANK: 1/15 MUNICIPALITIES ASSESSED**

25.1 Road density (km per sq. km)
2.0 Average distance to nearest port (km)



Communications Capacity **SCORE: 0.714** **RANK: 1/15 MUNICIPALITIES ASSESSED**

86.3% Population using mobile phones
25.0 Mobile and wireless infrastructure (per 10k persons)



Emergency Services Capacity **SCORE: 0.833** **RANK: 1/15 MUNICIPALITIES ASSESSED**

1.0 Average distance to fire station (km)
0.6 Average distance to police station (km)
5.3 Emergency shelters (per 10k persons)



RESILIENCE (R)

RANK: 12 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.491

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

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



Population Pressures



Vulnerable Health Status



Governance



Environmental Capacity



HAZARD-SPECIFIC RISK (HSR)



Earthquake

RANK: 11 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.285



Coastal Flood

RANK: 3 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.272



Flood

RANK: 12 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.130



Landslide

RANK: 3 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.339



Wildfire

RANK: 14 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.000



Tropical Cyclone Winds

RANK: 11 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.285



MULTI-HAZARD RISK (MHR)

8 / 15

RANK WITHIN MUNICIPALITIES
Score: 0.500



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



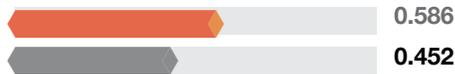
Multi-hazard risk component scores compared to overall average country scores:



Multi-Hazard Exposure



Vulnerability



Coping Capacity



PORT OF SPAIN RECOMMENDATIONS

1

Population Pressures

Port of Spain has the highest overall Population Pressures ranking in Trinidad and Tobago, with the most significant changes in Average Annual Population (-2.6%) and Net Migration Rate (-141 per 1,000 persons). Despite its declining population, Port of Spain remains the most densely populated municipality in the country.

A declining population can leave gaps in social support systems and contribute to a loss of intellectual capital and skilled labor, affecting the economy and its growth potential.

Strengthen planning efforts to identify vulnerabilities related to the changing population and implement programs and support systems to address them, which may include vocational, technical or entrepreneurial training programs, services to alleviate poverty, or enhanced policing in areas susceptible to criminal activity.

2

Vulnerable Health Status

Port of Spain has the highest overall Vulnerable Health Status ranking in the country, driven by the highest Infectious Disease ranking, the highest percentage of Disabled persons, the highest percentage of Population in Collective Living Quarters, and the second highest percentage of those reporting one or more Chronic Illnesses. Those in poor health or with special needs often suffer disproportionately due to the negative consequences of a disaster. Strengthen community outreach programs to identify residents who may require extra assistance or supplies to adequately prepare for a disaster or need help to mobilize during an evacuation.

Include special considerations in disaster management and sheltering plans for those with chronic health conditions, mobility challenges or other disabilities. These individuals will require extra precautions to protect against transmission of COVID-19 during sheltering.

Reduce the financial burden incurred by high out-of-pocket (OOP) health care expenses by expanding risk pools for health spending. This may prevent delays in addressing serious health conditions by those with limited financial resources.

PORT OF SPAIN RECOMMENDATIONS

3

Governance

Port of Spain has the 3rd lowest overall Governance ranking in the country, with the highest Crime Rate (over 520 serious crimes reported per 10,000 persons) and the 3rd lowest Voter Participation Rate (31%).

Continue implementation of the Ministry of National Security's (MNS) Citizen Security Programme (CSP) to strengthen institutional capacities of the MNS and local police, build public confidence and citizen support of measures to improve safety and security, and coordinate implementation of community-based crime prevention strategies.

Garner support for increased public security through law enforcement presence and surveillance, youth education, community service and personal safety programs.

4

Environmental Capacity

Port of Spain has the 2nd lowest Environmental Capacity ranking in the country, with just over a half-percent (.53%) of the municipality designated as a Protected Area.

Identify areas for designation as green belts, parks or other natural area buffers to provide protection from hazard impacts (i.e., improve drainage), especially in heavily populated or industrialized areas.

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TRINIDAD AND TOBAGO

PRINCES TOWN

NDPBA MUNICIPALITIES PROFILE

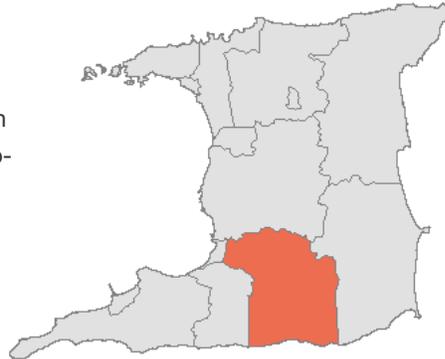
TRINIDAD AND TOBAGO PRINCES TOWN



CAPITAL: PRINCES TOWN

Area: 620 km²

Situated in south central Trinidad, the Regional Corporation of Princes Town is the fourth largest and fifth most populous municipality/regional corporation in the country. Princes Town is bordered by Couva-Tabaquite-Talparo to the north, Mayaro-Rio Claro to the east, the Columbus Channel to the south, and Penal-Debe and San Fernando to the west. Geographic features include large expanses of arable land and sizeable coastline where the southern border meets the ocean. Land use is predominantly agricultural production and forestry. Primary economic drivers are commercial activities, including wholesale and retail, agriculture, construction, and fishing.



RISK AND VULNERABILITY COMPONENT SCORE



MULTI-HAZARD RISK (MHR) - Moderate
Score: 0.502 • Rank: 7/15



RESILIENCE (R) - Very Low
Score: 0.455 • Rank: 13/15



MULTI-HAZARD EXPOSURE (MHE) - Low
Score: 0.416 • Rank: 10/15



VULNERABILITY (V) - High
Score: 0.521 • Rank: 4/15



COPING CAPACITY (CC) - Very Low
Score: 0.431 • Rank: 14/15



Population (2011 Census)
102,375



Population in Poverty
30.0%



Population with less than a secondary education
32.6%



Access to improved water
94.8% households



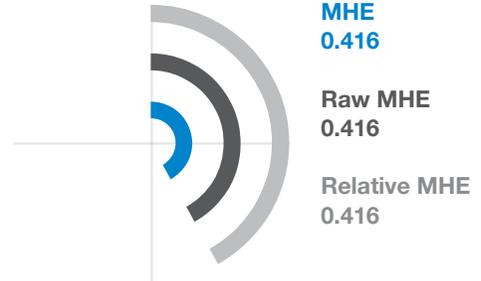
Infant mortality rate (per 1,000 live births)
64

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

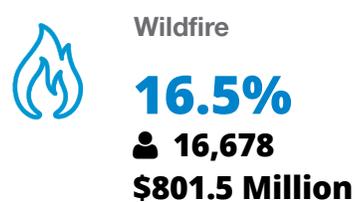
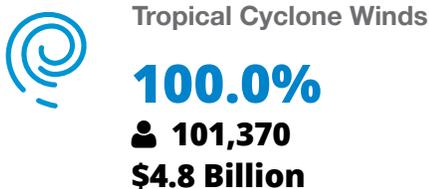
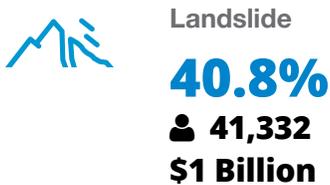
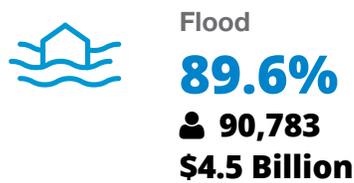
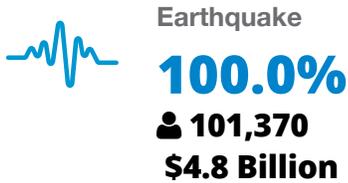


MULTI-HAZARD EXPOSURE (MHE)

RANK: 10 / 15 MUNICIPALITIES
SCORE: 0.416



ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:





VULNERABILITY (V)

RANK: 4 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.521

Vulnerability in Princes Town is primarily driven by Clean Water Access Vulnerability and Gender Inequality. The bar charts indicate the socioeconomic themes contributing to the overall Vulnerability score.



Environmental Stress

0  1 **SCORE: 0.554** **RANK: 5/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|---|--|---|--|--|--|---|---|
| 0.4% Households affected by deforestation | 32% Households affected by drainage issues | 13.5% Households affected by flooding | 1.39% Households affected by sewage issues | 9.9% Households affected by soil erosion | 1.7% Households affected by solid waste issues | 3.4% Households affected by wastewater issues | 1.7% Households affected by water contamination |
|---|--|---|--|--|--|---|---|



Vulnerable Health Status

0  1 **SCORE: 0.480** **RANK: 3/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|--|---|--|--|--|-------------------------------------|-----------------------------------|--|
| 20.8% Persons with chronic illness | 64.3 Infant mortality rate (per 1k live births) | 3.9% Persons with long-standing disability | - Population in collective living quarters | 1.76 Chikungunya cases per 10k | 0.29 Dengue cases per 10k | 3.61 Zika cases per 10k | 1.37 Leptospirosis cases per 10k |
|--|---|--|--|--|-------------------------------------|-----------------------------------|--|



Clean Water Vulnerability

0  1 **SCORE: 0.611** **RANK: 6/15 MUNICIPALITIES ASSESSED**

| | |
|--|--|
| 94.8% Households with access to improved water | 16.4% Households with inadequate toilet facilities |
|--|--|



Information Access Vulnerability

0  1 **SCORE: 0.565** **RANK: 5/15 MUNICIPALITIES ASSESSED**

| | | | |
|---|---|--------------------------------------|---------------------------------------|
| 32.6% Population with less than secondary education | 74.2% Households with no Internet | 8.3% Households with no TV | 20.6% Households with radio |
|---|---|--------------------------------------|---------------------------------------|



Economic Constraints

0  1 **SCORE: 0.469** **RANK: 9/15 MUNICIPALITIES ASSESSED**

| | | | |
|-------------------------------------|--|--|------------------------------|
| 40.3 Age dependency ratio | 48.5% Households with no vehicle | 11.1% Population with unmet housing need | 30.0% Poverty rate |
|-------------------------------------|--|--|------------------------------|



Gender Inequality

0  1 **SCORE: 0.592** **RANK: 5/15 MUNICIPALITIES ASSESSED**

0.57

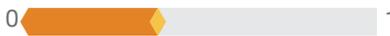
Female to male labor participants

0.97

Female to male secondary education attainment



Population Pressures

0  1 **SCORE: 0.378** **RANK: 10/15 MUNICIPALITIES ASSESSED**

1.0%

Average annual population change

13.1

Net migration rate



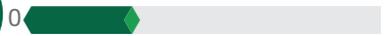
COPING CAPACITY (CC)

RANK: 14 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.431

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



Economic Capacity

0  1 **SCORE: 0.294** **RANK: 12/15 MUNICIPALITIES ASSESSED**

41.4% Labor force participation rate
\$6,105 Annual household income per capita (USD)
1.0 Financial institutions per 10k persons



Governance

0  1 **SCORE: 0.551** **RANK: 10/15 MUNICIPALITIES ASSESSED**

45.8 Serious crimes reported per 10k persons
44.0% Voter participation
7.0% Households with unmet need for refuse collection



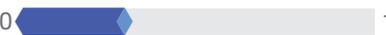
Environmental Capacity

0  1 **SCORE: 0.882** **RANK: 2/15 MUNICIPALITIES ASSESSED**

42.6% Protected areas (sq km)



Infrastructure Capacity

0  1 **SCORE: 0.297** **RANK: 14/15 MUNICIPALITIES ASSESSED**



Health Care Capacity

SCORE: 0.112 **RANK: 15/15 MUNICIPALITIES ASSESSED**

0.5 Health care facilities (per 10k persons)
14.3 Average distance to hospital (km)
10.0% Population with private health insurance



Transportation Capacity

SCORE: 0.256 **RANK: 13/15 MUNICIPALITIES ASSESSED**

1.7 Road density (km per sq. km)
15.5 Average distance to nearest port (km)



Communications Capacity

SCORE: 0.444 **RANK: 10/15 MUNICIPALITIES ASSESSED**

87.8% Population using mobile phones
6.4 Mobile and wireless infrastructure (per 10k persons)



Emergency Services Capacity

SCORE: 0.377 **RANK: 14/15 MUNICIPALITIES ASSESSED**

6.6 Average distance to fire station (km)
3.3 Average distance to police station (km)
2.7 Emergency shelters (per 10k persons)



RESILIENCE (R)

RANK: 13 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.455

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

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



Clean Water Access Vulnerability



Gender Inequality



Transportation Capacity



Economic Capacity



HAZARD-SPECIFIC RISK (HSR)



Earthquake

RANK: 4 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.378



Coastal Flood

RANK: 14 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.014



Flood

RANK: 7 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.282



Landslide

RANK: 8 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.157



Wildfire

RANK: 7 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.162



Tropical Cyclone Winds

RANK: 4 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.378



MULTI-HAZARD RISK (MHR)

7 / 15

RANK WITHIN MUNICIPALITIES
Score: 0.502



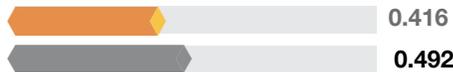
Princes Town's score and ranking are due to Low Multi-hazard Exposure combined with High Vulnerability and Very Low Coping Capacity scores.



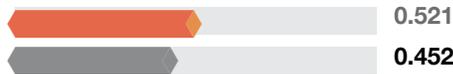
Multi-hazard risk component scores compared to overall average country scores:



Multi-Hazard Exposure



Vulnerability



Coping Capacity



PRINCES TOWN RECOMMENDATIONS

1

Clean Water Access Vulnerability

Princes Town has the 6th highest overall Clean Water Access Vulnerability, with over 16% of households lacking adequate Toilet Facilities, and 5% without access to an Improved Water Source. Prioritize investments to improve clean water and sanitation infrastructure and delivery systems in underserved areas.

Given the prevalence of flood and landslide hazards in the municipality, institute measures to protect water supplies and reduce the risk to public health from untreated sewage.

Strengthen collaboration between government and non-governmental partners and social service agencies to address clean water and sanitation issues resulting from squatter settlements and the related potential health and environmental impacts.

2

Gender Inequality

Princes Town ranks 5th for overall Gender Inequality, driven by disparities related to Female to Male Labor Ratio.

Promote workforce opportunities for women that include quality, affordable childcare to boost economic participation and reduce economic dependency.

Institutionalize policies that promote workforce equality and reduce the wage gap.

PRINCES TOWN RECOMMENDATIONS

3

Transportation Capacity

Princes Town has the 3rd lowest Transportation Capacity score in the country, driven by the 3rd lowest Road Density and the 3rd greatest Distance to a Port Facility. The municipality is one of the largest in the country, and heavily forested.

Limited transportation networks can constrain disaster response and recovery activities, inhibiting evacuation, delaying assessment of damage and losses, and preventing the timely distribution of relief supplies. Expand transportation infrastructure, particularly in rural areas, to improve access and service delivery.

Protect new infrastructure investments through the application of risk reduction measures to reduce hazard impacts (e.g., landslides and flooding).

4

Economic Capacity

Princes Town has the 2nd lowest Labor Force Participation Rate in the country. It also has the 2nd highest incidence of poverty, with 30% of the population living below the poverty line. The municipality's economy, once anchored by the sugar industry, is still largely agricultural, yet re-cultivation of large tracts of land has been slow. Numerous squatter settlements have arisen on what was once sugar cane land. Princes Town has identified several potential development opportunities to increase economic capacity, including agro processing, fishing and fish processing, tourism, light manufacturing and expansion of commercial activity. To support economic transition and growth, strengthen the local workforce and small businesses through the provision of vocational, technical, and entrepreneurial training opportunities.

Increase access to financing and support structures (e.g. microfinance services and loans) for farmers, small business owners and household enterprises to expand production and marketability of goods and produce.

Increase investment in affordable housing development and boost financial assistance and social service programs to help those in squatter settlements transition to formal housing.

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TRINIDAD AND TOBAGO

SAN FERNANDO

NDPBA MUNICIPALITIES PROFILE

TRINIDAD AND TOBAGO

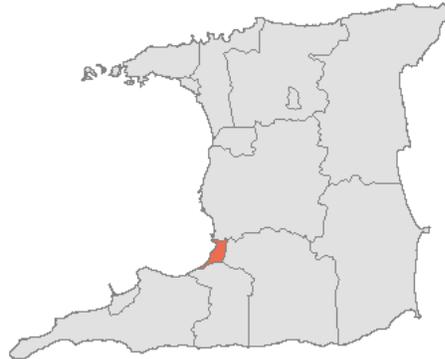
SAN FERNANDO



CAPITAL: SAN FERNANDO

Area: 19 km²

The City of San Fernando in western Trinidad is the among the smallest and is the fifth least populous municipality in the country. San Fernando is bordered by the municipalities of Couva-Tabaquite-Talparo to the north and east, Princes Town to the east, Penal-Debe to the south, and the Gulf of Paria to the west. Geographic features include hilly to flat terrain, with streams, rivers and wetlands. Land use is predominantly residential, with some commercial, industrial and recreational designations. Primary economic drivers are retail and distribution.



RISK AND VULNERABILITY COMPONENT SCORE



MULTI-HAZARD RISK (MHR) - Very Low
Score: 0.394 • Rank: 14/15



RESILIENCE (R) - High
Score: 0.544 • Rank: 6/15



MULTI-HAZARD EXPOSURE (MHE) - Very Low
Score: 0.271 • Rank: 13/15



VULNERABILITY (V) - Low
Score: 0.400 • Rank: 10/15



COPING CAPACITY (CC) - Moderate
Score: 0.487 • Rank: 8/15



Population (2011 Census)
48,838



Population in Poverty
11.2%



Population with less than a secondary education
19.8%



Access to improved water
99.3% households



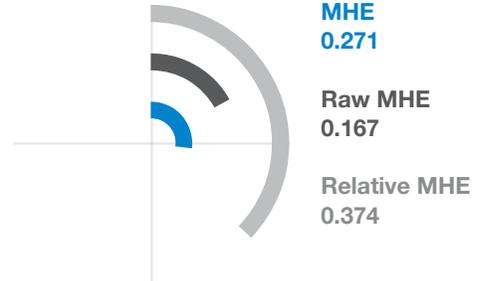
Infant mortality rate (per 1,000 live births)
54

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



MULTI-HAZARD EXPOSURE (MHE)

RANK: 13 / 15 MUNICIPALITIES
SCORE: 0.271



ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:



Earthquake

100.0%

49,297

\$2.5 Billion



Flood

95.0%

46,848

\$2.4 Billion



Landslide

5.0%

2,470

\$190 Million



Coastal Flood

11.1%

5,456

\$86.2 Million



Tropical Cyclone Winds

100.0%

49,297

\$2.5 Billion



Wildfire

25.9%

12,756

\$442.2 Million



VULNERABILITY (V)

RANK: 10 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.400

Vulnerability in San Fernando is primarily driven by Gender Inequality and Population Pressures. The bar charts indicate the socioeconomic themes contributing to the overall Vulnerability score.



Environmental Stress

0 1 **SCORE: 0.286** **RANK: 13/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|---|--|--|--|--|--|---|---|
| 0.1% Households affected by deforestation | 18% Households affected by drainage issues | 9.5% Households affected by flooding | 1.91% Households affected by sewage issues | 2.2% Households affected by soil erosion | 2.1% Households affected by solid waste issues | 1.6% Households affected by wastewater issues | 1.3% Households affected by water contamination |
|---|--|--|--|--|--|---|---|



Vulnerable Health Status

0 1 **SCORE: 0.373** **RANK: 12/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|--|---|--|---|--|-------------------------------------|-----------------------------------|--|
| 17.7% Persons with chronic illness | 53.8 Infant mortality rate (per 1k live births) | 3.9% Persons with long-standing disability | 0.3% Population in collective living quarters | 2.25 Chikungunya cases per 10k | 1.02 Dengue cases per 10k | 5.32 Zika cases per 10k | 0.82 Leptospirosis cases per 10k |
|--|---|--|---|--|-------------------------------------|-----------------------------------|--|



Clean Water Vulnerability

0 1 **SCORE: 0.025** **RANK: 14/15 MUNICIPALITIES ASSESSED**

| | |
|--|---|
| 99.3% Households with access to improved water | 3.7% Households with inadequate toilet facilities |
|--|---|



Information Access Vulnerability

0 1 **SCORE: 0.070** **RANK: 15/15 MUNICIPALITIES ASSESSED**

| | | | |
|---|---|--------------------------------------|---------------------------------------|
| 19.8% Population with less than secondary education | 49.7% Households with no Internet | 7.6% Households with no TV | 16.0% Households with radio |
|---|---|--------------------------------------|---------------------------------------|



Economic Constraints

0 1 **SCORE: 0.362** **RANK: 10/15 MUNICIPALITIES ASSESSED**

| | | | |
|-------------------------------------|--|--|------------------------------|
| 45.1 Age dependency ratio | 46.1% Households with no vehicle | 10.1% Population with unmet housing need | 11.2% Poverty rate |
|-------------------------------------|--|--|------------------------------|



Gender Inequality

0  1 **SCORE: 0.874** **RANK: 1/15 MUNICIPALITIES ASSESSED**

0.57

Female to male labor participants

0.92

Female to male secondary education attainment



Population Pressures

0  1 **SCORE: 0.808** **RANK: 3/15 MUNICIPALITIES ASSESSED**

-1.2%

Average annual population change

-58.7

Net migration rate



COPING CAPACITY (CC)

RANK: 8 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.487

San Fernando 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.



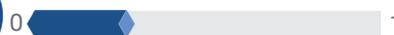
Economic Capacity

0  1 **SCORE: 0.638** **RANK: 2/15 MUNICIPALITIES ASSESSED**

43.2% Labor force participation rate
\$7,477 Annual household income per capita (USD)
2.8 Financial institutions per 10k persons



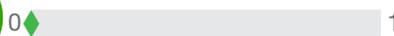
Governance

0  1 **SCORE: 0.267** **RANK: 15/15 MUNICIPALITIES ASSESSED**

188.0 Serious crimes reported per 10k persons
42.8% Voter participation
7.5% Households with unmet need for refuse collection



Environmental Capacity

0  1 **SCORE: 0.000** **RANK: 13/15 MUNICIPALITIES ASSESSED**

0.0% Protected areas (sq km)



Infrastructure Capacity

0  1 **SCORE: 0.719** **RANK: 2/15 MUNICIPALITIES ASSESSED**



Health Care Capacity **SCORE: 0.555** **RANK: 5/15 MUNICIPALITIES ASSESSED**

0.6 Health care facilities (per 10k persons)
2.5 Average distance to hospital (km)
17.0% Population with private health insurance



Transportation Capacity **SCORE: 0.810** **RANK: 3/15 MUNICIPALITIES ASSESSED**

15.7 Road density (km per sq. km)
4.6 Average distance to nearest port (km)



Communications Capacity **SCORE: 0.682** **RANK: 2/15 MUNICIPALITIES ASSESSED**

88.3% Population using mobile phones
11.8 Mobile and wireless infrastructure (per 10k persons)



Emergency Services Capacity **SCORE: 0.829** **RANK: 2/15 MUNICIPALITIES ASSESSED**

1.9 Average distance to fire station (km)
1.2 Average distance to police station (km)
7.7 Emergency shelters (per 10k persons)



RESILIENCE (R)

RANK: 6 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.544

San Fernando's score and ranking are due to Low Vulnerability combined with Moderate Coping Capacity scores.

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



Gender Inequality



Population Pressures



Governance



Economic Capacity



HAZARD-SPECIFIC RISK (HSR)



Earthquake

RANK: 12 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.26



Coastal Flood

RANK: 12 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.085



Flood

RANK: 8 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.246



Landslide

RANK: 15 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.001



Wildfire

RANK: 8 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.136



Tropical Cyclone Winds

RANK: 12 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.260



MULTI-HAZARD RISK (MHR)

14 / 15

RANK WITHIN MUNICIPALITIES
Score: 0.394



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



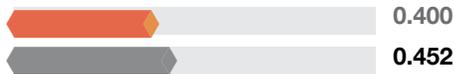
Multi-hazard risk component scores compared to overall average country scores:



Multi-Hazard Exposure



Vulnerability



Coping Capacity



SAN FERNANDO RECOMMENDATIONS

1

Gender Inequality

San Fernando has the highest Gender Inequality ranking in the country, with the second highest score related to disparities in Secondary Enrollment and the 3rd highest in relation to Female to Male Labor Ratio. Design and implement intervention strategies to promote and sustain engagement of both male and female students in secondary-level education and reduce dropout rates.

Increase availability of school-to-work programs through collaborative partnerships between educational institutions and local businesses.

Promote workforce opportunities for women that include quality, affordable childcare to increase participation in the workforce and reduce economic dependency.

2

Population Pressures

San Fernando ranks 3rd overall for Population Pressures, with the 2nd highest Net Migration Rate in the country (-59 per 1,000 persons) and the 4th most significant Average Annual Change in Population (-1.2%).

A declining population can leave gaps in social support systems and contribute to a loss of intellectual capital and skilled labor, affecting the economy and its growth potential.

Strengthen planning efforts to identify vulnerabilities related to the changing population and implement programs and support systems to address them, which may include vocational, technical or entrepreneurial training programs, services to alleviate poverty, or enhanced policing in areas susceptible to criminal activity.

SAN FERNANDO RECOMMENDATIONS

3

Governance

San Fernando has the lowest overall Governance ranking in the country, driven by the highest percentage of households with an unmet need for Refuse Collection, and the 3rd highest number of Serious Crimes Reported (188 per 10,000 persons).

Continue to implement the Ministry of National Security's (MNS) Citizen Security Programme (CSP) in high needs communities to strengthen institutional capacities of the MNS and local police, build public confidence and citizen support of measures to improve safety and security, and coordinate implementation of community-based crime prevention strategies. Foster citizen support for increases in security personnel and surveillance in public places.

Improve the levels of municipal service that collect and responsibly dispose of solid waste. Expand and communicate options for disposal and/or recycling of old vehicles, non-working appliances and hazardous materials to minimize impacts on the environment and reduce indiscriminate dumping.

4

Economic Capacity

Despite having the highest Household Income per Capita (\$7,477) and the 2nd highest Economic Capacity ranking in the country, San Fernando has the 6th lowest Labor Force Participation rate (43%). In a 2015 municipal survey of micro-, small-, and medium-sized business enterprises summarized in the City of San Fernando Local Area Economic Profile, respondents cited crime as one of the hindrances to economic advancement. Traffic congestion and a shortage of parking were others. The same sentiments were frequently echoed by other municipalities.

Increase availability of financial assistance and social services to poor and marginalized populations to reduce dependence upon informal social control mechanisms offered by criminal groups.

Strengthen workforce development opportunities that provide skills and training geared toward meeting the needs of employers and improving economic conditions.

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TRINIDAD AND TOBAGO

SAN JUAN-LAVENTILLE

NDPBA MUNICIPALITIES PROFILE

TRINIDAD AND TOBAGO

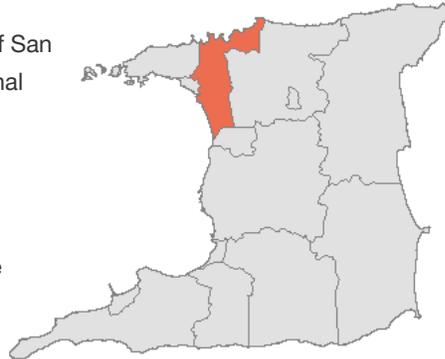
SAN JUAN-LAVENTILLE



CAPITAL: SAN JUAN

Area: 239 km²

Located in northeastern Trinidad, the Regional Corporation of San Juan-Laventille is the third most populous municipality/regional corporation in the country. San Juan-Laventille is bordered by the City of Port of Spain and the Diego Martin Regional Corporation to the west, the Caribbean Sea to the north, the Tunapuna-Piarco Regional Corporation to the east, and the Borough of Chaguanas to the south. Geographic features are varied, including portions of the Northern Range, foothills and plains with major rivers and watersheds, and the Caroni Swamp in the south. Land use is predominantly protected areas, with over 70% designated as forest reserve. About 12% is designated as residential, and 9% as agricultural. Primary economic drivers are commercial activities, including retail and distribution, services, and food and beverage.



RISK AND VULNERABILITY COMPONENT SCORE



MULTI-HAZARD RISK (MHR) - Very High
Score: 0.598 • Rank: 2/15



RESILIENCE (R) - Moderate
Score: 0.539 • Rank: 7/15



MULTI-HAZARD EXPOSURE (MHE) - Very High
Score: 0.873 • Rank: 2/15



VULNERABILITY (V) - High
Score: 0.442 • Rank: 6/15



COPING CAPACITY (CC) - High
Score: 0.521 • Rank: 5/15



Population (2011 Census)
157,258



Population in Poverty
14.7%



Population with less than a secondary education
25.5%



Access to improved water
96.1% households



Infant mortality rate (per 1,000 live births)
58

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



MULTI-HAZARD EXPOSURE (MHE)

RANK: 2 / 15 MUNICIPALITIES
SCORE: 0.873



MHE
0.873

Raw MHE
0.78

Relative MHE
0.967

ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:



Earthquake

100.0%

153,711

\$8.5 Billion



Flood

96.0%

147,499

\$8.1 Billion



Landslide

79.7%

122,559

\$7.2 Billion



Coastal Flood

20.0%

30,771

\$2.4 Billion



Tropical Cyclone Winds

100.0%

153,711

\$8.5 Billion



Wildfire

30.0%

46,172

\$3.2 Billion



VULNERABILITY (V)

RANK: 6 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.442

Vulnerability in San Juan-Laventille is primarily driven by Economic Constraints and Environmental Stress. The bar charts indicate the socioeconomic themes contributing to the overall Vulnerability score.



Environmental Stress

0  1 **SCORE: 0.631** **RANK: 2/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|---|--|---|--|--|--|---|---|
| 0.8% Households affected by deforestation | 19% Households affected by drainage issues | 12.1% Households affected by flooding | 2.06% Households affected by sewage issues | 5.5% Households affected by soil erosion | 4.6% Households affected by solid waste issues | 2.0% Households affected by wastewater issues | 7.5% Households affected by water contamination |
|---|--|---|--|--|--|---|---|



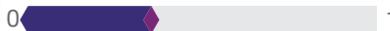
Vulnerable Health Status

0  1 **SCORE: 0.429** **RANK: 8/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|--|---|--|---|--|-------------------------------------|-----------------------------------|--|
| 20.2% Persons with chronic illness | 58.0 Infant mortality rate (per 1k live births) | 4.2% Persons with long-standing disability | 0.1% Population in collective living quarters | 4.26 Chikungunya cases per 10k | 1.02 Dengue cases per 10k | 6.49 Zika cases per 10k | 0.06 Leptospirosis cases per 10k |
|--|---|--|---|--|-------------------------------------|-----------------------------------|--|



Clean Water Vulnerability

0  1 **SCORE: 0.360** **RANK: 9/15 MUNICIPALITIES ASSESSED**

| | |
|--|---|
| 96.1% Households with access to improved water | 9.2% Households with inadequate toilet facilities |
|--|---|



Information Access Vulnerability

0  1 **SCORE: 0.460** **RANK: 8/15 MUNICIPALITIES ASSESSED**

| | | | |
|---|---|---------------------------------------|---------------------------------------|
| 25.5% Population with less than secondary education | 59.8% Households with no Internet | 11.4% Households with no TV | 19.4% Households with radio |
|---|---|---------------------------------------|---------------------------------------|



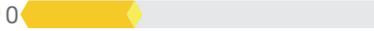
Economic Constraints

0  1 **SCORE: 0.699** **RANK: 3/15 MUNICIPALITIES ASSESSED**

| | | | |
|-------------------------------------|--|--|------------------------------|
| 45.2 Age dependency ratio | 58.7% Households with no vehicle | 14.8% Population with unmet housing need | 14.7% Poverty rate |
|-------------------------------------|--|--|------------------------------|



Gender Inequality

0  1 **SCORE: 0.310** **RANK: 11/15 MUNICIPALITIES ASSESSED**

0.80

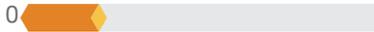
Female to male labor participants

0.96

Female to male secondary education attainment



Population Pressures

0  1 **SCORE: 0.206** **RANK: 14/15 MUNICIPALITIES ASSESSED**

0.0%

Average annual population change

-24.5

Net migration rate



COPING CAPACITY (CC)

RANK: 5 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.521

San Juan-Laventille exhibits weaker Coping Capacity in the areas of Economic Capacity and Communications Capacity. The bar charts indicate the socioeconomic themes contributing to the overall Coping Capacity score.



Economic Capacity

0  1 **SCORE: 0.438** **RANK: 7/15 MUNICIPALITIES ASSESSED**

47.7% Labor force participation rate
\$6,057 Annual household income per capita (USD)
0.5 Financial institutions per 10k persons



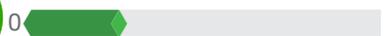
Governance

0  1 **SCORE: 0.673** **RANK: 5/15 MUNICIPALITIES ASSESSED**

59.3 Serious crimes reported per 10k persons
28.6% Voter participation
0.9% Households with unmet need for refuse collection



Environmental Capacity

0  1 **SCORE: 0.256** **RANK: 8/15 MUNICIPALITIES ASSESSED**

12.4% Protected areas (sq km)



Infrastructure Capacity

0  1 **SCORE: 0.539** **RANK: 7/15 MUNICIPALITIES ASSESSED**



Health Care Capacity

SCORE: 0.501 **RANK: 6/15 MUNICIPALITIES ASSESSED**

0.5 Health care facilities (per 10k persons)
3.8 Average distance to hospital (km)
16.6% Population with private health insurance



Transportation Capacity

SCORE: 0.513 **RANK: 8/15 MUNICIPALITIES ASSESSED**

3.4 Road density (km per sq. km)
7.2 Average distance to nearest port (km)



Communications Capacity

SCORE: 0.489 **RANK: 7/15 MUNICIPALITIES ASSESSED**

87.8% Population using mobile phones
7.6 Mobile and wireless infrastructure (per 10k persons)



Emergency Services Capacity

SCORE: 0.651 **RANK: 6/15 MUNICIPALITIES ASSESSED**

2.0 Average distance to fire station (km)
1.5 Average distance to police station (km)
2.7 Emergency shelters (per 10k persons)



RESILIENCE (R)

RANK: 7 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.539

San Juan-Laventille’s score and ranking are due to High Vulnerability combined with High Coping Capacity scores.

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



Economic Constraints



Environmental Stress



Economic Capacity



Communications Capacity



HAZARD-SPECIFIC RISK (HSR)



Earthquake

RANK: 3 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.39



Coastal Flood

RANK: 1 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.421



Flood

RANK: 3 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.353



Landslide

RANK: 2 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.376



Wildfire

RANK: 5 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.259



Tropical Cyclone Winds

RANK: 3 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.390



MULTI-HAZARD RISK (MHR)

2 / 15

RANK WITHIN MUNICIPALITIES
Score: 0.598



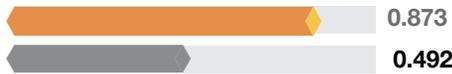
San Juan-Laventille's score and ranking are due to Very High Multi-hazard Exposure combined with High Vulnerability and High Coping Capacity scores.



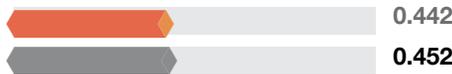
Multi-hazard risk component scores compared to overall average country scores:



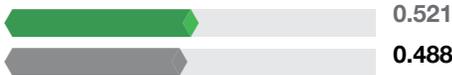
Multi-Hazard Exposure



Vulnerability



Coping Capacity



SAN JUAN-LAVENTILLE RECOMMENDATIONS

1

Economic Constraints

Findings show that San Juan-Laventille has the 3rd highest Economic Constraints ranking in the country, driven by scores related to population with Unmet Housing Needs (15%), households with No Vehicle (59%), and an Age Dependency Ratio of 45 for every 100 persons of working age. In addition, 15% of the population lives in Poverty. The economic constraints facing San Juan-Laventille will have bearing on the ability of residents to effectively prepare for, respond to, and recover from disasters. Poor or inadequate housing conditions leave populations vulnerable to the negative effects of hazards and unable to repair or replace damaged property. Those with dependents and no vehicle will be challenged to evacuate to safety when necessary.

Consider long-term economic plans and programs that both promote social benefits for elderly, low income, and single-parent households, and allocate the revenue required to balance the costs of these benefits. Increase investment in affordable housing development and boost financial assistance and social service programs to help those in squatter settlements transition to formal housing.

Increase opportunities to expand participation of women in education and economic activities through the enactment of policies that provide quality, affordable childcare and health care services.

2

Environmental Stress

Findings show that San Juan-Laventille has the 2nd highest overall Environmental Stress score. It is also prone to multiple hazards, including flooding, landslide, coastal flood, earthquake and tropical cyclone winds, ranking 2nd overall for Multi-Hazard Exposure. The municipality has the highest percentage of households affected by both Solid Waste (nearly 5%) and Water Contamination (nearly 8%). Sewerage issues and Deforestation were additional concerns. San Juan-Laventille's very high hazard exposure will exacerbate the environmental issues already affecting municipal households. Informal squatter settlements are additional contributors to environmental stress. Strengthen collaboration between government and non-governmental partners and social service agencies to address clean water and sanitation issues resulting from squatter settlements and the related potential health and environmental impacts.

Given the draw of the municipality's beaches and places of natural beauty, and eco-tourism's importance to the economy, establish protective measures to prevent pollution and run-off from affecting beaches and delicate ecosystems. Institute and enforce environmental policies and regulations regarding new development projects to reduce environmental impacts.

SAN JUAN-LAVENTILLE RECOMMENDATIONS

3

Economic Capacity

San Juan-Laventille's overall Economic Capacity score is driven by the 2nd lowest number of Financial Institutions (.52) per 10,000 persons.

Boost economic capacity by promoting initiatives that create jobs, diversify the economy, generate public revenue, and build the entrepreneurial and technical skills of small business owners and household enterprises.

Improve access to micro-loans and small business support organizations.

4

Communications Capacity

San Juan-Laventille ranks 7th for overall Communications Capacity, with the 5th lowest density of Mobile and Wireless Infrastructure.

Expand mobile and wireless infrastructure density to improve quality and delivery of service, especially in rural areas.

Improved access to mobile and wireless services will not only support economic endeavors but offer additional methods by which the public can access important hazard alert and warning information.

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TRINIDAD AND TOBAGO

SANGRE GRANDE

NDPBA MUNICIPALITIES PROFILE

TRINIDAD AND TOBAGO

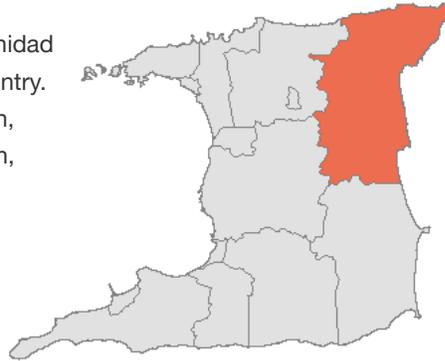
SANGRE GRANDE



CAPITAL: SANGRE GRANDE

Area: 927 km²

The Municipality of Sangre Grande is located in northeast Trinidad and is the largest municipality/regional corporation in the country. Sangre Grande is bordered by the Caribbean Sea to the north, the Atlantic Ocean on the east, Mayaro-Rio Claro to the south, Couva-Tabaquite-Talparo to the southwest, and Tunapuna-Piarco to the west. Geographic features include the Northern Range, the Northern Basin, consisting of river systems, floodplains and wetlands, the Central Range, and 24% of Trinidad's coastline. Land use is predominantly agricultural. Primary economic drivers are agriculture, fisheries, quarrying, tourism, commerce and distribution, and services.



RISK AND VULNERABILITY COMPONENT SCORE



MULTI-HAZARD RISK (MHR) - High
Score: 0.522 • Rank: 4/15



RESILIENCE (R) - Very Low
Score: 0.436 • Rank: 14/15



MULTI-HAZARD EXPOSURE (MHE) - Moderate
Score: 0.436 • Rank: 8/15



VULNERABILITY (V) - Very High
Score: 0.623 • Rank: 1/15



COPING CAPACITY (CC) - Moderate
Score: 0.495 • Rank: 7/15



Population (2011 Census)
75,766



Population in Poverty
39.1%



Population with less than a secondary education
34.6%



Access to improved water
94.6% households



Infant mortality rate (per 1,000 live births)
38

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



MULTI-HAZARD EXPOSURE (MHE)

RANK: 8 / 15 MUNICIPALITIES
SCORE: 0.436



MHE
0.436

Raw MHE
0.322

Relative MHE
0.55

ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:



Earthquake

100.0%

79,660

\$3.3 Billion



Flood

92.4%

73,583

\$3.2 Billion



Landslide

54.8%

43,644

\$2.6 Billion



Coastal Flood

4.1%

3,292

\$29.8 Million



Tropical Cyclone Winds

100.0%

79,660

\$3.3 Billion



Wildfire

0.3%

209

\$4.6 Million



VULNERABILITY (V)

RANK: 1 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.623

Vulnerability in Sangre Grande is primarily driven by Information Access Vulnerability and Economic Constraints. The bar charts indicate the socioeconomic themes contributing to the overall Vulnerability score.



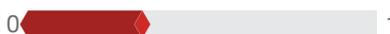
Environmental Stress

0  1 **SCORE: 0.505** **RANK: 7/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|---|--|---|--|--|--|---|---|
| 0.7% Households affected by deforestation | 33% Households affected by drainage issues | 19.3% Households affected by flooding | 1.43% Households affected by sewage issues | 5.9% Households affected by soil erosion | 1.9% Households affected by solid waste issues | 2.1% Households affected by wastewater issues | 1.0% Households affected by water contamination |
|---|--|---|--|--|--|---|---|



Vulnerable Health Status

0  1 **SCORE: 0.333** **RANK: 14/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|--|---|--|---|--|-------------------------------------|-----------------------------------|--|
| 21.1% Persons with chronic illness | 38.3 Infant mortality rate (per 1k live births) | 4.1% Persons with long-standing disability | 0.2% Population in collective living quarters | 1.45 Chikungunya cases per 10k | 0.26 Dengue cases per 10k | 2.38 Zika cases per 10k | 0.00 Leptospirosis cases per 10k |
|--|---|--|---|--|-------------------------------------|-----------------------------------|--|



Clean Water Vulnerability

0  1 **SCORE: 0.809** **RANK: 2/15 MUNICIPALITIES ASSESSED**

| | |
|--|--|
| 94.6% Households with access to improved water | 24.4% Households with inadequate toilet facilities |
|--|--|



Information Access Vulnerability

0  1 **SCORE: 0.881** **RANK: 2/15 MUNICIPALITIES ASSESSED**

| | | | |
|---|---|---------------------------------------|---------------------------------------|
| 34.6% Population with less than secondary education | 79.1% Households with no Internet | 13.3% Households with no TV | 22.6% Households with radio |
|---|---|---------------------------------------|---------------------------------------|



Economic Constraints

0  1 **SCORE: 0.856** **RANK: 1/15 MUNICIPALITIES ASSESSED**

| | | | |
|-------------------------------------|--|--|------------------------------|
| 44.2 Age dependency ratio | 58.0% Households with no vehicle | 15.0% Population with unmet housing need | 39.1% Poverty rate |
|-------------------------------------|--|--|------------------------------|



Gender Inequality

0  1 **SCORE: 0.444** **RANK: 10/15 MUNICIPALITIES ASSESSED**

0.65
Female to male labor
participants

0.97
Female to male secondary
education attainment



Population Pressures

0  1 **SCORE: 0.536** **RANK: 5/15 MUNICIPALITIES ASSESSED**

1.3%
Average annual
population
change

25.1
Net migration
rate



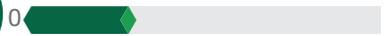
COPING CAPACITY (CC)

RANK: 7 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.495

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



Economic Capacity

0  1 **SCORE: 0.283** **RANK: 13/15 MUNICIPALITIES ASSESSED**

44.3% Labor force participation rate
\$5,150 Annual household income per capita (USD)
1.0 Financial institutions per 10k persons



Governance

0  1 **SCORE: 0.714** **RANK: 3/15 MUNICIPALITIES ASSESSED**

92.8 Serious crimes reported per 10k persons
39.0% Voter participation
1.1% Households with unmet need for refuse collection



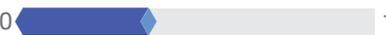
Environmental Capacity

0  1 **SCORE: 0.861** **RANK: 3/15 MUNICIPALITIES ASSESSED**

41.6% Protected areas (sq km)



Infrastructure Capacity

0  1 **SCORE: 0.366** **RANK: 12/15 MUNICIPALITIES ASSESSED**



Health Care Capacity

SCORE: 0.371 **RANK: 9/15 MUNICIPALITIES ASSESSED**

1.5 Health care facilities (per 10k persons)
8.8 Average distance to hospital (km)
9.5% Population with private health insurance



Transportation Capacity

SCORE: 0.022 **RANK: 15/15 MUNICIPALITIES ASSESSED**

1.2 Road density (km per sq. km)
24.8 Average distance to nearest port (km)



Communications Capacity

SCORE: 0.643 **RANK: 4/15 MUNICIPALITIES ASSESSED**

87.9% Population using mobile phones
11.7 Mobile and wireless infrastructure (per 10k persons)



Emergency Services Capacity

SCORE: 0.428 **RANK: 11/15 MUNICIPALITIES ASSESSED**

8.7 Average distance to fire station (km)
3.2 Average distance to police station (km)
5.8 Emergency shelters (per 10k persons)



RESILIENCE (R)

RANK: 14 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.436

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

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



**Information
Access
Vulnerability**



**Economic
Constraints**



**Transportation
Capacity**



Economic Capacity



HAZARD-SPECIFIC RISK (HSR)



Earthquake

RANK: 5 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.355



Coastal Flood

RANK: 13 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.043



Flood

RANK: 6 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.299



Landslide

RANK: 4 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.304



Wildfire

RANK: 13 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.011



Tropical Cyclone Winds

RANK: 5 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.355



MULTI-HAZARD RISK (MHR)

4 / 15

RANK WITHIN MUNICIPALITIES
Score: 0.522



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



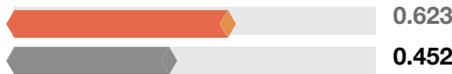
Multi-hazard risk component scores compared to overall average country scores:



Multi-Hazard Exposure



Vulnerability



Coping Capacity



SANGRE GRANDE RECOMMENDATIONS

1

Information Access Vulnerability

Sangre Grande has the 2nd highest Information Access Vulnerability ranking in the country, with the highest percentage of Households with No TV (13%). In addition, 79% of households have No Internet Access, 23% have No Radio Access, and 35% of the population have less than a Secondary Education. Constraints related to Information Access can influence how people prepare for and respond to disasters.

Implement community outreach and education programs focused on hazard awareness, disaster preparedness, and health and safety practices to build community resilience. Include information and resources for audiences requiring special considerations such as the very young, elderly, and differently-abled.

Boost public-private collaboration and coordination to ensure that hazard warning information is disseminated as broadly as possible through multiple communications channels.

2

Economic Constraints

Findings show that Sangre Grande has the highest overall ranking for Economic Constraints, with the highest Poverty rate (39%), and the highest percentage of the population with an Unmet Housing Need (15%). In addition, 58% of households do not have a Vehicle. Sangre Grande also has the highest Adolescent Fertility Rate (75.2 per 1,000 women), according to the Trinidad and Tobago Human Development Atlas 2012.

The economic constraints and very high overall vulnerability facing Sangre Grande will have bearing on the ability of residents to effectively prepare for, respond to, and recover from disasters. Poor or inadequate housing conditions leave populations vulnerable to the negative effects of hazards and unable to repair or replace damaged property. Those with dependents and no vehicle will be challenged to evacuate to safety when necessary. Consider long-term economic plans and programs that both promote social benefits for elderly, low income, and single-parent households, and allocate the revenue required to balance the costs of these benefits.

Increase opportunities to expand participation of women in education and economic activities through the enactment of policies that provide quality, affordable childcare and health care services.

SANGRE GRANDE RECOMMENDATIONS

3

Transportation Capacity

Sangre Grande has the lowest Transportation Capacity ranking in the country, with the greatest Distance to Port Facility and second lowest Road Density. Limited transportation networks in this primarily rural municipality will impede disaster response and recovery activities and limit timely delivery or distribution of goods and services, which can have undesirable economic impacts. Sangre Grande is also prone to hazards such as flooding, landslides, earthquakes, tropical cyclone winds and coastal flooding.

Protect existing transportation infrastructure from hazard impacts by improving roadways and drainage systems and mitigating the potential for landslides and rockfalls.

Expanded transportation networks will support economic growth, provide alternative evacuation routes and increase delivery of water, energy and communications services.

4

Economic Capacity

Sangre Grande has the 3rd lowest overall Economic Capacity score, influenced by the 3rd lowest Household Income per Capita (\$5,150) in the country.

Institute vocational and technical training programs that bridge the gap between labor market needs and the lower levels of education typical in the municipality to increase household incomes.

As a primarily agricultural municipality, increase access to financing and support structures (e.g. microfinance services and loans) to build the capacity of farmers, small businesses and household enterprises to enhance production and increase household incomes.

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TRINIDAD AND TOBAGO

SIPARIA

NDPBA MUNICIPALITIES PROFILE

TRINIDAD AND TOBAGO

SIPARIA



CAPITAL: SIPARIA

Area: 495 km²

Situated in southwest Trinidad, the Municipality of Siparia is the sixth largest and seventh most populous of the municipalities/ regional corporations in the country. Siparia is bordered by the Gulf of Paria to the north, the Columbus Channel to the south, Penal-Debe to the east, and encompassing the Borough of Point Fortin with a portion of its northern border. Geographic features include extensive coastline, forested areas, and wetlands. Land use is predominantly rural. Primary economic drivers are retail and distribution, personal services, construction, and petroleum and other mining industries.



RISK AND VULNERABILITY COMPONENT SCORE



MULTI-HAZARD RISK (MHR) - Low
Score: 0.468 • Rank: 11/15



RESILIENCE (R) - Low
Score: 0.481 • Rank: 11/15



MULTI-HAZARD EXPOSURE (MHE) - Low
Score: 0.366 • Rank: 12/15



VULNERABILITY (V) - High
Score: 0.498 • Rank: 5/15



COPING CAPACITY (CC) - Low
Score: 0.461 • Rank: 10/15



Population (2011 Census)
86,949



Population in Poverty
27.7%



Population with less than a secondary education
29.7%



Access to improved water
93.9% households



Infant mortality rate (per 1,000 live births)
61

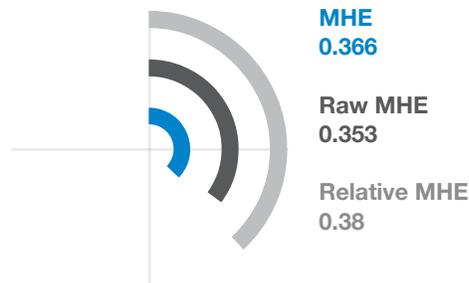
*For more information on data and components please visit: <https://bit.ly/2LqVoUO>



MULTI-HAZARD EXPOSURE (MHE)

RANK: 12 / 15 MUNICIPALITIES

SCORE: 0.366



ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:



Earthquake

100.0%

89,715

\$4.1 Billion



Flood

88.7%

79,572

\$3.8 Billion



Landslide

28.4%

25,494

\$898.7 Million



Coastal Flood

15.1%

13,559

\$495.8 Million



Tropical Cyclone Winds

100.0%

89,715

\$4.1 Billion



Wildfire

3.9%

3,505

\$196.9 Million



VULNERABILITY (V)

RANK: 5 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.498

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



Environmental Stress

0 1 **SCORE: 0.423** **RANK: 10/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|---|--|---|--|--|--|---|---|
| 0.4% Households affected by deforestation | 26% Households affected by drainage issues | 15.7% Households affected by flooding | 1.33% Households affected by sewage issues | 5.3% Households affected by soil erosion | 1.4% Households affected by solid waste issues | 2.9% Households affected by wastewater issues | 1.2% Households affected by water contamination |
|---|--|---|--|--|--|---|---|



Vulnerable Health Status

0 1 **SCORE: 0.459** **RANK: 5/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|--|---|--|---|--|-------------------------------------|-----------------------------------|--|
| 20.6% Persons with chronic illness | 61.3 Infant mortality rate (per 1k live births) | 4.8% Persons with long-standing disability | 0.1% Population in collective living quarters | 1.50 Chikungunya cases per 10k | 0.58 Dengue cases per 10k | 3.11 Zika cases per 10k | 0.69 Leptospirosis cases per 10k |
|--|---|--|---|--|-------------------------------------|-----------------------------------|--|



Clean Water Vulnerability

0 1 **SCORE: 0.681** **RANK: 4/15 MUNICIPALITIES ASSESSED**

| | |
|--|--|
| 93.9% Households with access to improved water | 16.8% Households with inadequate toilet facilities |
|--|--|



Information Access Vulnerability

0 1 **SCORE: 0.577** **RANK: 4/15 MUNICIPALITIES ASSESSED**

| | | | |
|---|---|---------------------------------------|---------------------------------------|
| 29.7% Population with less than secondary education | 76.5% Households with no Internet | 10.3% Households with no TV | 19.0% Households with radio |
|---|---|---------------------------------------|---------------------------------------|



Economic Constraints

0 1 **SCORE: 0.515** **RANK: 7/15 MUNICIPALITIES ASSESSED**

| | | | |
|-------------------------------------|--|--|------------------------------|
| 42.2 Age dependency ratio | 51.6% Households with no vehicle | 10.9% Population with unmet housing need | 27.7% Poverty rate |
|-------------------------------------|--|--|------------------------------|



Gender Inequality

0  1 **SCORE: 0.567** **RANK: 7/15 MUNICIPALITIES ASSESSED**

0.59

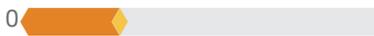
Female to male labor participants

0.97

Female to male secondary education attainment



Population Pressures

0  1 **SCORE: 0.266** **RANK: 11/15 MUNICIPALITIES ASSESSED**

0.6%

Average annual population change

-10.2

Net migration rate



COPING CAPACITY (CC)

RANK: 10 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.461

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



Economic Capacity

0 1 **SCORE: 0.212** **RANK: 14/15 MUNICIPALITIES ASSESSED**

| | | |
|--|--|--|
| 42.7% Labor force participation rate | \$5,904 Annual household income per capita (USD) | 0.2 Financial institutions per 10k persons |
|--|--|--|



Governance

0 1 **SCORE: 0.760** **RANK: 2/15 MUNICIPALITIES ASSESSED**

| | | |
|--|-------------------------------------|---|
| 75.1 Serious crimes reported per 10k persons | 45.6% Voter participation | 2.2% Households with unmet need for refuse collection |
|--|-------------------------------------|---|



Environmental Capacity

0 1 **SCORE: 0.553** **RANK: 4/15 MUNICIPALITIES ASSESSED**

26.7%
Protected areas (sq km)



Infrastructure Capacity

0 1 **SCORE: 0.379** **RANK: 11/15 MUNICIPALITIES ASSESSED**



Health Care Capacity

SCORE: 0.264 **RANK: 10/15 MUNICIPALITIES ASSESSED**

| | | |
|--|--|--|
| 1.0 Health care facilities (per 10k persons) | 12.5 Average distance to hospital (km) | 11.6% Population with private health insurance |
|--|--|--|



Transportation Capacity

SCORE: 0.356 **RANK: 12/15 MUNICIPALITIES ASSESSED**

| | |
|--|--|
| 2.7 Road density (km per sq. km) | 13.0 Average distance to nearest port (km) |
|--|--|



Communications Capacity

SCORE: 0.470 **RANK: 8/15 MUNICIPALITIES ASSESSED**

| | |
|--|--|
| 87.1% Population using mobile phones | 9.0 Mobile and wireless infrastructure (per 10k persons) |
|--|--|



Emergency Services Capacity

SCORE: 0.425 **RANK: 12/15 MUNICIPALITIES ASSESSED**

| | | |
|---|---|--|
| 7.9 Average distance to fire station (km) | 2.8 Average distance to police station (km) | 3.8 Emergency shelters (per 10k persons) |
|---|---|--|



RESILIENCE (R)

RANK: 11 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.481

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

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



**Clean Water
Access
Vulnerability**



**Information Access
Vulnerability**



Economic Capacity



**Transportation
Capacity**



HAZARD-SPECIFIC RISK (HSR)



Earthquake

RANK: 6 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.343



Coastal Flood

RANK: 5 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.239



Flood

RANK: 9 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.242



Landslide

RANK: 12 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.116



Wildfire

RANK: 10 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.062



Tropical Cyclone Winds

RANK: 6 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.343



MULTI-HAZARD RISK (MHR)

11 / 15

RANK WITHIN MUNICIPALITIES
Score: 0.468



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



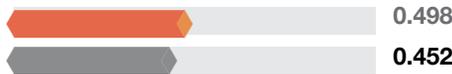
Multi-hazard risk component scores compared to overall average country scores:



Multi-Hazard Exposure



Vulnerability



Coping Capacity



SIPARIA RECOMMENDATIONS

1

Clean Water Access Vulnerability

Siparia ranks 4th for overall Clean Water Access Vulnerability, with nearly 17% of households having Inadequate Toilet Facilities.

Invest in clean water and sanitation infrastructure and delivery systems, particularly in underserved areas.

Improve waste management planning and practices to prevent pollution of drinking water sources and the environment.

2

Information Access Vulnerability

Siparia ranks 4th for overall Information Access Vulnerability, driven primarily by the percentage of households with No Internet Access (77%), and secondarily by the 30% of the population with less than a Secondary Education. Both have implications for disaster preparedness and response.

While connectivity is reported to be reliable and of high quality in urban areas, rural areas within Siparia lack dependable Internet access, reducing the effectiveness of this mechanism for important early warning information during a disaster.

Implement community outreach and education programs focused on hazard awareness, disaster preparedness, and health and safety practices to build community resilience. Include information and resources for audiences requiring special considerations such as the very young, elderly, and differently-abled.

SIPARIA RECOMMENDATIONS

3

Economic Capacity

Siparia has the 2nd lowest Economic Capacity score in the country, having the lowest density of Financial Institutions, the 4th lowest Labor Force Participation rate (43%), and the 5th lowest Household Income per Capita (\$5,904).

Strengthen implementation of vocational and technical training programs that bridge the gap between labor market needs and the lower levels of education typical in the municipality to increase household incomes.

Improve access to low-cost loans and financing support through institutions such as the National Entrepreneurship Development Company Limited (NEDCO), Agricultural Development Bank, Credit Unions, Ministry of Community Development, and local Chamber of Commerce to increase the economic capacity of micro- to medium-scale businesses.

4

Transportation Capacity

Findings show that Siparia has the 4th lowest overall Transportation Capacity in Trinidad and Tobago, driven by the 5th lowest scores for both Road Density and Distance to Port Facility. According to the Municipality of Siparia Local Economic Profile, road infrastructure serving the region is not well-maintained and frequently suffers from flooding and poor drainage in inland and coastal areas. It neither meets traffic demands, nor does it meet the weight requirements of the heavy vehicles serving the energy industry. Explore public-private partnerships to improve the quality of existing transportation infrastructure utilized by the oil and gas sector and extraction industries (e.g., ensure that roadways are designed and built to sustain the weight of heavy vehicles).

Secure investments to expand transportation networks, particularly in underserved areas to meet increasing demand and improve response times and access to emergency services. Increasing transportation capacity will have the added benefit of enhanced distribution of goods and services to support the local economy.

Protect investments and service provision by implementing mitigation strategies (e.g., improve storm water management) to reduce hazard impacts.

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TRINIDAD AND TOBAGO

TOBAGO

NDPBA MUNICIPALITIES PROFILE

TRINIDAD AND TOBAGO TOBAGO



CAPITAL: SCARBOROUGH

Area: 300 km²

The Island of Tobago is the seventh largest of the municipalities/ regional corporations in the country and home to nearly 76,000 people (according to the 2011 Census). Tobago is located 30km northeast of the island of Trinidad. Geographic features include mountainous to flat terrain, forest reserves, beaches and coral reefs. Land use is predominantly rural in the north eastern part of the island, with more commercial and industrial uses in southwest Tobago. Primary economic drivers are tourism and fishing.



RISK AND VULNERABILITY COMPONENT SCORE



MULTI-HAZARD RISK (MHR) - Very Low
Score: 0.299 • Rank: 15/15



RESILIENCE (R) - Very High
Score: 0.589 • Rank: 1/15



MULTI-HAZARD EXPOSURE (MHE) - Very Low
Score: 0.073 • Rank: 15/15



VULNERABILITY (V) - Low
Score: 0.375 • Rank: 12/15



COPING CAPACITY (CC) - Very High
Score: 0.553 • Rank: 3/15



Population (2011 Census)
60,874



Population in Poverty
19.0%



Population with less than a secondary education
31.9%



Access to improved water
97.7% households



Infant mortality rate (per 1,000 live births)
54

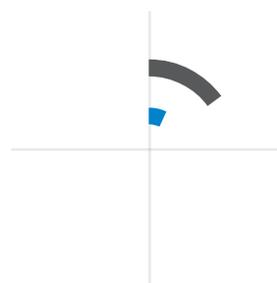
*For more information on data and components please visit: <https://bit.ly/2LqVoUO>



MULTI-HAZARD EXPOSURE (MHE)

RANK: 15 / 15 MUNICIPALITIES

SCORE: 0.073



MHE
0.073

Raw MHE
0.147

Relative MHE
0

ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:



Earthquake

100.0%

64,116

\$2.5 Billion



Flood

5.4%

3,479

\$85.1 Million



Landslide

36.6%

23,469

\$1.4 Billion



Coastal Flood

17.5%

11,235

\$210.6 Million



Tropical Cyclone Winds

100.0%

64,116

\$2.5 Billion



Wildfire

5.6%

3,580

\$51.3 Million



VULNERABILITY (V)

RANK: 12 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.375

Vulnerability in Tobago is primarily driven by Economic Constraints and Information Access Vulnerability. The bar charts indicate the socioeconomic themes contributing to the overall Vulnerability score.



Environmental Stress

0 1 **SCORE: 0.371** **RANK: 11/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|---|--|--|--|--|--|---|---|
| 0.5% Households affected by deforestation | 15% Households affected by drainage issues | 7.1% Households affected by flooding | 1.58% Households affected by sewage issues | 6.3% Households affected by soil erosion | 1.8% Households affected by solid waste issues | 2.4% Households affected by wastewater issues | 1.7% Households affected by water contamination |
|---|--|--|--|--|--|---|---|



Vulnerable Health Status

0 1 **SCORE: 0.202** **RANK: 15/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|--|---|--|---|---------------------------------------|----------------------------------|--------------------------------|---|
| 18.2% Persons with chronic illness | 54.3 Infant mortality rate (per 1k live births) | 3.1% Persons with long-standing disability | 0.1% Population in collective living quarters | - Chikungunya cases per 10k | - Dengue cases per 10k | - Zika cases per 10k | - Leptospirosis cases per 10k |
|--|---|--|---|---------------------------------------|----------------------------------|--------------------------------|---|



Clean Water Vulnerability

0 1 **SCORE: 0.307** **RANK: 10/15 MUNICIPALITIES ASSESSED**

| | |
|--|--|
| 97.7% Households with access to improved water | 11.4% Households with inadequate toilet facilities |
|--|--|



Information Access Vulnerability

0 1 **SCORE: 0.530** **RANK: 6/15 MUNICIPALITIES ASSESSED**

| | | | |
|---|---|---------------------------------------|---------------------------------------|
| 31.9% Population with less than secondary education | 61.4% Households with no Internet | 11.8% Households with no TV | 18.4% Households with radio |
|---|---|---------------------------------------|---------------------------------------|



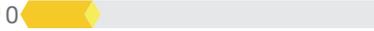
Economic Constraints

0 1 **SCORE: 0.571** **RANK: 6/15 MUNICIPALITIES ASSESSED**

| | | | |
|-------------------------------------|--|--|------------------------------|
| 45.9 Age dependency ratio | 54.3% Households with no vehicle | 11.4% Population with unmet housing need | 19.0% Poverty rate |
|-------------------------------------|--|--|------------------------------|



Gender Inequality

0  1 **SCORE: 0.187** **RANK: 13/15 MUNICIPALITIES ASSESSED**

0.87

Female to male labor participants

1.05

Female to male secondary education attainment



Population Pressures

0  1 **SCORE: 0.460** **RANK: 6/15 MUNICIPALITIES ASSESSED**

1.1%

Average annual population change

20.4

Net migration rate



COPING CAPACITY (CC)

RANK: 3 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.553

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



Economic Capacity

0  1 **SCORE: 0.557** **RANK: 5/15 MUNICIPALITIES ASSESSED**

| | | |
|--|--|--|
| 51.5% Labor force participation rate | \$4,468 Annual household income per capita (USD) | 2.7 Financial institutions per 10k persons |
|--|--|--|



Governance

0  1 **SCORE: 0.503** **RANK: 12/15 MUNICIPALITIES ASSESSED**

| | | |
|---|-------------------------------------|---|
| 131.8 Serious crimes reported per 10k persons | 50.0% Voter participation | 6.2% Households with unmet need for refuse collection |
|---|-------------------------------------|---|



Environmental Capacity

0  1 **SCORE: 0.413** **RANK: 6/15 MUNICIPALITIES ASSESSED**

20.0%
Protected areas (sq km)



Infrastructure Capacity

0  1 **SCORE: 0.644** **RANK: 3/15 MUNICIPALITIES ASSESSED**



Health Care Capacity **SCORE: 0.642** **RANK: 2/15 MUNICIPALITIES ASSESSED**

| | | |
|--|---|--|
| 3.1 Health care facilities (per 10k persons) | 6.4 Average distance to hospital (km) | 13.3% Population with private health insurance |
|--|---|--|



Transportation Capacity **SCORE: 0.510** **RANK: 9/15 MUNICIPALITIES ASSESSED**

| | |
|--|---|
| 2.7 Road density (km per sq. km) | 6.0 Average distance to nearest port (km) |
|--|---|



Communications Capacity **SCORE: 0.670** **RANK: 3/15 MUNICIPALITIES ASSESSED**

| | |
|--|---|
| 86.6% Population using mobile phones | 19.3 Mobile and wireless infrastructure (per 10k persons) |
|--|---|



Emergency Services Capacity **SCORE: 0.754** **RANK: 3/15 MUNICIPALITIES ASSESSED**

| | | |
|---|---|---|
| 4.1 Average distance to fire station (km) | 2.7 Average distance to police station (km) | 12.3 Emergency shelters (per 10k persons) |
|---|---|---|



RESILIENCE (R)

RANK: 1 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.589

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

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



Economic Constraints



Information Access Vulnerability



Governance



Transportation Capacity



HAZARD-SPECIFIC RISK (HSR)



Earthquake

RANK: 13 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.243



Coastal Flood

RANK: 11 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.149



Flood

RANK: 15 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.000



Landslide

RANK: 9 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.146



Wildfire

RANK: 11 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.039



Tropical Cyclone Winds

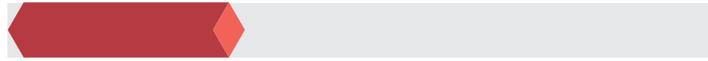
RANK: 13 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.243



MULTI-HAZARD RISK (MHR)

15 / 15

RANK WITHIN MUNICIPALITIES
Score: 0.299



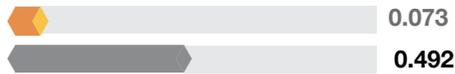
Tobago's score and ranking are due to Very Low Multi-hazard Exposure combined with Low Vulnerability and Very High Coping Capacity scores.



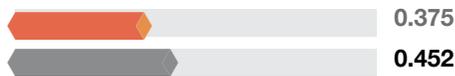
Multi-hazard risk component scores compared to overall average country scores:



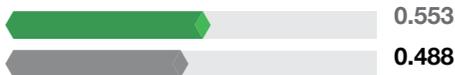
Multi-Hazard Exposure



Vulnerability



Coping Capacity



TOBAGO RECOMMENDATIONS

1

Economic Constraints

Tobago has the 6th highest overall ranking for Economic Constraints, driven by the 3rd highest Age Dependency Ratio (46 per 100 working-age people). Tobago's high dependency ratio may limit household incomes to one wage-earner, preventing increases in economic mobility, and could present challenges for evacuation, particularly for those who are very young, have mobility challenges, or do not own a vehicle.

Expand programs that provide workforce opportunities for women that include quality, affordable childcare to boost participation in the labor force and reduce economic dependency.

Promote school to work programs that provide vocational and technical training and prepare students to enter the workforce.

2

Information Access Vulnerability

Tobago ranks 6th for overall Information Access Vulnerability. Nearly a third of the population (32%) has less than a Secondary Education, and two-thirds (61%) of households do not have Internet Access. These factors can influence the abilities of the population to prepare for disasters, as well as receive, understand, and act upon hazard warning information. Design and implement intervention strategies to reduce dropout rates and promote and sustain engagement of students in secondary-level education.

Online access to hazard information for Tobago is extremely limited which reduces residents' ability to learn about the hazards that could affect them and the immediate response actions necessary to protect their health and safety. Improve online access to hazard and preparedness information, including up-to-date maps of hazard zones through the Tobago Emergency Management Agency website.

Implement community-based hazard awareness and preparedness campaigns using locally relevant, historical hazard information that is understandable to a wide range of audiences including the very young, elderly, and differently-abled. Boost public-private collaboration and coordination to ensure that hazard warning information is disseminated as broadly as possible through multiple communications channels.

TOBAGO RECOMMENDATIONS

3

Governance

Tobago ranks 12th out of all municipalities/regional corporations for overall Governance. Despite having one of the highest Voter Participation Rates in the country, Tobago has the 4th highest Crime Rate and the 4th highest percentage of households with an Unmet Need for Refuse Collection. Improve the levels of municipal service that collect and responsibly dispose of solid waste. Expand and communicate options for disposal and/or recycling of old vehicles, non-working appliances and hazardous materials to minimize impacts on the environment and reduce random dumping.

Continue to implement the Ministry of National Security's (MNS) Citizen Security Programme (CSP) in high needs communities to strengthen institutional capacities of the MNS and local police, build public confidence and citizen support of measures to improve safety and security, and coordinate implementation of community-based crime prevention strategies. Boost policing resources and capacity to respond effectively to street gangs and organized crime groups.

Increase availability of financial assistance and social services to poor and marginalized populations to reduce dependence upon informal social control mechanisms offered by criminal groups.

4

Transportation Capacity

Tobago has the 4th lowest Road Density in relation to other municipalities/regional corporations in the country. Many of these are located along the coast and exposed to high surf, coastal erosion and flooding. As sea-levels rise, impacts on transportation networks in low-lying coastal areas will become greater.

Assess the feasibility of applying mitigation strategies to existing roadways to increase their capacity to withstand hazard impacts. Hardening and expansion of transportation networks will support timely disaster response and recovery operations, access to health care, and the transport of goods and services.

Implement risk reduction initiatives as part of all new transportation infrastructure installations to bolster long-term Transportation Capacity.

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TRINIDAD AND TOBAGO

TUNAPUNA-PIARCO

NDPBA MUNICIPALITIES PROFILE

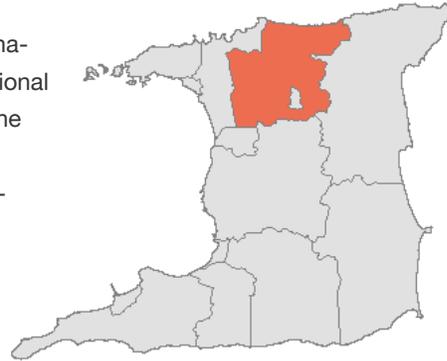
TRINIDAD AND TOBAGO TUNAPUNA-PIARCO



CAPITAL: TUNAPUNA

Area: 510 km²

Situated in north central Trinidad, the Municipality of Tunapuna-Piarco is the fifth largest and most populous municipality/regional corporation in the country. Tunapuna-Piarco is bordered by the Caribbean Sea to the north, Sangre Grande to the east, the Borough of Chaguanas and Municipality of Couva-Tabaquite-Talparo to the south, and San Juan-Laventille to the east. Tunapuna-Piarco completely encompasses the Borough of Arima. Geographic features include coastline to the north, the Northern Range and foothills, and rivers, floodplains and alluvial flats of the Northern Basin. Land use is predominantly agricultural, including fishing and forestry. Primary economic drivers are retail and distribution, personal services, tertiary education, and tourism.



RISK AND VULNERABILITY COMPONENT SCORE



MULTI-HAZARD RISK (MHR) - Very High
Score: 0.623 • Rank: 1/15



RESILIENCE (R) - High
Score: 0.566 • Rank: 5/15



MULTI-HAZARD EXPOSURE (MHE) - Very High
Score: 1.000 • Rank: 1/15



VULNERABILITY (V) - Very Low
Score: 0.365 • Rank: 14/15



COPING CAPACITY (CC) - High
Score: 0.497 • Rank: 6/15



Population (2011 Census)
215,119



Population in Poverty
10.5%



Population with less than a secondary education
24.1%



Access to improved water
98.1% households



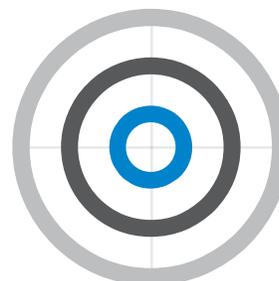
Infant mortality rate (per 1,000 live births)
33

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



MULTI-HAZARD EXPOSURE (MHE)

RANK: 1 / 15 MUNICIPALITIES
SCORE: 1.000



MHE
1.000

Raw MHE
1

Relative MHE
1

ESTIMATED POPULATION AND CAPITAL EXPOSED TO EACH HAZARD:



Earthquake

100.0%
215,354
\$11.7 Billion



Flood

97.8%
210,528
\$11.6 Billion



Landslide

78.9%
169,974
\$10.3 Billion



Coastal Flood

10.2%
22,051
\$1 Billion



Tropical Cyclone Winds

100.0%
215,354
\$11.7 Billion



Wildfire

44.9%
96,717
\$6.5 Billion



VULNERABILITY (V)

RANK: 14 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.365

Vulnerability in Tunapuna-Piarco is primarily driven by Environmental Stress and Gender Inequality. The bar charts indicate the socioeconomic themes contributing to the overall Vulnerability score.



Environmental Stress

0  1 **SCORE: 0.495** **RANK: 8/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|---|--|---|--|--|--|---|---|
| 0.9% Households affected by deforestation | 19% Households affected by drainage issues | 14.4% Households affected by flooding | 2.35% Households affected by sewage issues | 2.4% Households affected by soil erosion | 2.7% Households affected by solid waste issues | 1.4% Households affected by wastewater issues | 2.5% Households affected by water contamination |
|---|--|---|--|--|--|---|---|



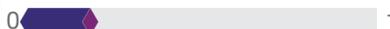
Vulnerable Health Status

0  1 **SCORE: 0.419** **RANK: 9/15 MUNICIPALITIES ASSESSED**

| | | | | | | | |
|--|---|--|---|--|-------------------------------------|-----------------------------------|--|
| 19.7% Persons with chronic illness | 33.4 Infant mortality rate (per 1k live births) | 3.5% Persons with long-standing disability | 1.3% Population in collective living quarters | 2.09 Chikungunya cases per 10k | 0.79 Dengue cases per 10k | 4.37 Zika cases per 10k | 0.74 Leptospirosis cases per 10k |
|--|---|--|---|--|-------------------------------------|-----------------------------------|--|



Clean Water Vulnerability

0  1 **SCORE: 0.181** **RANK: 11/15 MUNICIPALITIES ASSESSED**

| | |
|--|---|
| 98.1% Households with access to improved water | 7.0% Households with inadequate toilet facilities |
|--|---|



Information Access Vulnerability

0  1 **SCORE: 0.460** **RANK: 7/15 MUNICIPALITIES ASSESSED**

| | | | |
|---|---|---------------------------------------|---------------------------------------|
| 24.1% Population with less than secondary education | 50.6% Households with no Internet | 12.3% Households with no TV | 20.8% Households with radio |
|---|---|---------------------------------------|---------------------------------------|



Economic Constraints

0  1 **SCORE: 0.310** **RANK: 11/15 MUNICIPALITIES ASSESSED**

| | | | |
|-------------------------------------|--|--|------------------------------|
| 40.3 Age dependency ratio | 48.3% Households with no vehicle | 10.7% Population with unmet housing need | 10.5% Poverty rate |
|-------------------------------------|--|--|------------------------------|



Gender Inequality

0  1 **SCORE: 0.465** **RANK: 9/15 MUNICIPALITIES ASSESSED**

0.75

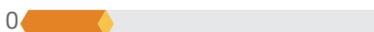
Female to male labor participants

0.94

Female to male secondary education attainment



Population Pressures

0  1 **SCORE: 0.226** **RANK: 13/15 MUNICIPALITIES ASSESSED**

0.5%

Average annual population change

8.5

Net migration rate



COPING CAPACITY (CC)

RANK: 6 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.497

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



Economic Capacity

0 1 **SCORE: 0.430** **RANK: 8/15 MUNICIPALITIES ASSESSED**

43.2% Labor force participation rate
\$6,215 Annual household income per capita (USD)
1.8 Financial institutions per 10k persons



Governance

0 1 **SCORE: 0.661** **RANK: 7/15 MUNICIPALITIES ASSESSED**

103.2 Serious crimes reported per 10k persons
35.3% Voter participation
1.1% Households with unmet need for refuse collection



Environmental Capacity

0 1 **SCORE: 0.226** **RANK: 9/15 MUNICIPALITIES ASSESSED**

10.9% Protected areas (sq km)



Infrastructure Capacity

0 1 **SCORE: 0.491** **RANK: 8/15 MUNICIPALITIES ASSESSED**



Health Care Capacity

SCORE: 0.496 **RANK: 7/15 MUNICIPALITIES ASSESSED**

0.4 Health care facilities (per 10k persons)
6.3 Average distance to hospital (km)
20.4% Population with private health insurance



Transportation Capacity

SCORE: 0.498 **RANK: 10/15 MUNICIPALITIES ASSESSED**

3.0 Road density (km per sq. km)
7.1 Average distance to nearest port (km)



Communications Capacity

SCORE: 0.463 **RANK: 9/15 MUNICIPALITIES ASSESSED**

87.4% Population using mobile phones
7.9 Mobile and wireless infrastructure (per 10k persons)



Emergency Services Capacity

SCORE: 0.508 **RANK: 9/15 MUNICIPALITIES ASSESSED**

3.6 Average distance to fire station (km)
1.8 Average distance to police station (km)
1.3 Emergency shelters (per 10k persons)



RESILIENCE (R)

RANK: 5 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.566

Tunapuna-Piarco's score and ranking are due to Very Low Vulnerability combined with High Coping Capacity scores.

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



Environmental Stress



Gender Inequality



Economic Capacity



Communications Capacity



HAZARD-SPECIFIC RISK (HSR)



Earthquake

RANK: 2 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.434



Coastal Flood

RANK: 4 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.256



Flood

RANK: 1 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.424



Landslide

RANK: 1 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.396



Wildfire

RANK: 3 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.355



Tropical Cyclone Winds

RANK: 2 / 15 MUNICIPALITIES ASSESSED
SCORE: 0.434



MULTI-HAZARD RISK (MHR)

1 / 15

RANK WITHIN MUNICIPALITIES
Score: 0.623



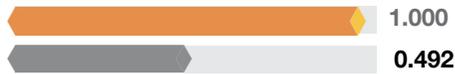
Tunapuna-Piarco's score and ranking are due to Very High Multi-hazard Exposure combined with Very Low Vulnerability and High Coping Capacity scores.



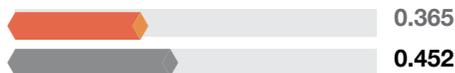
Multi-hazard risk component scores compared to overall average country scores:



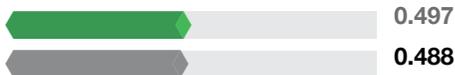
Multi-Hazard Exposure



Vulnerability



Coping Capacity



TUNAPUNA-PIARCO RECOMMENDATIONS

1

Environmental Stress

Tunapuna-Piarco ranks 8th highest for overall Environmental Stress, with households reporting being affected by multiple environmental issues. Issues related to Deforestation, Sewerage, Solid Waste, and Water Contamination were among the top complaints relative to other municipalities. In addition, nearly 20% of households reported having drainage issues, and nearly 15% are affected by flooding. The municipality has the highest overall ranking for Multi-Hazard Exposure, and due to its geography, flooding and landslides are common. These hazards in particular compound environmental hazards, threatening lives and damaging homes and infrastructure.

Improve the levels of municipal service that collect and responsibly dispose of solid waste while concurrently increasing routine maintenance of drainage systems and culverts to clear debris and drainage channels and improve outflow of storm water.

Launch community campaigns to educate the public about the harm resulting from the indiscriminate dumping of rubbish in waterways and locations other than designated disposal sites. Expand and communicate options for disposal and/or recycling of old vehicles, non-working appliances and hazardous materials to minimize impacts on the environment and reduce random dumping. Strengthen collaboration between social service entities, private sector organizations and NGOs to manage environmental impacts of squatter settlements and deliver needed services.

2

Gender Inequality

Tunapuna-Piarco ranks 9th for overall Gender Inequality, driven primarily by inequities related to Female to Male Secondary Enrollment.

Design and implement intervention strategies to promote and sustain engagement of both male and female students in secondary-level education and reduce dropout rates.

TUNAPUNA-PIARCO RECOMMENDATIONS

3

Economic Capacity

Tunapuna-Piarco ranks 8th for overall Economic Capacity with the 7th lowest Labor Force Participation rate in the country. The size and diversity of the local economy presents numerous employment options for local residents as well as those in neighboring municipalities.

Increase access to financing and support structures (e.g. microfinance services and loans) for farmers, small business owners and household enterprises to expand production and marketability of goods and produce.

Establish programs that gear education toward labor market needs to promote job creation and employment opportunities for youth and those with lower educational attainment.

4

Communications Capacity

Tunapuna-Piarco ranks 9th for overall Communications Capacity, 7th for Mobile Phone Use, and 9th for Mobile and Wireless Infrastructure density. In addition, only half of households have access to the Internet.

Increase the quality and delivery of service in the municipality to improve access in remote areas (i.e., communities in mountainous areas).

Improved access to mobile and wireless services will not only support economic endeavors but offer additional methods by which the public can access important hazard alert and warning information, especially by those in rural areas.

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