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Africa Regional Education System Resilience Observatory

EDUCATION SYSTEM RESILIENCE IN AFRICA

A Desk Review Report

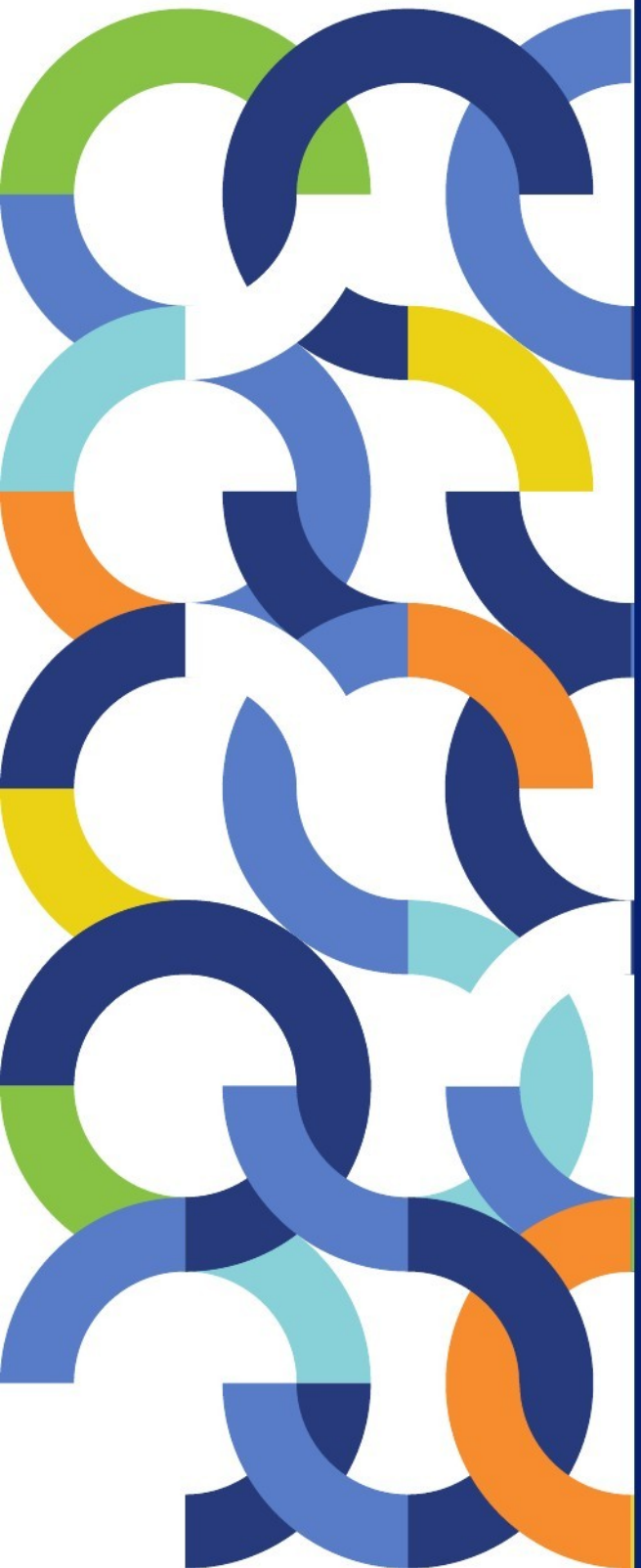
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ACRONYMS

ABE	Accelerated Basic Education
ALP	Accelerated Learning Programme
ARESRO	Africa Regional Education System Resilience Observatory
CAR	Central African Republic
CEC	Community Education Committee
COVID-19	Coronavirus Disease 2019
CSO	Civil Society Organization
DRC	Democratic Republic of the Congo
DRR	Disaster Risk Reduction
DRRM	Disaster Risk Reduction and Management
ECE	Early Childhood Education
ECOWAS	Economic Community of West African States
EiE	Education in Emergencies
EMIS	Education Management Information System
ERP	Education Response Plan
ESD	Education for Sustainable Development
ESP	Education Sector Plan
ESR	Education System Resilience
GEC	Girls' Education Challenge
GPE	Global Partnership for Education
HRP	Humanitarian Response Plan
HTP	Harmful Traditional Practice
ICT	Information and Communication Technology
IDP	Internally Displaced Person
IDRC	International Development Research Centre
IGAD	Intergovernmental Authority on Development
KIX	Knowledge and Innovation Exchange
LEAP	Livelihood Empowerment Against Poverty
MBSSE	Ministry of Basic and Senior Secondary Education (Sierra Leone)
MINEDH	Ministry of Education and Human Development (Mozambique)
MoGCSP	Ministry of Gender, Children and Social Protection (Ghana)
ND-GAIN	Notre Dame Global Adaptation Initiative
NGO	Non-Governmental Organization
NOSO	North-West and South-West regions (Cameroon)

RAN	ResilientAfrica Network
RRC	Resilience Research Centre
SHS	Senior High School
SRGBV	School-Related Gender-Based Violence
STEM	Science, Technology, Engineering and Mathematics
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
WASH	Water, Sanitation and Hygiene

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EXECUTIVE SUMMARY

Introduction

Education systems across Global Partnership for Education (GPE) partner countries in sub-Saharan Africa are increasingly operating in contexts characterized by recurring disruption. It is no longer a question of whether a shock will occur, but of when the next one will hit. From climate-related cyclones, floods and droughts that destroy school infrastructure, to conflicts that deliberately target education, and public health crises that force prolonged school closures, these pressures are persistent.

This constant strain does not just interrupt schooling; it erodes the very foundations of education systems and reverses gains in access and quality in affected countries. This report, which synthesizes evidence from GPE partner countries in sub-Saharan Africa, highlights how countries contextually understand education system resilience, the disruptions affecting education systems and the associated vulnerabilities, as well as the practices deployed across partner countries to address these constraints.

Methodology

This study employed a desk review methodology to synthesize existing evidence on how education system resilience (ESR) is understood and practised. The review focused on analysing information from education policy documents, particularly education sector plans (ESPs), and a wide range of academic and grey literature. During the literature search, we used terms reflecting the contextual and diverse nature of ESR (e.g., education in emergencies, resilience, disaster management) to ensure comprehensive coverage. GPE partner countries were clustered into eight African sub-regions to enable contextualized and comparative analysis.

The analytical framework was guided by the GPE KIX ESR framework, applying a thematic narrative synthesis approach to examine key dimensions, including conceptual framings of ESR, stakeholder roles, system disruptions, and resilience practices across pre-primary, primary and secondary education and teacher training. Cross-regional thematic comparison and triangulation of policy, academic and grey literature sources were used to enhance analytical rigour, reliability and validity.

Results

Understanding of ESR

While there is no global consensus on the meaning of ESR, across GPE partner countries in sub-Saharan Africa, ESR is understood in diverse ways, shaped by national contexts, risks, histories and stakeholder priorities. The desk review revealed a shared understanding that ESR is not just a technical capacity but a system-wide, ecosystem function involving policy, institutions, communities, pedagogy, infrastructure and other attributes working together to ensure learning continuity during disruptions. Although the term "ESR" is often not explicitly used in national education plans (except in a few countries whose plans were developed more recently, particularly in the post-COVID-19 period), the concept is implicitly embedded through strategies focused on disaster risk

reduction (DRR), crisis response, risk management and long-term system strengthening. The countries conceptualize ESR through four interconnected lenses:

1. **ESR as crisis preparedness and risk management:** In many countries, ESR is mainly understood as crisis preparedness and risk management. For example, countries view and frame ESR through disaster preparedness and emergency planning, safe and resilient school infrastructure, DRR- and peace-integrated curricula, institutional structures for crisis response, teacher training and psychosocial support, and data-driven and decentralized crisis management systems. These approaches aim to ensure continuity of education during crises through prevention, preparedness and recovery mechanisms.
2. **ESR as continuity of learning through adaptive and blended delivery:** ESR is also understood as the ability of the system to maintain learning during disruptions through flexibility, technology integration, teacher readiness and diversified learning channels. These alternative and technology-enabled methods include distance education through digital learning platforms, radio and print-based learning; blended and hybrid models; and teacher capacity development and support.
3. **ESR as community-anchored stability in fragile and conflict-affected settings:** Countries affected by chronic conflict, such as Somalia, South Sudan and Ethiopia, view ESR as the ability of communities to sustain education when national systems are weak or absent. This includes community-led schools, local leadership and coordination, and informal education provision, among others. Education resilience becomes rooted in local agency, community structures and social capital, enabling learning to continue despite insecurity, displacement and institutional collapse.
4. **ESR as stakeholder roles and priorities:** ESR is viewed through the priorities and roles of stakeholders, which enable education systems to withstand disruptions and maintain learning continuity. Development partners focus on partnerships, financing, technical assistance, and aligning support with global education frameworks and agendas to ensure system transformation, continuity and sustainability, often including vulnerable populations. National policymakers, on the other hand, emphasize sustaining teaching and learning during crises and aligning resilience efforts with national priorities such as DRR, peacebuilding and safe learning spaces.

Disruptions to the Education System

Analysis of the education sector plans and academic literature revealed that some countries (and sub-regions) face a polycrisis of climate-related disasters, public health emergencies, poverty and political conflict.

Climate-related shocks and stressors: Climate-related disasters and/or conflict intensify existing inequalities and undermine resilience. Recurrent shocks, such as droughts, floods and cyclones, damage schools, displace communities and interrupt learning.

- **Horn of Africa:** Countries such as Somalia, Ethiopia, Eritrea and Djibouti face droughts and erratic rainfall, causing school closures, food insecurity, displacement and psychosocial stress, particularly among rural and pastoral communities.
- **West and Central Africa:** Floods and extreme weather destroy schools or turn them into shelters. Malnutrition and food insecurity in countries such as São Tomé and Príncipe and Guinea-Bissau impair cognitive development, increase absenteeism and raise dropout rates, disproportionately affecting poor children who rely on school meals.
- **Southern Africa:** Droughts, floods and cyclones disrupt schooling and livelihoods in Angola, Zambia, Zimbabwe, Mozambique, Malawi and Madagascar. Disasters such as Cyclone Idai destroyed thousands of classrooms, left hundreds of thousands of children without education and pushed children into labour owing to lost household income.
- **Sahel and dryland regions:** Chronic drought and desertification in countries such as Mauritania, Niger, Burkina Faso, Mali, Cameroon and South Sudan cause recurring food crises and malnutrition, reducing enrolment, retention and completion.

Public health crises: Emergencies such as COVID-19, Ebola and HIV/AIDS have caused widespread disruptions across education systems in GPE Africa partner countries, affecting learning outcomes, student well-being and teacher retention. Vulnerable populations, including orphaned and marginalized children, face heightened challenges due to trauma, stigma and limited resources. These crises have exposed gaps in disaster preparedness, digital infrastructure and distance learning capacity, as seen in countries such as Zimbabwe, Guinea, Malawi and Lesotho.

Public health emergencies have prompted countries to rethink education planning. Strategic reforms now emphasize building resilient, shock-resistant systems, including emergency preparedness, digital learning solutions, psychosocial support and measures to sustain learning continuity during crises. For example, post-COVID-19 evaluations in Liberia, Cameroon and Kenya have informed policies to support vulnerable students, reduce teacher attrition and strengthen the systemic response to future public health shocks.

Poverty: Chronic poverty and socio-economic challenges severely undermine education access and quality in GPE Africa partner countries. Poverty creates direct financial barriers, leading to late enrolment, absenteeism and dropout, while also driving teenage pregnancy and child marriage. For example, in Zambia, 70.6% of children are deprived in two or more dimensions of well-being, and in Angola and rural Guinea, poverty contributes to early marriage and school dropout. On the supply side, underfunded education systems struggle with inadequate infrastructure, teacher shortages and limited resources.

In Ghana, the Free Senior High School policy overstretched infrastructure and staff, while in Malawi, only 21% of children from the poorest households access early childhood education. Senegal faces overcrowded classrooms, poor infrastructure and

a severe shortage of desks and classrooms, which affect the quality of learning. This combination of household poverty and under-resourced systems creates a vicious cycle, disproportionately affecting vulnerable populations and threatening the equity, quality and sustainability of education.

Political conflict: Armed conflicts and socio-political crises cause severe disruptions to education systems in GPE Africa partner countries, including the destruction of infrastructure, displacement of populations and long-term systemic weaknesses. Large-scale displacement strains host communities' education systems, requiring the curricular integration of refugees and the recognition of their credentials, as seen in Mauritania and South Sudan. Deliberate attacks on schools and education personnel create a climate of fear, leading to widespread closures and reduced teaching quality. In Burkina Faso, as of February 2024, more than 5,300 schools were closed, affecting more than 820,000 students and 24,000 teachers.

Cameroon faces dual crises: Boko Haram in the Far North and the Anglophone conflict in the North-West and South-West regions, resulting in school destruction, kidnappings and internal displacement affecting over 1.2 million children. Nigeria's northern regions experience conflict-induced absenteeism as Boko Haram targets schools, while the conflict in Mozambique's Cabo Delgado province has displaced over 800,000 people, nearly half of them children. In Somalia, chronic instability has fragmented the education system, with non-state actors providing most services. Similarly, the Democratic Republic of the Congo, Sudan, Ethiopia and Madagascar experience repeated disruptions from prolonged conflict, violence and political instability.

Other disruptors: These include the shortage and uneven distribution of teachers; weak inter-ministerial coordination; violence and drug and substance abuse; overcrowding; early marriage and teenage pregnancy; and disability and other forms of marginalization.

Practices Related to Education System Resilience

Most practices relate to strengthening education systems, often drawing lessons from crises such as the COVID-19 pandemic and the Ebola epidemic in countries that have recently developed new education sector plans. The practices include:

1. **ICT infrastructure:** Countries are investing in digital learning and distance education tools to ensure the continuity of education and learning in the event of a disruption. For example, Ethiopia, Ghana, Kenya and Rwanda expanded online and remote learning platforms to reach learners in remote areas during the COVID-19 pandemic.
2. **Curriculum design:** Country-specific ESPs call for the integration of disaster risk reduction, climate change, peace education and health issues (e.g., HIV/AIDS in Lesotho) into national curricula. Conflict-affected countries such as Ethiopia, Kenya and Somalia implement accelerated learning programmes to support displaced and out-of-school children. Countries are also reforming curricula to include 21st-century skills and social-emotional learning.

3. **Teacher training:** Professional development for teachers covers disaster preparedness, climate change, conflict-sensitive pedagogy, psychosocial support and digital teaching skills. Countries such as Zimbabwe, South Sudan and Madagascar are formalizing teacher qualifications and improving working conditions.
4. **School environment and infrastructure:** ESPs prioritize safe, climate-resilient and child-friendly schools, including temporary learning spaces and WASH facilities. Countries affected by conflict and disasters, including South Sudan, Cameroon and Madagascar, pay greater attention to gender-sensitive, safe learning environments and social-emotional learning.
5. **Planning:** Countries are developing contingency and humanitarian response plans at the national, district and school levels to prevent and mitigate current and possible future disruptions. Measures promoted at the different education levels include disaster drills, evacuation plans, alternative instruction methods and environmental safety assessments. Some countries, such as Uganda, Ethiopia and Mauritania, also prioritize the integration of refugees into national education systems.

Gender Equity and Social Inclusion

Gender inequities remain a major challenge in many GPE Africa partner countries and significantly affect the resilience of education systems. Building resilient education systems requires inclusive and equitable access to education so that all learners can continue learning during crises and recover effectively. Key issues influencing gender equity and social inclusion include barriers to girls' education, conflict and displacement, poverty and economic inequality, and the exclusion of marginalized groups.

Education of the girl child: Girls face numerous barriers to education due to cultural, socio-economic and institutional factors. Harmful practices such as child marriage and female genital mutilation, heavy domestic responsibilities, long travel distances to school, inadequate infrastructure and school-related gender-based violence contribute to absenteeism and high dropout rates.

To address these inequities, some countries have introduced supportive initiatives, such as community programmes in Malawi and re-entry policies for pregnant girls in Sierra Leone. Sierra Leone's National Policy on Radical Inclusion in Schools aims to address systemic barriers by promoting gender-sensitive education, improving school infrastructure and supporting marginalized girls.

Conflict and displacement: Armed conflict disrupts education by destroying infrastructure, displacing families and exposing children, especially girls, to risks such as gender-based violence and forced marriage. The ESPs of countries such as Cameroon, Togo and South Sudan prioritize support for refugees and internally displaced learners, while regional and international frameworks such as the Safe Schools Declaration and the Continental Education Strategy for Africa promote the protection of education during crises.

Poverty and economic inequalities: Poverty is a major determinant of school attendance, particularly among girls and vulnerable groups. Economic pressures often force boys into work and increase the likelihood of early marriage for girls. Some countries have implemented social protection policies to mitigate these effects. For example, Ghana's Livelihood Empowerment Against Poverty (LEAP) programme provides cash transfers to poor households to support children's school attendance, while Sierra Leone's Radical Inclusion Policy prioritizes access to education for disadvantaged learners.

Marginalized groups: Ensuring equitable access for marginalized learners, including children with disabilities and those affected by poverty or gender-based violence, strengthens the resilience of education systems. Countries such as Zimbabwe have special programmes, such as psychosocial services, special needs education and learner welfare initiatives, aimed at supporting vulnerable learners and ensuring their continued participation in education.

Conclusion

While there is no globally accepted definition of education system resilience (ESR), the findings reveal that its conceptualization varies by national context. ESR encompasses crisis preparedness, continuity of learning through adaptive and blended methods, community-led education in fragile settings, and stakeholder-driven priorities that integrate national and global agendas.

Countries operationalize ESR through investments in digital learning infrastructure; curriculum reforms addressing disaster risk reduction, climate change and social-emotional skills; teacher training; safe and resilient school environments; and contingency planning. Lessons from crises such as COVID-19 and Ebola are accelerating these efforts on the continent. GPE Africa partner countries are also emphasizing gender equity and social inclusion in their education sector plans, recognizing them as key to building resilient education systems.

Policies address barriers such as early marriage, poverty, conflict and gender-based violence, which disproportionately affect girls and marginalized learners. To ensure that no learner is left behind during crises, countries prioritize targeted, inclusive policies, programmes and collaborative efforts, particularly in support of girls and children with disabilities. The desk review findings therefore provide a benchmark for further exploration of the meanings and practices of ESR through qualitative interviews.



Children running back to school after break time.

1. INTRODUCTION

Globally, education systems face several disruptions, including climate-related disasters, conflicts, health crises and technological challenges [1]. These factors significantly affect education access and quality, school infrastructure and learning outcomes. Climate-related disasters such as floods, droughts and extreme weather events frequently displace communities and damage schools, disrupting the continuity of education. Nearly half of the world's children live in countries that are highly vulnerable to climate shocks, many of which are Global Partnership for Education (GPE) partner countries in sub-Saharan Africa. These disasters often lead to prolonged school closures and damage to learning materials and infrastructure, disproportionately affecting girls and other marginalized groups [2].

Similarly, conflict and political instability in several partner countries cause school closures, the displacement of children and increased vulnerability among learners. More than a third of GPE partner countries are affected by fragility and conflict, with millions of children out of school due to violence and insecurity [3,4]. Education in emergency contexts is crucial for protection and social stability [4]. The COVID-19 pandemic exposed how fragile education systems are.

The pandemic further exacerbated learning disruptions by forcing prolonged school closures and limiting access to essential health and nutrition services in schools. During the pandemic, GPE partner countries in sub-Saharan Africa implemented distance learning, accelerated learning and catch-up programmes to mitigate short-term impacts, although the long-term effects on education systems remain a concern [5]. Technological challenges such as limited internet connectivity, a lack of digital resources and infrastructural deficits hinder the adoption of remote learning solutions, widening educational inequalities. Partnerships with the private sector are vital for bringing in the technical expertise and tools needed to improve learning quality at scale in these countries [6,7].

Resilience is widely understood as the adaptive capacity to respond to threats while ensuring the continuity of essential functions [8]. Education system resilience (ESR), in turn, refers to a system's ability to anticipate, withstand, adapt to and recover from shocks such as pandemics, conflicts, natural disasters or economic crises, while safeguarding inclusive, equitable and quality learning for all learners [9]. Resilience is not only about survival but also about enabling systems to thrive despite adverse conditions [10].

This involves deploying adaptive strategies that prevent the interruption of learning activities, address both current and emerging risks, and strengthen long-term system stability. In the education sector, resilience means ensuring that learning continues despite crises, that systems can recover quickly, and that they evolve to better withstand future challenges [11]. This is vital to protect the right to education and to prevent setbacks in learning outcomes, especially for vulnerable populations.

As existing research has demonstrated, resilience operates at multiple levels:

- **At the individual level,** resilience refers to learners, teachers and families developing coping skills, emotional strength and adaptive capacities to navigate disruptions such as school closures, displacement or trauma.
- **At the institutional or system level,** resilience involves education ministries, schools and communities implementing policies, infrastructure and practices that anticipate risks, maintain service delivery during crises, and innovate to improve education quality and equity.

Building resilience at both levels is essential to create education systems that not only survive shocks but also emerge stronger, more inclusive and better prepared for future uncertainties [3,8]. This requires a multifaceted approach that includes strengthening governance, investing in infrastructure and adopting innovative technologies tailored to local contexts [12]. Governments and partners are encouraged to prioritize pre-primary education, support vulnerable student populations, and integrate context-appropriate education technologies to enhance learning outcomes and system adaptability.

Moreover, resilience involves not only the ability to recover from shocks but also the ability to transform and improve education systems to better withstand future challenges. This includes fostering community engagement, enhancing teacher training and ensuring equitable resource allocation across regions [13].

Africa faces multiple development challenges, including climate change, pandemics, conflict and displacement, which have severely affected community livelihoods and education systems, particularly in sub-Saharan Africa [14,15]. The COVID-19 pandemic exposed vulnerabilities in education, causing school closures, income losses for private schools and shifts to online learning, while climate-related shocks such as floods and droughts continue to disrupt education infrastructure and attendance [16]. Despite these threats, there is limited evidence on how education system resilience (ESR) is understood and practised in Africa, especially among vulnerable populations [1,17].

Using a desk review methodology, this report addresses this knowledge gap by examining the following questions:

1. How is ESR understood in the academic and grey literature relevant to GPE partner countries in sub-Saharan Africa?
2. What disruptors affect the education systems of GPE partner countries in Africa?
3. How is ESR practised within the context of GPE partner countries in sub-Saharan Africa?
4. Do existing practices related to ESR consider issues of gender equality and social inclusion and, if so, how?

This report was developed by the Africa Regional Education System Resilience Observatory (ARESRO), which is part of the Global Partnership for Education (GPE) Knowledge and Innovation Exchange (KIX) Observatory on Education System Resilience initiative and is implemented by a consortium led by Makerere University.

2. METHODOLOGY

The literature search employed a systematic approach using desk review methods to ensure comprehensive coverage of relevant sources. The desk review was grounded in two primary sources of evidence:

- **Grey literature:** Government policy documents (official strategies, frameworks and guidelines shaping practice) and publications from international and non-governmental organizations, to incorporate practical insights and policy perspectives. National and regional policies, legal frameworks and regulatory guidelines from the target African countries were also examined to contextualize the findings within existing governance structures.
- **Academic literature:** Peer-reviewed journal articles, books, book chapters and conference papers, to capture scholarly perspectives on education system resilience and related challenges.

It is important to recognize that ESR is documented differently in the literature across GPE partner countries. The customized search terms and phrases that were identified as synonymous with education system resilience and used during the literature search include:

- "Education System and Resilience"
- "Education" AND "disaster management"
- "Education system" AND "vulnerability" AND "risks"
- "Resilience of education systems"
- "Educational resilience"
- "Education in Emergencies" (EiE)
- "CSR" (the acronym for *Résilience des Systèmes Éducatifs*)
- "Education in crisis"

By comparing findings across GPE partner countries clustered into eight sub-regions (Table 1), this report highlights how education system resilience has been shaped by local contexts.

Table 1: GPE Africa partner countries clustered by sub-region

Sub-region	Countries
Southern Africa-1	Zambia, Angola, Eswatini, Lesotho, Zimbabwe
Southern Africa-2	Malawi, Comoros, Madagascar, Mozambique
East Africa	Uganda, Kenya, Rwanda, Burundi, Tanzania, South Sudan
West Africa Francophone-1	Senegal, Guinea-Bissau, Guinea, Côte d'Ivoire, Mauritania

Sub-region	Countries
West Africa Francophone-2	Mali, Burkina Faso, Niger, Benin, Togo
West Africa Anglophone	Ghana, The Gambia, Liberia, Nigeria, Sierra Leone
Horn of Africa	Ethiopia, Djibouti, Eritrea, Somalia
Central Africa	Cameroon, Democratic Republic of the Congo, Chad, Central African Republic, Republic of the Congo, Sudan, São Tomé and Príncipe

Analysis

The analysis was guided by the GPE KIX framework on education system resilience [1]. A thematic analysis was conducted to identify recurring patterns and insights across the selected body of literature. This analysis employed a narrative synthesis approach, which enabled a nuanced and comparative examination of several core dimensions related to ESR. These dimensions included the definition and conceptual framing of ESR, the roles and responsibilities of key stakeholders, disruptions affecting the education system, and practices of ESR. The analysis focused on pre-primary, primary and secondary education, as well as teacher training.

Thematic comparisons were systematically carried out across the eight sub-regions, allowing for the identification of both divergences and commonalities in how ESR is understood and operationalized. This cross-regional analysis provided valuable insights into context-specific challenges and adaptive strategies, highlighting areas of innovation as well as persistent gaps. To ensure the reliability and validity of the thematic findings, triangulation was applied. This involved integrating insights from diverse sources, including policy documents, academic literature and other grey literature. By drawing on multiple types of evidence across the eight sub-regions, the analysis achieved a more holistic and credible understanding of the policies and practices related to education system resilience in varied contexts.



Schoolboys in discussion during a class group work session.

3. RESULTS



3.1 How Is Education System Resilience Understood in Different Contexts?

The desk review revealed that GPE partner countries in sub-Saharan Africa understand ESR differently, depending on country-level priorities, history and the prevailing resilience challenges they face. Countries generally frame ESR not only as a technical capacity but, increasingly, as an ecosystem function requiring policy, pedagogical and institutional preparedness to operate in tandem during crises. They tend to view ESR as the shared ability of institutions, communities and education systems to carry on with learning even when faced with a disruption.

While the term "education system resilience" is not explicitly mentioned in most of the education sector plans of GPE partner countries, the underlying concept of ESR is implied through a focus on disaster risk reduction (DRR), risk mitigation and management, crisis response, and long-term education system strengthening to guard against possible future disruptions. While the intensity and sources of disruption differ, the underlying idea emerging from the synthesis of grey and academic literature on ESR is that system resilience is perceived as the proactive capacity to anticipate, absorb, adapt and transform while ensuring access to quality education for all, especially the most vulnerable learners.

This analysis shows that countries broadly conceptualize education system resilience on a spectrum, presented below through four distinct lenses:

1. as crisis preparedness and risk management;
2. as a technical challenge of maintaining learning through adaptive and blended delivery;
3. as a matter of community-led survival in fragile or conflict-affected settings; and
4. through the lens of specific stakeholder roles and priorities.

These four lenses, detailed below, are not mutually exclusive and reflect the priorities and operational realities of each context.

3.1.1 Education System Resilience Understood as Crisis Preparedness and Risk Management

Generally, education policy documents and academic literature from GPE partner countries view ESR through the lens of disaster preparedness, institutional readiness and risk reduction. This conceptualization is prominent in countries that face significant natural disasters or health emergencies, or that are proactively building institutional capacity to anticipate shocks. Within these contexts, resilience is framed through formal disaster risk reduction frameworks, emergency planning and infrastructural development.

For instance, Madagascar faces recurrent cyclones, floods and health emergencies, which make preparedness a permanent policy concern. The country views ESR as the system's ability to maintain learning during shocks through safe infrastructure, disaster risk reduction (DRR)-integrated curricula and structured emergency planning [18]. The Ministry of National Education strengthened this definition by establishing a dedicated disaster risk management service to institutionalize resilience within sector planning [19].

In addition, Madagascar's policy documents demonstrate a proactive national strategy of integrating DRR into the school curriculum and establishing a dedicated disaster risk management service within the Ministry of Education, following lessons from the impact of cyclones [18]. Similarly, Malawi's approach is anchored in disaster risk management, articulating resilience through the adoption of the Safer Schools Construction Guidelines and coordinated disaster risk reduction, with a focus on both physical infrastructure and the psychosocial resilience of human resources [20].

Cameroon provides a clear example of conceptualizing ESR as crisis preparedness and risk management through a dedicated programme (Programme 15) within its education sector plan. Programme 15 defines ESR through the dimensions of prevention, preparedness and crisis mitigation, aiming to ensure quality learning in safe environments during health, climate or security emergencies [21].

Kenya conceptualizes ESR primarily through the lens of emergency management and adaptive capacity, shaped by its experiences of COVID-19 and climate change, with an emphasis on training education practitioners in DRR and resilience [22]. Liberia explicitly describes resilience as the ability to prepare for, respond to and recover from crises such as epidemics and climate events, emphasizing gender-responsive DRR and early warning systems [23].

In Sierra Leone, ESR is conceptualized through structured reforms that enable the system to remain functional during shocks. Having navigated Ebola, COVID-19 and recurring climatic hazards, the country regards resilience as a blend of restoration capacity, adaptability and transformative policy change. This includes decentralizing decision-making, investing in teacher professional development and using real-time data for crisis response [24].

In contrast, a regional analysis of the education sector plans of francophone countries revealed that, despite severe security crises in Sahel nations such as Burkina Faso, Mali, Niger and Chad, the crucial themes of resilience and Education in Emergencies (EiE) are largely absent from most of these plans, indicating a disconnect between risk profiles and formal preparedness planning.

It is important to note that ESR in African countries is primarily conceptualized through disaster preparedness, institutional readiness and risk reduction, with varied national approaches emphasizing safe infrastructure, crisis management, adaptive capacity and policy reforms to maintain the continuity of education during shocks such as natural disasters, pandemics and security crises.

3.1.2 Education System Resilience as Continuity of Learning through Adaptive and Blended Delivery

Education system resilience is also framed around the capacity of the system to sustain learning through alternative or technology-enabled modalities during disruptions. This viewpoint acknowledges that crises often interrupt physical schooling and that continuity therefore ought to rely on diversified learning channels. Pedagogical and operational flexibility should be a prerequisite for education systems to maintain learning during disruptions, often by leveraging technology and alternative approaches.

For instance, Mauritania's ESP frames resilience building as the development of adaptive pedagogical methods such as distance learning and digital technologies [25]. Madagascar deploys radio lessons and printed materials and invests in digital platforms to bridge access gaps [26]. These tools help sustain learning during cyclones and other disruptions.

In Nigeria, ESR is closely associated with digital competence, blended learning and teacher adaptation. Stakeholders there define resilience as the system's ability to deliver learning through both online and face-to-face modes while ensuring that teachers have the capacity to support learners through rapid transitions [27]. Beyond distance learning, Nigeria's ESP prioritizes building teachers' confidence and their ability to support children who have experienced the trauma of violence and war [28].

In The Gambia, the same idea is reflected in efforts to improve digital readiness and rehabilitate learning infrastructure after adverse climatic events. Digital tools, where available, are increasingly part of national strategies for learning continuity. Sierra Leone also sees adaptive delivery as central to resilience. The country's investments in distance learning during the Ebola outbreak laid a foundation that was later strengthened during COVID-19. Teacher professional development further supports pedagogical flexibility [29]. Resilient systems therefore need to provide diverse learning modalities, including expanded digital and remote learning alongside low-tech alternatives, to bridge the digital divide and ensure inclusivity [30].

3.1.3 Education System Resilience as Community-Anchored Stability in Conflict-Affected Settings

In countries marked by conflict, displacement and weak state structures, especially Somalia, Liberia, Chad, the Central African Republic, the Democratic Republic of the Congo (DRC), Ethiopia, Eritrea, Mali, Burkina Faso and South Sudan, ESR is primarily understood as the capacity of communities and local actors to sustain education when national systems crumble. In countries affected by large-scale conflict, education is often left to communities to run, since the state is either absent or not in control of much of the country.

The community thus steps in to fill this void, and the education it champions is often informal in nature, owing to the absence of teachers, teaching and learning materials, and oversight of the education system.

In Somalia, given decades of conflict and the limited presence of the federal government in social services and in the states, education system resilience is essentially understood as the ability of communities to provide, manage and protect schooling services independently [31]. Most schools in Somalia are privately run or

community-owned, and Community Education Committees (CECs) play pivotal roles in managing schools, coordinating responses during emergencies and ensuring basic continuity of services when the state is unable to do so [32,33].

South Sudan articulates resilience as the capacity to maintain educational continuity amid persistent conflict and climate shocks, with operational measures such as community-focused contingency planning and the alignment of the school calendar with seasonal realities to adapt to environmental constraints [34]. Côte d'Ivoire, on the other hand, conceptualizes ESR within a post-conflict recovery context, relying on community and institutional mechanisms such as peace messenger clubs and civic education modules to absorb shocks and maintain continuity [35,36].

In Liberia, resilience is framed as a combination of post-crisis recovery, adaptation and system reform. Having experienced civil war, Ebola and repeated infrastructural shocks, the country views ESR through community participation, teacher improvisation, local leadership and external partnerships that help build capacity and restore educational services [37]. In South Sudan, ESR is defined as the ability to sustain core system functions, such as teacher deployment, school management and basic service provision, despite chronic conflict, severe displacement and limited state funding. This version of resilience emphasizes survival and minimal continuity rather than reform [38].

3.1.4 Education System Resilience as Roles and Priorities of Stakeholders

This analysis revealed that ESR is perceived as a mechanism that enables education systems to withstand the factors that threaten them and to continue functioning as before, and that perspectives on ESR vary by stakeholder group [9,39]. International development agencies focus on partnerships, financing and technical assistance, as well as on aligning external support for teaching and learning with global frameworks, to drive system transformation, continuity of learning, the use of alternative learning modalities and sustainability despite any form of disruption.

For instance, multilateral agencies and other actors in Liberia frame ESR as collaborative efforts and partnerships between donors, non-governmental organizations and the government to strengthen the education system [40]. Some development partners include vulnerable populations in their framing of ESR. For instance, UNICEF defines resilience as "the ability of children, communities, and systems to anticipate, prevent, withstand, adapt to, and recover from stresses and shocks while advancing the rights of every child, with special attention to the most vulnerable and disadvantaged children" [41].

Policymakers at the national level focus more on actions that sustain teaching and learning during crises and on how these resilience efforts align with broader national development priorities. For instance, in Rwanda, ESR is shaped by the country's history, and efforts align with the post-genocide reconstruction agenda, which is closely tied to peacebuilding, social cohesion and the prevention of future conflict [42,43]. ESR is not just about maintaining education services; it is intrinsically linked to healing and unifying the country to prevent any recurrence of genocide. In contrast, Mozambique's Ministry of Education and Human Development (MINEDH) conceptualizes ESR through a DRR model (preparedness, crisis response and ensuring continuity of learning),

integrating infrastructure durability, teacher preparedness and community engagement [44]. The Government of Ethiopia prioritizes the continuation of education in emergencies by developing a preparedness strategy and plan, providing schools in emergency-prone areas with the training and equipment needed to sustain education, and creating safe and child-friendly learning spaces [45]. In the Central African Republic, stakeholders view the resilience of the education system as a set of reforms aimed at rebuilding the system after several decades of conflict, which disrupted the exercise of the right to education for all Central Africans and for refugees living in the country [46].

Local stakeholders, such as communities and civil society organizations (CSOs), define ESR through practical, community-based actions and partnerships that address immediate challenges and safeguard education at the local level. They view ESR in terms of practical, on-the-ground action, sustainability and the availability of resources to support continuity of learning, as well as continuous community engagement while maintaining a degree of autonomy [47]. Others, such as teachers, parents and community leaders, are strategically positioned at the front line of the education system and are therefore well placed to identify, interface with and respond effectively to disruptions affecting schools and their surrounding communities. For example, the literature shows that teachers in Kenya view ESR as the ability to adapt to new teaching methods, especially in response to changing learning environments and curriculum demands [48], while in Senegal it is described as the ability of teachers, trainers and educational advisers to adjust their practices, share knowledge and preserve learner engagement despite constraints [39].

In addition, learners and teachers generally view ESR as the capacity for perseverance, resourcefulness and psychological strength to continue learning or teaching despite adversity. For example, in Zimbabwe, ESR is inherently associated with learners' well-being and its subsequent influence on their academic performance amid environmental shocks [49]. Others view ESR as a dynamic process of personal adaptation and the ability to function in unstable environments [50]. Through adaptation, individuals use coping strategies to overcome psychosocial, economic and cultural barriers to learning. These layered perspectives highlight ESR as both a systemic and a community-driven process. In countries affected by conflict, such as Mali, ESR for teachers is seen as the ability of educators to continue fulfilling their roles despite direct threats and disruptions [51]. This perspective focuses on the personal and professional resilience of individuals within the system.

From the learners' perspective, ESR also refers to the set of personal strategies that students implement (with or without the support of their teachers) to overcome psychosocial, economic or cultural obstacles and continue their education [52,53]. From this point of view, learners and informal groups perceive it as a set of dynamics of mutual aid, self-organization and academic "survival" [54]. Ultimately, the purpose of ESR is to ensure continuous learning opportunities, particularly for marginalized populations such as girls, children with disabilities and learners in remote or disadvantaged settings. By building adaptive capacity across multiple levels, education systems can better anticipate risks, withstand shocks and recover in ways that minimize disruption and promote equitable access to quality education.

Overall, there is no unified understanding of ESR across GPE partner countries in sub-Saharan Africa, as the education systems in these countries face unique challenges and contexts. However, most countries conceptualize ESR in terms of crisis preparedness and risk management, focusing on institutional readiness and maintaining the continuity of education through safe infrastructure and emergency planning. Others prioritize adaptive and blended learning approaches to sustain education during disruptions such as pandemics. In fragile or conflict-affected settings, resilience often depends on community-led efforts to keep education going when formal systems are weakened by crises. Additionally, the conceptualization of ESR varies by type of stakeholder. For example, international agencies, policymakers, communities, teachers and learners view resilience according to their roles and priorities, which in turn influences how they act in response to disruptions.



3.2 Synthesis of Contextual Disruptions to Education Systems

The resilience of education systems across Africa is shaped by the interplay of acute shocks and chronic stressors. Shocks (such as violent conflict, floods, pandemics or economic crises) cause abrupt and often devastating disruptions to learning continuity, infrastructure and human resources. Stressors, by contrast, are enduring pressures, such as drought, persistent poverty, underfunding, high teacher attrition and weak governance, that progressively erode system stability. Both phenomena disproportionately affect vulnerable groups, including girls, children with disabilities, learners in rural and conflict-affected areas, and households trapped in poverty.

The literature highlights that, while much research has focused on resilience at the level of students, teachers and communities, less attention has been paid to systemic resilience, that is, the capacity of education systems to anticipate, withstand and adapt to crises. For instance, a study in Zimbabwe highlighted that student teachers (a group given little priority, as in many countries) face several stressors, including "fear of contracting contagious diseases like COVID-19 during outbreaks, isolation, stigmatization and death, anxiety, uncertainty, hopelessness, economic hardships, prolonged teaching practice period, school closures, transference of face-to-face teaching to online learning" [55].

Other common disruptors, such as weak governance of the education system, chronic underfunding and reliance on external financing, compound vulnerabilities, particularly in fragile and conflict-affected countries. Regional diversity is also evident: while countries in West Africa grapple with historical legacies of curricular legitimacy, those in the Sahel and the Horn of Africa face compounded pressures from protracted conflicts, climate shocks and displacement. Health emergencies such as Ebola and COVID-19 have cut across all contexts, disrupting schooling, straining fragile systems and amplifying inequities in access and outcomes.

There have also been more nuanced challenges affecting the continuity of learning in countries with very weak governance systems. For instance, in Eritrea, the dropout rate among learners in Grade 11 is very high because students want to escape the

compulsory military service imposed by the government, which further weakens the resilience of the education system [56]. Below, we summarize the different disruptions and their geographical prominence across GPE partner countries in sub-Saharan Africa (Table 2).

Table 2: Summary of the disruptions affecting the resilience of education systems, by sub-region

Sub-region	Countries	Disruptions
Southern Africa-1	Zambia, Angola, Eswatini, Lesotho, Zimbabwe	• Climate-related disasters (droughts, floods, cyclones and tropical storms, wildfires, heatwaves) and other natural hazards (earthquakes) • Socio-economic challenges (high unemployment rates, widespread poverty and income inequality, food insecurity and malnutrition, inadequate infrastructure, impact of HIV/AIDS) • Political instability
Southern Africa-2	Malawi, Comoros, Madagascar, Mozambique	
East Africa	Uganda, Kenya, Rwanda, Burundi, Tanzania, South Sudan	• Conflict • Climate-related disruptions (droughts, floods, cyclones, heatwaves, food insecurity, water scarcity and landslides) • Socio-economic challenges • Political instability and refugee influxes
West Africa Francophone-1	Senegal, Guinea-Bissau, Guinea, Côte d'Ivoire, Mauritania	• Economic fragility • Conflict • Environmental stressors
West Africa Francophone-2	Mali, Burkina Faso, Niger, Benin, Togo	
West Africa Anglophone	The Gambia, Ghana, Liberia, Nigeria, Sierra Leone	• Governance • Infrastructure • Post-conflict recovery

Sub-region	Countries	Disruptions
Horn of Africa	Djibouti, Eritrea, Ethiopia, Somalia	• Climate-related disasters (droughts, floods) • Conflict • Prolonged droughts and food insecurity • Political instability
Central Africa	Cameroon, the Democratic Republic of the Congo (DRC), Chad, the Central African Republic (CAR), the Republic of the Congo, Sudan, São Tomé and Príncipe	• Armed conflict and displacement • Weak institutional capacity

Analysis of the education sector plans and academic literature revealed that some countries (and sub-regions) predominantly face climate-related disasters, conflict, or both. In many countries, these disruptions intersect, and this compounding exacerbates pre-existing vulnerabilities, disproportionately affects marginalized groups and creates a cyclical pattern in which each crisis erodes the system's capacity to cope with the next.

3.2.1 Climate-Related Shocks and Stressors

Disruptions related to climate change affect several education systems in GPE partner countries. While the degree of explicit strategic attention to, and recognition of, these disruptors (based on the synthesis of country-specific education sector plans) varies by country, the collective evidence indicates that climate change is a polycrisis that exacerbates existing inequities and strains system resilience. Countries in the Horn of Africa are exceptionally vulnerable to climate change, with cyclical droughts and floods disrupting education by destroying infrastructure, displacing communities and undermining livelihoods.

For example, Somalia, Eritrea, Ethiopia and Djibouti frequently experience climate change patterns that cause extended droughts and unpredictable rainfall, leading to the destruction of school infrastructure, displacement of communities, food insecurity, school dropout and deaths, especially among rural and pastoralist communities. For pastoralist communities, which constitute a significant vulnerable group, drought means that children leave school in search of pasture and water for their herds.

In Ethiopia's diverse socio-geographic setting, these disasters not only threaten physical facilities but also negatively affect students' psychosocial well-being and learning continuity.

Furthermore, climate stress has recently been compounded by other hazards, such as the locust infestation that swept across the Horn of Africa, limiting agricultural

livelihoods and affecting the education cycle. In Mali, the effects of climate change-related events have included 167 schools affected by flooding, 256 damaged or destroyed, and another 128 currently occupied by disaster victims [57]. This triple effect of damage, destruction and repurposing as shelters directly eliminates functional learning spaces. Similarly, in Chad, the United Nations Development Programme (UNDP) reported that the 2022 rainy season left "more than one million people displaced by floods and more than 465,000 hectares of farmland devastated", crippling agricultural communities and disrupting schooling [58].

Furthermore, food insecurity and severe malnutrition act as critical stressors on learners and their communities, directly impeding cognitive development and educational participation. This is starkly illustrated in São Tomé and Príncipe's education sector plan, which highlights the high rate of chronic malnutrition affecting young children, with one in three children under five years of age suffering from moderate chronic malnutrition and one in eight suffering from severe chronic malnutrition [59].

In addition, 77% of schools in Guinea-Bissau reported being affected by food insecurity, which resulted in cognitive impairment, absenteeism and dropout, among other effects [60]. In Guinea-Bissau, the absence of school canteens has been directly correlated with a significant drop in learning outcomes and aggravates school dropout. Collectively, these health challenges degrade educational quality and equity and impair learners' human capital potential. The vulnerable groups most affected are children from the poorest households, for whom a school meal may be a primary incentive for attendance.

The Southern Africa sub-region is very vulnerable to climate change, which acts as both a sudden shock and a slow-burning stressor, directly disrupting schooling and exacerbating underlying socio-economic vulnerabilities. The manifestations vary geographically, with countries such as Angola, Zambia and Zimbabwe experiencing severe droughts, floods and cyclones, while others grapple with recurrent floods. For instance, in the semi-arid south of Angola, a severe drought intensified the existing challenge of pastoral migration, leading to widespread school closures.

In the municipality of Curoca, one of the hardest-hit areas, 13 schools closed due to student absence, and of Cunene Province's 887 primary schools, 614 were affected by the drought in some way, causing severe disruption to no less than 70% of the province's 214,000 students. It is important to note that Zambia was ranked 41st in climate vulnerability by the 2020 University of Notre Dame Global Adaptation Initiative (ND-GAIN) index, with climate impacts disproportionately affecting rural and underserved communities and exacerbating existing educational inequities [61]. Additionally, the entire Comoros archipelago is highly susceptible to cyclones, floods, and even volcanic eruptions and earthquakes [62].

Similarly, Zimbabwe faces a "complex humanitarian crisis", with one of the worst droughts in 40 years affecting an estimated 50% of the population, including 3.5 million children [63]. The indirect effects are equally devastating. In Zambia, for example, flooding in the Zambezi River basin forces school closures not only because roads become inaccessible but also because of crop losses, which destroy the livelihoods on

which families depend to support their children's education. These climate shocks disproportionately affect rural, agriculture-dependent communities and children in low-lying, flood-prone areas, pushing children into labour to support family income and increasing their risk of dropping out of school.

Mozambique, Madagascar, Malawi and Comoros face recurrent cyclones, floods and droughts that cause direct physical damage to school infrastructure and severely disrupt academic calendars. Mozambique is prone to intense cyclones owing to its location on the Indian Ocean. Mozambique's education sector plan records that cyclones such as Idai and Kenneth damaged numerous schools [64]. These events also force school closures, lead to schools being repurposed as emergency shelters (as seen in Malawi, where classrooms are converted into shelters for internally displaced persons) and cut off access for students in remote areas [20,64].

The cyclones have had substantial effects. For instance, Cyclone Idai in 2019 affected 1.8 million people, destroying over 3,300 classrooms and leaving approximately 263,000 children without access to education. More recently, in 2024, Tropical Storm Filipo and Cyclone Chido damaged 537 schools, demonstrating a relentless pattern of destruction [65]. Geographically, the northern and coastal regions bear the brunt of cyclones and floods, while the central and southern areas are more susceptible to debilitating droughts [66]. This destruction is compounded by the use of low-quality construction materials, which amplifies infrastructural vulnerability.

Similarly, the eastern and northern coastal regions of Madagascar are perennially battered by cyclones, which are often accompanied by floods and landslides [18,67]. In stark contrast, the southern region grapples with severe drought, which in 2021 left 500,000 children malnourished, creating a profound stressor that undermines cognitive development and school attendance [68]. The chronic nature of these disasters, combined with inadequate early warning systems, keeps the education system in a perpetual state of response and recovery.

Concurrently, chronic stressors such as drought and progressive desertification, notably in Sahelian countries such as Mauritania, Niger, Burkina Faso and Mali, and in other countries such as Cameroon and South Sudan, undermine the foundational conditions for education. A review of these countries' education sector plans reveals that these chronic climate stressors contribute to recurring drought, food crises and persistent malnutrition, which are linked to reduced enrolment, completion and retention [25].

Relatedly, Cameroon's education sector plan recognizes that the country faces significant and increasingly frequent climate-related disruptions that directly affect educational infrastructure and access. The plan further documents that natural catastrophes resulting from climate change are becoming more frequent and intense, with particularly severe effects in the Far North and North regions. Floods constitute the most significant climate-related threat, affecting the Mayo-Danay, Mayo-Tsanaga and Logone-et-Chari divisions, while droughts are a recurrent phenomenon in the northern regions, contributing to progressive desertification that threatens livelihoods and displaces populations [21].

3.2.2 Public Health Crises

Public health emergencies cause profound, system-wide disruptions with immediate and long-term consequences for learning outcomes. The resilience of education systems across partner countries is continuously challenged by disease outbreaks and pandemics, with HIV/AIDS, Ebola and the COVID-19 pandemic being the most prominent health emergencies that have affected education systems and disrupted learning. In Eswatini, which has the highest HIV prevalence in the world, the epidemic directly affects the teaching workforce and has created a large population of orphaned and vulnerable children [69]. An estimated 32% of children of secondary school age are orphans, which creates additional challenges for the education system because these children need extra academic, emotional and financial support [70].

The COVID-19 pandemic was an unprecedented system-wide shock across GPE partner countries in sub-Saharan Africa, resulting in widespread school closures and disrupted academic calendars, and exposing critical gaps in digital infrastructure and distance learning capacity, as evidenced in the education sector plans of most countries, such as Zambia, Cameroon, Mauritania, Zimbabwe and Burundi. In Zimbabwe, for instance, it exposed a lack of disaster planning, leading to increased dropout in 2020 due to indefinite school closures and to parents in the informal sector being unable to pay fees [71].

For student teachers in Zimbabwe, the pandemic introduced a unique set of personal and professional stressors. These included fear of contracting COVID-19, illness, isolation, stigmatization, death, anxiety, uncertainty, hopelessness, economic hardship, a prolonged teaching practice period, school closures, and the shift from face-to-face teaching to online learning [55].

Evidence from policy documents indicates that the COVID-19 pandemic is reshaping strategic planning as lessons learned are incorporated. For example, Kenya's ESP 2023–2027 adopted a strategic goal on "mainstreaming crosscutting, pertinent, and contemporary issues", and the ESP notes that the lessons learned from the impact of COVID-19 on education and training call for a resilient education system capable of withstanding emerging shocks [22]. Cameroon's strategy highlights the disruptions caused by the COVID-19 pandemic, projecting that children born before the pandemic may reach only 40% of their potential productivity due to incomplete education and health deficits [21].

Guinea's education sector plan, on the other hand, highlights the Ebola epidemic (2013–2016) as the most profound health crisis to have affected the education sector. It resulted in school closures, disrupted calendars, exposed system fragilities and, in the immediate post-Ebola period, reduced the education sector budget to 13.7% of public expenditure excluding debt service [72]. Guinea's education system was severely tested by the Ebola epidemic, which led to a nationwide school closure of over six months, quarantines and curtailed academic programmes [73]. This health shock exposed and exacerbated the system's pre-existing weaknesses. The education systems of Liberia and Sierra Leone experienced similar challenges due to the Ebola crisis that ravaged much of West Africa.

In Malawi, the COVID-19 pandemic intersected with existing vulnerabilities, such as the high prevalence of HIV/AIDS, which disproportionately affects orphaned and vulnerable students [20]. Malawi's education sector plan states that public health crises increase teacher attrition and orphan populations and affect student well-being and attendance [20]. In addition, Lesotho's education sector plan acknowledges that HIV/AIDS creates both immediate challenges, such as increased absenteeism, trauma, stigma, reduced learning capacity and psychological distress, and long-term systemic pressures, including teacher attrition, an increased need for guidance and counselling services, and demand for inclusive support structures [74].

3.2.3 Poverty

Deep-rooted socio-economic challenges act as persistent stressors, undermining both the quality of and access to education. Chronic poverty is a primary driver of exclusion and inequality in education, particularly in rural areas. In Zambia, the situation is dire: UNICEF's *Child Poverty Report 2023* found that 70.6% of children are deprived in two or more dimensions of well-being simultaneously [75]. Poverty persistently undermines education systems on both the demand and the supply side.

On the demand side, household poverty creates direct financial barriers to schooling, leading to late enrolment, absenteeism and dropout, as families prioritize immediate economic survival and children engage in labour. This is a consistent theme in the education sector plans of Cameroon, Guinea and Rwanda, which highlight the high cost of school feeding as a heavy burden on parents and families. On the supply side, economic constraints severely limit the capacity of governments to adequately finance their education sectors [21,72,76].

Poverty fuels other disruptions, such as teenage pregnancy and child marriage. In Angola, Broken Chalk, in its 2024 submission to the Universal Periodic Review, notes that poverty contributes to high rates of child marriage and teenage pregnancy, and that many families living in poverty see marrying off their girls at a young age as a financial strategy [77].

This argument also resonates with Guinea's education sector plan, which observes that poverty creates financial barriers leading to school dropout, child labour and early marriage, with rural areas showing lower indicators [72].

Chronic underfunding also cripples education systems across GPE Africa partner countries. For instance, in Ghana, the Free Senior High School (SHS) policy ended up overstretching education infrastructure and straining existing human resources, demonstrating how policy-driven expansion can strain an already underfunded system. In Madagascar, only 0.4% of the education budget is allocated to pre-primary education, and 16% of children suffer from acute malnutrition, crippling their developmental potential [78,79]. In Malawi, there is inequity in access to early childhood education (ECE), with only 21% of children from the poorest households attending, compared with 55% from the richest [80].

In São Tomé and Príncipe, the CACAE Youth Education Association describes a system in which public schools are underfunded and lack resources, with too few teachers and inadequate teacher salaries. Schools lack teaching materials, and many classrooms

need renovation [81]. In Senegal, austerity policies and underfunding have accelerated the privatization of education and led to a marked decline in the quality of public services. Overcrowding and underfunding in some schools also affect the quality of learning. For instance, the student–teacher ratio worsened from 28:1 to 42:1 between 2010 and 2021, and a staggering deficit of 48,696 classrooms and 207,000 desks persists nationwide [82]. This creates pervasive overcrowding and poor infrastructure, with tangible manifestations such as double-shift and multi-grade classes becoming widespread, particularly in urban centres such as Dakar, where space is limited.

Cameroon's education sector plan notes that the country faces significant poverty-related challenges that directly affect education access and quality. The plan reveals that the persistently high poverty level constitutes a substantial hindrance to schooling, with 21.3% of the population living on less than US$1.90 per day in 2021 [21]. The strategy also notes that, although Cameroon provides free education, schooling for the poorest segments of society remains a challenge because of the opportunity costs associated with children's labour contributions to household survival. Thus, poverty creates a vicious cycle in which limited household capacity meets under-resourced systems, fundamentally undermining educational access, quality and sustainability.

These deep-rooted socio-economic challenges, especially chronic poverty, severely undermine education access and quality in GPE Africa partner countries. Poverty creates financial barriers that affect enrolment, absenteeism and dropout, while also fuelling disruptions such as teenage pregnancy and child marriage. On the supply side, chronic underfunding limits governments' ability to adequately finance education systems, resulting in overcrowded classrooms, insufficient teaching resources, inadequate teacher remuneration and strained infrastructure. This vicious cycle of poverty and under-resourced education systems disproportionately affects vulnerable populations, particularly in rural areas, and fundamentally threatens the sustainability and equity of education.

3.2.4 Political Instability and Conflict

Armed conflicts and socio-political crises have led to the destruction of educational infrastructure, the displacement of populations and long-term deficiencies in education systems, with the possibility of collapse. Large-scale displacement places significant humanitarian strain on education systems in host regions, as seen in the education sector plans of Mauritania and South Sudan, with challenges including overcrowded infrastructure, the curricular integration of refugees and the recognition of credentials.

Conflict is a primary shock that affects educational infrastructure, personnel and the very process of learning. In the Central Sahel, schools are deliberately attacked, forcing mass closures. In Burkina Faso, for instance, the scale is catastrophic: as of February 2024, according to the Ministry of Education, 5,336 schools were closed, representing more than 20% of the country's schools and affecting more than 820,000 students and 24,000 teachers [83].

This demonstrates a systematic dismantling of the education system in conflict zones. It is also worth noting that Guinea-Bissau's education sector has endured chronic political instability since independence in 1974, culminating in events such as the 2012

military coup, which triggered sanctions from the African Union and military intervention by ECOWAS and resulted in substantial salary arrears for teachers, prolonged strikes, and frequent ministerial changes that undermined policy continuity and programme implementation [60].

The geographical distribution of attacks is concentrated in the northern and eastern regions of Burkina Faso, the northern and central regions of Mali (e.g., Bandiagara, Ségou, Mopti and Timbuktu) and the Tillabéri, Tahoua and Diffa regions of Niger. Similarly, the civil war in Sierra Leone destroyed nearly 90% of school infrastructure, creating a deficit that has constrained the system for decades.

Somalia represents a case of chronic, system-wide collapse due to prolonged conflict, which has made the country one of the most fragile nations in the world. This protracted instability, including the collapse of the state in 1991, has led to the disruption of formal education systems. The federal government's limited control has resulted in a fragmented educational landscape, with non-state actors providing most education services.

These armed conflicts directly target education: teachers are kidnapped, schools are destroyed, and a climate of fear undermines teaching and learning [21]. In the Democratic Republic of the Congo, the education sector plan recognizes conflict as the dominant factor shaping education challenges, with ongoing insecurity in the eastern provinces posing direct risks to enrolment and continuity and prompting dedicated risk analysis and mitigation strategies in post-conflict reconstruction efforts [84].

Cameroon faces dual crises. In the Far North Region, the Boko Haram insurgency, including the kidnapping of 50 teachers and officials, has fostered fear, diminished teaching quality and led to the destruction of 74 schools, necessitating long-term reconstruction investments [21]. In addition, the Anglophone conflict in the North-West and South-West regions of Cameroon has led to systematic attacks on schools, forced closures and internal displacement. These crises have left more than 1.2 million school-aged children in need of humanitarian assistance. Similarly, in Nigeria, the most severe shock stems from a protracted armed insurgency, in which the Boko Haram group, which is opposed to Western-style education, systematically disrupts schooling in the areas where it is active. Northern Nigeria remains a primary zone of "conflict-induced absenteeism" and instability due to the targeted destruction of schools, resulting in school closures and trauma within learning communities.

In Mozambique, the conflict in Cabo Delgado Province has created a human rights and education catastrophe, displacing over 800,000 people, nearly half of whom are children [85]. This conflict has severely undermined access to education in the region, adding a layer of human-made complexity to the climate challenges. Similarly, in Madagascar, political instability, ethnic conflict and pervasive poverty drive children into labour or early marriage, directly competing with education [86].

The DRC likewise faces one of the world's most complex humanitarian emergencies, rooted in decades of conflict, which has severely affected its education system. UNICEF (2025) reports that "more than 2,500 schools and learning spaces in North and South

Kivu have been closed, leaving 795,000 children out of school in that region alone" [87]. The Central African Republic and Sudan are also paralysed by chronic violence. In Sudan, the protracted post-Bashir armed conflict has triggered the world's largest internal displacement crisis, with 4.4 million newly displaced people within the country, including approximately 2.5 million children [88].

In Comoros, political instability and teacher strikes cause recurrent, human-induced disruptions, leading to temporary school closures and interrupted learning, particularly for students preparing for high-stakes national examinations [89].

Ethiopia has experienced intense internal conflicts that serve as a stark example of what an attack on education entails. For example, the recent war in northern Ethiopia involved violent political and military attacks on education, which resulted in the loss of lives among education personnel and children and the destruction of hundreds of schools, leaving millions of children out of school. This is not merely collateral damage but a deliberate tactic; as O'Malley (2010) underscores, "attacks on schools have become a tactic of war to weaken the state" [90].

Armed conflicts and socio-political crises have caused widespread and severe disruptions to education systems in GPE Africa partner countries. These conflicts lead to the destruction of infrastructure, the displacement of populations and long-term systemic weaknesses that threaten the collapse of education services. Large-scale displacement strains host communities' education systems, while deliberate attacks on schools and education personnel create a climate of fear and instability.

Countries such as Burkina Faso, Somalia, Cameroon, Nigeria, Mozambique and the Democratic Republic of the Congo illustrate how conflict-induced school closures, kidnappings and violence severely limit access to education, disproportionately affecting millions of children and undermining efforts towards educational continuity and equity.

3.2.5 Other Disruptors

Shortage and uneven distribution of teachers: It is worth noting that education systems contain critical internal vulnerabilities, which are exposed and worsened by external shocks. A universal challenge is the critical shortage and uneven distribution of qualified teachers. For example, in Zambia, the pupil–teacher ratio is alarmingly high: UNICEF (2023) reports that, nationally, 25% of schools have a pupil–teacher ratio of 80:1, and 10% of all schools have a ratio of 112:1 [91].

This shortage is particularly acute in STEM subjects and in rural areas, a trend confirmed across the Southern Africa sub-region. Other teacher-related challenges include teacher strikes, for example in Guinea and Côte d'Ivoire, which cause major losses of instructional time. In Mauritania, teacher absenteeism and gaps in competencies contribute to a foundational learning crisis [25].

Weak coordination: Internal system fragilities, such as weak inter-ministerial coordination, inefficient financial allocation and inadequate data systems, were also flagged in the policy documents as disrupting the proper functioning of the education

system and thus critically limiting the capacity to anticipate and respond to shocks of any kind.

For example, Guinea's education sector plan identifies weak coordination mechanisms among the three education ministries, insufficient decentralized capacity for planning and management, limited financial resources and inefficient allocation, inadequate information systems for decision-making, and weak evaluation and control practices as issues that undermine the system's ability to achieve its objectives and respond adaptively to challenges [72].

Violence and drug and substance abuse: Other emerging disruptors highlighted in the countries' education sector plans include school-based violence, reported in 54% of Guinean schools between 2012 and 2017, and endemic drug and substance abuse in Kenya and Rwanda [22,76]. Kenya's education sector plan identifies drug and substance abuse as an emerging challenge requiring strategic attention, noting the need to address it through educational interventions while acknowledging that certain prevention approaches, including scare tactics and testimonials, have proven ineffective and may inadvertently glamorize drug use. Rwanda's education sector plan emphasizes teaching national values that discourage drug abuse as part of resilience building [76].

Overcrowding: The push for free primary and secondary education in many GPE Africa partner countries, such as Ghana, Zambia and Lesotho, has led to a surge in enrolment without a corresponding expansion of facilities, resulting in overcrowding. In Zimbabwe, the need is so great that over 1,500 new primary schools and over 3,000 new secondary schools would be needed to accommodate projected increases in the number of learners [92].

This school infrastructure, which is often not resilient to climate shocks, is ill-equipped for learners with disabilities, further entrenching exclusion. The groups most affected by these systemic failures are learners in rural and remote schools, children with disabilities who lack accessible infrastructure, and students in overcrowded classrooms who receive a poor quality of education.

Early marriage and teenage pregnancy: In Senegal, traditional practices such as early marriage, together with teenage pregnancy, are major drivers of school dropout among girls. One study found that 54.43% of pregnant schoolgirls drop out of school, while only 15.16% manage to resume their education, on average after a break of two years [93]. This not only wastes public investment but also slows progress in national primary school completion rates. The recorded cases were concentrated in the regions of Sédhiou (30%) and Ziguinchor (19%), while Kolda accounted for 9%.

Disability and other forms of marginalization: Education systems systematically struggle to support children with disabilities and other marginalized learners. This synthesis found inadequate provision for vulnerable groups in education sector policies and practices. In Liberia, for instance, a community-based study found that very few children with disabilities have access to education and that school heads often refused to admit children with moderate to severe disabilities [94].

In summary, other disruptors faced by education systems in GPE Africa partner countries include severe teacher shortages, weak governance and inadequate infrastructure, which are worsened by external shocks. Challenges such as teacher strikes, absenteeism, school-based violence and substance abuse further disrupt learning. A surge in enrolment without a corresponding expansion of facilities has led to overcrowding, while traditional practices and insufficient support for marginalized groups, including children with disabilities and pregnant girls, exacerbate dropout rates and educational inequities. These disruptors highlight the urgent need for targeted interventions to build more resilient, inclusive and well-resourced education systems.



3.3 Contextual Practices of Education System Resilience

To understand how ESR is practised in different contexts, this report highlights the activities and practices that countries are undertaking within their education sector plans (ESPs) to strengthen ESR, plan for disruptions, and prevent the impacts of shocks and stressors. Nearly all countries that have explicitly included programmatic interventions or strategies on resilience in their ESPs have done so by drawing on lessons from the impacts of COVID-19 and the Ebola epidemic in West Africa.

For example, the Government of Liberia has, for the first time, proactively included in its ESP the development of a policy framework on disaster risk reduction and climate change adaptation and mitigation, in preparation for both old and new crises [23]. While the desk review revealed activities targeting anticipation, planning, prevention and mitigation, most of the practices described in ESPs relate to strengthening the education system to withstand any disruption and ensure continuity of learning.

3.3.1 Strengthening Country Education Systems

A review of country-specific policies and strategic documents revealed several ongoing actions to strengthen the resilience of education systems so that they can deliver quality, uninterrupted education in the event of a shock or stressor. In the documents reviewed, system strengthening related mainly to the following topics: ICT infrastructure, curriculum design, teacher training and educational decentralization.

3.3.1.1 ICT Infrastructure

Countries are strengthening their education systems by investing in cutting-edge digital learning tools, information and communication technology (ICT) infrastructure and technology integration to improve the quality of education and ensure the continuation of learning in the event of disruptions. The COVID-19 pandemic and the Ebola outbreak in West Africa provided lessons for African countries to invest in strengthening their ICT infrastructure, digital learning tools and other mechanisms for delivering distance learning. Analysis of education sector plans revealed that ESPs developed during or after the pandemic emphasize the strengthening of ICT infrastructure and its integration to support the continuation of learning.

For example, Ethiopia's Education Sector Plan 2020–2025 places emphasis on the development and use of digital learning, a move that is expected to further advance

the introduction of digital technology [45]. In addition, the COVID-19 pandemic caused a rapid, global shift to remote learning, which dramatically accelerated the adoption and integration of education technology. In Ghana, for example, the national COVID-19 education response plan provided for lessons delivered through a dedicated television channel, radio and online platforms, with television lessons designed in collaboration with the National Council for Curriculum and Assessment to meet approved standards [95]. Countries are also investing in Education Management Information Systems (EMIS), which are helping governments to make timely, evidence-based decisions. For example, Rwanda has strengthened its EMIS to capture learner tracking, dropout rates and school functionality in emergencies [76].

3.3.1.2 Curriculum Design

Overall, ESPs are developed on the basis of country-specific disruptions, contexts and priorities. Accordingly, countries are (re)designing curricula to respond to the issues faced within their education systems. Analysis of education sector plans revealed that many countries, such as Rwanda, South Sudan, Lesotho, Zimbabwe, Malawi and Cameroon, are integrating disaster risk reduction, the environment and climate change into their national curricula at all levels of education. For example, in Malawi, the ESP promotes tree planting, care for the environment and WASH, which has helped to build climate awareness and resilience among learners [20].

In Rwanda, Sierra Leone and Cameroon, the focus is on developing and distributing age-appropriate teaching and learning materials on climate change for learners in pre-primary, primary and secondary schools [21,29,76]. Lesotho, on the other hand, a country with a high prevalence of HIV/AIDS, emphasizes comprehensive sexuality education, HIV testing and counselling, and the integration of health services into education programming [74].

Countries that are severely affected by chronic conflict are integrating peace education into school and training curricula. For example, Ethiopia and Kenya are including peace education in school and tertiary institution curricula and co-curricular activities to equip children, young people and teachers with the knowledge, skills and values to prevent conflict, resolve disputes peacefully, embrace social-emotional learning and build inclusive communities [22,45]. Countries affected by conflict have also developed accelerated learning programmes for conflict-affected learners. For example, in Somalia, a country ravaged by protracted conflict for the last three decades, investments in alternative education pathways such as Accelerated Basic Education (ABE) programmes have increased access for out-of-school children affected by displacement and other disasters [31]. Such ABE programmes, combined with support from international actors and NGOs, are gradually embedding a culture of resilience within the Somali education system.

In addition, many African countries have embarked on reforming their curricula to meet the current and future needs of the education system and the world of work. For example, Kenya and Uganda have undertaken curriculum reforms and are now implementing competency-based curricula at the secondary school level to meet learners' needs for the 21st-century skills required to succeed in today's world and contribute to human capital development [22,96]. Sierra Leone, too, is implementing a

curriculum that equips individuals with the values, knowledge, attitudes, skills and behaviours necessary to live in harmony with themselves, others and the natural environment.

3.3.1.3 Teacher Training

Investing in teacher professional development is a cornerstone of strengthening education systems, and analysis of education sector plans reveals several efforts to improve the capacity and welfare of teachers. For example, the ESPs of South Sudan, Sierra Leone, Malawi and Rwanda call for the expansion of pre-service and in-service training to include disaster risk reduction and issues related to climate change. In Zimbabwe, the ESP prioritizes teacher training that equips teachers with the competencies to respond to emergencies in a timely manner, including the delivery of first aid and risk and hazard communication [97]. In conflict settings such as Cameroon, school-level staff and teachers are trained to provide psychosocial support to internally displaced and refugee children [21].

To further strengthen resilience in Ghana, the same plan set out to build teachers' capacity in remote lesson delivery, to equip teachers to provide psychosocial support to learners, and to make distance learning accessible to children with disabilities through measures such as sign language and subtitles [95]. South Sudan expanded its Accelerated Learning Programme (ALP) to include teacher training in conflict-sensitive pedagogy and trauma-informed instruction [34]. In Madagascar, the Ministry of National Education has initiated a teacher policy reform focused on testing, training and formally qualifying community-based teachers in pre-primary and primary schools. The reform also targets the professionalization of the teaching force and the improvement of teachers' working conditions and compensation [98].

3.3.1.4 Educational Decentralization

The literature review highlights that countries are decentralizing some education functions. In most of the literature from GPE partner countries, the decentralization of ESR functions is perceived as contributing to local-level resilience. For example, policies such as Madagascar's 2022 Emergence Plan and the 2023 National Plan for Emerging Decentralization aim to enhance local decision-making in education service delivery during emergencies.

In Sierra Leone, the government has institutionalized and decentralized the Emergency Education Taskforce, which was originally set up to address the COVID-19 pandemic and has now become a permanent structure of the education system, with focal persons in each district responsible for emergency prevention, school safety, environmental safety, and the planning and coordination of emergency response [24]. The Taskforce is reviewing and upgrading the School Establishment Approval Policy to include environmental impact assessment, enforcing disaster-related recommendations in the school approval process, and championing tree-planting campaigns in all schools and tertiary institutions.

3.3.2 Anticipating and Planning for Disruptions

The findings indicate that countries are adopting crisis-sensitive planning, which involves identifying and analysing the risks posed to education by conflict and natural hazards, as well as their impact on the education system.

3.3.2.1 Climate-Sensitive Planning

Countries that are frequently affected by climate-related natural disasters, such as tropical storms and cyclones, have embraced climate-sensitive planning, in which disaster risk reduction and management (DRRM) activities are integrated into their Education Sector Plans (ESPs). For example, in Madagascar, the Education Sector Plan (2018–2022) includes a focus on risk reduction and disaster management in schools, and there are discussions on aligning the school calendar with local agricultural and climatic conditions to curb the high levels of absenteeism associated with the harvest and cyclone seasons. In Mozambique, the national education sector plan places significant emphasis on inclusive, flexible and crisis-ready systems, for example through the promotion of climate-resilient school infrastructure. It further calls for the alignment of education resilience with national disaster risk management frameworks and empowers communities to take part in resilience-building initiatives through training.

In Malawi, the National Education Sector Investment Plan (2020–2030) integrates Education for Sustainable Development (ESD) principles across all levels of education by promoting issues such as nutrition education, WASH and DRRM in schools [20]. The plan recommends that school curricula include aspects of ESD, such as tree planting and care for the environment, and this has helped to build climate awareness and resilience among students. DRRM has also been made a national priority and has been integrated into teacher training.

3.3.2.2 Conflict-Sensitive Planning

Beyond climate, countries affected by crises are embracing conflict-sensitive planning and have developed frameworks to support the continuation of learning and to set minimum standards for education in crisis and conflict situations. For example, the Government of Cameroon, in collaboration with development partners, is prioritizing access to education for refugees and internally displaced children, as enshrined in its Education-Training Sector Strategy (2023–2030).

The strategy includes a cross-cutting component on “resilience of the education system”, with the overall aim of strengthening the resilience of the education system so that all children affected by crises have access to quality learning in a healthy, safe and protective environment [21]. The government is also collaborating with development partners such as the World Bank, UNESCO and UNICEF to strengthen the capacity of host-community schools to accommodate refugee children from the Central African Republic and Nigeria, as well as internally displaced children. In addition, school-level staff and teachers are being trained to provide psychosocial support to internally displaced and refugee children.

In addition, countries facing protracted crises have developed annual Humanitarian Response Plans (HRPs) to coordinate humanitarian needs and responses with the

international humanitarian community. For example, Ethiopia's HRP for 2024 outlines immediate, medium-term and long-term interventions for the most vulnerable populations experiencing protracted conflict and climate-induced hazards. Provisions within the plan include:

1. safe and child-friendly learning environments with education personnel trained in conflict sensitivity;
2. coordination of the provision of life-saving interventions;
3. disaster risk awareness;
4. equitable, safe and inclusive learning environments; and
5. continuation of learning through flexible, appropriate (formal and non-formal) learning programmes [99].

The Government of Uganda, which hosts the largest number of refugees in Africa [100], has a policy framework for hosting refugees and is committed to integrating refugees, returnees and host communities into the national education system. In 2018, Uganda launched a multi-year Education Response Plan (ERP) to help deliver targeted quality education and learning outcomes for over half a million children and young people in refugee-hosting communities [101].

Ethiopia, one of the largest refugee-hosting countries in Africa, revised its refugee law in 2019. The Refugees Proclamation No. 1110/2019 gives recognized refugees access to pre-primary and primary education on the same terms as Ethiopian nationals, and access to secondary, higher, technical and vocational, and adult education within available resources [102]. These efforts form part of several treaties and declarations that African countries have signed to safeguard the welfare of refugees, including the Global Compact on Refugees, the IGAD Nairobi Declaration and the Djibouti Declaration on Refugee Education.

3.3.2.3 Contingency Planning

Global Partnership for Education (GPE) Africa partner countries are also engaged in planning for potential disruptions to education. For example, through participatory approaches, governments are collaborating with development partners and members of civil society to develop and implement contingency plans at the national and sub-national (state, district and school) levels for risk adaptation. In South Sudan and Liberia, the ministries of education support schools in developing contingency plans focused on locality-specific hazards such as floods [23,34].

The plans include safety standards for local hazards, strategies to minimize the use of schools as temporary shelters, school drills to ensure that learners and teachers respond to immediate threats, evacuation plans, temporary learning spaces, and alternative modes of instruction to ensure learning continuity, among others. In Zambia, a country facing recurrent climatic shocks, the education sector plan commits to mainstreaming the Climate Change Policy into the education system to enhance environmental sustainability and promote climate resilience as a key driver within the sector [61].

3.3.3 Preventing and Mitigating the Impacts of Disruptions

3.3.3.1 School Environment and Infrastructure

Long-term resilience depends on inclusive, safe and sustainable infrastructure, including classrooms, and some GPE partner countries are taking preventive action to safeguard the infrastructure of schools and tertiary institutions from natural disasters. Accordingly, countries affected by natural disasters and political crises have prioritized education infrastructure and safe learning environments in their education sector plans. For example, South Sudan has committed to reviewing and updating the construction standards and guidelines for schools and other education facilities to incorporate climate-resilient construction methods and materials, especially in areas at high risk of flooding [34].

Similarly, Zimbabwe's education sector plan recognizes that school buildings must be constructed to withstand environmental stresses while providing safe learning environments [97]. The integration of disaster risk management into Zimbabwe's planning framework further affirms that climate-related disruptions can compromise educational access, damage physical assets, interrupt learning processes and strain already limited resources. Madagascar is partnering with UNICEF to construct cyclone-resistant, child-friendly classrooms at lower secondary schools, incorporating gender-sensitive WASH facilities, sports fields and environmental components such as tree planting, while Malawi has established the Safer Schools Construction Guidelines, which have translated into the construction of resilient school structures that withstand natural disasters, especially floods, earthquakes and droughts [20].

The Government of Sierra Leone is conducting risk and hazard mapping of schools to ensure that schools are not built in disaster-prone zones, relocating schools out of known high-risk zones, planting trees in schools and integrating climate education into the school curriculum [29]. South Sudan, with GPE and UNICEF support, has prioritized school reconstruction in flood-affected and conflict-hit areas, including temporary learning spaces and WASH facilities.

In conflict-affected contexts, countries are working towards healthy, safe and protective environments for all children living in crisis areas. For example, Cameroon's education sector plan calls for school infrastructure that meets education standards, the provision of temporary learning spaces, and loyalty bonuses for teachers working in difficult areas [21]. South Sudan's ESP prioritizes improvements to policies that make school environments safe and conducive for learners, as well as assessments to ascertain that schools offer a child-friendly environment and meet minimum requirements such as safe drinking water, electricity and WASH facilities, among others [34]. In Ethiopia, the government provides temporary learning spaces, school materials, school meals, WASH facilities, accelerated school programmes and psychosocial support [45]. Further, Mauritania emphasizes the progressive integration of refugees into its education system while accounting for their specific needs and ensuring that the benefits extended to refugees also reach host communities, to avoid social tensions [25].

3.4 Gender Equity and Social Inclusion within ESR

Gender inequities persist across GPE Africa partner countries, significantly affecting the resilience of education systems. Addressing these gender disparities is critical to strengthening education system resilience, as resilient systems must be inclusive and equitable to effectively anticipate, absorb, adapt to and recover from shocks while maintaining access and quality for all learners. The academic literature and policy documents reviewed prioritize key issues, including access to education for the girl child, the impacts of conflict and displacement, poverty and economic disparities, and the challenges faced by marginalized groups. These interconnected issues, outlined below, are critical to understanding and addressing broader social inequalities.

3.4.1 Education of the Girl Child

Gender inequalities affect access to education, especially for girls. Girls' education in GPE Africa partner countries faces numerous challenges rooted in a complex mix of cultural, socio-economic and institutional factors. These barriers not only limit girls' access to schooling but also affect their ability to stay in school and succeed. For instance, barriers to girls' education in Ethiopia arise from a multifaceted combination of institutional, socio-economic and cultural challenges that hinder girls' access to and continuation in school. These barriers include harmful traditional practices (HTPs), such as child marriage and female genital mutilation, which interrupt girls' education and often lead to early dropout. Girls frequently bear a disproportionate share of household responsibilities, including domestic chores and caregiving, which limits their time and energy for schoolwork, causing lateness, absenteeism and reduced academic performance.

Furthermore, the long distances that many girls must travel to reach school, particularly in rural areas, expose them to safety risks and fatigue, further discouraging attendance. Inadequate school infrastructure, a lack of gender-sensitive teaching and limited access to sanitation facilities also contribute to an unwelcoming and unsafe learning environment for girls [45]. In addition, school-related gender-based violence (SRGBV) and a lack of school feeding disproportionately exclude girls and the poorest learners [103]. This has been set out in the Education Amendment Acts of some GPE Africa partner countries.

In Niger and Chad, early marriage rates remain among the highest in the world, contributing to high dropout rates among girls. Relatedly, Guinea has the second-highest proportion in West Africa, after Mali, of girls married or in a union before the age of 15 [72]. Early marriage and early or unwanted pregnancies directly cause girls to drop out of school, and regions with a high prevalence of early marriage systematically show lower educational access rates and gender parity indices well below national averages [72]. In Ethiopia, insufficient gender-sensitive teacher training results in inadequate support for girls' specific educational needs [45]. Meanwhile, Malawi has launched community-based programmes to support girls' education in rural areas [104], while Sierra Leone has prioritized re-entry policies for pregnant schoolgirls [105].

Addressing the barriers to girls' education in GPE Africa partner countries requires a holistic approach that tackles cultural norms, socio-economic challenges and institutional shortcomings. Empowering girls through education not only benefits individuals but also drives broader social and economic development, making gender equality in education a critical priority for sustainable progress.

There are ongoing initiatives to improve the education of the girl child. For example, Sierra Leone's National Policy on Radical Inclusion in Schools is a transformative framework designed to ensure equitable access to education for all children, especially those historically marginalized, such as girls [106]. The policy addresses multiple barriers to girls' education, including poverty, early marriage, teenage pregnancy, caregiving responsibilities, and stigma related to disability, pregnancy and parental status. It seeks to dismantle systemic obstacles by removing discriminatory practices that exclude pregnant girls and young mothers, providing targeted support to girls from poor and rural communities, enhancing teacher training in gender-sensitive and inclusive methods, improving school infrastructure, and engaging communities to address negative social norms.

Despite ongoing challenges such as poverty, limited resources and entrenched gender inequality, this policy reflects Sierra Leone's strong commitment to radically including girls and marginalized groups in education, with the aim of breaking cycles of poverty and fostering national development. The policy aligns with international commitments to gender equality and education for all, underscoring Sierra Leone's dedication to empowering girls through inclusive education.

3.4.2 Conflict and Displacement

Armed conflict has a profoundly devastating impact on children's education across Africa, undermining their fundamental right to learn and thrive. Educational institutions frequently become deliberate targets during conflicts, leading to the destruction of vital infrastructure and the suspension or complete disruption of academic programmes [107]. Beyond physical damage, the chaos of armed conflict forces families to flee their homes, resulting in widespread displacement that disproportionately affects women and girls. This displacement exposes girls to heightened risks, such as gender-based violence, recruitment into armed groups, early and forced marriage, and teenage pregnancy, all of which severely hinder their access to safe and equitable education.

The interruption of schooling not only curtails educational attainment but also perpetuates cycles of poverty and social marginalization, limiting future opportunities for girls and women [107]. In Somalia and South Sudan, ongoing conflict and displacement further exacerbate gender disparities in education [3]. In the Central African Republic, UNICEF (2023) highlights a critical challenge: approximately one in four children of primary school age do not attend school, and more than half of these are girls [108]. This underscores the disproportionate impact of ongoing crises on girls' education, reflecting deep-rooted gender inequalities and systemic barriers. The disruption caused by conflict, displacement and economic instability severely undermines educational access and quality for girls, exacerbating their vulnerabilities and limiting their future opportunities.

Strengthening the resilience of the education system is essential to mitigate these effects, ensuring that schools can adapt and continue to provide safe, inclusive and equitable learning environments even amid crises. Addressing these challenges requires comprehensive strategies that protect educational spaces, support displaced populations, engage communities to challenge and transform harmful norms, and promote gender-sensitive policies, so that both girls and boys can continue their education even amid conflict.

Some countries affected by armed conflict and population displacement commit, through their ESPs, to supporting affected and vulnerable children to continue learning. For instance, Cameroon's ESP prioritizes schooling for refugees, internally displaced persons (IDPs) and host communities through targeted support and the prioritization of infrastructure and staff deployment in regions with large displaced populations (especially the Far North, the North-West and South-West (NOSO) and the East regions) [21]. The South Sudan ESP, for its part, commits to holding state-level girls' education conferences with influential community leaders to address key barriers and generate locally supported solutions [34].

3.4.3 Poverty and Economic Inequalities

Poverty is one of the main factors determining whether children, especially girls, attend school, with the poorest households being the most excluded from education worldwide. For example, evidence from the Girls' Education Challenge (GEC) revealed that vulnerable groups, such as poor families and refugees, faced poverty as a critical barrier to accessing education [109]. Economic poverty creates significant barriers to school access through direct and opportunity costs in multiple countries.

Many boys leave school because of the opportunity cost of education, choosing instead to work to support themselves or their families. For girls, poverty intersects with harmful social practices, as families facing economic constraints are more likely to arrange early marriages. Youth employment pressures constitute another poverty-related stressor in Burkina Faso, where young people face pressure to enter income-generating activities rather than continue schooling, particularly in areas affected by artisanal mining; this economic pressure affects both enrolment and retention, particularly at the post-primary and secondary levels [35]. Similarly, in Malawi, learners face comparable obstacles rooted in gender inequality, as poverty and traditional gender roles often limit their access to education [20].

Several key policies address the effects of poverty and economic inequality on education, aiming to protect and maintain learning opportunities for affected children. For instance, Ghana's Ministry of Gender, Children and Social Protection (MoGCSP) supports gender equity through policies such as the National Gender Policy, which seeks to increase girls' access to school. The Ghana ESP emphasizes the deployment of key social protection programmes, such as the Livelihood Empowerment Against Poverty (LEAP) programme, which provides cash transfers to more than 200,000 poor households, with a focus on those caring for orphaned and vulnerable children.

LEAP supports school attendance through conditional cash transfers, resulting in higher enrolment, attendance and educational spending for beneficiary children than for their classmates. It helps families with school expenses such as textbooks and clothing [110].

Sierra Leone's Ministry of Basic and Senior Secondary Education (MBSSE) introduced the National Policy on Radical Inclusion in Schools (2021) to improve access to quality education among the most marginalized populations, with a particular focus on basic and secondary education. Specifically, it prioritizes children with disabilities, girls (particularly pregnant girls and parent learners), rural children and those from low-income households [29]. The policy aims to provide inclusive learning settings, support vulnerable learners, engage families and communities, and promote an enabling policy environment.

3.4.4 Marginalized Groups

When education systems ensure equitable access and participation for girls and marginalized groups, they foster social cohesion and empower communities to recover and adapt more effectively during crises [11]. In some GPE Africa partner countries, such as Zimbabwe, the ministries of education focus on the needs of the most marginalized learners and address inclusivity in education through psychosocial services, special needs education and learner welfare programmes [97]. Each programme, covering pre-primary to secondary school, includes the identification of learners with disabilities and of ways to support them.

By addressing the needs of marginalized learners, including those with disabilities and those affected by gender-based violence or poverty, the system strengthens its capacity to maintain equitable access and quality education under varying conditions. Furthermore, collaboration with other ministries and the provision of psychosocial support enhance the system's ability to respond to learners' holistic needs, thereby fostering an education environment that is both protective and adaptive in the face of social and economic stresses.



Schoolgirls during a colouring session in class.

4. CONCLUSION

Education system resilience is understood differently across GPE Africa partner countries, shaped by their unique priorities, histories and prevailing challenges or disruptions. Through a comprehensive thematic analysis of the available literature, including policy documents, this desk review has presented insights into how GPE Africa partner countries understand education system resilience and how it is practised in different contexts. The review shows that the concept is still evolving and is dynamic, depending on the context, the nature of disruptions and other factors. Overall, the analysis showed that countries generally perceive ESR as the collective ability of institutions, communities and education systems to sustain learning despite disruptions.

Although the term "education system resilience" is not widely or explicitly used, especially in most of the government policy documents reviewed, it was observed that these documents recognize the links between education and related concepts such as vulnerability, disruption, disasters, education in emergencies and resilience. This analysis of policy documents revealed that some governments are committed to using education to promote DRR and equity, support peacebuilding and strengthen resilience in crisis-affected contexts. The term "education system resilience" has gained traction and prominence following the COVID-19 pandemic, which interrupted the education of millions of learners globally.

Analysis of education sector plans and academic literature revealed that African countries face an intersection of climate-related disasters and conflict that compounds pre-existing vulnerabilities, disproportionately affects marginalized groups and creates a vicious cycle in which each crisis further erodes the system's capacity to withstand the next. Therefore, the core attribute of a resilient education system facing diverse disruptions is the proactive capacity to anticipate, absorb, adapt and transform, ensuring continued access to quality education for all, particularly vulnerable learners.

Overall, countries approach this resilience through four lenses: crisis preparedness and risk management; maintaining learning through adaptive and blended delivery; community-led survival (the agency of communities and local actors to sustain learning) in fragile settings; and the specific roles and priorities of stakeholders in the ecosystem. These perspectives often overlap and reflect the practical realities and priorities of each country.

Based on the policy documents reviewed, countries are undertaking several activities related to the practice of ESR, especially in terms of system strengthening. Countries are strengthening their education systems to better handle future crises by incorporating strategies such as the use of ICT infrastructure, curriculum redesign, teacher training and decentralization into their education sector plans, which are key documents for education programming in GPE Africa partner countries. These practices are largely informed by past experiences of the COVID-19 pandemic and of Ebola in West Africa, both of which severely disrupted education systems through

school closures. Gender equity and social inclusion are also prominent in the ESPs of GPE Africa partner countries.

A synthesis of these policy documents showed that countries emphasize and prioritize gender equity and inclusion in their strategic planning for the education system, as one of the levers for ensuring education system resilience. They highlight gender inequities (stemming from factors such as early marriage, poverty, conflict and gender-based violence), which disproportionately harm girls and marginalized learners, limiting their access to quality education.

Some countries, such as Malawi and Sierra Leone, have introduced initiatives to support girls' education, including re-entry policies for pregnant girls and gender-inclusive education policies. Therefore, to overcome these challenges and create resilient education systems, context-specific targeted policies, inclusive programmes and collaborative efforts are vital. Prioritizing the education of girls and supporting vulnerable groups, including children with disabilities, is essential to ensure that no one is left behind in times of crisis.

The findings of this desk review indicate that ESR is a relatively new concept that is beginning to emerge in key education policy documents, especially ESPs. Explicit use of the term, as well as practices associated with ESR, increased notably after the COVID-19 pandemic. Ultimately, the transition from understanding education system resilience to practising it requires a deliberate shift in policy and practice. For policymakers, this means moving beyond reactive crisis management to integrating ESR into the core of education policy documents, especially education sector plans. In practice, education leaders must prioritize interventions and models that are inclusive, to ensure that the most vulnerable groups are not left behind during the next inevitable disruption.

Looking ahead, research activities will explore the meanings and practices of ESR through interviews with key stakeholders, including government officials, educators and communities. Continued study of this topic is vital because, as climate-related disasters and regional conflicts evolve, current frameworks risk becoming obsolete. Only through sustained, evidence-based research can we refine these adaptive strategies, ensuring that African education systems do not just recover from shocks but are transformed to withstand them.

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