Analysis of the Midline Survey for the REAP Cohort

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Executive Summary

The Rural Entrepreneur Access Project (REAP) helps ultra-poor women build a pathway out of extreme poverty by providing them with seed capital, business and life-skills training, a savings program and two years of mentoring. In May 2016, 750 women across 14 locations were enrolled in REAP through funding by the Bill and Melinda Gates Foundation Putting Women and Girls at the Center of Development Global Grand Challenge. Since May 2016, these 750 women, referred to as the Gates cohort, have formed business groups of three women, received two cash grants valued at KES 20,000 ($200 USD) and KES 10,000 ($100 USD), received one year of mentorship from a local BOMA mentor, and formed savings groups that meet monthly. The purpose of this report is to assess the progress these participants have made towards graduating from extreme poverty in the first year of the program.

BOMA's Standard of Living Index (SOLI) survey was administered to participants in the Gates cohort in April 2016, before they were enrolled in the program in May 2016, and again in April 2017, at the program's midway point. The survey asked participants about their household income, savings, household decision making power, livestock ownership, enrollment of children in school, food security, healthcare use and expenditures. Questions in the midline survey were identical to those in the baseline survey with the exception of questions added about income from the BOMA business, family planning use and phone and M-Pesa usage.

Baseline data from a separate cohort of 750 REAP participants enrolled in March 2017 in the same locations is included in this report as a comparison group to ensure that changes observed are specific to REAP participants and are not widespread across the larger population. To determine what progress participants in the Gates cohort have made towards graduating from extreme poverty, the results from the midline survey are compared to results from baseline surveys for the Gates cohort and the March 2017 cohort.

At midline, 99.6 percent (249/250) of BOMA businesses are still in operation and 60 percent (151/250) of businesses meet the graduation target of having a business value of at least 125 percent of the initial grant size (KES 37,500). Overall, participants in the Gates cohort reported a 38 percent increase in average household income, from KES 3,655 at baseline to KES 5,041 at midline. The increase in household income was accompanied by a parallel increase in household expenditures. For example, annual school expenses for the Gates cohort increased 31 percent from KES 3,991 at baseline to KES 5,232 at midline, while annual medical expenses increased 21 percent from KES 1,343 at baseline to KES 1,626 at midline.

All participants in the Gates cohort reported having savings at midline, compared to only a third of participants in the Gates and March 2017 cohorts at baseline. Participants in the Gates cohort reported an average total savings of 6,815 KES at midline compared with KES 785 and KES 637 at baseline for the Gates and March 2017 cohorts, respectively. This represents an increase in savings of 768 percent over the course of one year for participants in the Gates cohort. The BOMA business, BOMA savings group and personal savings are the primary sources of savings among participants.

Participants' reported their households are now more food secure, with 96.7 percent of

participants eating two meals per day at midline compared with 79.9 percent at baseline. At midline, 76.0 percent of participants reporting that no child in their household went to sleep without an evening meal in the past week compared with 42.8 percent at baseline. The improvement in food security and other outcomes are notable given that the midline survey was conducted during one of the more extreme drought periods of the past six years.

Accompanying an increase in savings and income, participants reported an increased role in household decision making. According to the midline survey, there was an increase in decision making power by women in the household related to decisions about children's education, medical expenses and purchasing and selling livestock at midline compared with baseline. Average household decision making scores rose to a level at which participants have equal or greater control over decisions in all of the decision areas measured in the midline survey.

BOMA's new graduation standards raise the bar in determining whether households are reliably food secure, have multiple viable sources of income and secure savings, are able to successfully respond to shock, and have invested in girl's education, collectively reflecting a transition out of extreme poverty. At midline, the passing rate for all criteria are above 70 percent with the exception of Criteria 3: Value of business is 25% higher than the original cash transfer (64.3 percent); Criteria 5: Participant is a member of a savings group, has access to credit and has a minimum of KES 8,000 in savings (24.3 percent) and Criteria 6: All eligible girls are enrolled in primary school (60.6 percent).

The data from the midline survey indicates that participants in the Gates cohort are better able to provide for their families, respond to shocks and participate in household decision making. Informed by the data from the midline survey and monthly monitoring, BOMA mentors, field officers and management will now follow-up with participants to ensure they are on track to meet the graduation criteria and graduate from extreme poverty when they exit the program in May 2018.

Introduction

Background

The BOMA Project works in the arid and semi-arid lands (ASALs) of Africa where residents suffer from some of the highest poverty rates in the world. BOMA's target area represents the true last mile of extreme poverty and economic isolation. The region's low population density and lack of infrastructure mean there are no large employers, making livelihood choices minimal. Many of the villages where BOMA works are miles from the nearest trading post, paved road, public transportation, school, health center or financial institution. Low population density, geographic remoteness and transportation challenges have left residents largely forgotten by their own government, with only a few NGOs willing to make meaningful investment beyond food aid or short-term humanitarian relief.

BOMA's current work area, Northern Kenya, is defined by its geographic, economic and political seclusion. As the Kenyan Ministry of State describes in *Vision 2030: Development Strategy for Northern Kenya and Other Arid Lands* report, "The defining feature of Northern Kenya is its separation from the rest of the country, which manifests itself in both physical and psychological ways… isolation, insecurity, weak economic integration, limited political leverage, and a challenging natural environment combine to produce high levels of risk and vulnerability."[1]

According to a 2011 report by the Kenyan Ministry of State, taken together, the seven districts of Northern Kenya had a UNDP Human Development Index lower than that of Sierra Leone, the lowest-ranked country in the world.[1] According to data from the Grameen Foundation's Progress out of Poverty Index, 92% of people live in poverty in Marsabit and Samburu districts and the reported number of people living in extreme poverty is as high as 82%.

Livestock remains the traditional source of food and income, and as the severity of droughts escalates, herding has become an increasingly unsustainable livelihood. In 2011, the worst drought in 60 years triggered a hunger crisis in East Africa, impacting more than 13 million people and leaving in its wake 50,000 to 100,000 dead. The United Nations estimated the cost of humanitarian response at $1.5 billion.

Women and children in pastoral communities are particularly vulnerable to the severe cycle of drought and famine. Left in the villages, without food or income for as long as six months, while men travel with the herds in search of increasingly scarce water and grazing lands, women must survive by subsisting on food aid, begging for credit from shopkeepers, or scraping together small incomes from menial labor.

Historically, pastoral nomadic communities of Northern Kenya share a patriarchal social system, in which men have greater authority in household decision-making and control financial resources and assets, mostly livestock and land. Women are typically not allowed to own

[1] Minister of State for Development of Northern Kenya and Other Arid Lands, "Vision 2030: Development Strategy for Northern Kenya and Other Arid Lands" Republic of Kenya, August 2011.

livestock, save for a few animals in the homestead. Although men tend to spend the majority of their time away from the household to look after livestock, they are the primary earners, and therefore control the finances for the household and the decisions. When women are left alone to take care of the children and household, most will need to consult their husbands about household decisions, including paying for medical treatment, paying for school fees and school expenses and buying and selling livestock. In recent years, women have become further marginalized and disempowered by the ripple effect of climate change and dependence on humanitarian aid. Women suffer doubly in geographic isolation with a lack of opportunities for income-generating activities and discrimination within a patriarchal society. And for the few women who have managed to cultivate a source of income, their lack of access to formal financial institutions makes it difficult to keep, transfer and save money safely.

The Rural Entrepreneur Access Project (REAP)

The Rural Entrepreneur Access Project is an innovative, gender focused, two-year poverty graduation model developed to meet the needs of women in the drylands of Africa that addresses the problems described above. BOMA provides seed capital, financial and life skills training, which includes training on family planning and the importance of child education, and two years of mentoring to support business groups of three women and savings groups in order to start a small business, establish a sustainable income and create a mechanism for savings. As part of REAP, all participants are provided with mobile phones and an m-pesa account as a way of harnessing mobile technology to promote financial inclusion. M-pesa offers a secure platform for women to safely send money to make payments (e.g. school fees or business stock) or to receive money. It can also be used for personal savings in addition to their savings with the savings groups, providing an additional buffer to shocks and future goals such as sending a child to secondary school.

REAP participants are selected using a targeting method designed to enroll the poorest and most vulnerable women. Targeting commences with a Participatory Wealth Ranking (PWR) exercise, a community-based process that identifies a pool of candidates for consideration by the BOMA Location Committee (BLC) and Mentor for participation in the program. The Mentor then interviews a potential participant in her home using BOMA's unique Participant Targeting Tool (PTT), which is scored immediately in Performance Insights, BOMA's digital data platform, resulting in a final participant list. All mentors are full-time BOMA staff who are respected local residents--former school teachers, shop owners and development workers--who are carefully selected, trained and supported by the BOMA field staff.

After REAP participants are identified, the mentor facilitates the formation of business groups of three women from the participant pool and helps them to write a business plan, called a Jump Grant Application. The Jump Grant Application includes a description of the business, projected start-up costs, a budget and a savings plan. Participants self-select themselves into business groups and determine the type of business they will run in order to ensure cooperation and avoid conflict among business partners. Businesses formed by REAP participants include general shops/kiosks, livestock businesses, butcheries, grocers, and shops selling clothes, petrol, beads and crafts.

BOMA's holistic program helps ultra-poor women to build a pathway out of extreme poverty by addressing the three interrelated elements that contribute to the cycle of poverty: low incomes, inconsistent cash flows and inadequate financial services. Profits from each REAP business provide a new and diversified income for participants, while personal and business savings training help women manage cash for daily needs. BOMA savings groups help women plan for future expenses like school fees and healthcare and respond to shocks (drought or emergencies). Anecdotally, this financial and social empowerment has led women to exercise increased influence in household decision-making. This is consistent with the development literature that contends that a woman's ability to earn and control income and financial assets increases their ability to have a greater say in household decision-making.[2,3]

To date, BOMA has helped 14,482 women, supporting more than 72,410 children, find pathways out of extreme poverty by establishing 4,818 businesses and 737 savings groups across Marsabit and Samburu districts in Northern Kenya. Our goal is to lift more than 100,000 women and children out of extreme poverty by 2018 and to reach one million women and children in the next five years.

Purpose of the Report

In May 2016, 750 ultra-poor women from 14 locations in the drylands of Northern Kenya were enrolled in BOMA's REAP program and formed into business groups of three women through funding from the Bill & Melinda Gates Foundation. While all locations are located in Marsabit and Samburu county, these 14 locations differ in terms of access to the main A2 highway passing from Kenya to Ethiopia, access to markets, the primary livelihood for residents (pastoralist vs. agro-pastoralist), the prevalence of primary schools, the dominant tribe and amount of rainfall. At the onset of the program, each business group received a Jump Grant valued at $200 USD and began monthly mentorship and business skills training with their BOMA Village Mentor. In November 2016, business groups received a Progress Grant valued at $100 USD, formed into 51 savings groups of approximately 15 women each and began making monthly savings contributions and participating in monthly savings group meetings.

This report compares the characteristics of REAP participants in the Gates cohort one year after enrolling in REAP (April 2017) with their characteristics at baseline (April 2016). Baseline data from a separate cohort of REAP participants enrolled in March 2017 in the same locations is included as a comparison group to ensure that changes observed are specific to REAP participants and not widespread across the larger population. Changes in all outcomes measured at baseline are reported, including savings, household income, expenditures, household decision making power, healthcare use, food security, school enrollment and livestock ownership.

Data from the midline report will be used to determine the impact of REAP over the first year of the project, and identify areas where attention is needed in order for participants to meet

[2] A.M. Sultana, "Factors Effect on Women Autonomy and Decision-making Power within the Household in Rural Communities," Journal of Applied Science Research, 7 (1): 18-22, 2011.

[3] B. Agarwal, "'Bargaining and Gender Relations: Within and Beyond the Household." Feminist Economics 3 (1): 1–51, 1997.

BOMA's rigorous graduation criteria and **how participation in REAP translates to such gender-influenced outcomes as increased household financial decision-making by women, increased education opportunities for girls, increased household food security and increased use of healthcare.**

Methods

Midline Survey for the Gates Cohort

BOMA's Standard of Living Index (SOLI) midline survey was administered to the 750 participants in the Gates cohort from April 10-28, 2017. Data collection was done by three teams of independent enumerators, each consisting of one supervisor and four trained enumerators. All survey data was collected using tablets equipped with TaroWorks, a digital data collection application that uploads data into BOMA's Performance Insights data platform.

Prior to the survey, all enumerators participated in a four-day training that consisted of a review of the survey questionnaire, instruction on data collection using TaroWorks and tablets, practice in pairs, role plays in groups, a practical test to ensure enumerator competency and a field test. One of the goals of the training was to ensure that all enumerators understood the context of the questions (why we are asking this question) and how to probe with participants to get authentic answers. Selection of enumerators was a competitive process, with 16 individuals brought in to the training and 12 hired as enumerators based on scores on a post-test administered on the final day of the training. The post-test asked enumerators about how they would answer certain survey questions in a given scenario and how they would ask various questions in the local language. All enumerators were University students or graduates from Marsabit or Samburu County to ensure a high level of numeracy and literacy and familiarity with the local language and context.

Questions in the midline survey were identical to those in the baseline survey with the exception of questions added about income from the BOMA business, family planning usage and phone and M-Pesa[4] usage. Surveys were conducted in participants' homes to ensure privacy and comfort. Spot checks were conducted by supervisors throughout the survey to ensure the accuracy of data collected. Spot checks were done by re-administering two survey sections at random to a participant and comparing the results with those submitted by the enumerator. Incoming data was monitored by BOMA's Monitoring and Evaluation team using a series of dashboards created on BOMA's innovative digital platform, Performance Insights.

Due to the ongoing drought, some participants had travelled temporarily to satellite livestock camps or other locations and were not able to be reached. Midline surveys were completed by 90% of participants.

[4] M-Pesa (M for mobile, *pesa* is Swahili for money) is a mobile phone-based money transfer, financing and microfinancing service, launched in 2007 in Kenya and Tanzania. M-Pesa allows users to deposit, withdraw, transfer money and pay for goods and services easily with a mobile device

Baseline Survey for the March 2017 Cohort (Comparison Group)

The SOLI baseline survey was administered to 750 women enrolling in the March 2017 (Comparison Group) cohort in the same 14 locations as the Gates cohort. Participants for the Gates and March 2017 (Comparison Group) cohort were selected using the same pool of eligible participants created during the PWR process in each location to ensure comparability between groups. Data collection for the baseline survey was conducted from January 21 to February 15, 2017 by three teams of 3-4 independent enumerators and one supervisor. All supervisors and enumerators participated in a four-day training identical to that for the Gates cohort midline survey. Because the survey for the March 2017 (Comparison Group) cohort used a shortened version of the SOLI questionnaire, some questions, such as those about certain household expenditures and healthcare use, were asked on the baseline and midline survey for the Gates cohort but not for the March 2017 cohort (Comparison Group). Baseline surveys were completed by 748 of 750 participants.

The total number of participants surveyed for the Gates cohort at baseline and midline, and for the March 2017 cohort (Comparison Group) at baseline are shown below in Table 1.

Table 1. Number of REAP Participants surveyed by location

Location	March 2017 Cohort (Comparison Group)- Baseline	Gates Cohort - Baseline	Gates Cohort - Midline
Badasa	60	60	53
Dhirib Gombo	60	60	56
Dukana	60	60	59
Illaut	30	30	29
Kalacha	60	60	55
Kargi	60	60	56
Korr	74	75	68
Maikona	45	45	39
Merille	60	60	52
Ndonyo Uasin	60	60	53
Ngilai West	45	45	40
Ngurunit	30	30	28
Sagante	60	60	48
South Horr	44	45	36
Total	748	750	672

Data Analysis

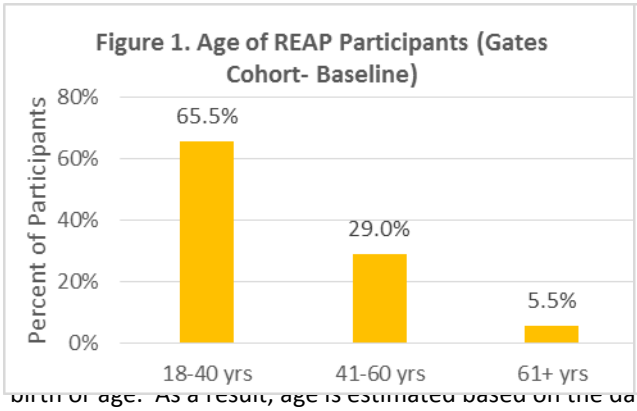
Data analysis involved both descriptive statistics and statistical tests. Descriptive statistics performed include proportions and frequency counts for categorical variables and means for continuous variables. Two-sample t-tests were used to compare differences in means for continuous variables at a five percent level of significance. Before performing t-tests, normality checks were done using graphical methods (histogram) and data were log-transformed accordingly. Significance tests on categorical variables were performed using z-tests for binary outcomes and Chi-square tests for polychotomous outcomes, which were also evaluated at a five percent level of significance. P-values for comparisons of the Gates cohort at midline vs. Gates cohort at baseline and Gates cohort at baseline vs. the March 2017 (Comparison Group) at baseline are included in the main body of the report, while p-values for the Gates cohort at midline vs. the March 2017 (Comparison Group) cohort at baseline are included in Annex A. The data analysis methodology and report content was reviewed by the International Center for Research on Women (ICRW) and updated based on their feedback. All data analysis was performed using Stata software (Version 14, StataCorp, College Station, TX).

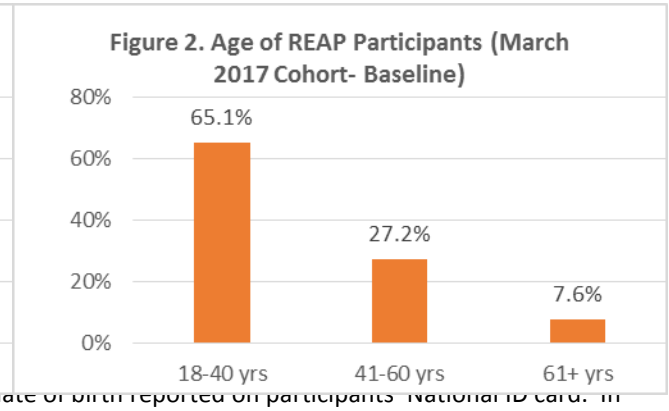
Results

Demographic Profile of the Gates Cohort versus the March 2017 Cohort (Comparison Group)

Demographic characteristics are collected as part of the baseline survey conducted for participants enrolling in REAP. For the purpose of this report, it is important to compare the demographics of the two cohorts to ensure that the characteristics of women enrolled are similar. No significant differences in demographic characteristics between the two cohorts were observed.

Participants in the Gates and March 2017 (Comparison Group) cohorts have a similar age distribution, with the majority (65.5 percent and 65.1 percent, respectively) of participants falling between the ages of 18 and 40 and about a quarter (29.0 percent and 27.2 percent, respectively) of participants falling between 41 and 60 years of age (Figure 1 & Figure 2).[5]





birth or age. As a result, age is estimated based on the date of birth reported on participants' National ID card. In the event that the participant's ID card is not available, her age is estimated based on their dancing circle (age group that she is associated with in the community) or by an events calendar.

Marital status is also consistent across cohorts with approximately three-quarters of REAP participants reporting that they are married and a quarter reporting they are either divorced or widowed in each cohort (Table 2). Thirty-one percent of participants in the Gates cohort reported being a co-wife, meaning that their husband has at least one other wife besides themselves. Prevalence of polygamy was not collected for the March 2017 (Comparison Group) cohort.

Table 2. Marital Status of REAP Participants

Marital Status	Percent of participants: Gates Cohort- Baseline	Percent of participants: March 2017 Cohort (Comparison Group) - Baseline
Married	72.6	75.6
Widowed	18.3	15.0
Divorced/Separated	7.6	8.0
Single	1.1	1.1
In a Relationship	0.4	0.4

The Gates cohort and the March 2017 cohort (Comparison Group) are also comparable with regards to the breakdown of the tribes of REAP participants (Figures 3 & 4). Both cohorts are made up of the same four major tribes—Samburu, Gabra, Borana, and Rendille—and have similar proportions of participants representing each tribe. The proportional representation of each of the majority tribes differs only by 2 to 3 percent across cohorts.

Figure 3. Tribe of REAP Participants (Gates Cohort-Baseline)

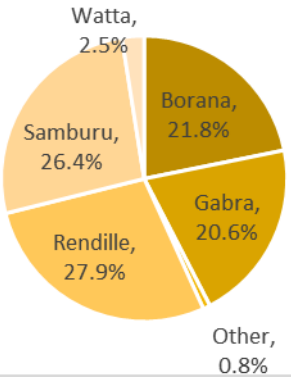
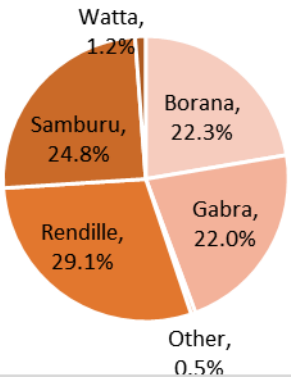


Figure 4. Tribe of REAP Participants (March 2017 Cohort-Baseline)



In addition to similarities across demographic characteristics, the comparison and treatment cohorts are comparable in terms of literacy, asset ownership, and use of social services (Table 3). At baseline, approximately 40 percent of participants in both cohorts reported owning a phone the average Tropical Livestock Unit measure (TLU) for the Gates and March 2017

(Comparison Group) was 2.8 and 3.0, respectively. The number of participants who, at baseline, reported having ever received food aid differs by less than 1 percent between the Gates cohort and the March 2017 cohort (Comparison Group). Similar percentages of participants were receiving regular benefits with the Hunger Safety Net Program (HSNP) [6] cash-transfer program for vulnerable residents at baseline: 16.3 percent of participants in the Gates cohort and 17.0 percent of participants in the March 2017 (Comparison Group) cohort.

Table 3. Literacy, Asset Ownership, and Use of Social Services by REAP Participants

Category	Baseline Characteristic	Gates Cohort-Baseline	March 2017 Cohort-Baseline
Literacy	Can write	7.0%	9.0%
	Can read	8.0%	10.0%
Asset Ownership	Mobile phone ownership	40.6%	38.1%
	Livestock ownership (TLU)	2.8	3.0
Use of Social Services	Ever received food aid	79.3%	80.2%%
	Receive regular HSNP benefits	16.3%	17.0%

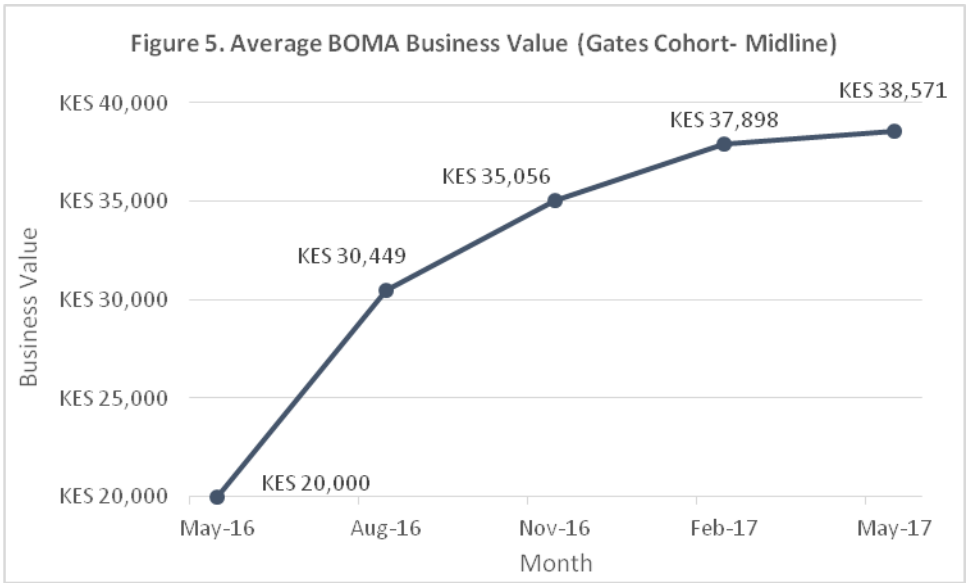
Economic Empowerment

Business Performance

From June 2016 to May 2017, mentors made a total of 2,653 monthly monitoring visits to the 250 Gates-funded REAP businesses. At midline, 99.6 percent (249/250) of businesses were still in operation. This is consistent with other REAP cohorts and reflects the dedication of BOMA mentors and the benefit of having regular support by a mentor from the community.

The average business value increased consistently over the past year, with the greatest increase occurring during the first three months of the program and gradual increases taking place since then (Figure 5). At midline, 60 percent (151/250) of businesses meet the graduation goal of having a business value of at least 125 percent of the initial grant size (KES 37,500).

[6] The Hunger Safety Net Program is a scaled up, government-led safety net program to support some of the most vulnerable and poor households in Northern Kenya through delivery of cash transfers every two months (Regular HSNP) and during drought emergencies (Emergency HSNP). Regular HSNP payments support the poorest and most vulnerable households in the arid counties of Turkana, Mandera, Wajir and Marsabit. Emergency HSNP payments are delivered to additional households in response to drought.



Business growth was consistent of across locations with the exception of Sagante and Dhirib Gombo, which experienced mentor performance issues in the first year of the program that are being addressed.

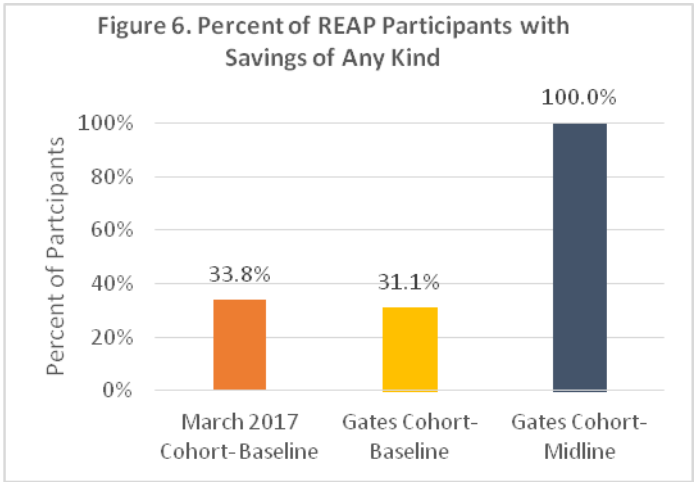
Table 4. Average Business Value at Midline by Location

Location	Average Business Value: May 2017	Percent Change: May 2016- May 2017
Badasa	35,010	175%
Dhirib Gombo	25,130	126%
Dukana	46,381	232%
Illaut	48,435	242%
Kalacha	36,933	185%
Kargi	42,078	210%
Korr	38,024	190%
Maikona	39,727	199%
Merille	41,385	207%
Ndonyo Uasin	49,720	249%
Ngilai West	38,629	193%
Ngurunit	37,995	190%
Sagante	19,500	98%
South Horr	48,568	243%

Personal Savings

Establishing savings for participants is a key component of BOMA's mission as it ensures that participants exit REAP with a foundation to withstand shocks such as drought and unplanned medical expenses. In pastoralist settings, savings are primarily through livestock, which can quickly be lost if there is a disease or drought. REAP participants are encouraged to save at least KES 400 (USD $4) per month with their BOMA savings group in addition to saving with their BOMA business group and on their own. Since December, 2016, there have been a total of 306 savings group meetings, with participants contributing an average of KES 511 per month.

The Gates midline survey indicates that REAP has already been successful in providing a formal process and savings mechanism for participants that encourages savings. At midline, 100 percent of participants report having some form of savings, compared to a third of participants at baseline (Figure 6).



The BOMA business and BOMA savings group are the primary sources of savings among participants in the Gates cohort, with 99.6 percent of participants having savings in their BOMA savings group and 65.9 percent having savings in their BOMA business at midline (Table 5). In addition, 43.8 percent of participants in the Gates cohort reported having cash savings at midline compared to 11.1 percent and 11.8 percent at baseline for the Gates and March 2017 (Comparison Group) cohorts, respectively. This presents a major step forward for participants who largely did not have any savings a year ago.

Table 5. Percent of Participants With Savings in Various Locations

Type of Savings	March 2017 Cohort (Comparison Group) - Baseline	Gates Cohort- Baseline	Gates Cohort- Midline
BOMA savings group	N/A	N/A	99.6
BOMA business	N/A	N/A	65.9
Cash savings	11.8	11.1	43.8

ROSCA	4.6	7.9	10
Non-BOMA savings group	11.1	12.0	7.7
Non-BOMA business	3.3	3.5	4.9
M-Pesa	0.5	0.1	3.1
Bank	0.4	0.8	1.2
Other	0	0.1	0.2

There was a slight decrease in the percent of participants reporting savings with other savings groups at midline, suggesting that a few participants left a savings group to focus on savings with their BOMA savings group. In past REAP cohorts, savings with other savings groups have been shown to increase after two years as participants have more capital and seek to grow their savings. It will be of interest to see how locations of savings changes over the next year.

Participants in the Gates cohort reported significantly higher total savings at midline (6,815 KES) compared with the Gates cohort at baseline (KES 785, $p < 0.0001$). This represents an increase in savings of 768 percent over the course of one year for participants in the Gates cohort.

Table 6. Average Amount of Savings Across All Participants (KES)

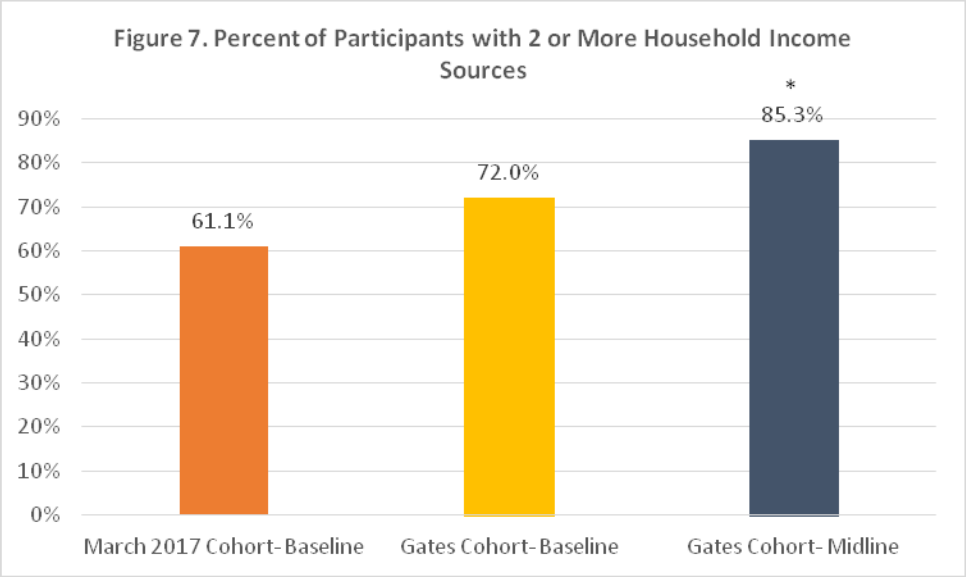
Type of Savings	March 2017 Cohort (Comparison Group) - Baseline	Gates Cohort- Baseline	Gates Cohort- Midline
BOMA savings group	N/A	N/A	3,734
BOMA business	N/A	N/A	1,229
Cash	166	141	968
Non-BOMA savings group	229	255	419
ROSCA	71	216	203
Non-BOMA business	53	62	99
M-Pesa	6	1	87
Bank	16	109	77
Other	0	19	1
Total Savings	**637**	**785**	**6,815***

***** Significantly different from the Gates cohort at baseline, $p < 0.0001$

Household Income

To understand how the financial situation of participants' households change from participation in REAP, enumerators ask participants about their sources of income and amount earned from each source at baseline, midline and endline. Although there are known challenges collecting accurate data on income, similar challenges in recall are faced when measuring consumption. This data set thus serves as an estimate of the change in household income for REAP participants.

As shown in Figure 7, 85.3 percent of participants reported having two or more income sources at midline, compared with 72.0 percent in the Gates cohort at baseline ($p<0.0001$) and 61.1 percent in the March 2017 cohort (Comparison Group) at baseline, confirming that the BOMA business has helped participants to increase and diversify their household income sources.



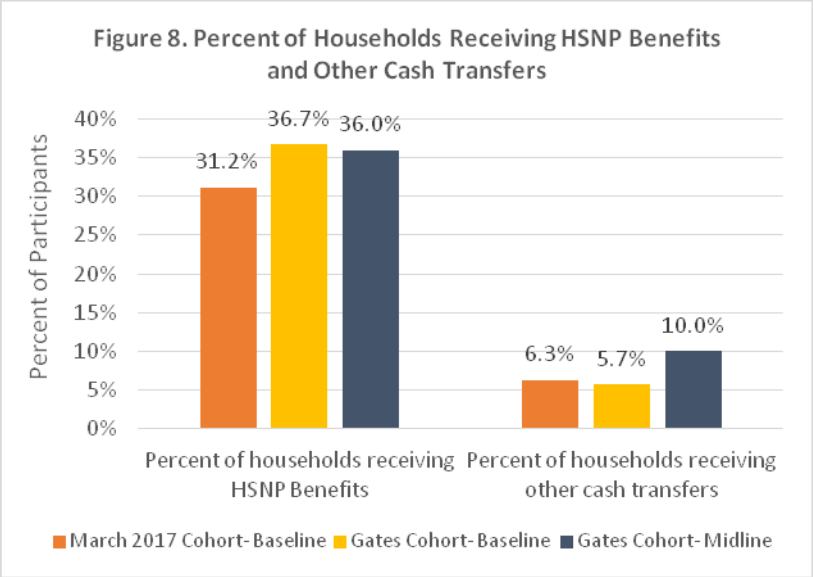
***** Significantly different from the Gates cohort at baseline, $p < 0.0001$

As shown in Table 7, the increase in the number of income sources was largely from the introduction of the BOMA business. The percent of participants in the Gates cohort reporting that their household received income from dangerous sources (burning charcoal, collecting firewood and fetching water) decreased compared with baseline. The percent of participants in the Gates cohort reporting their household earns income from livestock decreased from baseline to midline. This is likely due to participants reporting that they were not currently selling livestock due to the drought, rather than that they were no longer selling livestock for income. Previous REAP cohorts have shown little to no change in the percent of participants reporting income from livestock at endline, suggesting that the effect observed is due to how data was collected and not due to a shift in income sources for the household. Future SOLI trainings will emphasize how this question is asked and probing that may be needed.

Table 7. Reported Sources of Income for REAP Participants

Income Source	March 2017 Cohort (Comparison Group) - Baseline	Gates Cohort- Baseline	Gates Cohort- Midline
BOMA Business	N/A	N/A	95.7
Selling Livestock	51.0	62.8	46.0
Casual Labor	26.7	36.9	29.6
Remittances	17.5	17.9	17.6
Collecting Firewood	18.8	23.2	11.8
Selling Milk	15.9	8.8	11.6
Selling Meat	9.9	9.7	11.3
Burning Charcoal	11.1	10.3	7.6
Selling Crops	14.0	5.6	5.4
Selling Hides & Skins	7.9	4.8	3.6
Fetching Water	6.0	11.1	3.6
Salaried Labor	3.3	2.0	3.0
Non-BOMA Business	11.5	3.6	2.8
Tourism	3.3	1.2	2.7
Political Handouts	0.0	2.3	5.7
Pension	0.0	0.3	0.3
Selling Fish	0.1	0.0	0.0

The percent of participants reporting that they receive income from HSNP or other cash transfers did not significantly change compared with baseline (Figure 8). This is to be expected since participants that had already been deemed eligible to receive HSNP and other cash transfers should not have any change in benefits received in the short term due to enrolling in REAP.



Overall, there was a significant increase in the average household income reported by participants in the Gates cohort at midline (KES 5,041) compared with the Gates cohort at baseline (KES 3,655, $p<0.0001$). This represents a 38 percent increase in income for participants in the Gates cohort at midline compared with baseline.

At midline, the BOMA business, providing an average of KES 2,026 was the largest contributor to household monthly income[7], followed by selling livestock (KES 1,064) and casual labor (KES 558) (Table 8). The fact that the BOMA business surpassed livestock as the primary income source for participants' households reflects a decreased reliance on livestock. While selling livestock remains a significant contributor of income for the household, as it was in May 2016 and January 2017, the actual amount of income that it generates decreased from the May 2016 Gates baseline to the May 2017 midline, likely due to the drought.

Table 8. Average Income in the Past 30 Days Across All Participants (KES)

Income Source	March 2017 Cohort (Comparison Group)- Baseline	Gates Cohort-Baseline	Gates Cohort-Midline
BOMA Business	0	0	1,287
Selling Livestock	941	1,231	1,064
Casual Labor	361	667	558
Remittances	194	166	281
Selling Meat	103	103	164
Salaried Labor	163	114	130

[7] The average income generated by the BOMA business is calculated as the sum of the cash taken as income from the BOMA business, the amount of credit paid off with earnings from the BOMA business, and the total value of food and goods taken as profit from the BOMA business in the past month.

Collecting Firewood	156	264	98
Burning Charcoal	189	200	94
Non-BOMA Business	113	194	37
Fetching Water	24	100	29
Selling Milk	41	51	24
Political Handouts	0	0	12
Tourism	14	1	12
Selling Crops	297	74	7
Pension	17	7	4
Selling Hides & Skins	8	2	3
Selling Fish	0	0	0
Total Household Income	**2,773**	**3,655**	**5,041***

***** Significantly different from the Gates cohort at baseline, $p < 0.0001$

Household Expenditures

Household expenditures are also used to determine financial changes in participants' households, as it reflects the ability of a participant to provide for her family. Participants are asked about school and medical expenditures for the past year, as these are major expenses for the household that are not incurred every month. All other expenses are reported for the past month.

As shown in Table 9, participants in the Gates cohort at midline were more likely to have paid school fees and school expenditures compared with the Gates cohort) at baseline ($p=0.0001$), and had significantly higher spending on school fees and school expenditures compared to the Gates cohort at baseline ($p<0.0001$). School expenses for the Gates cohort increased 31 percent from KES 3,991 at baseline to KES 5,232 at midline, reflecting an increased ability to pay for school fees and expenses by REAP participants.

The percent of participants reporting medical expenditures remained constant from baseline to midline. This is expected as nearly all participants reporting an illness or injury at baseline and midline sought treatment. However, there was a trend towards a higher increase in medical expenses paid by the Gates cohort at midline (KES 1,626) compared with medical expenses for the Gates cohort at baseline (KES 1,343, $p = 0.08$, suggesting that participants may have been able to afford better care and/or treatment. This represents a 21 percent increase in medical expenses paid by the household for participants in the Gates cohort at midline compared with baseline.

Table 9. Medical and School Expenditures for the Past Year Across All Participants

Expense (All Participants)	March 2017 Cohort (Comparison Group) - Baseline	Gates Cohort - Baseline	Gates Cohort - Midline
Percent of households paying school fees and expenses	66.3%	67.2%	75.9%**
Amount of school fees and school expenses paid by household (KES)	2,844	3,991	5,232*
Percent of households paying medical expenses	54.8%	57.0%	56.3%
Amount of medical expenses paid by household (KES)	1,025	1,343	1,626

***** Significantly different from the Gates cohort at baseline, $p < 0.0001$

** Significantly different from the Gates cohort at baseline, $p < 0.001$

Table 10 shows expenditures reported for the past 30 days. Although there was not a significant change in food expenditures for the Gates cohort from baseline and endline, this is expected since many participants are able to take food from their BOMA business rather than buying food in shops, meaning that their overall expenditures on food will be lower. When we include the value of food taken from the BOMA business as profit or as credit in the calculation of total food expenses, this increases the total amount spent on food to KES 2,600 for food purchased with cash and KES 1,771 for food taken as credit.

Expenditures for all items measured increased from baseline to midline for the Gates cohort, suggesting that that participants were better able to provide for their basic needs and also afford other non-essential items. Data collected on monthly expenditures with the exception of food was not collected for the March 2017 cohort (Comparison Group).

Table 10. Reported Expenditures for the Past Month Across All Participants

Expenses (All Participants)	March 2017 Cohort (Comparison Group)- Baseline	Gates Cohort- Baseline	Gates Cohort- Midline
Food (Cash)	1,679	2,205	2,096
Food (Credit)	1,025	1,089	1,229
Clothing for Self	N/A	73	123
Clothing for Others	N/A	95	209
House Repairs	N/A	7	44
Household Items	N/A	16	63

Special Events or Ceremonies	N/A	86	109
Travel	N/A	43	170
Cosmetics	N/A	50	117
Beads	N/A	11	42
Livestock	N/A	31	105
Livestock Supplies	N/A	88	239
Sweets, Tobacco, Miraa or Alcohol	N/A	96	101

Overall, the increased spending on medical care, education and other expenses indicates an improvement in participants' ability to provide for her family and an improvement in her household's financial position.

Livestock Ownership

Although BOMA provides women with alternatives to livestock for income, livestock ownership remains a profitable income-generating activity that helps provide for a household's needs. It is therefore expected that participants will continue to invest in livestock as it is the traditional source of savings and wealth. As part of the SOLI, REAP participants are asked about how many of each of five kinds of livestock they and their households own. These numbers are then converted to Tropical Livestock Units, (TLU) which are livestock numbers converted to a common unit using animal-specific conversion factors: camels are converted by a factor of 1, cattle by 0.7, donkeys by 0.5, sheep/goats by 0.1, and chickens by 0.01.[8]

As shown in Table 11, the percent of households that own livestock increased for the three animals with the highest TLU conversion units: camels, cattle, and donkeys.

Table 11. Percent of Households that Own Livestock

Livestock Type	March 2017 Cohort (Comparison Group) - Baseline	Gates Cohort-Baseline	Gates Cohort-Midline
Camels	30.3	26.7	31.7
Cattle	32.6	36.9	43.3
Donkeys	31.9	29.9	37.8
Shoats	77.6	85.6	85.4
Chickens	15.6	9.7	9.8

[8] Jahnke, H.E. 1982. *Livestock Production Systems in Livestock Development in Tropical Africa.* Kiel, FRG: Kieler Wissenschaftsverlag Vauk.

The average number of livestock owned by the household increased for all five livestock types, resulting in an overall increase in TLU for participants in the Gates cohort (Table 12). The overall increase in livestock ownership, relative to both the Gates and March 2017 (Comparison Group) cohorts at baseline, further indicates that participants' households are in better financial position compared to where they were at one year prior despite the more extreme conditions of drought in the past six months.

Table 12. Average Number of Livestock Owned by the Household

Livestock Type	March 2017 Cohort (Comparison Group)-Baseline	Gates Cohort-Baseline	Gates Cohort-Midline
Camels	1.1	0.9	1.4
Cattle	1.1	1.1	1.9
Donkeys	0.4	0.4	0.6
Shoats	9.7	9.3	12.9
Chickens	0.6	0.7	0.8
TLU	**3.0**	**2.8**	**4.4**

Last, participants reported an increase in the number of livestock they own and control, as shown by a two-fold increase in TLU for the Gates cohort at midline compared to baseline (Table 13). This is likely due to an increase in income, but may also represent a shift in cultural norms regarding women owning and controlling livestock resulting from the gain in social standing in the household.

Table 13. Average Number of TLU Owned or Controlled by the Participant

Livestock Type	March 2017 Cohort (Comparison Group)-Baseline	Gates Cohort-Baseline	Gates Cohort-Midline
Camels	0.3	0.1	0.4
Cattle	0.4	0.5	1.0
Donkeys	0.2	0.1	0.3
Shoats	3.3	3.4	6.0
Chickens	0.6	0.6	0.7
TLU	**1.0**	**0.9**	**1.9**

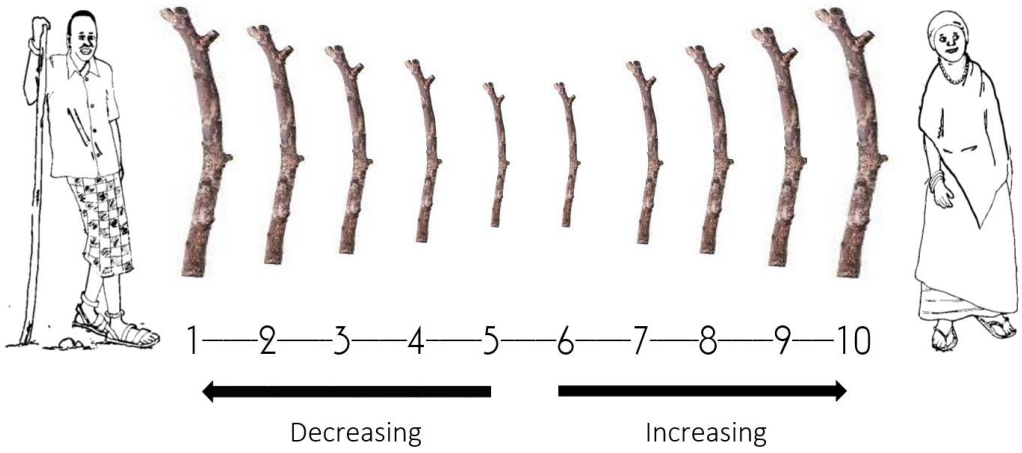
Priority Learning Themes

This section describes the impact of REAP on the priority areas of interest identified by BOMA and the Gates Foundation. To better understand the relationship between gender programs and priority health and development outcomes, the impact of REAP on household decision making, education opportunities for girls, household food security, healthcare use and phone ownership and usage was assessed.

The first metric that participants are asked to report is their relative contribution to decision making in eight decision areas on a scale from one to 10. A score of 10 means that the participant has complete control over the decision and does not consult her husband; a score of 5 means that she and her husband undertake the decision making together and have equal say; a score of 2 means that the participant's husband has most of the say in the decisions although she is informed; and a score of 1 means that the participant's husband has complete control over the decision and does not consult her.

Given that this is an illiterate population that is not familiar with Likert scales, enumerators use a figure containing images and concepts familiar to participants to explain the scale (Figure 9).

Figure 9. The figure used by enumerators to explain the 10-point decision making scale to participants.[9]



At baseline, participants in the Gates cohort reported that their husbands have greater control over decisions related to livestock purchases and sales (score of less than 5) whereas decisions related to sending children to school and paying for medical expenses are made jointly (score of 5). Participants reported having near full control over decisions related to buying food and household items (i.e. score of 8-9).

According to the midline survey results, there was a significant increase in decision making

9

power related to decisions about children's education, medical expenses and livestock purchasing and selling in the Gates cohort at midline compared with the Gates cohort at baseline. There was a significant reduction in the decision making score related to household decision making, however, this change does not have major implications as the reduction in decision making score was only 0.2 and the average score remained above 9.

Importantly, average scores not only increased but they have risen to a level at which the participant has equal or greater control over decisions in *all* of the decision areas (i.e. score > 5). The finding that participants have a greater say in decisions related to paying for children's school expenses is consistent with qualitative research conducted with BOMA participants and their husbands in which they consistently reported that because of income from the BOMA business, participants can easily pay for children's school needs without consulting their husband.

Table 14. Average Score of Participant's Relative Contribution to Decision Making[10]

Household Decision	March 2017 Cohort (Comparison Group)- Baseline	Gates Cohort- Baseline	Gates Cohort- Midline
Buying household items	9.6	9.6	9.4***
Buying food for the household	8.0	8.1	8.0
Selling own livestock	3.9	4.0	5.7*
Paying for children's medical expenses	5.0	5.6	6.4*
Buying livestock for self	4.5	4.2	6.1*
Which children to send to school	3.6	5.2	5.9**
Buying livestock for the household	3.1	3.4	5.1*
Paying for children's school fees	3.9	5.1	6.0*

***** Significantly different from the Gates cohort at baseline, $p < 0.0001$

****** Significantly different from the Gates cohort at baseline, $p < 0.001$

******* Significantly different from the Gates cohort at baseline, $p < 0.05$

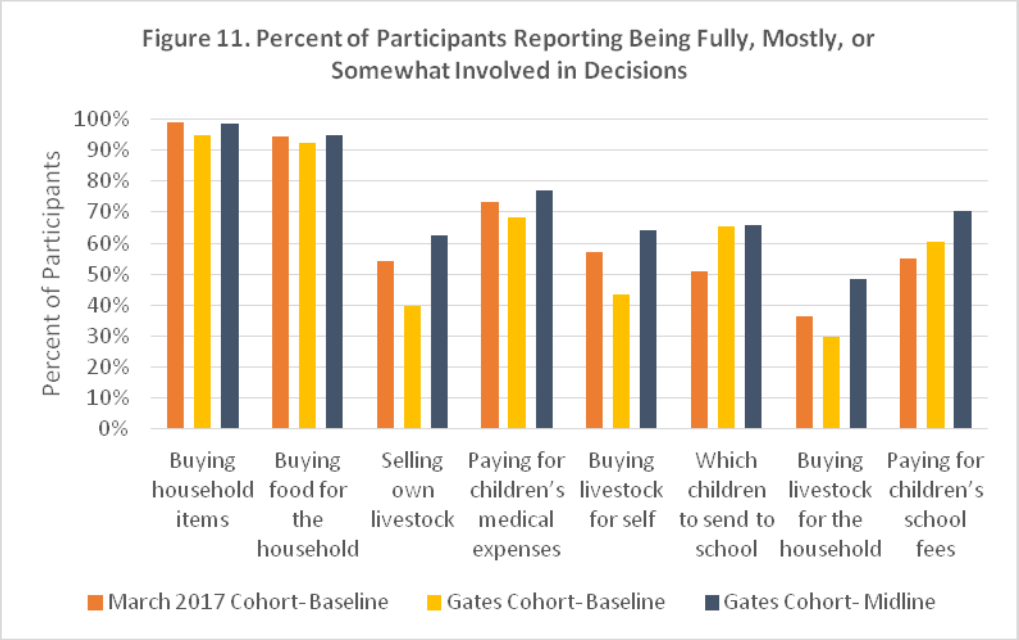
It should be noted that while the diagram shown in Figure 9 is effective in helping enumerators explain the decision scale to participants, it is a time-intensive process to explain the scale to participants. During the midline survey, one enumerator proposed that it might be easier to use one's hands to explain the 10 point scale, using the outermost finger on one side to indicate where the husband has complete control over the decision, the outermost finger on the other side to indicate where the participant complete control over the decision, and the inner fingers to indicate where the participant and her husband make joint decisions (Figure 10). This is a valuable suggestion that will be taken into consideration for participants in future REAP cohorts.

[10] Household decision making scores are reported only for married participants

Figure 10. An enumerator uses his hands to explain the 10 point household decision making scale

The baseline survey for the Gates cohort was the first time that BOMA used the 10 point decision making scale, and at the time the feasibility of using a Likert scale with participants was unknown. For this reason, participants were also asked about the extent to which they are involved in each decision using a second scale, where decision making power is ranked from "fully" to "mostly," "somewhat," "little," and "none."

Using this metric, the decision making areas with the greatest change were also selling and purchasing livestock and paying for children's school and medical expenses (Figure 11).



These results indicate that with their increased income, savings, and access to credit from the BOMA savings group, participants are now more empowered to make household financial decisions. It is anticipated that decision making power will continue to increase as participants grow their business and savings and their husbands adapt to the changing role of the participant as a provider in her household.

The impact of REAP participation on decision making with regards to livestock and schooling may go beyond the increase in a participant's access to financial resources. It could also be related to the increase in a participant's access to guidance in making financial decisions. Participants receive extensive mentoring and coaching in investments, savings, and business decisions as part of REAP. Her husband may not have the same guidance or information to contribute to decision making in the way that a participant now can. This could result in a shift of responsibilities: women may take more responsibility for decisions geared towards capital investment (e.g. buying livestock, paying school fees).

Leadership in the Community

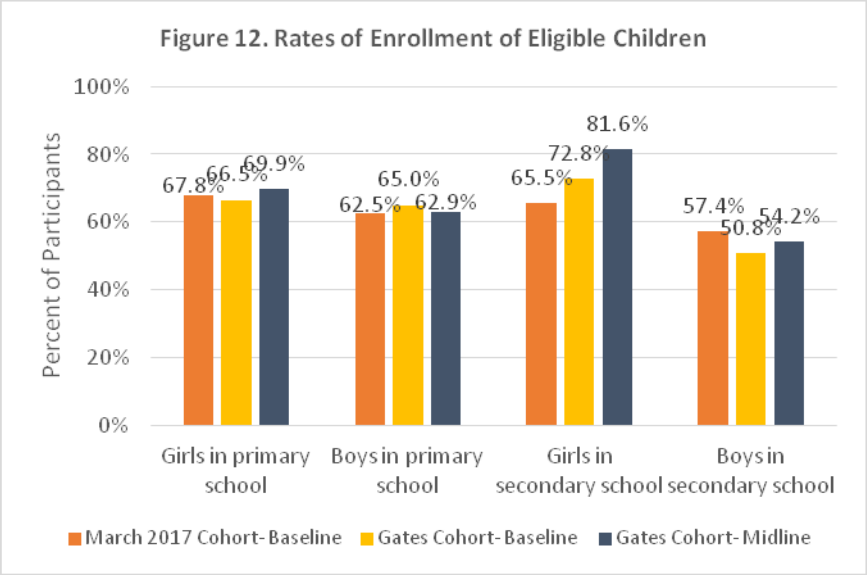
The percent of participants holding leadership positions in the community was slightly higher for the Gates cohort at midline (8.0 percent) compared with the March 2017 cohort (Comparison group) at baseline (5.6 percent). The most common leadership positions held by participants are positions in the school committee, relief committee, and religious committee. Leadership in the community was not measured for the Gates cohort at baseline.

Educational Opportunities for Girls

BOMA is committed to putting women and girls in the most remote and impoverished regions in Africa at the center of development. In light of this commitment, a second priority outcome for the Gates cohort is girls' school enrollment. Although REAP focuses on empowering women living in extreme poverty, ensuring that their girl children are enrolled in primary school is a

priority because it means the next generation of women will better be able to provide for their families, send their children to school and have improved health outcomes.

The rate of primary school enrollment for girls increased slightly in the Gates cohort from 66.5 percent at baseline to 69.9 percent at midline (Figure 12). This suggests that the training sessions at the launch of the program and at monthly meetings, advocacy from mentors and field officers and increased income from the BOMA business were not sufficient to significantly impact primary school enrollment. Given that the target for girls' primary school enrollment is 90 percent, achieving this target will require a concerted effort, starting with reviewing and identifying ways to address the barriers to primary school enrollment.



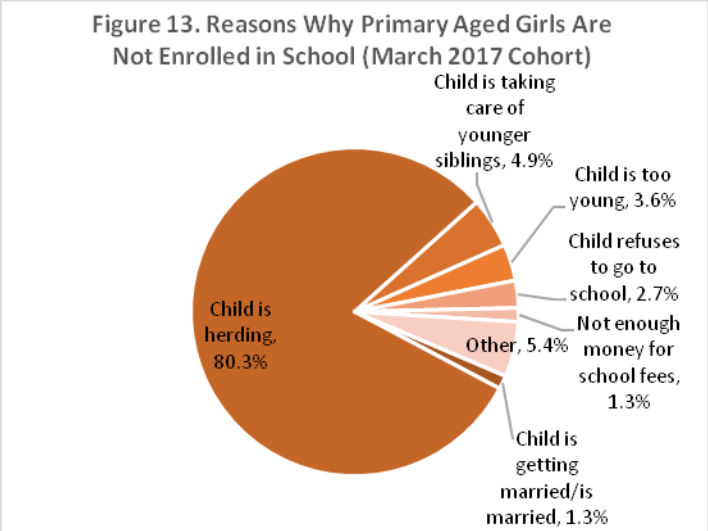
Although the overall increase in girl's primary school enrollment was small, girls primary school enrollment increased by over 10 percent in three locations and by over five percent in six locations (Table 15).

Table 15. Girls' School Enrollment by Location

Location	March 2017 Cohort-Baseline	Gates Cohort- Baseline	Gates Cohort- Midline
Badasa	100.0%	91.4%	93.2%
Dhirib Gombo	100.0%	93.3%	93.7%
Dukana	76.7%	71.7%	69.5%
Illaut	33.3%	36.7%	42.9%
Kalacha	76.5%	77.6%	85.4%
Kargi	53.2%	71.4%	65.2%
Korr	39.1%	52.4%	56.3%
Maikona	66.7%	91.7%	93.3%

Merille	70.8%	43.3%	57.9%
Ndonyo Uasin	39.3%	43.4%	54.9%
Ngilai West	77.1%	53.2%	55.9%
Ngurunit	66.7%	51.4%	71.0%
Sagante	95.3%	96.7%	100.0%
South Horr	51.4%	50.0%	59.6%

As shown in Figure 13, herding is the most common reason that girls are not enrolled in primary school, accounting for why 80 percent of primary age girls are not in school. Despite the fact that keeping children out of primary school in Kenya is illegal, herding has historically been a challenge to school enrollment in Northern Kenya as a result of the pastoral lifestyle. NGOs, churches and other organizations have tried to address this barrier with night schools for herders and other methods such as mobile education centers with academic calendars scheduled around rainfall patterns, cycles of demand for children's labor, and movement patterns of pastoralist communities. Although school enrollment has increased significantly over the past 20 years in Northern Kenya, more targeted programs and advocacy to increase school enrollment are still needed to get all girls in school. Since only 1 percent of children are not enrolled in school due to lack of money, REAP may have limited success in increasing school enrollment if other barriers are not addressed.

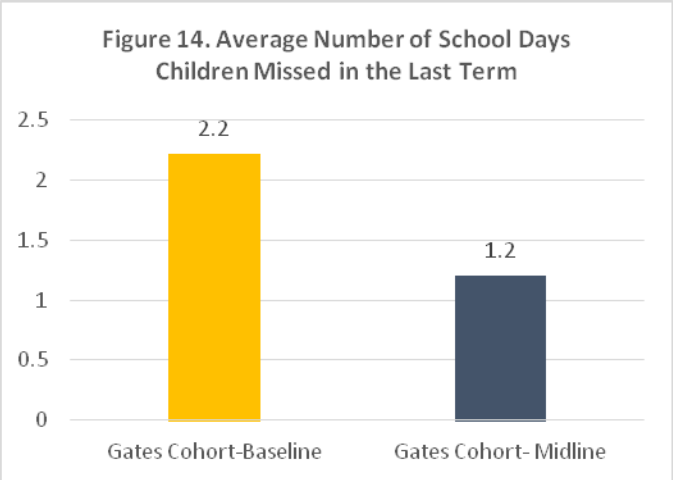


Although there was minimal impact on primary school enrollment, the enrollment rate for girls in secondary school increased by 9 percent compared with baseline. Given that school expenses for secondary school are significantly higher than primary school in Kenya due to higher school fees and in many cases costs for boarding, it is possible that for secondary school, the increased income and savings from REAP enabled participants to enroll more girls in school.

The differential impacts of REAP on secondary school enrollment for girls could also reflect the changing role of girls in the household as she gets older. Traditionally, many parents felt there were no benefits to educating girls because they will be married and at that point become part of their husband's' family, so the husband's family will reap the benefits of her education. Likewise, girls were kept at home to help care for their siblings, for the household, and/or for livestock. The advocacy efforts from BOMA and other organizations may be contributing to these changing cultural norms.

For children enrolled in school, participants reported fewer missed days compared with baseline (Figure 14). In qualitative studies, it was reported that children of REAP participants have fewer absences compared with before their mother started the program because

participants can now provide any supplies, such as pencils and the uniforms their children need for school. Previously, children were sent home from school and could not return until their father provided what was needed.



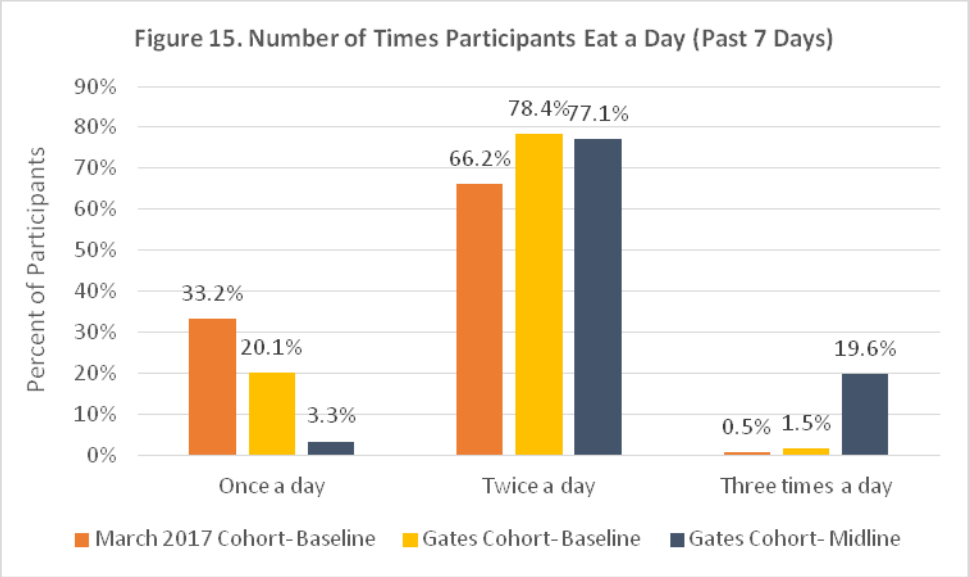
While the outcomes for secondary school-aged girls are positive, it is important to note the contrasting situation for boys. Although the enrollment rate for boys increased by 3 percent for secondary school, there was a 2 percent decrease in enrollment for boys in primary school. Boys enrollment for primary and secondary school is also lower compared girls. Although BOMA is a women's empowerment organization, the discrepancy between boys and girls school enrollment requires further research.

BOMA sees room for improvement on enrollment rates and based on research for successful school enrollment interventions globally, and, in consultation with the International Center for Research on Women (ICRW) and the Gates Foundation, BOMA proposes to explore options for adding program components that could further increase enrollment.

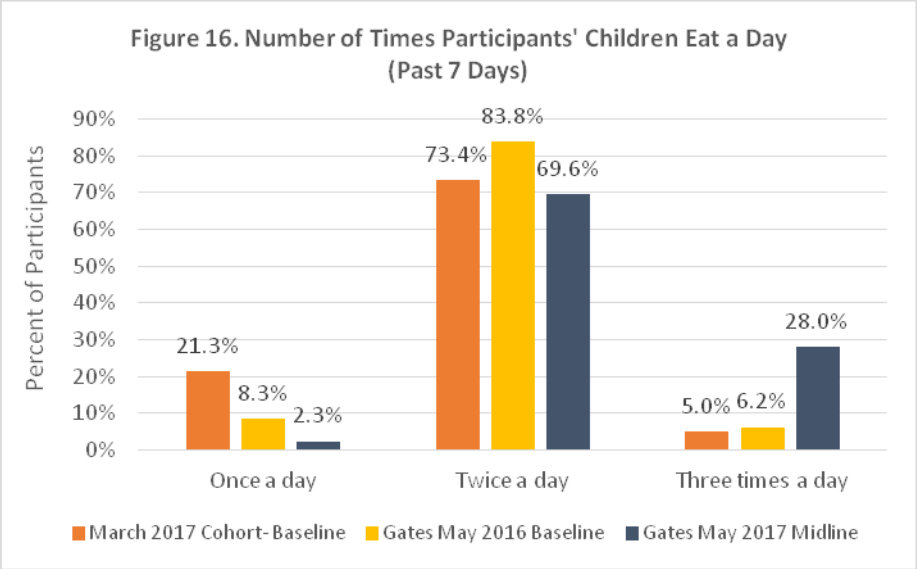
Household Food Security

Household food security is an important indicator of a participant's ability to meet her family's basic needs. It also provides insight into a participant and her household's overall quality of life.

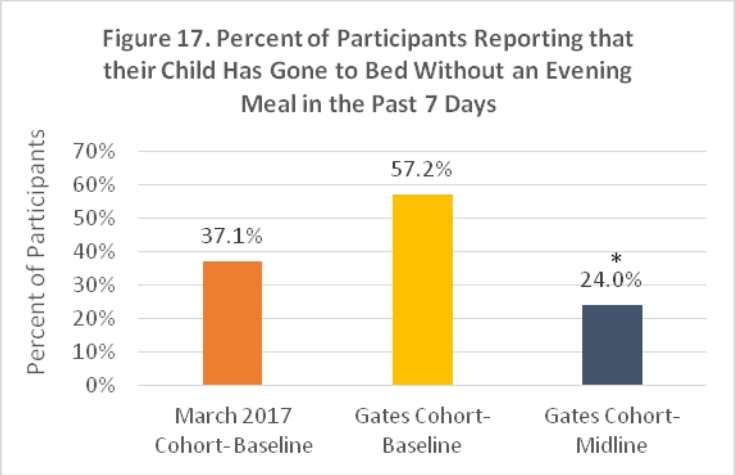
As shown in Figure 15, there was a decrease in the proportion of participants in the Gates cohort eating only one meal a day from 20.1 percent at baseline to 3.3 percent at midline, mirrored by a similar significant increase in the proportion of women who reported eating two or more meals per day ($p<0.0001$). It is important to note that the percentage of women reporting eating one meal a day is significantly higher at baseline for the March 2017 cohort (Comparison Group) compared with the Gates cohort at baseline, suggesting the ongoing drought impacted food security in the region. The fact that participants in the Gates cohort maintained or increased the number of meals eaten during this time is noteworthy.



A comparable effect was observed for the number of meals eaten by children (Figure 16). A total of 97.8 percent of participants in the Gates cohort reported their children eat two meals per day at midline compared with 91.7 percent at baseline ($p<0.0001$). The biggest change for children was in the percent of children eating three meals per day, which increased from 6.2 percent at baseline to 27.7 percent at midline.



When asked if their children went to bed without an evening meal in the past week, 24.0 percent of women in the Gates cohort at midline reported that this occurred at least once in the past week compared with 57.2 percent at baseline (Figure 17). This represents a significant decrease in the percent of children going to sleep without an evening meal in the Gates cohort ($p<0.0001$).



***** Significantly different from the Gates cohort at baseline, $p < 0.0001$

Surprisingly, the percentage of participants reporting their children went to bed without an evening meal was higher at baseline for the Gates cohort compared with the March 2017 cohort (Comparison Group) at baseline. It is possible that this is due to a change in the way that enumerators ask this question. It was recognized that there are some cases in which children could go to sleep without an evening meal that does not imply they are food insecure, such as having a large daytime meal. Since the baseline survey for the Gates cohort, it has been clarified that this question should focus on if children have gone to bed without an evening meal due to lack of food or not enough money to buy food.

Although children's food security improved over the past year, it is important to ensure that this was not due to the participant restricting her own consumption to feed her children. The data confirm that participants in the Gates cohort are less likely to restrict their consumption so their children can eat at midline compared with baseline, although this practice continues for some participants (Table 15). Overall, 75.8 percent of participants in the Gates cohort at midline reported that they rarely or never restrict their consumption so their children can eat compared to 39.7 percent at baseline. While this number is higher than desired, it is anticipated that with the resolution of the drought and continued growth of the BOMA business, this practice will decline.

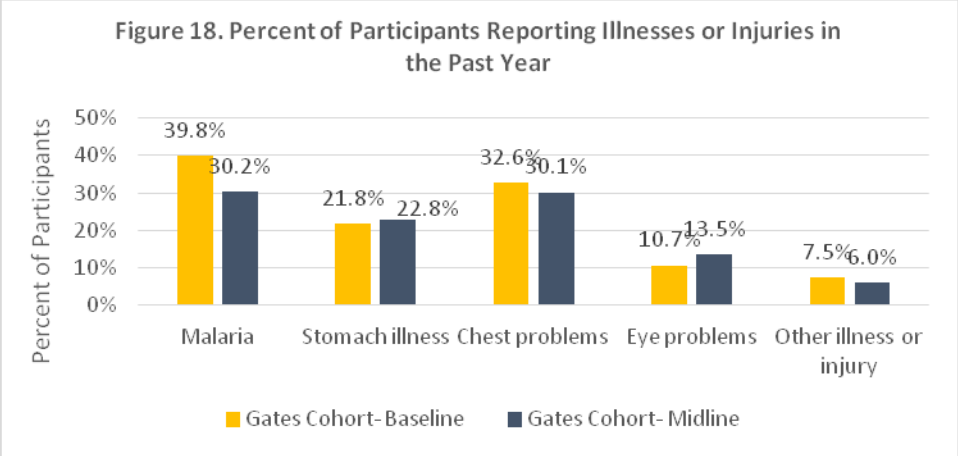
Table 16. Percent of Participants Who Restrict Their Own Consumption to Feed Their Children

Frequency	Gates Cohort- Baseline	Gates Cohort- Midline
Always (every day)	0.5	0.0
Pretty often (3-6 times a week)	19.9	2.8
Once in a while (1-2 times/week)	39.9	21.4
Rarely (<1 time/week)	29.1	41.4
Never	10.6	34.4

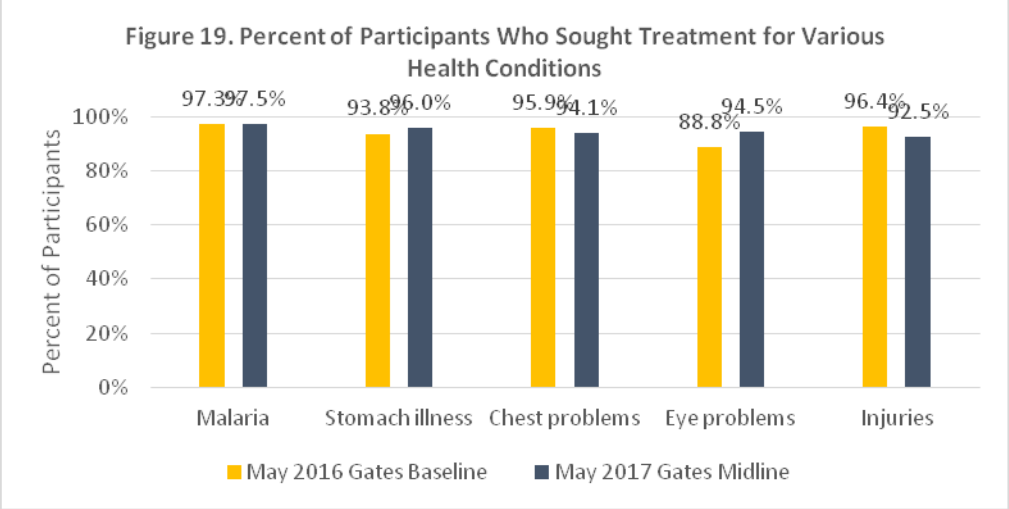
BOMA has updated its monthly monitoring form to include questions for each participant on food security. This will enable mentors, field officers and management to better understand the food security situation of participants over time and identify and respond to flags in a timely manner.

Healthcare Use

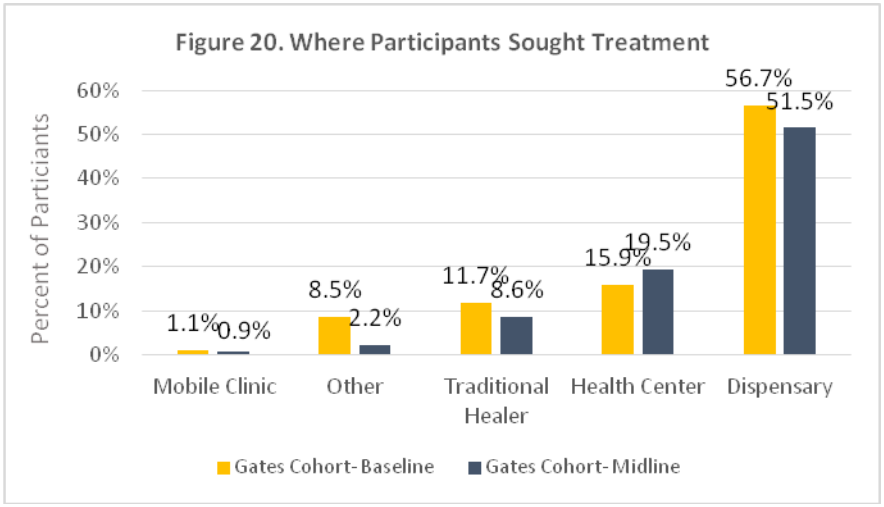
The fourth learning theme addressed in this report is healthcare use. In the baseline and midline survey for the Gates cohort, participants were asked whether they had certain illnesses in the past year, and whether they sought care for those ailments. With exception of the number of participants reporting malaria, which decreased by 10 percent likely due to the drought, the prevalence of illnesses and injuries reported was similar at baseline and midline (Figure 18).



The percent of participants who sought treatment for each illness or injury remained high, with over 90 percent of participants reporting they sought treatment for each type of illness or injury at midline (Figure 19). The largest change was a 6 percent increase in women who sought treatment for eye problems, which suggests that women may be more likely to seek treatment for more minor health problems than they were previously.



Compared with baseline, there was a slight increase in participants in the Gates cohort reporting seeking treatment at health centers at midline, with a corresponding decrease in the percent of participants reporting they sought treatment at a dispensary or traditional healer (Figure 20).

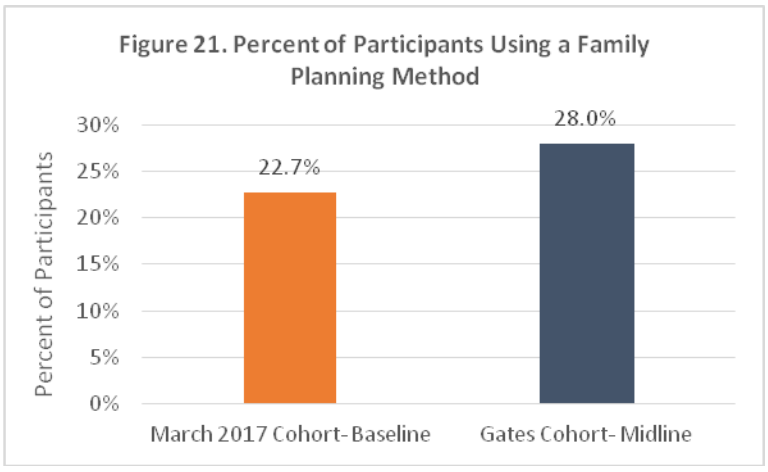


Family Planning

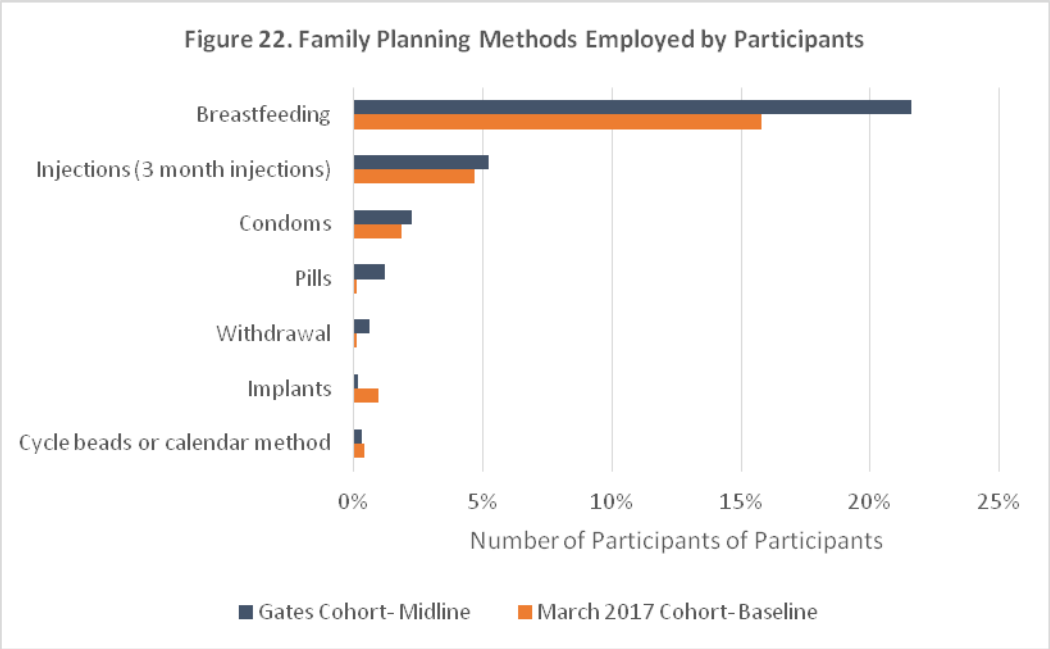
Family planning introduced into REAP in 2016 in light of data from the 2014 Kenya Demographic and Health Survey that showed that use of modern methods of family planning was 11 percent in Marsabit County compared to 55 to 73 percent uptake in most other Kenyan counties. A session on basic family planning and how to access services is now included as part of training modules that are delivered by BOMA mentors at savings group meetings.

Questions on family planning were introduced into the SOLI questionnaire in November 2016 and were therefore not asked for the Gates cohort at baseline. At midline, 28.0 percent of participants in the Gates cohort reported they are currently using a family planning method compared with 22.7 percent in the March 2017 (Comparison Group) cohort (Figure 21).

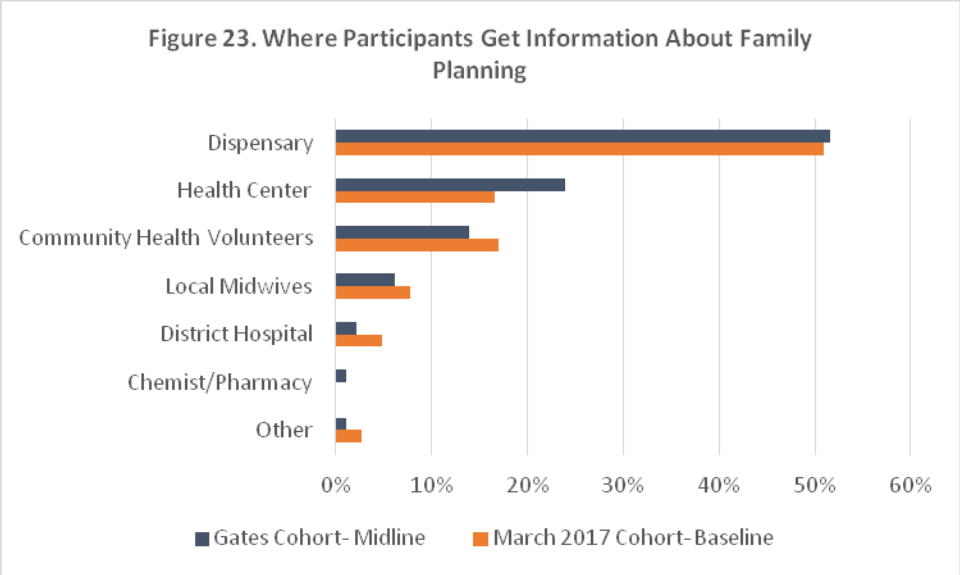
For both cohorts, approximately a quarter of participants reported using a family planning method.



The most common family planning method used by participants is breastfeeding (lactational amenorrhea), followed by injections, condoms, birth control pills and implants (Figure 22). It is unknown if all participants reporting they are using breastfeeding as a method of birth control are exclusively breastfeeding, have a child under six months and have not yet had their menstrual period return, or if there are some misconceptions about the lactational amenorrhea method of family planning.



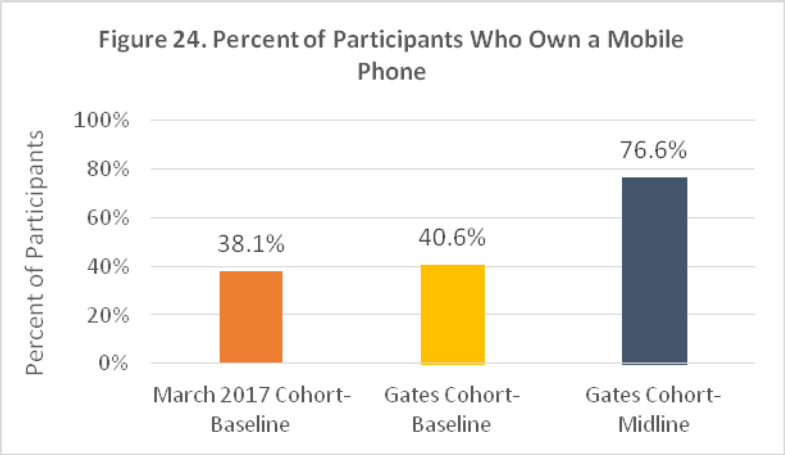
The most common place that participants get information about family planning is from the dispensary, followed by health center and Community Health Volunteers (Figure 23).



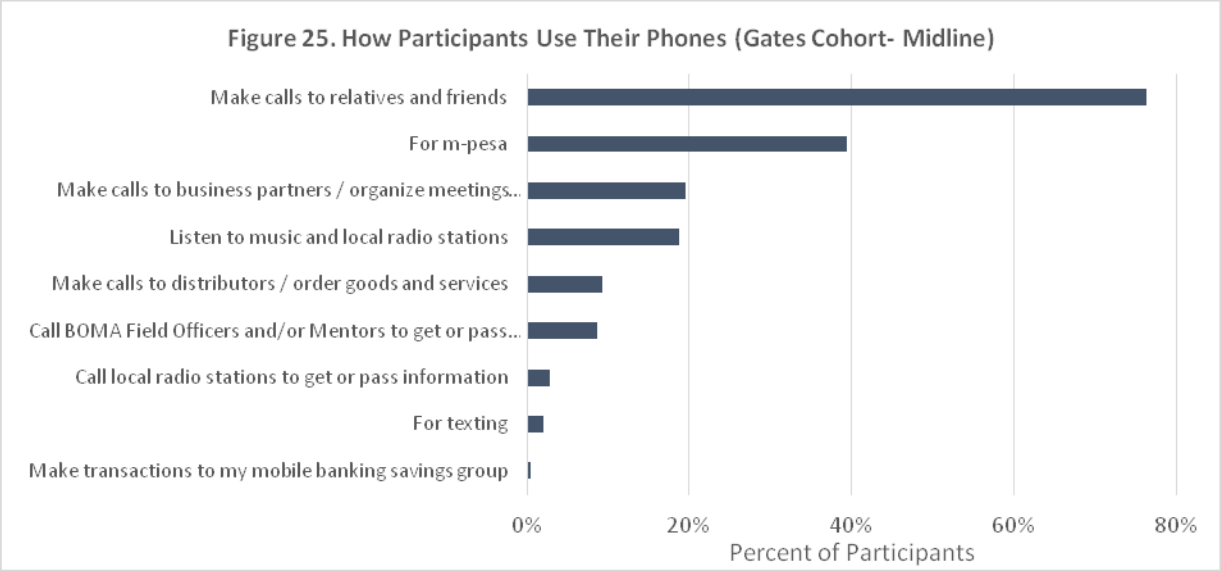
Phone Ownership and Usage

As part of REAP, all participants in the Gates cohort are to be provided with mobile phones. The primary reason for this was to connect them with the KCB mobile banking platform, but secondary reasons were to increase their access to other financial services such as M-Pesa and increase the opportunities to connect to distributors, customers and others via their phone.

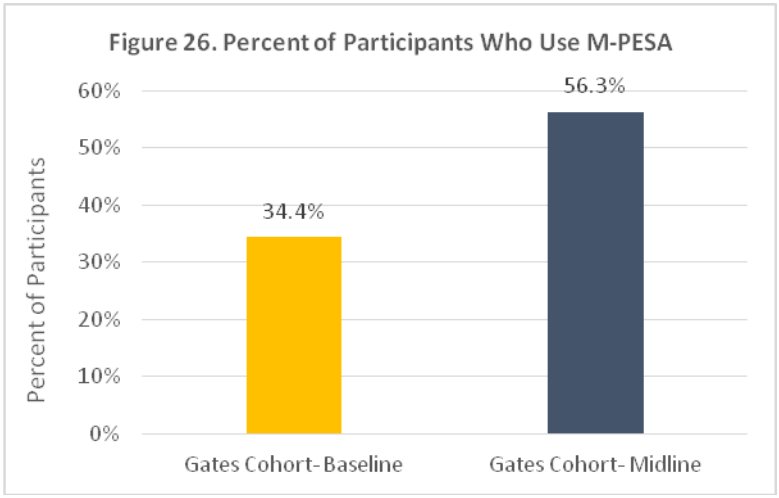
Mobile phone ownership increased from 40.6 percent at baseline to 76.6 percent at midline for the Gates cohort (Figure 24), which is largely due to the distribution of phones to participants at the time of the Progress Grant. BOMA had several challenges with bulk phone purchases and had distributed phones to participants in 9/14 locations by the time of the survey. Mobile phones were delivered to participants in the remaining five locations in July 2017.



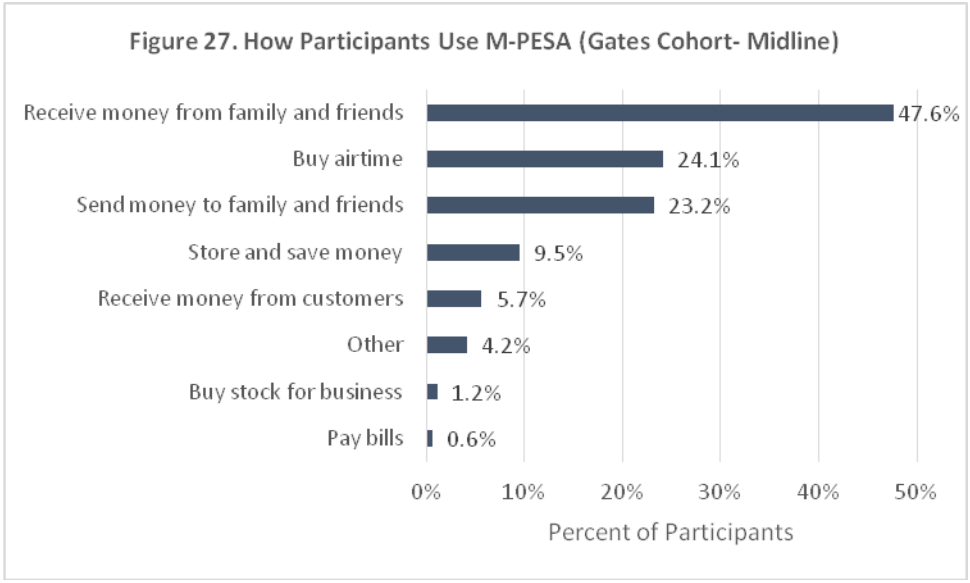
Participants owning mobile phones were asked about how they use their phones. The majority (76 percent) of participants who own a phone reported they use it to make calls to relatives and friends (Figure 25). The next most common usage, reported by 39 percent of participants with a phone, is M-Pesa. Approximately 20 percent of participants reported they use their phone to make calls to business partners/organize meetings and listen to the local radio station.



There was an increase in participants in the Gates cohort using M-Pesa or a similar mobile money service from 34.4 percent at baseline to 56.3 percent at midline (Figure 26). Although this represents a considerable increase, it means that half of participants do not send money digitally. This could be due to preference for traditional transactions, lack of M-Pesa agents, or an inability to use M-Pesa due to illiteracy.



Participants reported they most frequently use M-Pesa to receive money from family and friends (47.6 percent), buy airtime (24.1 percent) and send money to family and friends (23.2 percent) (Figure 27). Use of M-Pesa for business transactions was not commonly mentioned. However, the fact that participants are using the M-Pesa service means they have the knowledge and capacity when opportunities for mobile transactions arise.



Graduation

The overarching goal of REAP is to graduate women from extreme poverty. In 2016, BOMA introduced a rigorous set of graduation criteria that aims for broad-based achievement of six mandatory criteria across four categories. BOMA's graduation standards raise the bar in determining whether households are reliably food secure, have multiple viable sources of income and secure savings, are able to successfully respond to shock, and have invested in girl's education, collectively reflecting a transition out of extreme poverty. All six of the following criteria must be satisfied for a participant to be considered as having "graduated":

Food Security

1. No child going to bed without an evening meal in the past week
2. Household members eat at least two meals a day in the past week

Sustainable Livelihoods

3. The value of the BOMA business is 25% higher than the total conditional cash transfer
4. Participant can access more than one source of income

Shock Preparedness

5. Participant is a member of a savings group (with formal constitution and credit and loan protocols), has access to credit, and has a minimum of KES 8,000 in savings

Human Capital Investment

6. All eligible primary school-age girls are enrolled in primary school

The passing rate for each criteria and the overall graduation rate at one year is shown below in Table 17. The passing rate for the food security, sustainable livelihoods and shock preparedness Criteria 1 through 5 have significantly increased since baseline but remain below the target of 100 percent. Food security of families was likely impacted by the drought and should continue to improve as the drought resolves and participants continue to grow their businesses and savings.

In July 2017, all Mentors and Field Officers came together for a BOMA Mentor Workshop (BMW), during which these results were discussed along with specific actions and course corrections needed to meet the graduation targets. At the BMW, the updated monthly monitoring form was introduced, which includes questions about how each participant is faring with regards to each graduation criteria. BOMA field officers will monitor this data on a monthly basis and follow up with mentors accordingly to ensure that participants are on track towards meeting the graduation criteria at two years.

Table 17. Graduation Rate by Cohort

Category	March 2017 Cohort (Comparison Group)- Baseline	Gates Cohort- Baseline	Gates Cohort- Midline
Food Security			
1. No child going to bed without an evening meal in the past week	62.8	42.8	76.0*
2. Household members eat two meals a day in the past week[11]	66.7	80.0	96.7*
Sustainable Livelihoods			
3. Value of business is 25% higher than total conditional cash transfer	N/A	N/A	64.3*
4. Participant can access more than one source of income[12]	61.0	64.9	81.6*
Shock Preparedness			
5. Participant is a member of a savings group, has access to credit, and has a minimum of KES 8,000 in savings	0.8	2.0	24.3*
Human Capital Investment			
6. All eligible primary-school aged girls are enrolled in primary school[13]	61.9	56.7	60.6
Overall Graduation Rate	0.3	1.2	3.4

***** Significantly different from the Gates cohort at baseline, $p < 0.0001$

Despite the increase in savings reported by participants over the past year, the passing rate for the shock preparedness criteria is only 24.3 percent. While this number is low, it is important to consider the timeline of REAP: BOMA savings groups are formed six months after a cohort

[11] Household members refer only to the participant and her children for this criteria. Other adult household members may not be permanent residents of the home, and so we cannot expect REAP to influence the number of meals that they consume.

[12] Sources of income include any type of income that the household receives, either through the participant or through other household members, excluding HSNP and cash transfers.

[13] Primary school-aged girls are defined as being between the ages of 6 and 14. If the participant does not have any eligible primary school-aged girls, she is excluded from this criterion.

begins - for the Gates cohort this was in November 2016. This means that savings with the BOMA savings group reflects only five months of savings (December 2016 - April 2017) and participants may still be on track given that they will be saving monthly for the next year.

We can gauge whether participants are on track to meet criterion 5 by adding their expected savings with the BOMA savings group in the second year of REAP to their current savings. If we assume that all participants will save KES 400 a month for the 11 remaining months of the program, a total of KES 4,400, we can calculate how many participants will meet the KES 8,000 minimum amount of savings required for graduation assuming KES 4,400 of additional savings. Based on this calculation, 83.2 percent of participants are on track to graduate at the end of the program.

The one criterion for which a significant improvement is absent is concerning girls' enrollment in primary school. As discussed in the section on Educational Opportunities for Girls, given that advocacy and programming to date have not been effective, BOMA must review the barriers to education and identify how programming can be modified to increase girls' primary school enrollment.

BOMA set rigorous graduation targets to ensure that participants have significantly improved their socioeconomic situation when they exit REAP and are unlikely to return to a life of extreme poverty. Although there is still a lot of work ahead to meet the graduation targets, BOMA is committed to meeting these targets with close monitoring and a focus on high quality programming.

Recommendations and Conclusion

Participants in the Gates cohort have demonstrated considerable improvements in financial status and social standing in the household since joining REAP one year ago. Specifically, major improvements can be seen in savings, income, household decision making power, expenditures, food security and asset ownership. Given that the Midline survey was conducted at the time of a severe drought, the fact that participants continued to grow their businesses and savings and progress out of poverty highlights the ability of REAP to increase participants' resilience from shocks.

School enrollment for girls and shock preparedness—defined as being a member of a savings group, having access to credit, and having at least KES 8,000 in savings— are two program areas on which the greatest emphasis should be placed in the final year of REAP.

To increase girls' school enrollment, BOMA is working with field officers, mentors and participants to understand the barriers to education and identify opportunities for change. In partnership with ICRW and the Gates Foundation, BOMA is keen to explore options for expanding the scope of the current project to increase enrollment rates and generate knowledge relevant to others in the Women and Girls at the Center of Development learning cluster.

As far as shock preparedness, it will be necessary for field officers and mentors to closely monitor participants' savings in the second year of REAP. As part of the midline survey, field officers verified the savings contributions of all participants in the Gates cohort to date, so they

can easily identify participants who are not on track to meet program targets. From there, they can work with mentors to identify the reasons and troubleshoot problems appropriately. The 25 percent of participants who are not on track to meet the savings target will need to be provided with increased guidance and support.

The updated monthly monitoring form will enable BOMA staff to track participants' monthly progress on all graduation criteria. From there, BOMA field officers, mentors and management will be better placed to understand participants' situations, design course corrections and provide real-time and tailored mentoring to respond to challenges that participants face. In this way, BOMA will support and enable participants over the remaining months of this project to overcome barriers and graduate from extreme poverty.

Annex A

Statistical Tests Comparing the Gates Cohort at Midline vs. the March 2017 (Comparison Group) at Baseline

Table 18. Comparison of Income, Savings and Meals Eaten Per Day by Cohort

Variable	March 2017 Cohort (Comparison Group) - Baseline	Gates Cohort- Baseline	Gates Cohort- Midline
Total Savings	637 KES	785 KES	6,815 KES*
Percent with 2 or More Household Income Sources	61.1%	72.0%	85.3%*
Total Income	2,773 KES	3,665 KES	5,041 KES*
Percent Eating Two or More Meals Per Day	66.8%	79.9%	96.7%*
Percent Whose Children Eat Two or More Meals Per Day	78.7%	91.7%	97.7%*

***** Significantly different from the March 2017 (Comparison Group) cohort at baseline, $p \leq 0.0001$

Table 19. Medical and School Expenditures for the Past Year Across All Participants

Expense (All Participants)	March 2017 Cohort (Comparison Group) - Baseline	Gates Cohort - Baseline	Gates Cohort - Midline
Percent of households paying school fees and expenses	66.3%	67.2%	75.9%**
Amount of school fees and school expenses paid by household (KES)	2,844	3,991	5,232***
Percent of households paying medical expenses	54.8%	57.0%	56.3%
Amount of medical expenses paid by household (KES)	1,025	1,343	1,626*

***** Significantly different from the March 2017 (Comparison Group) cohort at baseline, $p < 0.0001$

** Significantly different from the March 2017 (Comparison Group) cohort at baseline, $p < 0.001$

******* Significantly different from the March 2017 (Comparison Group) cohort at baseline, $p \leq 0.05$

Table 20. Average Score of Participant's Relative Contribution to Decision Making[14]

Household Decision	March 2017 Cohort (Comparison Group)- Baseline	Gates Cohort- Baseline	Gates Cohort- Midline
Buying household items	9.6	9.6	9.4***
Buying food for the household	8.0	8.1	8.0
Selling own livestock	3.9	4.0	5.7**
Paying for children's medical expenses	5.0	5.6	6.4*
Buying livestock for self	4.5	4.2	6.1
Which children to send to school	3.6	5.2	5.9*
Buying livestock for the household	3.1	3.4	5.1*
Paying for children's school fees	3.9	5.1	6.0*

***** Significantly different from the March 2017 (Comparison Group) cohort at baseline, $p \leq 0.0001$

** Significantly different from the March 2017 (Comparison Group) cohort at baseline, $p \leq 0.001$

******* Significantly different from the March 2017 (Comparison Group) cohort at baseline, $p \leq 0.05$

Table 21. Graduation Rate by Cohort

Category	March 2017 Cohort (Comparison Group)- Baseline	Gates Cohort- Baseline	Gates Cohort- Midline
Food Security			
1. No child going to bed without an evening meal in the past week	62.8	42.8	76.0*
2. Household members eat two meals a day in the past week[15]	66.7	80.0	96.7*
Sustainable Livelihoods			

[14] Household decision making scores are reported only for married participants

[15] Household members refer only to the participant and her children for this criteria. Other adult household members may not be permanent residents of the home, and so we cannot expect REAP to influence the number of meals that they consume.

3. Value of business is 25% higher than total conditional cash transfer	N/A	N/A	64.3*
4. Participant can access more than one source of income[16]	61.0	64.9	81.6*
Shock Preparedness			
5. Participant is a member of a savings group, has access to credit, and has a minimum of KES 8,000 in savings	0.8	2.0	24.3*
Human Capital Investment			
6. All eligible primary-school aged girls are enrolled in primary school[17]	61.8	56.7	60.6
Overall Graduation Rate	0.3	1.2	3.4

***** Significantly different from the March 2017 (Comparison Group) cohort at baseline, $p \leq 0.0001$

[16] Sources of income include any type of income that the household receives, either through the participant or through other household members, excluding HSNP and cash transfers.

[17] Primary school-aged girls are defined as being between the ages of 6 and 14. If the participant does not have any eligible primary school-aged girls, she is excluded from this criterion.