

**REAL CHOICES,
REAL LIVES**

CLIMATE CHANGE AND GIRLS' EDUCATION: BARRIERS, GENDER NORMS AND PATHWAYS TO RESILIENCE

Technical Report



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About Plan International

We strive to advance children's rights and equality for girls all over the world. We recognise the power and potential of every single child. But this is often suppressed by poverty, violence, exclusion and discrimination. And it's girls who are most affected. As an independent development and humanitarian organisation, we work alongside children, young people, our supporters and partners to tackle the root causes of the challenges facing girls and all vulnerable children. We support children's rights from birth until they reach adulthood, and enable children to prepare for and respond to crises and adversity. We drive changes in practice and policy at local, national and global levels using our reach, experience and knowledge. For over 80 years we have been building powerful partnerships for children, and we are active in over 75 countries.

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CONTENTS

Acronyms	2
Glossary.....	3
01 Introduction	5
1.1 About <i>Real Choices, Real Lives</i>	6
1.2 Scope and aim of this report.....	7
1.3 Research questions	7
1.4 Plan International's work on climate change	8
02 Methodology.....	10
2.1 Conceptual framework	10
2.2 Research phases.....	12
2.3 Ethical commitments	15
2.4 Limitations to methodology.....	15
03 Literature review.....	17
3.1 Key concepts in climate change	17
3.2 Relationship between climate change and education.....	21
3.3 Country contexts: Climate change and education in RCRL countries.....	26
3.4 Adaptation and resilience across RCRL cohort countries	42
3.5 Understanding the evidence in the context of the study	43
04 Findings	45
4.1 Impact of climate change on girls and their education	46
4.2 Knowledge as foundational to girls' climate resilience	60
05 Conclusion.....	81
06 Recommendations	83
Annexes.....	86
Annex 1: RCRL girls in 2022/2023	86
Annex 2: Data collection overview	89
Annex 3: Household Inventory Tool	90
Annex 4: Ethics and safeguarding considerations	93
Annex 5: Synthesis of adaptation options	94
Annex 6: Vignette activity	95

ACRONYMS

BNAPA	Benin National Adaptation Plan of Action
CEFMU	Child, early and forced marriage and unions
CCC	Climate Change Commission (the Philippines)
CCRI	Children's Climate Risk Index (UNICEF)
FGD	Focus group discussion
GECCI	Girls' Education and Climate Challenges Index (Malala Fund)
GBV	Gender-based violence
GDP	Gross domestic product
INGO	International non-governmental organisation
IPCC	Intergovernmental Panel on Climate Change
NAP	National Adaptation Plan
NDC	Nationally Determined Contribution
NDS	National development strategy
ND-GAIN	Notre Dame Global Adaptation Initiative
RCRL	Real Choices, Real Lives
SEA	Southeast Asia
SGBV	Sexual and gender-based violence
SRH	Sexual and reproductive health
UN	United Nations
UNICEF	United Nations Children's Fund
WASH	Water, sanitation and hygiene
WFP	World Food Programme

GLOSSARY

Agency	The capacity of an individual to make independent decisions about one's life, and to seek to enact those decisions in ways that shape that person's life trajectory and, in this way, also shape that person's environment. ¹
Climate change	A change of climate, which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods. ² It can alter precipitation patterns and intensities around the globe and increase climate-related disaster frequencies and intensities. This includes floods, droughts, landslides, wildfires, tropical storms and extreme temperatures. ³
Climate change adaptation	The process of adjustment to actual or expected climate change and its effects. ⁴
Disaster risk reduction	Disaster risk reduction is aimed at preventing new risk, reducing existing disaster risk and managing residual risk, all of which contribute to strengthening resilience and therefore to the achievement of sustainable development. ⁵
Extreme weather event	An event that is rare for a particular place and time of year. By definition, the characteristics of what is called extreme weather may vary from place to place in an absolute sense. When a pattern of extreme weather persists for some time, such as a season, it may be classed as an extreme climate event. ⁶
Food security	A state that prevails when people have secure access to sufficient amounts of safe and nutritious food for normal growth, development and an active and healthy life. ⁷
Global warming	The gradual increase, observed or projected, in global surface temperature. ⁸
Resilience	The capacity of children, adolescents, youth, caregivers, communities and institutions to overcome shocks and stresses that undermine the full and equal enjoyment of human rights. ⁹
Resilience capacities	Resilience capacities can be grouped into four categories: <ul style="list-style-type: none"> • Anticipatory capacity – the ability to anticipate and reduce impact of shocks and stresses through preparedness before a crisis. • Absorptive capacity – the ability to absorb, cope with and buffer the impact of shocks and stresses during and after a crisis. • Adaptive capacity – the ability to adapt to multiple, long-term and future risks by learning from experience and adjusting responses before and after crises. • Transformative capacity – the ability to make intentional and fundamental change to mitigate or reduce underlying causes of risks and vulnerabilities.¹⁰

¹ Lee-Koo, K. (2020) 'Decolonising Childhood in International Relations', in J.M. Beier (ed.) *Discovering Childhood in International Relations*. New York: Palgrave Macmillan, pp. 31-32.

² UNFCCC (1992) 'United Nations Framework Convention on Climate Change'. Available at: https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf.

³ Plan International (2021) 'Climate Change, Young Women, and Girls'. Available at: https://plan-international.org/uploads/2021/12/climate_change_young_women_girls_plan_and_sei_final.pdf.

⁴ UNFCCC (2014) 'Annex II: Glossary'. Available at: https://www.ipcc.ch/site/assets/uploads/2019/01/SYRAR5-Glossary_en.pdf.

⁵ UNDRR (2023) 'Disaster Risk Reduction'. Available at: <https://www.undrr.org/terminology/disaster-risk-reduction>.

⁶ Ibid.

⁷ Ibid.

⁸ Ibid.

⁹ Plan International (2020) 'Pathways to Resilience Framework: Plan International's Resilience Framework'. Available at: <https://plan-international.org/publications/pathways-to-resilience/>.

¹⁰ Plan International (2020) 'Pathways to Resilience Framework: Plan International's Resilience Framework'.

Sustainable livelihoods	Sustainable livelihoods are those which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide opportunities for the next generation. ¹¹
Vulnerability	The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt. ¹²

¹¹ Chambers, R. and Conway, R. (1992) *Sustainable Rural Livelihoods: Practical Concepts for the 21st Century*, IDS Discussion Paper 296. Brighton: Institute of Development Studies.

¹² UNFCCC (2014) 'Annex II: Glossary'.

01 INTRODUCTION

This report seeks to address a major research gap by adopting an intersectional approach and learning from girls around the world. The goal is to understand girls' experiences of climate change, the impacts they have observed in their communities, the impact on their education, their views on adaptive strategies, and the factors that influence their capacity to understand and adapt to climate change.

The impact of climate change on children – and girls in particular – can be severe and long lasting, potentially reversing the developmental gains made in access to, and completion of, education, while also undermining progress made to gender equality over recent decades.¹³ Severe and recurrent climate events, interlinked with political, economic and social challenges, have increased individuals', communities' and systems' vulnerability to climate change across multiple contexts. In this research, *climate change* is defined as “a change of climate, which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods”.¹⁴ It can alter precipitation patterns and intensities around the globe and increase climate-related disaster frequencies and intensities. This includes floods, droughts, landslides, wildfires, tropical storms and extreme temperatures.¹⁵ This research also recognises climate change as a significant contributing factor to national and regional food and water insecurity crises.

Children are particularly vulnerable to the impacts of climate change. Globally, approximately one billion children are at extremely high risk of the impacts of the climate crisis.¹⁶ Adolescent girls – as well as women and children in general – are among the most vulnerable to the impacts of climate change. Girls disproportionately experience disruption to their education and access to healthcare, increased risks of violence, increased child, early and forced marriage and unions (CEFMU), reduced economic opportunities¹⁷ and susceptibility to health issues.¹⁸ Girls' vulnerability to climate change is compounded by age and gender inequalities, as well as factors such as “poverty, low access to education and knowledge, food and nutritional insecurity, and barriers to water and natural resource access.”¹⁹ Additionally, they face greater barriers to adapting to and coping with these impacts.²⁰ Yet, despite being disproportionately affected by climate change, girls' voices and perspectives are seldom included or considered in decision-making processes and policies about climate change adaptations.

Adaptation to climate change refers to long-term changes in social, political and economic practices and processes so as to moderate (or benefit from) the effects of climate change.²¹ *Coping strategies* are short-term adjustments at the individual and household level, such seeking additional sources of income or using available capital, to minimise the effects of sudden climate-induced shocks and stresses.²² Plan International's '[Pathways to Resilience Framework](#)' provides a further outline of how different concepts of resilience are defined.²³ Barriers to girls' adaptive and coping capacities are shaped by gendered access, control, use and knowledge of resources²⁴, meaning girls are less likely

¹³ Sims, K. (2021) *Education, Girls' Education and Climate Change*, K4D Emerging Issues Report 29. Institute of Development Studies, pp.2-4.

¹⁴ UNFCCC (1992) 'United Nations Framework Convention on Climate Change'.

¹⁵ Plan International (2021) 'Climate Change, Young Women, and Girls'.

¹⁶ UNICEF (2021) 'The Climate Crisis is a Child Rights Crisis: Introducing the Children's Climate Risk Index'. Available at:

<https://www.unicef.org/reports/climate-crisis-child-rights-crisis>.

¹⁷ Plan International (n.d.) '5 Ways Climate Change is Disrupting Girls' Lives'. Available at: <https://plan-international.org/case-studies/5-ways-climate-change-is-disrupting-girls-lives/>.

¹⁸ Plan International (2021) 'Climate Change, Young Women, and Girls'.

¹⁹ Ibid.

²⁰ Ibid.

²¹ UNFCC (n.d.) 'Adaptation and Resilience'. Available at: <https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/introduction>.

²² Berman, R.J., Quinn, C.H. and Paavola, J. (2015) 'Identifying drivers of household coping strategies to multiple climatic hazards in Western Uganda: Implications for adapting to future climate change', *Climate and Development*, 7:1, pp.71-84.

²³ Plan International (2020) 'Pathways to Resilience Framework: Plan International's Resilience Framework'.

²⁴ USAID (2016) 'Integrating Gender Considerations into Community-Based Adaptation in Agrarian Communities in the Lower Mekong Basin'. Available at: <https://www.climate-links.org/resources/integrating-gender-considerations-community-based-adaptation-agrarian-communities-lower>.

to hold decision-making power in their households to be able to make adaptation choices that sufficiently address their needs.²⁵

Foundational to Plan International is the belief that all children have a fundamental and universal right to access and complete quality and inclusive education, from pre-primary to secondary level. However, social norms in many contexts mean that girls often require greater support in claiming and accessing this right. Plan International considers not only the impacts of climate change on education and girls' leadership, but how education and girls' leadership may in turn advance climate justice and social justice more broadly. In this report, we define leadership as any way that girls may exercise leadership qualities in their everyday lives, particularly in their decision-making. Given the complex relationship between climate change and its effects on girls' education and adaptive capacities, it is imperative that we understand these issues from the perspective of girls themselves.

The unique contribution that this report offers is in giving voice to the experiences, perspectives, insights and reflections of girls from different contexts around the world. While there is a well-established body of research on gender and climate change, we are very rarely given access to the views and experiences of girls **in their own words**. This rare access to the voices of girls themselves allows for a far more nuanced picture of the complex ways in which climate change affects girls, their education and their adaptive capacities, which cannot be gleaned from large-scale quantitative studies. The qualitative, longitudinal nature of the *Real Choices, Real Lives* research project also provides us with the unique opportunity to explore girls' experiences and observations of climate change over the course of their lives.

1.1 ABOUT *REAL CHOICES, REAL LIVES*

Since 2007, the longitudinal and qualitative [Real Choices, Real Lives](#) (RCRL) research project has been tracking the lives of girls and their families in nine countries around the world²⁶ (see Figure 1: RCRL Cohort Study Map). In 2023, 78 girls²⁷ and their families were participating in the study which has followed the girls' lives, experiences and perspectives since their births in 2006.²⁸

The study will continue to collect data until all girls reach the age of 18, and aims to document the social, economic, cultural and institutional factors that influence girls' lives and their opportunities, through the perspectives of girls themselves and their families. The study has a distinct commitment to understanding the root causes of gender inequality by asking questions about beliefs, values and expectations which aim to uncover how gendered social norms and behaviours are created and sustained or shift over time.

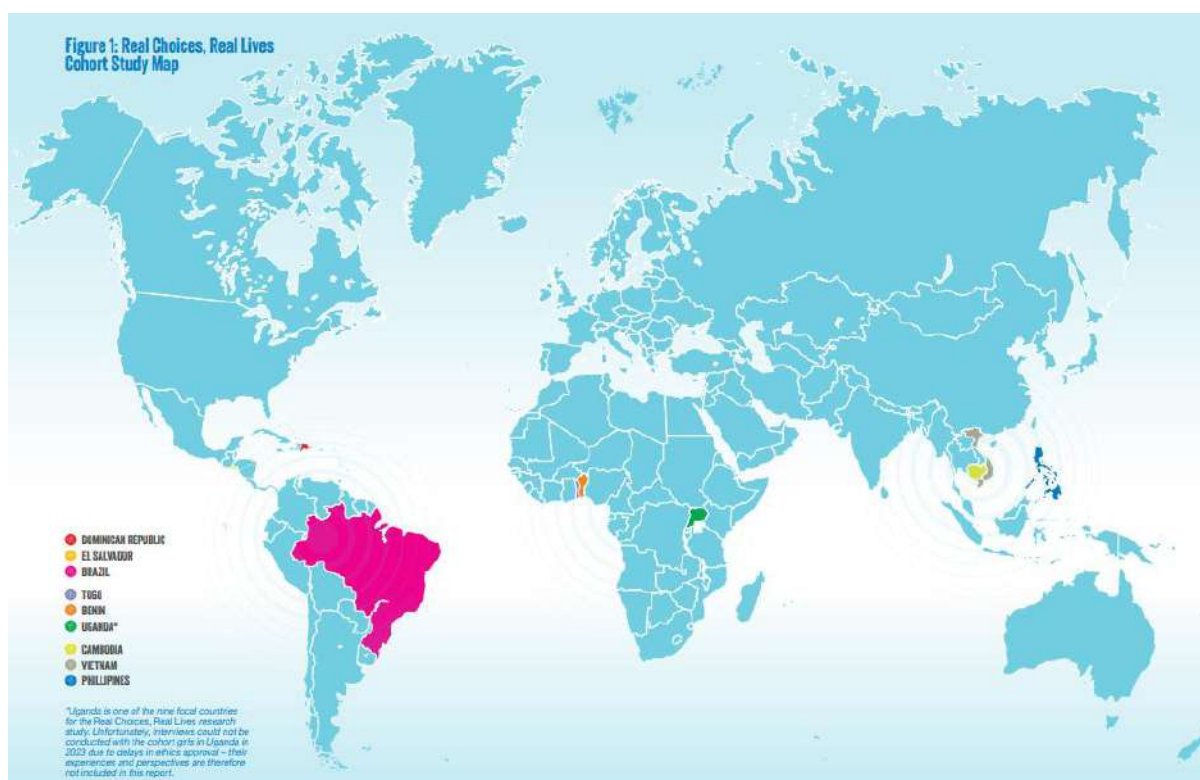
Data on the study has now been gathered since 2007, giving a unique insight into the life cycle of girls and the choices, decisions and realities that shape their lives. The study has gathered data on a vast array of topics and themes, including education, health (including [sexual and reproductive health and rights](#)), [hunger](#), [protection and violence](#), girls' activism and participation in civic spaces, the ways in which [girls are challenging gender norms](#), and many others.

²⁵ Plan International (2021) 'Climate Change, Young Women, and Girls', pp 7.

²⁶ Apart from Brazil and the Dominican Republic, all of the cohort girls are situated in low- to lower-middle income economies. Brazil and the Dominican Republic are considered upper-middle income economies. All girls within each of the nine countries were sampled to be from among the poorest households within each country. The girls themselves are not sponsored by Plan International but are located in areas where Plan International operates.

²⁷ Plan International recognises that gender is a multidimensional concept, which influences people's identities and expressions in many ways, and that gender identity goes beyond a binary field of 'female' and 'male'. The participants in this study were assigned female at birth, based on their sex characteristics. For the purposes of this study, 'girls' is used as an umbrella term.

²⁸ Annex 1 provides an overview of the RCRL girls who participated in the 2023 data collection.



1.2 SCOPE AND AIM OF THIS REPORT

RCRL is an ongoing study that is uniquely placed to uncover the ways in which gender and social norms influence climate-vulnerable household decision-making, and the impact this has on girls' education. As a data archive, RCRL can give insights into how girls and their households respond to changing climate shocks and stresses over time, and how such responses influence girls' rights to learn, participate in climate change adaptation, and contribute to climate justice. Further, this can add real experiences and data to other organisations' work in the same area.

This research considers how climate impacts identified by RCRL participants (including increased rainfall, flooding, crop failure, loss of income and removal from school) interplay with girls' rights to learn and participate in civic spaces. It aims to understand the ways in which education supports girls with the skills and knowledge to adapt to climate change and engage in climate decision-making processes, and highlights ongoing gaps to achieving this. This research considers the role of education in building girls' adaptive capacities, and how this – combined with girls' leadership and agency – supports climate change adaptation and resilience in their households and broader communities. Ultimately, this study offers a valuable evidence base highlighting the potential of investing in girls' education and climate change education to advance gender equality, climate justice and girls' leadership.

The longitudinal nature of the RCRL study provides historical data to observe how girls' experiences of climate change have evolved over time, and the impacts over time on their families and communities. Using 'real life examples', this study brings girls voices to the fore and complements other reports by Plan International and the wider climate science community.

1.3 RESEARCH QUESTIONS

The questions below aim to explore the relationship between climate impacts, girls' education, household coping, and adaptive capacities, as well as the influencing factors. The research questions below are underpinned by an understanding that climate change has indeed had an impact on girls'

education. This understanding is based on a historical review of RCRL evidence²⁹, which has suggested a correlation between households identified as climate-vulnerable and girls' disrupted education.

- 1. What climate change impacts do girls experience related to their education?**
 - a) What impacts of climate change do girls experience (within the context of their households and communities)?
 - b) How do these climate impacts affect girls' access to education and information?
 - c) What concerns do girls and their households express regarding climate change, and specifically related to education?
- 2. How do climate impacts affect girls' and households' adaptive capacity, decision-making and coping strategies (with relation to education)?**
 - a) In what ways are girls involved in developing coping strategies/plans and decision-making in their households, communities and schools?
 - b) What role do gender and social norms play in climate-vulnerable household decision-making (related to education)?
 - c) Do girls think that the climate impacts identified can be addressed (through adaptation or mitigation)?
- 3. Do different sources of information (including education, media, peer exchange and government) influence girls' (and their households') adaptative capacities? If so, how?**
 - a) What strategies do girls have in place to adapt/respond to climate impacts?
 - b) Is education supporting girls' adaptive capacities to climate change and/or their decision-making ability related to climate change?
 - c) Are there other dimensions in everyday life that affect girls' decision-making abilities?

1.4 PLAN INTERNATIONAL'S WORK ON CLIMATE CHANGE

Plan International has an extensive body of evidence relating to the complex ways in which climate change affects the communities with which it works – and particularly the impact on girls. Plan International recognises that addressing and funding mitigation, adaptation, and loss and damage initiatives are crucial for effective climate action. In its work, Plan International highlights the disproportionate impact that climate change has on children – particularly girls – and especially those from the most vulnerable and poorest communities, which have the fewest resources to cope. Climate change is the most significant intergenerational equity issue of our time, with children and future generations bearing the brunt of its impact on the planet. Plan International acknowledges that age and gender make some children more vulnerable to the impact of climate change. Entrenched social and gender norms dictate behaviours, limit mobility and access to rights, and reduce capacity to deal with uncertainty for girls and young people. The particular vulnerability of girls to climate change due to the combined effects of age and gender discrimination has serious implications for their rights. Climate change magnifies existing inequalities and unequal access to health, sexual and reproductive health and rights, education, participation and protection.

Plan International recognises that climate change significantly impacts children's right to quality education and the need to protect this right before, during and after extreme weather events. Climate change and extreme weather events can destroy or damage school buildings and children's routes to school, cause widespread internal displacement, increase levels of poverty and food insecurity, affect livelihoods and result in negative coping strategies. All of these factors affect school attendance. Yet these impacts are not felt equally by all children; discriminatory social and gender norms mean that girls are disproportionately affected by climate change and often have the fewest resources to cope with

²⁹ This approach is described in Section 2

shocks. This can put girls at greater risk of child, early and forced marriage and unions (CEFMU), gender-based violence (GBV), and unequal care work and household responsibilities – all of which can further lead to girls missing school or dropping out entirely.³⁰

Recognising the relationship between climate change and education, Plan International promotes quality, inclusive and gender-transformative education as an essential component of the global response to climate change.³¹ Not only is girls' education severely affected by climate change, but it is also a key solution to addressing the climate crisis. Education plays a critical role in imparting the knowledge, skills and competencies that girls need to be innovators, leaders and change-makers to demand, and contribute to, climate justice. Education is also key to girls' disaster preparedness; a lack of quality education could mean they are less informed about risks or have reduced access to timely and life-saving information, thus further increasing their vulnerability.³² In this way, educational attainment has an impact on girls' understanding of, and actions against, climate change.³³

“For every additional year of schooling a girl receives on average, her country’s resilience to climate disasters can be expected to improve by 3.2 points on the Notre Dame University’s Global Adaptation Initiative (ND-GAIN) Index, which measures country-level vulnerability to climate change alongside readiness to improve resilience.”³⁴

This makes it clear that girls' education is strongly linked with impactful climate action and adaptation, making it imperative that climate financing includes meaningful investment in education. Beyond the instrumentalist – or pragmatic – argument for girls' climate change education, Plan International also believes that education is a cornerstone of a child-rights based approach to climate change. Children have a human right to education and information that will support them to mitigate climate change shocks, and to contribute to climate justice as agentic actors. The UN Convention on the Rights of the Child guarantees children's rights to education, nutritious diets, good health and protection from harm and violence – all of which are threatened by climate change, and particularly so in low- to middle-income countries.³⁵ Rights-based climate change education should be “transformative, inclusive, child-centred, child-friendly and empowering.”³⁶

Plan International is committed to a rights-based approach for understanding and mitigating girls' experiences of climate change. This approach involves: (1) that girls' rights must be explicitly recognised in national climate strategies; (2) that girls have the right to age- and gender-accessible climate and disaster information; and (3) that girls' participation in decision-making on climate change is fundamental to age- and gender-sensitive policies that address girls' needs and wellbeing.³⁷ Finally, Plan International believes that climate change action provides a significant opportunity to advance gender equality and girls' rights by promoting transformative systemic changes that address both climate and gender injustices.

While the gendered impacts of climate change are increasingly acknowledged and the evidence-base is growing, gaps remain in understanding how climate change affects girls' education journeys and the role of education in girls' (and their families') adaptation to climate change.

³⁰ UNGEI (2021) 'Our Call for Gender Transformative Education to Advance Climate Justice'. Available at: <https://www.ungei.org/news/our-call-gender-transformative-education-climate-justice>.

³¹ Plan International (2019) 'Climate Change: Focus on Girls and Young Women, Plan International Position Paper'. Available at: <https://plan-international.org/publications/climate-change-focus-on-girls-and-young-women/>.

³² Plan International (2020) 'Pathways to Resilience Framework'.

³³ Plan International (2022) 'Young People and Green Skills: Preparing for a sustainable future'. Available at: https://plan-international.org/uploads/2022/08/ATB2877_PlanGreenSkillsSummary_Aug2022_V2.pdf.

³⁴ Plan International Canada (2022) 'From the Frontlines: Youth call for action to address loss and damage caused by climate change.' Available at: https://plan-international.org/uploads/2022/10/Loss-Damage-Brief_Pages-2022-min.pdf, p. 14.

³⁵ Guillemot, J. and Burgess, J. (2014) 'Child Rights at Risk: The case for joint action on climate change'. Available at: <https://www.unicef-irc.org/article/928-child-rights-at-risk-the-case-for-joint-action-with-climate-change.html>.

³⁶ UN Committee on the Rights of the Child (2023) General Comment No.26 (2023) on children's rights and the environment, with a special focus on climate change. Available at:

https://tbinternet.ohchr.org/_layouts/15/treatybodyexternal/Download.aspx?symbolno=CRC%2FC%2FGC%2F26&Lang=en.

³⁷ Plan International (2019) 'Climate Change: Focus on Girls and Young Women. Plan International Position Paper'.

02 METHODOLOGY

2.1 CONCEPTUAL FRAMEWORK

This report aims to provide evidence to inform Plan International's wider work and agenda on climate change and education, as noted above. This report uses existing data from our RCRL study and undertakes additional data collection specifically exploring the impacts of climate change. In doing so, it also explores concepts of adaptation, losses and damages. We recognise a mutually reinforcing relationship between climate change, education and girls' adaptive capacities. In this research, we use the Global Alliance for Disaster Risk Reduction & Resilience in the Education Sector's (GADRRRES) Comprehensive School Safety Framework 2022-2030³⁸ to assess the impacts of climate change on girls' education. This Framework outlines three core pillars for disaster risk reduction³⁹ and resilience-building that support children's equitable access to safe, continuous and quality education in the face of climate change. These pillars are:

1. the need for safer learning facilities that ensure learners and educators are protected from death, injury or harm in schools.
2. the need for a comprehensive plan to ensure education continuity and limit disruption to learning in the face of shocks, stresses, hazards and threats of all kinds.
3. the need to promote knowledge and skills of learners and duty-bearers to contribute to risk reduction, resilience building and sustainable development.⁴⁰

³⁸ GADRRRES (2022) 'Comprehensive School Safety Framework 2022-2030'. Available at: <https://www.gadrrres.net/>.

³⁹ Disaster risk reduction aims to prevent new risk, reduce existing disaster risk and manage residual risk, all of which contribute to strengthening resilience and therefore to the achievement of sustainable development.

⁴⁰ GADRRRES (2022) 'Comprehensive School Safety Framework 2022-2030'.

Figure 2: Comprehensive School Safety Framework 2022-2030⁴¹



These three pillars form the foundation of the report's research findings. Pillar One on 'Safer learning facilities' signifies how schools are directly affected by climate change. This is explored in Section 4.1, in terms of how extreme weather is causing immediate barriers to school attendance or difficulties in learning.

Pillar Two on 'School safety and educational continuity management' speaks to how such disruptions to education must be anticipated and mitigated. This is also formative to Section 4.1, in terms of recognising the indirect climate impacts that threaten girls' education, such as livelihoods losses and higher cost of living pressures, which are amplified by existing gender norms.

⁴¹ GADRRRES (2022) 'Comprehensive School Safety Framework 2022-2030'.

Pillar Three on 'Risk reduction and resilience education' concerns climate curricula as a key means of knowledge dissemination, leading to understanding, adaptation and mitigation efforts at the community level. These themes are explored in Section 4.2, in which we establish that formal education (and other sources of information) has been formative to how some RCRL girls are pursuing climate actions – notably in comparison against girls with lesser climate knowledge and thereby less confidence to use adaptation strategies. This section also explores girls' recommendations for climate change action, and their hopes for the future in climate change resilience and response. Therefore, the final pillar shows the potential positive impact education can have on climate change.

Overall, this report uses the Comprehensive School Safety Framework 2022-2030 as a guiding lens with which to demonstrate how RCRL findings reinforce the dynamism of education, climate change and girls' adaptive capacities.

2.2 RESEARCH PHASES

The core RCRL research methodology is underpinned by a participatory approach, which means that the girls themselves play an active and influential part in decisions relating to the research project and Plan International's work in their communities, and that their recommendations for change and justice are centred and amplified. This means that not only are girls listened to, but their voices are heard and shape RCRL's aims and outcomes. This data does not seek to apply to a broader population: the value of this data is the in-depth understanding provided by girls themselves, as well as the qualitative, longitudinal nature of the study, which allows us to explore girls' experiences and observations of climate change over the course of their lives.

Key methods of the study include in-depth interviews with girls and their parents or caregivers, supported by participatory activities. Data collection for RCRL has taken place annually, carried out by Plan International country office teams in the countries where the girls live. The country office teams either work in the communities where the girls live or are able to travel to these areas. Each round of data collection consists of semi-structured interviewing with a primary caregiver, and since 2012, when the girls were 5 or 6 years old, with the girls themselves. The interviews are supported by participatory and age-appropriate methods, which have been adapted as the girls have grown up. The primary focus of the research is on the girl herself and her immediate household. However, much of RCRL research explores broader social and gender norms, as well as issues affecting the girls' communities at large (such as climate change); therefore, in some years, the study has incorporated broader evidence, collected via focus group discussions, to provide information about wider influences and context.

With 16 years of data already available, RCRL provides a unique starting point to explore issues related to climate change. Data draws from girls' own perspectives of how they have been affected by climate impacts, their adaptation approaches, and intergenerational (and wider) influences that relate to climate change. There is also some self-reported evidence on changes in the climate/weather and the impacts on families. This information has been systematically asked across households since 2018. Although much of the data is descriptive (for example, comments on the impacts of failed rains and/or floods on harvests and on roads/infrastructure) other impacts can be inferred when read alongside the wider data and in the context of an individual girl's case study.

In 2022, data collection was undertaken with girls from across seven of the nine RCRL countries specifically to feed into Plan International's *2022 State of the World's Girls* report. As part of this, some girls discussed environmental issues affecting their communities, such as pollution and deforestation, and a small number of girls talked about being involved in activities such as community-clean-ups and tree-planting. RCRL also has evidence across the years of girls' school attendance, time use (including domestic responsibilities and housework) and paid work. This longitudinal evidence includes extreme weather events, which have been noted particularly by households with agricultural livelihoods.

2.2.1 Literature and data review

Throughout November 2022, an initial literature scoping was undertaken. This consisted of a broad literature search strategy, including scientific and academic articles, and grey literature,⁴² as well as reference tracing and snowballing. The themes explored in the literature include the relationship between climate change and education and, secondly, the relationship between climate change, girls' leadership and decision-making. In addition, scoping of some key Plan International research and literature pertaining to climate change and education was undertaken. The literature from this scoping review informed the development of the conceptual framework (outlined in Section 2.1 above) and research questions (Section 1.3), as well as the development of the data collection tools. Following the development of the Research Questions, a more systematic literature review was undertaken which explored the above topics, as well as climate-vulnerable household decision-making. To refine the search for relevance, the search included keywords, based on the noted themes, as well as exclusion and inclusion criteria.

In addition to the above, the literature review included a review of sources, such as the Notre Dame University's Global Adaptation Initiative (ND-GAIN) and the Malala Fund's Girls' Education and Climate Challenges Index (GECCI), coupled with material describing the climate contexts in the locations where data collection is undertaken for RCRL, where available.

2.2.2 Data review and preparation

Each girl's context (individual, household and community) is distinct, and the value of this research lies in being able to: a) understand the nuanced factors that influence how girls (and their families) experience climate change impacts and how this affects their education; and b) being able to trace these impacts across time. However, the RCRL study has historically not focused on climate change per se, and questions have not been asked specifically to identify if climate change was thought to be a factor. Therefore, additional analysis was performed to extrapolate and make sense of possible climate-induced impacts to-date.

As such, both as preparation for the upcoming 'new' data collection, as well as part of the research design, a scoping exercise was undertaken in December 2022 to map timelines of girls' education journeys against a broader timeline of significant events and dynamics in the household context. This was done using a hybrid approach of 'in-depth' approaches (case study timeline of randomly selected girls from RCRL; systematic matrix coding analysis) alongside 'lighter-touch' approaches (matrix coding of key words). The data review process of selected girls' education journeys was limited to 2011-2022, based on when girls started their education journeys, although the start year will likely vary depending on country-specific school enrolment ages. Alongside this, household summaries that had been prepared for each of the girls following the 2021 data collection, were reviewed to identify cases where girls' education had been disrupted, or indications that the household may be or has been especially vulnerable to climate change impacts (for example, if their livelihood is based on crops).

Using matrix coding and household summaries, it was possible to purposively sample two or three girls for each study country for whom an in-depth timeline was mapped to understand the intersecting key themes across her lifetime in education.⁴³ These girls are referred to in this report as 'case study girls'. Across the rest of the girls, evidence of relevance to inform the research questions more generally was collected and analysed, although not necessarily with a longitudinal view.

⁴² Sources of articles and grey literature included academic databases, Google Scholar, EBSCO, ReliefWeb, WEDO and UN websites, among others.

⁴³ These two or three girls per country serve as a sample of the broader country's cohort, in light of capacity restraints. Two girls have been selected for countries with ten and fewer participating girls (based on previous years' participation), and three girls have been selected for countries with 11 and more participating girls (based on previous years' participation).

2.2.3 Primary data collection

Primary data collection was undertaken across eight of the nine RCRL countries and across all households to some degree, so as to present a fuller picture of the multifaceted ways in which climate change impacts girls' education and how girls are adapting to this. Annex 2 provides an overview of the data collected in each of the study countries.

The following four approaches were used for primary data collection: in-depth case studies, 'light touch' interviews, contextual data collection and interviewers' observations.

In-depth case studies with selected girls

The method for selecting the two or three 'case study girls' per study country is outlined above in Section 2.2.2 above. These girls' lives and experiences were researched through the following methods:

- **Girl interviews:** Semi-structured interviews were conducted with each girl, exploring her experiences of climate change, the impacts of climate change on her education, girls' involvement in decision-making and climate adaptation strategies, and girls' sources of information about climate change.
- **Caregiver and head of household interviews:** These interviews provide context to the climate events experienced by the girls and how the households and communities were affected. These interviews also collected data on the household as a whole, including decision-making responsibilities, division of labour in the home, and coping and adaptation strategies. These interviews were also useful in understanding the extent to which livelihoods have been affected by climate change.
- **Household Inventory Tool⁴⁴:** This tool captures a snapshot of the girls' households. These have been collected in some format since 2018, allowing for comparison and analysis of changes over time. The Household Inventory tool is attached as Annex 3.

Light touch interviews with all girls

For the remaining girls not identified as 'case study girls', a shorter semi-structured interview was conducted around specific dimensions of climate change impacts and education.

Contextual data collection activities

These methods were designed to capture insights from key informants and the wider communities where the girls live. This allowed for triangulation of household experiences to understand if and how communities are being affected, and if and how communities are coping and adapting, particularly with reference to education. These methods were:

- **Key informant interviews:** Short interviews with Plan International Country Office staff to capture contextual information about how climate change has affected communities where research activities are conducted.
- **Focus group discussions (FGD):** Held with community members in the communities where the case study girls are located. The FGDs captured community-level detail on climate-related events and how these have affected the wider community. This provides context for understanding the girls' households' experiences.

Observation

⁴⁴ Household inventories include questions on household composition, financial income, expenditure, changes in health, changes in food security, and school attendance of all children in the household.

Observational notes from the interviewers form part of the data. This includes their notes on girls' tone, body language and non-verbal communications (for example, shrugging shoulders indicating 'I don't know'). This data is used very sparingly in this report, as the observations are subjective and shaped by interviewers' positionality and other factors. Where this data has been included in this report, it is highlighted and made clear that the stated information is based on interviewer observations.

2.2.4 Data analysis

Data analysis was conducted using NVivo, a qualitative software programme that is used to store, sort and analyse data according to themes and topics. All transcripts from interviews conducted from 2007 to present have been coded against a predefined set of codes, sorted into various thematic categories on the study. As the girls have grown up and new topics and thematic areas have emerged, codes have been added, deleted or amended as necessary.

Each year, coders working on the study receive training to guide their coding, and the coders produce memos on each girl, as well as a country report with key findings from that year. For the current report, the RCRL team then grouped this data according to themes and assessed it against the conceptual framework for the current study, before proceeding to write up the findings for this report.

2.3 ETHICAL COMMITMENTS

All research activities were undertaken in line with Plan International's ethics and safeguarding policies and procedures. Principles of confidentiality, anonymity, beneficence, justice and informed consent guided not only this year's data collection, but all previous years of the study. Details on how we upheld Plan International's commitment to ethics and safeguarding are outlined in Annex 4.

As well as keeping to normative ethical commitments, Plan International Global Hub RCRL staff ensure that the research is informed by a feminist praxis that prioritises care and sensitivity to the RCRL cohort and their families, and a recognition of workload burden that the study creates for Plan International Country Offices in the focal countries. This research methodology is the outcome a process of reflexivity, in which we recognise that we are continuously learning and unlearning how research can become less extractive and hierarchical when operating in the context of a Global North-based international non-governmental organisation (INGO). Plan International is committed to decolonising the aid and development sector, which requires radically examining and changing the approaches of aid and involving and elevating the people, systems and methods that have been historically marginalised and oppressed by colonialism and white supremacy.⁴⁵ RCRL works to centre the voices of girls to ensure that all programmes and interventions intended to support girls to claim their rights and agency are informed by the views and experiences of girls themselves. Centring the voices of girls and using participatory methods is a component of a wider and more complex effort by Plan International towards decolonising aid.

2.4 LIMITATIONS TO METHODOLOGY

There are a number of limitations associated with conducting a longitudinal multi-country study that spans three regions and many languages. It is important to acknowledge that consistency cannot be assured across 16 years of data collection, coding and analysis, despite the best efforts of the RCRL team.

⁴⁵ Plan International (2022) 'Thoughts on Decolonising the Aid Sector – Part 1'. Available at: <https://plan-international.org/blog/2022/03/22/thoughts-on-decolonising-the-aid-sector-part-1/>.

An unfortunate limitation of this report is that we were unable to include new data collection from RCRL girls in Uganda due to delays in receiving ethics clearance, with the previous national ethics approval having expired in 2022. We hope to produce an updated version of this report at a later date including new data collection from the RCRL girls in Uganda; however, this edition does not include their insights and observations. As a result, we are missing a critical piece of the puzzle in understanding the views and experiences of girls across all nine RCRL countries.

Data collection tools are developed by the Plan International Global Hub team, which are then delivered to the relevant Plan International Country Offices, who then provide training to the researchers. As each country where the study takes place is different, the tools are sometimes adapted to ensure relevance and appropriateness. As such, the tools are not applied universally across the data collection. In the same vein, interviews are semi-structured, and the interviewers are encouraged to tailor the questions to participant responses. The study prioritises the comfort of the girls, so topics that girls are uncomfortable with (expressed either verbally or through their body language) may be skipped by the interviewer, meaning that not all questions may be answered by all participants.

Ensuring consistency of coding across the life of the study is also challenging, as coders bring their own positionality and subjectivity to the work. The study encourages reflexivity on the part of all who work on the study; however, this does not control for all inconsistencies over time. Notably, a limitation of this year's study is that climate change, weather and livelihoods were not prominent themes touched on in earlier years of the study, and as a result, the consistency of rigour of the coding of this historical data cannot be assured.

All interviews are conducted in the girls' main or preferred language, meaning that data collection tools (developed in English) must be translated, and girls' responses translated back into English for the purpose of analysis. There is a risk that nuance is lost at both stages, however, focal points within the Country Offices are consulted to minimise and control this risk. Transcription of the interviews and focus group discussions is another site of meaning-making and interpretation that can inadvertently lead to a loss of nuance. Transcribing speech is inherently subjective and political, requiring reflexivity on the part of the researcher to be aware of the countless invisible choices they are making. Transcription is not a "mechanical task" and the notion that speech is captured "verbatim" makes a positivist and neutral claim, which erases the assumptions, biases, values and positionality of the transcriptionist.⁴⁶ For example, human speech is not delivered in punctuated sentences. Transcriptionists must interpret where written features of language should be used (period, comma, ellipsis etc), which can be powerful in how it shapes and represents the speaker's meaning and emphasis.⁴⁷ This is especially relevant in the case of RCRL, as multiple transcriptionists have been involved in the study across the nine countries and 16 years.

⁴⁶ Catterson, K. (2022) *Multiplicity and Mess: The Movement to End Female Genital Mutilation in Somaliland*. PhD thesis, University of Sydney. Available at: <https://ses.library.usyd.edu.au/handle/2123/27540>.

⁴⁷ Ibid.

03 LITERATURE REVIEW

There is a large and interdisciplinary body of literature exploring the impacts of climate change, including the ways in which climate change exacerbates existing inequalities, and increases vulnerabilities for marginalised communities – particularly those in less industrialised countries. This body of literature explores climate resilience and adaptation, with particular relevance to livelihoods and agriculture. Critically, there is a growing and robust examination of the ways in which climate change has a disproportionate impact on women and girls.⁴⁸ This broad body of literature explores how climate change increases gender inequality; exacerbates the risk of sexual and gender-based violence (SGBV) and child, early and forced marriages and unions (CEFMU); and restricts access to quality education, comprehensive healthcare (including sexual and reproductive health) and other rights. However, gaps in the literature remain in understanding how socioeconomic contexts and cultural norms intersect with climate change vulnerabilities to impact girls' education, and the role of girls' education in girls' (and their families') resilience and adaptation to climate change.

This literature review first explores key concepts in climate change, including how we understand coping strategies, adaptation capabilities and climate change resilience, before turning to a global examination of the two-way relationship between climate change and education. Following this, we examine the available literature from the eight countries⁴⁹, localising our understanding of the impacts of climate change, specific vulnerabilities, and local resilience and adaptation strategies in Brazil, Dominican Republic, El Salvador, Benin, Togo, Cambodia, the Philippines and Vietnam.

3.1 KEY CONCEPTS IN CLIMATE CHANGE

In this research, we apply the definition of *climate change* outlined in the United Nations Framework Convention on Climate Change (UNFCCC):

“‘Climate change’ is a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.”⁵⁰ It can alter precipitation patterns and intensities around the globe and increase climate-related disaster frequencies and intensities. This includes floods, droughts, landslides, wildfires, tropical storms and extreme temperatures.⁵¹

The Intergovernmental Panel on Climate Change (IPCC) predicts an increase in the frequency and intensity of severe weather events, which is already being seen in many countries around the world.⁵² Globally, natural hazards are occurring “almost five times as frequently as 40 years ago.”⁵³ An increase in the frequency and severity of extreme weather events as global temperatures continue to rise is leading to greater risks to livelihoods,⁵⁴ with various disruptions to education, both directly and indirectly, and especially for those living in poorer communities in developing countries.⁵⁵ In this section, we define key terms and concepts relevant for discussions on climate change.

⁴⁸ Plan International (2021) ‘Climate Change, Young Women, and Girls’, p. 9.

⁴⁹ As previously noted, we were unable to collect new data from the RCRL girls in Uganda; as such, we have not included historical data or background literature on climate change and girls' education in the country.

⁵⁰ United Nations (1992) ‘Article 1, United National Framework Convention on Climate Change’. Available at: <https://unfccc.int/process-and-meetings/what-is-the-united-nations-framework-convention-on-climate-change>.

⁵¹ Plan International (2021) ‘Climate Change, Young Women, and Girls’.

⁵² Lawler, J. and Patel, M. (2012) ‘Exploring children's vulnerability to climate change and their role in advancing climate change adaptation in East Asia and the Pacific’, *Environmental Development*, 3:1, pp.123-136.

⁵³ UNICEF (2015) ‘Unless we act now: The impact of climate change on children,’ p.54. Available at:

https://www.unicef.org/media/50391/file/Unless_we_act_now_The_impact_of_climate_change_on_children-ENG.pdf.

⁵⁴ Wamsler, C., Brink, E., Rentala, O. (2012) ‘Climate change, adaptation, and formal education: The role of schooling for increasing societies' adaptive capacities in El Salvador and Brazil’, *Ecology and Society*, 17:2, p.18.

⁵⁵ Sims, K. (2021) ‘Education, Girls' Education and Climate Change’, p.2.

3.1.1 Vulnerability

Climate change exacerbates existing inequalities in the social world.⁵⁶ *Climate change vulnerability* is defined by the IPCC as “the propensity or predisposition to be adversely affected” by climate change and includes “sensitivity or susceptibility to harm and lack of capacity to cope and adapt.”⁵⁷ This definition applies to both the individual and systems level. Vulnerability is shaped by many factors, including exposure to climate events (and may increase depending on frequency and intensity of these events);⁵⁸ exposure and sensitivity to the impacts of these events; and capacity to adapt to impacts.^{59,60} It is important here to distinguish the difference between *exposure* to climate change or weather events, and *vulnerability to the impact* of the same. Exposure refers to “the inventory of elements in an area in which hazard events may occur.”⁶¹ It is possible to be exposed to an event without being vulnerable to it. However, to be vulnerable to an event, it is necessary to also be exposed.⁶²

Severe and recurrent climate events, interlinked with political, economic and social challenges, have increased individuals' and communities' vulnerability to climate change across contexts.⁶³ Experiencing disruption in livelihoods due to climate change is a key form of vulnerability, with the degree to which livelihoods are affected by climate change-induced loss and damage indicative of “inadequate design and construction, lack of maintenance, unsafe and precarious living conditions, and lack of access to emergency services.”⁶⁴ Vulnerability to climate change is not static. It is shaped by age, gender, education, income and geography, among other factors,⁶⁵ all of which are dynamic and subject to a range of social, economic and political variables.⁶⁶

Women and children – and particularly adolescent girls – are among the most vulnerable to the impacts of climate change, due to their compounding pre-existing inequalities such as “poverty, low access to education and knowledge, food and nutritional insecurity, and water and natural resource access.”⁶⁷ Previous research by Plan International on [Adolescent Girls in the Climate Crisis](#) recognises that there is a “growing acknowledgement”⁶⁸ of the importance of gender in determining differentiated vulnerability to climate-related shocks and stresses.⁶⁹ This 2021 report provides an overview of the expanding body of literature on this area, noting the gender-differentiated vulnerabilities within agricultural contexts. This is particularly relevant for the RCRL cohort, as most girls come from agricultural or fishery communities. This literature examines gendered vulnerabilities to climate change as being framed by women's generally lower levels of household decision-making, income and spending autonomy, land ownership

⁵⁶ World Economic and Social Survey (2016) ‘Climate Change Resilience: An opportunity for reducing inequalities’. Available at: https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/WESS_2016_Report.pdf.

⁵⁷ IPCC (2022) ‘Summary for Policymakers’, in H.-O. Pörtner et al. (eds.) *Climate Change 2022: Impacts Adaptation and Vulnerability*. Cambridge: Cambridge University Press.

⁵⁸ Cardona, O.D. (2012) ‘Determinates of Risk: Exposures and vulnerability’, in C.B. Field (eds.) *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation: A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change*, Cambridge: Cambridge University Press.

⁵⁹ Islam, M.R. and Khan, N.A. (2018) ‘Threats, vulnerability, resilience and displacement among the climate change and natural disaster-affected people in South-East Asia: An overview’, *Journal of the Asia Pacific Economy*, 23:2, pp.297-323.

⁶⁰ Chhinh, N. (2013) ‘Climate change vulnerability: Household assessment levels in Kampong Speu Province, Cambodia’, *International Journal of Environmental and Rural Development*, 4:1, pp.1-8.

⁶¹ Cardona, O.D. (2012) ‘Determinates of Risk: Exposures and vulnerability’.

⁶² Ibid.

⁶³ IPCC (n.d.) *Working Group II: Impacts, Adaptation and Vulnerability*. Available at: <https://archive.ipcc.ch/ipccreports/tar/wg2/index.php?idp=8>.

⁶⁴ Islam, M.R. and Khan, N.A. (2018) ‘Threats, vulnerability, resilience and displacement among the climate change and natural disaster-affected people in South-East Asia: An overview’, p.299.

⁶⁵ Muttarak, R. and Lutz, W. (2014) ‘Is education a key to reducing vulnerability to natural disasters and hence unavoidable climate change?’, *Ecology and Sociology*, 19:1, pp.1-8.

⁶⁶ Lawler, J. and Patel, M. (2012) ‘Exploring children's vulnerability to climate change and their role in advancing climate change adaptation in East Asia and the Pacific’.

⁶⁷ Plan International (2021) ‘Climate Change, Young Women, and Girls’, p.9.

⁶⁸ Tanner, T., Mazingi, L. and Muyambwa, D.F. (2021) ‘Adolescent Girls in the Climate Crisis: Empowering Young Women Through Feminist Participatory Action Research in Zambia and Zimbabwe’ Plan International. Available at: <https://plan-international.org/publications/adolescent-girls-in-the-climate-crisis-voices-from-zambia-and-zimbabwe/>.

⁶⁹ Ibid.

and use, and lower levels of education.⁷⁰ Women's household responsibilities, including sourcing water and food, tend to be more greatly impacted when these resources become scarce.

Furthermore, the 2021 Plan International report highlights that:

*"Before, during and after disasters and other crises, men are more likely to liaise with officials and make decisions about response and evacuation, while women are more likely to take responsibility for practical preparation of the household or may see their workload increase when men migrate."*⁷¹

Much emergency response and recovery does not include women's and girls' unique needs, such as their caring responsibilities, water, sanitation and hygiene (WASH) needs, vulnerabilities to GBV, and lack of independent access to savings – alongside basic needs of shelter, water and food.⁷² Climate change impacts are thereby compounded along the lines of socially constructed inequalities and deprivations, driven by unavailable economic resources and lack of political will.

Children are particularly vulnerable to the impacts of climate change. Globally, approximately one billion children are at extremely high risk of the impacts of the climate crisis.⁷³ Children are more vulnerable than adults for a number of reasons: their physiology and development makes them physically more vulnerable and less able to withstand and survive climate shocks (such as floods or droughts); they have lower tolerances to toxic substances such as pollution;⁷⁴ and they are disproportionately affected by water and food scarcity and vector- and water-borne diseases. Critically, climate change also disrupts children's access to essential services, such as education, healthcare, food and nutrition, WASH and protection services, among others.⁷⁵

These challenges do not affect all children equally: those in low- and middle-income countries bear the brunt of climate-related losses and damages, and the impacts are particularly acute for girls and other groups of children who experience marginalisation and inequality based on multiple and intersecting factors.⁷⁶ Yet, despite being disproportionately affected by climate change, children's voices and perspectives are seldom included or considered in decision-making processes and policy-making which fundamentally shape their future. This leads to policies and strategies that do not address children's particular vulnerabilities – and also violates their rights under the UN Convention on the Rights of the Child to participate in decision-making that affects their lives.⁷⁷

3.1.2 Coping, adaptation and resilience capacities

Individuals' and communities' capacities to adapt to changing and emerging climate conditions "may be the most important characteristic" when it comes to assessing and addressing climate risks.⁷⁸ Literature on the impact of climate change and on communities' and households' response strategies typically refer to the terms *coping strategies/mechanisms*, *adaptation strategies* and *resilience capacities*. While the distinction between these terms is sometimes blurred,⁷⁹ the terms have distinct and separate

⁷⁰ Tanner, T., Mazingi, L. and Muyambwa, D.F. (2021) 'Adolescent Girls in the Climate Crisis: Empowering Young Women through Feminist Participatory Action Research in Zambia and Zimbabwe' Plan International.

⁷¹ Ibid.

⁷² CARE International (2021) 'Evicted by Climate Change: Confronting the gendered-impacts of climate-induced displacement'. Available at: https://wrd.unwomen.org/sites/default/files/2021-11/CARE-Climate-Migration-Report-v0_4.pdf.

⁷³ UNICEF (2021) 'The Climate Crisis is a Child Rights Crisis: Introducing the Children's Climate Risk Index'.

⁷⁴ Ibid.

⁷⁵ UNICEF (2023) 'Falling short: Addressing the Climate Finance Gap for Children'. Available at: www.unicef.org/media/142181/file/Falling-short-Addressing-the-climate-finance-gap-for-children-June-2023.pdf.

⁷⁶ Ibid.

⁷⁷ Ibid.

⁷⁸ Lohmann, H. (2016) 'Comparing vulnerability and adaptive capacity to climate change in individuals of coastal Dominican Republic', *Ocean & Coastal Management*, 132 p.111

⁷⁹ Morton, J. (2007) 'The impact of climate change on smallholder and subsistence agriculture', *Proceedings of the National Academy of Sciences*, 104:50, p.19681.

meanings. The distinctions between these terms is key to understanding how RCRL girls and their families address the impacts of climate change in their lives.

Coping strategies are “temporary adjustments that tend to be reactive and aimed at restoring or maintaining a previous state.”⁸⁰ They tend to be short-term, implemented at the individual or household level, and employed to respond to a climate shock that is already occurring or imminent.⁸¹ By contrast, **adaptation strategies** are intended to proactively reduce long-term vulnerabilities to climate shocks.⁸² Lohmann argues that adaptive capacities are most effectively addressed by public policy, which supports systems-level change.⁸³ However, in many contexts this public policy response has been inadequate, and the burden of adaptation has fallen on the household and community levels. At an individual or household level, indicators used to measure adaptive capacity include an individual's perception of risk; their ability to plan, learn and cope with the change (for example, the ability to diversify their income or secure alternative employment); and – crucially – their level of interest and engagement with the changes that are occurring.⁸⁴ IPCC lists 24 key adaptation responses that can be adopted in different contexts. These include crop management, sustainable agricultural practices and livelihood diversification (see Annex 5 for full list).⁸⁵ These options demonstrate the diverse possibilities that are available for those who are equipped with the knowledge and resources to implement them. Willingness to engage with change is shaped by many factors including levels of education, access to knowledge, financial status and security, household composition, employability and occupational mobility, formal and informal network – including sense of community, and attachment to place and to occupation.⁸⁶ For example, in coastal communities, a household with multiple members earning an income from a variety of sources is more likely to consider leaving their fishing village than a household with a sole income-earner who learned and inherited the trade from parents, and who feels a sense of identity and connection through continuing the trade.

Studies indicate that many pastoral households engage in both coping and adaptation strategies simultaneously.⁸⁷ The blurring of lines between strategies tends to occur when what starts as a reactive coping strategy for what is expected to be a short-term shock becomes a long-term adaptation for a household or whole community.⁸⁸ Finally, **climate resilience** is living with climate change on a long-term basis, which involves knowledge development, new forms of governance, flexibility to adopt new practices and risk management.⁸⁹

To understand the potential climate vulnerability and adaptive capacities of girls in the RCRL cohort, it is necessary to understand pastoralism, since many of the RCRL girls are from pastoralist backgrounds. Pastoralism is a livelihood strategy in which economic and food security is dependent on raising livestock. Viable pastoralism is conditional on predictable supply and yield of natural resources and water sources, factors that have been hindered with increasing drought or changing rainfall patterns.⁹⁰ The ability of pastoralist households to adapt to climate change (for example, changing herd composition or using ‘flex’ crops and commodities)⁹¹ is influenced by various factors, such as access

⁸⁰ Walker, S.E. et al. (2020) ‘Education and adaptive capacity: The influence of formal education on climate change adaptation of pastoral women’, *Climate and Development*, 14:5, pp.409-418.

⁸¹ Berman, R.J. et al. (2015) ‘Identifying drivers of household coping strategies to multiple climatic hazards in Western Uganda: Implications for adapting to future climate change’, p.73.

⁸² Morton, J. (2007) ‘The impact of climate change on smallholder and subsistence agriculture’.

⁸³ Lohmann, H. (2016) ‘Comparing vulnerability and adaptive capacity to climate change in individuals of coastal Dominican Republic’, p112.

⁸⁴ Ibid.

⁸⁵ Trisos, C.H. et al. (2022) ‘Africa’ in H.-O. Pörtner (eds.) *Climate Change 2022: Impacts, adaptation and vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge: Cambridge University Press. Available at: <https://www.ipcc.ch/report/ar6/wg2/chapter/chapter-9/>.

⁸⁶ Ibid.

⁸⁷ Walker, S.E. et al. (2020) ‘Education and adaptive capacity: The influence of formal education on climate change adaptation of pastoral women’.

⁸⁸ Morton, J. (2007) ‘The impact of climate change on smallholder and subsistence agriculture’.

⁸⁹ Perez, C. et al. (2015) ‘How resilient are farming households and communities to a changing climate in Africa? A gender-based perspective’, *Global Environmental Change*, 34:1, pp.97-107.

⁹⁰ Walker, S.E. et al. (2020) ‘Education and adaptive capacity: The influence of formal education on climate change adaptation of pastoral women’.

⁹¹ Commodities or crops such as food, feed, fuel, fibre and industrial material are ‘flex’ as they can be flexibly interchanged when experiencing supply gaps and are then filled by other flex crops (see footnote 89 for source information).

to credit, formal education, gender, age, wealth and geographic location.⁹² As a result, already marginalised groups within pastoralist communities – including women, the poor, people with disabilities, the elderly and children – have limited adaptive capacities.⁹³

3.2 RELATIONSHIP BETWEEN CLIMATE CHANGE AND EDUCATION

There is a two-way relationship between climate change and education. First, there is the impact of climate change on education, and in this research, we look more specifically at the impact of climate change on *girls'* education. Second, there is a relationship between education and climate change adaptation for individuals and communities. In this section, we first explore the impacts of climate change on girls' education, before turning to the literature on the role of education in addressing climate change.

3.2.1 Influence of climate change on girls' education

Understanding the gendered impacts of climate change on girls is essential to understanding how climate change impacts girls' education. While girls and boys are equally likely to be *exposed* to climate shocks, girls are more likely to experience greater *impacts* of those climate shocks.^{94,95} Women and girls constitute the majority of the world's poor and are more likely to be dependent on natural resources for their livelihoods.⁹⁶ Girls are also more likely to have lower levels of education⁹⁷ and financial resources. Gender norms mean that girls are less likely to be involved in political, community and household decision-making, and often face barriers that hamper their mobility during an emergency.⁹⁸ Girls are also more vulnerable to the impacts of climate shocks due to a lack of protective mechanisms to safeguard their rights.⁹⁹ Girls are also less likely to be economically independent and are typically not the decision-makers within households. As a result, they are also less likely to have influence over coping and adaptation strategies that their households or communities may implement to minimise the impact of climate shocks.

Girls with disabilities, health conditions, or who are pregnant or breastfeeding are also more vulnerable to experiencing climate shocks due to their reduced mobility and healthcare resources needs. During and in the aftermath of climate events, girls and young women also experience disrupted access to sexual and reproductive health (SRH) services and limited access to contraception, unintended pregnancies, unsafe abortions, and worsened maternal and neonatal outcomes (including miscarriage, stillbirths, vector-borne illnesses like the Zika virus, and maternal mortality).^{100,101}

Adolescent girls and young women living in climate crises are at greater risk of sexual and GBV, domestic abuse and intimate partner violence. Numerous studies have highlighted a spike in GBV and

⁹² Walker, S.E. et al. (2020) 'Education and Adaptive Capacity: The influence of formal education on climate change adaptation of pastoral women'.

⁹³ Plan International (2021) 'Climate Change, Young Women, and Girls', p. 4.

⁹⁴ 'Exposure' refers to the "inventory of elements in an area in which hazard events may occur." Exposure and vulnerability are distinct. It is possible to be exposed but not vulnerable to an event, however, to be vulnerable to an event it is necessary to also be exposed (see endnote 58 for source information)

⁹⁵ Cardona, O.D. (2012) 'Determinates of Risk: Exposures and vulnerability'.

⁹⁶ UN WomenWatch (n.d) 'Factsheet: Women, Gender Equality and Climate Change'. Available at: www.un.org/womenwatch/feature/climate_change/downloads/Women_and_Climate_Change_Factsheet.pdf.

⁹⁷ Ibid.

⁹⁸ UNDP (2016) 'Gender and Climate Change'. Available at: <https://www.undp.org/sites/g/files/zskgke326/files/publications/UNDP%20Linkages%20Gender%20and%20CC%20Policy%20Brief%201-WEB.pdf>.

⁹⁹ Chatterjee, S. (2015) 'Climate change risks and resilience in urban children in Asia. Synthesis report for secondary cities: Da Nang, Khulna, and Malolos', *Asian Cities Climate Resilience*, Working paper series 21, pp.1-59.

¹⁰⁰ UNFPA (2021) 'Conflict, Climate and COVID: Tackling humanitarian crises on multiple fronts'. Available at: <https://reliefweb.int/report/world/conflict-climate-and-covid-tackling-humanitarian-crises-multiple-fronts>.

¹⁰¹ UNFPA (2021) 'Five ways climate change hurts women and girls'. Available at: <https://www.unfpa.org/news/five-ways-climate-change-hurts-women-and-girls>.

sexual assault during and after extreme weather events;¹⁰² natural hazards exacerbate underlying drivers of violence and create environments for abuse to occur.¹⁰³ Women and girls also experience sexual abuse and violence when accessing relief services.¹⁰⁴ Evidence suggests women and girls risk other longer-term impacts of climate change, including displacement, sex trafficking, and sexual exploitation in the form of selling or exchanging sex to support themselves or their families.¹⁰⁵

Climate change also exacerbates the drivers of child, early and forced marriages and unions (CEFMU). When livelihoods are disrupted and households experience economic shocks, child marriage is often viewed as a means to improve a family's financial situation. Child marriage can be seen as a way to reduce the amount of people within the household who need to be fed, and in communities that practice bride price (paid by the groom's family to the bride's family), this can be an additional financial incentive to encourage child marriage.¹⁰⁶ Climate shocks also disrupt girls' education, through factors such as destruction of infrastructure, poverty and displacement, and education is widely understood to be a protective factor against child marriage.¹⁰⁷ These gendered vulnerabilities are indeed not homogenous across all girlhoods, but are a circumstance of factors, including poverty, ethnicity, disability, socioeconomic status and geographic location, among others.¹⁰⁸

Climate change threatens the realisation of girls' rights to education. It is estimated that environmental threats, including weather-related disasters, disrupt the education of approximately 37.5 million learners across the globe each year.¹⁰⁹ In early 2021, the Malala Fund estimated that climate-related events would prevent at least four million girls in low- and lower-middle income countries from completing their education, and if this trend were to continue, by 2025 climate change would contribute to 12.5 million girls not completing their education each year.¹¹⁰

Two key factors influence the disproportionate impact of climate on girls' education. The first is gender norms that devalue educational attainment for girls, in favour of reproductive and care labour within the home.¹¹¹ The second is poverty, which can have the effect of forcing parents facing financial hardship to remove children from school as a negative coping mechanism. Taken together, we can see that the impacts of climate change can cause negative impacts on livelihoods (particularly among communities reliant on agriculture and fisheries), with gender norms about girls' education informing decisions to remove girls from school in favour of them taking on additional household responsibilities or paid work outside of the home to contribute to the family income. It is in this way that deteriorated livelihoods due to climate events are likely to disproportionately affect girls, and impact gender equity and female student performance.¹¹² Where not removed from school, girls' learning and progress may still be negatively affected by increases in household responsibilities, or by incorporating paid or unpaid work into their routine, leading to less time available to study.^{113,114} In the context of climate change as a risk to girls' education, household income is thereby a strong predictor of children's educational

¹⁰² Rezwana, N. and Pain, R. (2020) 'Gender-based violence before, during, and after cyclones: Slow violence and layered disasters', *Disasters*, 45:4, p.741.

¹⁰³ van Daalen, K.R. et al (2022) 'Extreme events and gender-based violence: A mixed methods systematic review,' *Lancet Planet Health*, 6:6, p.519.

¹⁰⁴ CARE International (2021) *Evicted by Climate Change: Confronting the gendered-impacts of climate-induced displacement*.

¹⁰⁵ Sims, K. (2021) 'Education, Girls' Education and Climate Change', p.3.

¹⁰⁶ UNFPA (2021) 'Child Marriage and Environmental Crises: An Evidence Brief'. Available at: <https://esaro.unfpa.org/en/publications/child-marriage-and-environmental-crises-evidence-brief>.

¹⁰⁷ Girls Not Brides (2022) 'Girls' Education and Child Marriage'. Available at: <https://www.girlsnotbrides.org/learning-resources/resource-centre/girls-education-and-child-marriage/#resource-downloads>.

¹⁰⁸ Sims, K. (2021) 'Education, Girls' Education and Climate Change'.

¹⁰⁹ Theirworld (2020) '20 reasons why, in 2020, there are still 260m children out of school'. Available at: <https://theirworld.org/news/20-reasons-why-260m-children-are-out-of-school-in-2020/>.

¹¹⁰ Malala Fund (2021) 'A Greener, Fairer Future: Why leaders need to invest in climate and girls' education'. Available at: <https://malala.org/newsroom/malala-fund-publishes-report-on-climate-change-and-girls-education>.

¹¹¹ Theirworld (2020) '20 reasons why, in 2020, there are still 260m children out of school'.

¹¹² Bangay, C. and Blum, N. (2010) 'Education responses to climate change and quality: Two parts of the same agenda?', *International Journal of Educational Design*, 30:4, pp.359-368

¹¹³ Nelson, V. (2011) 'Gender, Generations, Social Protection & Climate Change: A thematic Review', Overseas Development Institute. Available at: <https://odi.org/en/publications/gender-generations-social-protection-climate-change-a-thematic-review>.

¹¹⁴ UNICEF (2015) 'Unless we act now: The impact of climate change on children'.

attainment.¹¹⁵ Disproportionate household labour, poverty and the burden of engaging with paid work to supplement income are all key recurring themes in our study's findings, and threaten the educational attendance or attainment of some RCRL girls. Such themes can be traced to the rising cost of living and financial precarity that is attributed to climate changes' impact on the livelihoods of girls' households and the wider community.

Girls also have the right to be leaders and agents of change in promoting their rights. In the context of this study, we define leadership to be inclusive of any ways that girls may exercise leadership qualities in their everyday lives, particularly their decision-making. Exploring alternative narratives of girls' leadership and agency has been a long running theme of RCRL. In 2019, RCRL evidence analysed girls' everyday acts of resistance to gender norms as a form of agency, which offered an often-unexplored view of girlhood.¹¹⁶ Our 2022 data collection found that girls wished for their views to be listened to and addressed by adults in their lives and communities and to participate publicly as citizens.

Literature on participatory power demonstrates that women play important roles in climate adaptation and mitigation strategies,¹¹⁷ particularly in advancing a human-centred and rights-based approach to coping and adaptation strategies.¹¹⁸ Yet, women's increased vulnerability restricts their adaptation capacities, and their ability to participate in strategic decision-making on mitigation.¹¹⁹ For girls, barriers to leading and participating in decision-making are further increased. As established above, children's families with less access to education are more likely to be removed from school and sent to work,¹²⁰ whereas education has the potential to improve the adaptive capacity of children and their households. Education can impart the skills required to manage risks and also increase access to a diversity of livelihood opportunities later on, thereby reducing dependence on the sectors most affected by climate change.¹²¹ It is in this way that education can develop girls' leadership skills, giving them the confidence and opportunity to speak out in their communities (and beyond) to ensure that girls' needs in climate mitigation are being amplified.¹²²

Research by Polack (2010) demonstrates children's ability for "absorbing new information; proposing adaptation strategies; acting on future visions and the needs of future generations; taking action for the benefit of their communities; and prioritising sustainable management of natural resources and environmental concerns."¹²³ The report proposes that "fulfilling child rights in a changing climate requires a two track approach: (1) integrating child rights into national climate change responses and (2) integrating climate change into national child rights agendas."¹²⁴ Despite this, children have, until recent years, been excluded from the discourse around adaptation strategies.¹²⁵ While there are some avenues for select individuals to participate in discussions on climate change (for example, the UN's Youth Advisory Group on Climate Change, established in 2020), by and large children and youth are restricted from participating in discourse, due to voting age restrictions and limited opportunities for youth engagement.¹²⁶ Additionally, Nationally Determined Contributions (NDCs), which outline individual countries' plans to meet the Paris Agreement and reduce greenhouse gas emissions,

¹¹⁵ UNICEF (2021) 'Reimagining Girls' Education: Solutions to Keep Girls Learning in Emergencies'. Available at: <https://www.unicef.org/media/94201/file/Reimagining%20Girls%20Education%20Solutions%20to%20Keep%20Girls%20Learning%20in%20Emergencies%20.pdf>.

¹¹⁶ Loveday, L., Rivett, J., and Walters, R. (2023) 'Understanding girls' everyday acts of resistance: Evidence from a longitudinal study in nine countries', *International Feminist Journal of Politics*, 25:2, pp.244-265.

¹¹⁷ Dankelman, I. (2002) 'Climate Change: Learning from gender analysis and women's experiences of organising for sustainable development, gender and development', *Gender & Development*, 10:2, pp.21-29.

¹¹⁸ Boyd, E. (2002) 'The Noel Kempff Project in Bolivia: Gender, power, and decision-making in climate mitigation', *Gender & Development*, 10:2, pp.70-77.

¹¹⁹ Asadullah, M.N., Islam, K.M.M. and Wahhaj, Z. (2021) 'Child marriage, climate vulnerability and natural disasters in coastal Bangladesh', *Journal of Biosocial Science*, 53:6, pp.948-967.

¹²⁰ UNICEF (2015) 'Unless we act now: The impact of climate change on children'.

¹²¹ Ibid.

¹²² Sims, K. (2021) 'Education, Girls' Education and Climate Change', p.4.

¹²³ Polack, E. (2010) 'Child Rights and Climate Change Adaptation. Voices from Kenya and Cambodia'. Children in a changing Climate. Available at: https://www.preventionweb.net/files/13119_CCCReportFinal1.pdf.

¹²⁴ Ibid.

¹²⁵ Ibid.

¹²⁶ Youth who are involved are often highly educated and from an urban setting, and so youth who are more marginalised and most likely to feel the effects of climate change are often shut out from these limited opportunities.

overwhelmingly minimise or ignore the active role of youth – and girls – in climate adaptation. Most fail to mention youth, and when youth are mentioned, they are referred to by their vulnerability and not for their role in participating in climate discussions. Girls are particularly rarely mentioned across NDCs. Girls' education, including both disruptions caused by climate change and the capacity of education to inform and influence climate change adaptation, is neglected.¹²⁷

With challenges to girls' education and being subject to gendered household responsibilities, climate change can shut out girls from key decision-making processes in their home or elsewhere. Yet, it is imperative that youth – particularly marginalised youth and girls – be included in, if not lead, climate change action at all levels, to speak to their experiences and address their specific vulnerabilities.

3.2.2 Role of education to support climate change adaptation

Evidence shows that ensuring girls' access to quality education is a sustainable and cost effective tool to building societies' resilience to climate change.¹²⁸ There is a growing body of evidence supporting the importance of education towards climate action, and girls' education has been identified as a key socioeconomic determinant to reduce vulnerability to climate impacts.¹²⁹ Education can support people to identify climate change risks and hazards, and to build their skills and knowledge to reduce and mitigate these risks. The areas where education can build skills and knowledge include developing early warning systems, contingency planning, imparting life-saving information, and providing options for actions to take to adapt to extreme weather events.¹³⁰ Education can also provide girls with knowledge that enables them to adapt their future livelihoods to climate change and its impacts.¹³¹ Evidence suggests that countries that have focused on girls' equal access to education have suffered far fewer losses from droughts and floods than countries with lower levels of girls' education.¹³²

Muttarak and Lutz (2014) conducted eleven studies across a range of “geographic, socioeconomic, cultural and hazard contexts”¹³³ and their findings concluded that education can provide long-term defence against climate change consequences by strengthening skills and knowledge, improving understanding of risk, as well as by indirectly reducing poverty, improving health and increasing access to information. Higher levels of education correlate with greater disaster preparedness and response and reduced vulnerability in the aftermath of disasters. This may be due to an increased ability to take up a new job or have better socioeconomic resources to “buffer the income loss from climatic shocks.”¹³⁴ Kwauk and Braga¹³⁵ (2017) analyse and compare data on the average years of education a girl has achieved and a country's climate vulnerability index, and identify “a strong positive association between the average amount of schooling a girl receives in her country and her country's score on indexes that measure vulnerability to climate-related disasters.”¹³⁶ One possible explanation is that education increases awareness of sustainable natural resource use, which in turn can support positive behaviour change and promote a sense of ecological responsibility among individuals and communities.¹³⁷

Education also provides young people with the knowledge and skills to challenge dominant power and oppression structures that perpetuate global warming and environmental degradation, from community to global levels.¹³⁸ In addition, education can enable child-to-parent intergenerational learning, which

¹²⁷ Kwauk, C. et al. (2019) 'National Climate Strategies are Forgetting about Girls, Children, and Youth,' *Brookings Institution Commentary*. Available at: <https://www.brookings.edu/articles/national-climate-strategies-are-forgetting-about-girls-children-and-youth/>.

¹²⁸ Plan International (2019) 'Climate Change: Focus on Girls and Young Women. Plan International Position Paper'.

¹²⁹ Plan International (2021) 'Climate Change, Young Women, and Girls'.

¹³⁰ Plan International (2019) 'Climate Change: Focus on Girls and Young Women. Plan International Position Paper'.

¹³¹ Ibid.

¹³² Ibid.

¹³³ Muttarak, R. and Lutz, W. (2014) 'Is education a key to reducing vulnerability to natural disasters and hence unavoidable climate change?'.
¹³⁴ Ibid.

¹³⁵ Kwauk, C. and Casey, O. (2021) 'A New Green Learning Agenda: Approaches to Quality Education for Climate Action', *Brookings Institute Reports: Washington*. Available at: <https://www.proquest.com/docview/2577656646?pq-origsite=primo>
¹³⁶ Ibid.

¹³⁷ Plan International (2019) 'Climate Change: Focus on Girls and Young Women'.

¹³⁸ Plan International (2021) 'Climate Change, Young Women, and Girls', p.7.

can “inspire adults towards higher levels of climate concern, and in turn, collective action.”¹³⁹ By developing skills, raising awareness, changing behaviours and building children’s agency, education is critical to encouraging climate change adaptations. These factors support the *everyday leadership* that is exhibited by RCRL girls; it is less about taking up platforms with decision-makers, and more about making active decisions towards climate adaptations within girls’ capacities.

Evidence from external studies situated in RCRL countries highlights the significance of education in influencing adaptation strategies. Studies in Togo,¹⁴⁰ Brazil¹⁴¹ and Benin¹⁴² found that adaptation to climate change was influenced by the educational level of household decision-makers. Higher levels of education was correlated with greater ability to access critical information on: hazards and other threats, risk-reduction measures, potential avenues for institutional support, relevant laws relating to the environment, and individuals’ rights.¹⁴³ Education levels was also associated with a greater ability to raise climate concerns with authorities.¹⁴⁴ However, a Ugandan study suggests that the association between education and climate change adaptation may only be the case in male-headed households, and that female-headed households lacked adaptation capabilities despite higher levels of educational attainment.¹⁴⁵

With the exception of the Philippines, there is limited literature available on the content and quality of climate change curriculum taught in the RCRL countries. While research suggests that climate change is becoming integrated into curriculum in some African countries – including Madagascar and Malawi – the analysis does not provide insights as to either the content of this curriculum or evidence of its impact.¹⁴⁶

Evidence from the Philippines, however, shows that climate change education is being comprehensively mainstreamed into the public-school curriculum by the Department of Education.¹⁴⁷ The curriculum includes science lessons on climate phenomena and interactive activities that engage children in how they and their families can address climate change.¹⁴⁸ Lawler and Patel’s (2012) review found that children in the Philippines are already addressing climate change with “enthusiasm” and are already working with their families and communities to “prepare for and adapt to” the impacts of climate change.¹⁴⁹ These findings demonstrate the importance of incorporating young people’s voices and developing their capabilities to increase resilience to climate change in communities.

Overall, there is limited literature available on the ways in which climate change education is being included in mainstream curricula in RCRL countries. As such, our research on girls’ experiences of climate change in their formal education is particularly valuable.

¹³⁹ Lawson, D.F. et al. (2019) ‘Children can foster climate change concern among their parents’, *Nature Climate Change*, 9:6.

¹⁴⁰ Gadédjisso-Tossou, A. (2015) ‘Understanding farmers’ perceptions of and adaptations to climate change and variability: The case of the Maritime, Plateau and Savannah Regions of Togo’, *Agriculture Sciences*, 6:12, pp.1-14.

¹⁴¹ Wamsler, C. et al. (2012) ‘Climate change, adaptation, and formal education: The role of schooling for increasing societies’ adaptive capacities in El Salvador and Brazil’.

¹⁴² Fadina, A.M.R. and Barjolle, D. (2018) ‘Farmers’ adaptation strategies to climate change and their implications in the Zou Department of South Benin’, *Department of Environmental Systems Science*, 5:1, pp.1-17.

¹⁴³ Wamsler, C. et al. (2012) ‘Climate change, adaptation, and formal education: The role of schooling for increasing societies’ adaptive capacities in El Salvador and Brazil’.

¹⁴⁴ Ibid, p.9.

¹⁴⁵ Hisali, E., Birungi, P. and Buyinza, F. (2011) ‘Adaptation to climate change in Uganda: Evidence from micro level data’, *Global Environment Change*, 21:4, pp.1245-1261.

¹⁴⁶ Kagawa, F. and Selby, D. (2013) ‘Ready for the storm: Education for disaster risk reduction and climate change adaptation and mitigation’, *Journal of Education for Sustainable Development*, 6:2, p.213.

¹⁴⁷ Lawler, J. and Patel, M. (2012) ‘Exploring children’s vulnerability to climate change and their role in advancing climate change adaptation in East Asia and the Pacific’.

¹⁴⁸ Ho, L. and Seow, T. (2017) ‘Disciplinary boundaries and climate change education: Teachers’ conceptions of climate change education in the Philippines and Singapore’, *International Research in Geographical and Environmental Education*, 26:3, pp.240-252.

¹⁴⁹ Lawler, J. and Patel, M. (2012) ‘Exploring children’s vulnerability to climate change and their role in advancing climate change adaptation in East Asia and the Pacific’.

3.3 COUNTRY CONTEXTS: CLIMATE CHANGE AND EDUCATION IN RCRL COUNTRIES

Understanding the impacts of climate change on the RCRL cohort girls requires not only an understanding of the global level, but also contextualised analysis of the climate change experienced in the eight RCRL countries and specific local vulnerabilities. Additionally, we also look to provide an overview understanding of education – and specifically girls' education – in each RCRL country in order to provide context for the girls' stories about their experiences. We also look at where countries have introduced policies or plans for integrating climate change into curricula.

Using sources such as the 2021 Notre Dame Global Adaptation Initiative (ND-GAIN) Index and UNICEF's Children's Climate Risk Index (CCRI), we are able to understand the climate events facing each RCRL country and the countries' vulnerabilities. We can also examine these in comparison with other countries globally. The ND-GAIN Index analyses and ranks the impact of climate events, and summarises a country's vulnerability to climate change and other global challenges in combination with its economic readiness, governance readiness and social readiness to improve resilience (higher scores are favourable).¹⁵⁰ According to this index, three of the nine RCRL countries (Uganda, Benin and Cambodia) are among the top quartile of most vulnerable countries, and all but Brazil are in the top half.¹⁵¹ The ND-GAIN Index is useful in demonstrating that climate impacts can be mitigated through preparedness assessments and adaptations strategies; the converse is also true, and Uganda and Benin highlight that a lack of readiness can cause greater vulnerability.

Table 1: Notre Dame Global Adaptation Initiative (ND-GAIN) Index in RCRL countries¹⁵²

Country	ND-GAIN Index	Country ranking
<i>Country with lowest ND-GAIN (most vulnerable): Chad</i>	27.0	185
Uganda	35.1	173
Benin	39.3	153
Cambodia	40.1	144
Togo	42.9	128
Philippines	43.7	122
El Salvador	45.9	108
Dominican Republic	47.2	101
Vietnam	47.5	100
<i>Country with median ND-GAIN: Bhutan</i>	48.4	93
Brazil	48.9	86
<i>Country with highest ND-GAIN (least vulnerable): Norway</i>	75.0	1

The ND-GAIN Index shows that the RCRL countries are generally among the lower and middle rankings, indicating higher susceptibility to climate impacts and lesser readiness to address such challenges. Some regional differentiation is also notable here too: Latin American countries generally have more favourable ND-GAIN scores, while African countries tend to have less favourable scores.

The UNICEF CCRI is valuable in understanding the particular experiences of children within their country contexts according to two pillars: children's exposure to climate and environmental shocks and stresses, and children's vulnerability (based on health, nutrition, education, WASH, poverty and social protection). The combination of these two factors creates a country's CCRI ranking and categorisation.

¹⁵⁰ University of Notre Dame (2023) 'Notre Dame Global Adaptation Initiative Methodology'. Available at: <https://gain.nd.edu/our-work/country-index/methodology/>.

¹⁵¹ University of Notre Dame (2021) 'ND-GAIN Index Country Rankings'. Available at: <https://gain.nd.edu/our-work/country-index/rankings/>.

¹⁵² Ibid.

Under the first pillar, six of the RCRL countries experience an 'extremely high' level of environmental shocks and stresses; these are the Philippines, Vietnam, Cambodia, Benin, Togo and Brazil, with the Philippines ranked third globally. Under the second pillar, three of the RCRL countries experience an 'extremely high' level of child vulnerability: Benin, Togo and Uganda. Unsurprisingly, Benin and Togo are therefore among the countries categorised as having a CCRI severity rating of 'very high' (the highest category for this measure). Interestingly, however, despite the Philippines having a lower degree of child vulnerability ('medium' as opposed to 'extremely high'), its CCRI score is 'very high' – ranked 31st of countries where children are most at risk.¹⁵³

Table 2: Children's Climate Risk Index (CCRI) in RCRL countries¹⁵⁴

Country	Pillar 1: Climate Shocks	Pillar 2: Child Vulnerability	CCRI
	Scale: very low to extremely high		Scale: very low to very high
<i>Most severe: CAR*</i>	<i>High</i>	<i>Extremely high</i>	<i>Very high (8.7)</i>
Benin	Extremely high	Extremely high	Very high (7.6)
Togo	Extremely high	Extremely high	Very high (7.6)
Philippines	Extremely high	Medium	Very high (7.1)
Uganda	High	Extremely high	High (6.8)
Vietnam	Extremely high	Low	High (6.8)
Cambodia	Extremely high	High	High (6.5)
Brazil	Extremely high	Low	Medium (5.3)
Dominican Republic	High	Low	Medium (5.2)
El Salvador	High	Low	Medium (5.1)
<i>Least severe: Iceland</i>	<i>Very low</i>	<i>Very low</i>	<i>Very low (1.0)</i>

* Central African Republic

Turning to the relationship between climate change and girls' education, the Malala Fund's Girls Education and Climate Challenges Index (GECCI) adapts the Malala Fund's Girls Education Challenges Index (GECI) – which examines gender disparities in education and learning outcomes – and combines it with the ND-GAIN Index to understand “where girls face the greatest threats to their education and are most vulnerable to climate change.”¹⁵⁵ A lower score and ranking are favourable, suggesting that girls' education is less susceptible to being disrupted or affected by climate change. The GECCI only includes low- and middle-income countries and cannot be directly compared with the indices above. However, we are able to broadly observe a relationship between rankings.

¹⁵³ UNICEF (2021) 'The Climate Crisis is a Child Rights Crisis: Introducing the Children's Climate Risk Index'.

¹⁵⁴ Ibid.

¹⁵⁵ Malala Fund (2021) 'A Greener, Fairer Future: Why leaders need to invest in climate and girls' education', p.11.

Table 3: Girls' Education and Climate Challenges Index (GECCI) in RCRL countries¹⁵⁶

Country	GECCI	Ranking
<i>Most vulnerable: Nigeria</i>	7.805	1
Benin	7.32	6
Togo	7.199	8
Uganda	6.268	29
Cambodia	5.802	45
Philippines	5.108	60
El Salvador	4.819	63
Vietnam	4.214	70
<i>Least vulnerable: Timor Leste</i>	3.483	77

The combination of the above data tells an interesting story about the relationship between a country's experience of shocks and stresses, the impact of these shocks, children's vulnerability to being affected by these shocks, and the likelihood of girls' education being disrupted. Benin and Togo are examples of a clear relationship. Both have 'extremely high' exposure to environmental shocks and stresses¹⁵⁷ and unfavourable ND-GAIN scores (32nd and 57th most vulnerable out of 185 to experiencing climate shocks, respectively).¹⁵⁸ Children have 'extremely high' levels of vulnerability in both countries, and both have a CCRI ranking of 15 (with 1 being most at risk, and 163 being least).¹⁵⁹ As a result, girls in Benin and Togo are among the most likely of those in low- and middle-income countries to have their education affected by climate change.¹⁶⁰ On the other hand, we can see that Vietnam also experiences an 'extremely high' level of shocks and stresses¹⁶¹ yet has a much more favourable ND-GAIN ranking (85th most vulnerable out of 185) suggesting greater preparedness and adaptation capacities.¹⁶² According to UNICEF's CCRI, children in Vietnam are at 'high' risk of the impacts of climate change. Yet the Malala Fund GECCI indicates that children in Vietnam are among the least likely of those in low- to middle-income countries to have their education disrupted. This suggests that the education sector in Vietnam has adopted effective adaptation and continuity plans to reduce vulnerability and support a resilient education system.¹⁶³ In this way, we can see the powerful influence of readiness and adaptation capacities in mitigating climate change impacts on girls' education.¹⁶⁴

¹⁵⁶ Malala Fund (2021) 'A Greener, Fairer Future: Why leaders need to invest in climate and girls' education'.

¹⁵⁷ UNICEF (2021) 'The Climate Crisis is a Child Rights Crisis: Introducing the Children's Climate Risk Index'.

¹⁵⁸ University of Notre Dame (2021) 'ND-GAIN Index Country Rankings'.

¹⁵⁹ UNICEF (2021) 'The Climate Crisis is a Child Rights Crisis: Introducing the Children's Climate Risk Index'.

¹⁶⁰ Malala Fund (2021) 'A Greener, Fairer Future: Why leaders need to invest in climate and girls' education'.

¹⁶¹ Ibid.

¹⁶² University of Notre Dame (2021) 'ND-GAIN Index Country Rankings'.

¹⁶³ UNICEF (2021) 'The Climate Crisis is a Child Rights Crisis: Introducing the Children's Climate Risk Index'.

¹⁶⁴ It is important to acknowledge that methodologies of these studies vary, and examine slightly different time periods, and therefore these observations are conjecture rather than objective fact.

3.3.1 Brazil

KEY FACTS

- Brazil is the largest country in South America and 5th largest country in the world.
- The country is home to a diverse range of climates and ecosystems including rainforest, wetlands, grasslands, mountains and an extensive coastline. Almost 60% of the Amazon rainforest is located within Brazil.
- Brazil has a population of 213 million, with 86% of the population residing in urban areas.
- Brazil is highly susceptible to a range of natural hazards, including floods, earthquakes, droughts, extreme temperatures, landslides and cyclones.
- The country updated its Nationally Determined Contribution (NDC) in 2022 for the second time. Emission reduction goals were included, as well as a long-term objective of achieving carbon neutrality by 2050.
- Education in Brazil is compulsory for children between 4 and 17 years old, and 90% of children aged 5 to 15 years are currently enrolled in school.
- Girls make up the majority of graduates – 54% of those who complete secondary education are girls.

Sources: World Bank (2021),¹⁶⁵ USAID (2022),¹⁶⁶ WWF (2023)¹⁶⁷ and OECD (2022)¹⁶⁸

Brazil plays a critical role in global efforts to address climate change. The country is home to 60 per cent of the Amazon Basin, and the Amazon rainforest is one of the world's largest 'carbon sinks,' absorbing more carbon dioxide from the atmosphere than it emits.¹⁶⁹ In Brazil, "climate change disasters are recurrent."¹⁷⁰ Evidence shows that extreme climatic events in Brazil trigger droughts and desertification, which pose a threat to food security.¹⁷¹ In the mid-2010s, Brazil faced a political and economic crisis, leading to large budget cuts to the climate agenda and the reinforcement of a conservative political coalition.¹⁷²

In 2016, Brazil launched its National Action Plan (NAP) to address climate change and climate adaptation. The NAP seeks to serve as a platform to guide international funding, as well as to produce knowledge on climate change vulnerabilities and influence policy.¹⁷³ It also aims to integrate risk-management strategies within existing policies across eleven sectors,¹⁷⁴ including vulnerable populations.¹⁷⁵ However, despite its ambitions, the NAP has since experienced institutional constraints, a lack of political will and resources, and seen environmental policies dismantled, creating a new wave of climate-scepticism in Brazilian policy-making.¹⁷⁶ In April 2022, Brazil updated its Nationally Determined Contribution (NDC), which includes emissions reduction goals, with the long-term objectives of ending illegal deforestation by 2028 and achieving carbon neutrality by 2050.¹⁷⁷ However,

¹⁶⁵ The World Bank (2021) 'Climate Risk Country Profile: Brazil'. Available at:

https://climateknowledgeportal.worldbank.org/sites/default/files/2021-07/15915-WB_Brazil%20Country%20Profile-WEB.pdf.

¹⁶⁶ USAID (2022) 'Brazil: Climate change country profile'. Available at: <https://www.usaid.gov/climate/country-profiles/brazil>.

¹⁶⁷ WWF (2023) 'The Amazon'. Available at: <https://www.wwf.org.uk/where-we-work/amazon#:~:text=The%20Amazon%20covers%20a%20huge,an%20overseas%20territory%20of%20France>.

¹⁶⁸ OECD iLibrary (2022) 'Education at a Glance 2022: OECD indicators, Brazil'. Available at: <https://www.oecd-ilibrary.org/sites/a5ee2d75-en/index.html?itemId=/content/component/a5ee2d75-en#:~:text=Compulsory%20education%20begins%20at%20the,age%20of%2017%20in%20Brazil>.

¹⁶⁹ USAID (2022) 'Brazil: Climate change country profile'.

¹⁷⁰ Wamsler, C. et al. (2012) 'Climate change, adaptation, and formal education: The role of schooling for increasing societies' adaptive capacities in El Salvador and Brazil', p. 18.

¹⁷¹ Milhorange, C. et al. (2021) 'The politics of climate change adaptation in Brazil: Framings and policy outcomes for the rural sector', *Environmental Politics*, 31:2, pp.183-204.

¹⁷² Ibid.

¹⁷³ Ibid.

¹⁷⁴ Eleven sector-based strategies shaped national priorities on climate vulnerability: agriculture, biodiversity and ecosystems, cities, natural disasters, industry and mining, infrastructure, vulnerable populations, water resources, health, food and nutrition security, and coastal areas (see footnote 171 for source information)

¹⁷⁵ Milhorange, C. et al. (2021) 'The politics of climate change adaptation in Brazil: Framings and policy outcomes for the rural sector'.

¹⁷⁶ Ibid.

¹⁷⁷ USAID (2022) 'Brazil: Climate change country profile'.

according to the World Bank, Brazil is not on track to meet its NDC due to a recent increase in deforestation emissions.¹⁷⁸

Evidence shows that migrants, poor populations and women in Brazil are highly vulnerable to climate change impacts. Of those deemed vulnerable in Brazil, 60 per cent are Indigenous peoples living in the Amazon biome, who are dependent on the conservation of ecosystems and biodiversity for their livelihoods.¹⁷⁹ Brazil's policies have had limited success in identifying and mitigating the root causes of climate vulnerability, because this "vulnerability is not synonymous with the existence of poverty itself but with the socially instituted inequities that preclude any escape from poverty."¹⁸⁰ The literature on vulnerabilities in Brazil highlights that climate change creates more significant burdens and poses higher risk to women than to men, while exacerbating "existing disparities in gender roles, responsibilities, perceptions and skewed power relations that disadvantage women."¹⁸¹ Climate change in Brazil is associated with an increase in SGBV¹⁸² and in trafficking and sexual exploitation of women and girls.¹⁸³ Feitosa and Yamaoka (2020) also highlight the ways in which climate change undermines women's networks and their capacities to strengthen climate resilience.¹⁸⁴

In Brazil, public spending on primary to tertiary education is high, at 16 per cent of total government expenditure (against the world average of 14 per cent).¹⁸⁵ The Brazilian government has introduced a number of policies seeking to increase environmental and community action. The current National Education Plan (2014-2024) is responsible for climate change curriculum in schools,¹⁸⁶ and the Ministry of Education oversees the Sustainable Schools National Programme, which works across various levels within the education sector (curriculum, management, facilities and school-community relationships) to embed environmental education within educational institutions.¹⁸⁷ However, Brazil's updated NDC does not recognise children as a vulnerable group to climate change, nor does it include commitments to education.¹⁸⁸ Additionally, monitoring and evaluation of the effectiveness of these mechanisms does not appear to be publicly available.

¹⁷⁸ The World Bank (2023) 'The World Bank in Brazil'. Available at: <https://www.worldbank.org/en/country/brazil/overview>.

¹⁷⁹ Milhorange, C. et al. (2021) 'The politics of climate change adaptation in Brazil: Framings and policy outcomes for the rural sector'.

¹⁸⁰ Nelson, D.R. and Finan, T.J. (2009) 'Praying for drought: Persistent vulnerability and the politics of patronage in Ceará, Northeast Brazil', *American Anthropologist*, 111:3, p.303.

¹⁸¹ Feitosa, C. and Yamaoka, M. (2020) 'Strengthening climate resilience and women's networks: Brazilian inspiration from agroecology', *Gender & Development*, 28:3, p.468.

¹⁸² The World Bank (2023) 'The World Bank in Brazil'.

¹⁸³ Feitosa, C. and Yamaoka, M. (2020) 'Strengthening climate resilience and women's networks: Brazilian inspiration from agroecology'.

¹⁸⁴ Ibid.

¹⁸⁵ USAID (2023) 'International Data & Economic Analysis – Brazil'. Available at: <https://idea.usaid.gov/cd/brazil/education>.

¹⁸⁶ Carvalho, I. and Frizzo, T. (2016) 'Environmental Education in Brazil', in M.A. Peters (eds.) *Encyclopaedia of Educational Philosophy and Theory*. Singapore: Springer Singapore.

¹⁸⁷ Global Environmental Education Partnership (2023) 'Brazil'. Available at: <https://thegeep.org/learn/countries/brazil>.

¹⁸⁸ ClimateWatch (2023) 'Brazil'. Available at: https://www.climatewatchdata.org/ndcs/country/BRA/adaptation?document=revised_first_ndc§ion=children_and_young_people.

3.3.2 Dominican Republic

KEY FACTS

- The population of the Dominican Republic is 11 million, with around 70% of people living in urban areas.
- The Dominican Republic is the second poorest nation in the Caribbean, with more than 40% of the population living at or below the poverty line.
- The country is threatened by rising sea levels, more frequent and intense storms and hurricanes, as well as risk of droughts, heat waves, landslides, floods, dams failures and forest fires.
- Subsistence fishing is a key source of food for the population, and agricultural products are the main exports, which include sugarcane, coffee and cacao.
- In the Dominican Republic, 88% of children complete primary school and 64% complete upper secondary school.
- The national government dedicates 22% of expenditure to education, against a world average of 14%.

Sources: World Bank (2021),¹⁸⁹ Nachmany et al. (2015),¹⁹⁰ USAID (2023)¹⁹¹

The Dominican Republic's climate vulnerabilities are shaped by rising sea levels and increased frequency and intensity of tropical storms;¹⁹² the country's location in the middle of the hurricane belt of the Atlantic and Caribbean oceans; and the general threat of other extreme weather events.¹⁹³ Coastal communities are at risk of rising sea levels, eroding coastlines and fisheries, intense rainfall events and associated flood risk, changing rainy and dry seasons, and degrading beaches and fish-spawning quality.¹⁹⁴ Furthermore, the degradation to ecosystems and coastal resources (for example mangroves and coral reefs) has direct and indirect impacts on livelihoods like fisheries, tourism and agriculture, which depend on the health and abundance of marine habitats.¹⁹⁵

Climate vulnerabilities are exacerbated by income inequalities, with youth unemployment at a rate of 30 per cent.¹⁹⁶ Food insecurity is a significant problem that is influenced by poor economic and physical access to food – one in every three households cannot afford the diet required to meet the nutritional needs of an average family.¹⁹⁷ This theme comes out in this report's findings, whereby multiple girls in the Dominican Republic speak about rising food costs and buying only necessities.

The Dominican Republic has a slightly lower than average completion rate for primary school, with only 88 per cent completing their primary education compared with the world average of 90 per cent, and the regional average of 93 per cent.¹⁹⁸ Interestingly, however, there is a higher than average completion rate for secondary education in the country, at 63 per cent (world average is 56 per cent)¹⁹⁹ indicating stronger retention strategies at the secondary school level.

¹⁸⁹ The World Bank (2021) 'Dominican Republic – Country Summary.' Available at: <https://climateknowledgeportal.worldbank.org/country/dominican-republic/>.

¹⁹⁰ Nachmany, M. et al. (2015) 'Climate Change Legislation in Dominican Republic: An excerpt from the 2015 Global Climate Legislation Study'. Grantham Research Institute. Available at: https://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2015/05/DOMINICAN_REPUBLIC.pdf.

¹⁹¹ USAID (2023) 'International Data & Economic Analysis – Dominican Republic'. Available at: <https://idea.usaid.gov/cd/dominican%20republic/education>.

¹⁹² Nachmany, M. et al. (2015) 'Climate Change Legislation in Dominican Republic: An excerpt from the 2015 Global Climate Legislation Study'.

¹⁹³ Schofield, H. (2016) *Sense of Place and Climate Change. Urban Poor Adaptation in the Dominican Republic*. PhD thesis, University of Manchester. Available at: <https://www.proquest.com/openview/462ff01e6fd927f8bbc4bc37df2aa067/1?cbl=2026366&diss=y&pg-origsite=gscholar>.

¹⁹⁴ Mat, R. and Hilary, L. (2015) 'Climate Change in the Dominican Republic: Coastal resources and communities'. Available at: <https://bvearmb.do/handle/123456789/763>.

¹⁹⁵ Ibid.

¹⁹⁶ Lohmann, H. (2016) 'Comparing vulnerability and adaptive capacity to climate change in individuals of coastal Dominican Republic', p.111-119.

¹⁹⁷ WFP (2023) 'Dominican Republic: Annual Country Report 2022 – Country Strategic Plan 2019-2023'. Available at: <https://reliefweb.int/report/dominican-republic/dominican-republic-annual-country-report-2022-country-strategic-plan-2019-2023>.

¹⁹⁸ USAID (2023) 'International Data & Economic Analysis – Dominican Republic'.

¹⁹⁹ USAID (2023) 'International Data & Economic Analysis – Dominican Republic'.

Climate change adaptation is a “constitutional priority” in the Dominican Republic.²⁰⁰ In 2012, the National Development Strategy (NDS) was signed into law, with the central theme of national adaptation to climate change. The NDS aims to achieve a “sustainable society that protects the environment and natural resources and promotes climate change adaptation.”²⁰¹ It includes a number of targets, including reducing emissions, reversing deforestation and increasing effective use of distributed water in irrigation.²⁰² The NDS is supported by the National Adaptation Plan of Action developed in 2016.²⁰³ The current government strongly supports the country’s renewable energy sector and plans to reduce the country’s carbon emissions by 27 per cent by 2030.²⁰⁴ Regarding climate education, the Dominican Republic launched its 2012 National Strategy to Strengthen Human Resources and Skills to Advance Green Low-Emissions and Climate-Resilient Development, which aimed to integrate climate change education in key sectors to increase coping capacity.²⁰⁵ Climate education programmes have been proposed for all education levels under the Law of Environmental Education and Communication; this includes commitments to train teachers and educators.²⁰⁶ The country’s NDC also supports the need for teacher training on climate change.²⁰⁷ The Dominican Republic has met six of the seven NDC indicators outlined in the Paris Agreement, including ‘strengthened adaptation.’²⁰⁸ As of 2023, outcome and impact of these various strategies is not yet clear.

3.3.3 El Salvador

KEY FACTS

- El Salvador’s geography is dominated by a region known as the ‘Dry Corridor’, which includes a high risk of droughts, storms, floods and landslides.
- The country is located in one of the most seismically active regions in the world – the average annual loss from earthquakes is nearly US\$ 176 million.
- An estimated 27% of households live in multidimensional poverty and rurality, which is characterized by limited access to education, insecure land tenure, unemployment, child labour and limited access to essential resources and social protection.
- The primary source of income for the rural population of El Salvador is agriculture, with approximately 58% of the country’s land devoted to farming.
- In El Salvador, 64% of children complete secondary education and 8% go on to complete tertiary education.

Sources: Norio-Tomasino (2022)²⁰⁹, USAID (2023)²¹⁰

El Salvador is the smallest and most densely populated country in Central America, with a high level of urbanisation (66 per cent) and significant rates of poverty, particularly in rural areas (50 per cent).²¹¹ Severe deforestation and land degradation have negatively affected agricultural lands and made the country additionally vulnerable to climate change. El Salvador’s geography is dominated by a region

²⁰⁰ Arup (2023) ‘Building Resilience and Climate Action in Dominican Republic’. Available at: <https://www.arup.com/projects/country-level-resilience-assessment-and-strategy-for-dominican-republic>.

²⁰¹ Ibid.

²⁰² Nachmany, M. et al. (2015) ‘Climate Change Legislation in Dominican Republic: An excerpt from the 2015 Global Climate Legislation Study’.

²⁰³ Arup (2023) ‘Building Resilience and Climate Action in Dominican Republic’.

²⁰⁴ AFD (2022) ‘Strengthening Climate Action in the Dominican Republic’. Available at: <https://www.afd.fr/en/actualites/strengthening-climate-action-dominican-republic>.

²⁰⁵ Nachmany, M. et al. (2015) ‘Climate Change Legislation in Dominican Republic: An excerpt from the 2015 Global Climate Legislation Study’.

²⁰⁶ ClimateWatch (2023) ‘Dominican Republic’. Available at: <https://www.climatewatchdata.org/countries/DOM>.

²⁰⁷ Education International (2022, updated 2023) ‘4 Alarming Findings about Education across Countries’ Nationally Determined Contributions’. Available at: <https://www.ei-ie.org/en/item/26536:4-alarming-findings-about-education-across-countries-nationally-determined-contributions>.

²⁰⁸ ClimateWatch (2023) ‘Dominican Republic’.

²⁰⁹ Norio-Tomasino, V. (2022) ‘Analyzing the effects of climate impacts in El Salvador and how they influence pollution, ecosystems and communities’. *Master’s Projects and Capstones*, University of San Francisco. Available at: <https://repository.usfca.edu/cgi/viewcontent.cgi?article=2801&context=capstone>.

²¹⁰ USAID (2023) ‘International Data & Economic Analysis – El Salvador’. Available at: <https://idea.usaid.gov/cd/el%20salvador/education>.

²¹¹ USAID (2017) ‘Climate Change Risk Profile: El Salvador’. Available at: <https://www.climate-links.org/resources/climate-risk-profile-el-salvador>.

known as the 'Dry Corridor'. This area is characterised by extreme weather and climate events²¹² including storms, floods and landslides. The Dry Corridor increases El Salvador's risk of prolonged droughts compared to other coastal Caribbean countries, and threatens productivity, health and quality of life.²¹³ Coastal areas are home to over 30 per cent of the country's population, however rising sea levels are an extreme threat to these communities.

El Salvador's vulnerability to climate change is exacerbated by deforestation, water pollution and human health risks, such as barriers to healthcare access.²¹⁴ This is further compounded by poverty and food insecurity. Subsistence smallholder farmers in rural communities have limited climate resilience, and their income is directly affected by the reduction of agricultural outputs.²¹⁵ El Salvador also faces a food insecurity crisis. The Integrated Phase Classification on Food Security estimates that 13 per cent of the population suffer acutely from food insecurity.²¹⁶

School enrolment rates in El Salvador are high, with 91 per cent of primary-school aged children enrolled. However, the drop-out rate is high, with young people completing an average of only six grades out of nine. There is also significant disparity within the country. Those from low socioeconomic backgrounds, minorities, children of parents who did not finish education, and Indigenous girls are the least likely to enrol and to complete their education.²¹⁷

El Salvador's Five-Year Development Plan highlights agriculture, water management and ecosystems as critical components for climate change adaptation. In 2012, the country introduced the National Environmental Policy, which includes promotion of climate change knowledge within the national education curriculum as a key priority.²¹⁸ El Salvador also has a National Climate Change Plan, which includes a National Action Program on Adaptation focused on local and national capacity-building for adaptation, education and awareness raising.²¹⁹ However, as suggested by the United Nations Development Programme (2009), there is a need for economic policy measures to stimulate grain production, develop insurance schemes, harvest forecasts and weather warning systems, and support stronger institutions on human development and food security.²²⁰ Like Brazil and the Dominican Republic, El Salvador has met the NDC indicators for 'strengthened adaptation', through the implementation of numerous climate change policies and plans.²²¹ These policies seek to strengthen the resilience of vulnerable populations, with a focus on gender equity and social participation.²²² However, the updated NDC does not address commitments on education.²²³

²¹² Norio-Tomasino, V. (2022) 'Analyzing the Effects of Climate Impacts in El Salvador and how they Influence Pollution, Ecosystems and Communities'.

²¹³ OCHA (2023) 'El Salvador: Humanitarian Response Plan 2023'. Available at: <https://reliefweb.int/report/el-salvador/el-salvador-humanitarian-response-plan-2023>.

²¹⁴ Norio-Tomasino, V. (2022) 'Analyzing the effects of climate impacts in El Salvador and how they influence pollution, ecosystems and communities'.

²¹⁵ Ibid.

²¹⁶ Ibid.

²¹⁷ OECD (2014) Key Issues affecting Youth in El Salvador, Available at: <https://www.oecd.org/dev/inclusive-societies-development/youth-issues-in-el-salvador.htm>

²¹⁸ Nachmany, M. et al. (2015) 'Climate Change Legislation in Dominican Republic: An excerpt from the 2015 Global Climate Legislation Study'.

²¹⁹ Kvamsås, H. (2012) *Challenging current approaches to climate change adaptation: A study of climate change adaptation in El Salvador*. Master's Thesis, University of Oslo. Available at:

<https://www.duo.uio.no/bitstream/handle/10852/15959/Kvamsaas.pdf?isAllowed=y&sequence=2>.

²²⁰ FAO (2015) 'Climate Change and Food Security: Risks and responses'. Available at: <https://www.fao.org/3/i5188e/i5188e.pdf>.

²²¹ ClimateWatch (2023) 'El Salvador'. Available at: <https://www.climatewatchdata.org/countries/SLV>.

²²² Ibid.

²²³ Ibid.

3.3.4 Benin

KEY FACTS

- Benin is the 32nd most climate-vulnerable country in the world.
- An estimated 61% of the population live in rural areas and 70% of the population depend on agriculture for their livelihoods.
- Benin has a diverse geography, with a coastal region, clay flats, mountain ranges and desert.
- Existing national climate policies have so far been unsuccessful in addressing the socioeconomic circumstances that exacerbate the population's climate vulnerability.
- In Benin, 73% of children complete primary education. However, only 48% of children go on to enrol in secondary school and only 12% complete it.

Sources: ND-GAIN Index²²⁴, USAID (2023),²²⁵ Ministry of Foreign Affairs, Netherlands (2018)²²⁶

Benin is a narrow country located in West Africa, wedged between Nigeria and Togo. Despite its small size, the country has a diverse geography. Benin is highly vulnerable to the impacts of climate change and ranks 153rd out of 185 countries in the ND-GAIN Index for highest risk of climate vulnerability.²²⁷ The country has a mostly tropical climate, however its proximity to the Sahara Desert means that the country experiences less rainfall than other countries with a similar geographical profile.²²⁸ The northern regions of the country are threatened by desertification, while southern regions face increased torrential rainfall leading to flooding.²²⁹ The country also faces drought, soil degradation, high winds and an increase in diseases and pests,²³⁰ as well as rising sea levels, coastal erosion and an overall increase in temperature.²³¹ In Benin, agriculture is mainly rain-fed and therefore “highly sensitive to climate conditions.”²³² Changing weather conditions across many African regions are having an “overall negative effect” on agricultural production, which could “lead to food insecurity and malnutrition exacerbation.”²³³ This is a significant concern, given that 61 per cent of Benin's population live in rural areas and 70 per cent of the population are dependent on agriculture for their livelihoods.²³⁴

Lack of capital and limited integration make Benin particularly vulnerable to climate change. Financial capital and access to water are required for adaptive measures such as irrigation. In addition, there is minimal institutional support, such as investment and credit services, which could support livelihoods improvements and diversification.²³⁵ Education is “somewhat” correlated with vulnerability; data suggest that a higher level of education is associated with a greater ability to access information on climate change and adaptive strategies.²³⁶

However, Benin fares poorly on educational outcomes compared with global averages. Only 48 per cent of eligible adolescents are enrolled in secondary school, compared with a global average of 82 per cent.²³⁷ Education attainment rates differ among girls and boys in Benin, where 35 per cent of girls complete secondary school, compared with 39 per cent of boys. This is also reflected in adult literacy,

²²⁴ University of Notre Dame (2021) 'ND-GAIN Index Country Rankings'. Available at: <https://gain.nd.edu/our-work/country-index/rankings/>.

²²⁵ USAID (2023) 'International Data & Economic Analysis – Benin'. Available at: <https://idea.usaid.gov/cd/benin/education>.

²²⁶ Ministry of Foreign Affairs, Netherlands (2018) 'Climate Change Profile: Benin'. Available at: <https://reliefweb.int/report/benin/climate-change-profile-benin>.

²²⁷ University of Notre Dame (2021) 'ND-GAIN Index Country Rankings'.

²²⁸ Ibid.

²²⁹ Ibid.

²³⁰ Fadina, A.M.R. and Barjolle, D. (2018) 'Farmers' adaptation strategies to climate change and their implications in the Zou Department of South Benin'.

²³¹ Ministry of Foreign Affairs, The Netherlands (2018) 'Climate Change Profile: Benin'.

²³² Lokonon, B.O.K. (2016) 'Farmers' vulnerability to climate shocks: Insights from the Niger Basin of Benin'. *Climate and Development*, 11:7, p.586.

²³³ Ibid.

²³⁴ Fadina, A.M.R. and Barjolle, D. (2018) 'Farmers' adaptation strategies to climate change and their implications in the Zou Department of South Benin'.

²³⁵ Lokonon, B.O.K. (2016) 'Farmers' vulnerability to climate shocks: Insights from the Niger Basin of Benin'.

²³⁶ Ibid.

²³⁷ USAID (2023) 'International Data & Economic Analysis – Benin'.

with only 35 per cent of women able to both read and write, compared with 57 per cent of men.²³⁸ Benin has developed a national climate change learning strategy and has piloted a climate change curriculum in schools; however, these initiatives have failed to take off. In Benin, children learn about the environment in science and geography classes but there does not appear to be an in-depth focus on climate change.²³⁹

The country has an ambitious target of reducing emissions by 21 per cent within this decade and is engaged in a number of bilateral climate change programmes. However, historically, national policies in Benin have been unsuccessful in improving the living conditions of the poorer communities, and have been detached from the needs and knowledge of the local people.²⁴⁰ A study suggests that Benin's National Action Plan for Adaptation (BNAPA) may be ineffective in "addressing its population's vulnerability to climate change."²⁴¹ Without external assistance, farmers are increasingly susceptible to climate changes impacts and face increased yield losses through erratic rainfall, flooding and changing seasons. Study results suggest that commitments made by state authorities have not been honoured, and despite commitments to involve local actors, participation from communities, chiefs and decentralised structures has been limited.²⁴² Benin has met five out of seven key indicators according to their recent NDCs submission, including 'strengthened adaptation'. This was met through the implementation of BNAPA, which includes a strategy for training farmers and fisherman on technologies adapted to climate change, and a communications strategy to build capacity to tackle food insecurity. Furthermore, Benin's updated NDC recognises children as a vulnerable group and includes child sensitive commitments on education.²⁴³

3.3.5 Togo

KEY FACTS

- Togo shares geographical features and climate with Benin.
- The agricultural sector contributes an average of 40% to the country's gross domestic product (GDP).
- Maize is Togo's main crop and is relied on for food security.
- Poverty rates are high – 69% of rural households live below the poverty line and rely on rain-fed agricultural and livestock.
- Increasing temperatures and unpredictable rainfall have caused agricultural yields to reduce by up to 25%.
- In Togo, 90% of children complete primary education but only 64% enrol in secondary school.
- Boys are more likely than girls to complete lower secondary education (63% of boys compared to 51% of girls).

Sources: World Bank (2021)²⁴⁴, Ali et al. (2020)²⁴⁵

The diversity of soils and geographies allows for a wide range of agricultural pursuits in Togo. However, maize is the main crop for food security and dominates the country's agricultural sector.²⁴⁶ Togo's

²³⁸ The World Bank (2023) 'Gender Data Portal – Benin'. Available at: <https://genderdata.worldbank.org/countries/benin/>.

²³⁹ The Global Environmental Education Partnership (2023) 'Benin'. Available at: <https://thegeep.org/learn/countries/benin>.

²⁴⁰ Kpadonou, R., Adegbola, P.Y. and Tovignan, S. (2012). 'Local knowledge and adaptation to climate change in Ouémé valley, Benin,' *African Crop Science Journal*, 20:2. Available at: <https://www.ajol.info/index.php/acsj/article/view/81715>

²⁴¹ Kvamsås, H. (2012) *Challenging current approaches to climate change adaptation: A study of climate change adaptation in El Salvador*, p.130.

²⁴² Kvamsås, H. (2012) *Challenging current approaches to climate change adaptation: A study of climate change adaptation in El Salvador*, p.130.

²⁴³ ClimateWatch (2023) 'Benin'. Available at:

https://www.climatewatchdata.org/ndcs/country/BEN/adaptation?document=revised_first_ndc§ion=children_and_young_people

²⁴⁴ World Bank Group (2021) 'Climate Risk Country Profile: Togo'. Available at: https://reliefweb.int/attachments/0f93e0c6-83d5-3dcc-8afc-00340d179b29/15859-WB_Togo%20Country%20Profile-WEB.pdf.

²⁴⁵ Ali, E. et al. (2020) 'Gender and impact of climate change adaptation on soybean farmers' revenue in rural Togo, West Africa', *Food Science & Technology*, 6:1. pp.1-15.

²⁴⁶ Ibid.

agricultural sector contributes an average of 40 per cent of the country's gross domestic product (GDP) and provides over 20 per cent of export earnings.²⁴⁷ Togo is highly susceptible to hazards such as recurrent flooding, drought, high winds, storms, wildfires and coastal erosion. Such events are recurrent in Togo and have negative socioeconomic and health impacts on the population. The risk of climate shocks increases as climate change continues; rainfall patterns are shifting towards both extremities²⁴⁸ and rainy seasons are becoming shorter. Average temperatures have been steadily increasing across Togo, and climate projections show a consistent rise throughout the rest of the century.²⁴⁹

Climate change poses a grave threat to Togo's economy and food security. Rising temperatures could cause the yields of key cash crops like coffee, cocoa and maize to decline by more than a quarter of their average annual yield.²⁵⁰ Throughout this report's findings, multiple RCRL girls in Togo cite maize as a reference point for worsening conditions brought on by climate change – either their inability to grow it for sale or consumption, or because it has become too expensive to buy, leading them to seek alternatives. The agricultural sector has low adaptive capacities due to low levels of investments, a lack of crop-diversification and market challenges.²⁵¹

Togo is highly vulnerable to the adverse health impacts of climate change, as it has poor healthcare infrastructure and resourcing, particularly in rural areas. The current morbidity and mortality rates are already high, even without factoring in climate change projections.²⁵² The World Bank projects that heat-related mortality will increase across Togo and the surrounding region throughout this century, particularly among children and the elderly.²⁵³ Changes in temperature and rainfall trends may also lead to “shifts in the distribution, timing and severity” of climate-sensitive diseases such as malaria and meningitis, and vector- and waterborne diseases such as cholera are also likely to increase due to heavy rains and flooding.²⁵⁴ In addition, flooding conditions are associated with diarrhoeal disease, which is a leading cause of child malnutrition and mortality in the region.

Women in Togo find themselves experiencing elevated rates of poverty and food scarcity as a result of their insecure livelihoods and lower adaptive capacities.²⁵⁵ Education in Togo is also influenced by gender norms, with an 11.7 percentage point gap between girls' and boys' completion of lower secondary education. This has led to a significant 24.9 percentage point literacy gap in the country, with only 55 per cent of women able to read and write compared with 80 per cent of men.²⁵⁶

The Togolese Ministry of the Environment and Forest has submitted an NDC outlining the country's efforts to strengthen climate resilience and reduce vulnerability of the population. This includes adaptation across the sectors of energy, water resources, agriculture, forestry and land use, human settlements, and coastal zones.²⁵⁷ There is very limited information available on the extent to which climate change education has been embedded in the national education curriculum in Togo. Togo has achieved all seven of the NDC indicators, although, the updated NDC does not include child-sensitive commitments to education.²⁵⁸ It does, however, apply a gender lens and acknowledges that men and women have different needs and should be targeted in different ways.²⁵⁹

²⁴⁷ Ibid.

²⁴⁸ World Bank Group (2021) 'Climate Risk Country Profile: Togo'.

²⁴⁹ Ibid.

²⁵⁰ Koudjom, E. (2022) 'Climate change adaptation and maize productivity: A gender-based analysis', *Climatic Change*, 173:9, pp.1-22.

²⁵¹ Koudjom, E. (2022) 'Climate change adaptation and maize productivity: A gender-based analysis'.

²⁵² Ibid.

²⁵³ Ibid.

²⁵⁴ Ibid.

²⁵⁵ Ibid.

²⁵⁶ The World Bank (2023) 'Gender Data Portal – Togo'. Available at: <https://genderdata.worldbank.org/countries/togo>.

²⁵⁷ World Bank Group (2021) 'Climate Risk Country Profile: Togo'.

²⁵⁸ ClimateWatch (2023) 'Togo'. Available at: <https://www.climatewatchdata.org/countries/TGO>.

²⁵⁹ Ibid.

3.3.6 Cambodia

KEY FACTS

- Cambodia is the 2nd most climate-vulnerable country in Southeast Asia
- Erratic rainfall and flooding – as well as extended droughts – affect agricultural production and livelihoods. Severe droughts have previously destroyed up to 90% of crops.
- More than 75% of the country's population lives in rural areas, and 49% are employed in agriculture and fisheries.
- One third of households are facing multi-dimensional poverty.
- Most children complete primary school (91%), however only 22% complete their secondary education.
- Girls have a higher level of educational attainment than boys (63% versus 53%), however literacy rates are lower among women than men (80% versus 88%)

Sources: ND-GAIN Index (2021)²⁶⁰, World Bank Group (2021)²⁶¹, USAID (2023)²⁶², World Bank (2023)²⁶³

Cambodia is located in Southeast Asia (SEA), on the Gulf of Thailand. The Mekong River and Tonle Sap Lake are prominent geographical features of the country and are vital natural resources for the population. More than three quarters of Cambodia's population lives in rural areas and are heavily reliant on agriculture and fisheries, which employ 49 per cent of the country's workforce.²⁶⁴ However, the country is also undergoing "rapid social, economic, political and environmental change,"²⁶⁵ including a fast rate of urbanisation, and changing dynamics of the Mekong River due to damming occurring in neighbouring Mekong countries.²⁶⁶

Cambodia experiences some of the highest temperatures in the world. The World Bank projects that temperatures will continue to rise this century and the country will enter a state of "permanent heat stress,"²⁶⁷ which will surpass safe levels for humans and biodiversity. Coastal regions are exposed to risks of the cyclones and storm surges. Coastal and river flooding continues to worsen, causing damage to infrastructure and risks of landslides. A significant proportion of the population is affected by flooding and the World Bank cites Cambodia as "one of the world's most flood-exposed countries in the world."²⁶⁸

A vulnerability and adaptation assessment conducted by Cambodia's Ministry of Environment found that Cambodia is highly vulnerable to climate change but has low adaptive capacity in comparison to other Southeast Asian countries, due to a high dependence on agriculture.²⁶⁹ Erratic rainfall and flooding in Cambodia (as well as extended drought periods) affect agricultural production and livelihoods. Severe droughts have previously destroyed up to 90 per cent of crops.²⁷⁰ More than one-third of households face multidimensional poverty, in which their impoverishment results from multiple deprivations, such as low income, a lack of adequate housing, limited education and poor health, all of which increase vulnerability to climate change.²⁷¹ As will be discussed in this report, multiple RCRL girls in Cambodia speak about their observations that people with disabilities, children and poor families are most affected by climate change in their communities.

²⁶⁰ University of Notre Dame (2021) 'ND-GAIN Index Country Rankings'.

²⁶¹ World Bank Group (2021) 'Climate Risk Country Profile: Cambodia'. Available at:

https://climateknowledgeportal.worldbank.org/sites/default/files/2021-08/15849-WB_Cambodia%20Country%20Profile-WEB.pdf.

²⁶² USAID (2023) 'International Data & Economic Analysis – Cambodia'. Available at: <https://idea.usaid.gov/cd/cambodia/education>.

²⁶³ The World Bank (2023) 'Gender Data Portal – Cambodia'. Available at: <https://genderdata.worldbank.org/countries/cambodia>.

²⁶⁴ World Bank Group (2021) 'Climate Risk Country Profile: Cambodia'.

²⁶⁵ Christoplos, I. and McGinn, C. (2016) 'Climate change adaptation from a human rights perspective: Civil society experiences in Cambodia', *Forum for Development Studies*, 43:3, p.447.

²⁶⁶ World Bank Group (2021) 'Climate Risk Country Profile: Cambodia'.

²⁶⁷ Ibid.

²⁶⁸ Ibid.

²⁶⁹ Chhinh, N. (2013) 'Climate change vulnerability: Household assessment levels in Kampong Speu Province, Cambodia'.

²⁷⁰ Polack, E. (2010) 'Child Rights and Climate Change Adaptation. Voices from Kenya and Cambodia'.

²⁷¹ Islam, M.R. and Khan, N.A. (2018) 'Threats, vulnerability, resilience and displacement among the climate change and natural disaster-affected people in South-East Asia: An overview', p.303.

The impacts of climate change in Cambodia have limited children's access to education.²⁷² Notably, the 2000 flood in Cambodia destroyed approximately 18 per cent of the country's schools and limited half a million children's access to education.²⁷³ Research in Cambodia has also demonstrated that "school absenteeism and drop-out are higher in flood-prone areas."²⁷⁴ Polack (2010) states that "declining or insecure livelihoods" are one of the greatest barriers to education attainment, along with physical barriers, such as distance and poor infrastructure, all of which reduce attendance during flooding.²⁷⁵

The Government of Cambodia submitted an NDC in 2017 and has developed strategic national plans for responding to climate change and disaster risk reduction. Despite these mechanisms, children's education is not listed in any of the high priority projects, and rural development strategies are noted to lack "an underlying analysis of poverty and vulnerability".²⁷⁶ While there is evidence that climate change education has been incorporated into school curriculum at the community level, it appears that these efforts have been led by INGOs or UN bodies and have not been mainstreamed into the national education curriculum by the government. However, the Cambodian government is making "significant progress" toward resuming its role as a duty bearer and developing human rights-based climate change.²⁷⁷ Cambodia has achieved the 'strengthened adaptation' indicator for its NDC.²⁷⁸ The most recent NDC recognises that climate change affects gender minorities disproportionately and exacerbates GBV, and also acknowledges the importance of women's participation in climate action.²⁷⁹ Furthermore, the new submission commits to integrating climate change curricula into all levels of education and raising awareness among youth within schools.²⁸⁰

3.3.7 Philippines

KEY FACTS

- The Philippines is one of the "world's most disaster-prone countries" according to the World Bank.
- The Philippines experiences roughly 20 annual cyclones and other extreme weather events including typhoons, floods, mudslides and drought.
- Climate change is considered to be a serious and immediate threat by 74% of the population; a further 25% call climate change an important issue.
- Around 34% of the working population is employed in agriculture and fisheries.
- The government dedicates 15% of the annual budget to education, which is higher than the global average.
- Between 2009-2018, 93% of schools were affected by natural hazards.

Sources: USAID (2023)²⁸¹, World Bank (2023)²⁸², World Bank Group (2021)²⁸³

²⁷² Polack, E. (2010) 'Child Rights and Climate Change Adaptation. Voices from Kenya and Cambodia'.

²⁷³ Bangay, C. and Blum, N. (2010) 'Education responses to climate change and quality: Two parts of the same agenda?'.

²⁷⁴ Ibid.

²⁷⁵ Polack, E. (2010) 'Child Rights and Climate Change Adaptation. Voices from Kenya and Cambodia'.

²⁷⁶ Ibid.

²⁷⁷ Christoplos, I. and McGinn, C. (2016) 'Climate change adaptation from a human rights perspective: Civil society experiences in Cambodia'.

²⁷⁸ ClimateWatch (2023) 'Cambodia'. Available at: <https://www.climatewatchdata.org/countries/KHM>.

²⁷⁹ Ibid.

²⁸⁰ Ibid.

²⁸¹ USAID (2023) 'International Data and Economic Analysis – Philippines'. Available at: <https://idea.usaid.gov/cd/philippines/education>.

²⁸² The World Bank (2023) 'Gender Data Portal – Philippines'. Available at: <https://genderdata.worldbank.org/countries/philippines>.

²⁸³ 'World Bank Group (2021) 'Climate Risk Country Profile – Philippines'. Available at: <https://www.adb.org/sites/default/files/publication/722241/climate-risk-country-profile-philippines.pdf>.

The Philippines is an archipelago of around 7,100 islands in the Pacific Ocean. The country is considered “one of the most biologically rich and diverse” nations in the world, with a humid climate, mountainous terrain and one of the world’s longest coastlines.²⁸⁴ The Philippines is recognised as being highly susceptible to natural hazards and climate-driven disasters.²⁸⁵ This is due to high exposure and vulnerability to climate events, aggravated by a lack of coping and adaptive capacities.²⁸⁶ The country is also vulnerable to changing rainfall patterns and temperatures, rising sea levels and increasing storm surges – all of which are widely attributed to climate change.²⁸⁷

In the Philippines, agricultural productivity is shaped by a variety of factors, including extreme climate variability. Climate disasters have cost the Philippines’ economy an annual average of 0.3 per cent of GDP. Much of this is attributed to disruption to fruit and cash crop production, resulting in loss of livelihoods and higher food prices.²⁸⁸ A 2023 analysis by the UN World Food Programme (WFP) in the Philippines finds that of the estimated US \$9 billion in damages from extreme weather events and disasters between 2010 and 2019, 63 per cent of the damage costs were agriculture related²⁸⁹. It is likely that such significant impacts are shaped by increasing land degradation, mainly in the form of soil erosion and nutrient depletion.²⁹⁰

Climate change is having a severe impact on food security and the nutritional profile of the country. The Philippines is ranked fifth highest in the East Asia and Pacific regions for malnutrition,²⁹¹ with one in every three children under five years old suffering from stunting.²⁹² As well, WFP’s Climate Change and Food Security Analysis has found that that climate variability and such hazards will significantly impact agricultural and fisheries supply chains by affecting the availability, affordability and accessibility to nutritious food.²⁹³ Smallholder farmers are the most affected by food insecurity. A 2017 study highlights the difficult decisions farmers are forced to make relating to food, including:

“Choosing to eat less, skipping meals, changing dietary patterns, selling livestock, taking loans/credits, limiting amount of food served during mealtimes and restricting consumption of food by adults in favour of feeding small children and the elderly.”²⁹⁴

In the face of climate change, smallholder vulnerability is thereby increased by loss of livelihoods, financial assets and agricultural yield and worsening debt.²⁹⁵ Poorer households are the least able to afford to implement adaptation mechanisms; in urban areas these households are often located in informal settlements, which are incredibly vulnerable to landslides and mudflows caused by heavy rainfall and floods.²⁹⁶

Education is frequently disrupted in the Philippines. The country’s Department of Education reports that 93 per cent of schools in the country were affected by natural hazards between 2009 and 2018.²⁹⁷

²⁸⁴ Ibid.

²⁸⁵ Haynes, K. and Thomas, T. (2015) ‘Empowering young people and strengthening resilience: Youth-centred participatory video as a tool for climate change adaptation and disaster risk reduction’, *Children’s Geographies*, 13:3, pp.375-390.

²⁸⁶ WFP (2023) ‘Philippines Annual Country Report 2022 – Country Strategic Plan 2018-2023’. Available at: <https://reliefweb.int/report/philippines/philippines-annual-country-report-2022-country-strategic-plan-2018-2023>.

²⁸⁷ Chong, J., Gero, A. and Treichel, P. (2015) ‘What indicates improved resilience to climate change? A learning and evaluative process developed from a child-centered, community-based project in the Philippines’, *New Directions for Evaluation*, 147:1, pp.105-116.

²⁸⁸ Chandra, A. et al. (2017) ‘Gendered vulnerabilities of smallholder farmers to climate change in conflict-prone areas: A case study from Mindanao, Philippines’, *Journal of Rural Studies*, 50:1, pp.45-59.

²⁸⁹ WFP (2023) ‘Philippines Annual Country Report 2022 – Country Strategic Plan 2018-2023’.

²⁹⁰ Ibid.

²⁹¹ The World Bank (2021) ‘Undernutrition in the Philippines: Scale, Scope, and Opportunities for Nutrition Policy and Programming’. Available at: <https://www.worldbank.org/en/country/philippines/publication/-key-findings-undernutrition-in-the-philippines>

²⁹² Stunting as a condition where children achieve lower height for their age compared to standards. Stunting is a manifestation of chronic malnutrition/undernutrition and is the product of nutritional deficits during the mother’s pregnancy through to early childhood. More than one in five children globally were stunted in 2022 – making the rate of stunting in the Philippines worse than the global average.

²⁹³ WFP (2023) ‘Philippines Annual Country Report 2022 – Country Strategic Plan 2018-2023’.

²⁹⁴ Chandra, A. et al. (2017) ‘Gendered vulnerabilities of smallholder farmers to climate change in conflict-prone areas: A case study from Mindanao, Philippines’.

²⁹⁵ Ibid.

²⁹⁶ World Bank Group (2021) ‘Climate Risk Country Profile – Philippines’.

²⁹⁷ Republic of the Philippines. Department of Education (2023). ‘The Need for Climate Change Education’. Available at: <https://www.deped.gov.ph/climate-change-education/cce-in-the-philippines/>.

RCRL girls in the Philippines also explicitly link weather events with their educational attainment or attendance, such as being too anxious about their families' money to concentrate on schoolwork or poor nutritional wellbeing affecting their concentration. The Department of Education is committed to intensifying climate literacy and climate action within the education sector. Climate change education has been comprehensively incorporated into the national curriculum across all primary and secondary grades.²⁹⁸ The Department has also developed resources and training materials to support teachers across public and private institutions in their teaching of climate change.²⁹⁹

The government of the Philippines has responded to the threats of climate change in several ways over recent decades. Several bills, laws, action plans and strategies have been implemented, providing “a framework to identify and prioritise sectors and initiatives which are vulnerable to climate change impacts.”³⁰⁰ These include the Philippines Disaster Risk Management Act of 2009; the People's Survival Fund; and the Climate Change Act of 2009, which mainstreams climate change across a range of sectors and established the Climate Change Commission (CCC).³⁰¹ The CCC gained approval for the National Framework Strategy on Climate Change, which formed the basis of the 2011-2028 National Climate Change Action Plan. Interestingly, the Philippines is the only study country which did not include a provision for enhancing adaptation capabilities in their updated NDC, meaning they have not achieved the ‘strengthened adaptation’ indicator.³⁰² Nevertheless, the NDC seeks to achieve ‘gender-responsive sustainable development,’ although it does not yet include child-sensitive commitments on education.

3.3.8 Vietnam

KEY FACTS

- Vietnam is extremely susceptible to flooding due to low-lying coastal and river regions.
- Vietnam's average annual losses to natural hazards is around US\$ 2.4 billion.
- The population is over 96 million, with a third of the population living in either Hanoi or Ho Chi Minh.
- Around 60% of the country is dependent on the agricultural sector for its livelihood.
- All children in Vietnam complete primary school, however only 58% complete secondary education.
- Several national policies and strategies are aimed at addressing climate change.

Sources: World Bank Group (2021),³⁰³ USAID (2023)³⁰⁴

Located in SEA, Vietnam has an extensive coastline and a diverse climate with tropical and temperate regions. The country experiences an annual monsoon season and has very high exposure to tropical cyclones and associated storm surges, particularly along the northern coast.³⁰⁵ Due to “fragile ecosystems, unstable geology and complex topography,”³⁰⁶ as well as an extensive coastline, Vietnam is extremely vulnerable to climate change and susceptible to disasters.³⁰⁷ Indeed, it is expected to experience some of the “most severe impacts” of climate change over coming years.³⁰⁸ Vietnam was

²⁹⁸ Ibid.

²⁹⁹ Republic of the Philippines. Department of Education (2023). ‘Curated Resources for Teaching Climate Change’. Available at: <https://www.deped.gov.ph/climate-change-education/>.

³⁰⁰ Chong, J. et al. (2013) ‘Child-centered community-based climate change adaptation in the Philippines: Guidance document for local adaptation indicators’. Institute for Sustainable Futures, University of Technology Sydney and Plan International Australia, p.7.

³⁰¹ Ibid.

³⁰² ClimateWatch (2023) ‘Philippines’. Available at: https://www.climatewatchdata.org/countries/PHL?end_year=2020&start_year=1990.

³⁰³ World Bank Group (2021) ‘Climate Risk Country Profile – Vietnam’. Available at:

<https://climateknowledgeportal.worldbank.org/sites/default/files/2021-04/15077-Vietnam%20Country%20Profile-WEB.pdf>.

³⁰⁴ USAID (2023) ‘International Data & Economic Analysis – Vietnam’. Available at: <https://idea.usaid.gov/cd/vietnam/education>.

³⁰⁵ World Bank Group (2021) ‘Climate Risk Country Profile – Vietnam’.

³⁰⁶ Huang, N.T.L., Yao, S. and Fahad, S. (2019) ‘Assessing household livelihood vulnerability to climate change: The case of Northwest Vietnam’, *Human and Ecological Risk Assessment: An International Journal*, 25:1, p.1157.

³⁰⁷ Yipaa, J., Gabriellson, S. and Jerneck, A. (2019) ‘Climate change adaptation and gender inequality: Insights from rural Vietnam’, *Sustainability*, 11:10, pp.1-16.

³⁰⁸ Huang, N.T.L., Yao, S. and Fahad, S. (2019) ‘Assessing household livelihood vulnerability to climate change: The case of Northwest Vietnam’.

ranked sixth among countries most severely impacted by climate change,³⁰⁹ however, its ND-GAIN Index score is close to the median, suggesting that the country has some strong and promising adaptive capacities and readiness. The country's readiness to climate change is reflected in this study's findings, whereby RCRL girls in Vietnam have a relatively high knowledge of climate change and are confident in how they speak about the subject.

A significant proportion of the population lives and works in low-lying coastal areas, with sea-level rises, flooding, coastal erosion and saline intrusion threatening livelihoods and infrastructure.³¹⁰ Agriculture is a major industry in Vietnam. The country is consistently one of the world's largest exporters of rice, thanks to investment in improved irrigation and new rice technologies. In Vietnam, 70 per cent of the population live in the countryside, and around 60 per cent of this rural population rely on agriculture for their livelihood.³¹¹ However, climate change threatens "multiple stressors" on rice production including high temperatures, saline intrusion, drought and flooding³¹². The vast majority of rice production is in the Mekong River Delta and Red River Delta, which flood annually; climate change is projected to worsen these river floods.^{313,314} The World Bank estimates that flooding accounts for 97 per cent of average annual economic losses caused by climate hazards.³¹⁵

Research suggests that poor farming communities are the most affected by climate change because they have "poor adaptive capacity" and limited access to alternative means of production.^{316,317} Unpredictable weather patterns and increased water shortages are leading to crop failure and crop land abandonment, resulting in economic difficulties for many. This forces young people to find ways to increase income, with many losing access to education as a result.³¹⁸ Vietnam has four pronounced seasons, however the increasing variation in climate patterns has led farmers to adopt diverse livelihoods to "ensure ongoing production throughout the year."³¹⁹ This adaptive approach reduces vulnerability by decreasing dependence on one sole source of income.

In Vietnam, nearly 100 per cent of children complete primary education, however the enrolment rate in secondary school drops to 58 per cent³²⁰ – this is despite the fact that ten years of education are compulsory in Vietnam.³²¹ A participatory study with those aged 14 to 25 in Vietnam found that the high levels of secondary school drop-out were attributed to young people being forced to work and contribute to family income, due to increased flooding, droughts and extreme weather patterns.³²² The study found a "clear gender difference" in access to education, with girls' drop-out rates higher than boys' due to a "preference for girls to stay at home in preparation for marriage," resulting in increased teen pregnancy, and increased domestic responsibilities falling on girls.³²³ Similar to Cambodia, there is evidence that climate change curriculum has been adopted in some schools across Vietnam. However, these efforts appear to be led by INGOs and the UN, meaning that these are likely not standardised or implemented consistently.

³⁰⁹ Trinh, T.Q. et al. (2018) 'Determinants of farmers' adaptation to climate change in agricultural production in the central region of Vietnam', *Land Use Policy*, 70:1, p.328.

³¹⁰ World Bank Group (2021) 'Climate Risk Country Profile – Vietnam'.

³¹¹ Yipaa, J. et al. (2019) 'Climate change adaptation and gender inequality: Insights from rural Vietnam'.

³¹² Ibid.

³¹³ World Bank Group (2021) 'Climate Risk Country Profile – Vietnam', p.13.

³¹⁴ Yipaa, J. et al. (2019) 'Climate change adaptation and gender inequality: Insights from rural Vietnam'.

³¹⁵ World Bank Group (2021) 'Climate Risk Country Profile – Vietnam'.

³¹⁶ Kurukulasuriya, P. and Rosenthal, S. (2003) *Climate change and agriculture: A review of impacts and adaptations*. Environment department papers, no. 91. Climate change series. Washington: World Bank.

³¹⁷ Huong, N.T.L., Yao, S. and Fahad, S. (2019) 'Assessing household livelihood vulnerability to climate change: The case of Northwest Vietnam'.

³¹⁸ Pereznieto, P. (2011) 'Youth vulnerabilities and adaptation. Exploring the impact of macro-level shocks on youth: 3F crisis and climate change in Ghana, Mozambique and Vietnam', Overseas Development Institute. Available at:

<https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=c74069954cdc43c3d3dbf0c8473bbee5506a463c>.

³¹⁹ Yipaa, J. et al. (2019) 'Climate change adaptation and gender inequality: Insights from rural Vietnam', p.5.

³²⁰ USAID (2023) 'International Data & Economic Analysis – Vietnam'.

³²¹ The World Bank (2022) 'Compulsory education, duration (years) – Vietnam'. Available at:

<https://data.worldbank.org/indicator/SE.COM.DURS?end=2021&locations=VN&start=1998&view=map>.

³²² Pereznieto, P. (2011) 'Youth vulnerabilities and adaptation. Exploring the impact of macro-level shocks on youth: 3F crisis and climate change in Ghana, Mozambique and Vietnam'.

³²³ Ibid.

Vietnam introduced a National Strategy on Climate Change in 2011 and has since implemented several other laws and policies on climate change adaptation. Vietnam updated its NDC in 2020 and reported having integrated and mainstreamed climate change into various ministerial strategies and action plans. Vietnam has a target of net zero carbon emissions by 2050.³²⁴ The updated NDC has enhanced efforts across five of the seven indicators, including “strengthened adaption and added policies and actions.”³²⁵ The country has also committed to supporting climate change adaptation and disaster risk reduction frameworks in schools to support preparedness.³²⁶

3.4 ADAPTATION AND RESILIENCE ACROSS RCRL COHORT COUNTRIES

As demonstrated in the above country profiles, all of the RCRL countries have some level of policies, action plans, NDCs, and strategies for addressing climate change – demonstrating varying degrees of government commitment to building adaptation and resilience. However, as also captured above, there is limited monitoring and evaluation data available to demonstrate progress against these plans or outcomes of strategies. Beyond the governance level, it is also important to understand adaptation capacities at the household and community levels within the RCRL countries. This section explores evidence of coping and adaptation strategies applied by households and communities across the study countries, noting the role that education plays in informing these strategies. The literature explored below is not intended to be an exhaustive survey of all examples of adaptations in all contexts; instead, this provides an illustrative overview of common themes across the study countries, which helps provide background for the RCRL girls' observations and understandings, which will be examined in Section 4.

A variety of coping and adaptation strategies are being applied in the RCRL countries at the household level. Household income diversification, changing agricultural practices and taking out loans or credit are three key strategies featured in the literature in RCRL countries. A study of farming households in Vietnam found that household members are likely to each have multiple jobs to increase or stabilise the household income.³²⁷ Similarly, a study of fishers' adaptation practices in the Dominican Republic found that fishers often have an alternative livelihood that they shift to when conditions prevent them from fishing; there is also an increasing shift towards having multiple wage earners in a household, with at least one of these being outside of the fishing industry.³²⁸ In Togo, farmers are applying a number of adaptation strategies related to their agricultural practices, including crop rotation, inter-cropping, adjustment of planting dates, and soil and water conservation, among others.³²⁹ Taking out loans or lines of credit is observed across the countries. However, several studies highlight the individualised risk of such strategies.³³⁰ In El Salvador, urban slum communities have attempted to secure investments in neighbourhood adaptations, however these have been constrained by the individualistic nature of loans and relief packages – and a lack of government support in addressing this barrier.³³¹ In Togo, a survey of soybean farmers found that access to formal financial resources and lines of credit were often contingent on the applicant being able to produce legal documents (for example, proof of identity) and collateral, both of which constrained the poorest households from applying this strategy.³³²

³²⁴ USAID (2022) 'Vietnam: Climate Change Country Profile'. Available at: <https://www.usaid.gov/climate/country-profiles/vietnam>.

³²⁵ ClimateWatch (2023) 'Vietnam'. Available at: <https://www.climatewatchdata.org/countries/VNM>.

³²⁶ Ibid.

³²⁷ Mishra, A.K. and Pede, V.O. (2017), 'Perception of climate change and adaptation strategies in Vietnam: Are there intra-household gender differences?', *International Journal of Climate Change Strategies and Management*, 9:4, pp.501-516.

³²⁸ Karlsson, M. and Mclean, E.L. (2020) 'Caribbean small-scale fishers' strategies for extreme weather events: Lessons for adaptive capacity from the Dominican Republic and Belize', *Coastal Management*, 48:5, pp.456-480.

³²⁹ Ali et al. (2020) 'Gender and impact of climate change adaptation on soybean farmers' revenue in rural Togo, West Africa'.

³³⁰ Natarajan, N., Brickell, K., and Parsons, L. (2019) 'Climate change adaptation and precarity across the rural-urban divide in Cambodia: Towards a 'climate precarity' approach,' *Environment and Planning E: Nature and Space*, 2:4, pp.899-921.

³³¹ Hardoy, J. and Pandiella, G. (2009) 'Urban poverty and vulnerability to climate change in Latin America', *International Institute for Environment and Development*, 21:1, pp.203-204.

³³² Ali et al. (2020) 'Gender and impact of climate change adaptation on soybean farmers' revenue in rural Togo, West Africa'.

Other strategies cited across studies include temporary or permanent resettlement of children outside of shock-prone areas in El Salvador,³³³ migration more generally in Cambodia (both internally and externally),³³⁴ staying informed about changing levels of risk,³³⁵ and taking collective action. Examples of collection action are seen across a number of contexts. One example is in Brazil, where rural households are coming together to leverage and combine various adaptive capacities; they aim to reduce their vulnerability by identifying and addressing structural deficits, including a lack of income, political power, education and access to healthcare.³³⁶ There are also examples of youth-led collective action, such as in the Philippines, where Youth Advocates for Climate Action Philippines – a nationwide alliance of Filipino youth organisations – is an example of youth-led action on climate change, concentrating on securing funding for communities most affected by climate change.³³⁷ Those attempting to take collective action face different barriers in different contexts. In Vietnam, shrinking civic spaces are a significant issue. These spaces are crucial for local organisation, policy implementation and awareness-raising.³³⁸ Distrust of the state and government actors is another key barrier cited in El Salvador and Brazil.³³⁹

Studies also highlight the significant link between education and climate change adaptation at the household level in the RCRL countries. In their study of gender differences in adaptation among farming households in Vietnam, Mishra and Pede (2017) observe the critical first step for farmers to adapt to climate change is to be educated to perceive a change in climate and recognise that adaptation is needed.³⁴⁰ Studies in Togo³⁴¹ and the Dominican Republic³⁴² point to social networks, experience of past shocks, and local knowledge as sources of knowledge. Other literature highlights formal education as being correlated with awareness and understanding of risk, knowledge of risk-reduction strategies, familiarity with sources of information and knowledge about adaptation, understanding of available avenues for institutional support, and awareness of laws and their rights.³⁴³ A study in El Salvador and Brazil examining the relationship between formal education and adaptive capacities found that those with lower levels of education were more likely to see their environments as risk free, did not know how they could improve their situations, and were unaware of any institutions that could assist them.³⁴⁴ This literature demonstrates that education can have a direct influence on climate change adaptation in the RCRL countries.

3.5 UNDERSTANDING THE EVIDENCE IN THE CONTEXT OF THE STUDY

Several studies highlighted in this literature review have demonstrated how women and girls are the most vulnerable and are less able to adapt to the impacts of climate change. This is due to pre-existing unequal power balances and gender norms, which result in less access to capital to invest in risk reduction mechanisms, less access to land ownership and less decision-making power. However, some studies found a significant positive correlation in the level of education and ability to adapt to climate

³³³ Wamsler, C. et al. (2012) 'Climate change, adaptation, and formal education: The role of schooling for increasing societies' adaptive capacities in El Salvador and Brazil'.

³³⁴ Natarajan, N. et al. (2019). 'Climate change adaptation and precarity across the rural-urban divide in Cambodia: Towards a 'climate precarity' approach'.

³³⁵ Wamsler, C. et al. (2012) 'Climate change, adaptation, and formal education: The role of schooling for increasing societies' adaptive capacities in El Salvador and Brazil'.

³³⁶ Lemos, M. C. et al. (2016) 'Linking development to climate adaptation: Leveraging generic and specific capacities to reduce vulnerability to drought in NE Brazil', *Global*, 39:1, pp.170-179.

³³⁷ Atlas of the Future (n.d.) 'Filipino youth mobilise for climate justice'. Available at: <https://atlasofthefuture.org/project/youth-advocates-for-climate-action-philippines/>.

³³⁸ Bruun, O. (2013) 'Rural households: Socio-economic characteristics, community organizing and adaptation abilities', in Bruun, O. and Casse, T. (eds.) *On the Frontiers of Climate and Environmental Change*, Heidelberg: Springer, Berlin, Heidelberg.

³³⁹ Wamsler, C., Brink, E., Rentala, O. (2012) 'Climate change, adaptation, and formal education: The role of schooling for increasing societies' adaptive capacities in El Salvador and Brazil'.

³⁴⁰ Mishra, A.K. and Pede, V.O. (2017), 'Perception of climate change and adaptation strategies in Vietnam: Are there intra-household gender differences?'

³⁴¹ Ali et al. (2020) 'Gender and impact of climate change adaptation on soybean farmers' revenue in rural Togo, West Africa'.

³⁴² Karlsson, M. and Mclean, E.L. (2020) 'Caribbean small-scale fishers' strategies for extreme weather events: Lessons for adaptive capacity from the Dominican Republic and Belize'.

³⁴³ Wamsler, C., Brink, E., Rentala, O. (2012) 'Climate change, adaptation, and formal education: The role of schooling for increasing societies' adaptive capacities in El Salvador and Brazil'.

³⁴⁴ Ibid.

change, which gives evidence to support this research agenda. While some research stated that climate change education was becoming a more common theme in African schools, there is limited evidence of how education is being used to accelerate girls' or children's adaptive capacity in most countries – perhaps excluding in the Philippines.

Despite all RCRL countries having some sort of national action plan to address climate change, efforts remain inadequate, commitment and political will is limited, and most policies lack a gender- or child-centred lens. Overall, there is a growing recognition that gender has been largely neglected in international climate policy and resilience-building work until recent years, where there is now more understanding around the necessity for gender-specific policies and the need for women to be integrated into these frameworks.^{345,346}

Gaps remain in our understanding of the nexus between climate change impacts, girls' education and household decision-making, particularly in the RCRL cohort countries – all of which this research seeks to explore. The literature review demonstrates a need to understand the ways in which poor social protection and limited economic opportunities can reduce girls' rights to learn and to lead. In doing so, this research can contribute evidence towards how prioritising girls' education can empower young people to become agents of change, what that look like, what support is needed (including from governments), and how doing so can increase communities' adaptive capacities. The research hypothesises the synergies between (1) increasing gender equality through prioritising girls' education and (2) increasing climate change adaptive capacity by incorporating climate change education into the curriculum.

³⁴⁵ Feitosa, C. and Yamaoka, M. (2020) 'Strengthening climate resilience and women's networks: Brazilian inspiration from agroecology'.

³⁴⁶ Tran, V.T., et al. (2022) 'Nuanced assessment of livelihood resilience through the intersectional lens of gender and ethnicity: Evidence from small-scale farming communities in the upland regions of Vietnam', *Journal of Rural Studies*, 92:1, pp.68-78.

04 FINDINGS

With the country-level statistics and literature providing the context for girls' experiences of climate change and its impact on their education, we now turn to the perspectives and opinions of the RCRL cohort girls themselves. The insights and experiences shared by the girls provide us with real-world insights into the complex relationship between climate change and girls' education.

Before we explore the findings from the 2023 data collection, however, we first explore the RCRL historical data, which outlines the girls' observations of climate change over the course of the last decade. One of the unique contributions of the RCRL research project to conversations about girls' experiences of climate change is the longitudinal nature of the study. This allows us to chart girls' observations of weather events over time. Education is included as a focus each year, so we already have evidence tracking girls' educational journeys, such as in our 2021 report on [sexual and reproductive health and rights](#).

Although previous rounds of annual data collection have not focused on climate change or weather events, we have some historical evidence of how RCRL families have spoken about their observations of changing weather patterns over the years; these observations have generally been unprompted and mentioned in passing by the participants. As part of the research for this year's theme, we reviewed the historical data of a select portion of RCRL girls.³⁴⁷ This is the first time in the 17-year-old study in which we are taking a longitudinal lens on RCRL participants' experiences of weather over time. The RCRL countries and regions are not closely linked by way of geographies or economic status, but there are observable commonalities across the RCRL cohort about their experiences of climate change from 2011³⁴⁸ to the most recent round of data collection prior to this report (2022). Overall, families have been facing unpredictable, intensifying and more frequent weather that is becoming unmanageable for agricultural communities who could previously anticipate seasonal weather changes.

In the 2011-2013 period, both Saidy and Sharina in the Dominican Republic described heavy rains that led their families or communities to lose income on their crops. Elsewhere, heavy rains were also described by Djoumai's father in Togo and Margaret's father in Benin. In Benin in 2012, heavy rain led to poor crop yield in the community and food prices increased, and in 2013 Margaret's parents took on additional work to withstand the effects of extreme rainfall on their crops. Reyna in the Philippines, however, described an extreme drought in 2013. This caused a water shortage, in which her family harvest was scant and they worried about food.

In the period of 2014-2016, many RCRL families described indirect effects of unseasonal droughts and rainfall on their crops, which led to food scarcity and higher prices. This was mentioned by Saidy and Sharina in the Dominican Republic, Djoumai and Reine in Togo, and Reyna in the Philippines. Following continuous droughts in 2015-2016, Saidy said her family (whose income come from crops and animal rearing) had to take up loans, so any money they made on the harvest needed to be paid back on the loan. In 2015, Huong's mother (Vietnam) reported that Huong and her elder brother had to take three days off from school due to a flood that destroyed their home and their paddy field; the total loss was almost equal to their yearly income.

In the period of 2017-2019, drought was described across RCRL regions by Fernanda in Brazil, Djoumai and Reine in Togo, Davy and Sothany in Cambodia, and Huong in Vietnam. In 2017, Huong's (Vietnam) family crops were badly affected by drought and heat. That year, the family could only afford extra

³⁴⁷ These girls were selected for case study, based on having relatively more data on the climate change theme than other girls in their country cohort.

³⁴⁸ This data review process was limited to 2011-2022, as we were interested in investigating climate change effects that intersect with the girls' schooling. The earliest year that some of the RCRL cohort girls would have started school was 2011.

classes for one child, which they spent on Huong's brother so that her brother could at least later support Huong. Similarly, in 2017, Sothany's (Cambodia) mother said:

"This year, it is hotter, and rainfall is less. This affects animals (pigs are sick and chickens die). Furthermore, I have not enough money to support my daughter's education, and rice and water for daily consumption." – Sothany's mother (Cambodia, 2017)

RCRL historical data for the period of 2020-2022 shows girls from across the cohort experienced extreme rainfall level. A 2020 storm in Vietnam damaged Sen's family house and tree farm and they lost two years' worth of grown acacia trees: *"I can't express the horror of the recent storm"* (Sen's mother, 2021). Alice (Benin), Sharina (Dominican Republic) and Djoumai (Togo) experienced worsening climate conditions. Extreme unseasonal rainfall caused their families' crops to fail, which led to reduced incomes and food insecurity, due to lack of food and increased food prices.

With 12 years of evidence, we see similar narratives across the RCRL cohort: unanticipated weather events, worsening harvest yields, reduced household incomes, increased costs of living, and families seeking extra sources of income. Changes in temperature and seasonal changes are always expected, but the historical evidence that agricultural families have been struggling for a number of years demonstrates that these weather events are beyond the usual; it is clearly climate change.

This report applies the Comprehensive School Safety Framework to the data collected, with the findings presented in two sections. In the first section (Section 4.1), we explore girls' real-world experiences of climate change, the impacts on livelihoods and communities, and the impact on girls' education. This section draws on the first and second pillars of the Comprehensive School Safety Framework, highlighting the need for safer learning facilities, as well as the need for school risk mitigation strategies, which limit disruptions to learning in the face of shocks, stresses and hazards. The second section (Section 4.2) turns to the third pillar of the Framework: the need for risk reduction and resilience education for sustainable development. Findings from the girls demonstrate that education about climate change is a key factor influencing the girls' confidence in applying adaptive strategies and in overall climate resilience.

4.1 IMPACT OF CLIMATE CHANGE ON GIRLS AND THEIR EDUCATION

The RCRL girls describe numerous ways that their education has been disrupted or affected by climate change. These can be grouped into two categories: direct and indirect impacts. Section 4.1 explores these direct and indirect impacts of climate change on girls' education, before turning to girls' views on the topic. This section then explores the need for safe learning environments and safe communities, (supported by climate adaptation strategies and strong governance), which are essential preconditions to ensure that disruptions to girls' education are minimised in the face of climate shocks and hazards.

4.1.1 Direct climate change impacts on girls' education

The RCRL cohort share many ways in which climate change has a direct impact on their education. These can be broadly divided into obvious physical barriers to education and more subtle barriers. Physical barriers include those which cause schools to close, become damaged or destroyed, or become inaccessible due to travel obstacles. Loss of life, injury and illness, and destruction of property and infrastructure are also described as the primary impacts of climate change.

Destruction and damage to school infrastructure

A common physical barrier described by girls was school closures due to extreme weather events – which Barbara in Benin says have *"become more serious"* in the last few years – and the subsequent

destruction of school infrastructure. In the Dominican Republic, Dariana says that her school was closed for two days during Hurricane Fiona in 2022. Similarly, Huong in Vietnam says that her school was also closed for two days in 2022 because of a storm that caused flooding. Flooding is common where Tan lives in Vietnam, and she says that houses and schools are affected when it floods:

“Yes, many houses have their roofs torn off, and many trees are broken. During storms people go to a storm shelter which is higher up to avoid the flooding and everyone brings their own things when staying in the shelter.” – Tan (16, Vietnam)³⁴⁹

Also in Vietnam, Uyen recounts:

“In 2019 or 2020 there was a storm that has been the biggest since I was born. Houses and trees have collapsed, flying everywhere, the trees around here are falling all over. There are a few houses that fly the roof to the middle of the road.” – Uyen (16, Vietnam)

Uyen's observation that the storm was the biggest in her lifetime highlights a worsening or intensifying picture of climate change in her area. Uyen adds that her house lost its roof during the storm, and all of the rice was “crushed.” She explains that the school closed for four days while it was cleaned up. When she returned to school, Uyen says her teacher did not mention climate change at all, despite the school damage, and instead asked the students if they had fun being off school. Also in Vietnam, Tien says her school was also closed for several days after a storm. Meanwhile, in El Salvador, Stephany reports school closures for a different reason – yet one that is still closely linked to climate change. She explains that classes are sometimes suspended during heavy rains to avoid the spread of disease, which people in her community are aware can be spread by floodwaters.

Disruption to girls' education also occurs after extreme weather events, while school buildings are repaired and cleaned. In some cases, the girls describe being required to be involved in clean-up efforts, which prevents them from studying independently while schools are closed. In Vietnam, Kim explains that her education has been disrupted not only by storms and floods, but by clean-up responsibilities. She says:

“When the weather forecast announces a storm or flood, the school will notify the students and then send a message to the parents, the school will announce the absence. After the flood, we all go to school and clean up. That is, after each flood, the whole class is assigned to clean up, and then all the students go to school the next day to do it.” – Kim (16, Vietnam)

Also in Vietnam, Huong describes returning to school to help clean up debris. While in Togo, Azia also speaks about damage done to schools and the further disruption caused by clean-up and repair efforts, saying that in her school:

“The roofs of the classrooms were damaged by the wind. This meant that the classrooms had to be twinned in order to repair the damage.” – Azia (16, Togo)

What Azia describes here is that, in addition to the disruption caused by weather events and clean-up, her education has also been disrupted by having two classes merged into one classroom due to damage. There is significant disruption associated with having double the number of students trying to learn in the one space.

Disrupted journeys to school

³⁴⁹ All quotations and paraphrases from the RCRL girls are from the most recent data collection conducted in 2023, unless otherwise specified.

Another direct consequence of climate change is the disruption of girls' journeys to and from school. In Brazil, Sofia describes that *"the rain is much heavier than before"* and that this is affecting infrastructure to the point that roads have become dangerous. Also in Brazil, Fernanda notes that *"the streets are full of potholes ... [which get flooded] when it rains very heavily"* and this causes accidents, indicating that pre-existing infrastructural failure is exacerbated when weather events hit. In the Philippines, Mahalia reports that the roads to school become *"impassable"* when it rains, due to the mud. Several other girls in the Philippines share similar reports, with Chesa adding: *"when the weather is bad, we don't go to school especially when it's raining."* According to Bopha in Cambodia, even the teachers *"may skip class too"* when the rains are heavy.

In Togo, a focus group participant³⁵⁰ notes that *"the roads have been destroyed by erosion,"* while another participant laments that *"some children face a perilous journey to school."* This is echoed by Larba and Azia (both also in Togo). Larba regularly attends school, but the road to her school can be difficult due to soil erosion. Azia adds that she crosses a stream on her journey to school and sometimes when there is a lot of water in the stream, she is unable to get to school. In El Salvador, Stephany also speaks of the hazards of children needing to cross rivers to reach school. She says:

"There are children who sometimes have to cross rivers, when the river is overflowing, that is, they can't cross because of the current ..." – Stephany (17, El Salvador)

Also in El Salvador, Bessy says that she sometimes cannot reach school due to rain. Normally she walks 90 minutes to school via a dried riverbed. However, when it rains, the river path floods and people can get swept away. Bessy says, *"I have missed classes because sometimes the streams are full of water."* Whenever she misses school, Bessy asks her friends or the teacher for support to catch up, and implies that these requests are being met. Similarly, Azia in Togo will take notes from her friends who are able to travel to school when she is unable. However, Ladi (also in Togo) says she can sometimes fall behind on her studies because there is nothing in place to support children who miss classes due to rain.

In Benin, Thea says that sometimes the rainwater comes up to her knees and on one occasion she lost her shoes. Thea has also heard that once flooding caused by excessive rainfall carried away a student. Annabelle and Alice (also in Benin) explain that they are often late when it rains, with Alice adding:

"When it rains and there are a lot of absentees in class, the teachers redo the lessons because they know that the track is not in good condition to be used by the students when it rains." – Alice (16, Benin)

Alice says that she is only able to attend school when it rains if her father is available to escort her; otherwise the roads are too degraded and dangerous. Meanwhile, Catherine's mother (Benin) outlines other hazards facing girls on the travels to school, saying:

"When it rains a lot, roofs are destroyed in markets and roads are flooded, making it difficult for children to go to school. Electricity poles also fall down." – Catherine's mother (Benin)

In El Salvador, Bessy and Rebecca live in proximity to rivers, which causes concern for both due to the risk of bursting riverbanks and flooding. In addition, they both suggest that this prevents them from going outside of their community, as they are unable to cross bridges until the rainy season ends or water subsides. In Vietnam, both Tan and Sen's mothers say that during big storms, the road to school floods and schools can close for several days. Also in Vietnam, Kim's mother says that when the rains are heavy and it floods, it is not possible for girls to attend school:

³⁵⁰ Focus group participants were anonymised in the transcripts written up by interviewers. Where we have information available about the speaker (for example, if they are a community leader) this is included, however, this information is not available in most cases.

"In general, there are floods every year here. When there is a large flood, schools are closed, and they do not have to go out and are in danger of flooding." – Kim's mother (Vietnam)

Also in Vietnam, Yen says that occasionally she does not attend school when the rain is heavy, and explains that her friends who live in a flood zone miss school every time it rains. In Brazil, both Natália's and Bianca's attendance has been affected by weather events, such as heavy rains that make the streets dangerous.

Many of the girls travel to school on motorbikes and have experienced or witnessed accidents during storms and flooding. Some have sustained injuries that have caused them to miss school, while others have become fearful of travelling to school during rainfall and floods because of past injuries. As a result, they now stay home and miss school during storms.

In Vietnam, Kim, Tien and Uyen ride motorbikes to school. Kim says that with so many people travelling on motorbikes, the roads are very congested and dangerous. Tien has a five-kilometre motorbike journey to school and says that the weather makes the route more challenging: *"this year there are more floods. It is difficult to go around when flooding."* Despite this, Tien says that she does not need to take a day off when the weather is too hot or too rainy. Also in Vietnam, Huong reports that she sees accidents *"quite frequently"* on her journey to school. Likewise, in the Philippines, Christine says that the muddy roads make it difficult to take the motorbike to school during typhoons, which have resulted in falls and injuries; on one occasion, she was forced to take a week off school to recover. Dolores, Mahalia and Rubylyn (all in the Philippines) report that there are many accidents and Rubylyn says, *"there are times when it floods and there is a small landslide on the way [to school]."* Girls in Cambodia are facing similar hazards, with most also travelling to school by motorbike: Davy, Leakhena and Nakry all report having been in an accident on their way to school.

Extreme temperatures, heat and drought

Although more subtle and less easily observed, extreme temperatures, heat and drought are also presenting a barrier to girls' education. Mariel's aunt (El Salvador) points out that the change in temperature, hotter days and hotter nights, along with heavy storms, are the most significant effects of climate change affecting them. Rebecca and her aunt (also from El Salvador) say that the intense heat and droughts are very worrying for them, as there is very little available water. From these accounts, we can observe that intense heat is causing schools to close and making travel to school uncomfortable and dangerous. Drought is causing a lack of water, which is also dangerous. In Cambodia, intense heat has made it uncomfortable to walk to and from school, with Bopha, Lina and Nakry all reporting that many people have fainted in the heat. Bopha says it affects her ability to focus when she is at school: *"It is so hot, and it makes us sweat. I don't feel [like] concentrating on my study because there is no fresh air."* In Vietnam, a focus group participant also notes that children in the area are affected by the weather on their journey to school, saying:

"Children are also affected a lot, especially going to school. Summer is now hotter, 11 am already very uncomfortable." – FGD participant (Vietnam)

Similar climate effects are being experienced in El Salvador, with Doris and Mariel both stating that the heat has made them very uncomfortable. Together, these accounts highlight that extreme heat is affecting concentration, and this in turn can have an impact on girls' education, even when girls are able to physically attend classes.

Reducing the impacts of climate change on education

Although few, some of the RCRL girls in the Philippines are able to point to ways in which their schools are implementing strategies to minimise disruption to education caused by climate change. Girls in the Philippines, including Dolores and Kyla, seem to have experienced less disruption to their education. While their schools are still affected by severe flooding, the teachers have introduced adaptations to ensure that children do not fall behind on their studies. Dolores says that schools will close during floods and storms, but teachers will send out class assignments to students through their cell phones. In Kyla's case, teachers will organise an extra *"supplementary class"* on a Saturday to make up for time lost in the classroom. In this way, we can see the powerful influence of readiness and adaptation capacities in shaping how climate change impacts girls' education. Schools that have plans for education continuity in the event of climate hazards and events are able to minimise disruption to girls' learning.

Unfortunately, none of the RCRL cohort in other countries described similar continuity plans actioned by their schools. When we examine the broader context of climate change in the Philippines, we can see that the Department of Education has responded to extremely troubling statistics about education disruptions (see Section 3.3.7, indicating that 93 per cent of schools were affected by weather events and hazards between 2009-2018³⁵¹) and has implemented action plans in line with broader climate change policies for risk management and reduction. This example highlights a correlation between having a strong climate change policy ecosystem and education continuity in the face of climate change. In this way, we can see the powerful influence of readiness and adaptation capacities in shaping how climate change impacts girls' education.

4.1.2 Indirect climate change impacts on girls' education

Many girls also describe indirect impacts of climate change on their education. Indirect impacts – also known as 'secondary impacts' – are those which are less directly observable and occur as part of a multiple-stage process that can take weeks, months or even years to manifest. Examples of these include worsening harvests, poor fishing yields and water shortages, all of which cause deteriorating livelihoods of farmers and fishers over time. Over time, secondary impacts can lead to tertiary impacts, such as food scarcity, which in turn, drive up market prices and put further pressure on already struggling households. This deepening deprivation has a direct link to girls' access to, and completion of, education in two main ways: 1) families are unable to afford the cost of school fees and travel to school, and 2) girls are required to take on paid work and/or additional chores and care responsibilities in order to contribute to the household income. Both factors cause disruption to girls' education, causing them either to drop out of school or split their time between school and other responsibilities. Through the RCRL girls' experiences, we are able to see real world examples of the link between indirect impacts of climate change and girls' education. These impacts are also coupled with gendered barriers to girls' education, including early marriage, pregnancy, gender-based violence and care responsibilities – suggesting that climate change is exacerbating existing inequalities that restrict girls' educational opportunities.

Secondary impacts: Loss of livelihoods

Deterioration of harvests and fisheries is causing loss of livelihoods among RCRL households. In Vietnam, Huong says that her community is experiencing crop failures due to changes in seasonal patterns. This has been noticed by multiple girls in the Dominican Republic, Benin and Togo, with Nicol (Dominican Republic) noting that, as a result, there is less fruit and the fruit that does grow is *"very small."* Changes in seasonal patterns have also been observed by girls in Benin and Togo, who note deterioration of soil quality. In Benin, the girls and their communities rely heavily on farming, harvest,

³⁵¹ Republic of the Philippines. Department of Education (2023). 'The Need for Climate Change Education'.

crops and fertilisers, all of which have been affected by the weather events. As a result, many soils are infertile. Alice (Benin) says, *“the people most affected are farmers, traders.”* Drought and extreme heat are also affecting crops, with Tan in Vietnam explaining that her community's crops have been affected by the heat: *“if it is too hot, crops will dry out and cannot be harvested.”* In the Philippines, Chesa says that poverty has increased due to water shortages, which are causing damaged crops and affecting livelihoods and food availability. Also in the Philippines, Michelle explains the direct impact climate change has on her family, saying:

“Yes, [climate change] affects the rice field if it doesn't rain. My father can't plant directly ... in the summer because we can't even plant in the field because the land is dry, there is no water, and we can't plough.” – Michelle (16, Philippines)

Others note an impact on harvests from storms and flooding. Sen, in Vietnam, says that the soil is rotten from the excess water, and as a result, her family's acacia trees have reduced by 50 per cent compared to the previous year. Quynh's family, also in Vietnam, has directly experienced the impacts of extreme weather events:

“The year before 2020 there was a very big storm. At that time, it affected livestock production because my father raised pigs, and it had a great impact. After that time, it was very difficult for my father to recover the capital.” – Quynh (16, Vietnam)

Quynh adds that *“the central region³⁵² was damaged in terms of rice, and my family didn't have enough rice to eat.”* Quynh recognises the relationship between weather and farmers' livelihoods, saying:

“I think the weather condition affects the farmers the most. Most of them have to depend on the weather to ensure their products, to earn money to feed their families. So, if the weather is bad then it also affects them a lot.” – Quynh (16, Vietnam)

Across the RCRL countries, the fishing industry is also noted to be significantly affected by climate change. Reyna and the focus group participants of the Philippines all report that fisheries boats were destroyed by Typhoon Yolanda (also known as Haiyan). This prevented people from catching and selling fish, a key food source for many communities in the Philippines. The impact on the fishing industry has also been observed in Cambodia and Vietnam. Quynh (Vietnam) says that it is difficult for fishers when there are frequent storms and heavy rainfall, as it becomes dangerous to go out fishing and there is a risk of loss of life and/or materials. Several girls and their caregivers in El Salvador report that fishers face significant challenges due to severe weather events, which is impeding their ability to go out and catch fish. Even when they can go, they often find that the number of fish is lower than expected. Rebecca reflects on recent changes in the fishing industry:

“My stepfather, he is a fisherman. So, he goes fishing and sometimes he comes back with nothing, but before he used to go and bring back [many fish] and today the most he will catch is one fish, two fish.” – Rebecca (16, El Salvador).

This demonstrates real-world examples of what was highlighted in the literature: livelihoods among communities reliant on agriculture and fisheries are being disproportionately affected by secondary impacts of climate change.

Tertiary impacts: Deepening deprivation

³⁵² The Vietnamese Government tends to group the nation's numerous provinces into three regions: Northern Vietnam, Central Vietnam and Southern Vietnam. The 'central region' (Central Vietnam) includes the Central Coast and Central Highlands. The Central Coast of Vietnam is particularly prone to natural hazards and climate shocks.

As explored in the literature review, climate change exacerbates existing social and economic inequalities. Poorer households are less able to adapt to climate change and are less able to recover following shocks or stresses. With the impact of climate change on livelihoods and costs of living, the poorest households are at risk of deepening deprivation.

Poor agricultural and fishery yields are observed by some of the girls as causing food scarcity. In the Dominican Republic, Nicol talks about there being less food than before. Focus group participants in the Dominican Republic also agree that more harvests have been lost in recent years, saying:

"Plantains are growing smaller, they are becoming scarcer, and their price is increasing, that is because of the cold that this year 2022 made the plantain stunned." – FGD participant (Dominican Republic)

As a result of the scarcity, there are *"higher prices,"* according to Rebeca in the Dominican Republic. Many girls describe negative effects for multiple groups: for farmers who have less to sell and are forced to sell at higher prices to cover costs, and for consumers who are struggling to cover higher food prices.

In Vietnam, Kim references how the rising temperatures are affecting harvests and the cost of living: *"if the weather is more sunny and erratic, the trees will die, and the yield will decrease, this year, the price of many items increase."* Likewise, Kim's mother says, *"Now the price is high, business is more difficult. Less productivity, less food, less quality."* Also in Vietnam, Ly's mother goes to the local produce market often, finding: *"it is more expensive. Vegetables did not increase, fish meat increased, rice increased."* In Togo, Folami comments that the price of food has *"doubled or even tripled."*

In Darna's community in the Philippines, most people are reportedly buried in debt, and extreme poverty is prevalent due to failed crops and loss of livelihood caused by weather impacts. Tien describes similar circumstances in Vietnam, and says that, as a result, people are simultaneously earning less and reducing their spending. Lina in Cambodia says that the poorest are most affected:

"People [are] in poverty as they don't have much money for meal[s], not enough clean water for usage, more [expenditure] for daily lives. Furthermore, they have many children."
– Lina (16, Cambodia)

Christine (Philippines) and Djoumai (Togo) both say that people resort to borrowing money from lending groups and microfinances to cover home expenses. Tan (Vietnam) explains that economic pressures in her community caused by crop failures have led girls to drop out of school when their parents can no longer pay the fees; she says that this has happened to friends of hers as well.

Impact on girls' education

Deepening deprivation is having a negative impact on girls' education. Many girls report that their parents are struggling to pay for their school fees or for their travel to and from school. Some girls report having to seek paid employment outside of school hours to help contribute to their family income – however, they report that it is difficult to juggle school and work and feel that their education suffers. Other girls have been forced to leave school altogether because of an inability to afford school fees, a need to engage in full time paid work or a combination of both reasons.

In the Philippines, Maricel's caregiver says that families' reduced income means that they struggle to buy what the children need for school. Reyna (Philippines) echoes this, saying that some children in her community are forced to drop out of school to work when their parents cannot afford their school expenses. Also in the Philippines, Christine is aware of her family's financial constraints and says that extreme temperatures have meant that her family's rice harvests are *"very small"* and *"just enough"* for the family's consumption, but leave nothing to be sold. As a result, Christine says that it is *"a struggle"*

to cover “everyday expenses” such as her travel to school; this makes her very conscious of what money she asks her parents for, saying:

“I told my mother that I will only get my fare going to school because, of course, I am thinking about our expenses such as rice.” – Christine (17, Philippines)

Due to climate change-related rising costs of living, many girls are unable to afford transport prices and must walk long journeys to school instead. In the Philippines, Jasmine says that her family’s worsening poverty caused by increased costs of living means that she can no longer afford to take public transportation to school. Her walk to school is very long and tiring, and as a result, Jasmine occasionally needs to take some days off school to rest. In Togo, Ladi has a long and hilly journey to school, which becomes difficult during heavy rains; she says that students have been known to slide and fall. Reyna (Philippines) takes a motorbike taxi to school during extreme heat and heavy rains. However, she finds this very stressful because of the cost. Reyna feels bad about taking money away from her family for food, and says that many do not have the luxury that she has, saying:

“[Other children have] no pocket money because their parents’ farm is affected by bad weather conditions. For example, when it rains too much, crops are damaged, and nothing can be harvested.” – Reyna (16, Philippines)

Some girls have had their education disrupted because they work part time, either to fund their own education or to contribute to their family. Research highlighted in the literature review suggests that girls’ learning and progress may be negatively affected by increased paid or unpaid work responsibilities that leave them with less time to study.^{353,354} Larba (Togo) has taken on a part-time job to pay for her school fees, which her parents can no longer afford due to climate change-related livelihood losses and rising costs of living. Larba feels as though she does not have enough time to learn outside of school hours, because at weekends she works in the field and only has time to study when she gets back at night. Jasmine (Philippines) and Nakry (Cambodia) also both report that their education is suffering due to work they have taken on. Jasmine’s family had to take out a loan to cover household expenses when climate change caused their crops to fail. As a result, Jasmine has been busy helping her mother plant vegetables for the harvest. Jasmine says that her family’s increasing poverty means that she cannot afford transportation costs to travel to school, which means that she needs to contribute more to the family’s livelihood. Similarly, Nakry explains that her family’s cassava plant has failed this year because of climate change, and she has taken on a part time job picking and selling cashew nuts to help her family.

Some girls have left school because of an inability to pay the fees, while others have dropped out because they are required by their families to contribute to the household income due to livelihood losses caused by climate change. In Togo, Djoumai has dropped out of school due to financial pressures; she was not getting good grades and her family was struggling to afford her school lunch and other costs associated with her education. While it seems that some girls have left school by their own choice, in many cases this choice was likely shaped in some way by their household’s financial situation. These findings align with those suggested in the literature review (see Section 3.1.1), particularly the research from Bangay and Blum, which found that climate change is commonly affecting families’ livelihoods, and as a result, reducing their ability to pay school fees.³⁵⁵

Gendered barriers to girls’ education

³⁵³ UNICEF (2015) ‘Unless we act now: The impact of climate change on children’.

³⁵⁴ Nelson, V. (2011) ‘Gender, Generations, Social Protection & Climate Change: A thematic Review’

³⁵⁵ Bangay, C. and Blum, N. (2010) ‘Education responses to climate change and quality: Two parts of the same agenda?’.

Girls also face gendered barriers in accessing and completing quality education. Such gendered barriers are often exacerbated by climate change. Deepening deprivation leads to increased rates of crime and violence, which affects girls' safety on their journeys to school, CEFMU increases as a negative coping mechanism, and financial pressures limit access to contraceptive, leading to adolescent pregnancy. These factors all prevent girls from attending and completing their education.

The data tell us that a loss of livelihoods and increasing poverty rates have had an impact on crime rates, particularly in the most climate-affected areas. As a result of increased crime, some of the RCRL girls report feeling unsafe on their journeys to school, especially if they are alone. In Cambodia, Leakhena says:

"There is another concerning case with gangsters who want to kidnap students who travel to school along the quiet road." – Leakhena (16, Cambodia)

Also in Cambodia, Lina and Nakry report the same concerns about the gangsters along their route to the school, and Nakry says that she waits for her friends from another village to pass by so they can walk together. In Benin, several girls report the roads to be unsafe due to high crime rates, caused by a loss of livelihoods and food insecurity. In Benin, Barbara says she does not attend school unless her brother can accompany her, because the route is so dangerous. In the Philippines, girls report that they feel most insecure travelling to school in the morning when it is dark, echoing the studies highlighted earlier in the literature review that found an increase in SGBV during and after extreme weather events. It is worth noting that the studies do not suggest that climate change directly causes SGBV, however, it does create environments in which such violence can occur.

Several of the RCRL girls have left school due to unions and marriages and/or early pregnancy. In some cases, these can be linked back to climate change. Several of the girls in the Philippines report that early pregnancy, child marriage and child labour are consequences of climate change that affect their peers' education. Drop-out rates are particularly high in Togo, with Nana-Adja, Nini-Rike and Reine all sharing that poverty and unwanted pregnancy are two of the main reasons girls are leaving school. Participants in Togo insinuate that the lack of food and overall increase in the cost of living has led to some girls and women selling or exchanging sex for money or food. For example, Nini-Rike claims that poverty affects girls in a unique way; sometimes it leads them to drop out of school to seek money and/or food from boys and men, which Reine describes as *"bad behaviour."* Reine elaborates, saying,

"Sometimes, in order to find food, girls give themselves over to boys, and the taste for adventure leads girls to drop out of school." – Reine (17, Togo)

As a result, there is a rise in early and/or unwanted pregnancies, leading to girls dropping out of school. Nini-Rike explains that unwanted pregnancies force girls to drop out of school or to delay their education. Folami, also in Togo, dropped out of school three years ago when she became pregnant, as she felt ashamed. She feels stigmatised by her friends from school, but, she hopes to go back. Folami says,

"A girl's education is valued by the community because if she earns a living, she supports the family more than a boy. She can also help others, and all the families here send their daughters to school." – Folami (17, Togo)

CASE STUDY: REYNA, PHILIPPINES

The story so far: Climate impacts on Reyna's education

Reyna is 16 years old, and lives with her father, mother, brother and several nieces and nephews. Throughout the years, Reyna's father – a farmer – has struggled with his harvest, due to increasingly extreme and unpredictable weather patterns. In 2013, it was very dry, the harvest was scant, and the family worried about food and water scarcity. Again in 2015, the family received lower profits from their harvest yield, and in 2016, there was no farm work at all due to the changing seasons, and Reyna's father had to look for other work. In 2018 and 2019, the heat and drought destroyed the harvest. When interviewed in 2021, Reyna's father said that fertiliser, pesticides and farm machinery rentals were too expensive and recommended government regulation of prices. He referred to how Reyna's paternal grandfather would *"sell two sacks of rice [to bring] home a sack of fertiliser and a meat,"* but now selling the equivalent was not enough to afford fertiliser – a situation made worse by bad weather reducing crop yields.

In 2023, when asked about experiences in weather patterns and climate events, Reyna explains that her journey to school has become more challenging due to the extreme heat:

"Going to school is a big change because the weather used to be okay. I used to walk from home to school because the weather was still nice and not that hot, just moderate. But now it's difficult because the heat hurts even when I'm using an umbrella."

If she uses her money to take a motorbike during these times, she is left without money for food at school. When it rains heavily, Reyna explains that sometimes students cannot access the school for two weeks.

Reyna recalls a recent typhoon in which: *"many houses and our crops were destroyed. Many fishermen's boats were also destroyed. Our life was very difficult."* Reyna's father says that he can no longer plant or plough, which has limited the family's income. He attributes this to the changing and unreliable seasons, saying: *"When the months of June to December enter, that's the rainy season, but now it's not. It's very hot and when it's summer season, it turns into the rainy season. This means that climate change is severe, and it has a big impact on farmers like us here in the barangay³⁵⁶."* As a result, food scarcity is common, and Reyna explains that they eat only canned food during the dry seasons because there are no fresh vegetables to eat. Reyna highlights how the family's livelihood loss – as a result of climate change – leads to increased hunger and missed classes. Reyna reflects:

"As a daughter of a farmer and also a young farmer myself, I know how it is when the product [crops] is at a loss because I had to miss my classes and sometimes, I cannot eat because the product is damaged due to bad weather. It is important for my fellow young people to know this so they can learn to appreciate what they have and use the resources in the right way and also appreciate nature."

Reyna explains that some children in her area are forced to drop out of school to work when their parents cannot provide for their school expenses.

Additionally, Reyna says she is very tired, has limited time to study, and has no time to socialise with her friends, since her household chores have increased. She is now responsible for taking care of her younger sisters and nieces and nephews while her parents take on additional work to compensate for their lost income. She says that her older brother does not help much with any of these chores and she feels depressed about the number of tasks she has. Reyna is worried about her school performance because she only gets to study at home when her nieces and nephews are asleep, when her care responsibilities and household chores are over.

³⁵⁶ 'Barangay' is the term for the most local level of government in the Philippines.

Impacts of climate change on boys' education

As stated in the literature review, both boys and girls are equally likely to be exposed to climate shocks, however girls are more likely to experience greater *impacts* of those climate shocks. This is reflected in the girls' observations of the impact of climate change on their male peers' education. While many of the girls observe high drop-out rates among boys, the girls are less likely to make a connection between boys' drop-outs and climate change. In the Philippines, Reyna thinks that boys' drop-out rates are higher than girls',^{357, 358} and that this appears to be a concern in her community. However, Reyna thinks that the reason for the concern is that boys are dropping out to "*prioritise their vices*," including issues of addiction. Similarly, Rebeca in the Dominican Republic says that boys drop out of school because they are "*very rebellious*," and Nicol (also Dominican Republic) thinks that boys are encouraged to drop out because of "*bad influences*." In El Salvador, Susana thinks that boys and girls drop out of school equally, but for different reasons. She thinks that girls are more likely to drop out because they become pregnant or must take on household or caring responsibilities, whereas boys are more likely to drop out of school to work or join gangs.³⁵⁹ This paints quite a negative view of boys, and therefore, it must be reiterated that this is the perspective of the girls themselves; it may not necessarily reflect a comprehensive picture.

Some of the girls identify different gender norms in school dropouts. In El Salvador, Valeria explains that men are expected to go to work, while women are expected to look after the home. Focus group participants in El Salvador further add:

"Girls have to work and leave their studies to dedicate themselves to work to help their household." – FGD participant (El Salvador)

"Boys abandon their studies to dedicate themselves to fishing." – FGD participant (El Salvador)

In the interviews, the girls were asked to consider a hypothetical scenario in which a girl is required to drop out of school in response to climate change-related agricultural livelihood losses in her household, which require her mother to take on additional work outside the home and the girl to take on additional care responsibilities in her mother's absence.³⁶⁰ When asked to reflect on this hypothetical scenario, Bessy, Doris, Karen and Susana (all in El Salvador) each say that a boy would not be pulled out of school for a similar reason. Others in Togo add that the same situation would not happen to a boy because boys cannot cook or care for the elderly or children, with Lelem (Togo) adding that society assumes that only girls can look after a house, because they will get married and stay at home. However, in the Dominican Republic, Rebeca, Saidy and Sharina all feel differently. All three believe that a boy would be equally required to drop out of school in response to family hardship, but that boys would typically take on paid work rather than household or care responsibilities. This reflects a more nuanced picture of the impact of climate change on boys' education. We can see that climate change may be a factor in boys' drop-out rates as they leave school to pursue paid work and contribute to supporting their households. However, it should be noted that none of the RCRL girls report that boys are contributing money to their households.

Research by Nelson (2011) highlighted earlier demonstrates how lost livelihoods due to climate change lead to an increased requirement of household labour and care work. Likewise, Bangay and Blum's (2010) research highlights how this disproportionately affects girls and their school performance. Boys have greater agency to choose to take on manual labour, gaining financial independence and skills

³⁵⁷ Reyna's observation reflects UNICEF statistics – girls in the Philippines have an upper secondary completion rate of 83%, while the rate for boys is 74%, suggesting boys have a greater drop-out rate than girls. See footnote 300 for source information.

³⁵⁸ UNICEF (2022) 'Secondary education'. Available at: <https://data.unicef.org/topic/education/secondary-education/>.

³⁵⁹ The areas where the girls live in El Salvador have high levels of gang activity and are known to be violent. RCRL interviews are conducted by phone or in external locations to ensure safety of both the participants and the interviewers.

³⁶⁰ The full vignette that was shared with the girls for their reflections is available in Annex 6.

development that will support their climate change resilience in the longer-term, while girls are expected to remain in the home. This can lead to girls' isolation and prevent them from engaging in public life. In this way, we can see that while both girls' and boys' education is affected by climate change, girls are more likely to bear the brunt of the impact due to gendered norms relating to girls' roles as caregivers, safety concerns and early marriage and pregnancy. These findings support the logic found in the literature review, in which two factors cause climate change to disproportionately impact girls' education: poverty (faced too by boys) and gender norms that devalue educational attainment, faced only by girls. This will be explored further in the next section.

4.1.3 Gender norms and girls' education

Education can offer greater opportunity for climate adaptation – particularly livelihood diversification and financial stability. This report now explores the value that parents place on education, even in times of financial constraints. During interviews, there is a common understanding of girls' education as a means for a better future for the girl and her family. Elsewhere in the cohort, some parents perceive that girls, whose education is not necessarily seen as a pathway to future financial stability, can be more cost effective when they contribute to household labour or income generation, primarily due to the associated education fees. This section also speaks to the reasons some RCRL girls have left school over the years, and the girls' and their parents' views on whether or not there is value in their return. And so, the RCRL caregivers provide a range of enabling and constraining environments towards girls' education.

Parents and guardians supportive of girls' education

In each of the study countries, many of the girls' parents and guardians are supportive of girls' education and are managing their livelihoods to keep their daughters in school. Many of the girls even feel as though their education is equally valued as boys'. In the Dominican Republic, Sharina thinks that people in the community value girls' education and says that people will discourage girls from disrupting their studies, including by avoiding early pregnancy. Notably, as will be explored further below, some parents are taking on all household responsibilities themselves and discouraging their daughters from taking on paid work, to ensure that girls can focus solely on their education. For example, Catherine's parents, in Benin, are supportive of their daughter prioritising her schoolwork over household chores and paid work. Catherine says she is not worried about her future: *"my hopes for tomorrow are to continue my studies, to have diplomas, to have a job and a better future."* Similarly, in Brazil, Fernanda's mother says that she would prioritise her children's education, regardless of difficulties in finances. She says:

"I would prioritise feeding them. [I wouldn't let it] affect their education, because without the school we are nothing. I don't want to offer [them] the life I had, working in the garden in the sun. I want [them to] to study to have better jobs." – Fernanda's mother (Brazil)

It should be noted however, that since her father died, Fernanda has dropped down to part-time education in order to take up paid employment to help her mother. In this way, we can see that parents have different views on what constitutes prioritisation or disruption of their daughters' education.

Several girls and their guardians report that by prioritising girls' education, they are enabling a better future for both the girls themselves and families more broadly. In El Salvador, Gladys explains the value of girls' education: *"because they learn new things and studying in the future will help them."* She believes that people in her community agree with this sentiment and support girls' education. Furthermore, a focus group participant in El Salvador explains:

"Education in the future generates better income for families and parents should seek to improve their income without affecting their children." – FGD participant (El Salvador)

This is a view that is demonstrated by Bessy's grandmother (in El Salvador), who prioritises paying for Bessy's school fees because she is doing so well in her classes. Likewise, Essohana in Togo says that girls' education is valued highly in her community because their parents did not study, and they want to see girls attend school and have secure futures. Essohana says:

"Girls' education is useful because girls also have the right to learn and find work in the future, and as our parents didn't go to school, we have to go." – Essohana (17, Togo)

Essohana's statement highlights the determination that girls feel to pursue their right to learn and achieve opportunities their parents did not have.

Parents and guardians less supportive of girls' education

Unfortunately, not all guardians are fully supportive of girls staying in school, and some girls suggest that boys' education is valued over girls. In the Dominican Republic, a focus group participant says:

"Most parents do not prioritise studies, if a mother has to go run an errand, she stops sending the girl to school, she sees it as nothing one day, but that happens three times a week and then the girl loses love for school." – FGD participant (Dominican Republic)

Other parents worry about their daughters passing their exams and question whether working in a trade would be more valuable. For example, in Benin, Alice's father worries about her grades, and already has plans for her to work in a trade instead of pursuing further education – despite her hopes of becoming a singer and a physics and chemistry teacher in future. It is not only parents who hold this view. Some of the RCRL girls in Benin also question the usefulness of education. For example, Thea thinks it may be better to learn a trade to make money and become financially secure. This may reflect a lived reality in these communities, where there may be more job opportunities available in rural communities for those with a trade than those with a tertiary education.

Some of the girls observe that boys' education is valued more highly than girls'. In Vietnam, Quynh believes that people in her community respect men and despise women, saying:

"I think it's a big responsibility for a boy, but he can go to work. I think about boys, parents don't force them to drop out of school like girls. I think it is partly due to the subconscious of Vietnamese people that respects men and despises women, so I think so. However, this is not common in my family." – Quynh (16, Vietnam)

Also in Vietnam, Yen agrees and feels that families – and especially older women - generally favour boys over girls. Uyen says that her community in Vietnam is very supportive of girls' education. However, she adds:

"I don't think parents will ask their boys to drop school because usually boys can't be like girls, boys can't take care of their family as much as girls." – Uyen (16, Vietnam)

Uyen says that parents would prefer to take their daughters out of school over their sons, because girls are better able to help with chores; Uyen feels that this is *"unfair"* and *"unreasonable."* Likewise, in Togo, Anti-Yara believes that boys' education is valued over girls' – she says that boys do not miss or leave school, because parents say it is good for a boy to go to school. Anti-Yara says: *"here, girls' education is not valued because parents say that a girl at school is useless."* Participants in a focus group in Togo add that while they value education and do not agree with girls being taken out of school, they acknowledge that this is something that often happens in their community, especially when a family is facing increasing household or care burdens. Focus group participants also acknowledge that this is something that affects girls instead of boys, saying:

"Boys can't look after the house." – FGD participant (Togo)

"No, because they think the boys can't look after the old lady and the baby." – FGD participant (Togo)

However, Anti-Yara feels that educating girls is useful because an educated girl contributes to the education of her children and to the development of her village. She says that through education she will know how to work her way out of poverty.

School dropouts

School dropouts appear to be gendered in many communities. In her community in Togo, Essohana says that boys do not miss school and drop out, it is girls who drop out when their parents are worried about the cost of education. There also seem to be gendered barriers to girls' pursuit of higher education. While Catherine, in Benin, has supportive parents who want her to finish high school despite their decreasing income, her parents make it clear that they are:

"Thinking about how to find the money to support her until she finishes school before she gets married." – Catherine's mother (Benin)

This quote indicates that Catherine's parents expect her education journey to end when she completes high school. Rather than pursue higher education, it is expected that Catherine will get married. This assumption is likely based on social norms around marriage for girls – in Benin, 31 per cent of girls marry before the age of 18.³⁶¹ However, a lack of jobs available for women, mentioned by several participants in Benin, may also be a reason that Catherine's family see marriage as the logical next step after secondary school.

Many girls in the RCRL study have already left school due to financial stresses, illness, early marriage or pregnancy. Despite this, most of the girls' parents and guardians report valuing girls' education. In the Dominican Republic, a focus group participant comments that it is *"irresponsible"* for girls to leave school early and says that family members are responsible for supporting the girl and making adjustments to ensure she can continue her studies. In response to a story about a girl dropping out of school to take care of household responsibilities, a focus group participant in Togo says that the girl's parents *"are handling it badly because they're not thinking about the future of women."* However, worsening financial situations of many families, due to crop failures and rising costs of living, appears to be forcing families to make difficult decisions.

And so, it is possible to outline a dynamic in which families seek for girls to attain an education for a better, more financially stable future – in other words, improving the girls' adaptive capacity to financially withstand climate change impacts. Yet, households' current financial difficulties threaten girls' education, and girls may be pulled out of school as a coping strategy.

4.1.4 Safe schools and communities are required for girls' education

From the experiences that the girls have shared, we can observe that climate change has a direct impact on the girls' access to, and completion of, quality and uninterrupted education. This includes through destruction of school infrastructure and obstacles on their journeys to school.

³⁶¹ Girls Not Brides (2022) 'Benin'. Available at: <https://www.girlsnotbrides.org/learning-resources/child-marriage-atlas/regions-and-countries/benin/>.

Across the cohort, girls are missing school due to weather events (and the ensuing clean-up efforts) and losing out on school lessons. The longer girls remain out of school, the less likely they are to return to school and the more likely they are to fall victim to harmful practices and exploitation, including CEFMU, GBV and early and unintended pregnancy.³⁶² Disrupted education is worsened in cases where schools have poor or no climate planning or risk reduction strategies. This highlights the need for safer learning environments for girls, and for education sectors to develop disaster risk reduction plans and education continuity strategies to limit disruption to learning in the face of hazards and stresses.

Findings from this study support the logic found in the literature review, in which climate change vulnerability is exacerbated by existing norms and inequalities. This is the case for Mahalia from the Philippines, who has recently started a new weekend job to help her mother increase the household income, saying:

“... there is no livelihood. They cannot fish lately because it was raining hard, and now there is no harvest in the fields because it is too hot.” – Mahalia (16, Philippines)

In this way, Mahalia makes a direct link between climate change and loss of livelihoods, which has led to her seeking paid employment. This further demonstrates the need for effective climate change governance at the community level, to ensure that risk mitigation strategies safeguard livelihoods and prevent disruption to girls' education.

4.2 KNOWLEDGE AS FOUNDATIONAL TO GIRLS' CLIMATE RESILIENCE

The RCRL girls have varying degrees of knowledge about climate change, coping strategies, adaptive capacities and resilience. In this section, we explore the girls' knowledge of climate change and adaptation strategies, before turning to an analysis of where girls are accessing information that equips them to become knowledge bearers and leaders on climate action and resilience in their communities. Through exploring the girls' sources of knowledge about climate change and adaptation, we can observe a pattern: where schools have a strong climate change curriculum, the girls demonstrate stronger knowledge about climate change, greater confidence in applying adaptation strategies and provide more detailed recommendations for duty-bearers to respond to climate change. In countries where climate change education is limited, the girls report having less understanding and confidence about the topic. This section therefore highlights the importance of risk reduction and resilience education, which is captured in Pillar 3 of the Conceptual Framework.

4.2.1 Girls' knowledge of climate change

While some girls can explain causes and impacts of climate change, there is a significant number of girls who feel ill-equipped to speak about the topic in any depth. Their differing levels of knowledge about climate change and adaptation strategies aligns with the level of information they receive from their school curriculum – this is the main source of climate change knowledge for most girls. Other sources of information for the girls include their families and communities, as well as through the media. While most of the RCRL girls have heard of the term, 'climate change,' and are able to make a link between changes in weather patterns and an increase in significant weather events, a number of girls across multiple countries report that they have not heard of the term 'climate change.' Despite this, nearly all of these girls are able to describe some knowledge of changing weather patterns in their area. For example, when Susana (El Salvador) was asked if she was familiar with the term 'climate change', she says no, she has not heard the term, however describes that *'the weather can change to cold, hot or rainy'* unexpectedly. Yet, she cannot explain the reasons why these changes occur.

³⁶² Plan International (2023) 'Girls' Education'. Available at: <https://plan-international.org/quality-education/girls-education/>.

"Sometimes [the rain] doesn't fall, sometimes it does, sometimes it doesn't fall for days and then it only falls at dawn or at night." – Susana (16, El Salvador)

Also in El Salvador, Rebecca reports that she has never heard about climate change, but she has still noticed changes in the weather such as droughts and floods, as well as more sick animals. Bessy (El Salvador) identifies changes in weather (increased droughts, rainfall and flooding) yet does not link them with climate change and says she has not really thought about the impact of climate change, prior to the interview for this study. However, she does report that these events have an impact on her family's harvest. The El Salvadorian girls' lack of knowledge about climate change is perhaps surprising, considering the fact that the government introduced the National Environmental Policy more than a decade ago, which included provisions for the promotion of climate change knowledge within the national education curriculum.³⁶³ This suggests that the curriculum may not have been universally adopted and applied across the country, that the curriculum is not sufficient to meet the needs of the girls, that teachers are not trained to deliver lessons on climate change, or that disruptions to girls' education has caused them to miss these lessons.

There is a second group of girls who have heard of the term 'climate change', but do not feel confident in defining or explaining it. In Vietnam, Tien says that she does not understand "global warming," however she recognises that the weather is unusually hot, rainfall is low and there is a drought. Tien says, *"drought often causes the ground to crack,"* and that the crops are dying due to the lack of water. Dariana in the Dominican Republic reports that she has heard of the term, but finds it difficult to define, explaining: *"I have an idea, but I don't know how to explain it,"* and gives the example of changes in cyclones. Thea (Benin) has heard of climate change, but her definition is based on an understanding of the dangers of sun exposure, and she does not know what recycling is:

"We know that if someone is exposed to too much sunlight, they can get burnt skin and if by misfortune, the sun goes down a little further towards the earth everyone will die." – Thea (16, Benin)

Ala-Woni (Togo), Mahalia and Rosamie (both from the Philippines) all say they have learned about climate change at school but cannot recall what they have learned, while Sharina's (Dominican Republic) knowledge of climate change is limited to a recognition of a change in temperatures, noting that people need to wear coats more often.

Finally, a third group of girls is more confident in defining and explaining climate change, including its causes and impacts. All of the RCRL girls in the Philippines have heard of climate change, and most have a good degree of knowledge about the causes and impacts, including Jasmine who explains how pollution has damaged the ozone layer and how this leads to extreme heat, *"because ... rubber and plastic are burned ... The environment and the ozone layer will be destroyed ..."* In Vietnam, Kim, is also confident in her understanding of climate change:

"Climate change means environmental changes, erratic weather, earthquakes and natural disasters in general. I have heard this word for the last half year. There are many things that affect the climate." – Kim (16, Vietnam)

In El Salvador, Mariel understands climate change as a *"global change that affects the whole earth, it also affects people,"* while Gabriela and Stephany also feel confident in explaining climate change, its causes and how individuals and communities can work to address it.

³⁶³ Nachmany, M. et al. (2015) 'Climate Change Legislation in Dominican Republic: An excerpt from the 2015 Global Climate Legislation Study'.

"Pollution can be avoided and also what we can do ... we can also avoid the heat because by planting trees there can be more wind, there can be less heat because when there is shade there is not much heat, and also cleaning the rivers, which is avoiding water pollution and that can also avoid some droughts." – Gabriela (17, El Salvador)

Bopha and Leakhena (both in Cambodia) show an understanding of the causes of climate change, particularly the impact of pollution and deforestation, while Bianca, Fernanda, Gabriela and Natália (all in Brazil) all understand the main effects of climate change, particularly in the Brazilian context. In the Dominican Republic, Saidy is also able to define climate change, and explain other concepts including recycling, reforestation, tsunamis and earthquakes, and their relationship to climate change.

Girls also demonstrate their knowledge of climate change in the concerns they express about its impacts. These concerns range from financial worries, food scarcity, healthcare payments, their families' livelihoods, being unprepared for climate change, and direct weather impacts on their communities. Some girls specifically link this to impacts on livelihoods (both their own and their families'), while others speak more generally about environmental degradation and climate events.

In Brazil, Bianca says she is concerned about floods destroying local harvests, with Fernanda (Brazil) adding that she is worried that the riverbanks will burst and hinder access to the community. In Cambodia, Bopha expresses concern about rising temperatures and deforestation, saying:

"The weather is getting hotter and hotter because our forest is also gone ... they cut down all the forest in order to sell those lands." – Bopha (16, Cambodia)

Also in Cambodia, Nakry expresses her concerns about the same issues: *"the weather is getting worse and worse (hotter and hotter) as we lost a lot of trees."* However, Sothany (Cambodia) is optimistic. She hopes that more trees will be planted and that extreme weather events will reduce in intensity and frequency, saying:

"People plant more trees and save the environment, so I hope everything will be better in the future." – Sothany (16, Cambodia)

In El Salvador, Gladys summarises her climate anxiety by saying that she feels like the world is *"running out of nature."*

4.2.2 Girls' knowledge of adaptation strategies

Girls' knowledge about climate change includes their awareness of strategies for coping with and adapting to climate change. In this section, we explore the strategies that girls are observing in their households and communities, actioning themselves, or hope will be implemented in the community. The experiences and observations shared by the girls demonstrate the foundational importance of knowledge in supporting climate resilience.

The girls in the RCRL cohort have varying degrees of knowledge about what their families, schools and communities are doing – or could do – to adapt to climate change. Some of the girls see their parents and communities actively adapting to cope with changes in weather patterns and loss of livelihoods associated with climate change, and the girls are able to describe these coping strategies. Girls who observe coping strategies or adaptations in their households or communities can be categorised into two groups: the first describe immediate short-term responses to a major climate event (such as flood or cyclone), and the second describe more proactive, long-term strategies to diversify income or mitigate risks.

Ly, Tan and Uyen (all in Vietnam) discuss what their families do during storms. Ly's family stay with a neighbour who lives in a concrete house, because her mother says the roof will fly off during a storm. Ly's mother says that despite their coping strategies, her livelihood has been affected after her crops were "crushed" by a storm. Tan – who wishes she had received more climate change education – says that in the event of a big storm, people in the community go to a communal storm shelter that is high up, and everyone brings their own resources and supplies. In the Dominican Republic, Nicol describes having done earthquake drills at school, but says that she has not received guidance on what to do (either at school or at home) in response to floods or droughts. Leakhena, in Cambodia, has gained sufficient knowledge on climate change at school and explains how she and her peers respond to classroom flooding, explaining that they pour more soil on the ground and the students help to spread this out. This is an example of girls' everyday leadership that has developed due to climate education.

Tan (Vietnam) explains that families respond to climate change by borrowing water supplies from each other in times of need: *"I go to the neighbour's house to ask for water because we ran out of water due to a drought."* Also in Vietnam, Uyen discusses that her family is prepared for storms because they have stocked up on food, such as instant noodles, and she is satisfied that their preparations are sufficient because her family *"eats very little."*

Others describe financial coping strategies. Jasmine (Philippines) and Sen (Vietnam) both say that their families have had to take out loans to cover household expenses after climate change caused crop failures and a loss of income. In Togo, some women in a focus group report having taken out special loans to support their families but have found that these have not been enough to cover rising costs of living. In Cambodia, Davy's mother describes her family's financial strategy:

"Sometimes we need to find support from relative like borrow money from them and sold out some stuff to support daily [expenditure]." – Davy's mother (Cambodia)

Some of the girls' households have not experienced major climate events³⁶⁴ but have plans on how they would respond in such a case. In Benin, Thea's mother says that she does not have savings, but in the case that their home or livelihood is destroyed, she knows there are credit schemes available, or she could borrow money from family. Nini-Rike's father, in Togo, has a detailed plan for how he would respond to climate change, particularly loss of income, explaining that the family would first stock up on food and reserve water. He would negotiate to pay school fees in instalments, and if possible, he would negotiate the price of fuel or pay for it on credit. In the Philippines, Mahalia and Kyla both speak about the community coming together to clean up and do repairs after major weather events like storms and floods. Mahalia says that she and others in her school have helped to clean out the school after a flood – another example of girls' everyday leadership. Kyla believes *that "the community can unite and clean."*

These responses and adjustments are best described as 'coping strategies', which are characterised by their temporary nature, and tend to be implemented at the individual or household level.³⁶⁵ Critically, these responses are employed in response to a climate shock or stress that is already occurring or is imminent. In other words, these are reactive measures taken to support the individual or household to return to their previous state before the event, rather than preventing damage or loss from occurring in the first place.³⁶⁶

Longer-term, or more proactive adaptive strategies, are also described by many of the girls; these include income diversification strategies, agricultural diversification, and environmental protections. The

³⁶⁴ This is potentially demonstrative of a lack of understanding about what constitutes 'climate change' or the impacts thereof, as some of the girls who express this sentiment also reflect on more extreme weather events at other points in their interviews. For example, Thea says that her family has not experienced climate change, however her mother says that for the last five years the rains have been abnormal, and this has disrupted their harvests.

³⁶⁵ Berman, R.J. et al. (2015) 'Identifying drivers of household coping strategies to multiple climatic hazards in Western Uganda: Implications for adapting to future climate change', p.73.

³⁶⁶ Walker, S. et al. (2020) 'Education and adaptive capacity: The influence of formal education on climate change adaptation of pastoral women'.

following actions show girls being leaders in their household unit by making purposeful decisions or taking on responsibilities, based on the climate knowledge they have gained. Maricel's family in the Philippines has adapted to climate-related livelihood losses by separating, with family members moving to different towns to seek work. Maricel is working as a nanny to contribute to the family income, and when asked if there was anything else she thought they could do to cope, Maricel says: *"I don't know... adjust as we did and find a way to survive even if you work as a helper."* Also in the Philippines, Reyna is in a similar situation and explains that her older siblings have moved to other towns for work and they send home money to support their family. She also shares that her father has taken on a new source of income to compensate for the failed planting season.

In Vietnam, Sen's mother is now working multiple jobs to earn enough money to raise her children, whereas in the past working only on her farm was sufficient – she says that this is due to the influence of the climate changes and impact of storms on her livelihood. Juliana, in Brazil, makes sure to save money in the likelihood of a rise in living costs. Her mother is planning to take on extra work to manage rising costs, saying, *"I would do some cleaning, I would sell juice, ice cream, clothes, I would manage."* In Benin, several of the girls' parents – including Alice's, Annabelle's and Barbara's – are seeking alternative sources of income to supplement household costs. Income diversification is not an option for all, however, with Barbara's mother explaining: *"here, there are no big factories that will allow the population to have work."* She suggests that people struggle to find alternative sources of income when the changing weather results in poor harvests because there are no alternative employment opportunities. As a result, people struggle to have enough to eat. Where borrowing money is not enough, or where no jobs are available, Chesa (Philippines) says that people have been forced to migrate abroad for work.

Agricultural diversification is a common theme in focus group discussions. In Benin, all RCRL cohort members report that their harvests have been affected by droughts and/or floods, and households have had to cope by diversifying their income sources or buying fertilisers and crops at a high price (as noted above). Alice's mother (Benin) has taken up poultry as a new trade and has moved to farm in another community where crops can thrive. Barbara's father (also in Benin) is practicing crop rotation to cope with the weather changes. A focus group in the Philippines describes diversifying crops as an adaptation strategy, which includes the provision of seeds and fertiliser for farmers. A focus group in Benin describes using crop rotation farming. In El Salvador, Gabriela recognises that with increasing costs of farming, people in her community need to adapt their strategies for purchasing and producing fertiliser:

"The fertiliser, sometimes they charge them for the water, or some decide it is better to draw it from another place, so they have to pay something for transporting the water, or they have to pay for transporting the pipes that they use to water things and the insecticides so that the animals don't eat them." – Gabriela (17, El Salvador)

In Brazil, Fernanda also believes that planting a variety of crops could improve resilience, however, lack of finances to cover upfront costs is a barrier. She feels that in the case of an emergency, her family would have no way to cope, apart from replanting crops.

At the community level, water preservation and addressing deforestation are identified as two key adaptive strategies. Focus group participants in Vietnam share that they have been building dams to retain water for drinking to address the changes in rainfall:

"People will build dams to retain water to have water for people to drink. Now [water] is still lacking, but thanks to that dam, there is water." – FGD participant (Vietnam)

A member of a focus group in Togo shares that deforestation is regularly discussed in the community, including the impacts on the environment. It is encouraged to plant more trees and to avoiding cutting down trees. In Benin, Thea shares that her community tries to protect trees because they *"attract rain"*

so we should not cut down trees but if we decide to cut them down, we should plant others in advance." Having learned about climate change in class, Bopha (Cambodia) believes that *"to mitigate climate change, we need to plant more trees, don't [set] fire [to] the forest."* Reine's grandfather (Togo) shares that the family have contributed to climate resilience: *"... contributed by reforesting our fields and protecting the plant species. Then environmental protection through awareness-raising."* Additional solutions and strategies proposed by girls and focus groups in the Philippines include building dams, banning illegal fishing, increasing affordable public transport, and government financing to support farmers and fishermen. Girls in Togo and Benin also share that it is important to repair roads in order to mitigate the effects of floods:

"Yes, I will take steps to deal with it by improving the roads at the time of the drought and where they are degraded, we will put sand and stones in the holes. We will also make paths for the run-off water." – Catherine (16, Benin)

These measures are best described as 'adaptive strategies,' which are designed to proactively reduce vulnerabilities to climate shocks.³⁶⁷ Although most effective when addressed by public policy – which allows for systems-level change – the adaptation strategies described by the girls and their families demonstrate that inadequate public policy response is causing this burden to shift to individuals, households and communities. As the girls describe, these adaptations require a good understanding of climate change impacts, financial literacy (and, ideally, security), a household composition that allows for multiple wage earners, employability, and the capacity for communities to work together to implement neighbourhood-wide responses.³⁶⁸

Many girls admit that they either did not know of any coping or adaptive strategies being adopted in their household or community, or report that their families do not have a plan for how they would respond. Such girls are unable to display everyday leadership qualities in climate change adaptation (such as through behaviour change or skills development), because they have not had climate education. In Brazil, both Bianca and her mother have no idea what to do in the case of extreme weather events disrupting their home or livelihood, and both know that government support would not be readily available. Sothany's family in Cambodia has also not prepared to cope with climate change: *"We don't prepare and plan to do anything. We are just live normal."* Sothany's mother adds:

"Honestly, we never have much money to mitigate any impacts because some customers did not pay us after they used our super land truck service." – Sothany's mother (Cambodia)

In El Salvador, Bessy wishes to be taught more about climate change in school and says she does not know how she or her family can adapt or cope with climate change impacts. However, she mentions that her family switched to taking water from the well during the droughts, in order to irrigate their crops more efficiently and save water. Despite this measure, Bessy's grandmother says she has no emergency fund or state protection that she can access if needed. In the Dominican Republic, Sharina shares that her household do not have a plan, but she believes that if food became expensive, the family would make sure to not waste any. Saidy's family, also in the Dominican Republic, have not put together a plan for how they would respond or adapt to climate change, *"because we haven't reached something extreme like that."* Saidy also feels that there is not much that could be done, saying that the only strategies are the ones currently being used – however she does not elaborate on what the current strategies are. The lack of strategy to cope with climate change is echoed by others; Catherine's mother in Benin says they have *"no solutions to climate change,"* and can only *"pray to God to change these times for us."* (Catherine herself stated she wished for better education on climate change). Similarly, Djoumai's parents (Togo) lack strategies to cope with climate change apart from praying and relying on

³⁶⁷ Morton, J.F. (2007) 'The impact of climate change on smallholder and subsistence agriculture'.

³⁶⁸ Lohmann, H. (2016) 'Comparing vulnerability and adaptive capacity to climate change in individuals of coastal Dominican Republic', p.112.

their faith in God. When Djoumai's parents are asked what coping strategies they have, they respond, "prayers, because man has no power over nature."

CASE STUDY: REYNA, PHILIPPINES

Her story continued: Reyna's knowledge about climate change.

Reyna has learned about climate change in school and discusses climate change impacts with her parents. She has applied her climate education at home, such as not wasting food and properly disposing of waste. However, Reyna feels that her climate change education is "not enough" and wants to be taught more about how to be ready for future extreme weather events, and how to adapt:

"It should be taught in school how to adapt to the current situation. For example, during the dry season, there should be technologies that can help people know the appropriate method to not be affected by bad weather."

Despite the government and school initiatives in place for the Philippines Climate Action Plan, Reyna says her family do not have a preparedness plan for when another drought comes. Based on her own climate change education, she believes that the family should stock water for plant irrigation and purchase fertiliser for plants. Reyna understands the need for money in such adaptation efforts. In reflecting on ways to adapt to climate change, Reyna recognises that there are limited options for people in her household situation:

"I think the best solution right now to better prevent crop failures is to have money. Because if there is money, there is more fertiliser, there is more irrigation and there are enough funds to supply the needs at home and at school while waiting for the harvest."

Reyna sees financial management as a key long-term adaptation strategy but is struggling to save money from her part-time job farming, because the family "don't even have enough for household expenses and needs." (Reyna)

Reyna's father thinks that diversification of income is key to adaptation and says: "... looking for other sources of income not just from planting because if we always depend on the harvest, we will die with our eyes wide open because of hunger." (Reyna's father)

Despite Reyna's relatively strong awareness of climate change impacts and adaptation efforts, she lacks resources to pursue meaningful climate action beyond her home. She speaks to lack of political will from her community to support her "to be the voice of the poor, fight for their needs, and to reach those in charge in the government." Her adaptation efforts are shaped by her understanding that government support is not coming, particularly for poor farmers, and she demonstrates a strong awareness of what could be done to improve the situation. Reyna's father holds similar negative views about lack of government support for people in direct line of climate impacts.

4.2.3 Girls' sources of climate change information and adaptation strategies

There are three main sources from which girls learn about climate change: at school, from their community or family, and from traditional and social media. Among these sources, the RCRL cohort discuss schools as the primary place where they learn about climate change. However, many girls feel that they are not provided with sufficient information to prepare them, and that curricula and teacher training on the topic should be strengthened. This section demonstrates that the state of girls' climate education in their formal schooling is foundational to improving climate knowledge and ultimately climate resilience itself. The Philippines is an example of a country with both strong climate change education curricula and an RCRL cohort with relatively stronger adaptive capacities. The Benin cohort display comparatively lesser adaptive capacities and live in a context with weaker climate education standards.

School

For the most part, education on climate change is included in a Life Sciences, Earth Sciences, Social Studies or Geography class. However, the curricula seem to be restricted to causes of climate change and how to take care of the environment. A number have learned about deforestation. For example, Maricel (Philippines) has *"learned about tree-planting"* and Alice (Benin) reports that she learned in school that you *"shouldn't cut down trees, but plant trees [instead]"*. Davy (Cambodia), Valeria (El Salvador), Dariana (Dominican Republic) and a number of girls in Togo (Fezire, Ladi, Lelem and Nana-Adja) have learned in school that deforestation is a key cause of climate change, and that people must stop cutting down trees:

"The teacher told us not to cut down trees, that instead of cutting them we should harvest more, and not to throw rubbish in the sea, in the river, because they cause problems." – Valeria (17, El Salvador)

"Yes, we talk about reforestation ... that if we deforest our lives can be extinguished because when we deforest, we are ending our own life because the trees are the ones that give us oxygen." – Dariana (17, Dominican Republic)

Others have learned that pollution is a key cause of climate change, with Leakhena in Cambodia reporting that she learned that increased pollution is caused by growing populations. In the Philippines, Jocelyn has learned *"that we should not burn garbage because it affects the sky,"* and Stephany in El Salvador has learned *"not to pollute ... not to throw rubbish in the waters, in the rivers, because most people only throw rubbish into the rivers, the seas, the estuaries."* Few girls report explicitly learning that climate change is caused by human actions that extend beyond individuals littering.

In some cases, girls have been taught about adaptation strategies. Schools in Benin have taught children how to build gullies³⁶⁹ when it floods, to allow the water to leave the flooded area. In the Philippines, Christine's school has taught students how to prepare for typhoons, and Dolores feels confident preparing for flooding and intensifying heat, thanks to her education. Some have been given more rudimentary information about adaptation. Davy, in Cambodia, has learned to *"drink more water in the dry season, don't travel and stay under the tree during the rain."* Most girls express a wish to learn more about adapting to climate change and feel that they did not yet know enough. Christine (Philippines) wishes to learn how to prepare for and mitigate the effects of the dry seasons, and Stephany (El Salvador) would like to be taught more about natural hazards. In the Dominican Republic, Dariana rates her climate change learnings at school a 5 out of 10 because she does not know how to respond in the event of a drought or flood, as this has not been taught in school (as explained in the section above, Dariana also finds climate change as a concept difficult to define). Also in the Dominican

³⁶⁹ A gully is a drainage fitting used to connect wastewater, stormwater or rainwater outlets to suitable drains, which helps remove surface water from flood-prone areas.

Republic, Rebeca says that her school does not have earthquake drills; she thinks that these and hurricane drills should be conducted to ensure students know how to respond.

A number of girls in Cambodia express their dissatisfaction with the level of climate change education they receive at school. Kannitha expresses a wish to study more on climate change in grade 12 because she feels she is not well equipped with knowledge on how to prepare and cope with extreme weather events. Others share Kannitha's feeling of being ill-prepared:

"I am not sure if I am prepared enough or not." – Davy (16, Cambodia)

"I don't think I am prepared enough for the extreme changes in weather as I am lacked of knowledge about this issue." – Leakhena (16, Cambodia)

This reflects the broader picture of climate change education in Cambodia. The government does not cite climate change mitigation as a priority area, and the majority of climate change curriculum in the country is delivered by non-state actors (such as INGOs and the UN), rather than through the national education system.

Many focus group participants identify teachers as playing a key role in informing students about climate change. In Togo, a focus group discussion that included some teachers reflects that it is the role of teachers to make students aware of the consequences of climate change, how to protect their environment, and to raise awareness more broadly in their communities. However, many of these participants feel that teachers are ill-equipped to play this role. A number of girls in Benin (Annabelle, Barbara and Catherine) and in the Philippines (Michelle) share their dissatisfaction and feel that their teachers do not have knowledge on climate change. In Brazil, a focus group participant blames the government and school management for not adequately equipping teachers with the information they need to be effective educators on climate change, commenting:

"I would really like for our educators to have some training in each neighbourhood in my municipality about the reality of climate change ... the professional schools do not have updated information, from the school management to the teachers." – FGD participant, community leader (Brazil)

Many also feel that the curriculum on climate change is too narrow, or that discussions of climate change are too shallow. In the Philippines, Reyna comments that the curriculum on climate change in her country should be broadened, as too few topics are covered.

"I learned something about how to protect nature to address climate change in the country such as planting trees and other methods to help prevent floods. But that is not enough because there is no internet in school. There are probably many more strategies that we can learn other than tree-planting activities." – Reyna (16, Philippines)

Reyna's father agrees that education must expand to broader strategies:

"They should not only focus on tree planting activities, but on other strategies such as mitigation, preparedness, and others so that they have sufficient knowledge." – Reyna's father (Philippines)

Reflections from girls and families in the Philippines are noteworthy, given that the country has arguably the most comprehensive climate change education among RCRL countries. Climate change adaptation has been integrated and mainstreamed across government departments in the Philippines. The Department of Education has played an active role in advancing climate literacy and action in the

country, developing resources and curriculum, and advancing teacher training.³⁷⁰ Reyna's and her father's dissatisfaction, despite the presence of climate education, suggests the influence of 'known unknowns'. In other words, with the benefit of at least some climate change education, girls in the Philippines are aware of the limits to their knowledge. Meanwhile, girls with minimal climate change education may be unaware of the gaps in their knowledge – the 'unknown unknowns.' Ultimately, Reyna's and her father's testimonies suggest that even in countries with relatively strong climate education, there are still gaps to be addressed.

Others feel that climate change topics are not covered in enough depth or are not given enough dedicated time in lessons. In Brazil, Gabriela explains that although climate change is covered in the curriculum, not enough time is dedicated to teaching adaptive skills or what to do in the event of an emergency. In Togo, focus group participants collectively suggest that climate change should be a dedicated class within schools, with lessons on the causes and impacts. Annabelle, in Benin, expresses her dissatisfaction:

"It's not enough. I want us to learn about the damage that can be done and also about many of the things that climate change creates, but we don't go into them in depth in school lessons." – Annabelle (17, Benin)

Annabelle's comments are unsurprising, given the limited literature available on Benin's climate education curriculum, suggesting that this is not a priority for the education sector.

Melanie, in the Philippines, reports having been taught very little about climate change, and comments: *"I want to learn more information such as rain, typhoon, and what is happening in the world."* Similarly, Reaksmei (Cambodia) and Bessy (El Salvador) say that they have learned very little about climate change and would like to be taught more. In Vietnam, Huong also agrees that the information provided in school is inadequate and says that she *"didn't hear much about climate change"* and would like to see more climate change information in the school curriculum to expand her knowledge. Also in Vietnam, Sen agrees that the information taught in school is *"not enough"* and says, *"I want to have more knowledge about climate change and its impacts."* Gladys, Karen and Mariel (all in El Salvador) report that they have learned about climate change at school but feel that this learning could be supplemented with practical lessons and activities to help them respond to climate change in their communities. Barbara (Benin), Nicol and Rebeca (both in Dominican Republic) all report that they have not been taught about climate change at all in school. Others are concerned that they do not have enough information about climate change:

"Maybe I don't know enough about climate change." – Chesa (17, Philippines)

"I need more information about how to solve the problem of climate change." – Lina (16, Cambodia)

However not all are dissatisfied with their climate change education. In Benin, Annabelle's mother praises her daughter's school, saying:

"The teachers teach them not to cut down trees and to take care of the environment. When Annabelle comes home, she tells me about this; this is how I know that Annabelle has information about climate change." – Annabelle's mother (Benin)

Girls in Togo show the most satisfaction with their climate change education, with Anti-Yara, Azia and Essohana all rating their climate change lessons as 10 out of 10. Azia explains her reasoning for giving this score: *"because I have enough information."* Anti-Yara comments that she has learned about the

³⁷⁰ Republic of the Philippines. Department of Education (2023). 'The Need for Climate Change Education'.

causes and consequences of climate change, the solutions and ways to prepare. Anti-Yara also notes that her teachers explain everything to them, and as a result, she believes that what she has learned is enough. Essohana is confident in her knowledge, saying that she feels well prepared to adapt and respond to climate change. The girls' comments are interesting, given the limited information available on Togo's climate change curriculum. The girls in Togo perhaps demonstrate the inverse of Reyna's situation in the Philippines: with limited access to information about climate change, girls are unaware of the extent of the information they lack.

Others share similar sentiments to the girls in Togo; Quynh in Vietnam rates her school's teaching of climate change as 9 out of 10, which is much higher than the other girls in Vietnam. Quynh explains:

"Think it's about 9 points, which means the school regularly updates ... In most classes of local education or geography classes, teachers have sessions for students to make slides for students to present. I think those topics are quite helpful with the current weather." – Quynh (16, Vietnam)

In the Philippines, Jocelyn is also happy with her level of knowledge: *"I'm happy because I already know what to do to prevent climate change."* However, she does not appear to think that her peers across the Philippines share this same knowledge and understanding; she explains that students should be taught more around how to respond when the weather changes.

Family and community

Family and community are cited by the girls as key sources of information about climate change. Based on our review of RCRL historical evidence on weather changes from 2011-2022 (see Section 4), we have already identified that climate change is affecting girls in their family unit, and parents are relaying their worries about unseasonal weather patterns to the girls. Girls who come from farming families have often heard about the impacts of climate change from their parents or guardians. Lina in Cambodia has heard from her parents that climate change is causing the rice fields to produce less, due to heat. Rebeca in the Dominican Republic has spoken with her father about the drought that threatened the growth of his onion crop, which he managed to address using hoses and piping. In the Philippines, Maricel says that her father talks about how fishing is hard because of higher sea temperatures, while in El Salvador, Susana's father told her the harvest was lost and that he would have to replant the crops. Likewise, Tan in Vietnam hears her parents discussing crop failures and heavy rains, however, she says that her current level of climate change knowledge *"is not enough to prepare for the changes; because environmental change requires more actions."* A number of the girls have also learned how climate change is affecting their families' livelihoods. Mahalia, in the Philippines, says that her family discuss the impact of climate change on their income: *"because of the weather, you can't fish, and you can't harvest, but the expenses are too much."* Christine, also in the Philippines, has learned about climate change from her father, including the fact that it has made fertiliser more expensive.

The girls also learn about climate change from their friends and other members of the community. Several girls in Benin and the Philippines report talking about climate change with their friends, while girls in the Dominican Republic and Togo mostly learn about climate change in the wider community. Djoumai (Togo) says that she understands the main effects of climate change, but that she did not learn this at school – she learned the information in her community. She shares that her community often discuss climate change due to concerns about its impact on their harvest. In a focus group in Togo, the participants share that the main sources of information on climate change in their community come from the Chief, members of the Village Development Committee and the Neighbourhood Development Committee, and the President of the Young People. These groups raise awareness at community meetings about reforestation and the need to prevent uncontrolled tree felling, as well as explaining the causes of climate change. The focus group also comments that churches and mosques are other places where people learn about environmental protection.

Traditional and social media

Many girls identify traditional and social media channels as key sources of information on climate change, including television or radio. Thea (Benin) says that she does not discuss climate change with her family, and instead refers to the television, radio and internet for information. Her mother adds that the radio talks about renewable energy and deforestation. Also in Benin, Catherine learns about coping and adaptation strategies from the radio and television, which informs the types of actions she plans to take in her community:

“Yes, I will take steps to deal with it by improving the roads at the time of the drought and where they are degraded, we will put sand and stones in the holes. We will also make paths for the runoff water.” – Catherine (16, Benin)

Catherine's mother says that *“on TV or radio, they talk about deforestation, tree planting and prevention measures to avoid drowning of residents in times of rising water.”*

In Togo, Reine and her family rely on the radio and the news to learn about climate change and weather events. Reine says that the radio is useful for learning about climate change in her community *“because it's cheaper.”* She elaborates, saying: *“most of the people in the community have a radio and the radio also gives us all the information we need about the weather, so we can be prepared for these extreme events.”* Essohana (also in Togo) says that the radio is a particularly useful information source in the community because most people use radio over television. On the other hand, some of the girls in El Salvador report that information about climate change is not shared on the radio or news. Raquel (El Salvador) and her family say that they do not know much about climate change because they do not hear about it on the radio or on the news. Similarly, Rebecca (El Salvador) says that she watches the news but has not heard anything about climate change.

Many girls also access information about climate change on social media, most commonly Facebook, TikTok and YouTube. Tien, in Vietnam, says she *“actively”* accesses information on climate change through her phone and YouTube, and Kyla, in the Philippines, says that she has seen videos about climate change on Facebook. Before her phone was damaged, Nicol (Dominican Republic) would see information about weather events on her phone. Bianca (Brazil) cites the internet as her main source of climate change knowledge, *“because when we carry out a search, we immediately get results.”* Some adults from focus group discussions express scepticism about social media (*“the youth should not just dance on TikTok”* – FGD participant, Philippines). However, a few of the girls feel that TikTok is the place where they have learned the most about climate change.

4.2.4 Girls' confidence in applying adaptation strategies

Most girls identify roles for themselves in climate responses and improving adaptation capacities; others feel that they have a role to play but are not yet sure what this is. Many of the girls who are confident in articulating their role in climate change are those who previously specified that they have received climate change education. Girls who are confident to actively engage in climate adaptation efforts demonstrate the clear link between girls' climate knowledge and being everyday leaders in their household and community, by practicing green skills (technical knowledge, skills and behaviours needed to support sustainable and resource-efficient societies) and disaster preparedness. Dolores in the Philippines is among those with a clear idea of her role in adaptation and feels that she has gained sufficient climate knowledge from school. Dolores says that her role is to participate in a youth organisation that raises awareness, shares knowledge with others and encourages people not to cut down trees recklessly. Dolores explains her role:

"Here in our barangay, we have a youth organisation where we do a clean-up drive. We collect garbage on the side of the roads. We are also doing tree planting." – Dolores (17, Philippines)

Dolores says that she participates in preparedness exercises and environmental activities at school and shares that knowledge with her friends and family at home:

"For me, I like everything I learned in school about how to prevent and mitigate the effects of climate change, such as tree planting, garbage collection, conducting earthquake drills, and other studies on climate change and its effects. I can continue to share these with my family, siblings, relatives and friends to avoid [climate change's] severe effects, especially on children." – Dolores (17, Philippines)

Also in the Philippines, Rosamie has a strong sense of her role in climate change adaptation. She is teaching people to keep the environment clean and increase their recycling habits:

"I guess I can do something. For example, assisting people to inform them of the consequences of throwing garbage into the sea. That's it. Teach them to recycle." – Rosamie (16, Philippines)

Folami and Ladi (both in Togo) share that they can contribute to climate change adaptation by *"raising public awareness"* (Folami). Ladi explains that she could:

"... take part in awareness-raising events on how to avoid climate change, help plant trees, take part in other community activities that I can do." – Ladi (17, Togo)

Many girls reflect on the individual actions they are, or could be, taking to address climate change. In Cambodia, Davy says she is concerned about hot weather, rain in the dry season and other such climate impacts, and wants to be part of solving the problem. She describes a number of actions she is currently undertaking that she learnt about at school:

"I like to recycle the old car tyres to [often plants herbs] as well as reuse my water bottle for several times. I sometimes plant the trees at school with my friends too. I usually take the left-over water from dish washing and washing up to water our crop. I save money to pay for my English class every month too. I save energy everyday by limit the time of using electricity and I always tell my family and friends to take care themselves during the weather change too." – Davy (16, Cambodia)

Davy is engaging in activities that both directly mitigate change in the environment (such as planting trees and reusing resources) and the effects of a high cost of living in her household (money saving measures).

Other girls take similar measures. Camila (Brazil) and Jocelyn (Philippines) both say that they feel they can play a positive role in responding to the impacts of climate change by simple acts, such as properly disposing of rubbish and taking care of the environment. In Cambodia, Nakry describes how she re-uses plastic in various aspects of her life, while Sothany explains that her role in responding to climate change including picking up rubbish, planting trees, cleaning the school after floods and encouraging her friends to do the same. Nini-Rike (Togo), Rebeca (Dominican Republic) and Tien (Vietnam) have learned to save water, which their parents appreciate.

In Vietnam, Huong says that she is taking personal actions, such as using less electricity, being more conscious about what she buys, and raising awareness about climate change among her friends. She

believes it is the role of every person to be more conscious to protect the environment. Also in Vietnam, Kim reports similar actions and said that students at her school contribute to cleaning the school after floods. Gabriela in Brazil also echoes Huong's comments, explaining that she has learned from her mother to save electricity. Melanie (Philippines) thinks about climate change a lot, and particularly about how she can address it within her means. She says:

"I shouldn't use diapers on my child because I'm adding to the waste. I should also not burn garbage and I should save water because like now when it's hot, the flow of water is weak." – Melanie (16, Philippines)

Melanie also says that she will suggest to her family to dispose of the garbage in better ways, so it can become compost.

Some of the RCRL girls are taking part in collective action to address climate change. Mony says that she formed an environmental team at her school in Cambodia to clean up classrooms after floods. However, she believes that schools should *"provide more detail about climate change issues."* In Vietnam, Yen participates in her schools' climate change mitigation activities, and encourages students to plant trees around the school and to clean up rubbish. She says:

"I participate in environmental protection activities; I think environmental pollution affects the weather quite a lot." – Yen (17, Vietnam)

Nicol in the Dominican Republic is not aware of any youth groups in her area focused on climate action but thinks one should exist and says she would support such a group. In the Philippines, Rubylyn says that at her school they plant trees, clean the school, collect garbage and separate waste. In Vietnam, Sen and Tan have both participated in planting trees and recycling activities at their schools. Leakhena (Cambodia) says that she and her peers participate in their school's adaptation plan by cleaning the school and spreading soil on the floor to prevent flooding.

Some girls are not currently engaged in climate activities but identify roles that they could play. Fezire in Togo says that she knows she has a role to play and considers it her responsibility to take part in these activities as a member of her community, which she learned from school. She says, *"I could plant trees and raise awareness among my friends."* Also in Togo, Anti-Yara says, *"I could ... take part in reforestation activities, give advice to my friends,"* and Azia suggests *"I could ... raising awareness of the harmful effects of climate change; good behaviour; helping to improve roads; cleaning up bags."* Others, including Gabriela (Brazil), see their role as extending beyond awareness-raising and into advocacy. She has written a letter to a local politician and the mayor, urging them to do more about waste in the community. Gabriela has received some education on climate change at school but wishes for more.

Notably, Kyla (Philippines) expresses frustration about wanting to contribute more to community decision-making about preventing climate change. Kyla says that she feels ready to advocate for tree planting and cleaning the coastline at her barangay, and she wants to be included in these decisions. These cases show that, despite the girls' knowledge of coping strategies, their age ultimately constrains their agency to pursue climate actions that are meaningful for their families' household adaptation.

However, there are also a few girls who did not see a role for themselves in addressing climate change. In the Philippines, Christine believes that she has no role to play in addressing the effects of climate change because she is still learning about it in school:

"Because I am still studying about it. I'm still learning to respond to changes in weather such as drought and how to survive. It's hard for us to share what we know because we still know very little in school." – Christine (17, Philippines)

In Togo, Essohana shares a similar sentiment; she believes that she does not have a role to play because people do not consider children's views. Juliana (Brazil) laments that *"my actions alone can't solve [climate change]"*. In the Dominican Republic, Dariana – who has received relatively sufficient climate curriculum at school – does not see a role for herself. She says this is mostly because she does not know what the role would be. Several of the girls in the Dominican Republic echo this sentiment and struggle to identify what role they could play in climate change adaptation. This finding shows that girls, do not necessarily want to solve such grand problems by themselves and want adults to do more, which aligns with our 2019 data finding that girls wished for similar actions from adults in resisting gender norms.³⁷¹

RCRL girls have varying ways in which they pursue both short-term coping strategies and longer-term adaptation efforts. Short-term coping strategies may involve actions during extreme weather or interim financial management in the face of sudden higher prices. On the other hand, adaptive capacities involve income diversification, agricultural diversification and environmental protection. Yet many girls from across regions are unable to identify a plan in their household for addressing tightened budgets, rising expenditure, worsened livelihoods, or damaged infrastructure resulting from climate change. This gap in adaptive capacities can be addressed by reinforcing measures, specifically: (1) improved climate curricula on green skills, which recognise financial literacy and livelihood diversification as key climate adaptation skills, and (2) supporting climate governance infrastructure, as indicated by girls with a relatively high knowledge basis but whose households were unable to pursue adaptation efforts.

4.2.5 Girls' recommendations towards climate resilience

Girls demonstrate confidence in their knowledge of climate change and adaptation strategies in their willingness – and ability – to make recommendations towards climate resilience. With regards to the future of the climate, several of the girls hope to see more action from governments, schools and communities. They make recommendations relating to agriculture and infrastructure, school curriculum and preparedness, community leadership in climate action, and government policy. Among the girls, there is a good deal of discontent with the actions that policymakers and authority figures are taking (or not taking) to adapt to climate change. The following recommendations show that, though girls can be leaders in the actions they take in their households and communities, they are also aware that responsibility does not fall with them alone.

Schools

Many girls across all of the RCRL countries agree that schools have a responsibility to put in place measures to respond to climate shocks, and to have a plan for long-term adjustment to changing climate conditions. In Benin, Alice and Barbara feel that schools should raise awareness about the need to plant trees, stop deforestation and recycle. Annabelle (Benin) adds that schools should be responsible for road maintenance to prevent flooding and road repairs after climate shocks. In Togo, Fezire also thinks that schools should fix the roads to ensure students are able to attend school, and Azia thinks that schools should build rubbish dumps, raise awareness about the causes of climate change, and say prayers. In Cambodia, Mony suggests that schools could *"plant more trees, use clean water, don't waste water, recycle old stuff"* and Reaksmeay says schools should *"encourage students to grow more trees, and save water."*

³⁷¹ Loveday, L. et al. (2023) 'Understanding girls' everyday acts of resistance: Evidence from a longitudinal study in nine countries'.

Gabriela, Karen and Mariel (all in El Salvador) discuss that schools need to encourage water saving and proper waste disposal. Mariel says that her school has not taken any action to prepare for or respond to climate change or to help people affected by its effects – although she acknowledges that it is one of the topics they review in their subjects. Mariel suggests that the school should have a plan *“because you don't know if [climate change] could affect near the area or on site.”* She recalls that some time ago, the school served as a shelter for people from another community who were displaced by floods. Although classes were suspended during this time, Mariel thinks that using the school as a shelter for climate refugees was vital and is something that should continue.

In the Philippines, a number of RCRL girls suggest that schools should play an even greater role in improving information sharing and learning. Melanie and Michelle note that their schools do not teach about climate change adaptation and believe schools should better educate their students on how to mitigate climate change impacts. Michelle gives examples of recycling, waste disposal, not burning plastics, and tree planting as key topics for schools to teach. Christine and Jasmine (Philippines) describe doing typhoon drills at school. Yet, Christine believes that the government and schools should give people more direction on how to respond and adapt. In Vietnam, both Kim and Tien give recommendations for more direct ways schools can mitigate the effects of climate change in the community. Tien explains that her school holds an *“annual tree-planting movement”* where *“one class will contribute money to buy trees”* and plant them in the school yard. Kim believes her school could avoid flooding by raising the foundations of the building.

Some girls share that their main concern is that schools do not seem to be adequately preparing students to cope with climate change. Focus group participants in Brazil express their concern about the teachers' level of knowledge about climate change and whether they were equipped to instruct on the topic. Participants feel that the government should train educators and improve the school curriculum, which they see as lacking. Among the RCRL cohort girls in Brazil, none could identify any adaptation plans in their schools, which worries some of the girls. In Cambodia, Kannitha shares these worries and is concerned that students at her school do not have the opportunity to participate in developing plans to prepare for, avoid and respond to the impacts of extreme weather events. Kannitha suggests that *“the school should form the student group to join the discussion”* to ensure that youth voices are included. In the Philippines, Rosamie echoes these sentiments, saying that her school has taken steps to prepare students in how to respond to climate change, and that teachers and the principal have developed a dedicated module on climate change preparedness – however, Rosamie says that some pupils should be involved in this too, not just teachers.

In the Dominican Republic, Rebeca explains that her school does not have a plan for responding to a natural hazard, such as a cyclone or earthquake. She says that, in such an event, the only measure that would be taken would be to close the school for the day and have the students stay home. Saidy and Sharina (also in Dominican Republic) both echo this, saying that the only strategy that they know of is to have students stay home from school during a climate event. In El Salvador, Raquel's grandmother mentions that Raquel's school functioned as a shelter during heavy rains in previous years, but she is not aware of if the school has any emergency plans in place. However, Karen (also in El Salvador) is aware of – and satisfied with – her school's climate risk reduction plan. She says the plan consists of earthquake and tsunami drills, which involve the students carefully exiting the school grounds through a back gate and climbing the nearest mountain.

Community education and awareness-raising

Various girls suggest topics for the community to learn about through community education. Their ideas demonstrate their views on the role and responsibility of community members in responding to climate change. In Cambodia, girls speak about the importance of the community in stopping deforestation: Bopha feels strongly that more needs to be done to stop deforestation, and she feels comfortable telling people herself that they should not cut down trees and to instead plant more trees. Kannitha, Lina,

Mony and Reaksmey (all also in Cambodia) all make similar remarks that their government should “*encourage people to plant more trees and stop deforestation*” (Mony). At the community level, focus group participants suggest that government should be sharing more information about climate change than it has, such as teaching the community to grow specific crops in the dry season and directing water for irrigation during dry season. Mony says people in the community could “*plant more trees, stop using chemical fertiliser,*” and Lina similarly adds that people should “*plant more trees, stop deforestation and help to reduce the smoke from brick factory.*” Likewise, Reaksmey says the people in the community should “*plant more trees, stop deforestation, and save the forest.*” Bopha shares that her community leaders are active in spreading awareness about climate change and encouraging the community to act. Bopha says, “*the monks, District Chief, the Commune Chief and Village Chief ask all the students to plant the tree.*”

In Benin, Alice's father provides detailed recommendations for his community on what they should do to address climate change:

“[Community members] should plant trees, dig gullies for water to avoid damage to infrastructure in the community. Clean the area around their houses to avoid house fires in case of bushfires. Clear rubbish every week.” – Alice's father (Benin)

Alice herself adds that the Village Chief should be responsible for raising community awareness and organising community members to repair the roads if the government has failed to. In Brazil, Fernanda and Gabriela both believe that everyone in the community has the responsibility to stop polluting the environment with improper waste disposal, and Gabriela adds that everyone has a duty to recycle. Girls in Cambodia and Togo also identify reforestation as a community responsibility:

“Community members should be reforesting, raising awareness and doing community work.” – Essohana (17, Togo)

In Vietnam, there are also recommendations around education on reforestation. Quynh (Vietnam) believes that youth groups in the community should educate young people and plant trees. Also in Vietnam, Kim suggests that, as well as reforestation education, the youth union in the commune should have education sessions and facilitate ‘green activities’ like planting trees. Huong (Vietnam) also recommends that the government should organise community meetings to educate people about looking after the environment.

Other girls speak about behaviour change in people's actions through deterrence. For example, Stephany in El Salvador thinks the government needs to enforce ways to stop people from polluting the lakes and other bodies of water. Dolores and Jasmine, both in the Philippines, speak about deterring people from deforestation. Jasmine says that “*those who cut down trees and burn tyres should be reprimanded.*” Jasmine also adds that those in government should carry out campaigns to educate people on climate change strategies. Also in the Philippines, Chesa suggests a degree of community organisation or collective action, in which community members could “*work together to plant trees. Clean up the environment and help each other to do a coastal clean-up.*” However, Chesa does not feel confident or equipped to talk to her community leaders about this.

Governments

A number of girls and focus group participants feel it is the government's role to ensure adaptation to climate change. Some participants are concerned about what they see as poor government responses to climate change. Davy's mother in Cambodia says that the government should visit people in communities frequently to understand their daily lives, suggesting a gap between the policies available and lived realities in communities. Similarly, Bianca in Brazil attributes her climate worries to government inaction on the issue. She believes that the government is not doing enough to protect

human rights, such as the right to decent housing, with many people's homes being affected by extreme weather events. She explains:

"Everyone has the right to good housing, without worrying about floods, things like that, and what prevents it are government actions. Because everyone has the right to decent housing. I'm concerned because the government does nothing." – Bianca (17, Brazil)

Some girls have recommendations to mitigate the effects of climate change on agriculture and support those with agricultural livelihoods. For example, Nana-Adja in Togo thinks that governments should donate food to the community when floods or drought destroy crops and should give money to the community.

Multiple girls in the Philippines have views on this topic too, with many recommending that the government should do more to prevent and address corruption in the food production and supply-chain distribution. Chesa recommends that the government should provide financial supporting to farmers to prevent them needing to lower their prices when market prices are low, give funds to the poor to start their own businesses, and ban factories that create a lot of pollution. Rosamie, also in the Philippines, states that the government should provide fertilisers to the poor and ensure fairness in distributing financial support to farmers. She says:

"[The government] have distributed some fertilisers but I don't know if that was enough. There is corruption in the government. Those who govern from the top to the bottom have corruption. So, they should always check the policy to see if it goes to the poor. Sometimes, they say, the rich farmers here received aid from the government, then the farmers who don't have land don't get any help from the government. They are the ones in need. So, I hope the government will fix it so they can also take action on climate change." – Rosamie (16, Philippines)

Reyna (Philippines) similarly believes that financial aid *"only goes to the acquaintances of those in government positions and agencies related to farming."* She reiterates that only rich farmers receive aid. In contrast, poor farmers, who do not own their land, do not get government support for low yields or expensive farming tools that are often stolen. Also in the Philippines, Maricel adds that the government should do more in terms of preventing illegal fishing and that schools should teach about marine conservation. Christine (Philippines) expresses discontent with the barangay captain for not pre-emptively fixing roads to protect against future floods, and for not teaching the community how to survive and harvest in dry seasons and in the rainy season. With this, it can be inferred that Christine seeks a local government that has the political will and financial capacity to address climate change impacts closely with communities. Also in the Philippines, Michelle does not know what role the government can play; however, she thinks people in her barangay can help by cleaning their environment to better prevent illness, demonstrating her concern for her environment.

Similarly, in Vietnam, the focus group participants expressed concerns about the local government's plan to:

"Prevent and deal with natural disasters: on how to combat floods in the rainy season and set up sub-committees to prevent and control natural disasters." – FGD participant (Vietnam)

They also spoke about the government's plan to build a lake to supply water in areas suffering from drought. Participants state that despite these positive plans, there is no budget allocated for implementation, no funding available for disaster response at the village level, and individuals involved in search and rescue do so with little to no training. In this way, we see that many girls feel that

government implementation is lacking. Girls in Benin discuss that the government is not doing enough to cope with weather events or to support children's education, and several suggest that the government should be responsible for repairing roads and creating gutters to prevent flooding from blocking the path to school. Juliana (Brazil) and Azia (Togo) also believe that the government should be responsible for ensuring that infrastructure, including roads, is able to withstand climate change.

"... the government should send tractors to repair the roads, make gutters for the rainwater to pass through so that there is no more flooding." – Alice (16, Benin)

Many girls also feel that the government is responsible for reducing deforestation. A focus group in the Dominican Republic feels that the government should manage the country's water supply, plant trees in river basins and provide crop insurance. In Vietnam, a focus group participant says that the government should be responsible for evacuating people from flood-prone areas during emergencies. Hillary, in El Salvador, believes that government institutions in her country are not doing anything to reduce the effects of climate change, and thinks that the government should conduct awareness-raising campaigns so that people can learn about how to adapt to climate change and how to take care of the environment. Notably, Sharina in the Dominican Republic, and a focus group participant in Togo both believe that the government should encourage young people's participation in climate change adaptation and should support youth groups working on these issues.

Several girls across RCRL countries make recommendations to improve infrastructure in their communities, either to prevent future damage or to repair damage after weather events. Melanie in the Philippines believes that the government should build a riprap³⁷² to protect homes in areas prone to landslides, and better inform residents. In El Salvador, Doris believes that the government should *"fix the rivers, fix the streets, fix everything"* and improve youth education on these topics. Also in El Salvador, Susana stresses that the streets need to be fixed and shelters are needed for those whose homes flood. Kim in Vietnam suggests that her local government should build a better drainage system to manage flooding. She also feels the government should do more to raise awareness on the types of actions the community could do, such as recycling appliances and saving electricity. Anti-Yara and Fezire (both in Togo) both think that there is a need to renovate roads, bridges and classrooms. They suggest ways for the local government to improve infrastructure to withstand future extreme weather events, including building gutters, roads, public toilets and boreholes. Ala-Woni and Lelem, also both in Togo, share ways they would like their government to respond to damage from extreme weather events. They say that governments should pay for damage to roads, homes and schools caused by weather events. They also would like to see the government rebuild school buildings, as well as help with reforestation.

Overall, there is a general feeling that governments are falling short in their mitigation strategies and the school curricula are inadequate. Regardless of their knowledge levels, girls from across the RCRL cohort identify a dearth of climate action from their governments.

Girls' climate optimism

A few of the girls share their hopes for positive outcomes, despite climate change. Some, including Chesa in the Philippines, are confident that changing climate and extreme weather events will not affect their studies or their future. Others are hopeful that they can share lessons they have learned about climate change and convince others to engage in discussions about prevention and adaptation. Dolores (Philippines) wants to continue to share what she has learned at school with her family and friends, to avoid the severe effects of environmental degradation and disasters. Her plans include *"tree planting, garbage collection and conducting earthquake drills."* Kyla (Philippines) and Quynh (Vietnam) both plan to organise preservation activities, such as clean-ups:

³⁷² Riprap refers to loose stones used to form a makeshift breakwater or retaining wall, to prevent erosion or protect against landslides.

"I would like to have an activity that attracts young people to have a garbage collection session in the rivers or the seashore." – Quynh (16, Vietnam)

"I want to have a coastal clean-up and for people to plant trees." – Kyla (16, Philippines)

When Davy (Cambodia) thinks about her hopes for the environment, she also focuses on her individual responsibilities, saying: *"I want to be a part of solving the above problem, so I should save the environment, reduce plastic, plant trees, and I should not [burn] the plastic."* Meanwhile, in the Philippines, Rubylyn wants to finish her studies so that she can become a teacher and teach about climate change.

A few girls see an end to climate change as a possibility. In the Philippines, Jocelyn hopes that people will address climate change in the future: *"I hope that there will be no more climate change in the future, and that people will also have knowledge on how to prevent it for their safety."* Leakhena and Mony (both in Cambodia) hope that climate change effects will be mitigated if people take care of the environment and get involved in mitigation activities. Mony says, *"I hope the weather becomes better and better as everyone helps to plant more trees from now."* Likewise, Roumany (also in Cambodia) hopes that the interventions conducted until now will successfully address climate change, leading to a better future: *"I hope next year it is not so hot anymore as we grew many trees now."* Melanie from the Philippines hopes that she can have a canal to channel water into the area, plant trees for better air quality, and grow sweet potatoes to feed the community.

4.2.6 Equipping girls with knowledge and skills towards climate resilience

Climate change knowledge is the impetus for RCRL girls' coping, adaptation, and ultimately, resilience. The findings in this section establish the impact of education in mitigating climate change, whereby girls are using skills learned in school – such as recycling, replanting, spreading awareness - to pursue personal actions. In this way, we can identify how girls are exercising leadership qualities in their everyday lives. Many girls who have difficulty defining climate change are nonetheless able to discuss the changes they experience in their communities around unpredictable weather and failed crops. They can also identify the tertiary impacts of climate change – without explicitly speaking to it - in terms of rising food prices and higher incidents of crime or migration. Perhaps, climate change education is the missing link in many of these girls' logical steps to being able to effectively respond to and adapt to climate change impacts in their households. Girls like Bessy (El Salvador) are an example of how a lack of girls' knowledge around climate change manifests in their climate coping strategies; Bessy and her household have little to no coping strategy in place. In contrast, Fernanda (Brazil) and Jasmine (Philippines) are highly knowledgeable about climate change and able to confidently recall what their family would do to withstand the tertiary effects of climate change on their livelihoods.

Together, these findings underscore that knowledge is foundational to girls' climate resilience, and that education is therefore key. In particular, education enables a girl's adaptation efforts that operate at **her individual level**. It could be that the personal actions described in Section 4.2 may have minimal impact on the adaptive capacity or resilience of the girls' households. Though the girls call upon government action and community responsibility, the girls are in a context where their demands are not listened to. Her demands stay at the individual level and don't get manifested by her community or government. Moreover, this section has found that the climate education received by some RCRL girls does not go far enough in helping girls' understanding of climate change nor ways in which they can address the deeper climate impacts they experience daily. There is a clear need for the girls to be delivered with curricula that are stronger on themes around adaptive capacities, such as livelihood diversification, as to ultimately achieve climate resilience. As such, this would ultimately build upon the leadership qualities we are seeing in girls' personal climate actions.

As established in Section 4.1, girls' education is being threatened by the financial precarity brought on by climate change. Girls should not be burdened with the task of supporting their families to financially withstand climate impacts, when at the cost of their education. Instead, girls' education should prepare them with skills to navigate a future of uncertainty, for example financial management skills. This should be accompanied by contextually appropriate climate response by governments that do not overburden adaptation at household and community levels.

On a wider level, the girls and their families need financial security to achieve resilience to the direct and indirect impacts of climate change on girls' education and in their communities. This requires a holistic institutional approach. We see that some schools deliver coping strategies through the dimension of emergency response, but in general, schools need to be able to physically withstand climate impacts, to minimise learning disruption. Equally, the RCRL girls need stronger support in their knowledge of risk reduction and resilience, through enhanced climate curricula. The girls are capable knowledge bearers already, shown in their use of their knowledge in pursuing climate actions. Household climate resilience is predicated on the girls' education and agency. These elements are in themselves influenced by the enabling environment of caregivers that allow for girls' decision-making or paid work, and for households' livelihoods and expenses to cover the girls' education (a pathway which would in turn later support the household).

CASE STUDY: REYNA, PHILIPPINES

Supporting Reyna and her family's future

Reyna's father speaks to ensuring Reyna's education is prioritised, despite difficulties in their livelihood: *"As a father, I am finding ways to be able to pay for Reyna's school fees. I don't want her education to be affected because she hasn't paid [fees] ... I hope our harvest will be good so that we can provide all of Reyna's needs, especially when she gets into college"* (Reyna's father). Her father describes wanting Reyna to have a future in which she is *"not like her mother and me"* (Reyna's father), which can be inferred as not being in such financial precarity. This highlights the direct relationships between climate change, affected livelihoods and financial decision-making over girls' education.

Reyna helps her parents with budgeting for the household and caring for her nieces and nephews and makes both financial and non-financial decisions at home: *"I can make decisions when my mother and father aren't at home"* (Reyna).

Despite Reyna giving her own money to support the family, her parents say that they *"didn't force her"* and suggest that Reyna *"felt sorry"* for them given the loss of crops (Reyna's father). Following her education, Reyna hopes to *"get a good job so I can pay off my parents' debts and give them a nice house and land."* This demonstrates the potential stress that girls feel as a result of climate-induced livelihood loss, and the burden placed on them to support their families financially – both in Reyna's financial support now, and through the returns of her education in the future.

Reyna's story throughout this report demonstrates that her adaptation efforts would be more fruitful if supported by improved social security from the government to support her family's livelihood and stronger climate curricula on adaptation efforts.

05 CONCLUSION

The insights and experiences shared by the RCRL girls provide us with unique real-world insights into the complex relationship between climate change and girls' education. Stories and experiences shared by the RCRL girls demonstrate that climate change is affecting their access to, and completion of, quality education. Their education is being disrupted by both direct impacts, including extreme weather events, damage and destruction of school infrastructure, and obstructed journeys to schools, as well as indirect impacts, including loss of livelihoods and deepening deprivation. These direct and indirect barriers also exacerbate gendered inequalities, with girls' education being deprioritised when households face financial insecurity; as a result, families resort to negative coping mechanisms such as CEFMU.

These disruptions to girls' education demonstrate the need for safe learning environments and school preparedness to ensure shock-resilient infrastructure and continuity of learning in the face of climate shocks and stresses. The example provided by the girls in the Philippines of teachers texting homework assignments to students during weather event-related school closures is one example of a continuity strategy that could be more widely applied in contexts where technology permits.

The report also demonstrates the other side of the coin – that the RCRL girls' education has the potential to inform and shape their adaptation capacities. As noted in the literature, and from our observations from the girls' experiences, adaptation capacities require an ability to recognise and understand climate change, and exposure to adaptation options. Evidence from the RCRL girls indicates that many girls receive most of their information about climate change and climate adaptation from their education. Many of the girls are using skills that they learned in school, such as recycling, planting trees, joining youth collective action groups and spreading awareness.

These individual actions demonstrate that access to knowledge supports girls' everyday leadership in making active decisions towards climate adaptations within their capacities. RCRL girls who are confident to actively engage in climate adaptation efforts are doing so, for example, through practicing green skills and disaster preparedness. This demonstrates the clear link between these girls' climate knowledge and being everyday leaders in their household and community. An example of this is Leakhena in Cambodia, who demonstrates everyday leadership in responding to increasingly frequent flooding events by pouring more soil on classroom floors. This is an example of girls' everyday leadership that has developed due to her climate education.

Education is key to the girls' adaptation efforts at the individual level and is a key component of their climate resilience. Yet, many of the girls express dissatisfaction with their level of climate change education, believing that it does not go far enough in helping them to address climate change in their households and communities. This is particularly evident among girls who have the strongest understanding of climate change as a concept, especially girls in the Philippines and Cambodia. We see that even in countries with relatively strong climate education, the level of education is still not enough to provide girls with the knowledge – and thus confidence – to adapt to the impacts of climate change that they are facing. This highlights the need for greater integration of climate change into curricula, and the need for girls themselves to have the opportunity to contribute to and participate in curricula design, to ensure that it meets their needs.

We are able to observe some positive changes resulting from girls' adaptation strategies, but these 'solutions' are limited to their individual and household level. Such adaptation strategies perhaps do not go far enough to support girls' contribution to participation and leadership at higher decision-making levels. Many of the girls express discontent with the actions (or inaction) of policymakers and authority figures to adapt to climate change. In calling for their community's needs to be met, the girls demonstrate their understanding that, while they themselves can be leaders in the actions they are

taking in their households and communities, the responsibility for systems-level adaptation solutions does not sit with them alone.

This report provides real-world examples of girls' views and perspectives on their experiences of climate change. It highlights the impacts they have observed in their communities, how climate change has affected their education, their knowledge of climate change adaptation options, and their everyday leadership in making decisions about responding to climate change at their individual and household levels. The unique contribution that this report offers is in giving voice to the insights and reflections of girls from different contexts around the world: in climate change literature (including on gender and climate change) we are very rarely given access to the views and experiences of girls **in their own words**. With this rare access to the voices of girls themselves, we are granted a far more nuanced 'real lives' picture of the complex impacts of climate change on RCRL girls, their education and their adaptive capacities, which cannot be gleaned from large-scale quantitative studies.

06 RECOMMENDATIONS

Recommendations have been developed directly from the findings, including the ideas, opinions and recommendations from the RCRL girls themselves, their family members and members of the wider communities. This reflects their experiences of climate change and the ways in which it has affected their education, and the barriers to their education that have been identified through the stories and experiences they have shared. The recommendations below are also guided by the Comprehensive School Safety Framework, which emphasises the need for safer learning facilities, school safety and educational continuity management, and risk reduction and resilience education.

1. SAFE LEARNING ENVIRONMENTS AND SCHOOL PREPAREDNESS

MINISTRIES OF EDUCATION, ENVIRONMENT, FINANCE AND METEOROLOGY SHOULD COLLABORATE AT ALL LEVELS TO:

- Prioritise investments that strengthen the resilience of **school infrastructure and routes to school** to withstand extreme weather events and climate shocks.
 - Invest in **safe access to schools**, including construction and maintenance of climate-resilient roads that are less susceptible to flooding and damage.
- Develop, resource, implement and monitor gender-responsive **school safety policies and plans**, in line with the Comprehensive School Safety Framework. This includes:
 - Developing **school disaster risk reduction (DRR) plans**, informed by a gender- and age-responsive risk assessment that recognises and accounts for children's and girls' specific vulnerabilities and adaptation capacities. These assessments and plans should be co-developed with children to ensure that their needs are met.
 - Ensuring that loss and damage data related to education is disaggregated and informs gender and age responsive DRR and adaptation plans.
 - Investing in **education continuity plans** to ensure that, if weather events disrupt access to schools, learning can continue in other contextually appropriate ways. This may include e-learning, or the use of alternative sites for learning.
 - **Funding and implementing inclusive, gender-responsive anticipatory action** at all levels of education policies, plans and actions. Taking anticipatory action ahead of a crisis to reduce the impact of forecasted shocks and stresses on children's access to education. Ensuring departments of education and schools have access to timely hydrometeorological data, predictive analysis and vulnerability data to inform and fund schools to take anticipatory action that has been pre-agreed by at-risk communities.
- Invest in **child-critical services** that contribute to children's equal access to schooling. This includes school meal programmes, financial support for tuition and school supplies, child-safe transportation to schools, sexual and reproductive health, and mental health services.
- As a guiding principle, **children should have equal opportunities to engage in the development, implementation and monitoring** of DRR and adaptation plans. Children should be recognised as active participants in decision-making on loss and damage, adaptation, and learning continuity as agents and rights-holders.

2. IMPROVING CLIMATE CHANGE CURRICULUM

MINISTRIES OF EDUCATION, TOGETHER WITH MINISTRIES OF ENVIRONMENT, SHOULD:

- Mandate **climate change education** that is evidence- and science-based, contextually relevant, gender-transformative and inclusive, age-responsive, and inclusive of Indigenous knowledge and rights.
- Take a **gender-transformative approach to curriculum** reform that can change norms and attitudes and build the skills necessary to shift the way children are taught to think about the world around them. A holistic, systems-approach to climate change curriculum reform should equip learners with an understanding of intersecting social injustices that shape different vulnerabilities and adaptation capacities.
- Invest in **teacher training on climate change** by mandating and funding comprehensive climate change modules in training courses, providing teachers with access to up-to-date reliable data and facts, and offering ongoing professional development programmes to support effective delivery of transformative climate change curriculum.

SCHOOLS SHOULD:

- Promote **action-oriented learning** that supports children and girls to develop collective action in climate change adaptation skills and pro-environmental behaviours, including tree-planting initiatives, growing vegetable gardens, writing letters to government and holding recycling drives.
- Ensure the **meaningful participation of children, including girls**, in the development of action-oriented learning plans that adequately address specific and contextual needs.
- Support the development of **girls' climate change leadership skills** by providing opportunities (such as school clubs) for girls to exercise and practice their leadership capabilities to promote climate change adaptation.
- Educate girls on **climate change decision-making processes** at all levels (local, national, regional and global) and on how they can engage in these processes as young leaders.

3. ENABLING ENVIRONMENTS FOR CLIMATE CHANGE ADAPTATION AND EDUCATION

GOVERNMENTS SHOULD:

- Review and update core institutional **policies, strategies, adaptation plans and guidance notes** to include education access, resilience and continuity.
- Develop or update **education sector plans** that are gender- and child-responsive, and prioritise resilience and climate change adaptation. Children and young people should be meaningfully included in the development of education sector plans and budgets.
- **Increase funding** for the implementation and monitoring of education policies that address climate change, including the development, delivery and evaluation of climate change curriculum.
- Advance climate-resilient development, by **strengthening participation of youth-led organisations** as key actors to ensure that Nationally Determined Contributions and National Adaptation Plans include climate education.
- Create an **enabling environment for children and young people's engagement** in climate change decision-making at all levels, where their views and recommendations are respected and valued, and they have real opportunities to influence decision-making.
- **Loss and damage finance** should provide immediate relief for students after a sudden-onset climate event or disaster, as well as build long-term resilience for children, including those

affected by slow-onset events. Loss and damage finance should include provision for rebuilding school infrastructure destroyed by extreme weather events, ensuring it is more robust and able to better withstand climate-induced damage.

- Loss and damage financing should be allocated for **child-critical social services**, including education.
- Loss and damage response must be informed by **existing inequalities and disaggregated data** in order to capture the specific impact of the climate crisis on different groups of children. Loss and damage data related to education (for example, lost school days) should be disaggregated by gender, age and disability status.
- Increase climate finance allocations, particularly related to adaptation and loss and damage, to ensure children's access to quality, gender-transformative climate education and to build resilient education systems.
- Ensure **child and girls' rights** are guiding principles of loss and damage funding.
- **Increase social protections** by investing in alternative livelihoods and closing the adaptation gap by providing funding for losses and damages. Climate finance should be delivered in the form of grants – particularly for adaptation and loss and damage. Funding for loss and damage should be decentralised and tailored to meet children's context-specific climate vulnerabilities.

COMMUNITY LEADERS SHOULD:

- Promote a commitment to social norms change on how girls' education, participation and leadership is valued, both broadly and specifically relating to climate change adaptation.
- Develop gender-responsive community adaptation plans that provide a fund for community-level financial support for households facing climate change-related livelihood losses.
- Develop gender- and age-responsive disaster response plans that consider intersecting social inequalities that contribute to community members' different levels of vulnerability and ability to respond to a climate shock.
- Promote climate change awareness and behaviour change in relation to collective pro-environmental actions, such as planting trees, recycling and other household- and community-level actions.

ANNEXES

ANNEX 1: RCRL GIRLS IN 2022/2023

LATIN AMERICA AND THE CARIBBEAN							
COUNTRY	LOCATION	GIRLS' NAMES	AGE*	IN SCHOOL?	ENGAGED IN PAID WORK?	MARRIED/ IN A UNION?	PREGNANT/ MOTHERS?
BRAZIL	Codó, Maranhão	• Bianca	17	✓	X	X	X
		• Camila	16	✓	X	X	X
		• Gabriela	16	✓	X	X	X
		• Natália	16	✓	✓	X	X
	São Luís, Maranhão	• Fernanda	17	✓	✓	X	X
		• Juliana	16	✓	X	X	X
		• Larissa	16	✓	X	X	X
		• Sofia	16	✓	X	X	X
DOMINICAN REPUBLIC	Azua Province and San Juan Province	• Dariana	17	✓	X	X	X
		• Nicol	17	✓	X	X	X
		• Rebeca	17	✓	X	X	X
		• Saïdy	17	✓	X	X	X
		• Sharina	17	✓	X	X	X
EL SALVADOR	Department of La Libertad	• Bessy	17	✓	X	X	X
		• Doris	16	X	✓	X	✓
		• Gabriela	17	✓	✓	X	X
		• Gladys	16	✓	X	X	X
		• Karen	16	✓	✓	X	X
		• Mariel	16	✓	X	X	X
		• Raquel	16	✓	X	X	X
		• Rebecca	16	X	✓	X	X
		• Stephany	17	✓	✓	X	X
		• Susana	16	✓	✓	X	X
		• Valeria	17	X	✓	X	X

* Age of girl at time of interview – March/April 2023

Climate Change and Girls' Education

AFRICA							
COUNTRY	LOCATION	GIRLS' NAMES	AGE*	IN SCHOOL?	ENGAGED IN PAID WORK?	MARRIED/ IN A UNION?	PREGNANT/ MOTHERS?
BENIN	Couffo Department in Central South Region	• Alice	16	✓	✓	✗	✗
		• Annabelle	17	✗	✗	✗	✗
		• Barbara	16	✗	✗	✗	✗
		• Catherine	16	✓	✗	✗	✗
		• Margaret	17	✗	✗	✗	✗
		• Thea	16	✓	✓	✗	✗
TOGO	Located south and east of Sokodé, the capital of the Central Region	• Ala-Woni	17	✓	✓	✓	✓
		• Anti-Yara	17	✓	✓	✗	✗
		• Ayomide	17	✗	✓	✗	✓
		• Azia	16	✓	✓	✗	✗
		• Djoumai	17	✗	✓	✗	✗
		• Essohana	17	✓	✓	✗	✗
		• Fezire	17	✓	✓	✗	✗
		• Folami	17	✓	✓	✗	✓
		• Ladi	17	✓	✓	✗	✗
		• Larba	17	✓	✓	✗	✗
		• Lelem	17	✗	✓	✗	✗
		• Nana-Adja	16	✓	✗	✗	✗
		• Nini-Rike	16	✗	✓	✗	✗
		• Reine	17	✓	✓	✗	✗

* Age of girl at time of interview – March/April 2023

Climate Change and Girls' Education

ASIA							
COUNTRY	LOCATION	GIRLS' NAMES	AGE*	IN SCHOOL?	ENGAGED IN PAID WORK?	MARRIED/ IN A UNION?	PREGNANT/ MOTHERS?
CAMBODIA	Tboung Khnum Province	• Davy	16	✓	✓	X	X
		• Kannitha	16	✓	✓	X	X
		• Mony	16	✓	✓	X	X
		• Roumany	16	✓	X	X	X
	Siem Reap Province	• Bopha	16	✓	✓	X	X
		• Leakhena	16	✓	X	X	X
		• Lina	16	✓	✓	X	X
		• Nakry	16	✓	✓	X	X
		• Reaksmey	16	X	✓	X	X
		• Sothany	16	X	✓	✓	X
PHILIPPINES	Northern Samar Province in the Eastern Visayas Region	• Chesa	17	✓	X	X	X
		• Christine	17	✓	X	X	X
		• Darna	17	X	X	X	X
		• Dolores	17	✓	X	X	X
	Located north-east on the Masbate Island Province in the southeastern part of Luzon Region	• Jasmine	17	✓	X	X	X
		• Jocelyn	16	✓	X	X	X
		• Kyla	16	✓	X	X	X
		• Mahalia	16	✓	X	X	X
		• Maricel	16	X	X	X	✓
		• Melanie	16	✓	X	✓	✓
		• Michelle	16	✓	X	X	X
		• Reyna	16	✓	✓	X	X
		• Rosamie	16	✓	X	X	X
		• Rubylyn	17	✓	X	X	X
VIETNAM	Central part of the Quang Ngai Province	• Ly	17	✓	X	X	X
		• Uyen	16	✓	X	X	X
		• Tan	16	✓	X	X	X
		• Kim	16	✓	X	X	X
		• Quynh	16	✓	X	X	X
		• Yen	17	✓	X	X	X
		• Sen	17	✓	X	X	X
		• Tien	16	✓	X	X	X

* Age of girl at time of interview – March/April 2023

ANNEX 2: DATA COLLECTION OVERVIEW

Summary of data collection points across the RCRL countries:

COUNTRY	NUMBER OF KEY INFORMANT INTERVIEWS [†]	NUMBER OF FOCUS GROUP DISCUSSIONS HELD [‡]	NUMBER OF IN-DEPTH CASE STUDY INTERVIEWS			NUMBER OF LIGHT-TOUCH INTERVIEWS	TOTAL INTERVIEWS WITH RCRL GIRLS
			RCRL GIRLS	CAREGIVER AND HEAD OF HOUSEHOLD	HOUSEHOLD INVENTORY TOOL		
Brazil	1	1	2	4	0	6	8
Dominican Republic	1	2	1	1	3	4	5
El Salvador	1	1	3	3	3	9	12
Benin	1	4	6	6	6	0	6
Togo	1	4	3	3	3	11	14
Uganda	0	0	0	0	0	0	0
Cambodia	1	1	2	2	2	8	10
Philippines	1	1	3	3	3	11	14
Vietnam	1	1	2	2	2	7	9
Total	8	15	22	24	22	56	78

[†] Key informant interviews were conducted with the Plan International country focal person for climate change

[‡] Focus group discussions were conducted with community members in the areas where the RCRL girls live

ANNEX 3: HOUSEHOLD INVENTORY TOOL

Household Inventory – 2023

INTERVIEW DETAILS 2023	
COUNTRY	
AREA (REGION/DISTRICT/VILLAGE)	
NAME OF INTERVIEWER	
DATE(S) OF INTERVIEW	
CASE REFERENCE	
ALTERNATIVE NAME OF COHORT GIRL	
ENGAGEMENT WITH PLAN (SPONSORSHIP) [FOR INTERVIEWER TO CIRCLE]	CURRENTLY SPONSORED PREVIOUSLY SPONSORED FAMILY MEMBER CURRENTLY SPONSORED FAMILY MEMBER PREVIOUSLY SPONSORED
CONSENT GIVEN (date)	
RELATIONSHIP OF RESPONDENT TO GIRL	
VERBAL CONSENT GIVEN (date)	

HOUSEHOLD INVENTORY					
Q.		How many people currently live in the household?			
Q.		How many males currently live in the household?			
Age	Relationship to girl	Occupation	Marital status	New to HH in the last 12 months? (Yes/No)	
Q.		How many females currently live in the household?			
Age	Relationship to girl	Occupation	Marital status	New to HH in the last 12 months? (Yes/No)	
Q.		Has anyone left the household permanently in the past 12 months?			
		YES NO			
Age	Sex	Relationship to girl	Reason for leaving		

Q.		Are there any core family members currently not present in the household?				
		YES NO				
Age	Sex	Relationship to girl	Occupation	Reason for absence		
Q.		How many people earn an income in the household?				
Age	Sex	Relationship to girl	Occupation	Temporary/Permanent work	Changed in past 12 months?	Contribute to HH income?
Q.		Have there been any changes in your income in the last 12 months?				
		YES NO				
If yes, increase or decrease?		INCREASE DECREASE				
Q.		Do you receive any remittances? If yes, from who?				
		YES NO				

Climate Change and Girls' Education

	Age	Sex	Relationship to girl	Location	Occupation	How often?
Q.	Do you receive any government financial support?		YES NO			
	Name/type of support		How often?		Any changes in past 12 months?	Are you dependent on this support?
Q.	Have there been any changes in your monthly expenditure in the past 12 months?		YES NO			
	Expenditure change (type)		Increase/Decrease		Cause of change	
Q.	Have you experienced any unexpected expenses in the past 12 months?		YES NO			
	Unexpected expense		How did you deal with this? (borrowed money from family/friends/loan from bank/reduced consumption etc)			

Q.	Do you own or rent the home you currently live in?	OWN	RENT
	Have you moved home in the last year?	YES	NO
Q.	Do you own any land?	YES	NO
	Is this different from last year?	INCREASE	DECREASE
	Did you buy or inherit this land?	BOUGHT	INHERITED
Q.	Do you own any livestock? (e.g. cattle, poultry, sheep/goats etc.)	YES	NO
	Which type and how many animals?		
	Is this different from last year?	INCREASE	DECREASE
Q.	Have there been any changes to your home in the past 12 months?	YES	NO
	What were these changes?		
	What has been the impact of these changes on the family?	POSITIVE	NEGATIVE
Q.	Have there been any changes in your diet in the past 12 months?	YES	NO
	What caused this change?		
	What has been the impact on your family?	POSITIVE	NEGATIVE

Q.	Have you experienced food insecurity in the past 12 months?	YES	NO
	What caused this?		
Q.	Have you noticed any changes in the weather/climate in the past 12 months?	YES	NO
	What have those changes been?		
	What has been the impact on your family?	POSITIVE	NEGATIVE
Q.	Do you own health insurance?	YES	NO
	Type of insurance		
	What does the insurance cover?		
Q.	Has the girl been unwell in the past 12 months?	YES	NO
	Illness	How long did illness last?	Medical treatment sought?
			Where was treatment sought?
			Did you pay for treatment?
Q.	Have there been any serious illnesses in the family in the past 12 months?	YES	NO
	Age	Sex	Relationship to girl
			Illness
			Medical treatment sought
			Where was treatment sought
			Did you pay for the treatment

Climate Change and Girls' Education

Q.	Have there been any serious illnesses in the community in the past 12 months?				YES (Please specify) NO		
	Have there been cases of COVID-19 in the community?				YES (Many cases) YES (A few cases) NO		
Q.	School attendance of all children (including girl):						
	Age	Sex	Relationship to girl	Currently attending school?	Current grade or last grade completed	Repeated any grades?	Reason for non-attendance or repetition of grade
Q.	Has the girl been temporarily absent from school in the past 12 months?				YES NO		
	Length of absence				Reason for absence		
Q.	Question for interviewer: Is the girl in the correct grade for her age?						

Q.	Has the girl's school been closed due to COVID-19?	YES	NO
	IF YES, is the school still closed?	YES	NO
	How long was the school closed for?		
	Did the school provide remote classes? (i.e. homework, online classes, small in-person classes)	YES (Please specify)	NO
Q.	Does the family have access to the internet at home?	YES	NO
	Is this different from last year?	YES	NO
	Are there other places in the community where the family can access the internet?	YES (Please specify)	NO
	What devices does the family have access to?	(Please circle and specify number)	
		Computer	Smart phone Other (Please specify)
	Does the girl have access to one or more of these devices?	YES	NO
	Do all of the children in the household have access to one or more of these devices?	YES	NO
	IF NO, who has access to the devices?		
	What are these devices used for by the family?	(Please circle any relevant)	
		Communication with family and friends Accessing information Schoolwork Online classes Emergencies Entertainment Other (please specify)	
Q.	Is the girl currently involved in any Plan International projects?	YES (Please specify which programme) NO	
	Are any family members currently involved in any Plan International projects?	YES (Please specify which programme) NO	

	Has anyone in the family previously been involved in any Plan International projects?	YES (Please specify who and which programme) NO
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ANNEX 4: ETHICS AND SAFEGUARDING CONSIDERATIONS

All research activities were undertaken in line with Plan International's ethics and safeguarding policies and procedures. All researchers on the study adhered to strict codes of conduct and received training on the tools, ethics and safeguarding prior participating in data collection. Principles of confidentiality, anonymity and informed consent are always applied, with caregivers asked for consent on an annual basis and girls asked to give their assent (annually, since 2013). The consent/assent process is a two-stage one: caregiver consent is first sought and, if granted, then girls' assent is sought. To ensure informed consent, participants and caregivers were provided with an information sheet to retain; the information on this sheet was also communicated to them verbally. It is specified in this information that girls did not have to participate just because their parents consented, and that participants may withdraw from the study at any time with no negative consequences.

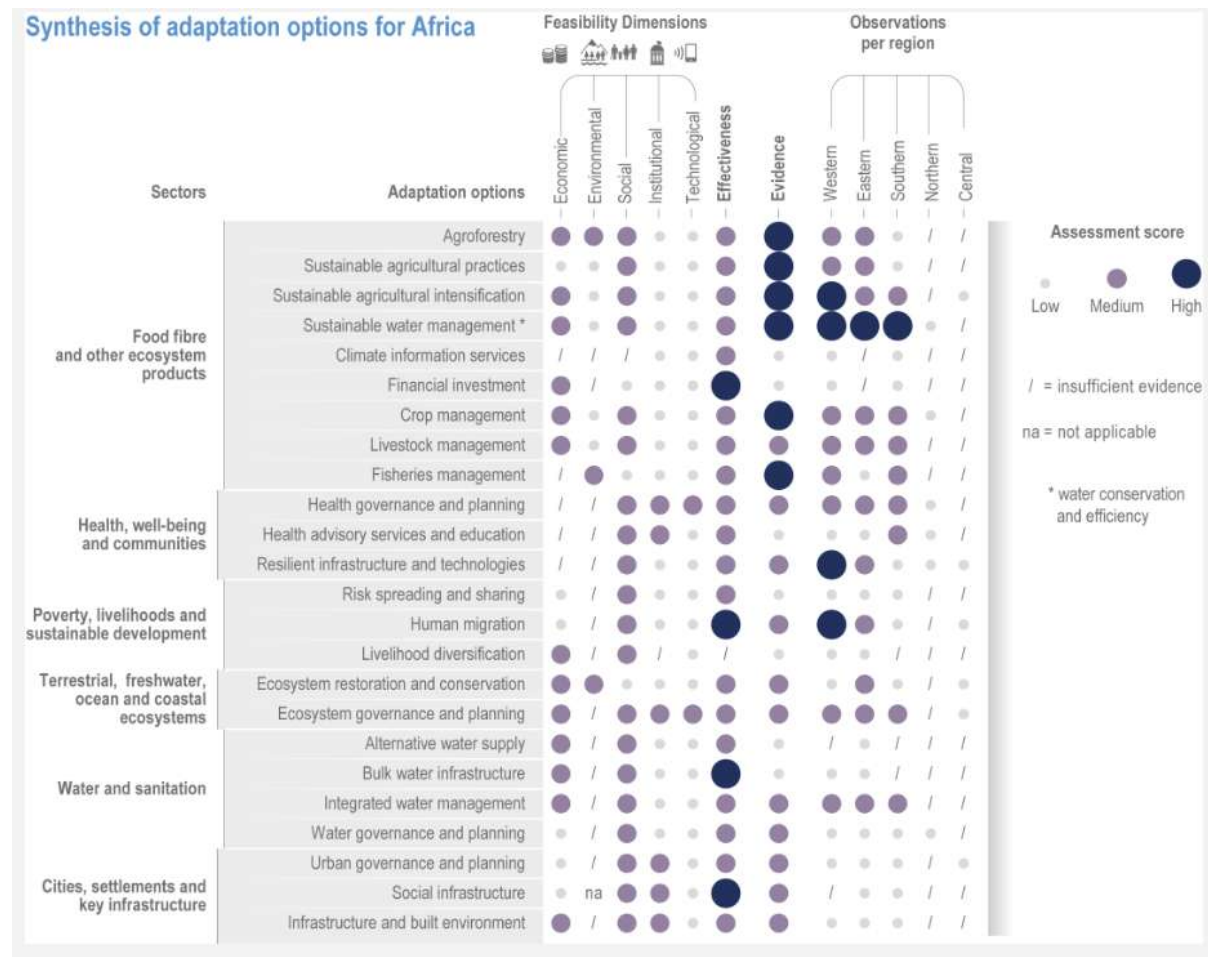
RCRL has a two-stage safeguarding and child protection process: in the first instance, researchers report any safeguarding concerns as soon as they arise to the safeguarding focal point in the country office, who follows up in accordance with the protocols of that country. In the second instance, the analysis team who code the data also fill out a Child Protection Report, which is sent to each country office by the RCRL research team to ensure all concerns are being addressed by the country office.

Additional safeguarding measures are put in place for the handling and transferring of data to the analysis team. The country office teams send the recording and transcriptions to the RCRL research team who anonymise all the data (for example, changing real names to pseudonyms, removing location and names). Pseudonyms are used in place of the girls' real names, and terms such as "Maricel's mother" or "Maricel's sister" are used when referring to family members. The country offices are asked to delete all recordings and transcriptions from devices used to collect the data immediately, in line with Plan International's Global Policy on Data Privacy. This is with the exception of some RCRL countries where there is a legal requirement to hold certain documentation, such as signed consent forms, for a specified period.

In 2018/19, Plan International UK obtained ethics approval for the entirety of the project from Plan International Global Hub's Ethics Review Committee. Local ethics approval was also sought in countries where it was a requirement for social research, namely, in Brazil and Uganda. In Brazil, we were granted local ethical approval for the ongoing RCRL study through Facultad Latinoamericana de Ciencias Sociales (FLACSO), approved for the duration of the study. In Uganda, local ethics approval was granted through Makerere University and was approved for one year only. In 2022, the RCRL study transitioned from being managed by Plan International UK to Plan International Global Hub. At this stage, ethics approval was sought from Overseas Development Institute (ODI) and renewed in 2023. For ethics approval in Uganda in 2023, another application was made through Makerere University, however, approval was not received until after this report was produced, due to administrative delays. As a result, we have only used historical data from Uganda in this report; it is our hope to produce a second edition of this report at a later date, which includes new data from the RCRL girls in Uganda.

ANNEX 5: SYNTHESIS OF ADAPTATION OPTIONS

This figure depicts the 'Assessment of the feasibility and effectiveness of observed climate adaptation responses under current climate conditions for 14 categories of adaptation responses across regions of Africa', as highlighted in the 2022 Intergovernmental Panel on Climate Change (IPCC) report.³⁷³ The assessment reviewed each adaptation category against six dimensions: environmental sustainability, economic viability, social validity, technological availability and institutional relevance.³⁷⁴



Source: IPCC (2022)³⁷⁵

³⁷³ Trisos, C.H. et al. (2022) 'Africa' in H.-O. Pörtner (eds.) *Climate Change 2022: Impacts, adaptation and vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge: Cambridge University Press. Available at: <https://www.ipcc.ch/report/ar6/wg2/chapter/chapter-9/>.

³⁷⁴ Ibid.

³⁷⁵ Ibid.

ANNEX 6: VIGNETTE ACTIVITY

The hypothetical story in the research tool for participants to reflect on, and follow-up questions:

[INSERT IMAGINARY GIRL'S NAME] is 16 years old and lives in a [INSERT RURAL/URBAN] community in [COUNTRY]. She enjoys going to school. [INSERT IMAGINARY GIRL'S NAME]'s father is a farmer who supports [INSERT IMAGINARY GIRL'S NAME], her mother, her 13-year-old brother, her newborn sister and her grandmother. [INSERT IMAGINARY GIRL'S NAME]'s mother spends most of her time caring for [INSERT IMAGINARY GIRL'S NAME]'s newborn sister and her grandmother, but sometimes sells textiles at the market.

The family has been struggling for money in recent years. Droughts have become more common in the last few years, destroying most of their crops, and they cannot make a profit when they sell their yield. [INSERT IMAGINARY GIRL'S NAME]'s parents think the mother should take on full-time work at the market again, but they need someone to care for [INSERT IMAGINARY GIRL'S NAME]'s grandmother and newborn sister. Although [INSERT IMAGINARY GIRL'S NAME] wants to stay in school, her parents think she has reached an age where she could take her mother's place in caring for the family and drop out of school, while her mother earns an income to supplement the difficulties faced as a result of failed harvests.

- What do you think about this story? How does it make you feel? Why?
- What do you think *[INSERT IMAGINARY GIRL'S NAME]* should do in this scenario? Why?
- Do you know any girls who have been in similar situations to this in your community?
 - **IF YES:** What do they do? Do you have examples? Please explain.
 - What do you think about how similar situations are managed for girls in your community? (*Probe: is it something positive or negative?*)
- Is *[INSERT IMAGINARY GIRL'S NAME]*'s situation something that would happen if she was a boy? Why/why not?
- If this situation were to happen in your community, are there any community or social services that could help the family (*Probe: financial support or educational support to supplement [INSERT IMAGINARY GIRL'S NAME]'s lost education*)
- What are the biggest challenges facing girls in your community? Why?
- What do you think girls could do to address these challenges? Why?