



# A Framework for Building Resilience to Climate Change through Girls' Education Programming

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## OVERVIEW

Girls' education and climate change are currently two of the most topical global issues in the development arena. Due to a myriad of limiting factors, more girls around the world are falling through the cracks in terms of their educational access, retention, and learning. At the same time, many countries and regions are facing more frequent and more intense climate-related extreme weather events such as heat waves, floods and droughts.

However, there appears to be minimal convergence between climate change and girls' education conversations despite the negative effects that climatic shocks, such as droughts, have on girls' education. As such droughts threaten to erode the gains made thus far to keep all girls and boys in school. Further, the climate factor has not been fully incorporated into education sector planning, girls' education program design and donor funding models for this work, thus

rendering it impossible for the education sector to respond to drought. Ultimately, the opportunity cost of using a "business as usual" approach to girls' education is high for everyone involved—policymakers, donors, and development actors alike, but more so for the girls themselves.

This paper reflects some initial thinking on the significance of climate change, and more specifically drought, as a barrier to girls' education. The paper highlights the opportunities presented by girls' education work to build climate resilience at multiple levels—program, school, and community as well as at the level of the girl child—with a view to fostering a partnership between actors in the climate change and girls' education sectors, which collectively ensures that every girl continues to learn, especially during crises.

# A Framework for Building Resilience to Climate Change through Girls' Education Programming

Ellen Chigwanda



## Introduction

Education is widely recognized as a universal human right and an important predictor of economic growth, human development, and poverty reduction.<sup>1</sup> On September 25, 2015, the world's nations adopted a set of 17 interconnected sustainable development goals (SDGs) to reduce poverty, protect the planet and ensure prosperity for all by 2030.<sup>2</sup> In particular, SDG4 aims to ensure inclusive and quality education for all and promote lifelong learning by guaranteeing that all girls and boys complete a free, equitable, and quality primary and secondary education. Yet UNICEF reports that as many as 31 million girls of primary school age, mostly from sub-Saharan African, are not in school.<sup>3</sup> For those who have been enrolled, the dropout rate is even more troubling, with 75 percent of girls starting school but only 8 percent finishing.<sup>4</sup>

Over the past decade, programs that address barriers to girls' education have multiplied, and the world has been abuzz with interventions that seek to ensure that no girl is left behind. In addition to the long-standing barriers that keep girls out of school—such as the direct costs of schooling, distances traveled to and from school, and child marriage—crises resulting from climate change, such as droughts, appear to be another

significant barrier. However, education sector plans, donor funding models and girls' education program designs do not always reflect the role of climate change in limiting girls' educational opportunities, particularly in rural contexts. Thus, climate change threatens to erode the gains made by the investments in girls' educational access, retention, and learning outcomes.

The aim of this paper is to discuss how droughts lead to girls missing school and to explore the interplay between girls' education and climate change. The paper also discusses how girls' education programs can be leveraged as a platform to build resilience to climate change and to ensure that every girl (and boy) continues to learn, despite the crises. This paper focuses on *resilience* at multiple levels:

1. At the level of girls' education programs, so that the implementation of activities that contribute to positive learning outcomes for girls can continue. This will be achieved through donor financing models that recognize the importance of building climate resilience in and through girls' education; and by including climate change considerations in the design, planning, monitoring, and evaluation of education sector plans and girls' education programs.

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In the past Ms. Chigwanda has also worked as an independent Gender and Social Development Advisor/Consultant for organizations such as the SADC Parliamentary Forum and UN Women, and has worked in various capacities on girls' and young women's empowerment with local NGOs. Ms. Chigwanda holds a Masters in Development Studies degree from the University of the Free State (South Africa) and is working toward a Ph.D. in Development and Management with North West University (South Africa).

2. At the level of the schools, in order to improve their capacity to retain every girl (and boy) during climate crises by meeting their practical needs—such as water, food, and energy. This vision will be made possible through support for school-based water infrastructure, alternative energy sources and school feeding, and by supporting school-based contingency plans to respond to droughts.
3. At the level of the community and households, in order to maintain their support for girls' education. By linking community-based, water-dependent livelihoods and other income-generating activities to the school's reliable water supplies and energy source, parents' income will be sustained during crises.
4. At the level of the girls themselves (both individually and collectively), so that they adopt risk-reducing behaviors. Schools, communities, and development actors should work together to develop girls' resilience skills—including critical thinking, problem solving, financial literacy, and leadership; conduct girl-led research on climate change and girls' education; and promote girls' uptake of STEM (science, technology, engineering, and mathematics) subjects.

This policy paper largely draws from program-level data as well as from my experiences working with a girls' education initiative in drought-affected communities in Zimbabwe.<sup>5</sup> The review was also informed by the literature on climate change, girls' education, and resilience—including studies in Botswana,<sup>6</sup> Somalia,<sup>7</sup> Kenya,<sup>8</sup> Ethiopia,<sup>9</sup> and Zimbabwe<sup>10</sup>—to assess the impact of droughts on children.

## Climate Change: A Growing Challenge

Climate change, which refers to alterations in the usual weather patterns of a geographic area over a long period, typically decades or more,<sup>11</sup> has transformed the magnitude of extreme weather events and increased the length, frequency, and intensity of heat waves, heavy rainfall, floods, and droughts.<sup>12</sup> These

hazards make communities more vulnerable to disasters and bring widespread physical, human, and economic losses, while impeding poverty eradication efforts, increasing food insecurity and environmental degradation, losing biodiversity, destroying livelihoods and exacerbating socioeconomic tensions. Changing weather patterns also increase the spread of disease.<sup>13</sup>

A recent White House intelligence assessment identified various ways in which climate change could pose huge national security challenges, not only for the United States but also for other regions.<sup>14</sup> The assessment also noted that climate change effects—for example, the reduced amount of resources such as water and arable land, the internal displacement and movement of populations, a rise in food prices, and negative consequences for investments—could be key factors for conflict, disputes, and violence among different groups.

Africa is particularly vulnerable to climate change and disasters such as droughts because most livelihoods there are agro-based and thus depend heavily on rainfall. In fact, it is estimated that by 2020, climate change will result in significantly less rainfall on the continent, exposing a population of 75 million to 250 million to increased water stress and reduced yields from rain-fed agriculture of up to 50 percent.<sup>15</sup> Although droughts are not new in Southern Africa, climate change has made them so severe that Zimbabwe,<sup>16</sup> Lesotho,<sup>17</sup> Swaziland,<sup>18</sup> and Malawi<sup>19</sup> have recently declared states of disaster. Also, the Famine Early Warning Systems Network (FEWS-net) reports that an increasing number of households in Southern Africa are food insecure due to drought.<sup>20</sup> For example, in Mozambique, an estimated 2 million people have been affected by food insecurity, water shortages, and loss of income;<sup>21</sup> in Malawi, 24 out of 28 districts require emergency assistance to protect livelihoods;<sup>22</sup> and in Zimbabwe, 30 percent of the rural population—an estimated 2.8 million people—will have insufficient means to meet their minimum food needs during the 2015–16 agricultural season.<sup>23</sup> The situation in Zimbabwe is not expected to improve, as shown by the projected food security outlook for the first half of 2017 given in Figure 1.



Although droughts affect all children, the literature points to a disproportionate impact on girls, due to gender inequalities and household expectations. Climate change crises have a multiplier effect on the barriers to girls' education mentioned above, thus preventing girls from taking full advantage of education, especially in rural areas, in the following ways:

***Girls invest more energy, labor, and time to help with chores linked to water, energy, and food.***

In times of drought, the challenges associated with water shortages at home increase the likelihood that children—especially girls—will not enroll, attend, perform well or remain in school. In Zimbabwe, 53.7 percent of households' main water sources have dried up due to the drought; and, given the central role girls play in performing household chores, droughts increase the time, energy, and labor they must spend on tasks such as collecting water or searching for fuelwood and food.<sup>33</sup> This is likely to affect their education. For example, a study of the vulnerability of children and youth during droughts in Botswana found that 70 percent of the children taken out of school during these times were girls, and 56 percent of girls reported spending more time and traveling longer distances to fetch water for household use.<sup>34</sup> Moreover, traveling longer distances to collect water increases the risk of gender-based violence against girls, such as harassment or rape.

Another study found that more girls than boys in Kenya reported being out of school for reasons linked to droughts—such as family errands, migration of parents in search of casual labor, and a lack of food.<sup>35</sup> In Zimbabwe, a study on the impact of climate change on children found that during droughts, slightly more girls than boys were concerned about water scarcity, health and educational problems, and personal harm to their bodies, while more boys were concerned

about food scarcity, economic problems, poverty, and pollution.<sup>36</sup> Future studies will need to monitor and report on data about the amount of time girls spend collecting water to support households with respect to the impact on their education.

The *Global Education Monitoring Report* indicated that approximately 47 percent of schools in Southern Africa do not have access to a supply of potable water.<sup>37</sup> The situation is even worse in countries such as Somalia, where UNICEF reports that 72 percent of primary schools (a total of 6,987) in the country's six regions had no water on the school premises; this figure reached a staggering 83 percent of primary schools in one region.<sup>38</sup> Although the lack of a reliable water source at school affects all children's access to clean drinking water, adolescent girls are affected even more due to the challenges associated with managing their monthly menstrual

periods because they cannot wash their hands or clothing. In addition, droughts affect livelihoods, which makes it even more difficult for parents and guardians to buy the girls sanitary pads.

In addition, girls must help search for food. For example, in Zimbabwe, girls forage for wild fruit for themselves and younger siblings as an extension of their caring role. While on a routine program field visit at a primary school in one district in Zimbabwe, I observed that when classes ended, children (both boys and girls) went to a nearby thicket. The teachers explained that children were picking the *marula* fruit, which contains a nut they eat to ease their hunger—although the teachers were concerned that some types of fruit were unhealthy, especially when eaten in large quantities.

Due to all these problems, girls may not go to school during droughts.

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***“When problems [such as] drought occur, it is the girl who is pulled out from school, and this will [perpetuate] poverty in already impoverished families.”***

—Official of Malawi's Ministry of Education<sup>30</sup>

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**Girls are at an increased risk of child marriage and other forms of abuse and exploitation.**

Droughts play into child marriages in several ways. When a household experiences severe economic hardship, adolescent girls may be forced into early marriage or prostitution.<sup>39</sup> According to *Girls Not Brides*, during climate crises, marrying a daughter to a much older and wealthier man, who is typically a local business owner, may be a coping mechanism because (1) the bride price / dowry is welcome income; (2) it is one less person for the family to feed, clothe, and educate; and (3) the family perceives that the girl will be better off and have more food security in the marriage.<sup>40</sup> In some cases, husbands promise to keep the young brides in school, but this usually does not happen once the marriage is finalized.

Twenty-five countries with the highest rates of child marriage are considered fragile states or at a high risk of natural disasters.<sup>41</sup> In Malawi, it is estimated that over a third (at least 34 percent) of girls are pregnant by the age of 18 years, and this figure is likely to increase as more girls drop out of school due to the severity of the drought.<sup>42</sup> In Mozambique, every second girl is married before she is 18, and 14 percent are married by the age of 15.<sup>43</sup> There appears to be limited quantitative data on the extent to which child marriages are linked to climate crises such as droughts, but a growing number of anecdotal accounts are compelling (an interesting area for further research). For example, in March 2016, UNICEF highlighted the story of a father from Masvingo Province in Zimbabwe who

married off his daughter in exchange for a few goats;<sup>44</sup> and in Malawi, desperation during the 2012 drought pushed a family to marry its 16-year-old daughter to a 45-year old man.<sup>45</sup> In addition, during crises such as droughts, girls are more susceptible to “mischief” and exploitation such as commercial sex work, sexual coercion and intergenerational relationships in exchange for money and food.

Girls with fewer years of schooling are more likely to marry early than those who have secondary education, and the causality runs both ways: Child marriage reduces educational attainment, while girls with less access to quality education are more likely to marry early.<sup>46</sup>

**Adverse climatic conditions affect rural livelihoods, curtailing household economic capacity to support education.**

As discussed above, climate change causes unpredictable rainfall patterns, wreaking havoc with most rural livelihoods, which, in many parts of Africa, are agro-based and depend on rain. For example, during focus group discussions conducted in drought-affected areas in Zimbabwe, 74 percent of the livelihoods and income-generating activities in which community members were involved required water—for example, farming, making soap, planting market gardens, producing poultry, brewing and selling traditional beer, and brick molding, to name a few (see Figure 2).

At the same time, national-level data in Zimbabwe indicate that 81 percent of households in these areas reported that water was not available for agricultur-

**Figure 2: Examples of Income-Generating Activities in Zimbabwe**



*Note:* Female-dependent households in some parts of rural Zimbabwe engage in income-generating activities such as poultry production, market gardening, and brewing (and selling) traditional beer to support their children and grandchildren’s education. During droughts, the lack of water severely affects these activities.

(Photograph courtesy Arnold Hungwe and Melody Chaitezvi.)

al and other productive activities due to drought. As a result, households have poor harvests or low crop yields, and they lose livestock due to depleted pastures and drinking water sources, which undermines families' capacity to earn an income.

Thus, families do not have the funds they need to support and prioritize girls' (and boys') education—which includes the costs of clothing and school-related expenses such as fees, uniforms, stationery, and sanitary pads; and in some cases, children must help to generate family income instead of attending school.<sup>47</sup> With shrinking household resources, parents are forced to make difficult decisions about whom to send to school. In some cases, this choice is influenced by the sex of the child—boy or girl. In other cases, the choice is influenced by the current level of the children's education—parents who participated in focus group discussions reported that in some cases, they preferred to pay for a child in secondary school because it would be more difficult for him or her to catch up on lost learning hours if pulled out of school. In other cases, parents highlighted that their preference was to send younger children to school so that the older children could support other chores at home. It appears that the household decision-making process on who should go to school when faced with a crisis is complex and takes into account several different factors and not exclusively the sex of the child as is commonly assumed. Thus families should be supported to send all their school-age children to school, especially during crises such as droughts.

***During droughts, households adopt negative coping mechanisms, which affect girls' schooling.***

Focus group discussions in Zimbabwe indicated that community members generally understand climate change, and they cited examples such as variations in rainfall, colder winters, and hotter summers. The communities interpreted drought as “*nzara*” (meaning hunger in the local language), and noted they had increased difficulty in producing food and finding water for their families.

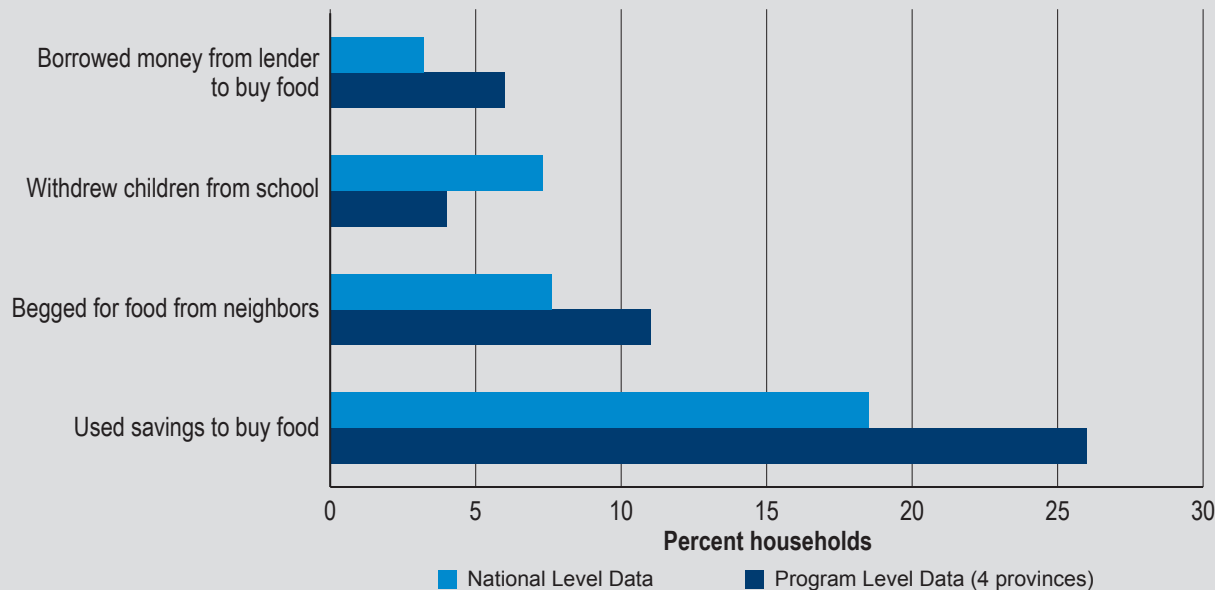
Data from those Zimbabwe provinces most affected by droughts suggest that girls' education is influenced by the households' coping strategies in response to

drought: These include selling productive and household assets, using savings and borrowing money to buy food, reducing the number of meals and quantity of food per meal, begging for food from neighbors, withdrawing children from school to support alternative livelihoods, reducing nonfood expenditures and migrating to other areas in search of food and casual labor. National and other 2016 data showed that spending savings on food and reducing nonfood expenditures were the most common coping strategies,<sup>48</sup> and that up to 58 percent of households reduced expenditures on school fees and supplies.<sup>49</sup> Further, households spent 83 percent of their income to buy staple foods, severely affecting their ability to pay school fees in a timely manner. Figure 3 compares national-level and program-level data (from an internal drought assessment) on coping mechanisms.

The analysis portrayed in Figure 3 shows differences between national data and program-level data, which reflect conditions in different geographic areas. Only one coping mechanism—withdrawing children from school—was higher at the national level than reported by households at the program level, which challenges the development community's commonly held assumption that during a drought, withdrawing children from school is the main coping mechanism. Nationally, there has been a steady increase in the number of households withdrawing children from school as a coping strategy, from 4 percent in 2014 to 7.3 percent in 2016.<sup>50</sup> However, according to program-level data, only 4 percent of households reported this. Regardless of which figure is more accurate, withdrawing children is a coping strategy, and governments and development actors must collectively support families to ensure that every girl stays in school.

This review found that households mediate the effects of droughts on children. In some cases, droughts not only magnify the barriers to girls' education but also perpetuate them, since they seem to force families into short-term 'survival' decisions—for example, using child marriage as a coping mechanism. Ultimately, the combined effects of droughts on girls' immediate environment prevent girls from taking full advantage of basic education, thus limiting their post-education options and aspirations.

**Figure 3: Coping Mechanisms Adopted during Droughts in Zimbabwe**



Note: National-level data was drawn from FNC and SIRDC, “Zimbabwe Vulnerability.”

**Schools face challenges ensuring girls’ regular attendance, retention, and ultimately positive learning outcomes.**

Droughts are likely to affect key educational indicators, such as attendance, retention and learning outcomes; reduced agricultural productivity affects nutrition during early childhood, thereby affecting physical and cognitive development.<sup>51</sup>

Droughts will affect attendance if children do not have enough food to eat and/or to bring to school, and if children are also withdrawn to support their families as casual labor. A study by the Institute of Environmental Studies and UNICEF found that 4.5 percent of children in Zimbabwe’s rural schools dropped out temporarily, while 2.1 percent dropped out for a much longer time during drought periods.<sup>52</sup> Further, education officials in Zimbabwe reported that 6,000 children dropped out in just one province; and, though there were many possible reasons, officials attributed the statistic directly to the fact that children were too hungry to attend.<sup>53</sup>

Similarly, in Somalia, children frequently did not attend classes or dropped out of school for various reasons, including the inability to focus in class due to a lack of food.<sup>54</sup> As a result of the drought, 67 primary

schools were closed, which affected 14,000 children. In Ethiopia, which also experienced its worst drought in 50 years, an estimated 6 million children are enrolled in 182 drought “hotspot” districts and 37 percent of school directors said students had fainted in classrooms.<sup>55</sup>

Based on the data, though droughts are not always reported as the main reason that children miss school, it is an indirect cause that parents and others give. It is important to note that irregular attendance also influences retention rates and learning outcomes, because girls whose families are affected are more likely to leave school early.<sup>56</sup> Thus, climate change has a far more negative impact on children’s education than is currently reflected in the data, and policies and programs must reflect this.

**The Opportunity Cost of Doing Nothing About Climate Change in Girls’ Education**

Based on these realities, there are two main reasonable questions: (1) What are the economics of ignoring climate change in relation to girls’ education? (2)

What long-term losses will donors, governments, development actors, communities, and girls incur if climate change is not part of the equation?

External factors such as droughts can affect even well-designed and well-implemented programs.<sup>58</sup> For example, in girls' education programs that include an economic empowerment component, which aims to raise household capacity to earn income that can be used for their daughters' education, droughts cause the priorities to change. According to an education professional with extensive experience in Southern Africa, development actors recognize the problems caused by droughts and monitor for their effects, through the risk register or risk management strategy. However, she added that beyond monitoring, the programs do not include funds to support drought

responses and there is no contingency budget that can be redirected. Further, for girls' education programs such as the one from which this paper draws some of its data, the original terms of the grant are such that funding is *contingent* on achieving results, such as girls' test scores. However, during crises, targets such as reading and mathematics scores become more difficult to reach.<sup>59</sup> Thus, these challenges have dire economic implications, such as (1) a low return on investment due to a failure to achieve program objectives because of the increased hardships faced by communities, households, schools, and the girls; (2) the risk or actual loss of financial resources because critical risks (such as droughts) are not calculated and included in the budget; (3) if the implementing agencies do not reach their targets, their reputations suffer, which affects their ability to secure funding for future programs; and (4) there is a missed opportunity for beneficiaries to derive the maximum benefits emanating from a development program.

Given the evidence regarding protracted and repeated crises such as droughts, the opportunity cost of *not*

addressing the barriers to girls' education presented by climate change appears very high and makes a "business as usual" approach to girls' education problematic, especially in drought-prone areas.<sup>60</sup> Ultimately, all stakeholders—and, more important, the girls themselves—lose out if the climate barrier is not fully recognized. The New Economic Foundation assessed the economic, social, and environmental benefits of addressing climate change in two communities in Kenya.<sup>61</sup> The study found that the investment costs of intervening were on average 2.6 times lower than the

costs of "doing nothing" about climate change. The Center for Global Development notes that the costs associated with climate change will need to be better understood in order for climate negotiators and donor institutions to determine the appropriate levels and modes of adaptation assistance.<sup>62</sup> Thus, there is

a need to gain better understanding of the opportunity cost of doing nothing about climate change in girls' education versus the investment benefits of addressing it.

Until now, education programs appear to have been more reactive than proactive in ensuring that *every* girl affected by a climate crisis remains in school. However, girls' education programs *can and should* be designed and funded to address this critical issue, by proactively addressing the negative coping mechanisms that parents, communities and school authorities adopt during droughts that truncate girls' educational opportunities.

## Girls' Education: A Platform for Building Resilience

Although education is a cornerstone of resilience, it also needs to *be* resilient *itself*—to provide continuous benefits, stability, and protection in times of crises.<sup>63</sup> The concept of resilience—the "ability of a system and

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***"The combined human and economic impacts of extreme weather . . . are far more devastating than previously understood."***

—World Bank and the Global Facility for Disaster Reduction and Recovery<sup>57</sup>

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its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner, including through ensuring the preservation, restoration, or improvement of its essential basic structures and functions<sup>64</sup>—is critical to overcoming climate-changed-induced barriers to girls' education. The concept is increasingly considered in development discourse and has been applied to other fields, such as urban planning (resilient cities),<sup>65</sup> education (resilient learners),<sup>66</sup> and engineering and ecological systems (the structural resilience of bridges and natural systems, respectively).<sup>67</sup> Moreover, resilience is not fixed; instead, it is a dynamic set of conditions and processes through which communities can overcome shocks and be resilient—including in education.<sup>68</sup> Resilience is a powerful predictor of stability in a world undergoing dramatic climate change.<sup>69</sup>

In the short term, children who cannot attend school are more likely to be exposed to exploitation or abuse; in the longer term, decreased education perpetuates the cycle of poverty and vulnerability of children individually and with their families.<sup>70</sup> Although education can play a key role in reducing the negative effects of extreme climate events (such as children being out of school), this role has not been fully considered by most development efforts.<sup>71</sup> Indeed, the education sector offers untapped opportunities to successfully combat climate change. Both the Inter-Agency Network on Education in Emergencies and UNESCO concur that education builds resilience in the following ways: (1) It mitigates the psycho-social impacts of disasters; (2) it strengthens the families' and children's skill sets; and (3) it improves social cohesion.<sup>72</sup> An empirical study—which looked at how climate changes in different locations will affect people's vulnerability to natural disasters—found strong evidence of a positive impact of education on reducing vulnerability.<sup>73</sup> Overall, the study reported that higher levels of education

are linked to better drought preparedness, response, and recovery in ways shown in Figure 4.

During focus group discussions in Zimbabwe, community members said that having an education can prepare a girl to cope better with droughts. The program-level data used for this study also found that, although household education levels did not vary much, the higher the level, the less likely families were to withdraw children from school as a coping mechanism, thus confirming the notion that education positively affects how households address such challenges.

In order to ensure long-term sustainability of girls' education programs, it is critical that all stakeholders buy into the need to build resilience, not only of the programs but also of the children and communities they seek to uplift. The literature suggests that an

integrated approach to development, which recognizes the future effects of climate change and involves multiple stakeholders, presents more opportunities for successful girls' education outcomes.<sup>74</sup> To achieve this, two factors are important: (1) The program and its beneficiaries must be flexible in the ways they respond to changed conditions; and (2) practitioners must adopt integrated approaches, combining both "hardware" (e.g., infrastructure support) and "software" (e.g., knowledge and skills) responses where needed.<sup>75</sup>

## Girls' Education and Climate Change: Recommendations for a Partnership

The basic premise of the proposed framework put forward by this paper is to use the concept of resilience to inform anticipatory decisionmaking and to plan, design, finance, and implement girls' education programs that fully consider and have the capability

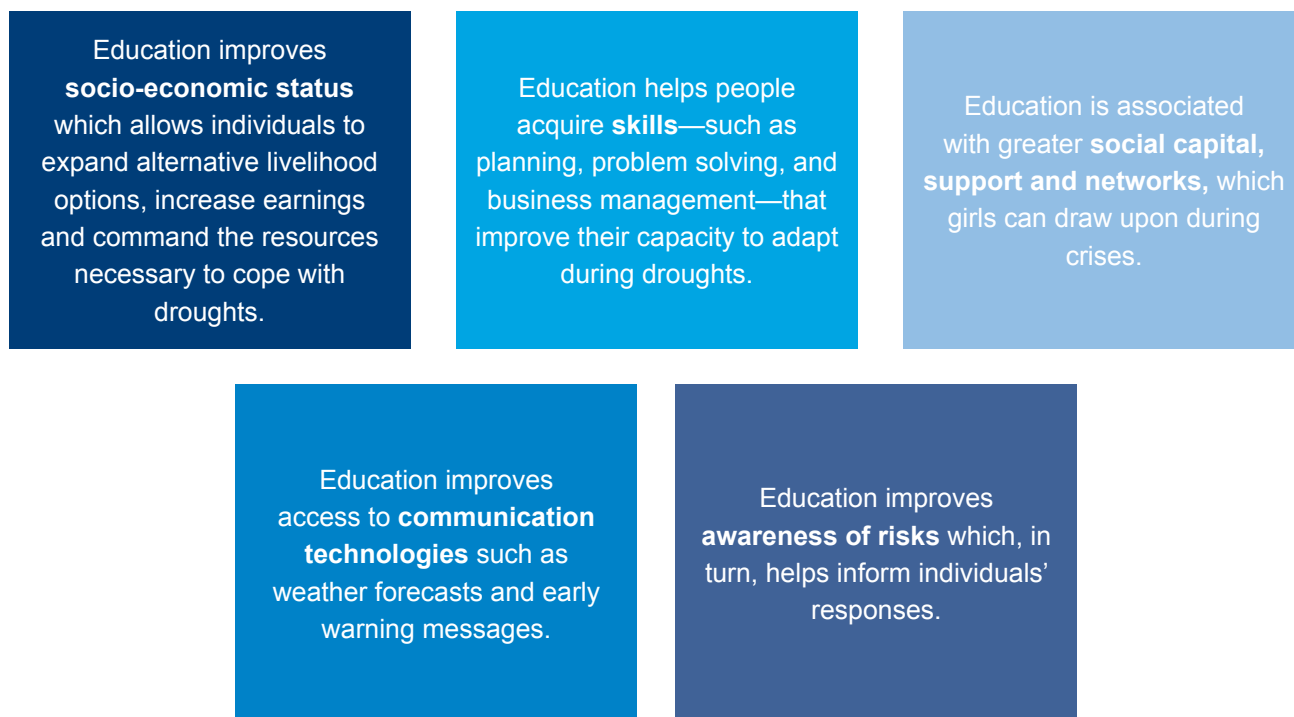
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***“Climate change is a ‘threat multiplier,’ . . . and resilience is the answer to addressing the climate challenge.”***

—Sherri Goodman, public policy fellow, Woodrow Wilson Center, and former deputy secretary of defense for environmental security

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**Figure 4. The Relationship between Education and Resilience**



*Note:* This figure is adapted from a flowchart showing how education reduced vulnerability to crises such as droughts, given by R. Muttarak and W. Lutz, “Is Education a Key to Reducing Vulnerability to Natural Disasters and Hence Unavoidable Climate Change?” *Ecology and Society* 19, no. 1 (2014): 42.

to address the risks and problems linked to droughts. This paper suggests a multilayered approach to building resilience through girls’ education—at the level of the programs, schools, and communities, and of the girls themselves. Recommendations are as follows.

## 1. RECOMMENDATIONS FOR THE PROGRAM LEVEL

### ***Policymakers: Incorporate Climate Change into Education Sector Planning***

Strengthening education systems will deliver results for girls around the world.<sup>76</sup> This vision recognizes that there is a clear role for the education sector (which includes students, schools, government and communities) in climate change work, and a role for those working on climate change to inform the design of educational programs.<sup>77</sup> Currently, there is evidence of some work to build the capacity of education ministries to develop more robust sector plans in cooperation with institutions such as Global Partnership for

Education and UNESCO; this is an important opportunity that should be leveraged as a basis for stronger partnerships between education and climate actors—recognizing that climate change is another barrier to girls’ educational achievements and that education is a viable component of any climate change response.

### ***Donors: Finance the Building of Resilience through Girls’ Education***

This paper notes that part of the challenge in addressing the climate barrier to girls’ education comes from programs not having adequate resources (technical and financial) to respond to the challenges created by droughts. However, less is currently known about the levels of donor commitment to support climate resilience in girls’ education programs. What is known is that multilaterals such as UNESCO have supported work in this area, including mainstreaming child-centered risk reduction activities in curricula and guidelines for schools’ “disaster readiness.”<sup>78</sup> It is also known that donors are financing climate resilience

work as well as girls' education programs, but these are funded separately. For example, donors, such as the U.K. Department for International Development through the Girls' Education Challenge Fund,<sup>79</sup> the U.S. government initiative of the first lady, Michelle Obama, Let Girls Learn,<sup>80</sup> and the World Bank's<sup>81</sup> \$2.5 billion for adolescent girls' education programs in the next five years, have made significant investments. Also, donor coalitions such as the Global Resilience Partnership—which includes the U.S. Agency for International Development,

the Rockefeller Foundation and the Swedish International Development Agency—have together invested an estimated \$150 million to increase global resilience through focus areas that include health, food, agriculture, and technology.<sup>82</sup>

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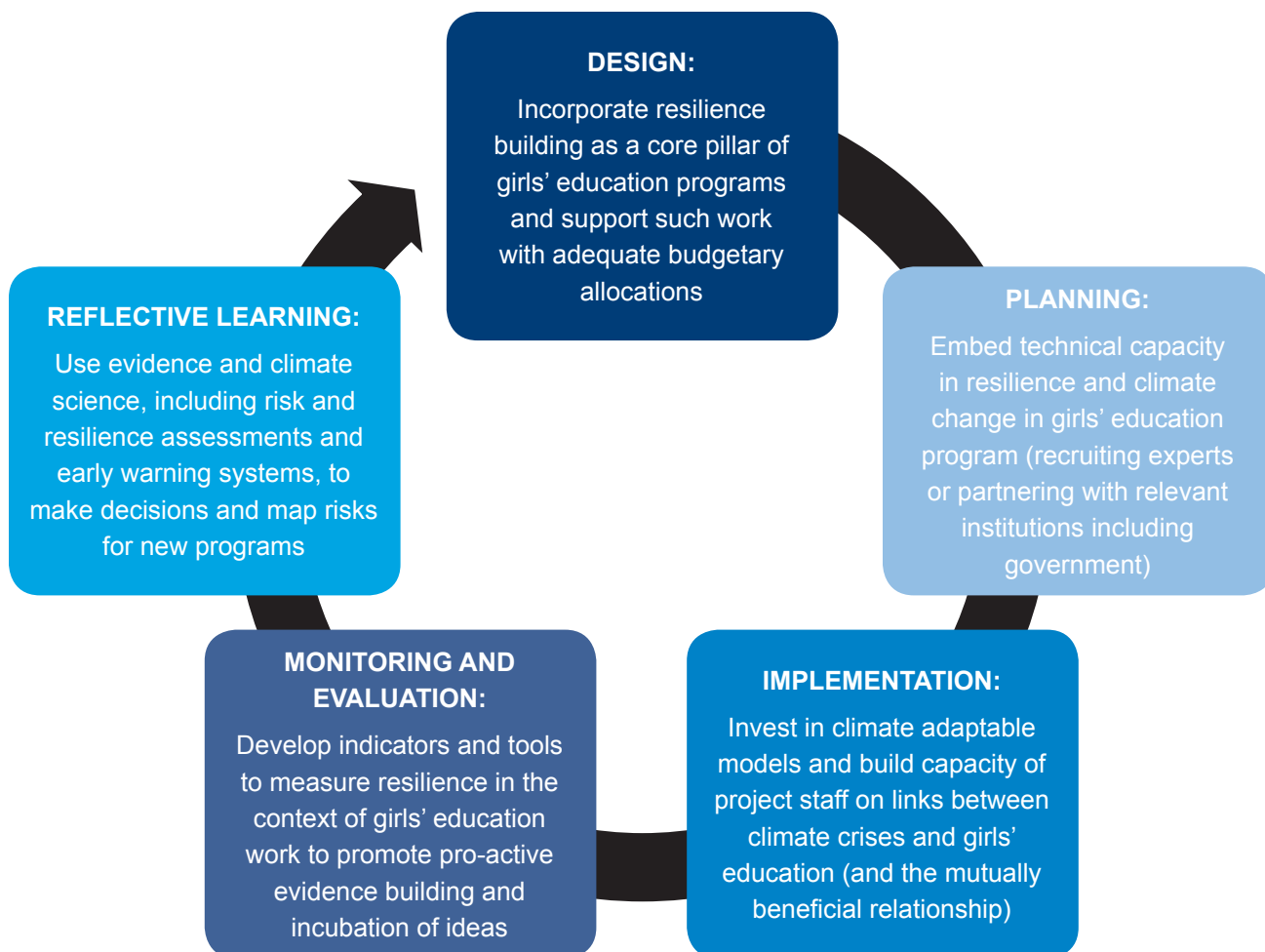
***“Anticipate—do not wait for crisis.”***

—Leaders' Roundtable on Managing Risks and Crises Differently, World Humanitarian Summit, Istanbul, May 2016

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Education, although currently not a focus of the Global Resilience Partnership (and other donors), presents an important opportunity to meet one of the partnership's goals of “developing solutions by channeling resources to incubate, accelerate, and scale effective solutions” to build resilience. In this

**Figure 5. Recommendation for Including Climate Resilience Components in the Girls' Education Program Cycle**



way, donors can link climate change to girls' education not only in theory but also in their financing and programming decisions.<sup>83</sup>

### ***Development Actors: Integrate Climate Resilience Components into All Stages of Girls' Education Programs***

The discourse on the links between education and drought seems centered on the *effects* of droughts on current girls' education programs, as opposed to how to ensure *resilience* during these crises—for two reasons. First, this review found that instead of responding flexibly and concretely to the droughts, girls' education programs are only able to “monitor” the droughts through the risk register. This pattern is difficult to change if contingencies for climate disasters are not considered at the design stage. Second, even where a concrete response is possible, practitioners in the education sector seem wary to deal with an issue for which there is very little technical knowledge/expertise (i.e., climate change in education).

Because of these two factors, it is difficult for programs to link climate change to girls' education either conceptually or operationally, particularly if the crises occur after programs have already begun. Since measurement appears to be another gap, programs therefore need to design indicators—for example, those linked to reducing negative coping mechanisms—as well as increasing the qualitative and quantitative data collected in order to contribute to a better understanding of the link between girls' education and climate change. Thus, it is recommended that development

actors consider the components shown in Figure 5 at all stages of the program cycle.

## **2. RECOMMENDATIONS FOR THE SCHOOL AND COMMUNITY LEVELS**

### ***Development Actors: Adopt an Integrated Development Approach to Girls' Education Programs***

The potential role of schools to protect children, especially girls, and sustain climate change mitigation and adaptation efforts, has not been realized, mainly due to the disconnect between these two important sectors.<sup>84</sup> Further, development actors need to understand that schools are ideal settings where resilience can be built, because they are hubs for community activity.<sup>85</sup>

- *Support schools to meet girls' practical needs, such as water, alternative energy, and food.*

Water appears to be a key factor in girls' school attendance. Therefore, schools could be part of the solution if they obtained funds to construct new water systems or rehabilitate those that do not function, and connect them to water pumps that use alternative energy sources such as solar. This would help girls (and boys) meet their water needs. Communities in the school catchment area would also benefit from schools' water supplies since they would need less time to collect water elsewhere (see Figure 6).

To ensure continuity of learning during crises, schools must be supported to develop contingency safety nets

**Figure 6. Community Members Collecting Water from a Water Facility at a Primary School in Rural Zimbabwe**



Photo credit: Tinashe Mukomana



for girls (and boys),<sup>86</sup> such as scholarships and supplementary feeding schemes for all children.<sup>87</sup> Such plans should be supported by linking with other emergency programs either in the same organization or with partners working in the same geographic areas (including government-led programs).

- *Link community-based livelihoods and income-generating activities to school water supplies and alternative-energy infrastructure for sustainability.*

Many sub-Saharan African communities heavily depend on the environment and on rain-based agriculture to support their income-generating activities. Thus, when rainfall is below average, when the water infrastructure is broken, and when there is a lack of alternative energy, households' income drops, which in turn weakens their ability to prioritize education expenditures or increases their chance of using coping mechanisms that will negatively affect their children's education. If, as an alternative, community-based, income-generating activities are linked to the school water infrastructure, households could sustain their income streams that support girls' education. In turn, the school could also benefit from a nominal maintenance fee for the use of school infrastructure, charged to community members implementing income-generating activities that are linked to the school. Also, communities need to be trained and supported to use climate-smart agriculture (e.g., switching to drought-resistant seed varieties and the like) in addition to explore viable alternative livelihood options. A reliable water source would also allow schools to plant and maintain orchards whose fruit the students can consume.

### 3. RECOMMENDATIONS FOR THE INDIVIDUAL (AND COLLECTIVE) GIRL LEVELS

#### ***Schools: Develop Girls' Resilience Skills***

Girls are often viewed as "climate victims." However, there is great potential for girls' education programs to reduce vulnerability, build capabilities and individual resilience, and challenge inequality, with girls acting as agents of change.<sup>88</sup> Given the uncertainties associated

with climate change, it is not enough to mainstream environmental and climate change education into curricula.<sup>89</sup> Instead, girls' clubs, assemblies, sports, and arts should be leveraged to build skills such as leadership, critical thinking, problem solving, networking, organization, financial literacy (for self-reliance), and self-defense (where long distances to collect water are traveled). These skills will prepare girls to explore new and available opportunities to build resilience at the household, school, and community levels. Further, they will help girls to gain a *voice* and a sense of agency so they can participate in drought preparedness and response planning. The process of developing these skills should be informed by ongoing research, such as the Skills for a Changing World program, which "seeks to identify how a generation of skills can best be developed and enhanced in children . . . so that they navigate education and work in the face of changing social, technological and economic demands."<sup>90</sup>

Climate science is a growing field. Girls can be prepared to participate in climate issues by encouraging them to study STEM subjects. Given the central role girls' play in the use and management of natural resources such as water and fuelwood, they have a wealth of knowledge that is largely untapped. And they can be more involved in climate-related activities at the school level, such as staffing school-based weather stations and collecting rainfall records as part of this work.

#### ***Development Actors: Conduct Girls-Led Action Research on the Link between Climate Change and Girls' Educational Attainment***

This review found a dearth of qualitative and quantitative data on the effects of droughts on girls. Further, the complicated relationship between gender and the ways in which households respond to droughts needs to be further explored. Another interesting area for further study are the differential and comparative effects of climate change on girls and boys in both urban and rural contexts, as well as girls' perspectives of their experiences of droughts. It is also critical to invest more in understanding the extent to which droughts contribute to early marriages, as elucidated earlier by this paper.

Innovative and child- and girl-friendly research designs and data collection methods can be integrated into the monitoring and evaluation systems of girls' education programs in order to systematically track and to fully understand the issue's scope and extent.

## CONCLUSION

This paper has highlighted climate change as a growing development challenge and the potential role of climate change as another barrier to girls' educational access, retention, and learning outcomes. It is clear that continuing with a "business as usual" approach to girls' education work will result in socioeconomic costs to the education sector that will be difficult to reverse in the future.

Building resilience in and through girls' education presents an opportunity for a mutually beneficial partnership—for climate actors to inform girls' education program designs, and for education to function as a viable component with respect to climate change re-

sponses. This paper has put forward a framework that provides guidelines for donors, policymakers, practitioners, and communities and the key actions that need to be taken in order to concretize this linkage.

The following steps will need to be taken in order to sustain the momentum generated by this paper:

1. **Share** this paper with actors in girls' education (and education more broadly), and in climate change and resilience-building by convening meetings.
2. **Engage** donors, with a view to not only informing those developing current and future funding models about the value of girls' education but to also creating partnerships to pilot the ideas put forward in this paper.
3. **Form partnerships** with governments and academia to engage in more robust research on the effects of climate change on education systems, including deepening the existing knowledge base on the differential effects on girls and boys.

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