

**Presentation on the occasion of the 26th
Annual Conference & 25th Anniversary
Celebration of the Caribbean Actuarial
Association**

Paramaribo, Suriname

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**Understanding and Managing Risks and
Opportunities from Climate
Change on the Economies of the Caribbean**

Bryan Drakenstein on behalf of UNDP Suriname



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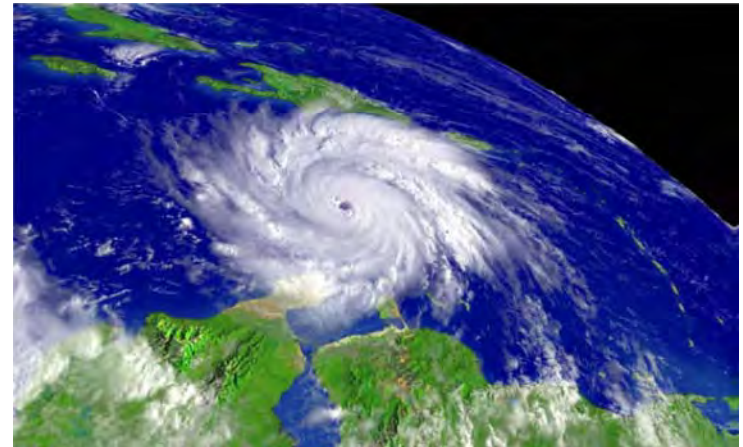
Caribbean responses

Future Risk and Opportunities towards the SDGs

Climate Risks in the Caribbean

Climate and environmental vulnerability

- Water availability
- Tourism
- Energy demand
- Human health
- Coastal Erosion
- Increase salinity
- [Flooding](#)





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Climate Risks in the Caribbean

Economic vulnerability

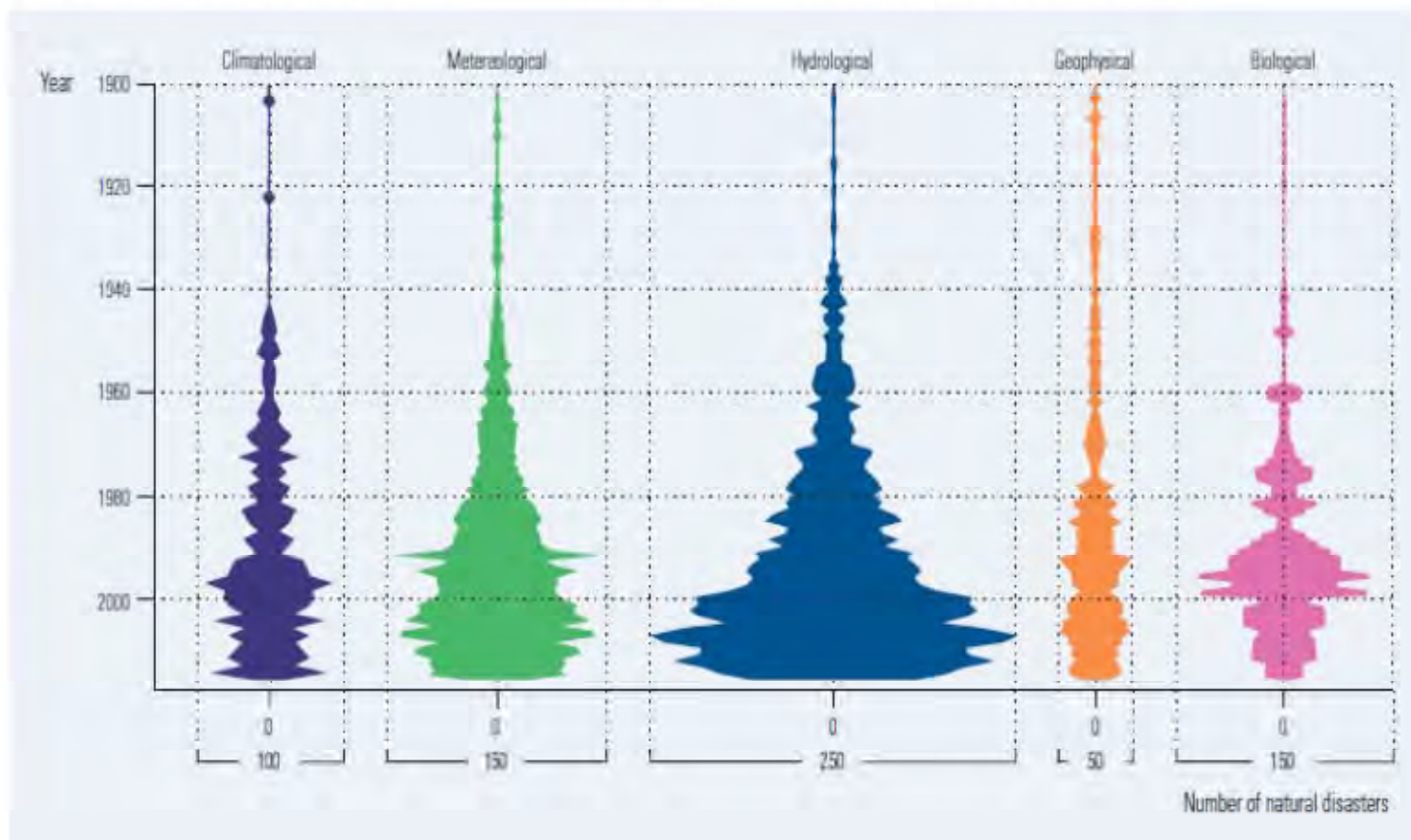
- High Debt of the Caribbean
- External financing

Social vulnerability

- Discrimination
- Education

Climate Risks in the Caribbean

Between 1901 and 1910 there were 82 recorded natural disasters, but between 2003 and 2012 there were more than 4,000



Note: The main types of disasters include extreme temperatures and droughts (climatological), storms (meteorological), floods (hydrological), earthquakes (geophysical) and epidemics (biological).
Source: CRED 2013.

Climate Risks in the Caribbean

Multidimensional progress in the Caribbean: the structural challenges

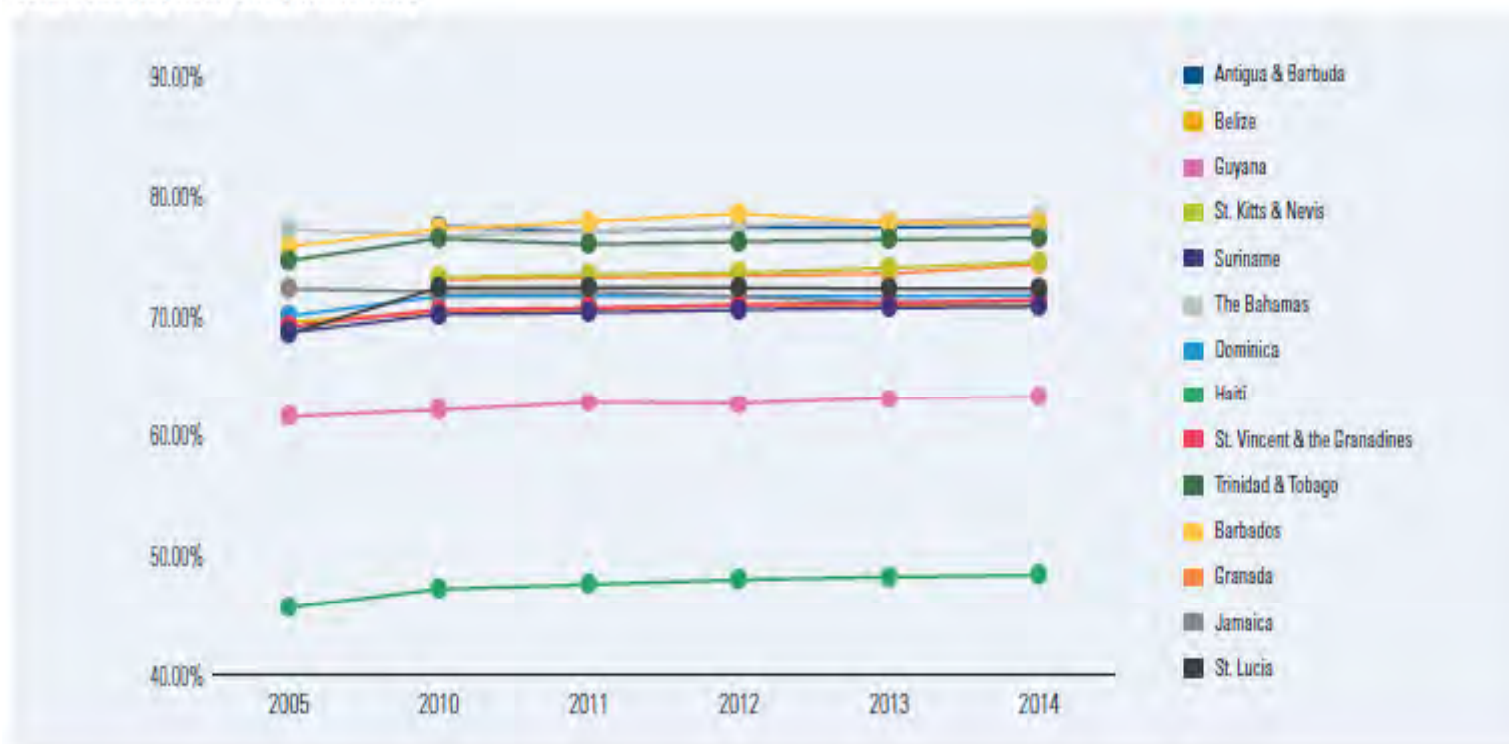
GDP growth rate (in percentages), youth unemployment rate (in percentages), and number and cost of natural disasters (in millions of dollars) in the Caribbean, various years



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Source: Prepared by the authors based on statistics from the United Nations (UNdata), the World Bank's World Development Indicators (WDI) and the EM-DAT database: the OFDA/CRED International Disaster Database (Guha-Sapir, Below and Hoyois, 2015).

Caribbean HDI Rank and Performance



Source: Prepared by the authors based on UNDP Human Development Report 2015.

Climate Risks in the Caribbean



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Vulnerability indices for Caribbean SIDs

Country	Patkins & Mazzi		Briguglio & Galea
	Composite Vulnerability Index - CVI	Economic Vulnerability Index - EVI	Economic Vulnerability Index Adjusted for Economic Resilience - EVIAR
Antigua & Barbuda	11.246	NA	NA
Bahamas	10.433	NA	NA
Belize	6.652	0.588	0.762
Dominica	8.122	0.588	0.762
Dominican Republic	4.858	NA	NA
Grenada	7.848	0.645	0.777
Guyana	7.953	0.605	0.793
Haiti	4.474	NA	NA
Jamaica	7.484	0.706	0.820
St. Kitts & Nevis	6.362	0.685	0.756
Saint Lucia	7.449	0.765	0.833
St. Vincent & the Grenadines	6.563	0.647	0.790
Suriname	4.921	0.724	0.844
Trinidad & Tobago	5.264	0.408	0.651

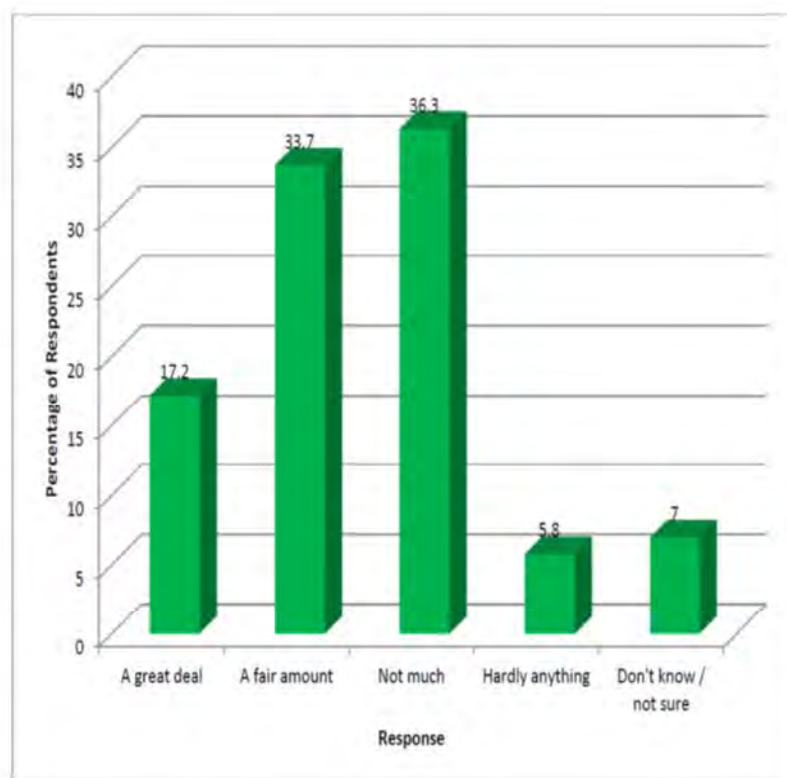
Source: Source: Bourne (2015).

Note: the higher the scores the higher the vulnerability. For the purpose of comparison EVI for USA and Mexico are, respectively, 0.221 and 0.887, and EVIAR respectively 0.134 and 0.461.

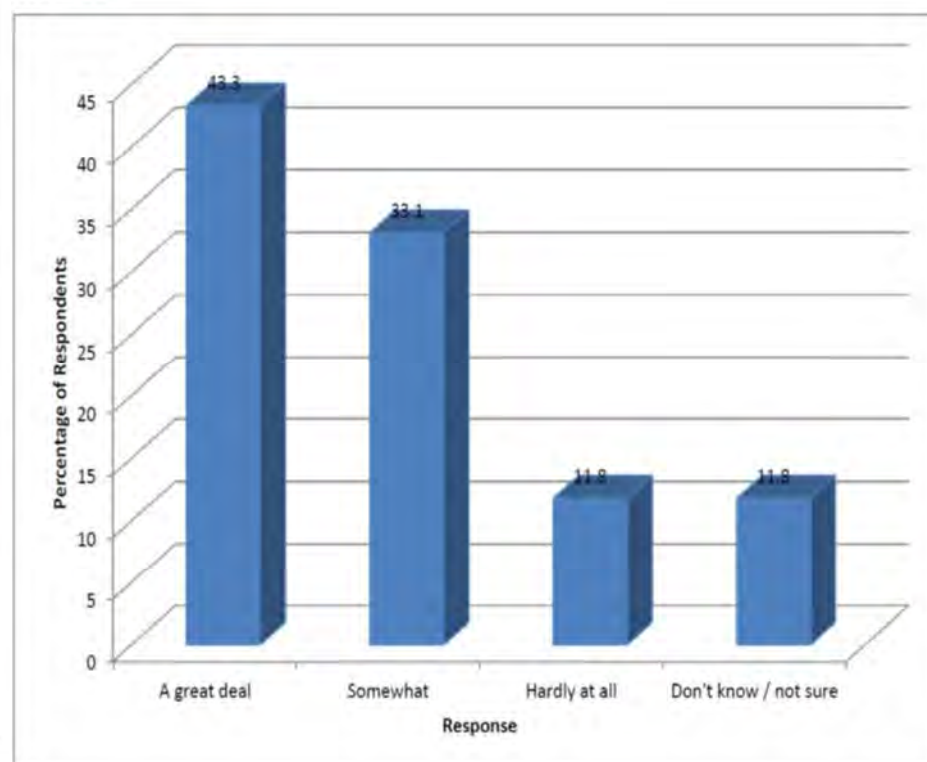
Climate Risks in the Caribbean

Weg naar Zee study

Q9 KNOWLEDGE OF CLIMATE CHANGE



Q 13 HOW MUCH IS YOUR COMMUNITY AT RISK OR VULNERABLE TO CLIMATE CHANGE?



Climate Risks in the Caribbean

- **Since 2005...**
- Paradigm shift from preparedness to DRR;
- Reduced mortality from disasters in most countries through advances in preparedness and EWS;
- Acceptance of DRR as a development issue and part of climate change adaptation strategies; and
- Institutional and policy frameworks to manage disaster and climate risks.
- **Gaps as of 2015...**
- Both disaster losses and mortality are again on the rise;
- Poor development process continues to drive disaster and climate risks;
- Majority of public and private investment decisions not underpinned by risk assessments;
- Lack of comprehensive risk governance capacities in place; and
- DRR is still largely seen as technical rather than a political issue.



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Sustainable Development Goals

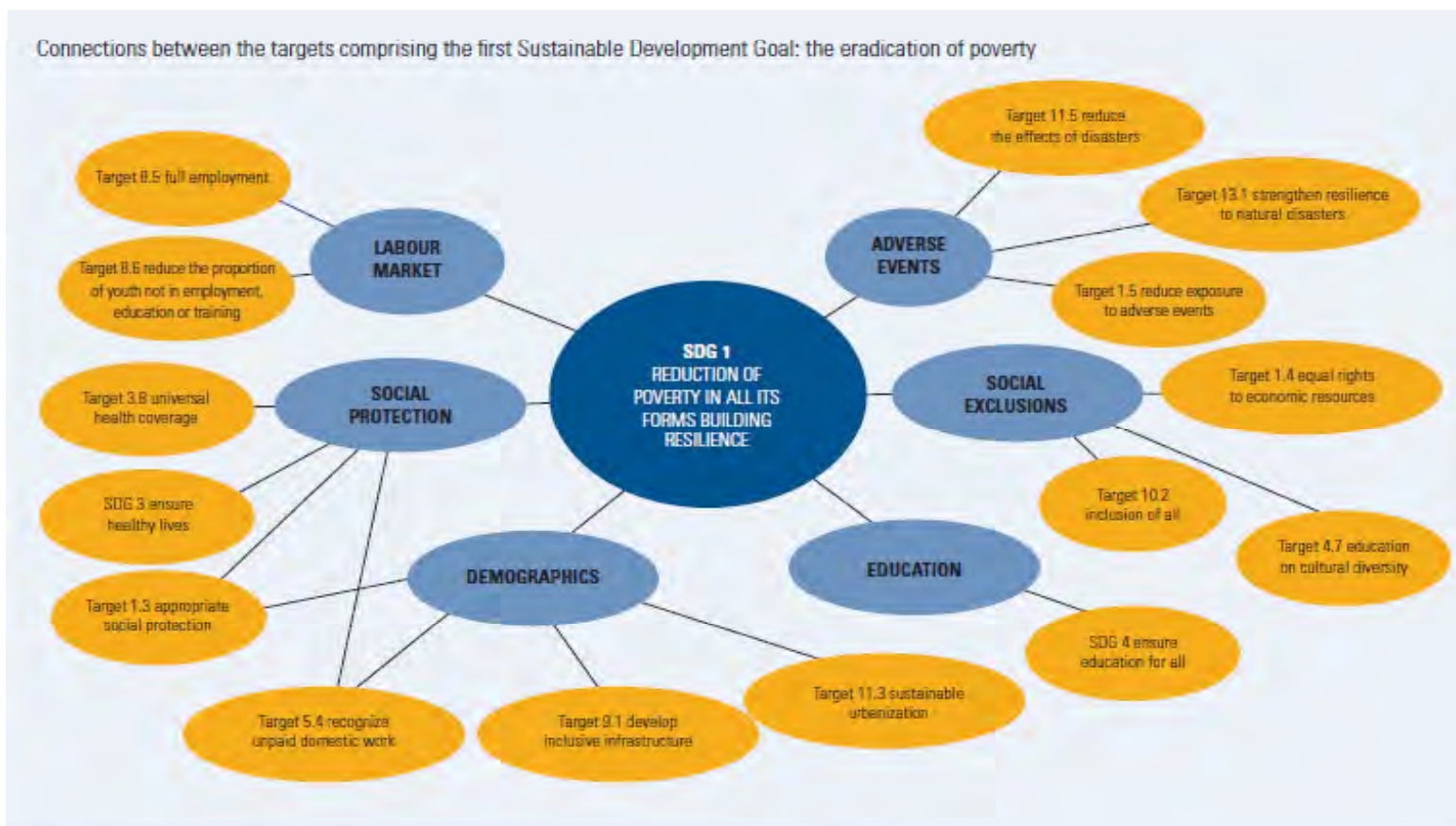
1 NO POVERTY 	2 NO HUNGER 	3 GOOD HEALTH 	4 QUALITY EDUCATION 	5 GENDER EQUALITY 	6 CLEAN WATER AND SANITATION
7 RENEWABLE ENERGY 	8 GOOD JOBS AND ECONOMIC GROWTH 	9 INNOVATION AND INFRASTRUCTURE 	10 REDUCED INEQUALITIES 	11 SUSTAINABLE CITIES AND COMMUNITIES 	12 RESPONSIBLE CONSUMPTION
13 CLIMATE ACTION 	14 LIFE BELOW WATER 	15 LIFE ON LAND 	16 PEACE AND JUSTICE 	17 PARTNERSHIPS FOR THE GOALS 	 THE GLOBAL GOALS For Sustainable Development

Sustainable Development Goals

FIGURE 5

The achievement of the goals and their targets requires interventions based on an integrated focus that enables the connections and synergies between these targets to be identified, in line with the specific priorities of each country

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Source: Prepared by the authors based on the correlation of indicators carried out according to data taken from household surveys.
Note: The grouping of the Sustainable Development Goals (SDGs) is not restricted to the connections discussed here.

Sustainable Development Goals



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Vulnerability trajectories and SDGs

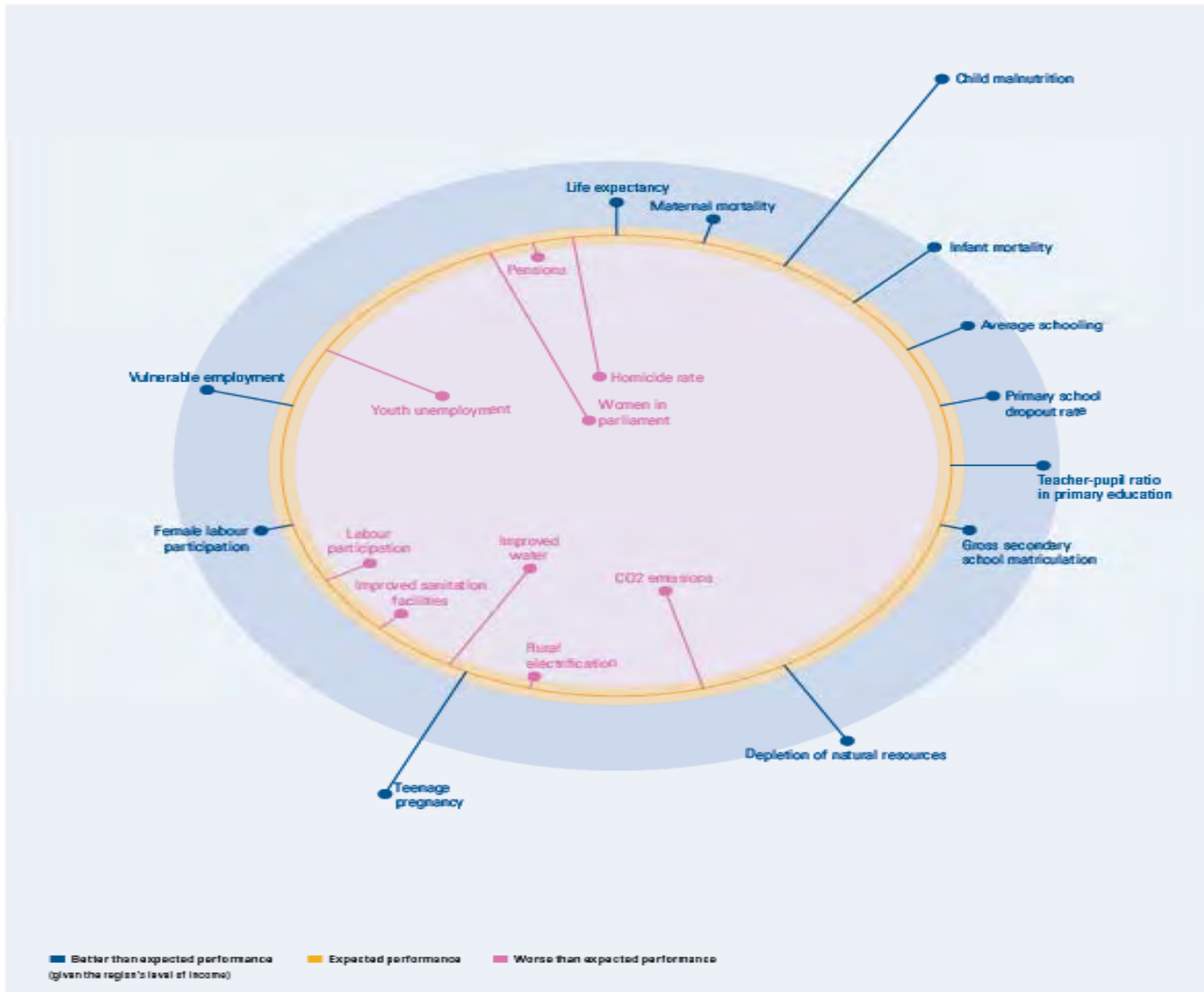
	Vulnerable to what (outcomes)	Why Vulnerable (risk factors)	SDG Targets (examples)
Women	Poverty and unemployment Violence Low productivity Low participation in political and social life	Lower labour force participation Lower-level and -pay jobs Teenage pregnancy Growing in violent families Economic dependence Age at first union Ineffective school system Underrepresentation in politics	Targets: 1.5, 3.5, 3.7, 3.8, 5.1, 5.2
Older people	Poverty Chronic diseases and disability Loneliness (mainly older men)	Low coverage and value of pensions (mainly older women) Longer life expectancy and lifestyle (older women) Attitudes leading to low access to health care (older men) Health care costs Reduced size of, and changing attitudes, in family; migration of younger family members	Targets: 1.5, 3.5, 3.8, 4.5, 4.a
Young males	Drugs abuse, crime (as perpetrators & victims) Imprisonment, death, disability	Poverty Educational underperformance Violent families and communities Risky behaviours	Targets: 1.5, 3.5, 3.8
Children in exploitative labour conditions and street children	Hazards at work and in the streets, school dropout, abuse	Poverty, ineffective schools, (child fostering), abusive families Ineffective legislation Low awareness	Targets: 1.5, 3.5, 3.7, 4.5, 5.2
People with disabilities	Exclusion or underperformance in education and labour market Neglect and abuse Poverty	Negative expectations on outcomes Social and physical barriers Illnesses from old age, accidents from risky behaviours in the young Lack of institutional and family support Costs of care and supportive devices	Targets: 1.5, 3.5, 3.8, 5.2, 5.5

Vulnerable

Source: Prepared by the authors based on Villarosa (2016, forthcoming).

Sustainable Development Goals

Differences between the expected and actual social achievements observed in the Caribbean



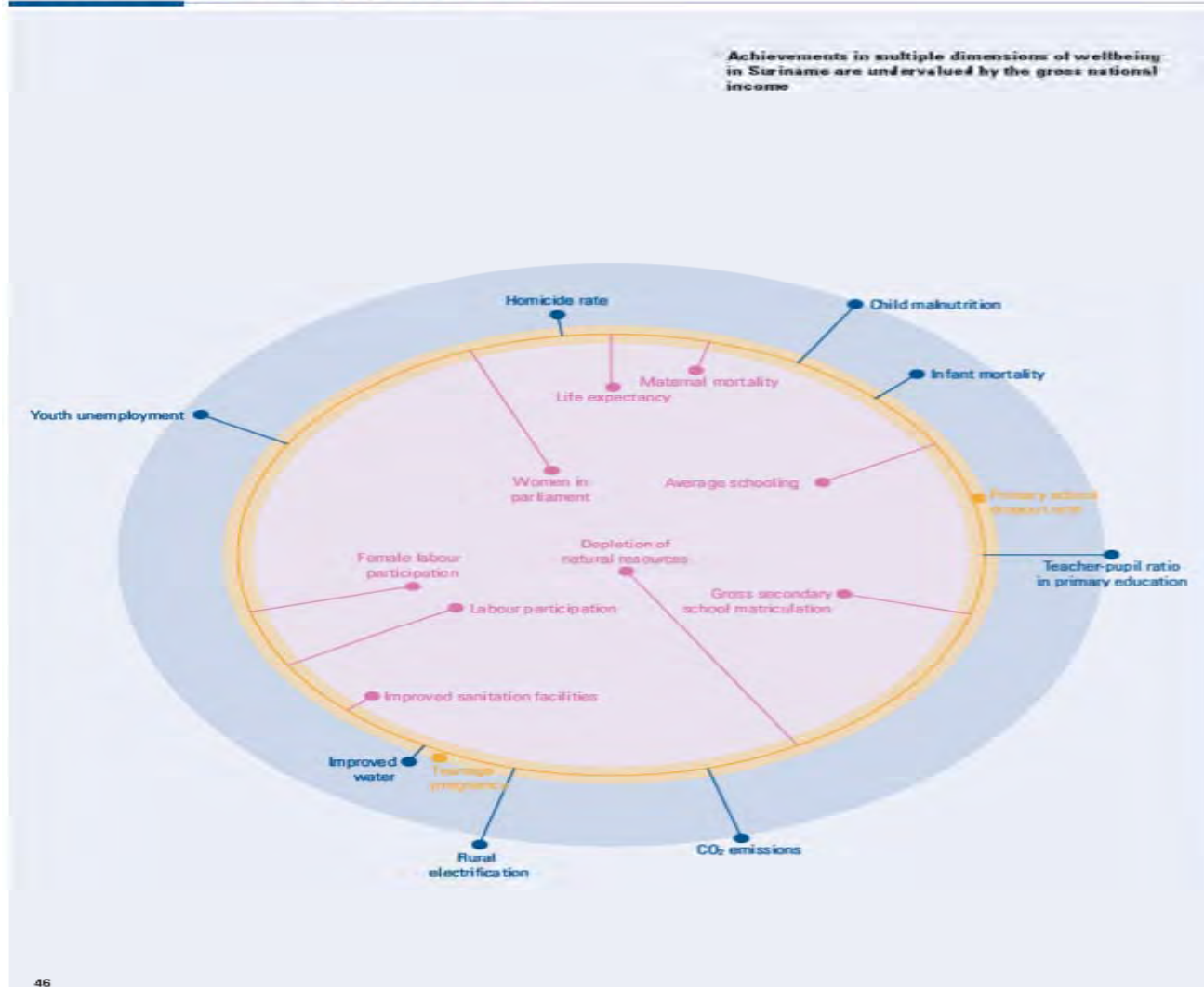
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Sustainable Development Goals



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ANNEX 1K: SURINAME: Multidimensional progress beyond income



Caribbean Responses

[Caribbean Catastrophe Risk Insurance Facility \(CCRIF\)](#)

[SIDSDOCK](#)

Strengthening Services that meet a range of country needs from regular DRM services – EWS, preparedness, ILS etc.

Streamlining and integration of DRR, CCA, and SDG related efforts in Caribbean countries

[Actuaries climate index](#)



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Future Risk and Opportunities towards the SDGs

Policy baskets for advancing multidimensional progress in Caribbean

Resilience Basket 1- Policy Approaches for reducing Human Vulnerability	Resilience Basket 2- Policy Approaches for removing structural barriers to Inclusive Growth	Resilience Basket 3- Policy Approaches for building Environmental Sustainability
<ul style="list-style-type: none"> • Policy Objectives: • Increase opportunities for decent and productive employment • More strategic approach to youth empowerment and promote holistic development • Improving resilience of women • Improve social protection, care and supportive environment for the elderly • Invest in an enabling environment for persons with disabilities • Protect the rights of children especially those in high-risk and vulnerable circumstances • Build economic resilience and improve social services for indigenous peoples and Maroons • Ensure access to assets, health insurance, systems of care and family planning services • Strengthen social protection policies and improve targeting of the most vulnerable groups • Ensure access to safe drinking water for all 	<ul style="list-style-type: none"> • Policy Objectives • Develop national energy diversification strategies • Strengthen fiscal management • Close Tax loopholes • Develop Strategic international partnerships on financing for development • Reassert Caribbean leadership on global development issues 	<ul style="list-style-type: none"> • Policy Objectives: • Strengthen planning frameworks by including strong emphasis on risk management • Intensify focus on climate change mitigations and adaptation • Transition to green economy models • Improve environmental stewardship, management and conservation

Source: Prepared by the authors.

Future Risk and Opportunities towards the SDGs

Incentive for risk informed public and private investment decisions.

Risk informed investments across the Caribbean supply chain.

Enhance further strengthening Services that meet a range of country needs from regular DRM services –EWS, preparedness, ILS etc. but also broaden and link with other sources data gathering, networks and sharing across the 3 dimensions.



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Thank you!