

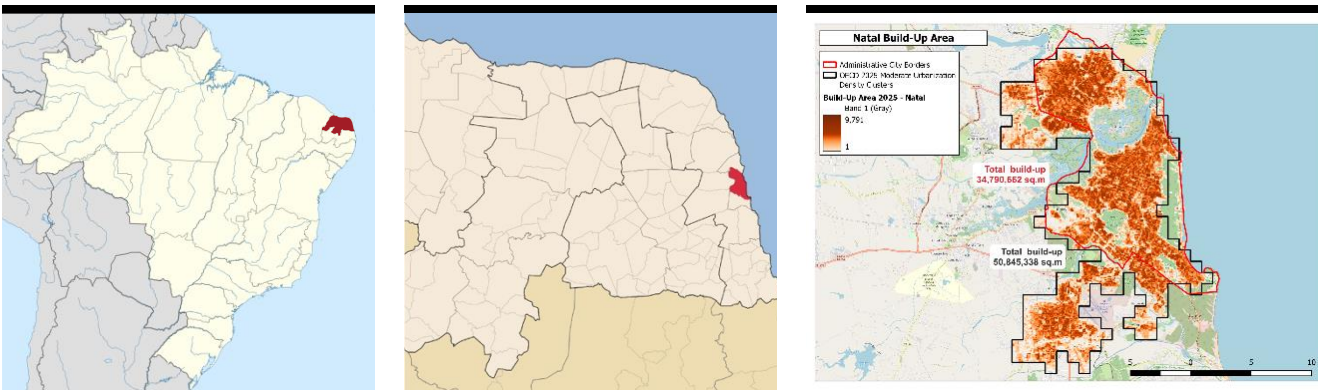


RESILIENCE RATING ON NATAL

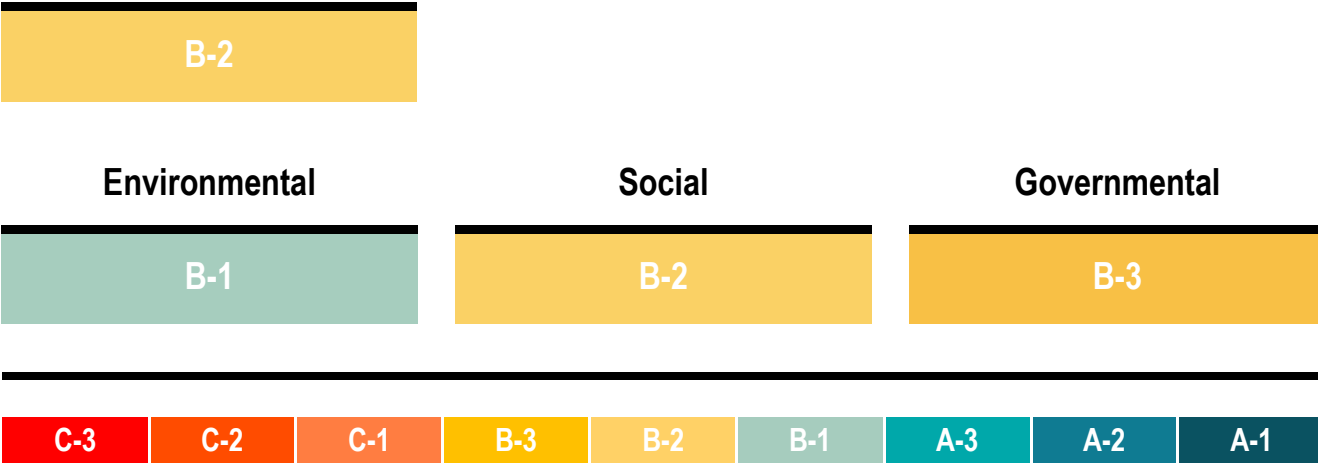
NATAL, BRAZIL

Natal is the capital and largest city of the **state of Rio Grande do Norte**, located in **northeastern Brazil**. It is the country's closest city to Africa and Europe, with its **Greater Natal International Airport** connecting Natal with many Brazilian cities and also operating some international flights.

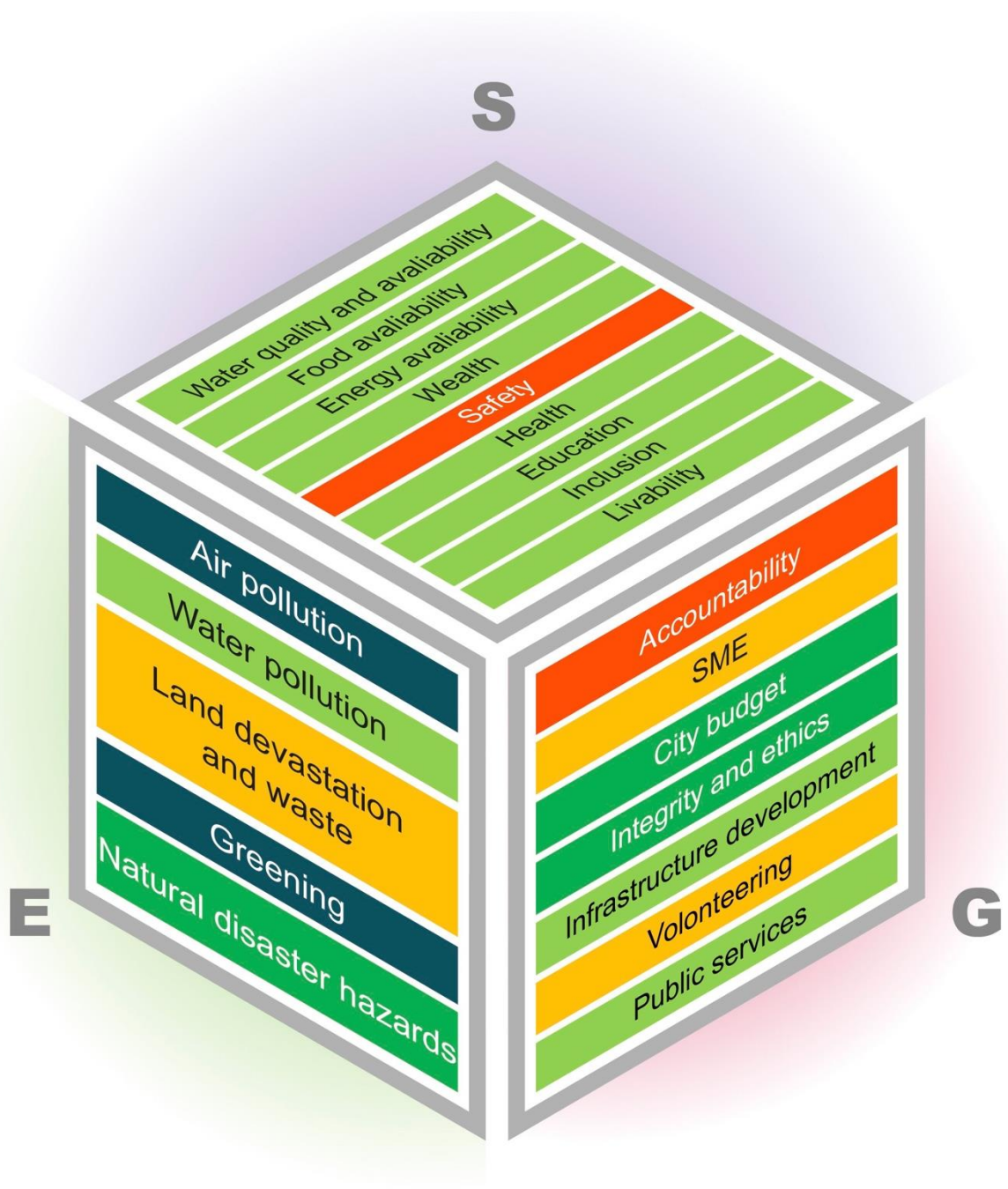
INTEGRAL RATING



Resilience rating score



CATEGORIES' ASSESSMENT



1	2	3	4	5
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- Natal's rating is B-2 driven by high literacy rate, high levels of access to drinking water and sanitary facilities, and growing living space for its citizens. The rating is also supported by clean air since all (except of O₃) the air pollutants are well within safe levels.
- Rating level is constrained by high levels of undernourishment and wide spread food insecurity. Unstable food situation stems from unfair wealth distribution — extremely high differentiation by income, low mean salary and relatively high poverty rates.
- Quite high levels of violent crime rates and extremely long time of police arrival are also affecting the rating in spite of low overall crime rate, which might be underreported. Social media analysis confirms safety is an important concern for Natal's residents.
- Natal is the only city in the sample with increasing number of natural disasters: increasing frequency of hurricanes, storms and heavy rains which requires natural disasters mitigation policy.



ENVIRONMENTAL	
Air pollution	
Annual average of SO ₂ concentration in ambient air, microgram/m ³	
Annual Average of SO ₂ Concentration in Ambient Air (change in last 3 years), microgram/m ³	
Annual Average of NO ₂ Concentration in Ambient Air, microgram/m ³	
Annual Average of NO ₂ Concentration in Ambient Air (change in last 3 years), microgram/m ³	
Annual Average of O ₃ Concentration in Ambient Air, microgram/m ³	
Annual Average of O ₃ Concentration in Ambient Air (change in last 3 years), microgram/m ³	
Annual Average of CO Concentration in Ambient Air, microgram/m ³	
Annual Average of CO Concentration in Ambient Air (change in last 3 years), microgram/m ³	
Annual Average of Particulate Matter (PM10) Concentration in Ambient Air, microgram/m ³	
Annual Average of Particulate Matter (PM10) Concentration in Ambient Air (change in last 3 years), microgram/m ³	
Annual average of CH ₄ concentration in ambient air, microgram/m ³	
Annual average of CH ₄ concentration in ambient air (change in last 3 years), microgram/m ³	
CO ₂ concentration, tons per capita, TCO ₂ e/year	
CO ₂ concentration, tons per capita (change in last 3 years), TCO ₂ e/year	
CO ₂ emissions	

CO ₂ emissions, (change in last 3 years)	
Paris Agreement	
Water pollution	
Annual average of dissolved oxygen (DO) concentration in water	
Annual average of pH concentration in water	
Land devastation and waste	
Share of devastated and degraded land requiring reclamation in total area, % total area	
3-year average growth rate of devastated and degraded land area requiring reclamation, %	
Collected and managed in dumps wastes (hazardous and non hazardous), tons per capita	
Collected and managed in dumps wastes (hazardous and non hazardous), tons per capita (change in last 3 years)	
Total recycled construction waste, tons per capita	
Share of recycled construction and demolish waste in total generated construction and demolish waste, %	
Waste deposits, % total area	
Greening	
Green spaces, %	
Green spaces, change in last 3 years, %	
Natural disaster hazards	
Growth rate of freshwater mirror area, %	
Share of total area with altitude above sea level less than 0,5 meters, %	
Number of registered heavy rain, flood and thunderbolt (change in last 3 years)	
Number of registered sand storm (change in last 3 years)	
Environmental/natural disasters' risk mitigation	
SOCIAL	
Health	
Human development index	
Water quality and availability	
Percentage of population with access to drinking water, %	
Percentage of population with access to drinking water (change in last 3 years), %	
Percentage of population with access to sanitary facilities, %	
Percentage of population with access to sanitary facilities (change in last 3 years), %	
Water consumption per capita, mcm	
Water consumption per capita (change in last 3 years), mcm	
Water tariff to disposable income ratio	
Sanitary facilities tariff to disposable income ratio	
Food availability	
Cereal import dependency ratio (5-years average), %	
Cereal import dependency ratio (change in last 3 years),	
Prevalence of undernourishment (change in last 3 years), %	
Prevalence of undernourishment children (change in last 3 years), %	
Prevalence of moderate or severe food insecurity in the population, %	
Energy availability	
Percentage of urban population with access to electricity, %	
Percentage of urban population with access to electricity (change in last 3 years)	
Consumption of electricity per capita	

Consumption of electricity per capita (change in last 3 years)	
Electricity tariff to disposable income ratio	
Wealth	
Mean salary, 2017 PPP\$	
Mean salary, change in last 3 years	
Disposable income	
Disposable income (change in last 3 years)	
Decile coefficient by income	
Decile coefficient by income (change in last 3 years)	
Percentage of wealth owned by 10% of the richest population, %	
Number of mobile phones per 1 000 population	
Debt to salary ratio	
Living spaces per capita, sq m (change in last 3 years)	
Poverty headcount ratio at national poverty lines (% of population)	
Working poverty rate (percentage of employed living below US\$1.90 PPP), 15+ age (%)	
Poverty headcount ratio at \$2.15 PPP 2017 a day	
Percentage of population with food expenditure is above 52% of total expenditure, %	
Safety	
Crime rate per 1 000 population	
Violent crime rate per 100 000 population	
Violent crime rate per 100 000 population (change in last 3 years)	
Road fatalities rate per 100 000 population	
Road fatalities rate per 100 000 population (change in last 3 years)	
Police arrival speed, min	
Health	
Number of hospital beds per 1000 population	
Number of doctors per 1000 population	
Life expectancy at birth, years, 3-year average	
Life expectancy at birth goals	
City ambulance	
Child mortality rate (under 5 years-old), % of live births	
Education	
Literacy rate among population (15—24 Years), %	
Literacy rate among population (15—24 Years) (change in last 3 years)	
Proportion of population with post-secondary and higher education, %	
Pupils per teacher rate	
Primary education engagement, %	
Inclusion	
Female-friendly city	
Number of refugees per 1000 population	
Social progress Index	
Integrity and ethics	
Homeless people per 1 000 population	
Slavery index	
Difference in number of years of schooling between woman and man, woman to man ratio	
Livability	
Green spaces, %	
Green spaces, change in last 3 years, %	
Share of green spaces without fee at the entrance, %	
Number of LEED certified green buildings (certified square metres per capita)	
Number of CEEQUAL certified projects	

Whether or not the city has ISO 37120 certification	
Schools availability	
Time loss in traffic, %	
Public spaces (amusement parks, restaurants, playgrounds, sports fields, dog walking)), % city square	
Perception of topic Index	
Perception of topic Index dynamics	
Public transport (excluding subway) operates by schedule	
GOVERNMENTAL	
Accountability	
City budget execution publication	
City budget publication	
Financial transparency on city government companies	
City ESG reporting	
City ESG reporting verification	
City council checks and balances	
ISO certification	
Plans to obtain ISO certification	
SME	
Number of SMEs per capita/100 000 population	
Number of SMEs per capita/100 000 population (change in last 3 years)	
Number of start-ups	
Number of start-ups (change in last 3 years)	
Global Startup Ecosystem Index	
City budget	
Poor financial condition	
Central/higher level government financial intervention taking place	
Central/higher level government financial intervention is considered	
Prudent fiscal policy requirements	
Long-term planning	
Medium-term planning	
ESG planing	
Public services	
E-gov services	
Services for working with citizens' appeals and complaint	
Infrastructure development	
Internet coverage	
Mobile connection coverage	
Public services	
Free phone to call the police	
Free phone to call the ambulance	
Free phone to call the firefighters	