



Malawi Secondary Education Expansion for Development (SEED) Impact Evaluation

Baseline Report Summary

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Abbreviations

CDSS	Community Day Secondary School
CEFM	Child, early, and forced marriage
D4I	Data for Impact
EMIS	Education Management Information System
FGD	focus group discussion
GBV	gender-based violence
IDI	in-depth interview
KII	key informant interview
MHM	menstrual hygiene management
MOE	Ministry of Education
PEPFAR	President's Emergency Plan for AIDS Relief
PSLCE	Primary School Leaving Certificate of Education
SEED	Secondary Education Expansion for Development
SR-GBV	school-related gender-based violence
SRH	sexual and reproductive health
UNC	University of North Carolina
USAID	United States Agency for International Development
VACS	Violence Against Children Survey
WASH	water, sanitation, and hygiene

1. Background

The Malawi Secondary Education Expansion for Development (SEED) activity is funded by USAID and PEPFAR and includes urban expansion and rural construction of Community Day Secondary Schools (CDSSs). Data for Impact (D4I) is conducting an impact evaluation of the SEED activity to help understand whether there is a change or impact on communities where SEED is carrying out expansion and construction of CDSSs.

1.1 SEED Activity

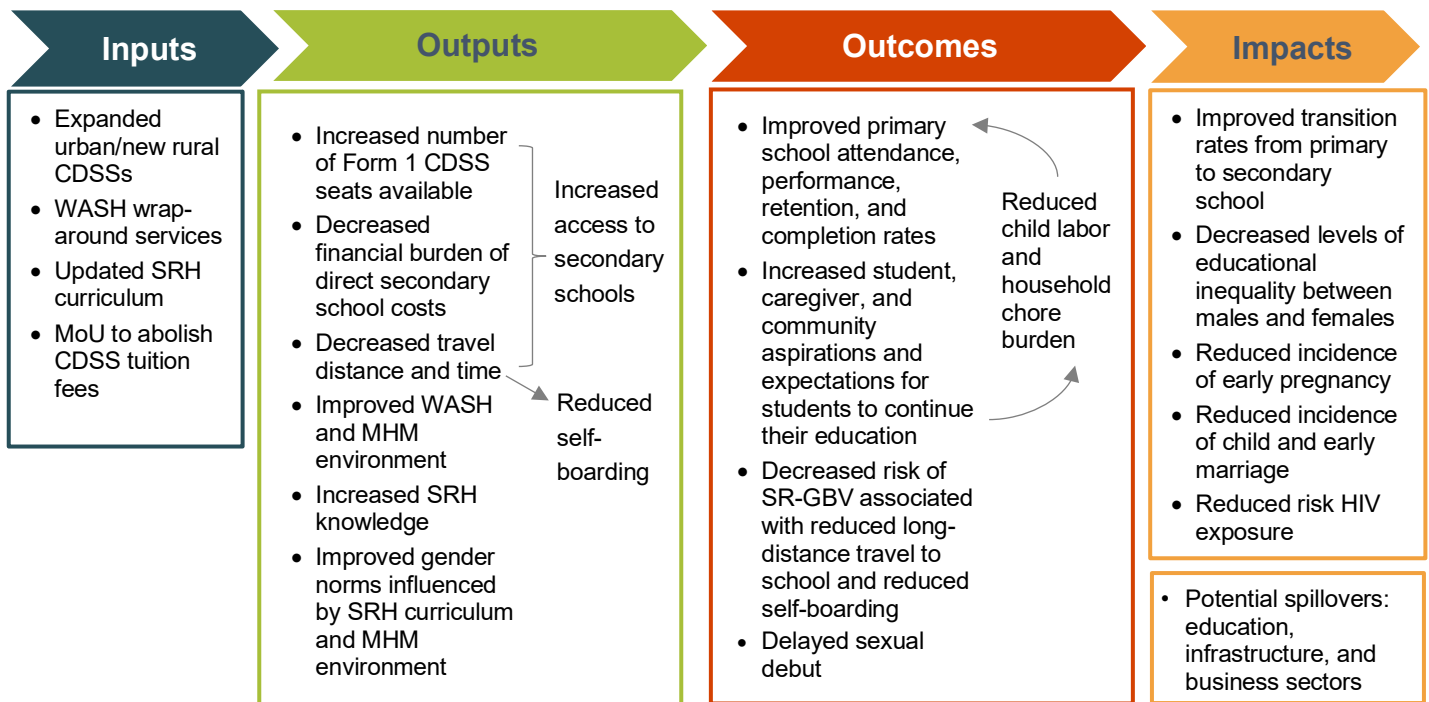
In rural areas, SEED is constructing new “greenfield” CDSS facilities in areas where secondary school access has historically been limited. SEED is a \$90 million investment in new secondary schools (complete with boys’ and girls’ latrine blocks and sanitary changing rooms for girls).

SEED’s main development hypothesis is that by providing increased access to secondary schools, young Malawians will attend school rather than move into the “out-of-school” population that impedes the country’s future development. Through the proper design of classroom learning spaces and school facility infrastructure that decrease distance to schools, and increased access to secondary education, young Malawians will be provided the opportunity to learn, which improves economic growth and personal attainment. Furthermore, by providing a proper learning environment (sanitary conditions, decongested classrooms, and closer access to schools), young girls will remain in school longer, reducing the risk of early pregnancy, early marriage, and HIV exposure.

Figure 1 illustrates the activity’s theory of change (with a focus on SEED Rural) and provides a visual representation of causal linkages within the SEED project. Examples of important program impact pathways that may be examined as part of the Malawi SEED impact evaluation include:

- Embedding newly constructed CDSSs in underserved rural communities will increase the number of Form 1 seats available and decrease travel distance to secondary school, thereby increasing access to secondary school.
- Reduced distance to secondary school will lead to a reduction in SR-GBV risk associated with travel to/from school and self-boarding.
- Increased access to secondary school will result in reduction of HIV risk, early pregnancy, and early marriage.
- Abolishment of secondary school fees and reduced costs to travel to/from school or self-board will improve access to secondary school.
- Increased access to secondary schools will improve student and caregiver interest in and expectations for educational attainment and will increase secondary school transition rates.
- Increased student and caregiver education-related interest and expectations will decrease child labor and household chore obligations.
- Gender norms may be influenced by an up-to-date Life Skills/sexual and reproductive health (SRH) curriculum content and wrap-around WASH services that improve conditions for menstrual hygiene management (MHM) at school for adolescent girls and young women (AGYW). Gender norms can influence sexual debut, risky sexual behavior, early and child marriage practices, as well as caregiver aspirations for daughters’ education.

Figure E1. Malawi SEED theory of change



Source: Adapted from Statement of Work: Socio-Economic Impact Evaluation of the SEED CDSS Construction in Malawi Activity.

1.2 Evaluation Questions

The evaluation covers a broad range of development outcomes, including: the impact of SEED for children enrolled in Standard 7 at baseline in rural SEED CDSS catchment areas on educational outcomes; school-related gender-based violence (SR-GBV); child, early, and forced marriage (CEFM); sexual and reproductive health (SRH); water sanitation, and hygiene (WASH) behaviors; and child safety. The impact evaluation will answer the following evaluation questions:

1. **Key outcome impacts:** What is the impact of SEED Rural on children enrolled in Standard 7 at baseline in the SEED CDSS catchment areas? Key outcomes of interest include:
 - Transition rates from primary school to secondary school
 - Attendance and dropout from late primary and early secondary school
 - Primary school completion rates
 - Student performance (Primary School Leaving Certificate of Education [PSLCE] examination) and selection for secondary school
 - SR-GBV, including on the way to school and within self-boarding settings
 - CEFM
2. **General attitudinal/behavioral impacts:** To what extent does construction of new SEED CDSSs in rural Malawi change the perceptions, attitudes, aspirations, or behaviors related to education and future outlooks among children enrolled in Standard 7 at baseline, their parents/caregivers, local leaders, and educators? To what extent does expansion of urban SEED CDSSs in Malawi change the perceptions, attitudes, aspirations, roles, or behaviors related to education and future outlooks among children enrolled in Form 1 at baseline, their parents/caregivers, local leaders, and educators?
3. **Healthy behavioral impacts:** To what extent does the construction of a new or expanded SEED CDSS positively or negatively affect sexual behaviors, WASH behaviors, and child safety?
4. **Schooling and business environment spillovers:** To what extent have there been changes in the education environment (e.g., teachers leaving primary school to teach in new SEED CDSSs) and the business environment (e.g., infrastructure development, business booms) because of new rural SEED CDSS construction or urban SEED CDSS expansion? (In rural areas we will measure education environment changes through qualitative and quantitative measures. Business environment spillover in rural areas will be measured through qualitative only. In urban areas, both topic areas will be addressed solely through qualitative methods)

A better understanding of these impacts will help USAID and its multiple partners understand how integrated outcomes can result from CDSS construction in Malawi, fine tune current investments, and prioritize future investments. The information generated through this impact evaluation will also contribute towards building the growing body of evidence on the socio-economic and learning impacts (both intended and unintended) of SEED Activity in Malawi.

This report shares a summary of the results from the rural baseline data collection and urban retrospective initial end line data collection.

2. Methods

The evaluation is a mixed methods impact evaluation that will synthesize both quantitative and qualitative data to address the evaluation questions. The quantitative component will focus on rural communities, while the qualitative component will cover both urban and rural areas. The evaluation includes three rounds of data collection: a baseline survey October–November 2021 (completed), a midline survey in May–June 2023 (estimated, based on anticipated handover of new rural CDSSs to MoE), and an endline survey in mid-2024.

2.1 Quantitative

The rural quantitative evaluation component is based on a prospective, quasi-experimental research design using a difference-in-differences approach to evaluate the quantitative impact of SEED interventions in rural areas on outcomes of interest.

Baseline data were collected from a panel of students selected in 32 treatment and 32 comparison schools. We also collected students' household information and community-level data. School-level aggregate data from a panel of primary and secondary schools was collected to understand potential schooling spillover effects. In addition, we surveyed the head teacher (or a designee) at the 64 public primary schools the students were selected from, and at 58 public secondary schools that were the main CDSS to which the primary schools fed.

This report presents baseline indicator values for treatment and comparison groups separately, and for each indicator we present the p-value of a statistical test for the difference of the treatment and comparison values. Indicator values were calculated using sampling weights and the statistical tests of differences used the relevant sampling design features (stratification, clustering, and sampling weights).

2.1.1 Prospective Cohort

The population of focus for the rural quantitative component included public school male and female students enrolled in Standard 7 during the 2021 academic year (January 4, 2021–November 19, 2021) in treatment and comparison areas. These students were surveyed as a prospective cohort at baseline because they will benefit from the new secondary schools to be built by SEED. We also surveyed student's household and main caregiver. These students are expected to be revisited at midline during the 2022–2023 academic year after the new schools become operational. There were 761 students in this group.

2.1.2 Retrospective Cohort

To measure the pre-intervention primary to secondary school transition rate, we also surveyed a retrospective cohort of public school students (n=599) enrolled in Standard 8 during the 2019–2020 academic year (September 16, 2019–December 18, 2020). We also surveyed students' households and primary caregivers.

2.2 Qualitative

2.2.1 Rural

The purpose of the qualitative component was to contextualize the rural quantitative findings and provide insight into the perceived impact of the SEED's expansion of urban CDSSs. The rural

qualitative component was implemented at two primary schools that will feed into new CDSSs in each of three regions—North, Central, and South. Rural data collection consisted of 12 focus group discussion (FGDs) with Standard 7 youth and 12 FGDs with their caregivers, and six key informant interviews (KIIs) with community leaders; these were conducted prior to CDSS completion.

2.2.2 Urban

The urban qualitative component was implemented at two newly expanded CDSSs in each of three urban areas—Mzuzu, Blantyre, and Lilongwe—and consisted of 12 FGDs with Form 1 youth and 12 FGDs with caregivers, 12 individual in-depth interviews (IDIs) with Form 1 youth and six KIIs with Form 1 teachers and six with community leaders; these were carried out approximately 13 months after CDSS expansion. The team audio recorded data collection and transcribed the data in English. It then coded the transcripts using pre-determined codes based on the evaluation questions and key outcomes. Results were summarized by topic area and rural findings were integrated with quantitative results; urban qualitative findings are presented separately, as there was no quantitative urban data collection and the urban results are a retrospective initial end line, in contrast to the rural results.

2.3 Limitations

Difficulties arose while finding students or households, particularly those in the retrospective cohort who moved away from the household. To mitigate this, at each school we sampled a group of male and female replacement students for both the prospective and retrospective cohorts, and this enabled us to reach our desired sample size. We relied on data provided by household heads or caregivers to calculate education indicators, including the transition rates, which may be inaccurate. Also, some schools in the quantitative sample needed to be replaced because class registers were lost or unavailable during the fieldwork visit. Other schools needed to be replaced because they had very small numbers of students in Standard 7 or 8. The number of caregivers exceeds the number of sampled students in the retrospective cohort as caregivers were interviewed if the sampled student was a household member but away at school or for another temporary reason and could not be interviewed.

Urban qualitative data collection took place after the school expansions were completed and there was no “baseline” against which to compare outcomes for students, caregivers, or community leaders. We relied on respondent’s retrospective reports, which may have been inaccurate. Also, reports of perceived reduced absenteeism and increased enrollment were not triangulated with official school records, as that was outside the scope of the evaluation.

There were inconsistencies between quantitative versus qualitative reports on selected outcomes such as GBV. Due to social desirability bias, respondents may have underreported their own behaviors or experiences in the survey component, compared to their report of the behaviors or experiences of others in qualitative components.

Lastly, all data collection occurred during the COVID-19 pandemic. As described herein, there were significant impacts on the attitudes and behaviors of interest to this evaluation.

2.4 Ethical Considerations

The University of Malawi Research Ethics Committee reviewed and approved the study protocol and tools (P.09/21/82). The Institutional Review Board of University of North Carolina, Chapel Hill also reviewed the study and determined that it was not human subjects research. Special precautions and protections were implemented for the administration of survey questions on GBV among female students. The evaluation and data collection teams followed recommendations for the ethical and safe conduct of research on GBV and violence among children and adolescents.

2.5 Gender Integration

Gender has been explicitly integrated throughout the evaluation design and data collection and analysis. Data collection tools and the data collection process included attention to gender. D4I quantitative data analysis explored potential gender-related patterns. In addition, qualitative data analysis explored whether emerging themes differ by similar demographic factors when possible and examined data that specifically addressed gender, such as that about GBV and attitudes towards girls' education. This summary report includes, and other evaluation products will also include reflection on gender-related results. Data use and action planning activities will seek to help stakeholders interpret these results, and plan for program adjustments as needed.

See the full baseline report for further details on methods.

3. Results: SEED Rural

3.1 Quantitative Rural Response Rate

Among students in the retrospective cohort, the response rate was 98.1 percent. Among students in the prospective cohort, the response rate was 99.6 percent.

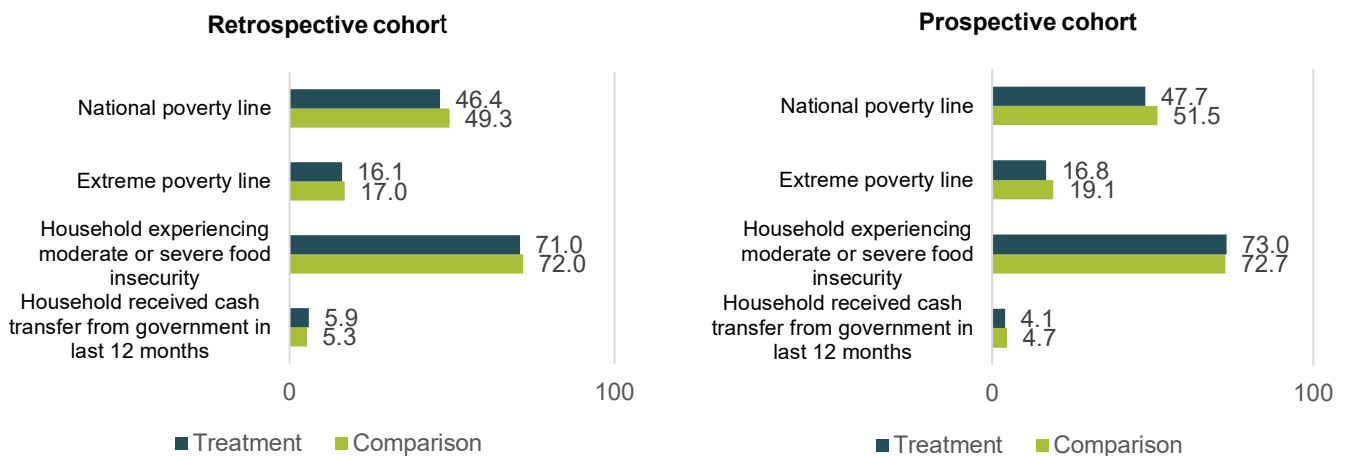
3.2 Characteristics of Respondents and Households

Approximately half of the students in both the prospective and retrospective cohorts were female with average ages of 15 (prospective cohort) and 17 (retrospective cohort). Less than five percent of students across cohorts had a difficulty/disability or chronic illness. Across cohorts, approximately 75 percent of caregivers interviewed were female, and over 70 percent were currently married. Between 60–68 percent of household heads had primary education only (mostly incomplete).

The rural qualitative sample consisted of 46 Standard 7 girls, 46 Standard 7 boys, 45 female caregivers of Standard 7 youth, 47 male caregivers of Standard 7 youth, and 6 community leaders. The average age of students was 14.

About 50 percent of households across cohorts were below the national poverty line and a high percentage of households (over 70 percent) were experiencing food insecurity. Less than six percent were receiving cash transfers from the government (Figure 2).

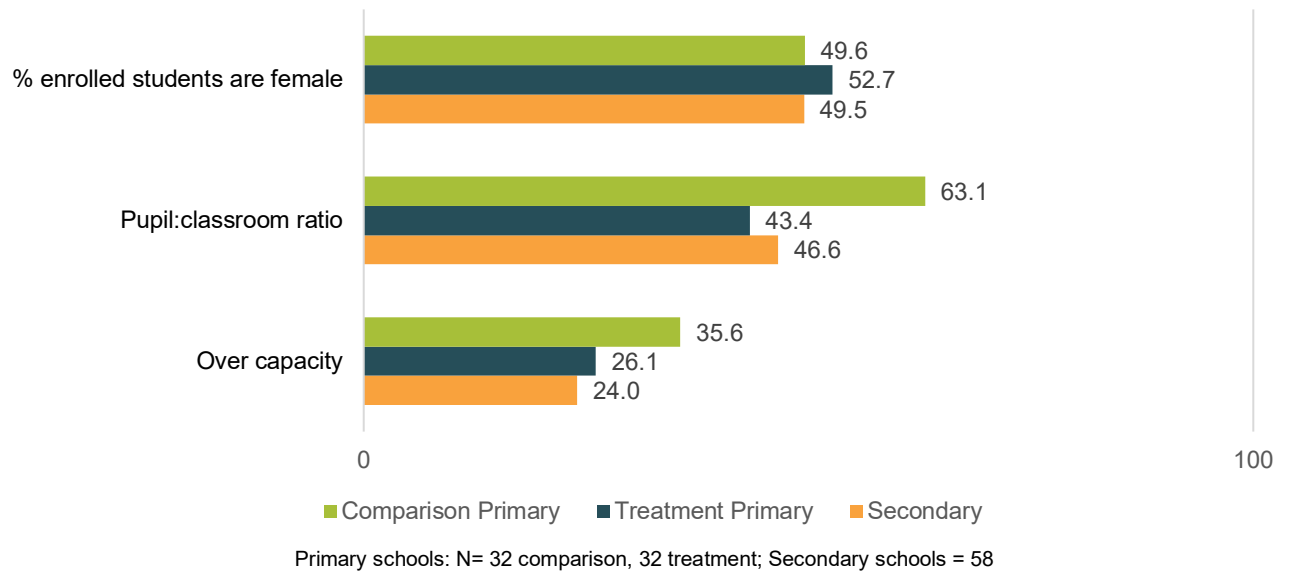
Figure 2. Household welfare



3.3 School Capacity and Gender Parity

Primary schools reported that approximately half of Standard 8 students were female, and CDSSs reported the same about Form 1 students. Over a third (35.6%) of comparison primary schools and a quarter (26.1%) of treatment primary schools were over capacity for Standard 8, and just a under one-quarter (24%) of CDSSs were over capacity for Form 1 (Figure 3).

Figure 3. School capacity and gender parity, Standard 8 and Form 1



3.4 Findings Related to Main Development Hypotheses

SEED’s main development hypothesis is that increased access to secondary school will result in improved secondary enrollment. The transition rate from primary to secondary school was calculated in two ways. First, household report of transition to a CDSS in 2021 among students in the retrospective cohort (students in Standard 8 in the academic year 2019–2020) was used. Using this method, 23.2 percent of the comparison group and 37.5 percent of the treatment group transitioned to a public secondary school; these rates differed significantly ($p=0.034$) (Table 1).

Second, the transition rate was calculated using data provided by primary schools as the number of students who were selected for secondary school divided by the number that sat for the PSLCE.

¹ Using this method, the transition rates were 24.3 and 29.8 percent for the comparison and treatment groups, respectively (Table 1). SEED evaluation baseline transition rates calculated from primary school data are lower than the 36.5 percent transition rate reported for all male and female learners nationwide in the 2021 EMIS Report.²

Table 1. Key education outcomes: Baseline rates

	Retrospective cohort			Prospective cohort		
	Comparison	Treatment	p-value	Comparison	Treatment	p-value
Household report: Transition rate primary to secondary school						
2021 academic year status of students in Standard 8 during the 2019–2020 academic year			0.034			
Repeated Standard 8	35.6	26.6				
Transitioned to Form 1 (Public)	23.2	37.5				
Transitioned to Form 1 (other)	10.5	13.9				
Dropped out	30.7	22.0				
Primary school report: Transition rate from primary to secondary school						
Average percent of students selected among those who sat for the PSLCE						
National SS	0.2	0.1	0.482			
District SS	1.7	2.2	0.679			
Day SS	0.9	1.6	0.601			
CDSS	21.4	25.7	0.395			
Selected/sat for PSLCE	24.3	29.8	0.338			
PSLCE pass rates						
Student self-report	75.1	83.6				
	All primary comparison schools			All primary treatment schools		
Primary school report	81.0			77.3		

SEED also hypothesized that increased access to secondary school will result in reduction of early sexual debut, HIV risk, pregnancy, and early marriage. Self-report of sexual debut before age 15 was very low; however, risky sexual behaviors were reported among students who had ever had sex. Rates of pregnancy and early marriage were much higher among youth that were out of school

¹ We also calculated the transition rate using data provided by primary schools as the number of students who were selected for secondary school divided by the number who passed the PSLCE. This method yielded transition rates of 29.8 for the comparison group and 37.4 for the treatment group.

² Ministry of Education, Government of Malawi. (2021). 2021 Malawi Education Statistics Report. Education Management Information Systems (EMIS).

compared to those still in school (Table 2). Among retrospective cohort students, students who dropped out of school were significantly more likely to be currently married (30.0 percent), first married before age 18 (14.0 percent), to have been pregnant before 18 (30.1 percent), to have had a live birth before age 18 (16.7 percent), and to have fathered a child (9.1 percent).

Table 2. Key health outcomes: Baseline levels

	Retrospective cohort			Prospective cohort		
	Comparison	Treatment	p-value	Comparison	Treatment	p-value
Early sexual debut and HIV risk						
<i>Ever had sex</i>	40.4	33.9	0.265	11.8	11.2	0.841
In-school youth	23.2	25.9				
Out-of-school youth	67.1	56.5				
Sexual debut before age 15	3.3	0.9	0.054	4.0	4.2	0.907
Among students who had sex in the past 12 months						
Multiple sexual partnerships	25.7	22.7	0.727	26.3	25.1	0.901
Concurrent sexual partnerships	9.9	10.1	0.973	10.9	13.2	0.784
Condom used at last sex	64.8	63.0	0.840	71.9	64.5	0.603
Ever had transactional sex with current/most recent partner	8.6	13.3	0.419	14.0	9.1	0.582
Pregnancy						
<i>Ever been pregnant</i>	24.7	13.7	0.114	2.9	4.4	0.566
In-school girls	1.0	4.3				
Out-of-school girls	55.1	43.3				
<i>Pregnant before age 18</i>	12.1	7.6	0.304	1.9	2.3	0.776
In-school girls	1.0	2.4				
Out-of-school girls	55.1	23.8				
<i>Ever had a live birth</i>	12.7	9.3	0.473	1.4	1.3	0.930
In-school girls	0.0	3.5				
Out-of-school girls	29.0	27.5				
<i>Had a live birth before age 18</i>	6.4	4.5	0.547	0.7	1.3	0.673
In-school girls	0.0	2.4				
Out-of-school girls	14.5	11.0				
<i>Ever fathered a live birth</i>	3.0	4.8	0.548	0.0	0.7	0.344
In-school boys	1.2	3.3				
Out-of-school boys	6.4	8.4				
Fathered a live birth before age 18	1.8	0.0	0.130	0.0	0.0	
Marriage						
<i>Ever married or in union</i>	11.5	9.3	0.516	1.3	1.6	0.810
In-school youth	0.0	1.3				
Out-of-school youth	29.3	22.0				
<i>Currently married or in union</i>	10.2	8.0	0.486	1.3	1.6	0.810
In-school youth	0.0	0.7				
Out-of-school youth	26.0	28.4				

First married/in union before age 15	0.0	0.0		0.0	0.0	
First married/in union before age 18	3.9	3.8	0.936	0.4	1.3	0.277
In-school youth	0.0	0.8				
Out-of-school youth	10.0	11.9				

3.5 Findings Related to Hypotheses Along the SEED Theory of Change

Hypothesis 1: Embedding newly constructed CDSSs in underserved rural communities will increase the number of Form 1 seats available and decrease travel distance to secondary school, thereby increasing access to secondary school.

The underlying assumption that a lack of Form 1 seats and long distances to school are barriers to education held true (Tables 3 and 4).

“Secondary schools are very far and we cannot manage to commute there every day. On the days that we do go, we find that our friends have already started learning by the time we get there. This is a big a challenge that will make it impossible for us to complete our secondary school education.”

—Standard 7 female student

Table 3. Barriers to education: Lack of Form 1 seats and distance to secondary school

	Retrospective cohort			Prospective cohort		
	Comparison	Treatment	p-value	Comparison	Treatment	p-value
Student report of barriers to achieving their educational goals						
Not enough Form 1 secondary school admissions spaces	37.9	36.2	0.713	21.9	30.2	0.054
Distance to school	49.0	60.9	0.048	39.5	39.7	0.969
Caregiver report of why student in household who passed PSLCE did not join secondary school						
Girls did not join secondary school because it was too far away	26.8	22.2	0.631	28.1	32.2	0.725
Boys did not join secondary school because it was too far away	26.1	14.4	0.202	28.9	32.7	0.778
Household report of reason sampled student dropped out of school during the previous academic year						
School too far from home	0.0	3.8				

Table 4. School report of barriers to education: Lack of Form 1 seats and distance to secondary school

	Primary schools			Primary schools			Primary schools			CDSSs	
	Comp	Treat	p-value	Comp	Treat	p-value	Comp	Treat	p-value		
Serious problem among students at this school for ability/motivation to:											
	Complete primary school			Boys to join secondary school			Girls to join secondary school			Boys to complete secondary school	Girls to complete secondary school
Not enough Form 1 secondary school admissions spaces	74.9	56.3	0.118	71.3	63.5	0.503	76.7	57.3	0.098		
Distance to (primary/secondary) school	33.8	9.5	0.024	84.6	56.0	0.011	80.7	51.5	0.016	53.4	50.0

Hypothesis 2: Reduced distance to secondary school will lead to a reduction in SR-GBV risk associated with travel to/from school and self-boarding.

While the underlying assumption that concerns about safety on the way/to from school were a barrier to education held true, these concerns resulted in absenteeism for only a small percentage of students (less than 9%) (Tables 5 and 6).

Qualitative caregiver and student respondents emphasized school-related gender-based violence (SR-GBV) risks when students must travel long distances to school. This was particularly a concern when traveling through wooded areas or when maize crops were very tall.

“Walking to school is a problem for [girls] since [they] will be meeting the boys who will be forcing her into doing unnecessary things like sleeping with them. She might do that in order to protect herself from being disturbed by the boys along the way to school. This is a big problem that a girl child faces, and it is difficult for her to finish school.”

—Male caregiver

Table 5. Student and caregiver report of safety on way to/from school

	Retrospective cohort			Prospective cohort		
	Comparison	Treatment	p-value	Comparison	Treatment	p-value
Student report of barriers to achieving their educational goals						
Not safe travelling to/from school	33.3	36.3	0.554			
Student agrees/strongly agrees with statement:						
I feel safe traveling to/from school	71.4	72.2	0.880			
Among students who reported feeling unsafe or threatened in their neighborhood, on the way to school, or in school						
Percent that felt unsafe traveling to/from school	81.1	94.1	0.128			
Percent that missed any days of school because of safety concerns traveling to/from school	67.6	44.8				

Table 6. School report of barriers to education: Not safe travelling to/from school

	Primary schools			Primary schools			Primary schools			CDSSs	
	Comp	Treat	p-value	Comp	Treat	p-value	Comp	Treat	p-value		
Serious problem among students at this school for ability/motivation to:											
	Complete primary school			Boys to join secondary school			Girls to join secondary school			Boys to complete secondary school	Girls to complete secondary school
Not safe travelling to/from school	24.0	9.5	0.136	24.1	20.1	0.715	36.7	29.6	0.567	20.7	29.3

Hypothesis 3: Abolishment of secondary school fees and reduced costs to self-board will improve access to secondary schools.

“When I come to school, they demand for money for examinations, [and a] development fund for improving other things here at school... so I cannot really foretell whether my life will be miserable or not. I don’t know if my life will be better in the next 10 years. However, I think if I can manage to find work then it would be better, especially if fees will be available.”

—Standard 7 male student

The underlying assumption that school fees and self-boarding costs are barriers to education held true. Despite government abolishment of school fees, 3 percent of primary schools and 14 percent of secondary schools still reported that tuition fees were incurred by more than half of students. In addition, respondents of all types reported other school costs—such as school maintenance fees, exam fees, required shoes, Parent Teacher Association (PTA) fees, school management committee (SMC) fees, general purpose fund fees—that remain major barriers to education (Tables 7, 8, and 9).

When asked to report non-tuition fee amounts, 29 percent of primary schools (of 49 responding) and 100 percent of CDSSs (of 53 responding) disclosed charging non-tuition fees. Among primary schools charging any fees, the average cost was MWK 632 per term. The average total non-tuition costs reported among all CDSSs was MWK 16,939 per term (MWK 11,580 excluding boarding); all CDSSs reported charging general fees (average MWK 10,587 per term), and 28 percent reported charging other fees (average MWK 21,133 per term), mostly related to mock examinations.

Table 7. Barriers to education: Costs

	Retrospective cohort			Prospective cohort		
	Comparison	Treatment	p-value	Comparison	Treatment	p-value
Student report of barriers to achieving their educational goals						
Direct school costs	74.1	75.7	0.733	62.4	64.3	0.663
Exam fees and related costs	71.3	72.6	0.797	60.3	60.7	0.926
Caregiver report of why student in household who passed PSLCE did not join secondary school						
Girls						
School costs	15.6	37.8	0.083	17.2	26.5	0.367
Cannot afford self-boarding	46.5	33.3	0.306	30.6	20.3	0.396
Boys						
School costs	29.4	28.3	0.940	27.0	33.7	0.648
Cannot afford self-boarding	33.5	30.9	0.818	38.7	30.3	0.590
Household report of educational expenditures						
Household did not have enough money to pay for all children with education expenditures during current academic year	79.1	83.6	0.329	76.4	77.7	0.772
Average educational expenditure (Mean MWK) for sampled student during current academic year	55,624.3	63,009.1	0.547	15,279.7	16,425.7	0.609
Household report of reason sampled student dropped out of school in the previous academic year						
No money for fees or uniform	46.1	61.9				

Table 8. School report of barriers to education: Costs

	Primary schools			Primary schools			Primary schools			CDSSs	
	Comp	Treat	p-value	Comp	Treat	p-value	Comp	Treat	p-value		
Serious problem among students at this school for ability/motivation to:											
	Complete primary school			Boys to join secondary school			Girls to join secondary school			Boys to complete secondary school	Girls to complete secondary school
Direct costs of (primary/secondary) school	5.7	13.0	0.322	48.5	56.9	0.522	53.5	60.4	0.588	43.1	46.6
Exam fees and related costs	11.0	15.8	0.581	52.5	60.0	0.561	56.1	53.7	0.854	36.2	43.1

Table 9. School report of costs incurred by half or more students

	Primary schools			CDSSs
	Comparison	Treatment	p-value	
Half or more (Standard 7 and 8)/(Form 1) students incur costs				
Examination fees	90.4	78.8	0.217	69.0
Compulsory uniforms	32.7	53.0	0.117	94.8
General purpose fund	37.9	44.2	0.621	15.5
Fees for small-scale school projects	10.9	24.6	0.183	56.9
PTA/SMC dues	13.1	17.0	0.679	60.3
Required shoes	10.8	14.4	0.628	87.9
School maintenance fees	13.1	13.0	0.994	31.0
Tuition fees	3.6	3.2	0.934	13.8
Textbook revolving fund	3.6	0.0	0.258	1.7
Other textbook costs or fees	0.0	0.0		10.3
Transportation to/from school	3.6	0.0	0.258	1.7
General school supplies	1.8	0.0	0.271	5.2
Boarding at school	0.0	0.0		8.6
Self-boarding	0.0	0.0		20.7

Hypothesis 4: Increased access to secondary school will improve student and caregiver interest in and expectations for educational attainment and will increase secondary school transition rates.

The evidence is mixed regarding the underlying assumption that lack of access to secondary school results in decreased student and caregiver interest in and expectations for education attainment. At baseline, nearly all students and caregivers expressed strong interest in and high expectations for educational attainment, leaving little room for improvement. However, it is possible that social desirability bias was at play among student and caregivers, as primary and CDSSs reported lack of optimism about the future and lack of caregiver support/encouragement as barriers to students joining and completing secondary school (Tables 10 and 11).

“I will be working after completing my education and my parents will be happy since I will be fully educated.”

—Standard 7 female student

Table 10. Educational aspirations

	Retrospective cohort			Prospective cohort		
	Comparison	Treatment	p-value	Comparison	Treatment	p-value
Educational goal is very important to student						
Finish primary school	97.6	97.1	0.771	98.8	97.3	0.168
Pass the PSLCE	97.9	99.0	0.430	99.1	99.0	0.858
Be selected for secondary school	92.4	88.5	0.360	99.5	99.0	0.463
Attend secondary school	99.5	94.6	0.001	98.9	98.9	0.990
Finish secondary school	99.7	98.9	0.173	99.8	98.9	0.047
Attend university	97.8	95.8	0.234	96.3	95.0	0.509
Student perceives the chances of achieving the educational goal to be high						
Finish primary school	71.4	74.9	0.585	78.0	76.5	0.694
Pass the PSLCE	69.3	71.1	0.815	75.8	77.2	0.689
Be selected for secondary school if pass PSLCE	46.5	43.8	0.712	73.1	75.6	0.516
Join secondary school if selected	53.6	48.5	0.493	74.8	74.4	0.934
Finish secondary school	58.8	56.6	0.679	72.0	71.0	0.817
Attend university	48.6	50.4	0.761	55.6	57.4	0.749
Students ideal level of education						
Secondary	10.8	10.1		17.9	13.0	
University	41.9	48.1		49.6	46.6	
Caregivers ideal level of education for student						
MSCE/GCSE	17.8	16.8		24.8	24.6	
Bachelor's Degree	59.8	63.4		52.3	58.6	

Notes: Retrospective cohort students who transitioned to Form 1 are excluded from analysis of finish primary school, pass the PSLCE, be selected for secondary school, and attend secondary school goals; 148 comparison and 133 treatment students from the retrospective cohort were included in analysis of these goals.

Table 11. School report of barriers to education: Lack of student optimism and parental support

	Primary schools			Primary schools			Primary schools			CDSSs	
	Comp	Treat	p-value	Comp	Treat	p-value	Comp	Treat	p-value		
Serious problem among students at this school for ability/motivation to:											
	Complete primary school			Boys to join secondary school			Girls to join secondary school			Boys to complete secondary school	Girls to complete secondary school
Students are not optimistic about their future	54.4	46.6	0.549	33.5	35.9	0.845	39.3	36.7	0.841	37.9	29.3
Parents/ caregivers do not support or encourage schooling	44.3	56.1	0.368	40.9	39.1	0.886	40.9	39.5	0.911	37.9	36.2

Hypothesis 5: Increased student and caregiver education-related interest and expectations will decrease child labor and household chore obligations.

“There are situations where parents let their children miss classes because they want them to go to the maize mill and do some household chores. This is bad because children end up being absent from school.”

—Female caregiver

Student labor force participation was low at baseline. The main economic activity working students engaged in was unpaid household labor (agricultural).

While few students and caregivers reported child labor, chores, and caregiving responsibilities as barriers, primary school and CDSS main respondents were more likely to report these activities as barriers to education. In addition, qualitative respondents raised child labor as a barrier to education (Tables 12 and 13).

Table 12. Barriers to education: Paid work, chores, and caregiving responsibilities

	Retrospective cohort			Prospective cohort		
	Comparison	Treatment	p-value	Comparison	Treatment	p-value
Student report of barriers to achieving their educational goals						
Paid work	15.4	15.9	0.884	13.2	15.6	0.538
Chores at home	19.1	16.1	0.558	11.9	12.5	0.869
Caregiving responsibilities	11.2	14.5	0.486	10.0	9.9	0.960
Caregiver report of why student in household who passed PSLCE did not join secondary school						
Girls						
Got a job	0.0	0.0		0.0	0.0	
Chores	0.0	0.0		0.0	0.0	
Caregiving responsibilities	2.6	19.0	0.004	4.8	24.1	0.058
Boys						
Got a job	6.5	6.8	0.924	9.7	7.1	0.309
Chores	1.3	1.2	0.867	2.2	1.0	0.211
Caregiving responsibilities	10.1	13.6	0.300	11.0	14.3	0.238

Table 13. School report of barriers to education: Paid work, chores, caregiving responsibilities

	Primary schools			Primary schools			Primary schools			CDSSs	
	Comp	Treat	p-value	Comp	Treat	p-value	Comp	Treat	p-value		
Serious problem among students' ability/motivation to:											
	Complete primary school			Boys to join secondary school			Girls to join secondary school			Boys to complete secondary school	Girls to complete secondary school
Paid work	19.4	25.7	0.566	18.7	19.3	0.950	22.0	16.2	0.562	25.9	20.7
Chores at home	37.5	33.6	0.748	33.4	19.3	0.224	40.9	32.4	0.498	25.9	41.4
Caregiving responsibilities	22.6	32.8	0.378	23.8	13.0	0.288	39.1	26.1	0.290	15.5	31.0

Hypothesis 6: Increased student and caregiver education-related interest and expectations will delay sexual debut, reduce risky sexual behaviors, and reduce early marriage and pregnancy.

Baseline levels of early sexual debut, risky sexual behaviors, pregnancy, and marriage are reported in Table 2 above. The underlying assumption that early sexual debut, risky sexual behaviors, pregnancy, early marriage, and pregnancy are barriers to education held true (Tables 14 and 15).

Qualitative respondents felt that early pregnancy was common in rural areas and that cases of early pregnancy increased during the COVID-19 pandemic when schools closed. Students and community leaders also reported that some girls engaged in transactional sex to have their basic needs met due to poverty and lack of support from their caregivers and became pregnant.

“[Getting pregnant] affected her education [in] that she dropped out of school since the other children would tease her about the pregnancy every time she goes to school.”

-Standard 7 female student

“In this community, most of the people fail to go further with their studies due to lack of money to pay for school fees and they end up getting married earlier.”

-Standard 7 male student

Table 14. Barriers to education: Marriage and pregnancy

	Retrospective cohort			Prospective cohort		
	Comparison	Treatment	p-value	Comparison	Treatment	p-value
Student report of barriers to achieving their educational goals						
Getting married	44.4	48.8	0.549	37.4	40.6	0.645
Getting pregnant/fathering a child	43.4	48.8	0.401	35.7	40.4	0.503
Caregiver report of why student in household who passed PSLCE did not join secondary school						
Girls						
Marriage	30.4	32.6	0.863	34.0	16.3	0.073
Pregnancy	47.0	31.1	0.090	56.1	42.6	0.374
Boys						
Marriage	38.2	19.6	0.082	36.1	34.5	0.899
Fathering a child	21.5	22.0	0.963	28.1	11.9	0.102
Household report of reason sampled student dropped out of school in the previous academic year						
Marriage	18.5	13.0				
Pregnancy	18.3	11.2				

Table 15. School report of barriers to education: Marriage and pregnancy

	Primary schools			Primary schools			Primary schools			CDSSs	
	Comp	Treat	p-value	Comp	Treat	p-value	Comp	Treat	p-value		
Serious problem among students' ability/motivation to:											
	Complete primary school			Boys to join secondary school			Girls to join secondary school			Boys to complete secondary school	Girls to complete secondary school
Getting married	37.5	35.5	0.873	27.9	15.8	0.260	46.5	28.8	0.159	13.8	25.9
Getting pregnant/fathering a child	37.1	32.8	0.730	33.3	16.2	0.134	46.5	35.5	0.390	17.2	36.2

Hypothesis 7: Gender norms may be influenced by Life Skills/SRH curriculum content or improved school menstrual hygiene management (MHM) conditions. Gender norms can influence sexual debut, risky sexual behavior, early and child marriage practices, as well as caregiver aspirations and expectations for daughters’ education.

Only 41 percent of CDSSs reported significant changes to the Life Skills/SRH curriculum in the past year. The assumption that MHM conditions at school are a barrier to education held true (Table 16). However, the assumption that caregivers place less importance on girls’ education than boys’ did not appear to be true. Nearly all students and caregivers thought that primary school and secondary school completion milestones were very important for both boys and girls (Table 10 above). Students had moderately high levels of gender-equitable attitudes toward education. Similarly, caregivers had moderately high egalitarian beliefs related to the rights and privileges of men and women as well as equity for girls.

“Construction of changing rooms and provision of sanitary pads could help girls to clean up themselves when they are doing menses and they could continue attending classes or concentrating on their studies.”

—Male community leader

“Parents always wish to educate their girl child because if they educate a girl, they know that they have educated the whole nation...they want her not to cling much on her husband whenever she gets married but rather be self-reliant. That is, she should not face the challenges her fellow girls face in marriages when they are not educated.”

—Female caregiver

Table 16. Menstrual hygiene management provisions at school

	Primary schools			CDSSs
	Comparison	Treatment	p-value	
School has one or more changing rooms	55.6	46.1		44.1
School has provisions for MHM				
Bathing areas	36.6	33.1	0.772	33.9
MHM materials (e.g., pads)	44.5	42.0	0.844	25.4
MHM education	56.1	54.2	0.882	47.5
None of the above	27.6	35.6	0.487	32.2

3.6 Baseline Balance Between Intervention Groups: Prospective Cohort

As the Malawi SEED impact evaluation uses a non-experimental study design, it is important to statistically assess the similarity between the treatment and matched comparison groups at baseline to determine whether the matching process resulted in a balanced sample. We examined baseline balance for key education outcomes, intermediate outcomes and mediating variables, and potential control variables for the sampled and matched primary schools, as well as among students, caregivers, and households in the retrospective and prospective cohorts. We defined statistical significance as a p-value lower than 0.05, which indicates that baseline values differ significantly between treatment and comparison groups. Ninety-five percent of tested indicators were balanced.

4. Results: SEED Urban

SEED Urban qualitative results are reported here separately from SEED rural quantitative and qualitative results. Due to the different timelines of SEED urban versus rural, the urban data collection took place after SEED urban completion. These findings, therefore, do not comprise a “baseline,” but rather a retrospective end line for SEED urban.

SEED Urban involved the design-build construction of prefabricated classroom blocks, new boy and girl latrine blocks, and sanitary changing rooms for girls in 30 existing CDSSs in Malawi’s urban districts of Blantyre, Zomba, Lilongwe, and Mzuzu. SEED Urban sites were handed over to the MOE December 2020–February 2021.



New SEED classroom block at a CDSS

A total of 166 FGD respondents participated in the urban qualitative component, with an average FGD size of eight students and six caregivers. An additional 24 individuals participated in in-depth interviews (IDIs) and KIIs for a total of 190 respondents. The average age of students was approximately 15.

“The new infrastructures have created a credible environment for learning and teaching at our school. As a result of these new infrastructures, we are assured of walking in the corridors of various universities in the near future.”
—Form 1 female student (FGD)

Students, caregivers, teachers, and community leaders reported many positive outcomes resulting from the SEED urban school expansion. These included an increased sense of school pride, a conducive learning environment, increased student motivation to do well in school, increased motivation for parents to send their children to school, higher enrolment and attendance rates, and reduced absenteeism among girls due to the presence of changing rooms for MHM. At the same time,

some unintended outcomes were noted by respondents, such as expanded enrollment, increased teacher workloads and exacerbation of existing book shortages.

Respondents reported that the expanded classroom space and smaller class size (despite expanded enrollment) because of SEED enabled students to better social distance to mitigate the spread of COVID-19.

Students reported that they were not sexually active because they feared getting pregnant or making someone pregnant, which would affect their ability to continue their schooling. Nearly all students interviewed reported they did not want to marry early as they viewed early marriage as a hindrance to their education and future aspirations.

Some students experienced physical violence at the hands of fellow students. Reports of psychological violence within the school environment were common and involved verbal abuse or harassment. While no students self-reported sexual assault, several female students recounted stories about friends who had been assaulted unrelated to their schooling.

Respondents reported that the school expansion had a positive effect on the local economy. Short-term effects included piece work at construction sites and an increased demand for goods such as food due to the presence of construction workers. Long-term benefits such as improvement in roads and increased business for local merchants due to increased student enrollment were also reported.

“During the time the school was being expanded, we took [it] upon ourselves as a motivation to work hard in Standard 8 so we could be selected to this CDSS and occupy these prestigious classrooms.”

—Form 1 male student (FGD)

“The change rooms which are menstrual hygiene-friendly have contributed enormously to the menstrual hygiene of girls which enables them to have dignified lives and not miss classes.”

—Form 1 female student (FGD)

5. Preliminary Programmatic Implications

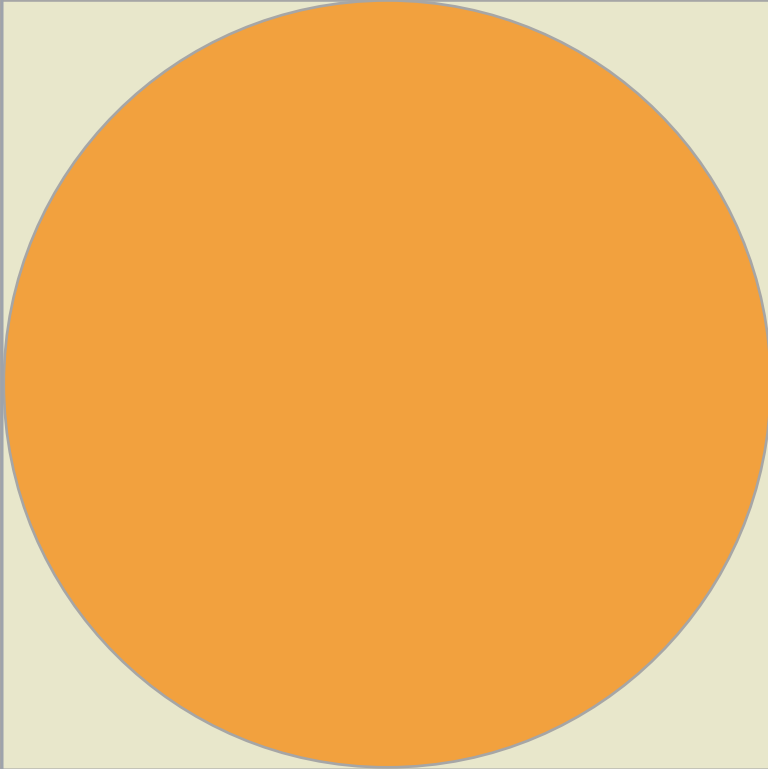
The following are preliminary programmatic implications based on the findings. These will be discussed with stakeholders during results validation events and revised in the final report.

5.1 Based on Rural Findings

- **Hold community awareness events once the opening date for the new local CDSS is announced.** We did not detect high levels of planned secondary school construction awareness among students or caregivers at baseline. It will be important to ensure that caregivers and students in Standards 6, 7, and 8, as well as community and primary school leaders, are aware that Form 1 admissions spaces have increased in their community for the SEED rural CDSS construction program to influence education and related behavior change.
- **Monitor whether abolishment of secondary school tuition is being implemented and whether non-tuition fees increase.** While 97 percent of CDSSs reported bursaries, subsidies, scholarships, and/or school fee waiver programs were available to students, direct school costs were a frequently cited barrier to secondary school attendance. Given anticipated challenges staffing the new rural SEED schools, it will also be important to monitor whether rural CDSSs increase school fees to offset revenue lost from tuition abolishment. It is also possible that some CDSSs will increase overall fees to compensate for reduced revenue from abolished tuition fees and to mitigate challenges of staffing remote rural public secondary schools.
- **Consider cost reduction or elimination for PSLCE and CDSS exam fees.** Although roughly 20 percent of primary and CDSSs reported examination fee waivers or vouchers were available to students, caregivers, primary school main respondents, and CDSS main respondents cited exam fees and related costs as serious problems for students' motivation and ability to complete primary school, join secondary school, and complete secondary school.
- **Monitor availability of WASH spaces supportive of MHM and availability of MHM commodities at non-SEED rural CDSSs.** Less than 30 percent of non-SEED rural CDSSs surveyed at baseline had both water and soap available in a private space for girls to manage menstrual hygiene. Over half did not have any girls-only change rooms available, and only a quarter had MHM materials available at the school.

5.2 Based on Urban Findings

- **Create clear school guidance that students should be allowed to use new toilet and changing facilities.** At several urban sites, students reported restricted access.
- **Address community expectations around job creation in ongoing and future construction efforts.** Some urban qualitative respondents wished for more opportunities to benefit from the construction as only a few people were able to obtain piecework and builders were brought from elsewhere. While the rural construction may have different approaches to site job creation, it will be important from the beginning to be clear with the community what that approach is.
- **Monitor teacher workloads for urban sites.** Teachers at these sites often noted increased workloads since additional students were enrolled after the expansion. This may not be sustainable and could lead to teacher burnout.



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