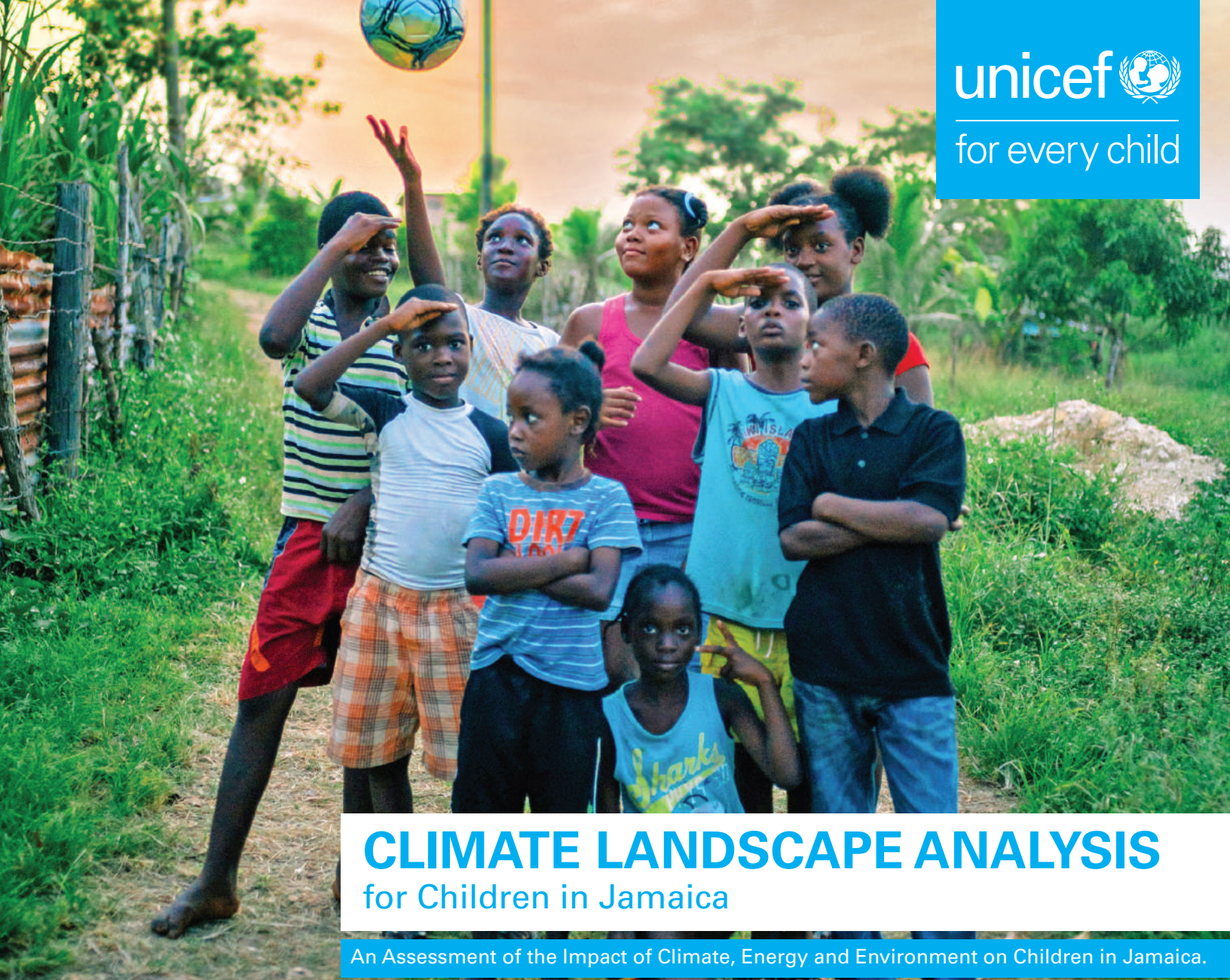

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for every child

# CLIMATE LANDSCAPE ANALYSIS
## for Children in Jamaica

An Assessment of the Impact of Climate, Energy and Environment on Children in Jamaica.

# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| AF | Adaptation Fund |
| AIDS | Acquired Immune Deficiency Syndrome |
| BAU | Business as Usual |
| CBO | Community-Based Organization |
| CCD | Climate Change Division of the Ministry of Housing, Urban Renewal, Environment and Climate Change |
| CEE | Climate, Energy and Environment |
| CLAC | Climate Landscape Analysis for Children |
| CO | Carbon monoxide |
| CO2 | Carbon dioxide |
| COVID-19 | Coronavirus Disease 2019 |
| CPFSA | Child Protection and Family Services Agency |
| CRC | Convention on the Rights of the Child |
| CSGM | Climate Study Group Mona |
| CVSS | Council of Voluntary Social Services |
| DaLA | Damage and Loss Assessment |
| DVRP | Disaster Vulnerability Reduction Project |
| EESD | Environmental Education for Sustainable Development |
| EFJ | Environmental Foundation of Jamaica |
| EPI | Environmental Performance Index |
| ESSJ | Economic and Social Survey of Jamaica |
| GDP | Gross Domestic Product |
| GEF | Global Environment Facility |
| GFDRR | Global Facility for Disaster Reduction and Recovery |
| GHG | Greenhouse gas |
| GOJ | Government of Jamaica |
| HDI | Human Development Index |
| HIV | Human Immunodeficiency Virus |
| ICT | Information and Communication Technology |
| IDB | Inter-American Development Bank |
| IPCC | Intergovernmental Panel on Climate Change |
| IWECO | Integrated Water, Land and Ecosystem Management in Caribbean Small Island Developing States |
| J-CCCP | Japan-Caribbean Climate Change Partnership |
| JSIF | Jamaica Social Investment Fund |
| JSLC | Jamaica Survey of Living Conditions |
| KMA | Kingston Metropolitan Area |
| KSA | Kingston and St. Andrew |
| LBS Protocol | Protocol Concerning Pollution from Land-Based Sources and Activities |
| LNG | Liquefied Natural Gas |
| LPG | Liquid Petroleum Gas |
| LPP | Livelihood Protection Policy |
| MEGJC | Ministry of Economic Growth and Job Creation |
| MLSS | Ministry of Labour and Social Security |
| MHURECC | Ministry of Housing, Urban Renewal, Environment and Climate Change |
| MSME | Micro, Small and Medium-sized Enterprise |
| MTF | Medium Term Socio-Economic Policy Framework |

| | |
|---|---|
| NAMA | Nationally Appropriate Mitigation Action |
| NBSAP | National Strategy and Action Plan for Biological Diversity in Jamaica |
| NCB | National Commercial Bank |
| NCD | Non-Communicable Disease |
| NDC | Nationally Determined Contributions |
| NDP | National Development Plan |
| NEPA | National Environment and Planning Agency |
| NESP | National Education Strategic Plan |
| NGO | Non-Governmental Organization |
| NOx | Nitrogen oxides |
| NO2 | Nitrogen dioxide |
| NSWMA | National Solid Waste Management Authority |
| NWC | National Water Commission |
| ODPEM | Office of Disaster Preparedness and Emergency Management |
| PAHO | Pan-American Health Organization |
| PATH | Programme of Advancement Through Health and Education |
| PDNA | Post-Disaster Needs Assessment |
| PIOJ | Planning Institute of Jamaica |
| PM | Particulate Matter |
| POP | Persistent Organic Pollutant |
| PPCR | Pilot Programme for Climate Resilience |
| PTSD | Post Traumatic Stress Syndrome |
| PWD | Person with Disability |
| RE | Renewable Energy |
| REEACH | Rural Economy and Ecosystems Adapting to Climate Change |
| SDG | Sustainable Development Goal |
| SLR | Sea Level Rise |
| SO2 | Sulphur dioxide |
| STATIN | Statistical Institute of Jamaica |
| UNDP | United Nations Development Programme |
| UNECLAC | United Nations Economic Commission for Latin America and the Caribbean |
| UNEP | United Nations Environment Programme |
| UNFCCC | United Nations Framework Convention on Climate Change |
| UNICEF | United Nation's Children Fund |
| UNODC | United Nations Office on Drugs and Crime |
| USAID | United States Agency for International Development |
| WASH | Water, Sanitation and Hygiene |
| WHO | World Health Organization |

# DISCLAIMER

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# FOREWORD

MHURECC
MINISTRY OF
HOUSING, URBAN RENEWAL,
ENVIRONMENT & CLIMATE CHANGE

The sustained torrential rains that we experienced in Jamaica in November 2020, and the associated damage to infrastructure across the island, were stark reminders of how our climate and our livelihood are closely intertwined. As we continue to see an increase in the frequency of these types of extreme weather events, the potentially devastating impacts on our people and the development of our nation requires taking deliberate steps to pursue adaptation to increase our resilience to our changing climate.

Climate change, environmental degradation and energy access are equity issues, with children and persons with disabilities being among the most vulnerable persons affected. These issues are particularly challenging for Small Island Developing States, such as Jamaica. Addressing them is therefore vital for building a more equitable and sustainable future, especially for children and other vulnerable groups.

In keeping with their mandate as the UN agency responsible for defending the rights of children and providing humanitarian and developmental aid to young persons, UNICEF has conducted this Climate Landscape Analysis for Children (CLAC) in Jamaica. This CLAC presents a baseline situation related to the climate and environment affecting children in Jamaica, and a perspective of how these issues are captured in the country's development priorities, policies and strategies.

While Jamaica has ratified and become party to a number of international and regional conventions and protocols related to climate and environment, including the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement under the UNFCCC, our environmental and climate-related laws and policies will be reviewed to further address the rights of children.

This CLAC is intended to serve as a guide towards assisting the process of mainstreaming the considerations of climate, environment and energy issues in Jamaica's country programme, and protecting the rights of our children. For my portfolio ministry, the Ministry of Housing, Urban Renewal, Environment and Climate Change (MHURECC), the CLAC represents a focused effort to facilitate the participation of children and youth in activities that are intended for the strengthening of national climate change policies and practices. Together, with intentional efforts, we will encourage and support our children as they actively participate in initiatives to build the climate resilience of on our country.

**The Hon. Minister Pearnel Charles Jr., MP.**
Ministry of Housing, Urban Renewal, Environment and Climate Change

# FOREWORD

UNICEF Jamaica is very pleased to present the Climate Landscape Analysis of Children in Jamaica (CLAC) which provide snapshots of the climate change impact to the most vulnerable segment of the country – children.

We have seen steady changes of climate globally – drastic changes of temperature, prolonged rainfall, or drought. Jamaica as a small island developing state is particularly at risk: the steady rise of temperatures, changing rainfall patterns, increased occurrence of extreme natural events, such as hurricanes, and rising sea levels. These phenomena threaten the growth and development of the country, people's livelihoods, and their very lives.

Children are by far the most vulnerable. Rising temperatures increase the transmission of vector-borne diseases, including dengue fever. Globally close to 90 per cent of the burden of disease attributable to climate change is borne by children under the age of five.

Exponential rainfall and hurricanes destroy infrastructure and facilities critical to children's well-being, such as their homes, schools, and hospitals. Hurricanes displaced an estimate 761,000 Caribbean children between 2014 and 2018 – a nearly 600,000 increase compared to the number of children displaced during the preceding five years. For families with children living in already precarious conditions, the stakes are even greater. Lower income families tend to be exposed to more extreme impacts from such events and have a harder time coping with the shocks.

Children are the least responsible for climate change, yet they will bear the greatest burden of its impact. This report examines the climate, energy, and environment situation in Jamaica and how they are impact children. We provide 10 concrete policy recommendations to advance the development of children in current context by adequately mitigating and adapting the climate change.

There is an important momentum in Jamaica. With the creation of Ministry of Housing, Urban Renewal, Rural Environment and Climate Change (MHURECC), the Government of Jamaica has demonstrated its firm commitment to mainstream and implement climate change actions.

Globally, UNICEF's climate and environmental strategy focuses on advocacy and programmatic interventions, which is reflected in the contents of this report, and we look forward to working with the Government of Jamaica to address these policy recommendations.

**Mariko Kagoshima**
Representative, UNICEF Jamaica

# ACKNOWLEDGMENT

This report is the result of collaboration among individuals and institutions. The UNICEF team thanks those who provided their time, expertise and energy to initiate, review, and finalize this report as it is presented here.

Richard Kelly from UNDP for providing in-depth review and advice to the study and Vincent Sweeney from UNEP for providing invaluable technical inputs and recommendations.

This study also benefited from the invaluable expertise of Vincent Little and Elizabeth Emanuel who steered the research process and the finalization of the report.


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# EXECUTIVE SUMMARY

This report "Climate Landscape Analysis for Children (CLAC) in Jamaica", presents an assessment of the impacts of climate, energy and environment (CEE) on children in Jamaica and outlines several policy recommendations to address them. Commissioned by UNICEF Jamaica, the report has been prepared at a time when a quarter of Jamaica's children live in poverty and, as a result, are more likely to be impacted by climate-related issues, environmental degradation and lack of access to clean energy, even as it relates to cooking fuels which are still used by about seven per cent of poorer households as their main source of fuel.

This scenario has been exacerbated by the fact that over the last 30 years, Jamaica has experienced an increase in the frequency of natural events related to climate and weather, such as tropical cyclones (storms and hurricanes), excess rainfall, floods, droughts and landslides, which have resulted in increasing economic and environmental costs and have had greater impacts on poorer households and communities.

The report is also being prepared when the world is facing a global pandemic – COVID-19 – which started out as a severe and acute public health emergency, and which has since become a socio-economic crisis that is having significant impacts on social systems and services, threatening many of the development gains made across countries and also having significant impacts on children.

Climate change and environmental degradation undermine the rights of every child, and the most vulnerable and disadvantaged children are most at risk. Addressing the challenges of environmental sustainability is imperative for the United Nation's Children Fund (UNICEF) to fulfil its mandate and contribute to the achievement of the Sustainable Development Goals (SDGs). Jamaica's Climate Landscape Analysis for Children (CLAC) examines the baseline situation of issues related to climate, energy and environment (CEE) affecting children in Jamaica, and how these issues relate to and are captured in the country's development priorities and national policies and strategies. The CLAC also features a case study on persons with disabilities and how the issues of climate, energy and environment are impacting them, as well as the steps being taken to ensure that their needs are adequately addressed. The CLAC is also designed to assist development partners in responding to these challenges. In summary, this report presents the climate, energy and environment situation in Jamaica and the impacts this has on children, examines the steps being taken to address it and presents several action-oriented policy recommendations.

**The Climate, Energy and Environment Situation in Jamaica – An Analysis of the Drivers of Risk and Vulnerability**

Jamaica is experiencing the impacts of a changing climate, evidenced by increasing incidence of natural hazards. Other drivers of risk and vulnerability for children include loss of ecosystem services, environmental degradation, increasing population growth in urban areas, undesirable levels of poverty, unsustainable consumption and production practices in key industries and economic sectors and overreliance on fossil fuels. These drivers result in polluted indoor and outdoor air, contaminated water, lack of adequate sanitation and an increase in toxins and disease vectors that affect the population at large, and also have significant impacts on children, even those in utero.

**A Snapshot of Jamaica's Children – Share of Population and Vulnerable Groups**

The share of the child population (0-18 years) accounted for approximately 27.8 per cent of the total population (758,567) at the end of 2018[1]. Over the last three decades, Jamaica has been experiencing declines in the proportion of the child population and increases in both the proportions of the working age and elderly populations because of the long-term fall in the fertility rate. Rural areas in Jamaica account for the highest proportion of children compared to the Kingston Metropolitan Area (KMA) and other towns.

Vulnerable child groups include children living in poverty, barrel children[2], children with disabilities, girls and teenage girls, children in state care, children living with HIV/AIDS and unattached youth, including street children. Poverty rates in Jamaica are higher among the younger than the older age groups and almost a quarter of Jamaica's children live in poverty. The incidence and consequences of child poverty are more pronounced among female-headed households and children living with disabilities. Children account for about 21 per cent of Jamaica's disabled population (UNICEF, 2018).

**The Impacts of CEE Issues and Challenges on Children**

Environmental hazards and pollution are major contributors to childhood deaths, illnesses and disability from acute respiratory disease, diarrhoeal diseases, physical injuries, poisonings, vector-borne diseases and perinatal infections. The physiology of children makes them more vulnerable than adults to certain health impacts caused by environmental

[1]Statistical Institute of Jamaica
[2]The parents of these children work outside of Jamaica and periodically send barrels of goods to their children back in Jamaica.

degradation and climate change. Also, during the time of development and growth, children's bodies are more affected by environmental health hazards. Children, in proportion, are more heavily exposed per unit of body weight to environmental toxins than adults.

Children eat more food, drink more water and breathe more air than adults in relation to their body weight. A child's body absorption rate of toxins is also much higher than that of an adult, with children absorbing up to 50 per cent of lead present in food and adults only absorbing up to 10 per cent. Children's bodies are not always able to breakdown harmful contaminants that enter either through the respiratory or alimentary canals. Also, children's health problems from environmental exposure can take years to develop as they have more time to develop health conditions and diseases than adults who are exposed later in their life cycle.

It has been estimated that roughly 60 per cent of the global burden of disease from acute respiratory infections, 90 per cent from diarrhoeal disease, 50 per cent from chronic respiratory infections and 90 per cent from malaria could be avoided by simple interventions that support environmental protection and conservation. Among the Jamaican population, 32.7 per cent of children are reported to have at least one chronic illness (JSLC, 2018), with the disease burden related to asthma highest among children five to nine years at 11.2 per cent in 2017. Overall, 10.4 per cent of Jamaican children were reported to have asthma.

**Policy and Institutional Frameworks for Climate, Energy and Environment and Related Initiatives**

The analysis of these issues led to a review of the policy and institutional frameworks for CEE and how these frameworks address issues related to children.

Jamaica has ratified and become party to a number of international and regional conventions and protocols related to climate and environment as well as children, including the Convention on the Rights of the Child (CRC), United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement under the UNFCCC. Notwithstanding these international commitments, of the 22 national policies, strategies and plans assessed, less than 20 per cent explicitly reflected the linkages between CEE and children. Indeed, many national environmental, energy and climate-related laws and policies globally have not adequately addressed the rights of children. This may be because international agreements, up to about the mid to late 2000s did not adequately infuse a human rights approach, including the rights of children, in these documents. Today, including human rights – if not specifically children's rights – in environmental and climate instruments is more commonplace, which provides an opportunity for Jamaica to reflect on the coverage of children's issues in these documents. Furthermore, there are over 20 government institutions with mandates related to either CEE or children's issues and there is now the opportunity to mobilize them around a common agenda.

This is already occurring to some extent: within the education sector, there have been a few key and strategic interventions such as the infusion of environment, climate and energy issues in the curricula at the primary and secondary levels. Even though there are gaps with including children in CEE

policy at the national level, this report notes that children do benefit from investments and programmes in CEE that are being implemented by government, development partners, the private sector, non-governmental organizations (NGOs) and community-based organizations (CBOs). Also, development partners such as UNICEF and UNESCO continue to support the Government and other stakeholders to implement projects that contribute to the overall wellbeing of children. They also play a key role in undertaking studies and research that support programming activities specifically for children.

**CEE Policy Recommendations**

Based on the assessment of the impacts of climate, energy and environment on children in Jamaica, and the policy and institutional frameworks for CEE and children, 10 policy recommendations are presented that would allow the Government, the United Nations (UN) and other development partners to further incorporate and strengthen activities on climate, energy and environment-related issues in their work to reduce and where possible eliminate the negative impacts on children.

The recommendations contained in this section are designed to help identify: (i) knowledge and data gaps and issues for further research; (ii) strategic entry points for mainstreaming CEE issues into national policies and plans; (iii) strategic partnerships; (iv) opportunities for leveraging climate finance and other new and innovative financing tools for improved results for children; (v) UNICEF's comparative advantage to bring in potential joint proposals and partnerships; and (vi) recommendations for building capacity on climate, energy and environment issues with UNICEF and more broadly across the Government of Jamaica (GOJ) to support inclusion of CEE issues especially as it relates to the impacts on children.

**The 10 policy recommendations are:**

1. Infuse the linkages between CEE and children's needs in the National Development Plan and future Medium-Term Socio-Economic Policy Frameworks.
2. Scale up and mainstream children's needs within all CEE policies, programmes and plans and place children's rights at the heart of climate and environmental policy.
3. Scale up, integrate and mainstream CEE issues within all child-focused policies, programmes and plans.
4. Increase collaboration among government agencies and between government and non-government actors.
5. Improve collection and sharing of data on CEE and children and increase research on the special needs of children as they relate to CEE issues.
6. Increase engagement of children and youth in CEE action.
7. Create interventions to enable children to become resilient to the risks they face.
8. Mobilize resources at the national level and from other innovative financing mechanisms that target initiatives related to CEE and children.
9. Increase awareness of the linkages between child rights and climate change and environmental degradation.
10. Strengthen the engagement of development partners in CEE initiatives that target children.

Ultimately, these recommendations seek to put children at the heart of Jamaica's development agenda and to ensure that they are protected from the risks of climate change, lack of access to clean energy and environmental degradation, while enhancing their potential to achieve success and become leaders of the nation.

## CASE STUDY:

**CEE Issues and Challenges and the Impacts on Persons with Disabilities**

In Jamaica, about 3.3 per cent of the population (about 90,000 persons) report having a disability (Jamaica Survey of Living Conditions, 2017). Children account for about 21 per cent (18,900) of Jamaica's disabled population (UNICEF, 2018).

While climate change affects everyone and is considered to be one of the most pervasive economic and social issues of our time, persons with disabilities (PWDs) may experience these impacts differently and more severely than other persons. During storms, floods and extreme heat, climate disruptions are harder for persons with disabilities compared to those without disabilities. For example, disabled persons' compromised health makes them more vulnerable to climate events, ecosystem service loss and infectious diseases such as COVID-19; during a climate emergency such as a hurricane, persons who have a physical disability or may be immobile because of an underlying condition may be more prone to get an infectious disease; persons with physical disabilities or those with limited mobility or impaired senses might have difficulty evacuating; persons with impaired senses such as those that are deaf or blind may not have equal access to warning alerts; PWDs, in particular women and girls, are at heightened risk of violence – including sexual violence, exploitation or abuse – during emergencies, especially in emergency shelters.

Based on the issues and challenges faced by PWDs, the policy recommendations presented focus on actions, including the adoption of a disability lens in climate change adaptation planning, full inclusion of PWDs in decision making related to disasters and climate change and improving access to information on the environment, climate change and natural disasters for PWDs who most likely have limited access to knowledge, resources and services to effectively respond to disasters.


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# BACKGROUND AND INTRODUCTION

For over 70 years, the United Nation's Children Fund (UNICEF) has been working in 190 nations to advance and support children's survival, protection and development, in areas such as child health and nutrition, clean water and good sanitation and quality basic education, as well as the protection of children from violence, exploitation and HIV/AIDS.

In the last few decades, UNICEF began recognizing the importance of addressing the issues of global climate change, access to energy and environmental degradation that disproportionately affect children and young people, hindering their capacity to live in a safe space and benefit from a secure and sustainable future.

In March 2016, the UNICEF Executive Director issued an Executive Directive "Addressing the Impact of Climate Change on Children", instructing all UNICEF Country Offices to incorporate climate change and related issues in their Country Programmes by 2020. In response to the Executive Directive, the UNICEF Jamaica Office commissioned this "Climate Landscape Assessment for Children (CLAC)" report. UNICEF works with partners at global and local levels to ensure that children can live in a safe and clean environment and structures its actions and support to help ensure that children are at the centre of climate change strategies and response plans of countries; children are recognized as agents of change; children are protected from the adverse impacts of climate change and environmental degradation; and emissions and pollution are reduced.

Jamaica's Climate Landscape Analysis for Children examines the baseline situation of climate, energy and environment (CEE)-related issues affecting children in Jamaica, and how these issues relate to and are captured in the country's development priorities and national policies and strategies. The CLAC also features a case study on persons with disabilities and how the issues of climate, energy and environment are impacting them, as well as the steps being taken to ensure that their needs are adequately addressed. Specifically, the ultimate aim of the CLAC is to help to identify: (i) knowledge and data gaps and issues for further research; (ii) strategic entry points for mainstreaming CEE issues into national policies and plans; (iii) strategic partnerships; (iv) opportunities for leveraging climate finance and other new and innovative financing tools for improved results for children; (v) the comparative advantage of the UN, including UNICEF, to bring in potential joint proposals and partnerships; and (vi) recommendations for building capacity on climate, energy and environment issues with UN agencies, including UNICEF, and more broadly across the Government of Jamaica (GOJ) to support inclusion of CEE issues especially as they relate to the impacts on children.

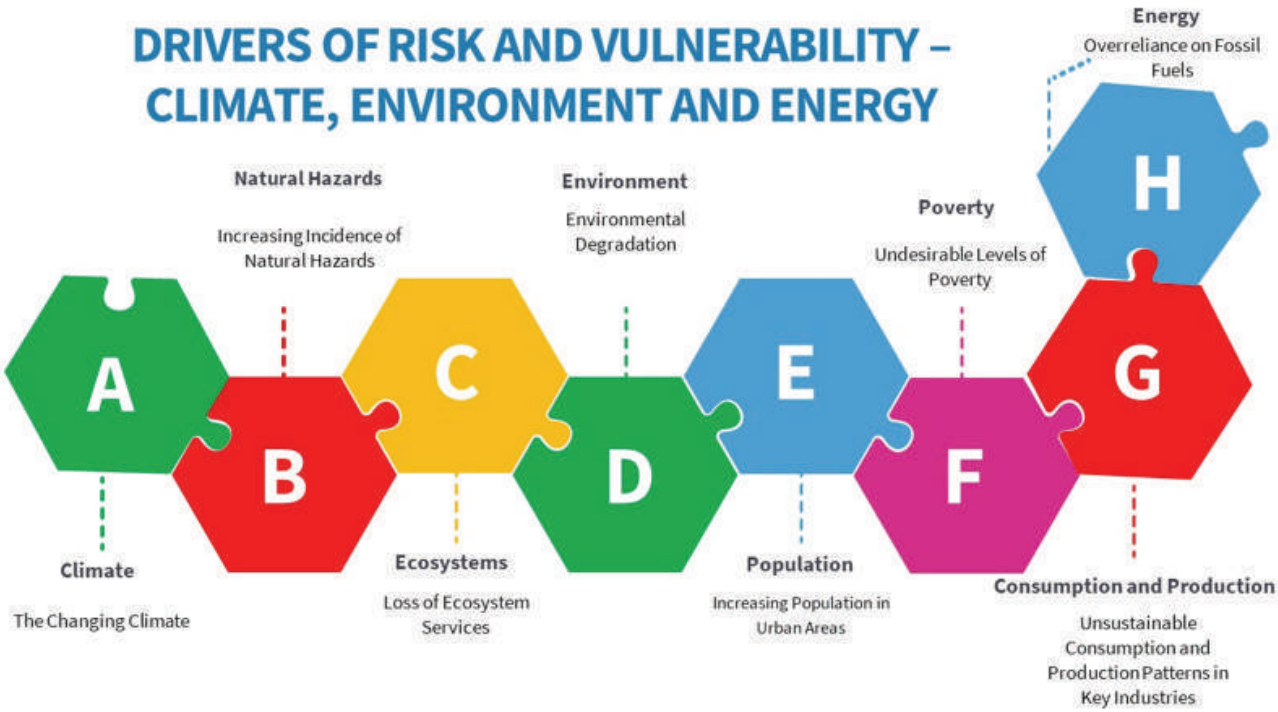
The CLAC therefore proposes ten policy recommendations that would allow the Government, the UN, and other development partners to further incorporate and strengthen activities on climate, energy and environment-related issues in their work to reduce and where possible eliminate the negative impacts on children. These policy recommendations are also expected to provide the basis for UN programmes, as well as those of other development partners, to augment the Government of Jamaica's efforts in addressing CEE-related impacts on children and promoting resilience building in communities and among children and youth through more integrated climate change responses, environmental sustainability initiatives, ecosystem-based solutions and shock responsive social protection and livelihood protection strategies. The recommendations and other details contained in the CLAC also are expected to help inform aspects of Jamaica's 4th National Communication and its obligations to the United Nations Framework Convention on Climate Change (UNFCCC), which is currently being prepared.

# APPROACH AND METHODOLOGY

This report was commissioned by UNICEF Jamaica with initial inputs from the United Nations Environment Programme (UNEP) and the United Nations Development Programme (UNDP), within the overall thrust and strategic direction of operating as One UN. A multi-pronged approach was used to prepare the CLAC, including an extensive desk review of reports, official documents, case studies, national policies and legislative frameworks, other related publications prepared by academic institutions and development partners as well as online and media content. The desk review also allowed for an in-depth analysis of existing national policies, plans, strategies and legislation covering CEE and how these instruments address issues that may affect children. The desk review was critical in facilitating an institutional mapping of key actors, and more importantly, providing a descriptive analysis of the climate, energy and environment situation and how this impacts children in Jamaica.

The desk review was complemented by a survey of a few institutions whose mandates cover areas related to climate change, energy and environment. The institutions surveyed were the Planning Institute of Jamaica (PIOJ), the Climate Change Division (CCD)of the Ministry of Housing, Urban Renewal, Environment and Climate Change (MHURECC), the National Environment and Planning Agency (NEPA), the Office of Disaster Preparedness and Emergency Management (ODPEM) and the Jamaica Red Cross. The main objective of the survey was to gather pertinent information and perspectives from key organizations and to verify information and access additional data and information on the topic, as well as on planned programmes and projects, with a particular focus on climate, energy and/or environment. Additionally, to substantiate the literature review and capture the array of work being done nationally with respect to climate change adaptation and energy management including conservation and environmental management, a few face-to-face interviews were conducted utilizing a stratified sample of 11 families, covering major CEE "hot spots"[3] in five parishes of Jamaica – Kingston and St. Andrew, St. Catherine, Manchester, and St. Elizabeth – to obtain views and perspectives on how CEE issues were possibly impacting children. The desk review, survey and interviews allowed for a comprehensive understanding of the current state of play regarding CEE and child rights, existing priorities and future plans of Government and development partners.

[3]"Hot spots" were identified and determined from: (i) NEPA, 2013 –The State of the Environment Report; (ii) various disaster assessment reports (DaLAs/PDNAs) conducted by ODPEM for Jamaica; and personal communication with Ms. Gloria Goffe of the Child Development Agency on the areas of high concentration of PWDs in Jamaica (identified as the main bauxite parishes and the Portmore area of St. Catherine).

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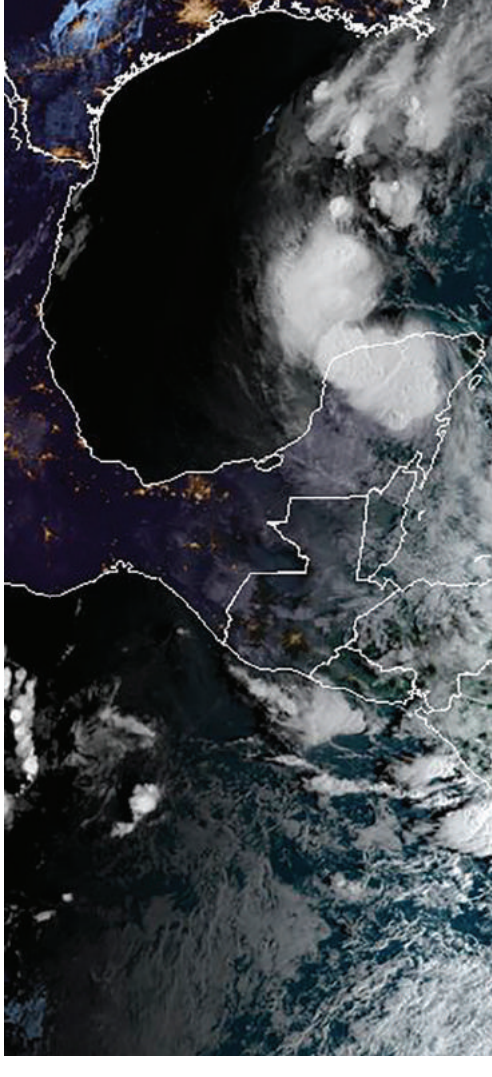
# THE CLIMATE, ENERGY AND ENVIRONMENT SITUATION IN JAMAICA – An Analysis of the Drivers of Risk and Vulnerability

This section provides a situational analysis of the climate, energy and environment situation in Jamaica and sets the baseline for determining how CEE impacts children.

Projections of increasing temperatures, extreme weather events and sea level rise in Jamaica are expected to exacerbate the impacts of hydro-meteorological hazards such as tropical cyclones, rainfall and drought. According to the Climate Study Group Mona (CSGM) of the University of the West Indies, current trends within the last two decades in Jamaica already show a warming trend, with an increase in the frequency of very hot days and nights; changing rainfall patterns with increasing rainfall over the centre of the island and areas of decreasing rainfall over the eastern and western parishes with an overall average decrease in rainfall; and increasing sea levels.

## Climate Change and Impacts On Jamaica

The persistent and increasing threat of climate impacts will severely affect the economy; people's health and wellbeing, including those of children; industries such as agriculture and tourism; availability of freshwater resources and critical infrastructure located along the coast. In Jamaica, more than 60 per cent of the population lives within five km of the coast. Also, the continuous development of coastal infrastructure for housing settlements and road networks increases the country's vulnerability to the impacts of climate change due to the challenges posed by sea level rise and increased frequency/ severity of storms.



[4]Climate Studies Group, Mona (CSGM), 2017: The State of the Jamaican Climate 2015

*The Global Facility for Disaster Reduction and Recovery (GFDRR, 2018) has cited Jamaica to be the third most exposed country in the world to multiple hazards, with over 96 per cent of the country's Gross Domestic Product (GDP) and population at risk from two or more hazards.*

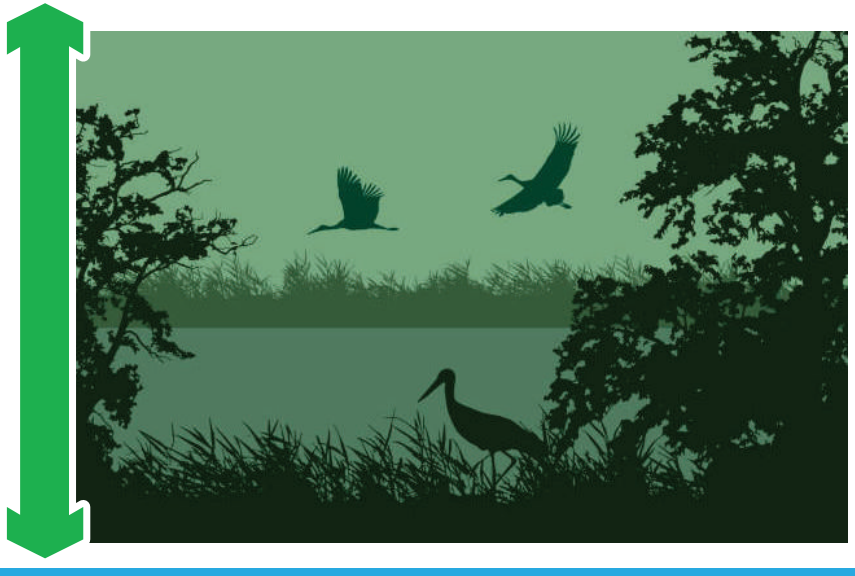
## Increasing Incidence of Natural Hazards.

Jamaica's location, geology and geography make the island highly exposed to several natural hazards and over the last 30 years, the country has experienced an increase in the frequency of natural events related to climate and weather including tropical cyclones (tropical storms and hurricanes), excess rainfall, floods, droughts and landslides, which have resulted in increasing economic and environmental costs.

Over the period 1999 – 2017[5], for example, Jamaica experienced 15 hydro-meteorological events, which resulted in 67 persons losing their lives with the costs as a percentage of GDP for these events ranging from 0.1 per cent to 6.8 per cent. These disasters also caused numerous injuries. For example, Hurricane Sandy in 2012 resulted in 291 injuries and one death. Health and educational institutions as well as housing stock were also impacted. Forty-eight per cent of the total costs associated with Hurricane Sandy resulted from damage to infrastructure in the health, housing and education sectors.

[5]DaLA Reports (PIOJ and Ministry of Industry, Commerce, Agriculture and Fisheries)

# CONTRIBUTION OF ECOSYSTEMS TO REDUCING THE IMPACTS OF CLIMATE CHANGE



**WATERSHEDS**
Regulation of run-off and flood prevention

Recharging water catchment and ground water

Prevention of soil erosion and sediment control

**WETLANDS**
Control flooding on land - because they act just like a piece of sponge by quickly soaking up excess water that could cause flooding

Break up waves along shoreline

Protect coral reefs

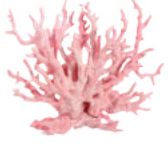
**FORESTS**
Regulation of the local and global climate

Regulation of run-off and flood prevention

RechargIng water catchment and ground water

Prevenion of soil erosion and sediment control

**CORAL REEFS**
Protect the coastline from storm damage, erosion and flooding



## Loss of Ecosystem Services

The relationship between human wellbeing and the natural environment is influenced by services provided by ecosystems, and the health of many people around the world continues to be affected by human-induced changes to the environment. For example, changes affecting water resources can influence health via the distribution of disease-transmitting insects or pollutants in water. Ecosystem services are defined as natural processes that human beings rely on. For example, soil on farmland produces food and wetlands filter water and soak up flood waters. Healthy ecosystems also assist in protecting populations from the impacts of a changing climate. The state of ecosystems provides an indicator of a country's vulnerability. The state of a few ecosystems in Jamaica is described below. Jamaica's forests and watersheds provide many ecological services including the production of oxygen and water, soil restoration, water conservation and filtration and the provision of habitat for animals and plants. Forests also help to reduce landslides and flooding on the plains. The Cockpit Country is the largest remaining primary forest in Jamaica and is also the source of freshwater for 40 per cent of the population[6]. Jamaica's forests and watersheds are impacted by deforestation, soil erosion, population pressures, mining for limestone and bauxite, unsustainable farming practices such as small-scale cultivation on mountain slopes and lack of public awareness about conservation.

Poor agricultural practices, pollution and squatting pose the biggest threats to the country's 26 watersheds[7]. More than a third of Jamaica's total watershed area is classified as either degraded (22 per cent) or severely degraded (14 per cent).

[6]Draft Jamaica State of the Environment Report 2017

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Between 2012 and 2017, the National Environment and Planning Agency (NEPA) reported that Jamaica lost over 21 km$^2$ of swamp forest cover, leaving less than 12.3 km$^2$. Wetlands can reduce the impacts of climate change through controlling inland flooding, by acting as giant sponges to quickly absorb water from rainfall, storing and slowly releasing groundwater and flood water from urban buildings and pavements situated upstream and also forestalling wave erosion along shore lines.

Wetlands in Jamaica are threatened by factors such as pollution from land-based sources – for example from fertilizers used in agriculture; construction of impediments to surface runoff such as roads and coastal works and drains; infilling where the land is destroyed due to siltation from upstream erosion or the deliberate filling of land for commercial development and housing; and the lack of understanding in society about the value of wetlands.

Coral reefs are one of the foundations of the country's tourism industry. They present a protective barrier against storms and are sources of food, employment and recreation. The reef system also supports the fisheries industry, which continues to provide valuable jobs and revenue for the country. Jamaica's coral reefs are quite diverse and the island has 1,240 km$^2$ of coral reef area.

However, the 2017 Coral Reef Health Index Report, which includes assessments of 26 reef sites around the island, provides a ranking of 2.3 for reefs, which means that the reefs in Jamaica continue to have a general ranking of "poor"[8]. The poor state of Jamaica's reefs is partly due to climate impacts (sea warming and coral bleaching) and storms and human-based activities.

Some of the pressures on Jamaica's coral reefs include the introduction of invasive species, fishing, dredging, treated and untreated sewage discharge on the reefs and increased runoff from agricultural activities with the latter two activities causing the overgrowth of algae on the reefs. Coastal development and Jamaica's expanding population and activities along the coastline also impact coral reef health.

[7]Ibid
[8]Ibid

## Environmental Degradation and Pollution

Human welfare can be reduced by ill health and premature mortality due to the degradation of air and water quality and how waste is managed. The Environmental Performance Index (EPI)[9] is the national outcome indicator used under Vision 2030 Jamaica to measure the state/health of the natural environment. In 2018, Jamaica's score on the EPI was 58.58, down from its 2016 score of 77.02. Jamaica ranked 78th out of 180 countries in 2018, compared to a rank of 54 out of 180 countries in 2016. Countries that receive high EPI scores normally place strategic focus on environmental sustainability and have strong policy frameworks and stated commitments to protecting public health, protecting natural resources and ecosystems and advancing sustainable consumption and production practices.


[9]The Environmental Performance Index provides a data-driven summary of the state of sustainability around the world. Using 32 performance indicators across 11 issue categories, the EPI ranks 180 countries on environmental health and ecosystem vitality.

*85 per cent of Jamaicans have access to safe drinking water.*

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## Access to Fresh water Resources

Jamaica is reliant on rainfall for its water resources. Rainfall provides flow to the rivers and recharges the aquifers. Although the country would seem to be well endowed with freshwater resources, with 1,512 $m^3$ of water per person per year, the island continues to experience moderate water stress due to drought. Also, 75 per cent of Jamaica's freshwater is consumed by the agriculture sector.

Stresses on Jamaica's water resources include land-based sources of pollution, saltwater intrusion in wells and irregular rainfall patterns. Periods of drought also reduce the amount of water available for recharging underground aquifers.

Access to "safe water" considered free from contamination is critical to health and wellbeing. In the 2017 Jamaica Survey of Living Conditions (JSLC), the proportion of households reporting the use of an improved source of drinking water was 78.8 per cent. Access remains unequal across the country with almost universal access to improved water sources in the Kingston Metropolitan Area (KMA) at 98.2 per cent, 82.1 per cent in other towns and 64.6 per cent in rural areas. Overall, about 85 per cent of Jamaicans have access to safe drinking water[10]. Indicative figures show that almost half of all households (48.5 per cent) experience at least one water lock-off per month with an average of 7.8 lock-offs per month. The high rates of water lock-offs have resulted in households establishing some means of storing water to ensure availability. Water stored by households in plastic tanks, drums and buckets during periods of unreliability of supply provides an environment that may be conducive for the breeding of mosquitoes if not properly managed. This situation presents a serious health risk for children.

[10]This is defined by the Ministry of Health and Wellness and the National Water Commission (NWC) as indoor or outdoor tap/pipe, public standpipe, bottled water and trucked water from the NWC. All other sources, including harvested rainwater, wells, rivers and streams are considered unimproved sources.

## Air Quality

Good air quality refers to clean and clear air that is essential for life. Poor air quality is a result of factors including emissions from various sources, both natural and manmade. In Jamaica, the main contributors to poor outdoor air/ ambient air quality are emission of air pollutants from:

- businesses and industry
- motor vehicles and other mobile sources
- open burning of sugarcane fields and solid waste at dumpsites and by some households in their backyards


Common air pollutants include total suspended particulate matter (PM), sulphur dioxide (SO2), nitrogen oxides (NOx), volatile organic compounds, photochemical oxidants, ozone, carbon monoxide (CO), carbon dioxide (CO2) and lead. Carbon dioxide is emitted primarily through the burning of oil and other fossil fuels during energy generation and industrial processes especially in the energy-intensive bauxite/alumina industry and the cement industry. Generation of methane comes from livestock farming and dump sites/landfills.

With the country's thrust to increase the percentage of renewables in its energy mix to 20 per cent by 2030 and to reduce greenhouse gas emissions, Jamaica will also reduce ambient air pollution. In its updated Nationally Determined Contributions to the UNFCCC 2020, the country has outlined that by 2030, CO2 emissions will fall by 1.8-2.0 million tonnes relative to the projected business as usual (BAU) levels of 7.2 million tonnes.

Indoor air pollution is a concern especially in businesses, industrial facilities and some homes. Indoor air quality problems can result in sick building syndrome, and in some cases cause significant human health problems such as respiratory illness and even cancers. Sources of indoor pollution include biological contaminants such as mould and pollen, tobacco smoke, household chemicals and pesticides, gases such as carbon monoxide and materials used in buildings such as asbestos, formaldehyde and lead.

At the household level, indoor air quality is an issue particularly in poor communities and rural areas. In Jamaica, there are two major sources of emissions that impact household air quality – the use

***Up to 2017, seven per cent of the population still used solid fuels for cooking. This is much better than in the 1990s when more than 50 per cent of the population primarily used charcoal for cooking.***

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## CASE EXAMPLE:
**Impacts of Open Fires on Children**

A study in the West Indian Medical Journal published in 2017 titled "Risk Factors and Prevention of Paediatric Burns in Jamaica" concluded that common international burn demographics were evident in Jamaica, and that local practices such as burning household garbage and leaving children unsupervised at home with lit candles in homes with no electricity were major risk factors linked to paediatric burns and burn deaths.

of solid fuel or biomass for cooking and reliance on burning household garbage as a means of disposal of waste. In 2017, the JSLC estimated that approximately seven per cent of the population still used solid fuels for cooking, although this is a marked reduction from the 1990s when it was reported that more than half of the population primarily used charcoal for cooking.

The burning of garbage is practiced both in rural and urban areas, more so among households that do not have access to regular garbage collection services. Even though neither the burning of waste nor cooking with biomass and coal is undertaken indoors, the cramped conditions in many communities allow for the flow of the polluted air into houses and the inhalation by those close to the activities. These activities should reduce as the country takes steps to better manage its waste through encouraging and building capacity in composting as well as putting legislation in place towards reducing and eliminating the use of certain types of materials such as plastics and styrofoam. Notwithstanding, these pollutants may contribute to the incidence of asthma in children. A study conducted in 2012 by the University of the West Indies (UWI) reported that about 19.3 per cent of Jamaican children aged two to 17 years had current wheezing, while 16.7 per cent had self-reported doctor-diagnosed asthma[11].

While the impacts of poor air quality are experienced in Jamaican communities, there are no ground level air quality monitors in the country that share publicly available data. This lack of reporting leads to an underestimation and inadequate understanding of the issue.

## Waste Management

30 per cent of waste generated remains uncollected; 55 per cent of waste generated is organic and can be composted . The effective management of waste remains a challenge for Jamaica. Per capita waste generation is estimated to be 1.0 kg per person per day. Jamaica's per capita waste generation is consistent with the amount of waste generated per person in developed countries such as the United Kingdom and Australia. This is unsustainable for a small island such as

[11]Asthma and allergies in Jamaican children aged 2-17 years: A cross-sectional prevalence survey.

***30 per cent of waste generated remains uncollected; 55 per cent of waste generated is organic and can be composted.***

Jamaica. Per capita waste generation is projected to increase to 1.5 kg per person per day by 2030 due to changes in consumption patterns and modernization of the economy. The country generates about six waste typologies.

The total volume of solid waste collected in 2018 utilizing formal systems decreased to 744,283 tonnes from 872,044 tonnes recorded for the previous year (Planning Institute of Jamaica, 2018). It is estimated that about 30 per cent of waste generated in Jamaica is uncollected (International Development Bank, 2017). The country has eight waste disposal sites but no sanitary landfills. Although there are limited data on the actual quantities of hazardous waste generated, the general view is that the quantity of hazardous waste is increasing.

The characterization of the waste stream indicates that close to 20 per cent of the waste is inorganic, consisting of plastics, glass and other non-biodegradable material, some of which is recyclable, while approximately 55 per cent is organic and compostable. The potential therefore exists for Jamaica to engage in viable economic activities focusing on composting and recycling, thereby reducing the amount of waste to be collected and transported to disposal sites and creating a new industry around "waste as a resource". The Government in the last two years has been making attempts to encourage composting and to increase the recycling of materials and creating the necessary industries to do so.

## Increasing Population in Urban Areas

Jamaica has high levels of rural urban drift. In 2017, more than 55 per cent of Jamaica's population lived in urban places. Over

the years, the rural population has been migrating to urban areas (referred to as "rural to urban drift") in search of a better quality of life, jobs that are not in primary industries such as agriculture and fishing, better educational opportunities and a wider range of social services and amenities. The parishes with the highest population densities tend to be the ones with the largest urban centres. Thus, Kingston and St. Andrew (KSA; 1,471 persons/km$^2$) has a population density three times higher than St. Catherine (438 persons/km$^2$), the next most dense parish. Population growth, uncontrolled urbanization and poverty have resulted in the development of unplanned settlements in marginal and environmentally sensitive lands such as flood plains and unstable slopes.

***Jamaica has high levels of rural urban drift***



Jamaica suffers from environmental degradation as many of its urban centres have a combination of environmental problems, including poor air quality, high levels of traffic and congestion, high levels of ambient noise, a poor-quality built environment, derelict land, urban sprawl, inadequate garbage collection and erosion of hill slopes and river and gully banks. Squatting has historically been an issue in Jamaica and has largely resulted from the shortage of affordable land and housing provisions to keep pace with population growth in the urban centres. In the absence of affordable accommodation, squatting often becomes the only viable option for new arrivals to urban centres.

Many initiatives and projects are currently being implemented to reduce many of these impacts. For example, the Government has an explicit thrust to reduce squatting by increasing access to low-cost housing and affordable shelter. The introduction of projects to reduce plastic pollution and programmes geared towards improving environmental awareness are leading to a reduction in waste generation and pollution. Initiatives to modernize urban and regional planning are being addressed, such as the development of a national spatial plan, local sustainable development plans for all parishes, preparation of development orders (legal document to guide development) and making greater use of civil society governance mechanisms such as the Parish Development Committees to support more inclusive and sustainable development practices.

## Undesirable Levels of Poverty

A critical indicator that links population, including children, to the environment is the proportion of the population living below the poverty line. In 2018, Jamaica's poverty rate was 12.6 per cent, a decline of 6.7 percentage points relative to 2017 when the rate was 19 per cent. Notwithstanding this decrease, the level of poverty remains undesirable and requires stronger and more resilient economic growth to eliminate it and boost equality and shared prosperity.

Persons living in poverty in Jamaica are most likely to live in ecologically fragile rural locations, as well as squatter settlements in urban areas or on the peripheries of the KMA. Poverty, therefore, is one major cause of environmental degradation as persons living in poverty must meet their urgent and basic needs. These needs are usually met through activities that are concentrated in ecologically fragile zones which are not usually resilient to stresses or shocks. Activities undertaken by the poor, such as hillside agriculture, artesian fisheries and the settlement of marginal lands in forests, coastal and floodplains, further aggravate the stresses on these ecologically fragile areas. On the other hand, persons living in poverty are often forced to bear more of the immediate pressures of environmental degradation as they are least likely to be served with public water, sewerage and waste management services. For example, inadequate water and sanitation services expose persons to vector-borne diseases. These persons also tend to live in crowded conditions where indoor air pollution is high, the effects of which are further exacerbated by inadequate nutrition. Persons living in poverty often live in close proximity to waste disposal sites and a key example of this is the Riverton Meadows community in Kingston which is located in close proximity to the Riverton City dumpsite.

Thus, the very incidence of poverty increases individuals' risk of ill health. The relationship between poverty and human health is further implicated by the interactions of disease agents, individual susceptibility, levels of education and years of schooling (reflected in limited knowledge which leads to inadequate protective behaviours) and local environmental conditions. Therefore, there is a strong inter-relationship between poverty and the environment, and solutions to both of these issues are necessary if development is to be sustainable. One approach is to address the underlying causes of environmental degradation, improve the incomes of persons living in poverty and enhance their coping abilities to deal with exogenous shocks.

## Unsustainable Consumption and Production Patterns in Key Economic Sectors

Jamaica's main economic activities – tourism, mining, agriculture and fishing – rely significantly on the country's rich natural resource base. In the last few years, many of these industries have adopted more sustainable practices with some emphasis on reducing the impacts of their operations on the natural environment. For example, the tourism and manufacturing industries are pursuing eco-efficiency and advancing the triple bottom line[12]. In agriculture there is a thrust towards more organic farming and incorporating more sustainable forms of agriculture such as conservation agriculture. The focus on increasing sewerage connections across the country is also reducing the impacts of some entities such as those in the hotel and accommodations sub-sector. Notwithstanding these efforts, there are still some companies such as those in manufacturing that still use "appropriate technologies",[13] as opposed to cleaner technologies, with functionality and price still being the most

[12]This is a terminology employed primarily by the private sector to address the integration of social, economic and environmental issues in the decision-making process of the private sector as they pursue profit within the sustainability framework

[13]"Appropriate technologies" are intermediate technology, simple or small-scale machinery and tools that tend to be used in developing countries because they are cheap and easy to produce and maintain.

important criteria in procurement, as opposed to resource efficiency and environmental sustainability.

## Overreliance on Fossil Fuels


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93.5 per cent of Jamaicans have access to electricity; the country aims to have 20 per cent of its energy supplied by renewables by 2030. Access to electricity supports improvements in health and education and opportunities for entrepreneurship. In Jamaica, almost all households (93.5 per cent as reported in the 2017 JSLC) have access to electricity – ranging from 98 per cent in KMA to 91 per cent in rural areas. Among income groups, access to electricity ranges from 85.3 per cent among the poorest quintile, or quintile 1, to 97 per cent in quintile 5. Among the poorest Jamaicans, 5.3 per cent rely on kerosene as their main source of energy for lighting.

There is also a focus in Jamaica on increasing the percentage of renewables in the energy mix to 20 per cent by 2030 (from 7.8 per cent in 2018) as contained in the country's national development plan, the national energy policy as well as the country's Nationally Appropriate Mitigation Actions (NAMAs). The objective of all three policy documents is to promote the increase in renewable energy-based generation in Jamaica by assisting in the creation of an enabling environment for the deployment of renewable energy generation technologies such as solar, wind, hydro and biofuels in the country.

**CASE EXAMPLE:**
**Wigton Wind Farm**

The wind farm has three plants contributing a total of 62.7 MW, reducing the country's demand for oil by about 97,000 barrels of oil, consequently displacing the production of a portion of energy from fossil fuels resulting in a reduction in air emissions.

Within the education sector, from as far back as the early 2000s, the Government has been conducting energy audits at government-owned educational institutions across the island and has been retrofitting them with renewable energy systems using solar energy. Between 2018 and 2020, the Government invested about US$1.4 million in photovoltaic systems in the education sector. Similar initiatives are also being undertaken at public hospitals. Other programmes and projects are supporting the

***93.5 per cent of Jamaicans have access to electricity; the country aims to have 20 per cent of its energy supplied by renewables by 2030***

deployment of renewable energy technologies in businesses and in communities. In many cases green, low-emission climate-resilient technologies are being implemented to help reduce the country's dependence on fossil fuel imports, as well as enable the pursuit of a low emission development path.

There is also an increasing percentage of alternative fuels such as liquefied natural gas (LNG) in the energy mix. While LNG is a fossil fuel, it is a cleaner fuel than petroleum and its use has many benefits, including a reduction in greenhouse gas emissions, the diversification of energy supplies and a reduced dependency on other fossil fuels such as oil.

Most Jamaicans do not use electricity for cooking. Liquid Petroleum Gas (LPG) continues to be the most common fuel type used for cooking, with 84.9 per cent of households reporting using LPG in 2017 (JSLC, 2017), followed by charcoal (7.9 per cent) and wood (6.1 per cent). Charcoal and wood are used more by households in smaller towns and rural areas.

Use of wood and charcoal in households affects indoor air quality, which has greater impacts on children. Children are uniquely vulnerable to air pollution – due both to their physiology and to the type and degree of their exposure.

Children breathe twice as quickly as adults and take in more air relative to their body weight, their immune systems are weaker and their brains are still developing. Their respiratory tracts are more permeable and thus more vulnerable. Air pollution can result in children suffering from both short-term health impacts (e.g. respiratory conditions such as pneumonia, bronchitis and asthma) and long-term health impacts (e.g. chronic obstructive pulmonary disease, cardiovascular disease, lung cancer, neurodevelopmental impacts and diabetes). Furthermore, exposure to air pollution during pregnancy is associated with low or reduced birth weight, small size for gestational age, pre-term delivery and stillbirth.

## In Conclusion

**Polluted indoor and outdoor air, contaminated water, lack of adequate sanitation, toxic hazards, disease vectors and degraded ecosystems are all environmental risk factors that affect the population at large, and also have significant impacts on children, even those in utero, and in most cases on their mothers as well.**

**In many developing countries, environmental hazards and pollution are major contributors to childhood deaths, illnesses and disability from acute respiratory disease, diarrhoeal diseases, physical injuries, poisonings, vector-borne diseases and perinatal infections.**
**Childhood death and illness due to poverty and malnutrition are also associated with unsustainable patterns of development, consumption and production and degraded urban and rural environments. In fact, every year, three million children worldwide under the age of five die because of diseases related to environmental pollution.**

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# A SNAPSHOT OF JAMAICA'S CHILDREN – Share of Population and Vulnerable Groups

Jamaica's population at the end of 2018 was estimated at 2,726,700 (ESSJ, 2019, PIOJ). Information from STATIN indicated that the share of the child population (0-18 years) accounted for 27.8 per cent (758,567) of the total population in 2018, down from a share of 28.6 per cent (780,946) in 2017.

Over the last three decades, Jamaica has been experiencing a decline in the proportion of the child population and increases in both the proportions of the working age and elderly populations because of the long-term fall in the fertility rate. Since the 1970s, Jamaica has been implementing policies aimed at reducing the number of children per woman to attain replacement level fertility. Population projections for Jamaica by the United Nations (medium variant) have indicated that by 2050 the share of the child population will decline to 19.3 per cent of the total population.

Rural areas in Jamaica account for the highest proportion of children compared to the Kingston Metropolitan Area and other towns. The average size of poor households in 2017 was 4.3, compared with 2.9 for the average Jamaican household. Analysis of the data over 10 years as contained in the JSLC 2018 showed that it is more commonplace for poorer households to contain more individuals and that households with children had a higher rate of poverty (18.5 per cent) than households without children (8.1 per cent), suggesting that the number of children in a household contributes to the rate of poverty within these households.


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## Vulnerable Child Groups in Jamaica

Vulnerable child groups[14] include children living in poverty, barrel children[15], children with disabilities, girls including teenage girls, children in state care, children living with HIV/AIDS and unattached youth, including street children. Almost a quarter of Jamaica's children live in poverty (UNICEF, 2018).

Children are more likely to live in poverty than adults and are usually more vulnerable to its effects. Children who grow up in poverty often lack food, sanitation, shelter, health care and the education they need to survive and thrive. Across the world, about one in three children live in households that are multidimensionally poor, meaning they lack necessities as basic as nutrition or clean water (UNICEF). New analysis and data from UNICEF reveal the number of children living in multidimensional poverty – without access to education, health, housing, nutrition, sanitation or water – has increased by 15 per cent in low- and middle-income countries since the start of the COVID-19 pandemic (UNICEF and Save the Children Analysis, 2020). This is approximately 1.5 billion children.

In Jamaica, the incidence and consequences of child poverty are more pronounced among:

- Female-headed households, due to females having a higher unemployment rate and tending to be paid lower wages than males.
- Children with disabilities.

Poverty rates in Jamaica are higher among the younger than older age groups. Children with disabilities are also more likely to be poor than children without disabilities. The prevalence of poverty among children (zero to 17 years)[16] was 24.1 per cent in 2017, an increase of 3.3 percentage points compared with 2016. Children account for about 21 per cent of Jamaica's disabled population (UNICEF, 2018).

Children living in rural areas and inner-city communities are more likely than those in major towns or

[14] Many of these groups overlap
[15] The parents of these children work outside of Jamaica and periodically send barrels of goods to their children back in Jamaica.
[16] Figures for children defined as 0-18 years are not available for the prevalence of poverty in Jamaica.

cities to be living in poverty. These children, as a result, are more susceptible to social ills and may be affected by the impacts of degraded environments.

Data from Jamaica's 2011 Multiple Indicator Cluster Survey show that, compared to children from the wealthiest quintiles, those from the poorest quintiles are one and a half times more likely to access substandard water and sanitation facilities, and are more likely to be living in homes where harmful solid fuels (such as coal and biomass) are consistently used for cooking. Poverty therefore exposes children to an array of harmful conditions including poor health and limited access to ecosystem goods and services.

At all levels of the educational system, children from low-income households usually attend schools of inferior standard and receive poorer quality instruction than their more advantaged peers. These children attend schools that are more likely to be overcrowded, employ outdated pedagogy, have aged and deteriorating infrastructure and lack adequate access to drinking water. The educational gap recently exposed by the COVID-19 crisis revealed that many children in poorer communities were not able to benefit from online learning as a result of having limited access to a computer and even where there was access to computers there was limited access to the internet. The preliminary results of a survey "The Effect of the COVID-19 Pandemic on Jamaican Children", undertaken by UNICEF in collaboration with the Caribbean Policy Research Institute (CAPRI), further supports this assertion. The survey results show that levels of engagement in distance learning during school closure/remote teaching varied by age group, with children in the pre/basic school age group having the lowest engagement (75 per cent), followed by high school aged students (83 per cent) and then primary/preparatory (90 per cent). The survey showed that the main reason for children at pre/basic school or primary/preparatory level not engaging in distance learning was because they lacked the necessary facilities. At the high school level, the main reasons were not having a suitable device (62 per cent) and lacking access to the internet (18 per cent).

Poverty has contributed to the increase in unattached youth,[17] who make up approximately 30 per cent of Jamaica's total youth population (PIOJ, 2018). Also, in 2018 approximately six out of every 1,000 children in Jamaica were in state care (Ministry of Education, Youth and Information, 2018)[18] where they are confronted by many challenges. Chief among these are inadequate psychosocial support to address their holistic development, being victims of physical and sexual abuse, attempted suicides and indulgence in self-harming behaviours. Globally, children in residential care are exposed to a higher incidence of violence, abuse and neglect and this is applicable to Jamaica also.


[17] Unattached youths refer to those not in school, unemployed and not participating in any training programme.
[18] http://www.jamaicaobserver.com/news/six-out-of-every-1-000-children-are-in-state-care---green

# CEE ISSUES AND CHALLENGES AND IMPACTS ON CHILDREN

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A safe, clean and healthy environment, which includes ecosystems that are able to carry out their functions, is essential for the survival, wellbeing and development of children and is therefore a substantial condition for the realization of the rights of the child. Environmental degradation is therefore an erosion of children's rights. Pollution of natural resources such as air, water and soil affect children in particular, whose fundamental rights to good health, growth and being able to achieve their fullest potential may become violated by influences beyond their control. No child should suffer from the harmful disturbances caused by human activities or by the absence of adequate sanitary conditions or access to environmental goods and services such as clean water and uncontaminated food.

It is apt to consider the issues of CEE and the impact on children in Jamaica as the country's Constitution, specifically Chapter III, "Charter of Fundamental Rights and Freedoms", subsection 3 (l) calls for the right of everyone ***"to enjoy a healthy and productive environment free from the threat of injury..."*** In addition, Jamaica has ratified the Convention on the Rights of the Child, its Optional Protocols and other international human rights instruments, thereby committing itself as a nation to translate these principles, provisions and standards into concrete programmes and actions that will make a positive difference in the lives of the nation's children.

The physiology of children makes them more vulnerable than adults to certain health impacts. From conception to adolescence, the body goes through a number of complex biological changes and development. It is during this developmental and growth time that the body is most affected by environmental health hazards.

Children, in proportion, are more heavily exposed per unit of body weight to environmental toxins than adults. Children eat more food, drink more water and breathe more air than adults in relation to their body weight. A child's body absorption rate of toxins is also much higher than that of an adult. For example, children absorb up to 50 per cent of lead present in food while adults only absorb up to 10 per cent. Children's hearts beat faster than adults' and their breathing rates are higher than adults, which results in them absorbing more air pollution given their body size than an adult would in the same situation.

Children's bodies are not always able to breakdown harmful contaminants that enter their body (either through the respiratory or alimentary canals). Their health problems from environmental exposure can take years to develop as they have more time to develop health conditions and diseases than adults who are exposed later in their life cycle.

***No child should suffer from the harmful disturbances caused by human activities or by the absence of adequate sanitary conditions or access to environmental goods and services such as clean water and uncontaminated food.***

# 5

# CLIMATE CHANGE AND ITS IMPACTS ON CHILDREN

***Since children are the future, damage that is being done to the environment today means that they will have to live with those impacts of a degraded environment in the future.***

Climate change is already affecting socio-economic development in many small island developing states and is expected to continue to increase vulnerabilities with regard to water supply, food security, natural disasters and human health. The unfortunate reality is that the greatest impact of climate change will be observed in the poorest countries and among the population living in poverty in general who have the least ability to cope and respond. Climate change is now considered to be a major cause of the growing inequality among children – and among children, particularly vulnerable groups are children with disabilities, girls, children living in poverty, those in state care as well as "barrel children". Since children are the future, damage that is being done to the environment today means that they will have to live with those impacts of a degraded environment in the future.

## Human Health Impacts

The major effects of climate change on health and on children are caused by:

- Heat stress – extreme temperatures affect children negatively, and more so those with heart problems and defects.
- Air and water pollution – warm temperatures increase air and water pollution which in turn affects human health. High temperatures also increase ground level ozone which can result in damage to lung tissue. Children can also contract illnesses such as diarrhoeal diseases due to post-disaster conditions such as lack of water.
- Increased incidence of communicable diseases – high temperatures increase the potential for the spread of vector-borne diseases such as dengue and Zika.
- Flooding – climate change brings about changes in precipitation. An increase in rainfall as well as sea level rise near coastal cities may cause flooding that can lead to the contamination of wells, pits and surface water; the flooding of sewerage and sanitation systems can spread infectious diseases.
- Increased extreme weather events – long-term consequences of storms and floods can also include an increase in mental health stresses among children.

There may also be possible positive health effects attributed to climate change which include a reduction in the number of cold-related illnesses.

### CASE EXAMPLE:

**Dengue Outbreak in Jamaica 2019**

The Ministry of Health and Wellness reported 6,114 cases of dengue fever in Jamaica between January and the first week of November in 2019. Only 2,235 cases were reported in 2018, indicating a 174 per cent increase. A total of 44 dengue-related deaths were reported during the 2019 period, up from 17 in 2018. Over the same period in 2019, there were 20 dengue deaths confirmed, suspected or under investigation at Bustamante Children's Hospital – racking up the highest number of fatalities among all public health facilities on the island. The dengue outbreak in 2019 had a significant impact on children.


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Natural disasters associated with climate change such as storms and floods can cause direct physical harm to persons including children. Children or other family members can be injured or killed. Families may lose income as members of lower-income households, especially those involved in small-scale agriculture and fishing, may not be able to return to their jobs immediately following a disaster and most do not have access to savings or microinsurance products such as the Livelihood Protection Policy[19]. In some cases, where incomes are lost and there is damage to homes, some children may be forced to stay away from school, and some may even go into the labour force, either temporarily or permanently. In some cases, children – particularly those in low-income households – may suffer from lack of proper nutrition and lower intake of calories as a result of loss of household income.

During a natural disaster, schools and health care facilities can be damaged, disrupting education and reducing the availability of medical care. For example, Hurricane Sandy in 2012 caused damage to 59 health facilities including 12 hospitals and 38 health centres in Jamaica. The damage to health facilities reduces care for not only disaster-related illnesses and injuries but also for other illnesses and chronic conditions. Disasters can destroy a household's assets as well as a country's housing stock in general. For example, Hurricane Sandy also destroyed the Muirton Boys' Home, a residential childcare facility in the parish of St. Mary.

## Psychosocial Impacts

Children may face many psychosocial impacts following a natural disaster. For example, children in Jamaica rely on their parents, or other family members such as grandparents and caregivers who, following a natural disaster, may be unprepared or overwhelmed. Children may suffer emotional stress and even post-traumatic stress disorder (PTSD) due to the disaster itself, which may be frightening, or to the loss of their homes and possessions and the injuries that they may see around them. Also, if their parents or other family and friends are injured or missing as a result of the disaster, children may have difficulties coping. Children process trauma very differently from adults and psychologists have also found that girls and boys can react to disasters in different ways. For example, girls tend to verbally express their distress and fears more easily than boys, which tends to be the case in the Jamaican context where from very early boys are often taught that fears and crying are not considered "manly".

Other psychosocial impacts that may occur weeks after the disaster include an increase in nightmares, fears of being separated from family members, fear of thunder and lightning, temper tantrums or emotional outbursts, bedwetting and changes in appetite in young children. Older children may experience sleep difficulties, anxiety, difficulty concentrating and fear that the disaster will happen again. Disasters are likely to increase the vulnerability of individuals, families and communities to violence. While there are not many studies yet undertaken on this issue, there is some evidence to suggest that the incidence of sexual violence, child abuse and child trafficking increases following natural disasters and that much of the sexual violence and child abuse may happen in shelters or even in the home environment.

[19] A microinsurance product for low-income and vulnerable persons to protect their livelihoods against natural disasters. The product is offered through the Climate Risk Adaptation and Insurance in the Caribbean project in some Caribbean countries, including Jamaica.

# 6

# ENVIRONMENTAL THREATS AND THE IMPACTS ON CHILDREN

Environmental conditions such as lack of access to environmental resources can assist in determining whether persons are healthy or not and how long they will live. Poor environmental conditions can contribute significantly to communicable diseases. Communicable diseases currently account for approximately 20-25 per cent of worldwide annual deaths. Illnesses most closely related to environmental conditions include infectious and parasitic diseases as well as respiratory infections and diseases. Environmental threats to human health can fall into two main categories:

- Lack of access to essential environmental resources such as clean water, food, shelter, fuel and air.
- Exposure to biological, chemical and physical hazards within the environment.

## Lack of Access to Essential Environmental Resources

Essential environmental resources are provided by the atmosphere, fertile soils, freshwater resources, the oceans and ecosystems, and are key to the provision of shelter, food, safe water and other natural resources necessary for supporting human existence and wellbeing. Human health is therefore intricately related to environmental conditions measured in terms of the quality of air, water, and food resources, and which are heavily affected by human activities. It has been estimated that roughly 60 per cent of the global burden of disease from acute respiratory infections, 90 per cent from diarrhoeal disease, 50 per cent from chronic respiratory infections and 90 per cent from malaria could be avoided by simple interventions that support environmental protection and conservation.

## Air Pollution

The most important effects of air pollution are those on human health. An important air pollutant is particulate matter, which is defined as visible smoke consisting of small solid particles such as airborne dust, dirt, soot, smoke and liquid droplets that are directly emitted into air from sources such as windblown dust, automobiles, construction sites, factories and fires. High levels of suspended particulate matter can increase the risk of serious respiratory disorders and cancers. Particulate matter may inhibit the removal of harmful substances in the mucus flow causing such illnesses as bronchitis. Children in Jamaica continue to be impacted from fires that occur at the various dumpsites across the island such as Riverton City from time to time. The main pollutants from these sources include sulphur dioxide (SO2), nitrogen oxides (NOx), carbon monoxide (CO) and particulate matter. Other chemicals include lead, acids and volatile organic compounds.

## CASE EXAMPLE:

**Fires at Riverton City Dumpsite**

**The Riverton City landfill in St. Andrew serves the communities in and around the Kingston Metropolitan Area as well as Portmore and some other parts of St. Catherine, which account for 44 per cent of the country's population. This landfill emits a proliferation of noxious gases due to numerous yearly fires: there have been a total of 415 fires between 1996 and 2015, according to records from the Jamaica Fire Brigade. These fires release some 200,000 pollutants including nitrogen dioxide ($NO_2$), sulfur dioxide ($SO_2$), benzene, toluene, and particulate matter ($PM_{10}$). Almost a quarter million Jamaicans reside in very high-risk areas, and more than 800,000 persons, 37 per cent of which are children and the elderly, live in the areas most affected by Riverton fires.**

**These fires pose a major threat to environmental quality, human health and safety. In March 2015, a major fire occurred at the Riverton City Dump, lasting 13 days and covering the 120 acres of the dumpsite. A total of 808,553 persons residing in the parishes of Kingston and St. Andrew and St. Catherine were affected. This fire resulted in the closure of schools and businesses. It also resulted in many human health impacts with more than 3,000 persons reporting that they had to seek medical attention. The Ministry of Health and Wellness reported that most of the persons seeking medical attention were children. Over the period, 63 schools in Kingston and St. Andrew and St. Catherine had to be closed, affecting 61,447 students and 3,137 teachers. The Ministry of Education, Youth and Information also had to reschedule the Grade 6 national examinations, a decision which affected over 40,000 11-12 year-old children across the island.**

**Children living within the zone of influence of the Riverton City fires are impacted by thick, heavy, toxic smog which they inhale. In the short term, smoke from landfill fires can aggravate pre-existing pulmonary conditions, exacerbate respiratory symptoms or cause respiratory distress mainly for children and those with pre-existing conditions such as asthma, influenza and chronic lung disease. Many of the impacts, however, may be long term as emissions such as particulate matter and benzene are classified as human carcinogens.**

Lead is also another common pollutant to which Jamaican children are exposed and is associated with point sources of pollution such as smelters, battery plants and solid waste disposal and through soil pollution on contaminated sites that may have been used in the past for smelters. Historically, lead emissions primarily came from automobiles using leaded gasoline. In Jamaica, emissions of lead have dropped significantly because of the phase out of leaded gasoline which was completed in 2002. Lead can enter the diet through several channels, for example, through dust in the air.

Even at relatively low concentration levels, serious health effects associated with exposure to lead can be observed, particularly in children. Lead can cause a range of health effects, from behavioural problems and learning disabilities to seizures and death. Children six years old and under are most at risk and they are more susceptible than adults to the adverse effects of lead exposure. Lead components can also damage the kidneys, liver, reproductive system, digestive system and affect blood formation, basic cellular processes and brain function.

## CASE EXAMPLE:
**Lead Exposure in Children in Jamaica**

**Lead testing of children has been carried out in the Kintyre community of St. Andrew since 1995. Studies then revealed that the community school was located on an abandoned lead mine. Several abatement measures have been implemented over the years including paving the school yard and play areas and incorporating nutritional programmes to counteract the effect of lead in the bodies of the children.**

**In 2004, in the area of Mona Commons, it was discovered that there were 74 children under the age of five suffering from lead poisoning. The source of the contamination was the recycling of lead batteries, an activity that had been taking place in the community for over 30 years. Some of the poisoned children had been hospitalized several times. Normal levels are 10 milligrams of lead per litre (mg/l) of blood in the human body. The lowest level of lead found in the children at Mona Commons - including an 18 month-old - was 35 mg/l. In the most severe case of poisoning, the child's blood lead level was 450 mg/l.**

**Another study undertaken by Rahbar et al in 2015 found that, from a sample of 125 children (ages two to eight), only 6.4 per cent had blood lead levels of 10 µg/dl (0.1 mg/l) and above. The researchers attributed the difference between this study and others in earlier years to the phasing out of leaded petroleum in Jamaica between 1999 and 2002. The environmental risk factors for increased lead levels in children were identified as living near to high traffic roads, the consumption of ackee and poor educational outcomes of parents.**

## Indoor Air Pollution and Drug Use among Children and Adolescents

Air quality is also affected by smoke from tobacco and marijuana. In Jamaica, approximately one-third of the adult male population and seven per cent of the adult female population smoke cigarettes, and a quarter of males are marijuana smokers[20]. In 2013, to curtail the impact of smoking on the environment and indoor air quality, the government introduced various tobacco-demand-reduction interventions, including legislation prohibiting smoking in public areas – the Public Health (Tobacco Control) Regulations 2013. It is well known that secondhand smoke has a huge impact on children – it makes asthma worse, increases the risk of respiratory and ear infections and can increase the risk of sudden death in infants. While cigarette smoking around children would have dropped because of the new law, marijuana smoking around children would possibly have increased because in 2018, the Government decriminalized cannabis allowing persons to have two ounces or less of cannabis in their possession for personal use. Children can be affected when exposed to secondhand marijuana or cannabis smoke.

There are also concerns that the decriminalization of cannabis can result in more youth having access to the drug. Studies have shown that smoking marijuana increases the risk of mental disorders such as depression and schizophrenia in adolescents. The United Nations Office on Drugs and Crime (UNODC) has indicated that the majority of marijuana users in Jamaica are between the ages of 13 and 25 years, implying that marijuana

[20] National Drug Use Prevalence Survey 2017

use is occurring in the most productive years of individuals' lives. The World Health Organization (WHO) and others have reported that the most prevalent psychological disorder in Jamaica is schizophrenia, which has been increasing yearly – with these studies highlighting the connection with early usage of marijuana and the increase in mental illness[21]. Cannabis not only affects mental health but also neurological development – bearing in mind that the brains of young persons continue to develop up to 25 years of age.

**CASE EXAMPLE:**
**Incidence of Asthma in Children**

**Among the Jamaican population, 32.7 per cent of children report having at least one chronic illness (JSLC, 2018), with the disease burden related to asthma highest among children five to nine years old at 11.2 per cent in 2017. Overall, 10.4 per cent of children were reported to have asthma.**

## Water Pollution

Tremendous human suffering is caused by diseases that result from contaminated water. For example, diarrhoeal diseases kill about two million children and cause about 900 million episodes of illness each year. The most widespread contamination of water is caused by disease-bearing human wastes, which are usually detected through the measuring of faecal coliform levels. Over 1 billion people around the world do not have access to an adequate supply of safe water for household consumption. A lack of sewerage connections or other systems to hygienically dispose of human waste can result in the presence of disease-carrying pathogens in the human environment.

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Coverage of sewerage services in Jamaica has increased significantly in recent years, but is less extensive than the coverage of water services. Significant investments and operational improvements continue to be made in this area. The 2017 JSLC indicated that all households surveyed reported having access to an improved sanitation facility, with 85.8 per cent indicating exclusive use of that facility. About 81.9 per cent of households reported having a water closet, with 72.9 per cent having exclusive use. Among households

[21] http://jamaica-gleaner.com/article/news/20171210/target-ganja-babies-urgent-focus-needed-children-using-weed-they-face

with this facility, more than half (56.1 per cent) had a water closet linked to an onsite disposal system, while 25.8 per cent were linked to a central sewer network (19.1 per cent) or offsite disposal system (6.7 per cent). Pit toilet facilities were reported by 18.0 per cent of households.

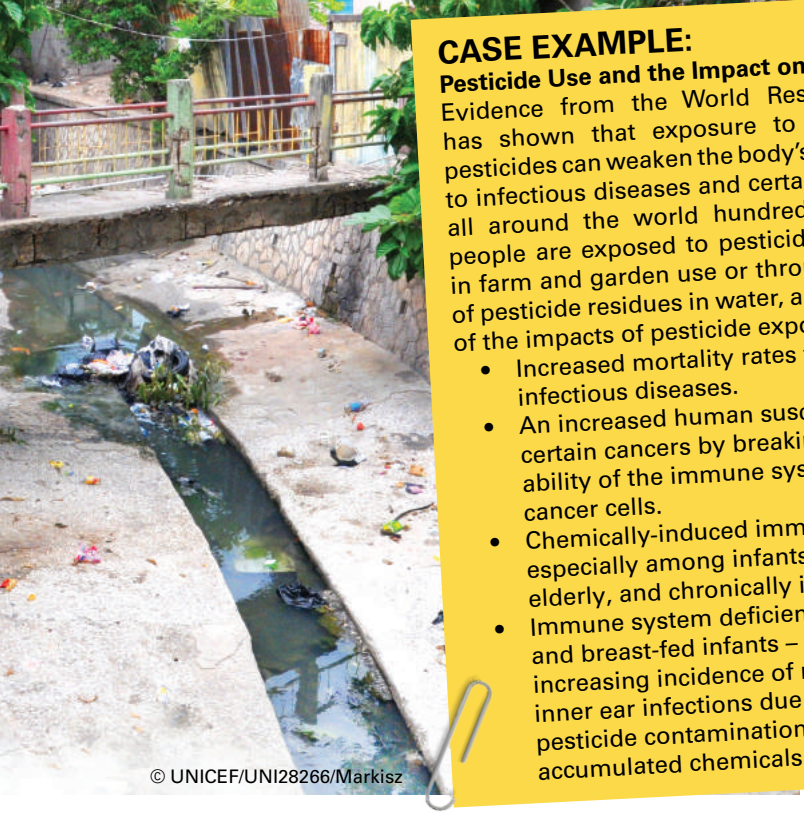
In the education sector, there are still schools in Jamaica that use pit latrines but these are being replaced as a way of modernizing the facilities and providing a safer environment for the staff and students at schools. In addition to the infrastructure, from as far back as early 2016 a social marketing campaign known as the Water, Sanitation and Hygiene (WASH) Programme was rolled out in schools, engaging students, teachers, parents and ancillary staff. The campaign focused on developing proper hygiene practices, providing information about standard sanitary practices as well as ensuring sustainability of sanitation units built. Over 6,000 students benefitted from the project.
A joint report from the WHO and UNICEF released in August 2020 indicated that most schools in Jamaica (95 per cent) are equipped with basic hand washing facilities with soap and water as well as basic drinking water. This means that five per cent of schools still do not have access to basic water, sanitation or hygiene facilities. These figures are even more significant within the context of the COVID-19 pandemic, where sanitation is critical to controlling the spread of the disease, especially as the education sector focuses on the reopening of educational institutions following months of closure[22].

## Waste

Most Jamaican households (70.1 per cent) dispose of waste using formal methods but a relatively large portion ( 27.7 per cent in 2017) dispose of garbage by open burning, although this percentage represents a decrease since 2008. Currently, Jamaica

does not have a separate system to handle hazardous wastes. For example, items such as medications, paints, pesticides, fluorescent bulbs, batteries and electronics are usually discarded with other solid waste. These wastes are either dumped into the environment (finding their way to soils and gullies), burned, or hauled to the municipal dump where they can also cumulatively leach into the soils. The WHO estimated that in 2016, the mortality rate in Jamaica from unintentional poisoning was 0.2 per 100,000 population[23], with lead levels in soil being of particular concern. Only about 60 per cent of garbage disposed of is collected and there still exists burning of garbage in households and communities in both rural and urban areas. In 2017, an average

[22]https://data.unicef.org/resources/progress-on-drinking-water-sanitation-and-hygiene-in-schools-special-focus-on-covid-19/
[23] State of the Environment Report 2017
[24] Jamaica Survey of Living Conditions 2018



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## CASE EXAMPLE:

**Pesticide Use and the Impact on Human Health**

Evidence from the World Resources Institute has shown that exposure to many common pesticides can weaken the body's immune system to infectious diseases and certain cancers. Daily, all around the world hundreds of millions of people are exposed to pesticides either directly in farm and garden use or through the exposure of pesticide residues in water, air and food. Some of the impacts of pesticide exposure include:

- Increased mortality rates from common infectious diseases.
- An increased human susceptibility to certain cancers by breaking down the ability of the immune system to fight cancer cells.
- Chemically-induced immuno-suppression especially among infants and children, the elderly, and chronically ill.
- Immune system deficiencies in children and breast-fed infants – resulting in the increasing incidence of meningitis and inner ear infections due to high levels of pesticide contamination and other bio-accumulated chemicals in foods.

of 27.7 per cent of all Jamaicans disposed of their garbage by burning – with this rate increasing to 40.7 per cent in rural areas and 40.1 per cent among the poorest quintile[24]. This practice compromises the air quality that children breathe and places those living with chronic respiratory problems at severe risk of complications.

## Chemical Hazards

Chemical hazards refer mainly to chemical pollutants which are transmitted into the environment because of airborne pollution (combustion or other airborne release) and water pollution (chemicals leaching into water). Water can be an important source of chemical hazards where chemicals are either added or can leach into water supplies. Significant chemical hazards found in water are lead, nitrates and sodium. The use of chemical fertilizers and pesticides in agriculture contributes to soil and water pollution. Despite some organic farming occurring in Jamaica, use of chemical fertilizers and pesticides continues to increase (State of the Environment Report 2017). The risks from pesticide exposure continue to be significant to developing countries as they account for approximately half of all pesticides used globally and are compounded by the high incidence of communicable diseases, chronic malnutrition and lack of sanitation. Many pesticides banned or severely restricted in industrialized countries are still being used in the developing world where safety precautions are often ignored and symptoms of over-exposure are usually misdiagnosed or ignored.

Health-damaging exposure to environmental risks can begin even before birth. Lead in air, mercury in food and other chemicals can result in long-term, often irreversible, effects such as infertility, miscarriage and birth defects. Women's exposure to chemicals such as pesticides, solvents and persistent organic pollutants may potentially affect the health of the fetus. Additionally, while the overall benefits of breastfeeding are recognized, the health of the newborn may be affected by high levels of contaminants in breast milk – with the health impacts only emerging later in life, for example in the form of certain types of cancers.

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# POLICY AND INSTITUTIONAL FRAMEWORKS FOR CLIMATE, ENERGY AND ENVIRONMENT AND RELATED INITIATIVES.

Jamaica has ratified and become party to a number of international and regional conventions and protocols related to climate and the environment, as well as children, including the Convention on the Rights of the Child (CRC); United Nations Framework Convention on Climate Change (UNFCCC); Paris Agreement under the UNFCCC; Basel Convention on Hazardous Wastes; Cartagena Convention on Protection of the Marine Environment and the associated Protocol Concerning Pollution from Land-Based Sources and Activities (the LBS Protocol); the Sendai Framework for Disaster Risk Reduction and the 2009 CARICOM Liliendaal Declaration on Climate Change and Development. Jamaica is also signatory to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs).

Many national environmental, energy and climate-related laws and policies have not adequately addressed the rights of children. This may be because international agreements, up to about the mid to late 2000s, did not adequately infuse a human rights approach, including a focus on the rights of children.. Today, the inclusion of human rights – if not specifically children's rights – in environmental and climate instruments is more commonplace. The Paris Agreement on climate change and Agenda 2030 Sustainable Development Goals, both adopted in 2015, showcase a more integrated approach to human rights, climate change, disaster risk reduction and environmental issues.

Jamaica has a range of policies and strategies that address climate change, disaster management, environmental and energy issues, as well as policies that focus on social issues that affect children such as health, education, poverty reduction, and social protection. The table overleaf summarizes the extent to which these policies include issues related to CEE and children and the linkages between CEE and children. Of the 22 policies assessed in the table below, only four – or less than 20 per cent – explicitly reflect the linkages between CEE and children.

● Significant inclusion or linkage ● Some inclusion or linkage ● No/very little inclusion or linkage

| National Policies and Plans | CEE | Children | Linkages between CEE and Children |
|---|---|---|---|
| Jamaican Constitution | ● | ● | ● Links children with rights to a healthy environment and being safe from disasters |
| Vision 2030 Jamaica National Development Plan | ● | ● | ● National outcomes focus on both CEE and children but do not include explicit linkages |
| Medium Term Socio-Economic Policy Framework 2018-2021 | ● | ● | ● Strategies focused on promoting and sensitizing persons on climate change through education curricula<br><br>Knowledge transfer and awareness building in climate change in communities and non-formal education sector<br><br>Does not inlcude explicit linkages on CEE and children |
| Climate Change Policy Framework and Action Plan of Jamaica | ● | ● | ● Policy refers to children directly as part of the most vulnerable stakeholders to the impacts of climate change but does not include specific strategies for children |
| Nationally Determined Contributions of Jamaica to the UNFCCC 2020 (Updated) | ● | ● | ● Explitly addresses reducing GHGs which will have an impact on ambient air quality, which will be beneficial to children |
| Renewable Energy Nationally Appropriate Mitigation Action | ● | ● | ● Actions inlcuded in the NAMA will allow for significant reduction in pollutants from energy production from fossil fuels, which will have positive imapcts on the health of children |
| Comprehensive Disaster Risk Management Policy 2020 – 2040 (draft) | ● | ● | ● Strategies explicitly address vulnerable groups including children and communities |
| Resettlement Strategy for Jamaica 2017 | ● | ● | ● Addresses relocation of persons from vulnerable settlements – but not specifically children |
| National Policy on Environmental Management Systems 2019 | ● | ● | ● Seeks to foster changes in values and attitudes towards environmental issues among youth |
| National Strategy and Action Plan for Biological Diversity in Jamaica 2016-2021 | ● | ● | ● The Plan makes mention of raising awareness among children |

| National Policies and Plans | CEE | Children | Linkages between CEE and Children |
|---|---|---|---|
| National Forest Policy 2016 |  |  |  Focus is on all Jamaicans |
| National Policy and Strategy for the Environmentally Sound Management of Hazardous Wastes 2016 |  |  |  Recognizes negative impacts of lead on children but does not identify any specific strategies |
| National Water Sector Policy and Implementation Plan 2019 |  |  |  Focus is on all Jamaicans |
| National Housing Policy, 2019 (draft) |  |  |  Makes provisions for children when impacted by natural disasters |
| National Energy Policy 2009 – 2030 |  |  |  Focus is on all Jamaicans |
| Vision for Health 2030 –Ten-year Strategic Plan |  |  |  Makes assumption that children will benefit from CEE actions |
| National Education Strategic Plan 2011 –2020 |  |  |  There is no explicit inclusion of CEE in the plan – although CEE is reflected in the formal curricula that are operationalized in all schools |
| Social Protection Strategy 2014 |  |  |  Addresses risks due to social, economic and environmental conditions and to natural events such as disasters but not specifically for children |
| National Policy on Poverty and National Poverty Reduction Programme 2017 |  |  |  No explicit linkages |
| Food and Nutrition Security Policy 2013 |  | |  Recognizes link between food security and natural hazards |
| National Youth Policy 2017 |  |  |  Addresses only children over 16 years of age |
| Jamaica Survey of Living Conditions |  |  |  Provides detailed information about children and other vulnerable persons, including persons with disabilities, highlighting current issues and challenges facing these groups; this information can be used by policymakers to design strategies and policy prescriptions that will address these issues |

## Do existing CEE policies and strategies address children's needs?

A synopsis of Jamaica's national policies and strategies on CEE is presented below along with an indication of whether there is a focus on children and identification of any gaps.

### Jamaica's National Development Plan – Vision 2030 Jamaica

At the national level, Vision 2030 Jamaica National Development Plan (NDP), Jamaica's first long-term strategic development plan, provides a comprehensive planning framework in which the economic, social, environmental and governance aspects of national development are integrated. It is implemented through a series of successive Medium-Term Socio-Economic Policy Frameworks (MTFs), each covering a three-year period. This planning and implementation framework presents a long-term strategic development pathway to sustainably address issues related to climate, energy and environment, as well as vulnerable groups such as children and youth, persons with disabilities and the elderly. This framework is implemented through national policies and development initiatives to effect change. Vision 2030 Jamaica also acts as the axis around which the efforts to achieve the SDGs are organized.

The preparation process for the development of MTF 2018-2021 (the 4th MTF) involved the engagement of youth and children to gain their perspectives on key issues to inform the country's development priorities over 2018–2021. Notably, some of the recommendations from the consultation focused on environmental sustainability where the youth recognized their role in, among other things:

- Contributing to anti-pollution initiatives and effective waste management.
- Holding state entities accountable to fulfil their mandate for environmental sustainability and the achievement of the national goal "Jamaica has a healthy natural environment".
- Engaging in primary and secondary level education campaigns on environmental sustainability.

### Policies Related to Climate Change and Disaster Risk Reduction

At the national level, the policy and strategic response to issues related to climate change is anchored primarily within the NDP and successive MTFs as well as the *Climate Change Policy Framework and Action Plan of Jamaica.* The focus of the climate change response under Vision 2030 Jamaica is to avoid or minimize the impact of disasters related to climate change by increasing coping capacity at various levels within the country. The NDP also recognizes that, while Jamaica's contribution to the global level of greenhouse gases is relatively small, the country will implement mitigation measures to reduce the country's carbon footprint mainly through energy conservation measures. The Climate Change Policy Framework and Action Plan presents the strategic framework for Jamaica's response to effectively address the impacts and challenges of climate change on all sectors, through appropriate measures for various climate change impacts. The strategies and actions target priority sectors, including water, tourism, agriculture, health, coastal resources and human settlements. Other sectors include transport, energy, forestry, fisheries, finance and waste management.

Jamaica has also prepared its 3rd National Communication to the UNFCCC, two Nationally Appropriate Mitigation Actions for the energy and water sectors and earlier in 2020 completed its

Climate Action Plan – Nationally Determined Contributions (NDC) to the UNFCCC – being the first Caribbean country to do so and one of 11 countries worldwide. The NDC identifies opportunities to deepen emission reductions in the energy sector as part of an increasingly comprehensive approach to decarbonizing this sector that covers both electricity generation and energy use. This represents opportunities for reducing ambient air pollution.

The draft *Comprehensive Disaster Risk Management Policy 2020 – 2040* is closely linked with the Climate Change Policy as it creates a framework for addressing climate-related hazards as well as other hazards and it includes a focus on the most vulnerable – the poor, children, the elderly and persons with disabilities.

*The Resettlement Strategy for Jamaica 2017* was developed to implement a planned approach for relocation of persons from vulnerable settlements, many of which are negatively impacted by natural hazards such as flooding, land slippage etc.

**Policies related to the Natural Environment**

Jamaica has crafted several policy responses to address environmental issues. *The National Policy on Environmental Management Systems, 2019* integrates environmental considerations into the economic and social decision-making processes while addressing risks and opportunities. Notably, the policy targets youth as part of its response to improve environmental performance in support of sustainable development and the development of a green economy. One of the prioritized actions of the policy is to foster changes in values and attitudes towards environmental issues among youth through the delivery of the school curriculum. This action supports the promotion of behaviour change regarding values and attitudes towards environmental issues.[25]

*The National Strategy and Action Plan for Biological Diversity in Jamaica 2016-2021* (NBSAP) presents the strategies and actions Jamaica will undertake to conserve biological diversity, sustainably use its components, and equitably share the benefits arising from the utilization of genetic resources.[26] The NBSAP serves as the principal instrument for implementing the Convention on Biological Diversity at the local level. One of the five goals of the policy and related targets directly references vulnerable groups but does not specifically recognize children. The goal, "Enhance the benefits to all from biodiversity and ecosystem services" is linked to the national target, which states "By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and wellbeing, are restored and safeguarded, taking into account the needs of women, and local communities and the poor and vulnerable." Additionally, the policy makes reference to youth directly as a target group for public awareness. However, children are not specified.

*The National Forest Policy, 2016* addresses the activities that are deemed crucial to the maintenance of a vibrant forestry sector and healthy forest ecosystems and watersheds to the benefit of all Jamaicans. This is supported by the National Forest Management and Conservation Plan 2016-2026 - the country's first plan for a climate-resilient forestry sector which also acts as the National Action Plan for the United Nations Forum on Forests. However, there is no specific focus on children.

*The National Policy and Strategy for the Environmentally Sound Management of Hazardous Wastes, 2016* sets out actions to ensure that hazardous wastes are managed in a manner which will protect human health and the environment. Despite the existence of the policy, disposal of hazardous wastes is hampered by lack of infrastructure or a hazardous waste disposal site.

[25] https://megjc.gov.jm/docs/policies/National_Policy_on_Environmental_Management_Systems.pdf
[26] National Strategy and Action Plan on Biological Diversity in Jamaica 2016-2021

None of the island's solid waste disposal sites are engineered or sufficiently equipped to treat or dispose of hazardous wastes in an environmentally sustainable manner. The policy recognizes the negative impacts of lead on children and the different impacts on men and women – but does not specifically formulate strategies that differentiate among different vulnerable groups.

The draft *National Housing Policy, 2019* makes special provisions for the needs of the poor, women and children in difficult circumstances, the physically challenged, the elderly and displaced and addresses squatter settlements, which are often located in flood-prone areas along rivers and the coast, placing residents at increased risk from natural hazards and climate change. The policy also addresses emergency housing needed in times of natural disasters. A National Squatter Management Policy and Implementation Plan is being developed.

The *National Land Policy, 1997* aims to ensure the sustainable, productive and equitable development, use and management of the country's natural resources. The policy includes support to classes of vulnerable persons by including specific provisions for low-cost and self-help housing and housing in rural areas, but does not specifically address children.

*Jamaica's National Water Sector Policy and Implementation Plan, 2019* recognizes that the water sector is susceptible to various risks related to climate change and climate variability, including changing rainfall levels and patterns, rising temperatures, and more intense hurricanes and droughts. The policy presents strategies and actions for rainwater harvesting and safe storage, for areas with inadequate rainfall or where groundwater and surface sources are not available; investment in hydrological and water quality monitoring and adequate data dissemination; watershed protection and reforestation of degraded water catchment areas; the establishment of emergency water supply systems; and inclusion of climate change issues in planning.

### Policies Related to Energy

Under Vision 2030 Jamaica, the country aims to provide a secure and sustainable energy supply for Jamaica. Specifically, efforts are centred on diversification of the energy supply, increasing use of renewable energy and exploring options for developing the country's indigenous energy sources. The plan also calls for Jamaica to become more efficient in its use of energy in all sectors of the economy and society through energy conservation and efficiency.

*The National Energy Policy 2009–2030* focuses on development of a modern, efficient, effectively governed energy sector which is based on diverse sources of fuels and renewable energy and sets the goal of Jamaica obtaining 20 per cent of its energy needs from renewable energy sources by 2030. Implementation of this policy is expected to result in several positive impacts including reducing dependence on imported fossil fuels, creating the enabling environment for increasing the percentage of renewables in the energy mix, promoting conservation and efficiency in the use of energy within all sectors of the society and advancement of the green economy - leading to a range of economic, social and environmental benefits. Across the region, Jamaica's *National Energy Policy 2009–2030* has been cited as a forward-looking and dynamic framework and is viewed as a model that policymakers can adopt and adapt. The policy is now in its sixth year of implementation.

Closely aligned with the *National Energy Policy* is Jamaica's Renewable Energy (RE) NAMA, the objective of which is to

promote the incorporation of RE- based generation in Jamaica by assisting in the creation of an enabling environment for the deployment of RE generation technologies such as solar, wind, hydro, and biomass in the country. The activities under the NAMA also provide support for the adoption of RE technologies such as photovoltaics in schools and communities both of which are far advanced.

### Policies Related to Health

The NDP gives focus to implementing the Health Promotion Approach and encouraging healthy lifestyles. It aims to strengthen and place emphasis on primary health care delivery while improving secondary and tertiary care. Several national strategies have been prioritized to deliver the health-related outcomes under the NDP. One of these strategies, "Provide and maintain an adequate health infrastructure to ensure efficient and cost-effective service delivery", prioritizes the creation of resilient, environmentally friendly and efficient physical infrastructure and facilities which factor in climate change considerations. Development in the country's health sector is also guided by the Vision for Health 2030 –Ten-year Strategic Plan which signals Jamaica's intentions and communicates its vision for the health of the country's population and its health care delivery system , and includes a focus on maternal and child health, control of communicable diseases and reducing the burden of chronic non-communicable diseases (NCDs). The plan recognizes climate change as part of the context which informs its formulation and implementation. In fact, this recognition informs one of the main priorities of the Ministry of Health and Wellness – to seek to develop resilient and climate-adapted health care facilities through the application of interventions aimed at reducing the vulnerability of the facilities and their impact on the environment.

### Policies related to Social Protection

Several vulnerable groups are identified in social development practice and programming in Jamaica. These include children, youth at risk, the elderly, persons with disabilities, persons impacted by HIV/AIDS, women, and families living in poverty. The National Development Plan (NDP) advocates for a focus on identifying and addressing the unique needs of children through the protection of their rights and promotion of adequate family, community and state support for their care and security. The strategic response also aims to address how different vulnerabilities such as natural disasters can be prevented or diffused.

The NDP advances an approach to social protection that ensures that all citizens are afforded a minimum standard of living that meets not only survival but growth and development needs. It proposes, among other things, the creation of an enabling environment for persons with disabilities as a national strategy. Jamaica's *Social Protection Strategy, 2014* aims to strengthen the country's existing social protection framework by streamlining the provision and allocation of social resources and other interventions by the Government. However, the strategy does not include much emphasis on shock responsive social protection. *The National Policy on Poverty* and *National Poverty Reduction Programme, 2017* provides a framework for national poverty reduction efforts to eradicate extreme poverty by 2022 and reduce the national prevalence of poverty to less than 10 per cent by 2030. One of the eight guiding principles adopted by the policy is the use of sustainable development approaches that recognize the importance of environmentally sustainable livelihoods. The policy specifically identifies the promotion of environmental stewardship, risk reduction associated with disasters and climate change adaptation.

*The Food and Nutrition Security Policy, 2013* addresses food availability (availability of nutritious food for all Jamaicans through local production and imports); food access (ability of all Jamaicans to obtain food); food use (selection by Jamaicans of a nutritious diet); and stability of food supply (ensuring that Jamaicans are not at risk of losing access to food due to external shocks and natural hazards). The policy recognizes the special needs of infants and young children – and their mothers – as it focuses on nutrition in schools and provides guidance on physical exercise and diet to support wellbeing of children in schools.

*The National Youth Policy, 2017* presents the guiding principles and framework for enhancing youth development in Jamaica. It sets out a mechanism to create an environment that will optimize the potential of young Jamaicans to adequately adapt to and cope with the many environmental and social challenges.

## Do sector policies and strategies relevant to children incorporate CEE issues?

The education sector is directly concerned with the personal and social development of children and is critical to ensuring that Jamaicans understand CEE issues and develop attitudes and behaviours that will help to move the country on the path to sustainable development. Interest in environmental education (EE) by Jamaican educators began in the 1980s and has been part of the education landscape since then. Environmental education encompasses CEE issues as it includes concepts related to climate change and linkages between energy sourcing, generation and use and their environmental impacts. The formal curricula for Jamaican schools incorporate EE in various ways as shown below.[27]

| | |
|---|---|
| **Early Childhood** | One of the learning outcomes is respect for self, others and the environment which includes "appreciate, care for and protect the environment"; curriculum looks at plants, weather, natural disasters and uses the outdoor physical environment to teach across all areas |
| **Grades 1-3** | Integrated curriculum using the theme of "Me and My Environment" – looks at what is in the environment and caring for the environment |
| **Primary: Grades 4-6** | EE found mainly in science and social studies with opportunities for children to do research and project work through interdisciplinary themes that address environmental issues |
| **Secondary** | EE topics included in science subjects, geography, history and social studies, and encourages action on energy and water conservation, and waste minimization |

The Ministry of Education, Youth and Information through its Curriculum and Professional Development Units continues to provide training and capacity building for teachers to be able to deliver on these concepts.

Despite this inclusion of EE within the formal curriculum, the emphasis – especially at the upper grade levels – is on teaching about the environment and there is minimal focus on critical thinking, problem solving and student action on

environmental issues associated with EE. However, many schools have environmental clubs which engage in environmental activities. Various non-governmental organizations (NGOs) have implemented EE programmes in schools, including the Jamaica Environment Trust's Schools Environment Programme, which incorporates best practices in infusing environmental issues and action across many disciplines. As of 2015, the programme had been delivered in over 350 Jamaican schools, with an estimated reach of over 300,000 students and 600 teachers during its lifetime.

One programme worth revisiting is the National Environmental Education Committee and the work undertaken by same over the period 1998 – 2005, which included a focus on environmental education both in the formal and non-formal sectors (see box below).

**CASE EXAMPLE:**
**The National Environmental Education Action Plan for Sustainable Development**

In 1998, Jamaica's National Environmental Education Committee (NEEC) developed a National Environmental Education Action Plan for Sustainable Development. This master plan envisioned "a wholesome future in which social, economic and environmental developments are pursued harmoniously," and outlined a comprehensive framework for environmental education for sustainable development (EESD) in curriculum development, teacher professional development, national public awareness, community learning resources and practices. Under this umbrella, the NEEC supported the incorporation of EESD within curricula and teacher training at the early childhood, primary and secondary levels as well as the implementation of the "whole school" approach to incorporating EESD into all aspects of learning and operations at schools and teacher education institutions.

An important programme that directly supports some of the most vulnerable Jamaicans, including children, is the Programme of Advancement Through Health and Education (PATH).

Administered by the Ministry of Labour and Social Security, PATH is a cash transfer programme and an intervention to address immediate poverty alleviation, and more significantly, longer-term social gains in health and education. The programme provides assistance to families with young children, school-aged children, the elderly and persons with disabilities among others[28]. While this programme is not directly tied to CEE issues, it is a prime candidate to be part of the country's shock responsive social protection strategies that can provide assistance after natural disasters and other disasters such as the COVID-19 pandemic. In general, national strategies that focus on children do not explicitly address the impacts of CEE issues on children and youth. In some cases, the impact of CEE issues is considered generally. For example, national strategies for both education and health highlight the need to build climate resilient facilities to guard against the impacts of climate change.

### Policies Related to Education

The NDP aims to develop an education and training system that produces well rounded and qualified individuals who are able to function as creative and productive individuals in all spheres of the Jamaican society and be competitive in a global context. Focus is placed on improving the capacity to support the holistic development of the child and provide opportunities for the education and training of the under-trained population, particularly unattached youths. One of the prioritized national strategies in the NDP is to "Ensure a physical environment in all schools that is safe and conducive to learning at all levels of the school system" where emphasis is placed on the development

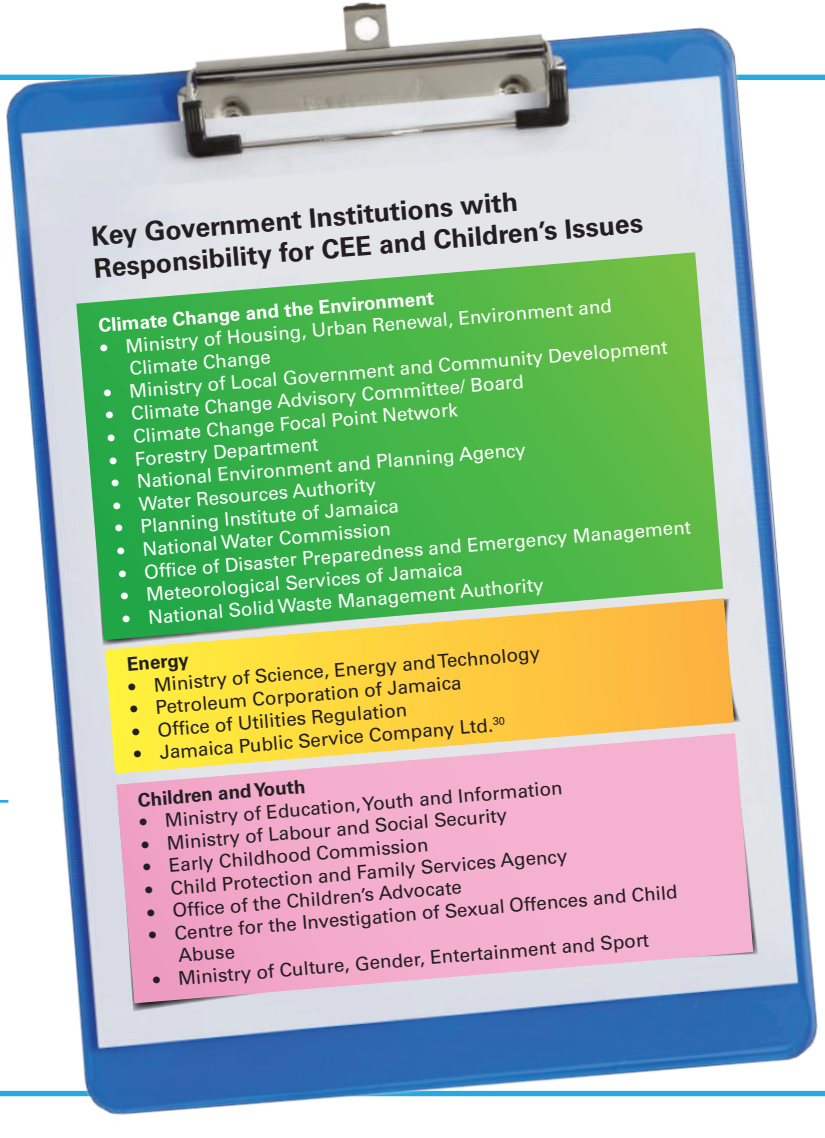
[28] Planning Institute of Jamaica. Jamaica Survey of Living Conditions 2017.

and implementation of a regulatory system for the construction and maintenance of school plants and creating school environments that are, among other things, physically secure and designed to use energy efficiently, and adhere to safety standards on ventilation, ambient air and indoor air quality as well as physical accessibility especially for persons with disabilities.

The National Education Strategic Plan (NESP) 2011–2020 lays out strategies to improve the effectiveness of the education sector and identifies early childhood education as a critical focus area to set the foundation for the achievement of education outcomes. The plan aims to ensure equity in access to high quality education by all children, with specific mention of children with disabilities.

## Main Government Institutions involved in CEE and Children's Issues

The key government institutions with responsibility for climate change, environment, energy, children and youth policy and programming are:



## Do children benefit from investments and programmes on CEE?

The national programmes and projects being implemented to increase climate resilience, improve the health of ecosystems, reduce land degradation and provide affordable clean energy will benefit all Jamaicans – and thus also will benefit the most vulnerable, including children and their families.

Jamaica has been implementing a number of CEE initiatives, including many funded by international development partners, that focus on building climate resilience, climate information and modelling, energy efficiency and renewable energy, disaster risk reduction and protection of ecosystems . Indicative examples of key CEE projects include[31]:

- United Nations Programme on Reducing Emissions from Deforestation and Forest Degradation (UN-REDD) and other regional projects funded by the European Union and the Caribbean Regional Strategic Programme for Climate Resilience to build regional capacity in energy and environmental management in the private sector and mainstream climate risk resilience.
- NEPA/GEF/UNEP Integrated Water, Land and Ecosystem Management in Caribbean Small Island Developing States (IWECO) project to contribute to the conservation of ecosystems that are of global significance and the development of sustainable livelihoods.
- GOJ/Adaptation Fund (AF) Programme- Enhancing the Resilience of the Agriculture Sector and Coastal Areas.
- Pilot Programme for Climate Resilience (PPCR) projects that focus on climate resilience in different sectors through climate-smart adaptation, ecosystem protection, livelihood diversification and implementation of best practices.
- The Jamaica Disaster Vulnerability Reduction Project implemented through the Jamaica Social Investment Fund.
- GOJ/GEF/IDB Integrated Management of the Yallahs River and Hope River Watersheds (Yallahs-Hope Project) to reduce environmental pressure on these eastern watersheds.

Many of these projects address the needs of underserved communities and the most vulnerable citizens and will directly support children's wellbeing; for example, by improving schools to ensure they are resilient to hazards, enhancing the country's emergency response capability after hazard events and providing post-disaster social safety net support to affected households and individuals.

Development partners such as UNICEF and UNESCO continue to support the Government and other stakeholders to implement projects that contribute to the overall wellbeing of children. They also play a key role in undertaking studies and research that support programming activities specifically for children.

Several NGOs, community-based organizations (CBOs), private sector foundations and the private sector generally are also implementing CEE initiatives as well as initiatives that support the development of children. There are a number of environmental NGOs in Jamaica, some of which have legal responsibilities for managing protected areas and forest reserves in co-management arrangements with the Government (e.g. Jamaica Conservation and Development Trust and Caribbean Coastal Area Management Foundation). Environmental NGOs engage in a range of activities such as advocacy, awareness raising, endangered species monitoring, community cleanups etc. NGOs also implement environmental education programmes in schools – at both the primary and secondary level (e.g. Jamaica Environmental Trust).

[31] TFrom Jamaica State of the Environment 2017, Economic and Social Survey of Jamaica 2018 – this is not an exhaustive list

Increasingly, environmental NGOs are focusing on issues that are broader than the environment and are engaged in more holistic development issues. Similarly, an increasing diversity of NGOs and CBOs are engaging in projects that include CEE issues and the impacts on children as part of a larger focus. One such example is the Environmental Foundation of Jamaica.

## CASE EXAMPLE:
### Environmental Foundation of Jamaica

The Environmental Foundation of Jamaica (EFJ) was created in 1993 out of a creative "debt-for-nature swap" between the Governments of the United States and Jamaica to promote and implement activities which focus on conserving and managing the natural resources and environment of Jamaica and positively impacting child development.

EFJ has been providing funding to non-governmental and community-based organizations and academic institutions to implement projects in partnership with key stakeholders throughout island. Since 1993, the EFJ has funded 1,321 projects with a total investment of over US$50 million. These projects have focused on a range of issues and activities, including the following:

- Education about climate change – for the general public and within schools and teachers' colleges.
- Making schools accessible for children with disabilities.
- Repairing children's homes after natural disasters – and making these homes more resilient to future hazardous events.
- Hosting sporting events for children with disabilities (e.g. the CVSS Summer Games).
- Training for principals in early childhood education centres in fire safety, disaster and emergency preparedness and health and sanitation.
- Psychosocial interventions for children in state homes after disasters.

Another example is Do Good Jamaica[32], which seeks to encourage organizations and individuals to work together on activities to improve the lives of Jamaicans. Its major project, Crayons Count, is a campaign to support early childhood education in Jamaica. In the pilot project in Treasure Beach, Do Good Jamaica has partnered with the Breds Treasure Beach Foundation to provide additional support to 13 early childhood schools in the Greater Treasure Beach area to improve the overall quality of early childhood education through learning tools, teacher workshops and infrastructure repairs/ upgrades.

The private sector also invests in child-focused initiatives. Examples include the Digicel Foundation and the National Commercial Bank (NCB) Foundation. The Digicel Foundation[33] has provided funding of US$40 million to implement over 1,000 projects to support education, community development and special needs. As of September 2020, over 100,000 children have been impacted across the 231 schools supported by Digicel Foundation. Through partnership with the United States Agency for International Development (USAID), literacy and numeracy tools and Library Corners are now in 104 primary schools. Additionally, 250 teachers and 7,500 parents have been trained to creatively support their students and children throughout the learning process. Similarly, the NCB Foundation[34] supports projects in education (through scholarships and grants), community development, youth leadership and entrepreneurship.

[32] https://dogoodjamaica.org/
[33] http://www.digicelfoundation.org/jamaica/en/home/about/patron-s-message/mission-statement.html
[34] https://www.myncb.com/Corporate-Social-Responsibility


8

# CEE POLICY RECOMMENDATIONS TO ADVANCE THE DEVELOPMENT OF CHILDREN

***It is said that children are the least responsible for climate change, yet they will bear the greatest burden of its impact.***

The Government and people of Jamaica are becoming increasingly aware of the interlinkages among climate change adaptation, environmental protection, disaster risk reduction, safe and secure energy sources, and their contributions to healthy people and communities and sustainable livelihoods, as evidenced in Vision 2030 Jamaica - National Development Plan and other national and sectoral policies . There is also acknowledgment that extra effort must be placed on ensuring that the most vulnerable in our society – which include the country's children – are provided opportunities to enjoy the fruits of national development so that Jamaica can truly "leave no one behind".

The recommendations contained in this section are designed to help identify: (i) knowledge and data gaps and issues for further research; (ii) strategic entry points for mainstreaming CEE issues into national policies and plans; (iii) strategic partnerships; (iv) opportunities for leveraging climate finance and other new and innovative financing tools for improved results for children; (v) UNICEF's comparative advantage to bring in potential joint proposals and partnerships; and (vi) recommendations for building capacity on climate, energy and environment issues with UNICEF and more broadly across the Government of Jamaica (GOJ) to support inclusion of CEE issues especially as it relates to the impacts on children. Ultimately, these recommendations seek to put children at the heart of Jamaica's development agenda and to ensure that they are protected from the risks of climate change and environmental degradation, while enhancing their potential to achieve success and become leaders of the nation.


**Infuse the linkages between CEE and children's needs in the National Development Plan and future Medium-Term Socio-Economic Policy Frameworks**

Any reviews of Vision 2030 Jamaica should make attempts to integrate the linkages between CEE and the needs of children. Early reports indicate that COVID-19 and its associated impacts may lend itself to a review of the National Development Plan and its associated implementation framework. As such, consideration should be made for the better infusion and alignment of children in CEE. Essentially, there are a few areas in the NDP that these linkages among climate change, energy, environment and children could be more explicitly addressed:

- National Outcome #1, which focuses on population and health and includes subsections for children and youth.
- National Outcome #2, which focuses on education.
- National Outcome #3, which focuses on social protection and poverty.
- National Outcome #9, which focuses on water and wastewater.
- National Outcome #13, which focuses on environment.
- National Outcome #14, which focuses on climate change.
- National Outcome #15, which focuses on rural and urban development, including access to safe and affordable shelter.


**Scale up and mainstream children's needs within all CEE policies, programmes and plans and place children's rights at heart of climate and environmental policy**

While children will generally benefit from initiatives that improve

the state of the environment, they are at greater risk from natural hazards, environmental pollution and food insecurity than adults, and this calls for greater recognition of the specific impacts and responses that need to be tailored specially for them. Furthermore, children of lower-income families and those with disabilities have additional vulnerabilities, for which specific interventions must be designed. All child-focused interventions should be based on increased research on the impacts borne by children. This will likely mean that additional stakeholders from the social sectors should be involved in revising these policies so that areas related to, for example, formal and non-formal education as well as actions focusing on health, including WASH, can be thoroughly examined. In the review of national policies related to this area, such as the Climate Change Policy and Action Plan, attempts should be made for greater consideration of children's needs and how climate change affects children differently from adults. This would allow for the inclusion of strategies to address the issues and to ensure more strategic budgeting and programming around the issues of CEE and children.

With areas such as education and health care, emphasis should be placed on ensuring that new schools or those being retrofitted and refurbished are done to standards that are better able to withstand natural disasters. The Safe Schools Programme being implemented by the Government in collaboration with partners such as the Caribbean Disaster Emergency Management Agency is ensuring that activities such as these become normal practice. This must also hold true for health facilities.

Additionally, policies focusing on social protection such as the National Social Protection Strategy, as well as existing initiatives such as PATH, should focus any amendments or revisions on ensuring that shock responsive strategies and approaches are incorporated, thereby enabling social safety nets to be able to respond faster to disasters in a more effective and efficient manner.

One key way of ensuring that children's needs are mainstreamed in the CEE framework is to request that all policies tabled at Cabinet for approval are assessed to determine how children's needs are addressed in them. This approach would be consistent with how policies are assessed to ensure that gender and environmental considerations are included in policy development.


**Scale up, integrate and mainstream CEE issues within all child-focused policies, programmes and plans**

Jamaica's climate change and disaster risk management policies mandate that climate, disaster and environmental issues be incorporated within all sectoral policies – including those that are closely focussed on children, health and social protection, including the country's national policies for these areas.

Therefore, this approach will ultimately lead to increased integration and mainstreaming of children's issues across CEE programmes and projects. However, institutions will need assistance in the form of guidelines and checklists to ensure that integration of CCE issues is done in a meaningful way that will lead to increased climate resilience. Organizations such as UNICEF Jamaica can be approached to provide technical support in these areas.

Another area that should be considered is the use of budget markers in the national budget for CEE issues and children that allow for easy identification of the level of resources that are being allocated to expenditures that address these areas.


**Increase collaboration among government agencies and between government and non-government actors**

Increased integration of issues from different arenas requires the development of mechanisms to promote the design of policies – and their implementation – by a wider range of ministries, departments and agencies. At the same time, NGOs and CBOs as well as private sector companies should be encouraged to work with the Government in public-private partnerships on designing and implementing projects and programmes. Additionally, Government can create an enabling environment for these actors to act in areas where they are better placed to interact with their constituents in local communities etc. An example of this type of partnership is the designation of certain NGOs or organizations to manage certain protected areas on behalf of the Government. For example, the Jamaica Conservation and Development Trust manages the Blue and John Crow Mountain National Park. Other examples include United Way of Jamaica which partners with the private sector to provide funding for a range of development projects that include education. The Government can also partner with various private sector foundations to provide support for initiatives that focus on CEE and the impacts on children. One initiative worth mentioning with respect to energy and educational institutions is that implemented by the Jamaica Public Service under its Corporate Social Responsibility programme which focuses on energy education; science, energy and technology innovation; and energy conservation, environment and energy efficiency awareness in partnership with educational institutions.


**Improve collection and sharing of data on CEE and children and increase research on the special needs of children as they relate to CEE issues**

Data on environmental exposures and environmentally-related diseases in children are important for analysing trends and setting priorities for prevention and control. In most countries there are no registers of environmental conditions and exposures or of environmentally determined diseases in children or child disabilities. Adequate data collection systems are fundamental to ensure that policies and programmes are able to capture how children are impacted by climate change and environmental degradation.

Recognizing that good policies and strategies are based on good data, Jamaica is focusing on increasing its statistical capacity with much of this effort being fuelled by the country's thrust towards implementing the Sustainable Development Goals. This requires capacity development and additional resources for data collection and development of standards for collection, storage, access and sharing by different agencies. The second requirement is to support analysis of these data, more research and additional involvement of academia in identifying trends and using research to support policy development. The data will also be critical for the identification of resource needs and budget allocation at the national level.


## #6 Recommendation

**Increase engagement of children and youth in CEE action**

Although children and youth are vulnerable when disasters strike, they also have incredible potential to be agents of change. Often, these young people have their own perspective on how to reduce the effects of climate change and disasters on their communities and can help to put their ideas on how to solve these problems into practice– and in many places they already are. It is important to listen to their views and perspectives. Their involvement is a crucial step to ensure that actions to reduce risks are effective and sustainable. This will require providing channels for youth to share their ideas in a meaningful way so that they can be put into action. One such forum was the 3rd Youth Climate Change Conference "Our Climate, our Voice, Our Change" held in Jamaica in 2017, which involved the participation of 600 youth from eight Caribbean countries and Japan[35]. Similar fora can be organized at the national and local levels, for example youth advisory councils.

Similar to this is the UNFCCC Conference of Parties (COP) youth consultation process which focuses on engaging youth in climate conversations towards a more resilient Jamaica. These sessions have allowed youth to be recognized as key stakeholders in formal climate change conversations, and have provided opportunities for youth in the implementation of the country's NDC as well as strengthened research, activism, and innovation.

Another example was in the development of the 3rd MTF under Vision 2030 Jamaica in which there were specific youth meetings to ascertain their views on development in general and the "Jamaica they want" by 2030. One of the areas that the youth stressed was the need for improvements in environmental sustainability and they

[35] UNDP: Youth Climate Change Conference 2017 - Final Report

went further to recommend policy priorities to address this development challenge, identifying what youth should do and what Government should do:

| What Youth Should Do | What Government Should Do |
|---|---|
| • Contribute to anti-pollution initiatives and effective waste management | • Analyze urban planning strategies |
| • Hold state entities accountable to fulfil their mandates | • Promote crop diversity and produce more wealth-yielding crops |
| • Engage in a primary and secondary education campaign on environmental sustainability | • Review legislation on land and property rights |
| | • Promote environmentally friendly farming practices |

*From MTF, 2018 – 2021, PIOJ*


**Create interventions to enable children to become resilient to the risks they face**

It is critical that children and youth understand the environment around them, how their actions affect the environment and how that environment affects them. Jamaicans are familiar with climate-related hazards – the rains, floods, hurricanes and drought and how they affect their lives. By making the linkages between these events and the underlying CEE issues, children can understand their risks and potential actions. While the current curricula at the primary and secondary levels include CEE issues, it is equally important that the non-formal education sector as well as youth clubs and environmental clubs etc. engage in activities that will enhance knowledge and practical application of CEE issues. For example, emphasis should be placed on ensuring that children and youth have access to information related on how to prepare for and cope with natural disasters, so that they can be active participants along with adults in preparation and recovery activities. Understanding the impacts of natural disasters and knowing beforehand what to expect can play a key role in how children and youth respond during and after a natural disaster.


**Mobilize resources at the national level and from other innovative financing mechanisms that target initiatives related to CEE and children**

Implementing the recommendations contained in this report requires the scaling up of resources in the budgets of ministries and agencies working in the areas of climate change and environment so that focus can be placed on child- and youth-focused measures. Mobilizing resources from development partners such as UNICEF, UNESCO and UNDP among others would be important as well as ensuring that proposals made to regional and international funding mechanisms include activities that support child- and youth-focused interventions.

Allocations from the national budget will need to be made to ensure that implementation of policies can accommodate the additional focus of addressing the specific needs of children

within the realm of CEE. Similarly, where the programmatic focus of international development partners is on CEE, consideration can be given to allocate resources for child- and youth-centred interventions. Budget markers can be employed in the national budget to provide quick information on policies, programmes and activities that align CEE and children.

There should be consideration of the creation of a trust fund for climate change, environmental degradation and the impacts on children. Such a trust fund will help to support financing for critical programmes and projects to reduce the impacts of these issues on children. The trust fund could be designed to draw resources from flexible and innovative financing mechanisms such as blended financing arrangements, debt-for-nature swaps or even crowdfunding and funds such as the Green Climate Fund. UNICEF and other UN organizations such as UNDP do have a comparative advantage in mobilizing resources, preparing joint proposals for funding with a range of development partners and engaging in strategic partnerships for resource mobilization for development.


**Increase awareness of the linkages between child rights and climate change and environmental degradation**

Climate change and environmental management agencies should place greater emphasis on increasing the awareness of the many links between a safe and healthy environment and a changing climate on the one hand, and children's rights on the other. All of this could be done within the context of the UN Convention on the Rights of the Child which provides a clear normative framework for realizing children's rights to a healthy environment. Increasing awareness will also ensure that consideration of the treaty becomes front and center of environmental and climate-related policies, laws and action. Strategies to address this issue could also be incorporated in the NDP as well as the policies dealing with climate change such as the National Climate Change Policy and Action Plan and NAMAs that are developed such as the one developed for the water sector.


**Strengthen the engagement of development partners in CEE initiatives that target children**

The information contained in this report highlights the strategic role that development partners can play in ensuring that CEE issues are mainstreamed in policies and initiatives that target children. Development partners that focus their regional and country programmes on CEE can be encouraged to take into account activities that may address the impacts of CEE on children. Development partners such as UNICEF, UNDP and UNEP can engage with stakeholders involved in climate, energy and environment to discuss ways in which strategic plans, country strategies and progammes can be designed to address how CEE impacts children. UNICEF and other development partners can also create synergies, opportunities and strategic partnerships with national stakeholders in the public and private sectors and with civil society organizations to address the linkages between CEE and children with a view towards fostering more effective programme delivery and outcomes.

# CASE STUDY:
## CEE Issues and Challenges and the Impacts on Persons with Disabilities

The Convention on the Rights of Persons with Disabilities (PWDs) reaffirms that all PWDs are entitled to enjoy all human rights and fundamental freedoms on an equal basis with others. This case study has been developed within the context of the Convention and seeks to provide a listing of policy recommendations and actions related to PWDs for inclusive environmental management, disaster risk management and climate change response and resilience in line with the Convention. The case study also will act as a catalyst to engage key stakeholders and PWDs to find solutions that address unequal access to natural resources and the right to a healthy environment.

Approximately 10 to 15 per cent of the world's population are persons with disabilities. This population includes those with a wide array of mobility, sensory (visual, hearing), developmental, intellectual, and emotional impairments, as well as persons with chronic health conditions. Globally, per¬sons with disabilities tend to have poorer health status, lower levels of educational achievement, limited access to economic oppor¬tunities including employment and experience higher levels of pov¬erty than persons without disabilities (UNICEF 2018).

In Jamaica, about 3.3 per cent of individuals – or about 90,000 persons – report having a disability (JSLC, 2017). Children account for about 21 per cent (18,900) of Jamaica's disabled population (UNICEF, 2018). Among PWDs, the most common type of disability is physical, accounting for 34.5 per cent of PWDs, with intellectual disabilities accounting for 29.2 per cent, and learning disabilities 26.9 per cent. Within physical disabilities, impaired sight accounts for 21.3 per cent and impaired speech 20.0 per cent.

One in seven people in the world has some form of disability, but, like women, indigenous communities and other marginalized groups, they are often left out of committees and other decision-making groups that are established to focus on areas such as environmental sustainability, disaster risk reduction and climate change adaptation – even though they are uniquely affected by climate change and environmental degradation.

Persons with disabilities are a heterogeneous group with different requirements. Best practices that focus on disability inclusion that are relevant and progressive may help to reduce and eliminate many of the negative impacts of environmental degradation, natural disasters and climate change on these persons.

The vulnerability of PWDs has been highlighted within international climate change agreements, including the 2010 Cancun Agreements, the 2013 Warsaw International Mechanism for Loss and Damage and the 2015 Paris Agreement on Climate Change. This focus on PWDs has been partially due to the identified higher mortality rates among persons with disabilities than others during natural disasters and extreme weather events (Gaskin et

# CASE STUDY:
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al. 2017). As such, countries around the world, through their national development plans and social policy frameworks, are recognizing the importance of taking disability issues into account. The Sustainable Development Goals also provide an overarching framework to guide countries on how to place greater focus on disability issues and adopt a disability lens in policy development across all developmental spheres. There is evidence from past natural disasters globally that shows that people with disabilities have a lower survival rate than those without disabilities and may even be neglected or left to die in disaster- and climate-related situations.

The UN Convention on the Rights of Persons with Disabilities continues to play a key role in encouraging and supporting PWDs to view themselves as deserving of human rights protection including protection against risks posed by environmental degradation and climate change. PWDs recognize and appreciate that full inclusion in climate resilience will be a complex undertaking due to their own personal, social and economic circumstances. Notwithstanding, it is also clear that if governments, development partners and other key stakeholders fail to fully engage PWDs in climate change adaptation and environmental sustainability efforts they are overlooking their potential as knowledgeable and powerful agents of change. With the unique insights about their own situation and barriers, PWDs have important roles to play in advancing environmental sustainability and climate change adaptation ensuring to leave no one behind.


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### Impacts of Environmental Degradation and Climate Change on Persons with Disabilities

While climate change affects everyone and is considered to be one of the most pervasive economic and social issues of our time, PWDs generally experience these impacts differently and more severely than other persons. During storms, floods and extreme heat, climate disruptions are harder for persons with disabilities at virtually all levels compared to those without disabilities.

For example, PWDs are often among those most adversely affected in an emergency, sustaining disproportionately higher rates of morbidity and mortality, and are among those least able to access emergency support. While it is true that PWDs have been living with the consequences of climate change just as long as the rest of the population, they are more vulnerable to both rapid-onset and slow-onset climate events and environmental degradation since many of them already live with compromised health conditions and limited mobility.

Sudden-onset natural disasters such as tropical cyclones and slow-onset events such as drought can seriously affect the access of persons with disabilities to food and nutrition, safe drinking water and sanitation, health care services and medicines, education and training, adequate housing and shelter and access to decent work. Additionally, many people with disabilities experience high rates of social risk factors that contribute to poor health, such as poverty, unemployment, and lower education.

Many PWDs have multiple disabilities and may experience the impacts of natural hazards and climate change differently depending on their race, gender, culture, language (including sign language for deaf people), geography and other factors. In general, however, climate change-related health impacts may affect PWDs more than others and they usually are at greater risk of death, injury and additional impairments. Some of the impacts of environmental degradation, natural disasters, and climate change on PWDs :

- Compromised health makes persons with disabilities more vulnerable to climate events, ecosystem service loss and infectious diseases such as COVID-19. Thus, in a climate-related event such as a tropical cyclone, PWDs may be more vulnerable to contracting infectious diseases because of other underlying conditions, which often do not allow them to move and to independently access water and sanitation services and other forms of medical care or medicines during times of emergency.

- During climate-related events such as hurricanes and floods, PWDs with physical disabilities or those with limited mobility or impaired senses might have difficulty evacuating and may need extra help from authorities.

- Persons with impaired senses such as those who are deaf or blind may not have equal access to warning alerts, and persons with mobility issues are not always able to access shelters, especially if there are no ramps.

- Many persons with disabilities rely on assistive devices that enhance physical functions, for example by enabling them to hear or see better and achieve mobility. During a disaster, assistive devices can be lost or become damaged, leaving persons with disabilities without adaptive assistance.

# CASE STUDY:
## CEE Issues and Challenges and the Impacts on Persons with Disabilities

- During emergencies, PWDs, in particular women and girls, are at heightened risk of violence, including sexual violence, exploitation or abuse, = especially in emergency shelters.
- Climate-related events can have a direct effect on injuries and increase public health concerns such as malnutrition, non-communicable diseases, respiratory conditions and infectious diseases and can also disrupt social protection systems and essential health care services, which can have grave consequences for PWDs.
- Extreme heat harms persons with physical disabilities, especially persons with spinal cord disabilities; for example, those born with spina bifida who are unable to perspire will need cooling centers as temperatures increase due to climate change. In Jamaica, there is clear evidence that temperatures are rising and climate change policy and other policies related to PWDs must take into account medical issues and challenges such as these.
- PWDs often face barriers in accessing health care services and in receiving timely public health or emergency information in an accessible format before, during and after a natural disaster; this may be more pronounced in rural areas.


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### Policy Recommendations – Persons with Disabilities

The adverse impacts of environmental degradation and climate change on PWDs call for innovative policies and strategies that take into account their specific needs and requirements and ensure their active participation in environmental policy development, comprehensive disaster risk management, and climate change adaptation planning. Some policy recommendations are presented as follows:

1. There is need to adopt a disability lens in climate change adaptation planning. In the revision of the National Climate Change Policy and Action Plan that is currently being undertaken, emphasis should be given to adopting this disability lens and it should be ensured that adaptation strategies being proposed and/or developed place emphasis on PWDs and disability issues in general. It is clear that one of the main objectives of the policy, "To mainstream climate change considerations into national policies and all types and levels of development planning and to build the country's capacity to develop and implement climate change adaptation and mitigation activities", could be structured to ensure that PWDs are taken into account in a more fulsome manner.

2. Full inclusion of PWDs in decision-making related to disasters and climate change must be considered, for example, by providing them with spaces on committees such as the National Disaster Committee chaired by the Prime Minister or the Climate Change Advisory Committee. This would be progressive and ideally foster disability inclusion. Globally, actions such as these are proving to be powerful especially within the context of human rights approaches. PWDs should also be represented in land use and natural resource planning committees or boards. Participation of PWDs in these types of committees would allow for tailored action that addresses the specific concerns of PWDs related to the adverse impacts of climate change and environmental degradation. A human rights-based approach empowers PWDs as agents of change to address the harmful impacts of climate change in their day-to-day lives and also plays a key role in broadening and enriching the agendas of these developmental issues.

3. There is need to improve access to information on the environment, climate change and natural disasters for PWDs who most likely have limited access to knowledge, resources and services to effectively respond to disasters. All information should be compiled in forms that can be assessed by PWDs including braille, for example. When persons are more knowledgeable, they are able to make more informed decisions and have a better chance to cope with and survive a natural disaster. This therefore calls for PWDs to be in included more in committees that are part of the educational system.

4. Disaster alert communications such as those produced by the Office of Disaster Preparedness and Emergency Management must effectively use communication strategies and technologies that will alert persons with hearing and visual impairments whose needs within evacuation planning must also be taken into account.

5. Policies and strategies related to infrastructure for shelters and shelter management frameworks must be updated to take PWDs into account. Ramps for shelters, accessible bathrooms and feasible evacuation transportation are essential for mobility-impaired persons, including those using respirators.

# CASE STUDY:
## CEE Issues and Challenges and the Impacts on Persons with Disabilities

6. Collaboration among a range of stakeholders in the public and private sectors as well as with civil society organizations on initiatives for PWDs is key. Responses will require large-scale initiatives and strong collaboration between stakeholders across the climate, environment, justice and disability spectrum. It is therefore important to ensure that those persons addressing climate change and disability issues have their technical capacity built in the respective areas and also appreciate the link with social justice.

7. The training for first responders such as those on rescue teams, the police, local authorities, shelter managers, fire brigades and army personnel must take into account addressing the needs of PWDs in disasters, including those with physical disabilities as well as those with impaired senses.

8. Care packages and other relief items provided to communities after natural disasters should take the specific needs of PWDs into account. For example, where assistive devices such as hearing aids are lost or become damaged, provision should be made for these devices to be part of distributed relief materials even if they are unable to provide full functionality.

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UNICEF Jamaica
60 Knutsford Bouelvard
Kingston 5

Email: kingston@unicef.org
Website: unicef.org/jamaica
Facebook, Twitter and Instagram:
@unicefjamaica