REPORT
END PHASE EVALUATION

(Epidemic Control and Reinforcement of Health Services (ECRHS) Phase 1 Programme in Sierra Leone)
Ebola Emergency Response



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List of Abbreviations and Acronyms

ABC Development	Association for the Wellbeing of Rural Communities and Development
ANC	Ante-Natal Care/Clinic
CARE	Cooperative for Assistance and Relief Everywhere
CBS	Community Based Surveillance
CHC	Community Health Centre
CHP	Community Health Post
CHW	Community Health Officer
DMO	District Medical Officer
ECRHS	Epidemic Control and Reinforcement of Health Services
EVD	Ebla Virus Disease
FGD	Focus Group Discussion
FP	Family Planning
GoSL	Government of Sierra Leone
HFAC	Health for All Coalition
HMIS	Health Management Information System
IDRC	Inclusive Development and Research Consultancy
IDSR	Integrated Disease Surveillance and Reporting
IMNCI	Integrated Management of Neonatal and Childhood Diseases
IP	Implementing Partner
IPC	Infection Prevention Control
IR	Intermediate Result
JBSCBU	Joint Borders Security and Confidence Building Unit
KfW	German Development Bank, Krebital ftaltfür Wieberaufbau (KfW)
KII	Key Informant Interview
LARC	Long Acting and Reversible Contraception
MADAM	Mankind Activities for Development Accreditation Movement
MAFFS	Ministry of Agriculture, Forestry and Food Security
MCHP	Maternal and Child Health Post
MDSR	Maternal Death Surveillance and Reporting
MEAL	Monitoring, Evaluation, Accountability and Learning
MoH	Ministry of Health
NGO	Non-Governmental Organisation
PAC	Post-Abortion Care
PHU	Primary/Peripheral Health Unit
PI	Personal Interviews
PMTCT	Prevention of Mother-to-Child Transmission
RODA	Rofuta Development Association
SGBV	Sexual and Gender Based Violence
SRH	Sexual Reproductive Health
TBA	Traditional Birth Attendant
TOR	Terms of Reference
VSLA	Village Savings and Loan Association
WASH	Water Sanitation and Hygiene

Executive Summary

This report presents findings from the end phase evaluation of the Epidemic Control and Reinforcement of Health Services (ECRHS) Phase 1 Programme in Sierra Leone, which was implemented from November 2015 to December 2018. The aim of the Programme is to 'Improve the health status of the population of Sierra Leone'. The Programme was originally designed to provide response to the Ebola outbreak in Sierra Leone, but also considered a longer-term view and worked towards putting in place preparations putting in place preparations for the transition of an extended health system strengthening (HSS) effort.

It is important to state here that there were no baseline values nor target values on key indicators for performance of the Programme in the ECRHS proposal document. However, during the first half of 2016, the Programme staff conducted desk reviews, focused group discussions and rapid assessments on health facilities, livelihood, and water, sanitation and hygiene and this data was used as the baseline. The Programme team also worked on the indicator redefinitions during which targets are set and validated by the donor, and the output indicators in the original programme document were renamed as 'Intermediate results' indicators. In 2017, ECRHS phase I received additional funding and also revisited the framework in which Module Objective 1 and 2 was redefined, adding diseases outbreak / emphasis on sexual reproductive health and family planning respectively.

The overall purpose of the evaluation was 'to assess result and impact of the above-mentioned Epidemic Control and Reinforcement of Health Services Programme against the Programme goal and outcomes in targeted northern region of Sierra Leone. The evaluation was specifically commissioned to; 1) Assess the Programme result areas in relation to effectiveness, relevance and efficiency of the Programme, 2) assess changes made in general conditions and perspectives, 3) assess need for additional (Programme-) support in future, 4) assess sustainability of achieved results with respective to the DHMTs and Community-based Surveillance (CBS) system, 5) identify the Programme's key challenges during implementation, and lessons learnt/best practices, and 6)generate concrete recommendations for decision making process regarding health and SRH Programming in the future.

The Evaluation integrated both quantitative and qualitative research methods. 1,608 respondents were randomly selected from across 80 communities for households/individual interviews. This sample included 1,196 female and 412 male respondents. Focus Group Discussions (FGDs) were held with community members in 60 communities and 30 key informant interviews (KIIs) were done with CARE, implementing partners, state actors and chiefdom authorities. Twenty-seven (27) Community Health Workers (CHWs) and 5 Water Management Committee members were also interviewed. Also, facility assessment was conducted for -77 PHUs using the Ministry of Health and Sanitation standard tool and case studies/insight stories were further documented from the field interviews.

The document review revealed there were no baseline values nor target values on key performance indicators in the original results framework and separate agreement for ECRHS phase I phase and this was confirmed through interviews with key CARE staff. Nonetheless, at the start of implementation in 2016, the Programme staff conducted desk reviews, focused group discussions and rapid assessments generating data that was used as the baseline. Still, in the process of indicator redefinitions during which targets are set and validated and the output indicators in the original results framework were now termed Intermediate results indicators, and that is how this report will be referring to.

Programme results or achievements

The Programme achieved 100 percent of its baseline targets aligned to three specific objectives. Impressively, 75 percent (30 of the four baseline targets were exceeded. These results show that the ECRHS Phase1 Programme achieved its specific objectives of 1) Containment (and Stopping) of Ebola outbreak, 2) stabilizing the health system, and 3) Increase Resilience of affected population within the intervention area. The outstanding performance of the ECRHS Phase1 Programme reflects on the overall health situation of Sierra Leoneans in the four northern districts. This was noted from testimonies gathered from communities engaged, proportion of skilled birth attendants, etc. The table below presents the summary of findings on baseline targets and achieved results at objective level.

Summary of Objectives	Indicator Definition	Baseline value (2015)	Targets (% /#)	Endline value	Description of progress
Objective 1: Contain and stop diseases outbreak, including Ebola	1.Ebola incidence is maintained at zero (resilient zero) through the intervention zone	0	0	0	Achieved
Objective 2: Stabilize the Health System; with emphasis	2.Increase of PHUs, which offer basic health services;	59.6%	70.0%	100.0%	Outstanding

on sexual and reproductive health	Immunization, safe delivery and family planning.				
	3.Increase of PHUs which offer **both** HIV counseling & testing	11.7%	13.0%	68.3%	Outstanding
Objective 3: Improved livelihood and food security of vulnerable households	Reduction of beneficiary households in target communities reporting negative livelihood coping strategies	63.6%	58.6%	53.7%	Outstanding

- **Objective 1: Contain and stop diseases outbreak, including Ebola**

The evaluation observed that Ebola was maintained at resilient zero throughout the course of Programme implementation. This had meant effective surveillance system was established to contain and prevent the spread of the Ebola disease in the intervention zone. Well established and connected Community Based Surveillance (CBS) structures such as Community Health Workers (CHWs) were observed during the evaluation. The CHWs are highly recognized by community members, PHU personnel and DHMTs as effective community-based surveillance structures that are actively engaged in identifying recommended Community Based Surveillance (CBS) priority diseases and events in their communities and reporting them through the appropriate reporting channel. The role of CHWs was observed to have particularly strengthened the Integrated Disease Surveillance and Response (IDSR) system. The link between the Community Based Surveillance systems and the IDSR has consolidated their existence, and disease surveillance and reporting were observed to have consistently improved.

- **Objective 2: Stabilizing the health system: with emphasis on sexual and reproductive health**

The Programme target of increasing the proportion of PHUs which offer basic health services was markedly exceeded by 30 percent, and improvement in situation at start of Programme almost doubled at the end of implementation. All (77) PHUs assessed observably offer basic health services including immunization, safe delivery and family planning. Further, target for PHUs offering both HIV counseling and testing was markedly exceeded by 55.3 percent- showing an increase in baseline situation from 11.7 percent in 2015 to 68.3 percent at end of Programme implementation. The evaluation revealed very high proportion (96.3%) of total number of births made at the health facility. The observed increase in demand for health services largely explains that the ECRHS1 Programme contributed to improved quality of health services delivery in the intervention districts.

- **Objective 3: Improved livelihood and food security of vulnerable households**

Objective 3 of the ECRHS Programme had 1 objective verifiable indicator- that is, 'reduction of households in targeted communities reporting negative livelihoods coping strategies. The baseline target set for this indicator was achieved and exceeded by 8 percent at the end of Programme implementation. The change made in baseline value was also statistically significant.

Intermediate results (Effectiveness of the Programme)

The Programme achieved about 9 (75%) of 12 baseline targets of the intermediate results identified in the MEAL framework. Despite its shortfalls, the Programme further demonstrated highly satisfactory performance in 2 (11%) of the 11 baseline targets. However, the Programme demonstrated moderate performance on the indicator linked to behavior change on burial practices in the intervention zone, as presented in the table below.

Summary of Objectives	Indicator Definition	Baseline Value; 2015	Target value (%/#)	Endline value (%/#)	Description of progress
IR 1.1: Effective surveillance, contact tracing, and alert systems are in place and functioning at community level	% of communities within intervention zone with functional surveillance structures in place	68.8%	70.0%	100.0%	Achieved
IR 1.2: Improve knowledge and change behaviors to prevent Ebola transmission at community level (Social Mobilization)	% of population within intervention zone that can correctly state three means of Ebola transmission, prevention and signs and symptoms	90.0%	90.0%	81.8%	Highly satisfactory
	% of population within intervention zone willing to await swabbing before burial of relatives suspected of Ebola	95.0%	95.0%	64.6%	Moderate performance
IR 1.3: Improve access to and behaviors concerning water, sanitation, and hygiene (WASH)	% of HHs within intervention zone that have access to safe drinking water	18.5%	22.0%	55.9%	Outstanding performance
	% of households within intervention zone with hand washing facilities	10.0%	15.0%	15.2%	Outstanding performance

IR 2.1: Access to Sexual Reproductive Health and Family Planning increased	% of Long Acting and Reversible Contraceptive (LARC) users among total FP users(women in reproductive age group (15-49 yrs) using LARC methods (implant or IUD) in all ECHRS Programme districts	46.7% (set at midterm 2017)	50.0%	59%	Outstanding performance
IR 2.2: The primary health units are able to provide essential health services (Basic /primary health services are ensured)	% of PHUs within intervention zone with essential stocks of infection prevention control supplies (gloves, masks, soap, bucket for handwashing)	51.0%	55.0%	63.6%	Outstanding performance
	% of PHUs within intervention zone with supplies and equipment to provide routine services (no stock-outs)	51.0%	65.0%	80.8%	Outstanding performance
	% of PHUs within intervention zone that have stock of essential medicines ANC (no stock out)	14.0%	20.0%	68.8%	Outstanding performance
	% of PHUs within intervention zone that have stock of essential child health medicines	74.0%	80.0%	85.7%	Outstanding performance
	% of PHU personnel trained within intervention zone on Infection Prevention Control	90.0%	90.0%	84.3%	Highly Satisfactory
IR 3.1: Improve family and community resilience to shocks (Adequate food security to defend diseases)	# of vulnerable households who received/benefit from Seed Voucher support	0	7,500	10,039	Outstanding performance

- **IR1.1 Effective surveillance, contact tracing and alert system in place and functional at community level**

Programme performance was outstanding for this result- with targeted exceeded by 30 percent. This result was largely linked to the active visibility of community-based surveillance structures such as the Community Health Workers (CHWs) in the intervention areas. Community members engaged in focus group sessions across 100 percent of 60 communities cited the active role played by CHWs in their communities in relation to disease and antenatal surveillance, Integrated Community Case Management (iCCM) of childhood malaria, pneumonia and diarrhoea, as well as sanitation, hygiene and other sexual and reproductive health sensitization and advocacy.

- **IR1.2 Improve knowledge and change behaviors to prevent Ebola transmission at community level**

The ECRHS1 Programme has shortfalls in relation to this result. None of the two targets set was achieved- although the Programme performance was highly satisfactory for percent of the population within the intervention zone who could correctly state three means of Ebola transmission, prevention and signs and symptoms (81.8%). The proportion of population within the intervention will to await swabbing before burial of relatives suspected of Ebola fell sharply by 30.4 percent- from 95 percent in 2015 to 64.4 percent at end of Programme implementation. These shortfalls proved to be largely linked to complacency and lack of enforcement on sensitization efforts on Ebola, once it subsided.

- **IR1.3 Improve access to and behaviors concerning water, sanitation and hygiene (WASH)**

The Programme demonstrated outstanding performance in relation to this result. Both baseline targets set for the result were exceeded. In particular, marked improvement was observed in the proportion of households in the intervention zone that have access to safe drinking water- increasing by 37.4 percentage points from 2015 (18.5%) to end of implementation (55.9%). Meanwhile rural-urban comparison using binary logistic regression revealed that rural areas are less exposed to improved water supply interventions (OR=0.53, CI=0.06-0.30), and urban households are 2 times more likely to be exposed to improved water supply interventions (OR=1.90, CI=1.02-3.53) than those in rural areas. These results further reflect on access to improved water supply with an extremely marked rural-urban variation with statistical significance at 95 percent confidence level. The predictions revealed that urban households are over 7 times (OR=7.33, CI=3.33-16.25) more likely to access improved/safe water supply than those in rural areas.

- **IR2.1: Access to Sexual and Reproductive Health/Family Planning**

Intermediate Result 2.1: Access to Sexual Reproductive Health (SRH) and Family Planning was an additional indicator introduced during the supplementary phase the implementation. Three targets were identified for this expected result; but only one of these was achieved- that is 'percent of Long Acting and Reversible Contraceptive (LARC) users among FP users (women aged 15-49) using LARC methods- which was achieved and exceed by 9 percent. Although target set for 'proportion of births attended by skilled birth personnel was not achieved, the Programme was observed to have demonstrated highly satisfactory performance- with 99 percent of target achieved. However, 'percent of women aged 15-49 using modern contraceptives in all ECRHS Programme

districts' was low- showing a decrease from 39.5 percent at midterm period to 37 percent at end of Programme implementation.

- **IR2.2: The primary health units are able to provide essential health services**

The ECRHS1 Programme performance was outstanding in terms of achieving targets towards 3 of 5 baseline indicators identified to achieve the Programme's result of PHUs in place to provide essential health services. Specific achievements observed include the following: a) percent of PHUs within the intervention zone with essential stocks of infection prevention and control supplies increased from 51 percent in 2015 to 63.6 percent- exceeding target by 8.6 percentage point, b) percent of PHUs with the intervention zone that have supplies and equipment of essential ANC medicines increased from 14 percent in 2015 to 68.8 percent at end of implementation-exceeding target by 48.8 percent, and c) percent of PHUs within the intervention zone that have stocks of essential child health medicines increased from 74 percent in 2015 to 85.7 percent at end of implementation- exceeding target by 5.7 percent. The proportion of PHU personnel trained within the intervention zone on Infection Prevention Control fell 5.7 percent below the baseline value and target reportedly due to frequent transfers of health staff. Meanwhile finding on the proportion of PHUs with all supplies and equipment to provide routine services was discouraging- sharply dropping from 51 percent in 2015 to 9.5 percent at end of implementation.

- **IR3.1: Improve family and community resilience to shocks (adequate food security to defend diseases)**

The ECRHS1 Programme target for Seed Voucher was to support 7,500 vulnerable households across the four intervention districts. The evaluation documented that this target was exceeded by approximated 33 percent- showing outstanding performance of the Programme contribution to improved family and community resilience to shock.

Key Recommendations

- ✓ There is great need for health service quality improvements and maintenance following the highly unsatisfactory result of the data on PHUs medical supplies and equipment availability for service provision.
- ✓ Investing in rehabilitation of maternity wards and relevant functional equipment provision and installations will increase access to safe delivery service which encourages better health seeking behavior by community members as a result of safer deliveries occurring at facility level.
- ✓ Strengthening community based surveillance (CBS) is crucial in order to consolidate on the gains made within the Programme intervention areas where CBS activities through CHWs demonstrated an effective channel for timely reporting that prevented the spread of diseases of public health importance including Ebola.
- ✓ Strengthening the provision of HMIS tools and registers in facility is crucial as an accountability measure that can be used during spot check and monitoring of the service providers' activities and reports.
- ✓ There is continued need for strengthening the provision of drugs and FP commodities within the health facilities and to make the supply chain more functional from the national level to the last mile to reduce stock out of essential drugs including FP commodities.
- ✓ Community engagement of key stakeholders is essential in strengthening inclusive governance at all levels as all stakeholders are involved in various aspects of health service provision and management of the health facilities.
- ✓ Exploring the functionality of the Facility Management Committee (FMC) is essential in stabilizing the health facility drugs and medical supplies at facility level. This will address the issue of regular stock out of drugs and medical supplies as the involvement of the functional FMCs will serve as the accountability mechanism to ensure proper management of the available drugs and FP commodities hence, increasing access of essential medicines to clients at the facility level.
- ✓ Advocacy to the governments for increase in the health budgets remain crucial in order to create avenues to address some salient issues regarding health service delivery especially in the area of increasing the health workforce which is grossly underfunded at the moment with more volunteers manning the health facilities in the Sierra Leone context. The use of volunteers is having a negative impact in the provision of quality health service delivery.
- ✓ Promoting policies that decentralize resource allocation with good coordination among government parastatals at district level will strengthen accountability measures by making local leaders like DHMT to be more accountable towards service delivery performance.

1. BACKGROUND OF THE EVALUATION

1.1 Background/ Context of the Programme

The phase 1 of Epidemic Control and Reinforcement of Health Services (ECRHS) Programme started in November 2015, with funds from the German Government through KfW, and was originally designed to provide response to the ongoing Ebola outbreak in Sierra Leone. The Programme has a supplementary phase that runs for 17 months, from August 2017 – December 2018.

The Programme aim is to improve the health status of Sierra Leoneans in four northern districts (Bombali, Tonkolili, Kambia, and Koinadugu) in Sierra Leone. The ECRHS1 Programme is multi-sectoral covering over 233 health facilities, 400 communities and 33 chiefdoms in Northern Sierra Leone. The Programme works with five implementing partners (MADAM in Bombali district, RODA in Tonkolili district, ABC Development in Kambia district , ADP in Koinadugu district and the MRU), the Government of Sierra Leone (MOH/DHMTs), the Ministry of Agriculture, Forestry and Food Security (MAFFS), Ministry of Water Resources (Water Directorate) and other local administrators (Paramount Chiefs) across the four intervention districts. The design takes into account a longer-term view and work towards putting in place preparations for the transition to an extended health system strengthening (HSS) effort. The Programme has three main objectives.

- **Objective 1: Contain and stop diseases outbreak, including Ebola.** Objective 1 includes the following intermediate results identified in the ECRHS Phase 1 Programme design:
  - IR 1.1: Effective surveillance, contact tracing, and alert systems are in place and functioning at community level;
  - IR 1.2: Improve knowledge and change behaviors to prevent Ebola transmission at community level (Social Mobilization);
  - IR 1.3: Improve access to and behaviors concerning water, sanitation and hygiene (WASH), and
  - IR 1.4: Improve coordination, monitoring, and accountability of the Ebaola response mechanism.

- **Objective 2: Stabilize the Health System, with emphasis on sexual and reproductive health.** Objective 2 includes the following redefined intermediate results:
  - IR 2.1: Access to Sexual Reproductive Health and Family Planning increased;
  - IR 2.2: The primary health units are able to provide essential health services (basic/primary services are ensured);

- **Objective 3: Improved livelihood and food security of vulnerable households**. One intermediate result was identified to achieve objective 3. That is,
  - IR 3.1: Improve family and community resilience to shocks (adequate food security to defend diseases);

1.2 Evaluation Purpose and Objectives

The overall purpose of the evaluation was 'to assess results and impact of the ECRHS Phase1 Programme against the Programme goal and outcomes 'in the targeted northern region of Sierra Leone'. As indicated in the TOR, the evaluation is expected to assess the need for additional (Programme) support in the future. Specifically, the evaluation was commissioned to carry out the following tasks:

1. Assess the Programme result areas in relation to the following evaluation criteria:
   - ☞ Effectiveness of the Programme- specifically the achievement of Programme at objectives and intermediate results level;
   - ☞ Relevance of the Programme- specifically focusing on relevance of the Programme design to the priorities and challenges for communities, especially women and children in Sierra Leone context.
   - ☞ Efficiency of Programme implementation- focusing on cost efficiency and beneficiary reach
2. Assess changes in the general conditions (context) and perspectives
3. Assess the sustainability of the achievements of the Programme with respect to the DHMTs, community-based Surveillance System.
4. Identify the Programme's key challenges during implementation, and lessons learnt/ best practices.
5. Assess need for additional Programme support and generate concrete recommendations that can feed into decision-making processes regarding up-scaling SRH programming in future in the region and Sierra Leone.

The evaluation was also expected to assess additional indicators on Sexual Reproductive Health Services and general aspects including:

- ✓ Increased proportion of health services offering at least three FP-methods according to the national programme
- ✓ Proportion of men (> 15) / women (15-49) knowing at least 3 modern FP methods
- ✓ Gender-aspects, implication on women.
- ✓ Assess other expected and unexpected results.
- ✓ Appreciation of the Programme's activities by the different beneficiaries
- ✓ How do you deal with those communities that do not have the resources provided
- ✓ Participation in coordination activities at central and decentralised levels
- ✓ Synergies with other programs in the same field

2. METHODLOGY

The methodology section discusses the scope of the evaluation and sampling design, desired data and sources and tools used for the evaluation. methods for data gathering, management and analyses.

2.1 Design of the Evaluation

The design of the evaluation included mixed methods. Both quantitative and qualitative techniques were explored. The quantitative technique considered personal interviews and health facility assessment using structured questionnaires, while the qualitative technique was used to solicit more in-depth information from target respondents. Meanwhile, the evaluation was highly exploration making extensive use of qualitative techniques including Key Informant Interviews (KIIs), Focus Group Discussions (FGDs) and to some extent cases studies/most significant change stories. The evaluation was also carried out to ascertain programme effectiveness by analysing performance-based achievements- hence descriptive research design techniques and statistical inferences (including binary logistic regression) were used to carry out quantitative analyses at both program/objective level and intermediate result (IR)/output level. While key focus was placed on evaluation questions were developed from specific outputs stated in the terms of reference (TOR), flexibility was made in terms of some compact qualitative questions formulated for discussions with target stakeholders. Such consideration was made due to the different level of respondents that were engaged through in-depth interview technique.

The geographic coverage of the evaluation included all four (4) intervention districts (Bombali, Kambia, Koinadugu and Tonkolili) and 25 chiefdoms. It is noteworthy that chiefdoms were not directly sampled as clusters. They were identified by mapping the secondary sampling units (that is communities/localities selected through two-stage cluster sampling technique) with the chiefdoms within which they are located. This technique also allowed for geographic spread of chiefdom clusters across the four districts. Table 2 shows the number of chiefdoms covered per district during the evaluation.

Table 1: Geographic Coverage of the proposed exercise

District	# of chiefdoms	# of chiefdoms selected	Chiefdoms selected	# of sampled communities/ localities per chiefdoms	Expected No. of respondents
			Biriwa	6	120
			Bombali Sebora	2	40
			MaKari Gbanti	2	40
			Safroko Limba	6	120
			Paki Masabong	2	40
			Libeisaygahun	3	60
Bombali	6	5	Makeni Town	2	40
			Branaia	2	40
			Gbinle Dixing	3	60
			Masungbala	2	40
Kambia	7	5	Samu	4	80

			Tonko Limba	4	80
			Dembelia-Sink	3	60
			Diang	2	40
			Folosaba Dembel	2	40
			Kasunko	2	40
			Wara wara Bafodia	4	80
			Wara Wara Yagala	5	100
			Nieni	1	20
Koinadugu	10	8	Sengbe	3	60
			Gbonkelenke	4	80
			Kafe Simira	3	60
			Kalansogaia	1	20
			Kholifa Rowala	3	60
			Kunike	5	100
			Tane	2	40
Tonkolili	9	7	Yoni	2	40
Total	**32**	**25**		80	1600

2.2 Sampling selection procedures

The scope of the evaluation was all four intervention districts (Bombali, Kambia, Koinadugu and Tonkolili) of the ECRHS Phase I Programme, and which were targeted in the mid-term review. The ideal setting of the evaluation was to cover 200 of 400 communities and 120 of 233 health facilities covered by the Programme. However, this was not possible due to the time allocated for field data collection. Series of statistical procedures were therefore used to select a desirable number of health facilities and communities to be covered by the evaluation. For the purpose of the end phase evaluation, two-stage stratified cluster sampling method was used. While the four target districts remain the same, health catchments were considered as the primary sampling units (PSU) and communities were considered as the secondary sampling units (SSU). To determine the number of communities to be targeted in the course of the exercise, the following steps were taken:

1. In bid to determine a reasonably large sample size for the health/SRH components of the ECRHS phase I Programme evaluation, normal distribution of sample estimates was assumed. This means that the sample estimate of the proportion of households/individual respondents having access to health/SRH services, p will provide p±5 per cent as 95 per cent confidence limits for the value of the percentage in the population; and this is approximately equivalent to the error range + or – 2 standard errors of p. The error constraint on the study therefore means that the standard error would be ≤ 2.5 per cent. Using the Kish (1965:46) formula to estimate the variance of the sample estimate of p as an estimate of the population value, the size of the minimum required sample (n) was determined as **400**. This was computed using equation (i), and by assuming that the proportion of household/.individual respondents with access to health/SRH services (p)=50 per cent (as a maximum value) with error constraint (e)=2.5 at 95 per cent confidence limits:

   $e^2 \geq p\ (100\text{-}p)/n\text{-}1$ ..... (i)

2. Using a two-stage cluster sampling method, it was necessary to determine the size of the cluster sample (n_c). This cluster sample size was computed using the following formula:

   $n_c = n \times (1+(b\text{-}1)\ roh$ ..... (ii)

   Where n=desired minimum sample size, (1+ (b-1) roh= cluster sampling design effect, b= number of primary sampling units, and roh= intra-cluster correlation. A maximum of 20 household/ individual respondents was proposed to be interviewed per cluster (community), which means b=20. Considering health service delivery as the primary component of the ECRHS Phase I Programme, the evaluation largely identified female respondents in sexually active/reproductive age bracket (15-49 years) as primary targets. In particular, this category of the population has rich knowledge

regarding access and quality of health service delivery and would therefore be best placed to adequately respond to the health/SRH questions in addition to other components (WASH and Livelihoods. The intra-cluster correlation for respondents was therefore assumed as 0.06[1]. Hence substituting in equation (ii) and given a 10 per cent allowance for non-response, the desired cluster sample for the proposed evaluation was estimated as 942 household/individual respondents.

3. To calculate the minimum number of clusters required, the desired cluster sample calculated (n_c) was equated to the product of the number of respondents (b) to be selected from each secondary sampling unit (a) and number of secondary sampling units (a) required- that is, the computed $n_c = a \times b$. Substituting $n_c = 942$ and b= 20, the minimum number of clusters (communities) required was estimated as **47**. Hence for the two-stage cluster sampling design, a minimum of **942** household/ individual respondents (using intra-cluster correlation of 0.06, and the computed minimum number of 47 Secondary Sampling Units (community clusters) and a selection of 20 household respondents/individuals) will have a sample accuracy equivalent to the minimum simple random sample estimated as 400.

While health/SRH remains pivotal in the ECRHS Programme, and as inter alia stated, health catchment areas (PSUs) were the first stage of selection and communities were selected at the second stage. However 80 health catchments were target where the health facility and one community in each catchment were selected for the purpose of the evaluation. This had meant the minimum estimated number of community clusters increased from 47 to 80. In bid to ensure wider representativeness across the four intervention districts, and also to minimise biasness, health catchments were stratified into urban health catchment communities, accessible rural health catchment communities and remote/hard-to-reach health catchment communities. Weighting (based on the density of health facilities) was done particular for the rural strata for appropriate targeting of the health catchments. It was noted however that the intervention targeted fewer health facilities in the urban areas- hence the catchments in the urban areas were all selected without weighting. Table 3 presents the stratification done for the purpose of the evaluation.

Table 2: Distribution of sampled number of health catchments//communities using stratification

Strata	# of health catchments			Bombali district		Kambia district		Koindadugu district		Tonkolili district	
	Total	Weight	Sample	Total	Sample	Total	Sample	Total	Sample	Total	Sample
Urban[2]	7	-	7	2	2	0	0	4	4	1	1
Accessible rural	140	0.62	45	41	13	29	10	44	14	26	8
Remote/hard-to-reach rural	86	0.38	28	25	8	17	5	11	4	33	11
Total	**233**	**1.00**	**80**	**68**	**23**	**46**	**15**	**59**	**22**	**60**	**20**

However, it is noteworthy that very few discrepancies in sample were observed after field data collection. Firstly, the number of PHUs reduced from 80 to 77 due to the removal of incomplete forms and ineligible health facilities (hospital) particularly in the Koinadugu district. Meanwhile the ideal number of PHUs covered was larger than donor expectations. This large number was selected to adequately capture the various composition of the peripheral health units (PHUs) for comparison of findings. Table 4 presents the number of PHUs sampled by type and district.

Table 3: Number of PHUs assessed by type and district

District / PHU type	Bombali	Kambia	Koinadugu	Tonkolili	Total
MCHP	4	8	9	11	32
CHP	15	0	9	5	29
CHC	4	7	1	4	16
Total	**23**	**15**	**19**	**20**	**77**

[1] A study of selected indicators throughout 48 DHS surveys shows that the overall average value of the intra-cluster correlation is 0.06 for the optimal sample take of between18-20 per cluster. See Afredo Aliaga and Ruilin Ren (2006:5), 'Cluster Optimal Sample Size for Demographic Health Surveys'. Available at: https://iase-web.org/documents/papers/icots7/3J3_ALIA.pdf

[2] These are communities targeted in health catchments covered by the ECRHS1 Programme in district headquarter towns

For all household respondents, random selection through 'random walk' was done during field interviews. As inter alia noted at least 20 respondents were interviewed in each of the targeted communities. However only adults aged 18 years and above were eligible for household interviews. In a targeted household with more than one eligible respondent in age group 15-17, random sampling using Kish or Last Birthday method was adopted to select a respondent so that all eligible members of the household had equal chance of being selected. A household targeted for eligible female member, was replaced if no eligible female respondent is identified. It is worth noting however, that the total number of respondents for personal/household interviews increased with slight discrepancies in the initial 20 respondents targeted for some communities.

2.3 Desired Data for the Evaluation

The desired sample size and actual number of respondents targeted for household/personal interviews are presented in Table 5. It is important to note that during field interviews, livelihoods beneficiaries were not specifically targeted. However, a sizeable number of communities randomly sampled included those that benefited from the livelihoods components.

Table 4: Desired sample size and actual number of respondents targeted for household/personal interviews

District	Total of sexually active population (15-49 yrs)*	# of female population (15-49 yrs)*	# of sampled communities/ localities	Expected number of respondents					
				Total	Actual No. interviewed	Female (18-49 yrs)	Female (15-17 yrs)	Male (18 yrs & above)	Male (16-17 yrs
Bombali	318,862	151,606	23	460	464	232	102	34	96
Kambia	156,059	85,857	15	300	303	167	61	56	19
Koinadugu	193,352	101,022	22	440	441	226	105	80	30
Tonkolili	247,931	129,925	20	400	400	217	86	73	24
Total	**916,204**	**468,410**	**80**	**1600**	**1608**	**842**	**354**	**243**	**169**

*Source: 2015 Sierra Leone Population and Housing Census

2.4 Sources of information/data and evaluation Tools

Data/information were gathered at both secondary and primary levels.

2.4.1 Secondary sources of information/data

The secondary information about the ECRHS Programme were gathered from Programme documents (including Programme proposals, Programme reports, Programme budget reports, MEAL Framework, beneficiary lists, master facility list). Related reports were also gathered from secondary sources including the Sierra Leone Demographic Health Survey (DHS), District Health Information Software (DHIS2), Sierra Leone Multi-Indicator Cluster Survey (MICS) reports, the 2018 Sierra Leone Food Security Monitoring System (FSMS) Report and the Comprehensive Food Security and Vulnerability Assessment (CFSVA) report for comparison and triangulation. Further, secondary data were solicited from collaborative partners including data (IDSR data including MDSR information) from IDSR and FP Focal Points for trend analysis by district.

2.4.2 Primary sources of information/data

Primary data/information were solicited using both structured and unstructured tools. These tools were meant for both quantitative and qualitative data collection as specified below:

- **Source of information for quantitative data**
- **Personal/Household Interviews Questionnaire:** This was used to solicit quantitative information from household respondents of age 15-49 years for female respondents and above 15 years for male respondents. Target respondents were drawn from the intervention areas. However, livelihoods beneficiaries were not specifically targeted but communities mostly selected were noted to be livelihood

beneficiary communities. A total of 1,608 interviews (1,196 female respondents and 412 male respondents) was conducted across 80 communities.

- **Health Facility Assessment Tool:** was designed to assess services, equipment and supplies for routine maternal and child healthcare and SRH/FP facilities provided in each of the targeted PHUs. Observation was done for verification of equipment, supplies and general conditions through physical and infrastructure assessment and photography. A total of 80 health facilities were assessed but 3 health facilities were dropped due to incomplete forms and ineligible health facilities (hospitals) captured. Hence 77 PHUs were approved for analyses. The total number of PHUs assessed are stated in Table 6:

Table 5: Number of PHUs/health catchments assessed by district and chiefdom

District	# of chiefdoms selected	Chiefdoms selected	# of PHUs/ health catchments assessed
Bombali	5	Biriwa	6
		Bombali Sebora	2
		MaKari Gbanti	2
		Safroko Limba	6
		Paki Masabong	2
		Libeisaygahun	3
		Makeni Town	2
Kambia	5	Branaia	2
		Gbinle Dixing	3
		Masungbala	2
		Samu	4
		Tonko Limba	4
Koinadugu	8	Dembelia-Sink	3
		Diang	2
		Folosaba Dembel	2
		Kasunko	2
		Wara wara Bafodia	4
		Wara Wara Yagala	2
		Nieni	1
		Sengbe	3
Tonkolili	7	Gbonkelenke	4
		Kafe Simira	3
		Kalansogaia	1
		Kholifa Rowala	3
		Kunike	5
		Tane	2
		Yoni	2
Total	**25**		77

- **Sources used for qualitative information**

- **Key Informant Interviews (KII) Guide:** This included unstructured questions for in-depth interviews with key stakeholders having sufficient knowledge of Programme operations in the intervention districts. Target respondents engaged are shown in Table 7:

Table 6: Number and types of respondents targeted for key informant interviews

Organisation/Institution/Community	Number of Key Informants
DHMT	16
CHOs	4
CHWs	27
ADP	3
RODA	2
MADAM	1

ABC Development	3
MRU	1
MAFFS	2
Paramount/Section Chiefs	3
District Water Directorates	2
JBSCBU	1
CARE	3
Total	**68**

- **Focus Group Discussion (FGD) Guide:** This tool was used to have open discussions with members of the target communities. A total of 60 FGDs were conducted across the four intervention districts (10 in Kambia, 11 in Bombali, 14 in Koinadugu and 20 in Tonkolili). Each FGD session covered topics on community surveillance (CHWs), Sexual Reproductive Health (SRH), WASH, livelihoods and general issues (including effect of cross border migration, and harmful traditional practices- teenage pregnancy and early marriage. Group session comprised a total of 894 participants (530 females, 367 males) with an average of at least 15 participants (including men, lactating mothers, adolescent girls, youth and disabled persons living in the communities) per session. In communities where the CARE Seed Voucher beneficiaries are available, they efforts were made to include in the FGD sessions. Water maintenance committees were observed to be rare across the four intervention districts. Only 5 water maintenance committees were identified and interviewed in the course of the evaluation.
- **Case Studies/Stories of changes:** Stories were gathered from communities that have reported either significant changes or deplorable situations in relation to health and livelihoods and event-based case identification, management, reporting and responses. While it was expected that at least 12 case studies would be gathered, only two (2) case studies (from Koinadugu) were gathered and documented. Specific case studies documented are from: 1) Ibrahim Jawara in Koinadugu district, and 2) Saio Koroma in Koinadugu district. Although these case studies were from one district, they strongly present testimony that the project contributed to improved health and community and family resilience to shocks in the intervention district.

Table 8 serves as an evaluation design matrix and summaries the desired data, methods and procedures and accompanying tools discussed in this document.

Table 7: Evaluation Design Matrix

#	Data gathered	Method of data collection used	Tool	Respondent category/ data source	Targets/coverage
1	1,608 HH respondents	Stratified 2-stage random sampling, random walk, purposeful sampling, 'random walk' Kish or last birthday method	HH/PIs questionnaire	1,196 women of eligible age bracket (15-49 yrs); 412 men more than 15 years,	80 communities (At least 20 HH respondents per community/cluster)
2	77 PHUs assessed	Random selection of health catchment	Health facility assessment tools/ observation technique	All levels of PHUs (MCHPs, CHPs and CHCs)	77 PHUs (23 from Bombali, 15 from Kambia, 19 from Koinadugu and 20 from Tonkolili district)
3	60 Focus Group Discussion (FGD) sessions	Random selection of participants	FGD Guide	An average of 15 participants /session (incl. men, pregnant women, lactating mothers, adolescent girls, youth and disabled persons & livelihoods beneficiaries)	60 communities (average of 15 participants per community.) That is 11 in Kambia, 15 in Bombali, 14 Koinadugu, and 20 Tonkolili
4	68 Key informant interviews (KII)	Purposive selection of participants	KII Guide	CARE staff, IPs and state actors, Paramount/ Section Chiefs, JBSCBU, CHWs	14 in Bombali, 21 in Kambia, 15 in Koinadugu, & 8 in Tonkolili

8	5 Case Studies documented	Purposive selection through encounters from interviews	PIs, FGDs,	Communities, individual cases	4 in Koinadugu, 1 in Tonkolili

- **Evaluation team**

A total of 20 team members were involved in the evaluation exercise. The composition of the research team that carried out the interviews includes: one lead consultant, one assistant researcher, four Team Leaders, and fourteen enumerators.

2.5 Data Collection Method

Data collection method follow purposive and simple random selection techniques. As discussed in section 2.1, at least twenty (20) respondents were interviewed in each of the sampled communities across the four districts. It is noteworthy however, that respondents in the ECRHS Phase I Livelihoods beneficiary communities were not purposefully sampled based on access to livelihoods benefits (seed voucher, VSLA). However, livelihoods beneficiaries were captured from the random selection of respondents during field interviews. All respondents in each of the targeted communities were selected and interviewed using simple random sampling selection through 'random walk'

As inter alia stated in previous discussions, health/SRH is a key priority in the ECRHS intervention. Therefore, all selected households (including VSLA and Seed Voucher beneficiary household) responded to all sections of the household/PIs questionnaires. It is also important to note that 54 of the 80 communities were not covered with the WASH components. These communities were used as controls to obtain counterfactuals (where necessary) from communities without the ECRHS WASH interventions to ascertain water, sanitation and hygiene situations in the absence of the intervention. Hence, following the same sampling selection procedures for health, all selected households (1,147 households) responded to the WASH questions.

It is also noteworthy that SRH/FP questions were included in the personal interview questionnaire. Meanwhile, only male and female household respondents aged 18-49 years are eligible for specific SRH/FP questions. As mentioned in previous discussions, further additions were made to include household members between ages 15-17 years for SRH/FP questions. Hence 1,608 respondents were interviewed in the SRH/FP section of the questionnaire. Meanwhile, (and as discussed in previous sections), women are those who mostly feel the impact of negative health outcomes, poor water supply, etc. Hence 74 percent (1,196) of all respondents interviewed were women, while on 26 percent (412) were male respondents.

Ethical considerations were during field interviews with various respondents. The field researchers ensured that the purpose of the research was explained to the respondent, including confidentiality. Also important was that consent was taken from the respondents prior to start of interviews. The consent included acceptance to respond to questions, as well as for allowing to record voice, videos and take photos. Any refusal by the respondent was taken seriously and adhered to. In a situation where a respondent refused to answer to questions, that respondent was replaced by another respondent who was willing to respond to the interviews. However, the response rate was high (100 percent).

2.6 Data Management and Quality Control

Mobile data collection method was used especially to collect quantitative information/ data from respondents. A new mobile data collection platform called 'SocialCorps' was explored using the 'Collect' mobile data collection app. This app has features such as query languages, flagging, calculations, GPS, Voice recording and image/photo taking to ascertain trustworthiness of the data. For instance, the query languages were used to allow for skip questions, multiple choice selections and single choice selection; and therefore, field data collectors were periodically prompted by the system to answer mandatory questions/ conditions before moving to the next question. The GPS and maps of location of interviews or during submissions were also visualised by the system after submissions were made. Also important to note is that once every field data collector's mobile phone detail/name was included in the system, the lead evaluator will monitor and review individual submissions; and once flaws are detected in the submissions the specific questions were flagged and automatically sent back to the data collector to repeat interviews.

To guarantee trustworthiness in the data some important procedures were put in place. First health practitioners (nurses, pharmacists, etc) were especially recruited among other data collectors to carry out the health facility assessment. Comprehensive 4-day training was done on the context, interpretation of research questions and sampling methodology. While GPS and photo features were embedded in the mobile data collection system, mobile numbers of respondents were primarily used to ascertain field interviews. This was done by random selection of respondents with mobile numbers, and these numbers were used to ask respondents few key questions to validate responses submitted by field researchers. Respondent's tracking forms were also developed and shared with data collects to list respondents that have already been interviewed during field data collection. Test analysis for association of variables were also used- where multicollinearity (Cronbach Alpha) were note for homogeneous responses to indicators.

2.7 Methods for Analyses of Data/ Information

The evaluation was designed to use mixed methods to solicit information/data. Hence quantitative analyses were done for personal interview data, whilst content analysis was done for qualitative information such as FGDs, Key Informant Interviews and Case Study documentation. The results from content analysis were especially used to triangulate (or produce the why and how components of) some specific sections from the quantitative findings.

In particular both descriptive and inferential statistics were adopted, and therefore means analyses, cross-tabulations, generation of figures were done for presentation and discussion of findings. Households and health facilities were largely used as units of analyses; but achievements were compared by districts. Measures of associations were done to test Programme impacts by rural-urban settings and remote vs accessible rural settings. That is, analyses were done for impact of the health and WASH interventions by using communities not covered by the interventions as counterfactuals. Even though there may have been some contaminations of sample (considering that some communities had these supports outside the ECRHS Programme), these communities were used as control to attribute the ECRHS I Programme's contribution regarding health and WASH situations in the intervention districts. Both STATA 15 and SPSS 21 Software were used to test measures of associations particularly the binary logistic regression analyses.

Performance rating of achievements was further done at two levels- that is target-actual rating and baseline-endline comparison rating. For the baseline-endline comparison, test of differences in means was the ideal form of analysis to ascertain any significance difference between baseline and end phase values using EpiTool or Stata software. The z-value and ρ-value were used as determinants to test the differences in mean proportions in responses to key performance indicators. For ρ-value>0.05 at 95 per cent confidence level means the Programme made less progress on the indicator in question, otherwise ρ-value<0.05 would mean the Programme made significant difference in the situation. In terms of the target-actual comparison, achievement rating was done as shown in the colour coding below.

Description of Performance	Highly unsatisfactory	Unsatisfactory	Moderate Performance	Satisfactory	Highly satisfactory	Target Achieved/ outstanding
Score Range	(<0%-24%)	(25%-49%)	(50%-74%)	(75%-89%)	90%-99%	(100% or More)
Status Code						

3 EVALUATION FINDINGS AND DISCUSSIONS

This section presents findings from both quantitative and qualitative evaluation methods used to document achievements, best practices and challenges observed from the implementation of the 'Epidemic C Programme. The section is divided into five (5) subsections. It starts with objective level Programme achievement/impact, followed by discussions on relevance, effectiveness and efficiency of Programme and finally the likelihood of sustainability of Programme achievements. Best practices/lessons learnt, and challenges are discussed separately for each section (where necessary).

3.1 Objective level Programme achievement

At objectives level, target-actual analyses showed that 100 percent of targets set for objective level indicators were achieved- with targets exceeded for 75 percent of objective indicators provided at baseline level (see Table 9). These results showed that baseline targets set were realistic, and especially resulted in positive health outcomes as discussed in previous sections. Changes in situation at baseline value were also observed to be statistically significant at the end of implementation.

Table 8: Level of achievement of Programme targets for the three Programme objective indicators

[4]

Summary of Objectives	Indicator Definition	Baseline value (2015)	Targets (% /#)	Endline value	Description of progress
Objective 1: Contain and stop diseases outbreak, including Ebola	1.Ebola incidence is maintained at zero (resilient zero) through the intervention zone	0	0	0	Target was achieved. Ebola incidence was maintained at zero resilience.
Objective 2: Stabilize the Health System; with emphasis on sexual and reproductive health	2.Increase of PHUs, which offer basic health services; Immunization, safe delivery and family planning.	59.6%	70.0%	100%	Target was achieved and exceeded by 30%. This was an outstanding Programme performance
	3.Increase of PHUs which offer **both** HIV counselling & testing	11.7%	13.0%	68%	Target was achieved and exceeded- an outstanding performance of the Programme.
Objective 3: Improved livelihood and food security of vulnerable households	Reduction of beneficiary households in target communities reporting negative livelihood coping strategies	63.6%	58.6%	54%	Target was achieved and exceeded. There was an outstanding Programme performance

Specific observations showed the following results:

3.1.1 Objective 1: Contain and stop diseases outbreak including Ebola

One indicator was identified to achieve objective 1 of the ECRHS Programme- that is, 'Ebola incidence is maintained at zero throughout the intervention zone'. The target set for the indicator, which was to ensure that no Ebola case emerged was achieved and maintained throughout the course of implementation.

This result proved that collective efforts to stop ongoing transmissions of the Ebola Virus Disease (EVD) and prevent the emergence of new affected areas (hot spots) was highly successful. Ideally the Programme strategy to stop flare up of Ebola at the initial stage of the intervention was to collaborate with other health sector interventions in bid to connect district-level official bodies and local communities by supporting the establishment of an effective community-based surveillance (CBS) system in the intervention districts. Importantly the Programme largely supported the established CBS system through training, and by providing inputs for close user group (CUG) phone networks and monthly financial incentives. These inputs were further complimented with support towards WASH interventions through rehabilitation of water points and change in behaviours to prevent contracting and spreading of diseases.

Lessons learned from containing and maintaining Ebola at resilient zero was observed to have been effectively applied to similar disease outbreak. Community Health Workers (CHWs) were particularly noted to have played key role in containing and preventing the spread of communicable diseases in their communities- and therefore addressed the disconnect between communities and the health system in managing epidemic at the initial stage of the Ebola Virus Disease outbreak. Key informants interviewed from the District Health

Management Teams (DHMTs) and Primary Health Units (PHUs) consistently highlighted the effectiveness of the CHWs in identifying diseases and events and reporting them. The role of CHWs was observed to have particularly strengthened the Integrated Disease Surveillance and Response (IDSR) system; and this revealed an existence of consolidated and effective community-based surveillance system across the four intervention districts. Community Health Workers have reportedly ensured that reports/referrals on priority diseases and events are routinely done from their assigned locations following standard reporting procedures/ referral systems. This is evident in Table 10. Accordingly, disease surveillance and reporting consistently improved in the course of implementation in the four intervention districts. In particular, surveillance reports on cholera, diarrhea, malaria, pneumonia and typhoid fever cases from all catchment communities covered by the ECRHS Programme constantly increased from 2016 to 2018.

Table 9: Trend in total reported cases of diseases/events across the intervention districts

Diseases/Events Reported	Jan-Dec'16	Jan-Dec'17	Jan-Dec'18
Acute Flaccid Paralysis(AFP)/Polio	7	19	15
Acute Jaundice Syndrome	7	18	1
Cholera	-	22	29
Diarrhoea/dysentry	1,162	1,991	2,198
Measles	103	966	181
Malaria cases	409,684	817,209	875,457
Malaria positive	256,642	458,438	504,706
Severe Malnutrition	1,512	4,568	4,527
Maternal death	30	114	136
Monkey Pox	-	-	-
Neonatal Tetanus (NNT)	7	17	15
Neonatal death	-	6	3
Severe Pneumonia	3,914	6,786	4,684
Small Pox	-	-	-
Typhoid Fever	12,277	15,555	14,335
Yellow Fever	219	5	2
Ebola	-	-	-

* Source: IDRS District Data from DHMTs

Analysis from the Integrated Disease Surveillance and Response (IDSR) data generated from all health catchments covered by the Programme revealed that even though there were incidences of communicable priority diseases (identified for surveillance) such as cholera and measle, death from these diseases were maintained at zero throughout the first phase of the ECRHS Programme implementation. Further (and as shown in Figure 1), reported deaths from diarrhoeal diseases (including bloody diarrhea or dysentery) markedly dropped by 84.4 percent from 2016 (32 deaths) to 2018 (5 deaths).

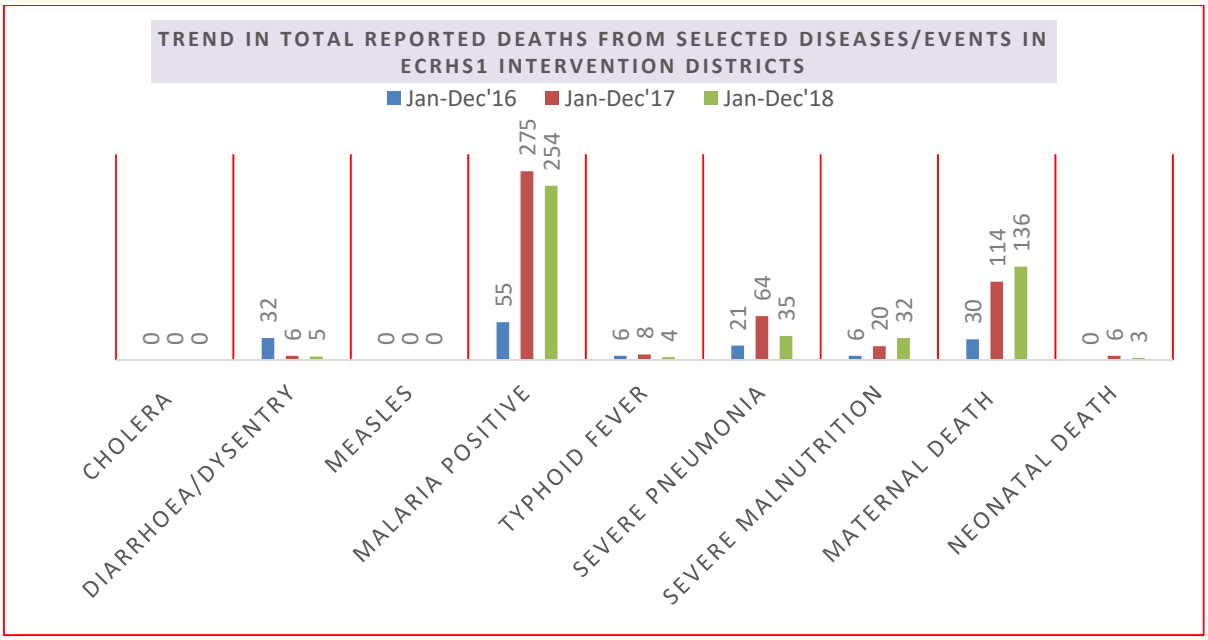

Figure 1: Trend in total reported deaths from selected priority diseases/events from 2016-18

* Source: IDRS District Data from DHMTs

Meanwhile district level data proved that reported deaths from malaria and maternal death are comparatively higher at the end phase (2018) of the Programme than in 2016; and malaria (254) and maternal deaths (136) accounted for the highest number (approximately 83%) of deaths reported for the selected diseases/events during the end phase. Disaggregated data (as depicted in Figure 2) however showed that maternal deaths remained lowest in Bombali district than in the three other districts (which showed almost equal and higher distribution of maternal deaths) during the Programme's end phase (2018). Whereas the high cases of malaria deaths and maternal deaths would be attributed to less impact at some points, it further explains a highly effectively community-based surveillance and reporting (including quality, accuracy and timeliness of reports). According to the 2016 Annual Report on Maternal Death Surveillance and Response (MDSR), verbal and paper-based notification of deaths, and lack of institutionalization of MDSR in existing community structures were observed to have largely contributed to under-reporting of deaths[3] prior and at start of the ECRHS Programme. This claim proved comparability of maternal deaths between the baseline period and end phase of the Programme difficult. Notably well established and connected community-based surveillance structures such as the Community Health Workers (CHWs) and their peer supervisors (who have been largely supported by the ECRHS1 Programme) and the introduction of electronic IDSR System at the primary health units (supported by FOCUS 1000) led to accurate and timely reporting of deaths at the latter stage of the Programme. This had also meant timely response to the causes of diseases/deaths and hence reduced incidences of cases.

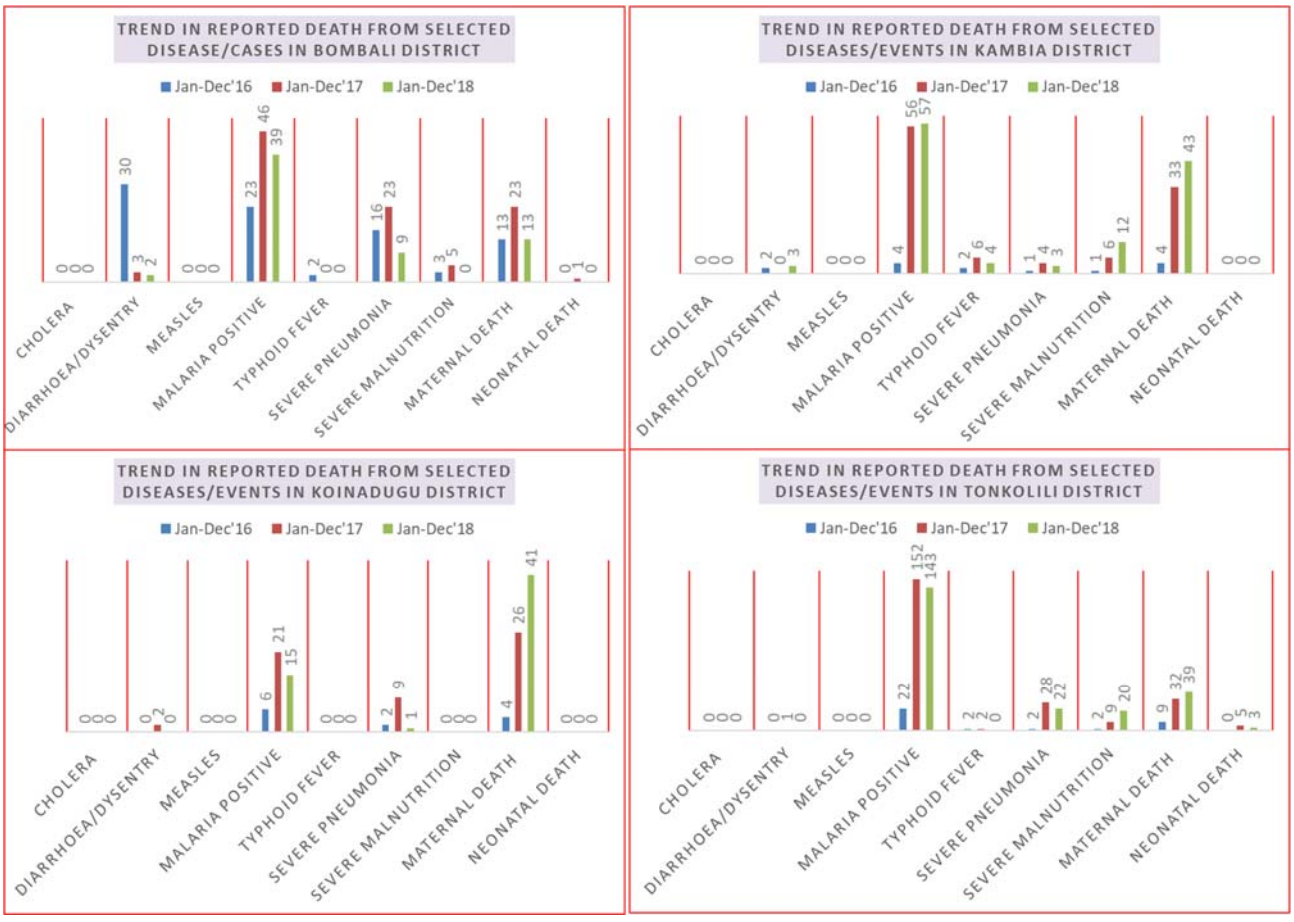

Figure 2: Trend in district level reported deaths from selected priority diseases/events from 2016-18
* Source: IDRS District Data from DHMTs

Despite the reported cases of communicable diseases such as measle, diarrhea and cholera that emerged in the course of the Programme intervention, no widespread epidemic of these diseases was reported in the intervention zone due to existing systems and procedures established to contain and stop outbreaks. As

[3] See MDSR Annual Report 2016. Available at: https://sierraleone.unfpa.org/sites/default/files/pub-pdf/Annual%20MDSR%20Report%20.pdf

noted from key informant interviews, untimely and under-reporting of cases distorted responses from the DHMTs (and hence contributing to flare up of epidemics) prior to the ECRHS Phase I Programme intervention. This finding could therefore be an improvement in the community-based surveillance system. The effort made by the Programme was particularly noted to have contributed to efforts made to address misguided responses to maternal deaths observed prior to Programme inception, and in a couple of reported instances prevented the spread of emerging communicable diseases across the intervention districts.

"…Due to accurate and timely reporting of cases/events, the DHMT now responds swiftly to verify reports and identify causes of cases/events…this development has significantly improved on our decision-making efforts to address anomalies that led to the case/event…thanks to the ECRHS Programme for the fleets, and support for fuel and review meetings on emerging events such as maternal deaths reported from the communities in the district."

DHMT Member, Bombali District

Interviews with DHMTs during the course of the evaluation revealed that effective community event-based reporting has further helped the Maternal Death Surveillance and Response (MDSR) Committee/DHMTs to identify post-partum haemorrhage (PPH), pregnancy-induced hypertension (PIH), anaemia, obstructed labour, Sepsis, and ante-partum haemorrhage (APH) as common causes of maternal deaths across the four ECRHS intervention districts. This allows for appropriate interventions to curtail maternal deaths in the districts. Reported instances on containment of measle cases without further spread in Gbleh Dixon Chiefdom in Kambia district further proved the effectiveness/relevance of the established community-based surveillance system.

The existence of functional community-based surveillance system and active role played by CHWs were widely acknowledged by community members in all (100%) of the 60 communities engaged in the focus group discussion sessions held during the evaluation.

"The introduction of the Community-based surveillance structure especially by identifying and training members of our community as CHWs was a great idea…The CHW in our community always makes sure the people are well informed with health information and other ways that prevent them from contracting diseases…In most cases the CHW is willing to respond to calls from community people on issues related to child illnesses…and if required (like in situations of danger signs) the CHW helps in referring the patient to the health centre for proper medical treatment by the CHO or nurses. "

FGD Participant, Fulamansa Community, Dembelia Sinkunia Chiefdom, Koinadugu District

Interviews with households across 80 communities covered by the evaluation further showed the importance of the established community-based surveillance in efforts towards effective health service delivery for improved health status of people across the four intervention districts in northern Sierra Leone. Between 60 to 70 percent of 1,147 households interviewed stated CHWs as first point of contacts for health seeking. Specifically, 70 percent of households claimed to have regularly received health service information from CHWs and recognize them as first point of contact in times of suspected epidemic-prone disease or illness of child in the household. Also, important to note was that over 65 percent of households interviewed have regularly received drugs from CHWs in the last 12 months. (See Figure 3)

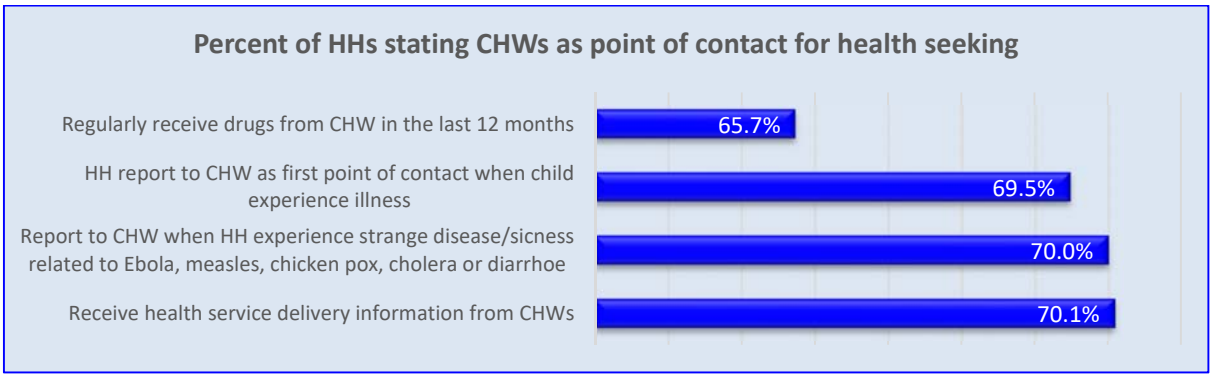

Figure 3: Percent of households stating CHWs as first point of contact for health seeking

The role of CHWs beyond identifying and reporting diseases/event was unsurprising. While the Programme contributed to training of CHWs on community-based surveillance, they also received further training

support for Integrated Community Case Management of Childhood Malaria, Pneumonia and Diarrhoea (iCCM). The National CHW Policy (2016-202) particularly recognizes CHWs to implement the iCCM 'Plus' by identifying and treating pneumonia, diarrhea and malaria (using rapid diagnostic testing (RDT)) in children ages 2 to 59 months and refer cases with danger signs. The policy also mandates CHWs to identify and treat malaria (using RDT) in older children and adults (entire population/over five years).

Documented insight stories/ case studies revealed that that community-based surveillance system is largely contributing to positive health outcomes across the four intervention districts.

Table 10: Case Studies/Insight Studies on the contribution of community-based surveillance

CASE 1: A CHILD SAVED BY CHW FROM THE EFFECT FEBRILE CONVULSION
Kamba Mamoudia Community, Folosaba Dembelia Chiefdom, Koinadugu District

Ibrahim Jawara, a 3-year old child was born in Kamba Momouda Community in Folosaba Dembelia chiefdom, Koinadugu district. At age 2 (in 2016), Ibrahim was attacked with an illness at around 6:00 a.m in the morning. The parents of the child saw this as a strange illness since he was well and active during the night before he started experiencing the strange illness. They have already started linking the cause of the illness with witchcraft when the Community Health Worker (CHW) in the community discovered the sick child and observed that he was suffering from convulsion. After administering some first aid treatments he assisted the parents to take the child to the health center, where the required treatment was immediately administered, and later the boy was certified that free from the illness.

This prompt response was particularly a life-saving intervention, given that prolonged febrile convulsion/seizure lasting longer than 30 minutes increases the risk of epilepsy as high as 30 to 40 percent.[4]

3.1.2 Objective 2: Stabilise the health system: with emphasis on sexual and reproductive health

Objective 2 comprises of four indicators- two of which have baseline targets, while the two others are additional indicators and have targets set from midterm evaluation results. Notably Programme performance was outstanding for the two indicators identified at baseline level- that is, a) percent of PHUs which offer basic health services (immunization, safe delivery and family planning), and b) percent of PHUs which offer both HIV counseling and testing.

3.1.2.1 Increasing PHUs which offer basic health services

As presented in the summary table (Table 6), the target set for PHUs offering basic health services was achieved and exceeded by 43 percentage points. While the Programme was expected to achieve a coverage of 70 percent of PHUs from a baseline figure of about 60 percent, all PHUs were observed to be offering basic health services including immunization, safe delivery and family planning (see Figure 6).

[4] See the effects of febrile convulsion/seizure at: https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Febrile-Seizures-Fact-Sheet

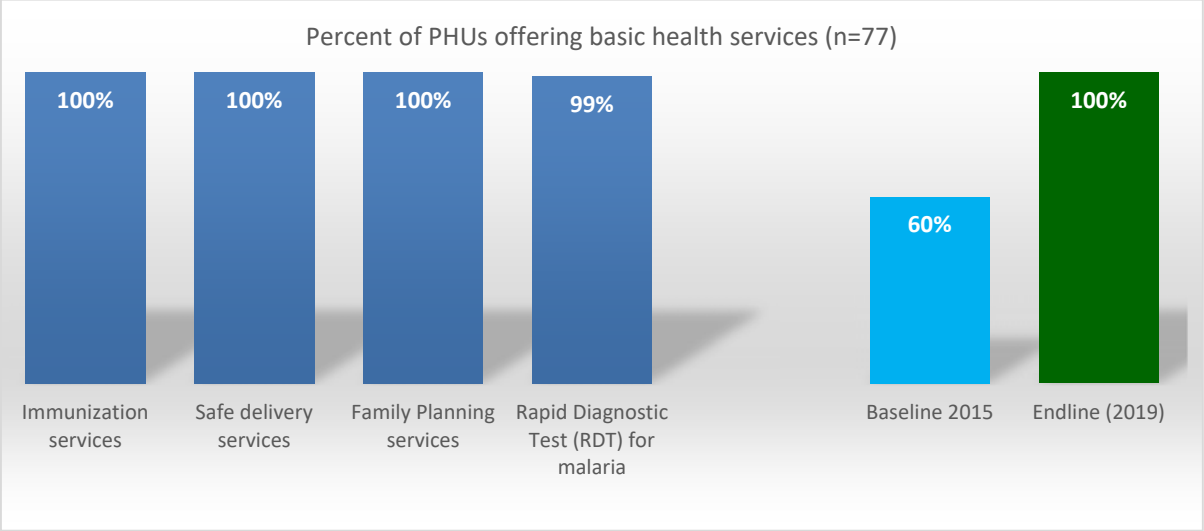

Figure 4: Percent of PHUs offering basic health services

The evaluation proved beyond reasonable doubts that trust has been restored in the health system. Over 77 percent of 1,147 household respondents interviewed reported that household members visit health facilities as first point of contact for healthcare service. This result shows consistency with the number of ANC visits reported in the multi-indicator cluster survey (MICS) report for the four districts in 2017. According to MICS2017 report, 76.4 percent of women reported to have made at least 4 ANC visits- and this is high across all four intervention districts in the north. (See Figure 5)

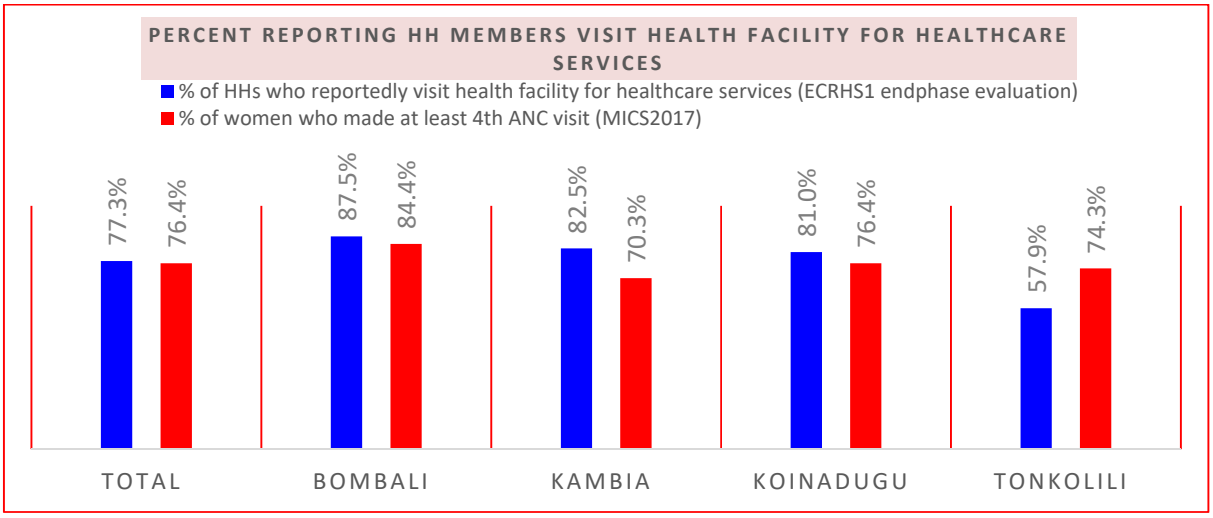

Figure 5: Percent of households who report that members visit health facility as first point of contact for healthcare service

Increased demand for health services among clients across the four intervention districts was further confirmed by findings on the proportion of total number of births made at the health facility. The evaluation revealed very high proportion (96.3%) of total number of births made at the health facilities. Triangulation with 2013 DHS report showed marked improvement in deliveries made at health facilities by 60.3 percentage points from 2013 (36%) to end phase of the ECRHS I Programme implementation across the four intervention districts (see Figure 6).

District	DHS 2013 report		ECHRS 1 end phase evaluation report	
	# of births	% of total births made at health facility	# of births	% of total births made at health facility
Bombali	788	41.4%	56	98.3%
Kambia	596	33.9%	99	100.0%
Koinadugu	653	32.8%	39	79.5%
Tonkolili	1122	35.2%	101	98.0%
Total	3159	36.0%	295	98.2%

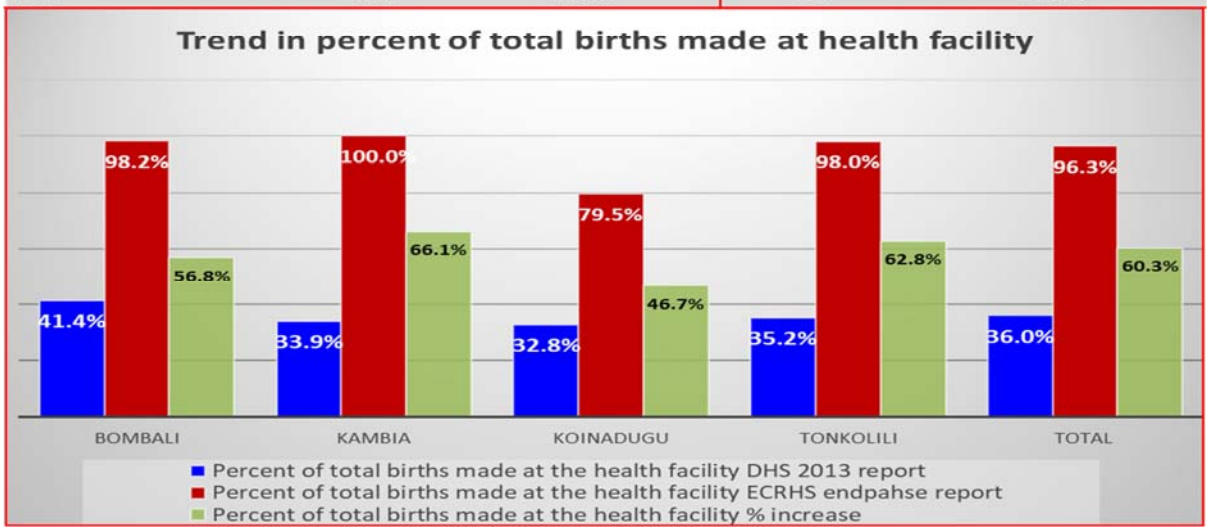

Figure 6: Percent of total number of births made at health facility

The observed increase in demand for health services largely explains that the health interventions in post-Ebola phase was highly successful in terms of improving quality of health services delivery in the intervention districts. Members engaged in focus group sessions from between 90-93 percent of 60 communities confirmed that indeed ANC services, labour and delivery services, newborn care and family planning services have improved compared to situation before 2016. In addition, community members from 88 percent of 60 communities targeted for FGDs perceived postpartum care in health facilities to have improved. Figure 7 depicts perceived rate of improvement of healthcare service delivery across the four intervention districts.

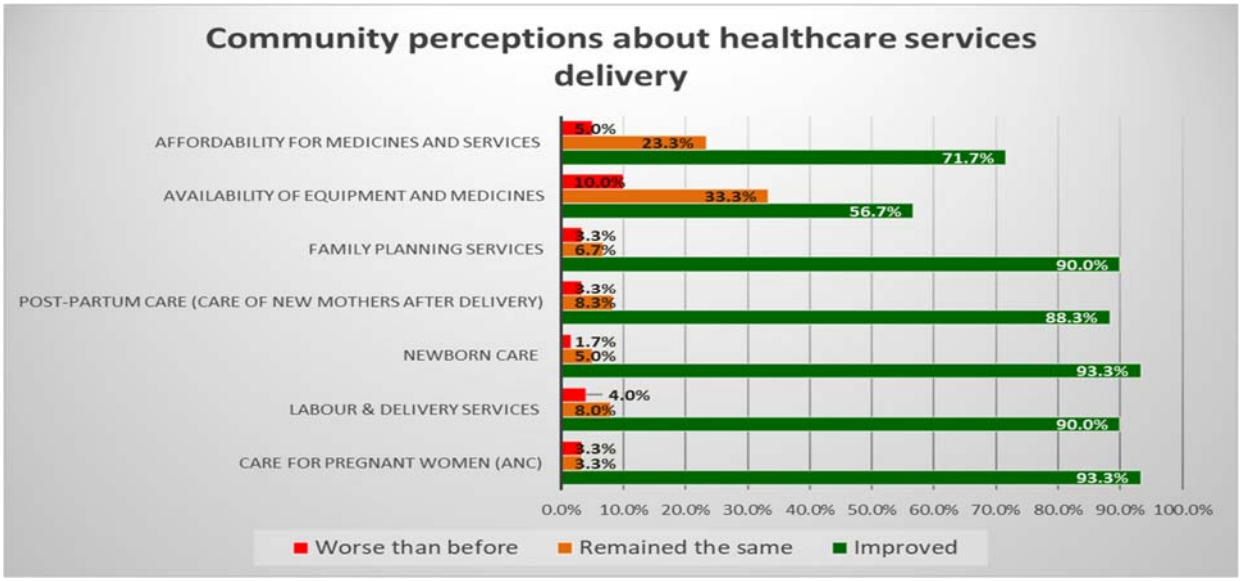

Figure 7: Perceived rate of improvement in healthcare service delivery reported at FGD sessions from 60 communities

Few documented reasons that confirm claims made by community members on improved healthcare service delivery in the intervention zone are discussed in Box 4

BOX 4: REASONS FOR PERCEIVED IMPROVEMENT OF HEALTHCARE SERVICES IN THE INTERVENTION DISTRICTS

"At present much attention is paid to us...anytime we go to the health facility, the nurses hastily examine us and check for the heartbeat of the baby to know if it is normal or not. They also check our pressure to know the circulation of blood in our system. We are given enough drugs, and regular guidance and counseling is made on the type of food we should eat, use of bed nets and the importance of regular exercise… On the day of delivery, the nurses do not allow the new mother to go home in order to ensure that proper monitoring is done for some days to prevent any complication or emergency…This has not been the case about three years back. Such improvement is due to the regular supervision made by CHWs, FMCs, Peer Supervisors and the strong link they have with the health facilities."

Female Participant, FGD in Mabom, Community, Kholifa Rowala chiefdom, Tonkolili Ditrict

"Before this time (about 4 to 5 years back), women used to die at the time of child birth, either because of lack of experience on the part of the nurses or poor facilities in terms of equipment used to do delivery or poor referral system that results in late arrival of the patient at the health facility. People therefore lacked confidence in the health system by then… But now, we can see that much attention is placed on pregnant women in the health catchment area to ensure that they are closely monitored and have access to drugs…. Ambulance facility is available for pregnant women should there be the need for referrals… After delivery the new mother and her baby are held at the facility and are observed for some days to take care of any potential complication that may arise…Drugs are been supplied to the new mothers, and the newborns are immunized. Very importantly, before this time when drugs arrived most people don't know about such arrivals, but most recent development we have observed is that communities are actively involved to ensure that they take record of quantity and type of drugs in the health facility, In terms of family planning, enough sensitization is taking place in recent times to ensure the use of contraceptives especially for school-going children and other young girls. Mostly sensitization of contraceptives use is done in Schools on a weekly basis, and supplies are free- all in bid to prevent teenage pregnancy among young girls…"

FGD Participant, Mabonto, Community, Kafe Simira chiefdom, Tonkolili Ditrict

"A couple of years back, even when we heard that free medical treatment was in place for pregnant women and lactating mothers, too much attention was not paid to them; but now there's much improvement regarding care for pregnant women…Health talks are often given at the facility and even on radio for pregnant women to access the health facility. Enough medicines are provided to pregnant women whenever they go to the health centre including multivitamins and other drugs…Continuous counseling is done to pregnant women at the health facility on the type of food they should eat and also to remain calm in anything they do so that they will not develop pressure…The facility regularly do check up for pregnant women to know the heartbeat of the baby…A very important improvement observed in our catchment community is that most women comfortably give birth without undergoing operations because of the regular checkups they do in the health facility at the time of pregnancy, and delivery is done without requesting for money… medicines and other health services are also provided free-of-charge especially for those drugs that have to do with free health care for pregnant women, lactating mothers and the under-fives… "

FGD Participant, Matoto, Community, Libeisaygahun chiefdom, Bombali Ditrict

3.1.2.2 Increasing PHUs which offer both HIV counselling and testing

Also, target for PHUs offering both HIV Counselling and Testing was exponentially exceeded at the end of implementation. It was expected that 13 percent of all PHUs will be offering both HIV testing and counselling at the end of implementation; but the evaluation findings showed that this target was markedly exceeded by 55.3 percent.

The marked increase in PHUs offering basic health services and HIV counseling and testing in the intervention zone is an important finding on efforts made to stabilise the health system. As defined in the Programme design, major areas identified to stabilize the health system included a) ensuring that basic health services (including immunization, safe delivery and family planning) and HIV counseling and testing are provided by all PHUs and b) strengthening DHMTs and PHUs to respond to infection control and routine services at PHUs. It is noteworthy that trust in the health system has always been reportedly low- with the Ebola outbreak worsening the situation. According to the Knowledge Attitude and Practice (KAP) survey conducted in September 2014, 10 percent and 40 percent of those who respectively missed antenatal and under-fives visits did so due to the Ebola outbreak. Reduction in care seeking for reproductive health and family planning were similarly reported due to loss of trust in the health system and for fear of exposure to Ebola virus[5]. The evaluation therefore linked successes in PHUs offering routine health services (including basic health services

[5] See Programme proposal

and HIV counseling and testing) with restoration of trust in the health system (by increasing demands for services)- which serves as an outcome of efforts made towards health system strengthening in the intervention districts.

3.1.2.3 Achievement of new sexual and reproductive health (SRH) targets

Two new indicators on sexual and reproductive health were further identified at midterm period and added to objective 2 of the Programme. The evaluation noted that target set for only one of these indicators was achieved and exceed. That is, target set for 'percent of women aged 15-49 who make their own informed decision regarding contraceptive use' was achieved and exceeded by 20.1 percent (see Table 12). However, target set for 'percent of women aged 15-49 who make their own informed decisions regarding reproductive healthcare' was not achieved, but the result was observed as satisfactory achievement. Meanwhile, this result shows that support for the belief that women should control decisions about their bodily integrity and reproductive lives remain low across the intervention districts.

Table 1: Level of achievement of Programme targets for the two new Programme objective indicators

Summary of Objectives	Indicator Definition / Redefinition (2015/2017)	Results from mid-term evaluation (July 2017)	New Target value (% or #)	Endline value	Description of progress
Objective 2: Stabilize the Health System; with emphasis on sexual and reproductive health	**CARE Ind**: % of women aged 15-49 who make their own informed decisions regarding contraceptive use	33.0%	40.0%	60.1%	
	CARE Ind: % of women aged 15-49 who make their own informed decisions regarding reproductive health care	30.4%	35.0%	27.5%	Only 79% of target was achieved; but showed satisfactory achievement.

3.1.3 Objective 3: Improved livelihoods and food security of vulnerable households

Objective 3 of the ECRHS Programme had 1 objective verifiable indicator- that is, 'reduction of households in targeted communities reporting negative livelihoods coping strategies. The baseline target set for this indicator was achieved and exceeded by 8 percent at the end of Programme implementation. The change made in baseline value was also statistically significant. This result reflects on marked drop in households who lived in severe hunger, thereby sharply increasing those who reported little or no hunger from midterm period to end of Programme implementation. The result also had strong link with the Programme's contribution to increase income of vulnerable households in Ebola-affected communities. These outcomes had meant the ECRHS1 Programme contributed to food access through the seed voucher initiative and increased income (enabling beneficiaries to access better health outcome). However, nutrition security was not achieved, and therefore this had negative health outcomes such as malnutrition.

Findings on improved livelihoods and food security are also critical in ascertaining opportunities presented by the Programme to improve resilience of vulnerable people to cope with future humanitarian crises and reduce negative livelihoods coping strategies. This component was particularly added to the ECRHS1 Programme because the Ebola outbreak (as cited in the proposal document) negatively affected household economic and food security. This would have further translated into poor health and nutrition outcomes for women and children in affected communities across the intervention districts because affected households could not access healthcare and provide improved nutrition for household members. According to the Programme design, providing livelihoods and food security support was expected to improve family and community resilience which further leads to better health outcomes for all family members. Cognizance of these interventions, the evaluation assessed the food security situation and livelihoods status of targeted households. The evaluation also documented case studies/ insight stories of how these interventions are contributing to family and community resilience, as well as improved health outcome. Specific findings on livelihoods and food security are discussed as follows:

- **Food security situation of households in the intervention districts**

The USAID Food for Peace (FFP) Strategy underpins three variables (including availability, access and utilization) to define food and nutrition security. Accordingly, '*food and nutrition security is achieved when adequate, safe, and nutritious food is available, accessible to, and well utilized by all individuals at all times to support a healthy and productive life*'. For the purpose of the ECRHS I Programme evaluation, Household Hunger Scale (HHS) and Household Dietary Diversity Score (HDDS) were recognised as proxy indicators for food insecurity measures, and therefore used to delineate ECRHS1 Programme's contribution towards restoring food and nutrition security in the intervention zone. The HSS and HDDS therefore served two purposes. While HSS analysis was used to assess the Programme's contribution towards food access (with focus on quantity dimension), HDDS examined the patterns of utilization (including improved access to nutritious food).

Three indicators from a broader set of nine (9) indicators for measuring Household Food Insecurity Access Scale (HFIAS) were used to measure HHS[6], considering a recall period of 30 days preceding interviews. These indicators include i) household members had no food to eat of any kind, ii) household members go to sleep at night hungry, and iii) household members go a whole day without eating anything. The scales 0-1 day (little or no hunger in household), 2-3 days (moderate hunger in household) and 4-6 days (severe hunger in household) were used to analyse the HSS for the four intervention districts. It is noteworthy that no baseline value was available on household hunger school. Midterm evaluation value was therefore used to compare changes made in food access over the course of implementation. As presented in Figure 8, the proportion of households who reported severe hunger fell sharply by 67.5 percentage points from 71.1 percent (at midterm) to 3.7 percent at end of Programme implementation. Furthermore, those who reportedly experienced little or no hunger in the last 30 days preceding interviews increased sharply by 42.9 percentage points from 28.9 percent at midterm period to 71.8 percent at end of Programme implementation.

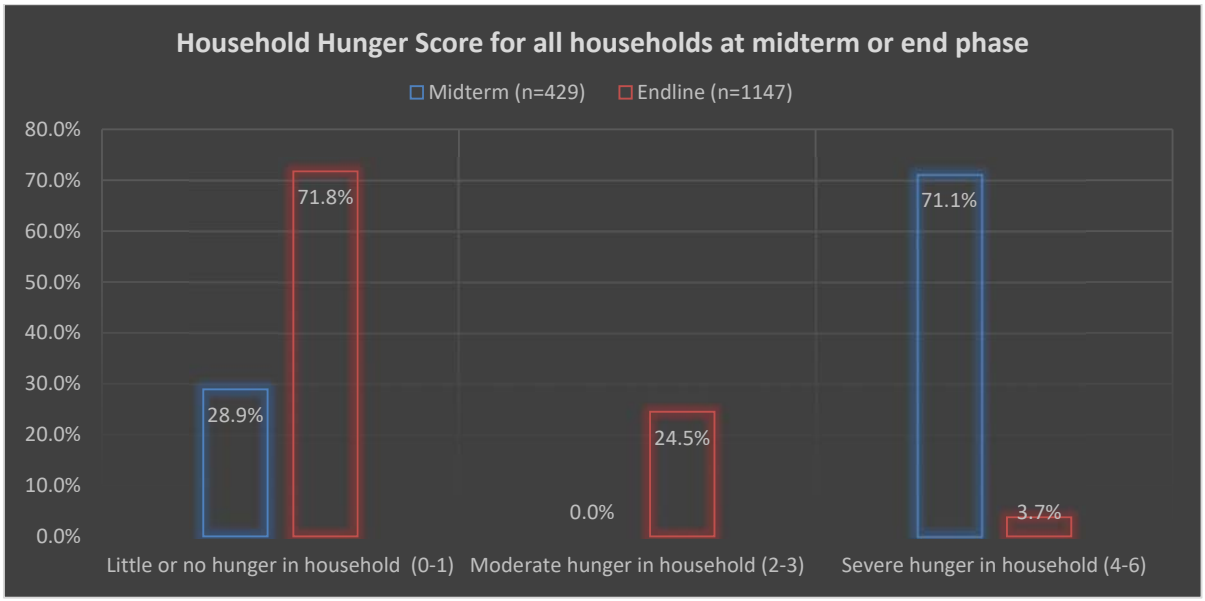

Figure 8: Proportion of all households reporting little or no hunger

District figures for Bombali, Tonkolili and Kambia strongly reflects on the marked improvement in hunger situation generally observed for all households in the intervention zone. However, the situation for households in Koinadugu remains almost the same – showing the lowest improvement in hunger situation (as shown Figure 9) at both midterm (33.8%) and end of Programme implementation (34.6%).

[6] HSS is recommended as a simple indicator to measure household hunger in food insecure settings. It is therefore considered to be universally acceptable indicator for cross-cultural settings. See P. 6 of USAID/FAO/EU 2011 note: 'Household Hunger Scale: Definition and Measurement Guide'

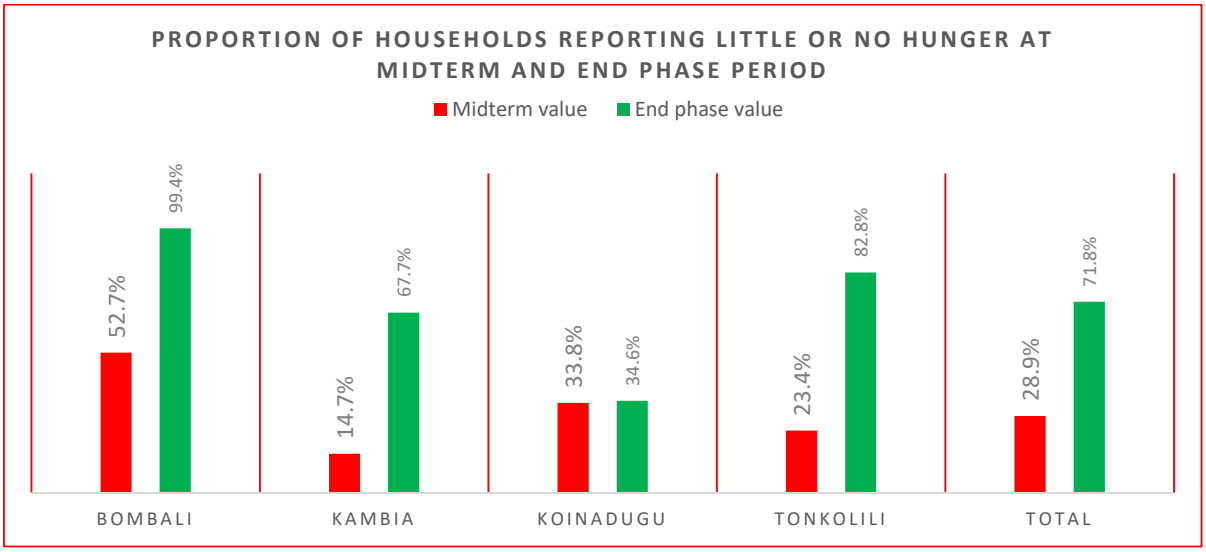

Figure 9: District level figures showing proportion of households reporting little or no hunger at midterm and end phase period

These findings follow consistency in food insecurity trends presented in the 2018 Sierra Leone Food Security Monitoring System (FSMS) Report[7]. Excerpt from the FSMS (2018) report shows that the average proportion of households who are food insecure in four ECRHS I intervention districts dropped from 59.9 percent in 2015 to 53.6 percent in 2018 (see Figure 10). Similar to the end phase evaluation findings, situation in food insecurity dropped in Bombali, Kambia and Tonkolili districts, except for Koinadugu district (where food insecurity increased by 10.6 percentage points from 2015 to 2018).

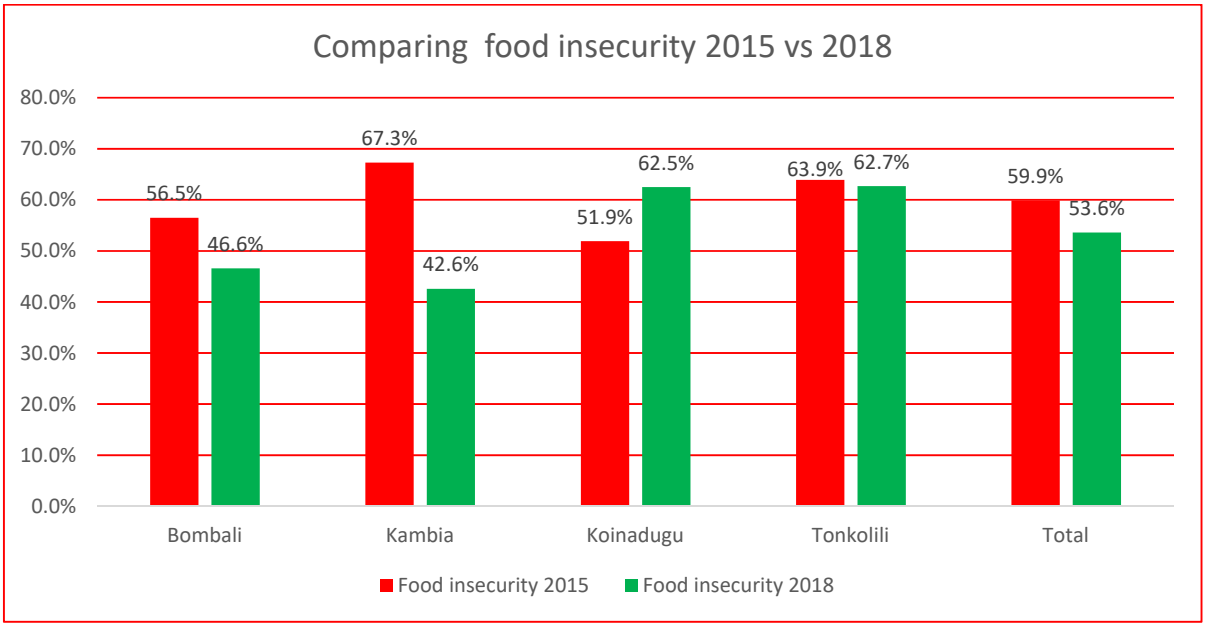

Figure 10: Comparing levels of food security, FSMS 2018 to CFSVA 2015

*Source: 2018 Sierra Leone Food Security Monitoring System (FSMS) Report

The evaluation however observed no improvement in household dietary diversity, but those households reporting high dietary diversity remain high between midterm and end phase of ECRHS I Programme implementation in the intervention zone. Although a drop by 2.8 percent was observed, the proportion of households reporting high dietary diversity stands at 82 percent (see Figure 11).

[7] See P. 21 of WFP (2018). Sierra Leone Food Security Monitoring System Report. Available at: https://www1.wfp.org/publications/sierra-leone-food-security-monitoring-system-report

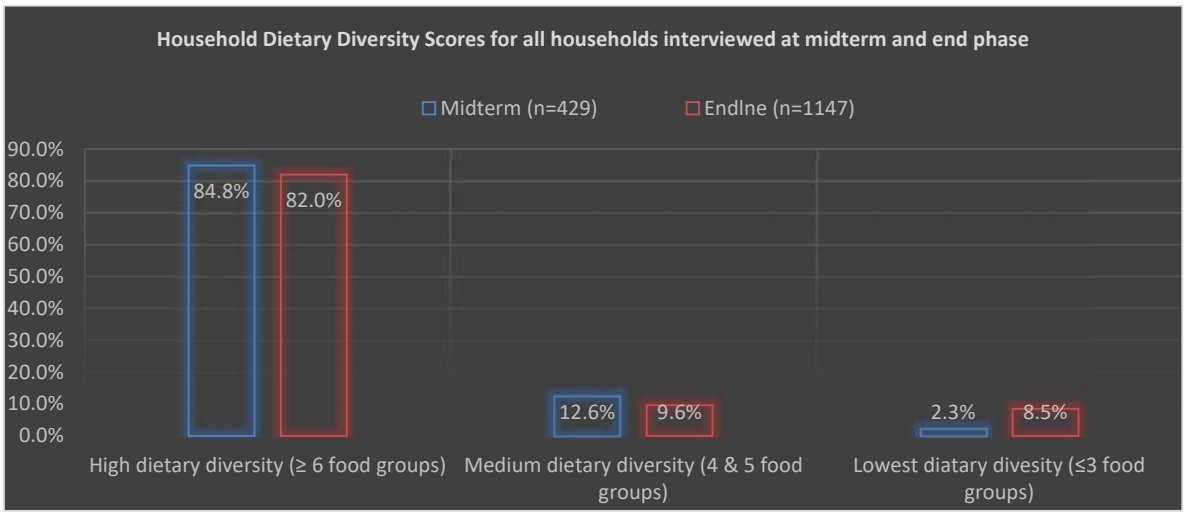

Figure 11: Comparing households showing high dietary diversity in the intervention zone between midterm and end phase

District figures from the end phase showed relatively high level of dietary diversity across the four intervention districts- with almost all households interviewed in Kambia (99.1%), 92.8 percent of households in Tonkolili and 80.1 percent in Koinadugu reporting high dietary diversity. However, Bombali district presents the lowest proportion (62.5%) of households reporting high dietary diversity (see Figure 12).

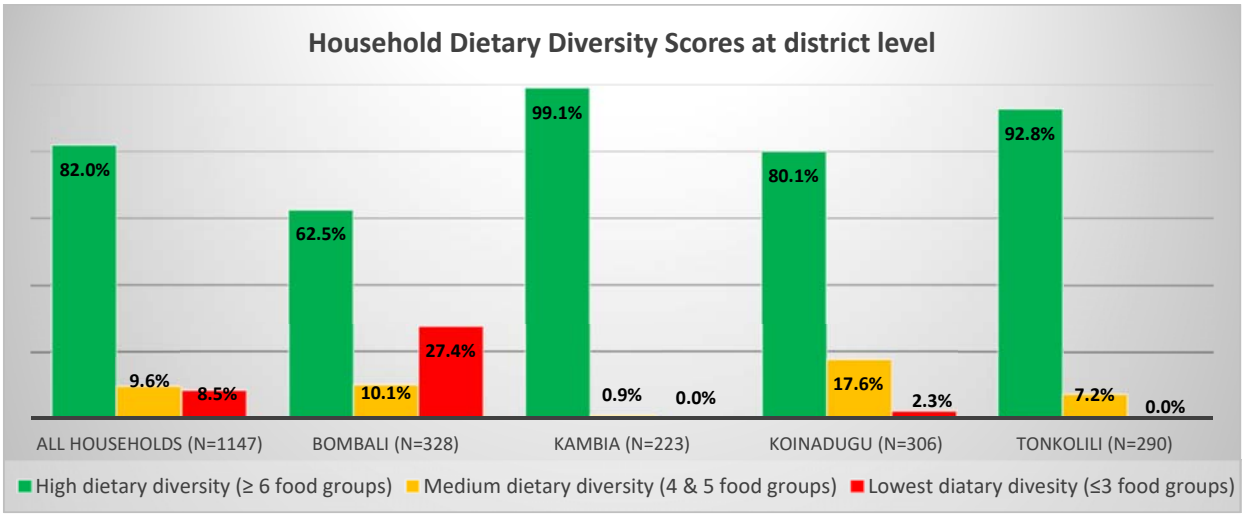

Figure 12: Household Dietary Diversity Scores at district level.

Comparative analyses of food consumption score (FCS)[8] reported in the 2018 Sierra Leone Food Security Monitoring System (FSMS) report however presents reduced pattern in acceptable food consumption score across the four intervention districts. Accordingly, average proportion of households reporting acceptable food consumption dropped by 6.1 percentage points from 38.3 percent in 2015 to 32.2 percent in 2018. District level figures showed moderate drop in food consumption score for Tonkolili and Bombali, but Koindugu district presented marked drop by 25.3 percentage point. Conversely, Kambia district showed significant improvement in household food consumption score- with 14.2 percentage increase from 2015 to 2018. (See Figure 13)

[8] The FCS is a composite score based on dietary diversity, food frequency and relative nutritional importance of different food groups. See section 9.6 of WFP Technical Guidance Sheet for food consumption analysis. Available at: https://documents.wfp.org/stellent/groups/public/documents/manual_guide_proced/wfp197216.pdf

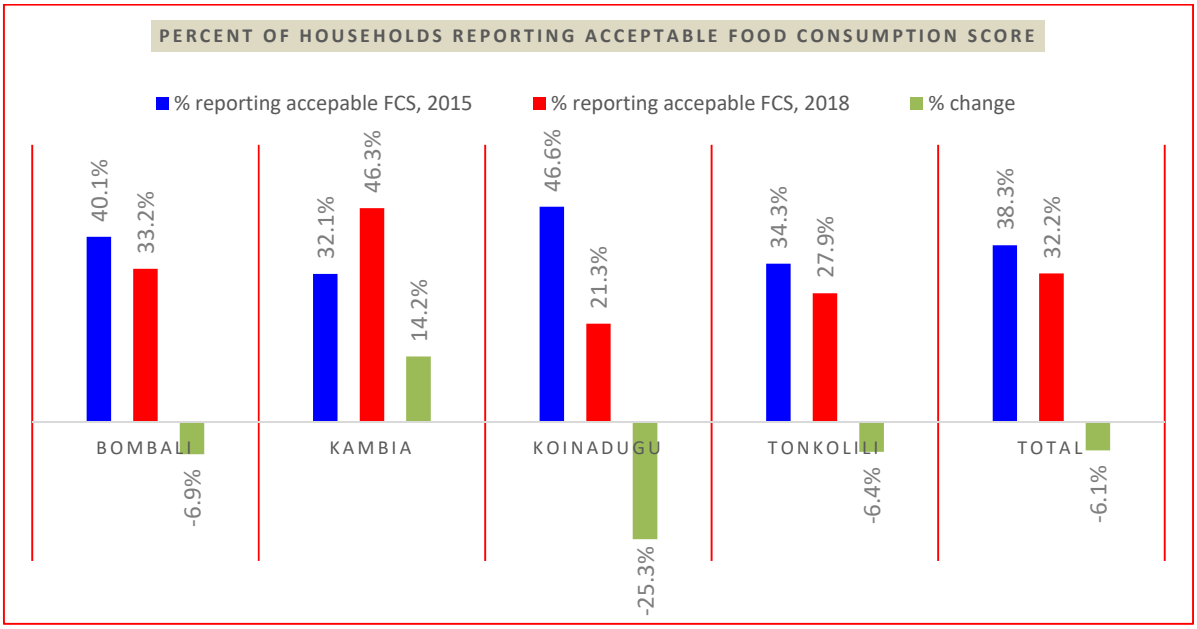

Figure 13: Comparing levels of Household Food Consumption Score, FSMS 2018 to CFSVA 2015
*Source: 2018 Sierra Leone Food Security Monitoring System (FSMS) Report

The results from odds computation however revealed that the ECRHS I Programme would have contributed to improved food insecurity in the intervention zone. As presented in Table 13, households in communities directly affected with Ebola are respectively 3 times (OR=3.12, CI=2.40-4.08) and 1.37 times (OR=1.37, CI=1.01-1.85) more likely to have experienced little or no hunger and high dietary diversity than those in communities not directly affected with Ebola. Meanwhile, specific analyses proved that rural households are about 3 times more likely to have experienced little or no hunger than urban households, while urban households would have experienced high dietary diversity than rural households. Considering that the ECRHS I targeted Ebola-affected communities and provided them with the relevant support such as seeds and seed security, these findings showed that the Programme influenced increased food access for vulnerable population in the intervention districts. However, sensitization efforts on dietary diversity proved to have created greater impact in urban than rural communities.

Table 2: Logistic regression model showing the relationship (Odds Ratio) between urban-rural characteristics and improved food and nutrition security situations across the four intervention districts

Explanatory factors	Maximum number of observations (N=1,147)	HHS Odds Ratios (OR) 95% CI	HDDS Odds Ratios (OR) 95% CI
Ebola vs non-Ebole affected communities			
Ebola affected	1,147	3.12**(2.40-4.08)	1.37*(1.01-1.85)
Urban vs Rural Strata			
Urban communities	1,147	0.33**(0.20-0.55)	3.65*(1.31-10.13)
Rural communities	1,147	2.99**(1.82-4.93)	0.27*(0.10-0.76)
Accessible vs Remote Rural Strata			
Accessible rural communities	1,080	1.77**(1.34-2.35)	0.22**(2.84-7.19)
Remote rural communities	1,080	0.56**(0.43-0.75)	4.52**(2.84-7.19)

*p<0.05 (statistically significant)
**p<0.001 (statistically significant)
***p>0.05 (not significant)

- **Providing access to livelihoods and income generation opportunities for improved family and community resilience to shocks**

The ECRHS I Programme design also intended to support Ebola-affected communities with off-farm financial and income-generating opportunities through public work investment in affected communities and training to encourage participants to wisely utilize cash, focusing on savings and business development skills. It is expected that this approach would contribute to a) reduced negative livelihoods coping strategies experienced by households in vulnerable communities during the outbreak, b) increased income of households in vulnerable communities, and d) better health outcomes.

Findings from the end phase evaluation revealed marked improvement in the proportion of households who reported to have adopted negative coping strategy for survival in 2015. As presented in Figure 14, the proportion of households reporting negative coping strategies for survival in the last seven days preceding interviews significantly dropped from 63.3 percent in 2015 to 53.7 percent at end of ECRHS 1 Programme implementation.

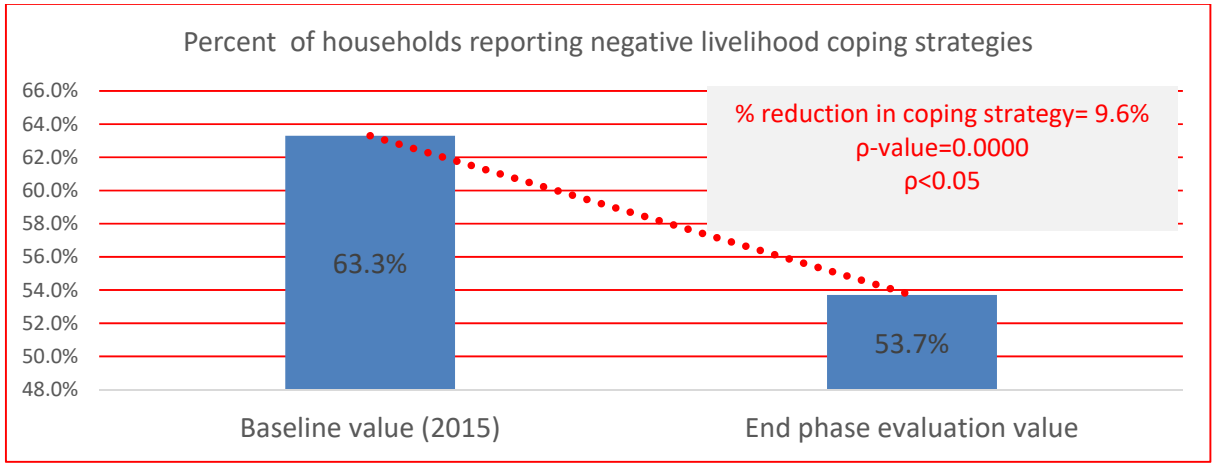

Figure 14: Percent of households reporting negative coping strategies across the four ECRHS1 intervention zone

District figures generated from the evaluation however revealed relatively high proportions of households (above the average of 53.7%) in Kambia (74%), Tonkolili (61%) and Koinadugu (57.8%) districts reporting negative livelihood strategies in the last seven (7) days preceding interviews (see Figure 15). Bombali district showed the lowest proportion of households reporting negative coping strategies (29.6 percent). Additional findings on reduced coping strategy index (rCSI) also revealed Tonkolili (18.6) and Koinadugu (13.3) as districts presenting more households practicing the most damaging negative coping strategies including i) relying on less expensive and less preferred food, ii) reducing number of meals per day and iii) limiting portion sizes at meal time[9]. Bombali district presented the lowest value of rCSI (2.0), followed by Kambia district (9.9).

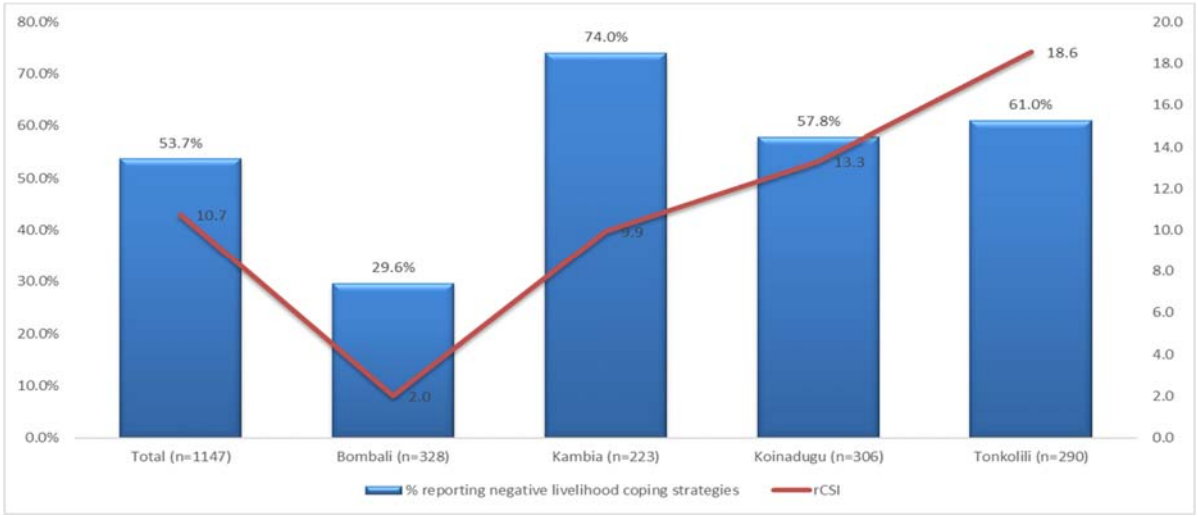

Figure 15: Percent of households reporting negative coping strategies at district level

[9] rCSI calculation includes the number of days (in the last seven days) each of the following damaging coping strategies were adopted multiplied by the severity weighting: i) relying on less expensive and less preferred food (w=1), ii) reducing number of meals per day (w=1), iii) limiting portion sizes at meal time (w=1), iv) borrowing food or relying on help from friends or relatives (w=2) and v) restricting consumption by adults in order for children to eat (w=3). However, two of these indicators with higher severity weighting were not captured in the evaluation; but the three with similar weighting were used to have a fair idea of the damaging coping strategies used.

The findings further revealed improved income for about 32 percent of households across the four intervention districts – although about 29 percent expressly experienced reduced income compared to situations during the outbreak. (See Figure 16)

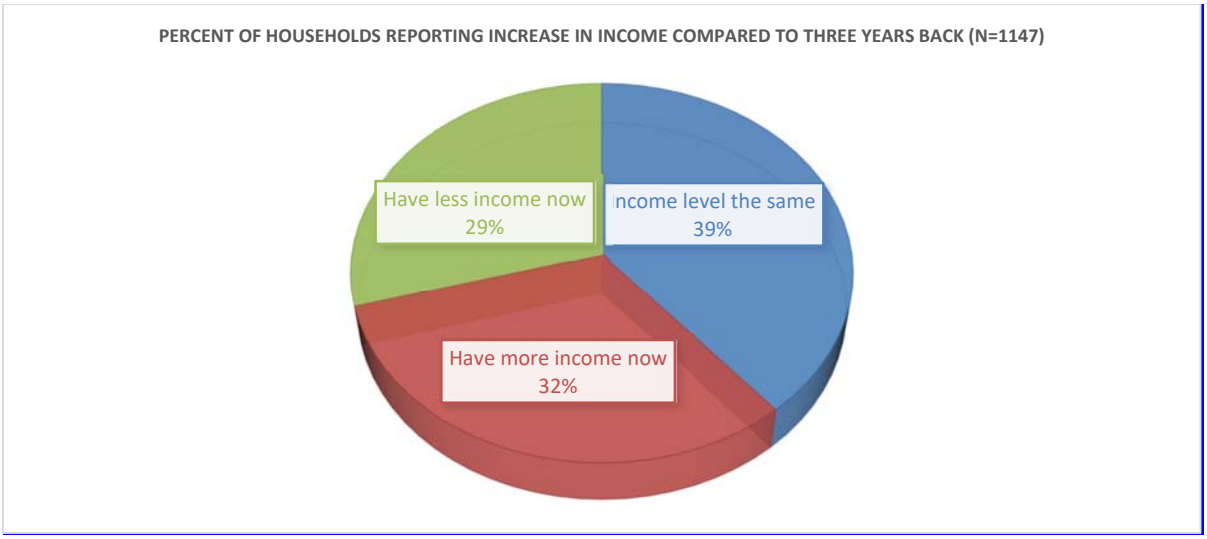

Figure 16: Percent of households in the intervention zone reporting increased income

The logistic regression analysis proved households in Ebola-affected communities as more likely to have reduced negative livelihoods coping strategies (OR=1.40, CI=1.10-1.78) and experienced increased income (OR=2.81, CI=2.12-3.73) than those in communities not directly affected with Ebola (see Table 14). While the ECRHS I Programme targeted vulnerable communities for livelihoods opportunities, this analysis proved the Programme to have highly likely contributed to restoration of livelihoods opportunities and increased income for about 32 percent of households in vulnerable communities across the four intervention districts. However, the livelihoods component of the intervention is comparatively less likely to have impact on households in rural communities than those in urban communities.

Table 3: Logistic regression model showing the relationship (Odds Ratio) between urban-rural and Ebola-affected characteristics and food and nutrition security situations across the four intervention districts

Explanatory factors	Maximum number of observations (N=1,147)	Reduced Coping Strategies Odds Ratios (OR) 95% CI	Increased income Odds Ratios (OR) 95% CI
Ebola vs non-Ebole affected communities			
Ebola affected	1,147	1.40*(1.10-1.78)	2.81**(2.12-3.73)
Urban vs Rural Strata			
Urban communities	1,147	1.47***(0.89-2.41)	2.84**(1.72-4.68)
Rural communities	1,147	0.68***(1.51-2.59)	0.35**(0.21-0.58)
Accessible vs Remote Rural Strata			
Accessible rural communities	1,080	1.98**(1.51-2.59)	0.53**(0.40-0.69)
Remote rural communities	1,080	0.51**(0.39-0.66)	1.90**(1.44-2.49)

*p<0.05 (statistically significant)
**p<0.001 (statistically significant)
***p>0.05 (not significant)

As noted in earlier discussions, improved livelihoods (including increased income) can increase resilience among vulnerable population and provide them with the economic security they need to access healthcare and other welfare needs. The evaluation noted evidences (from both personal interviews and focus group sessions) that justified the ECRHS1 Programme's contribution to improved resilience to shocks and sanitation, as well as affordability for quality healthcare by vulnerable households supported in the course of implementation.

"CARE International Programme implemented by RODA in this community has helped many poor people immensely by increasing their income. The Programme has empowered most men and women in this community to be self-reliant. Most of them are now strong to provide enough food for their family and pay medical bills when the need arises. To increase resilience as a preparation for unexpected crisis, most households have reinvested in savings group (such as VSLA), animal rearing and other non-farm activities like buying motorbikes for commercial purpose…"

FGD Participant, Sanda community, Kunike Sanda Chiefdom, Tonkolili District

3.2 Programme Effectiveness

Effectiveness of the ECRHS Programme was measured in terms of extent to which the Programme achieved baseline targets set at both objectives and intermediate results level as presented in the MEAL Framework. Whilst targets set for objective level indicators have been exhaustively discussed, the section discusses specific achievements and explanatory outcomes at intermediately results level. It also is noteworthy that progress in new indicators such as achievement of target set for sexual reproductive health indicators were separately analysed using the new targets set from the midterm evaluation results. Specific target-actual comparison for intermediate results level indicators are discussed below.

3.2.1 Intermediate Results (IR)/Output level achievements

Target-actual comparisons at intermediate results (IR) level showed outstanding Programme performance for about 64 percent (7) of 11 baseline targets set at Programme inception. As noted from the MEAL Framework of the ECRHS 1 Programme, these objective verifiable indicators were drawn from five (5) intermediate results (IR) identified to track the extent to which the Programme met its targets set to achieve the overall goal of *'improved health status of sierra Leoneans in the four northern districts (Bombali, Kambia, Koinadugu and Tonkolili)'*. It is however worth noting that new indicators were identified at midterm period to align with one additional intermediate result on sexual reproductive health – that is, 'access to Sexual and Reproductive Health and Family Planning increased'. The targets for these indicators were set from the midterm values but are included the following discussions.

3.2.1.1 Intermediate Results for Objective 1:

To ascertain the means through which the Programme achieved its objective of containing and stopping diseases outbreak (including Ebola), three intermediate results (IR) and five objective verifiable indicators were identified in the Programme's design. Results from the target-actual analyses showed that the Programme achieved 3 (60%) of the 5 targets set at intermediate results level for objective 1(see Table 15).

Table 14: Level of achievement of targets set to achieve intermediate results for objective 1

Summary of Objectives	Indicator Definition	Baseline Value; 2015	Target value %o#.	Endline value	Description of progress
IR 1.1: Effective surveillance, contact tracing, and alert systems are in place and functioning at community level	5. % of communities within intervention zone with functional surveillance structures in place	68.8%	70.0%	100.0%	Target achieved
IR 1.2: Improve knowledge and change behaviors to prevent Ebola transmission at community level (Social Mobilization)	6. % of population within intervention zone that can correctly state three means of Ebola transmission, prevention and signs and symptoms	90.0%	90.0%	81.8%	Highly satisfactory achievement
	7. % of population within intervention zone willing to await swabbing before burial of relatives suspected of Ebola	95.0%	95.0%	64.6%	Moderate performance
IR 1.3: Improve access to and behaviors concerning water, sanitation, and hygiene (WASH)	8. % of HHs within intervention zone that have access to safe drinking water	18.5%	22.0%	55.9%	Target achieved & exceeded- outstanding performance
	9. % of households within intervention zone with hand washing facilities	10.0%	15.0%	15.2%	Target achieved & exceeded- outstanding achievement

Specific achievements of targets at intermediate results (IR)/output level are discussed as follows:

- **IR1.1: Effective surveillance, contact tracing and alert systems are in place and functioning at community level**

Programme achievement was outstanding for IR1.1- exceeding baseline target (70%) by 30 percent at end of implementation. The high Programme performance on 'IR1.1: effective surveillance, contact tracing and alert systems are in place and functioning at community level' was largely linked to the active visibility of community-based surveillance structures such as the Community Health Workers (CHW) in the intervention areas. Community members engaged in focus group discussions across 100 percent of 60 communities targeted for FGDs pointed out the active role played by CHWs in their communities in terms of disease and antenatal surveillance, Integrated Community Case Management (iCCM) of childhood malaria,

pneumonia and diarrhea, as well as sanitation, hygiene and other sexual and reproductive health sensitization and advocacy.

"…The CHW in our community is very active. He does house-to-house visits in the community in search of sick child (ren) to treat them where possible for minor sicknesses such as malaria, cholera, pneumonia and common cold. If a child is noticed of been sick within this community, the CHW does Rapid Diagnostic Test (RDT) for malaria first; and if the result shows that the child has malaria, the CHW administer the malaria tablet and monitor the child for some days. If the child does not respond to treatment, the CHW either writes referral card and gives the child's parents/caregiver or go with the child to the PHU for further treatment…In addition, he sensitizes us on how to maintain clean environment especially our latrines, kitchens and the water facility we use. He also advises and encourage us to build plate racks, cloth linings to prevent us from diseases related to poor sanitation…In most cases, the CHW refers pregnant women and lactating mothers to the health center for checkup, treatment and to immunize their children…"

FGD Participant, Mayaribo Community, Sanda Loko Chiefdom, Bombali District

- **IR1.2: Improve knowledge and change behaviours to prevent Ebola transmission at community level**

Achievements for IR1.2 were mixed- showing moderate to high achievement of target set at Programme inception. This means, efforts towards improving knowledge of transmission of Ebola and risk minimizing behaviors (such as waiting for swabbing and hygiene practices) have not been highly successful. Although there were observable improvements from midterm and to end phase values, the overall change in knowledge of means of Ebola transmission, prevention and symptoms dropped from 90 percent at start of Programme to 82 percent at end phase. Similarly, the proportion of population in the intervention zone expressing willingness to await swabbing before burial of relatives suspected of Ebola dropped from 95 percent in 2015 to 65 percent at end phase (see Figure 17). These results may be partly due to complacency and less concentration on awareness raising on Ebola once the disease has subsided.

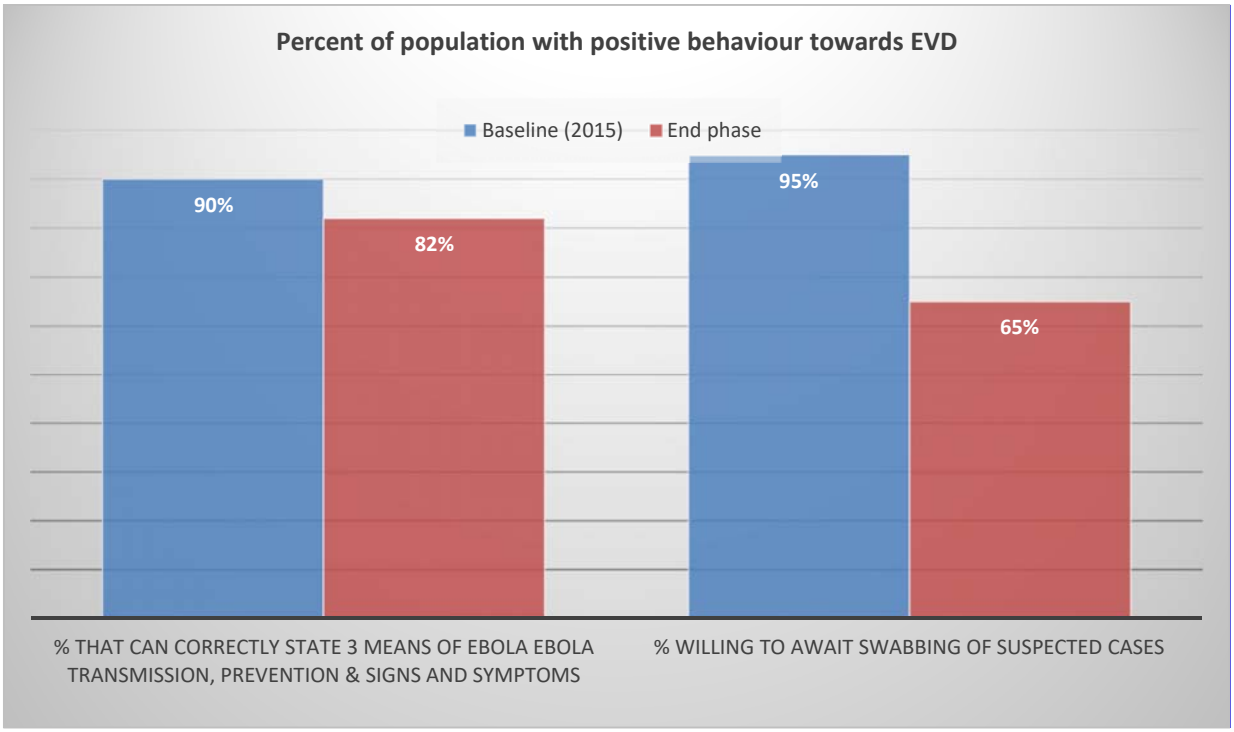

Figure 17: Percent of population who can state 3 means of EVD transmission, prevention & signs and symptoms, and willing to await swabbing

Although risk minimizing behavior is relative higher for water hygiene (89.8%) and hand hygiene (67.7%), large proportion of households remain to adopt these practices. For instance, 36.3 percent and 32.3 percent of households in the intervention zone respectively lack regular practice of washing hands before preparing food and after using toilet or garbage (see Figure 18).

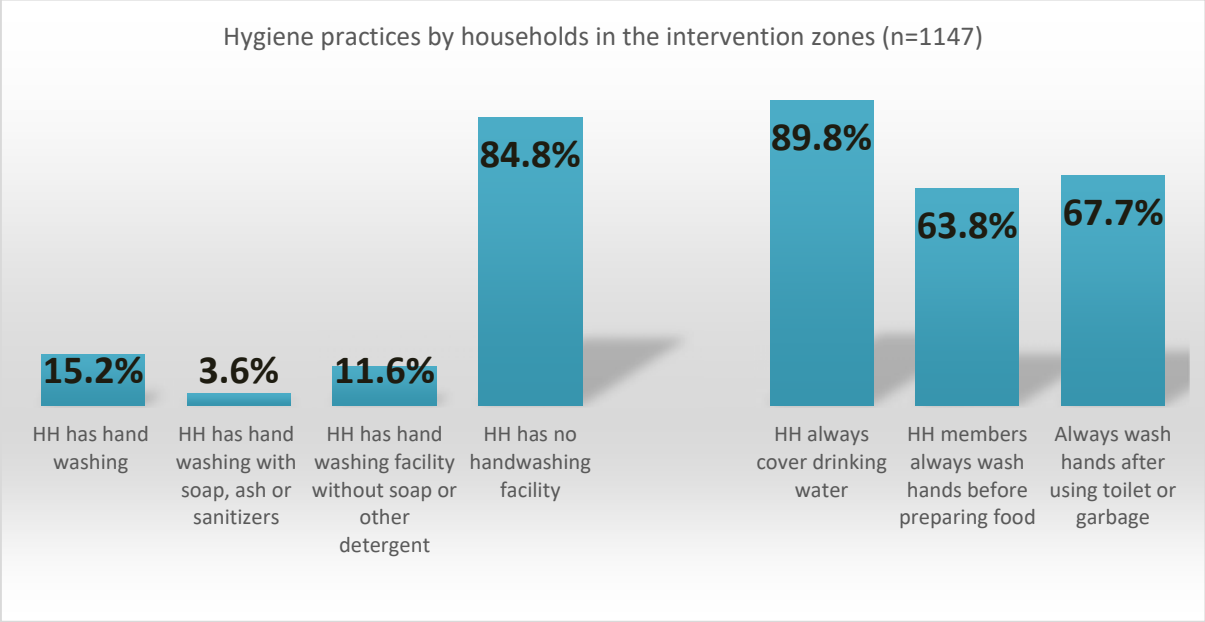

Figure 18: Hygiene practices reported by households in the intervention zones

Availability of handwashing facility was observably widely lacking at household level in communities across the four intervention districts. Approximately 85 percent of households targeted during the evaluation lacked handwashing facilities. Meanwhile innovative practices such as installation of tippy taps for public use were observed in many communities. Although community members engaged in focus sessions from across 60 communities claimed that they receive consistent messaging on sanitation and hygiene from CHWs, the poor outcome on risk minimizing behaviours (hygiene practices, behavior towards EVD, etc) at household level was observed to be partly due to some explanatory factors. These shortfalls proved to be largely linked to complacency and lack of enforcement of sensitization efforts on Ebola once it subsided. Most focus has been placed on sanitation and hygiene promotions, and community engagement on other health related issues rather than Ebola.

Binary logistic regression further proved that the effect of Ebola, availability of water supply intervention and access to water facility have relative impact on risk-minimising behaviours by households in the intervention zone. It worth noting that all results of the logistics analysis were presented as odds ratio (OR) with 95 percent confidence intervals. It is worth noting that odds ratio (OR) is a measure of association between an exposure and an outcome. The OR represents the probability that an outcome will occur given an exposure, compared to the probability of the outcome occurring in the absence of that exposure. When a) OR equals 1, then the intervention does not affect the outcome, b) OR exceeds 1, then the intervention highly influenced the outcome, and c) OR less than 1, then the intervention is unlikely to have influenced the outcome.


Tippy-taps observed in most communities in Koinadugu District

As presented in Table 16, households in communities that were directly affected with Ebola are more likely to correctly state at least 3 ways of preventing Ebola transmission (OR=1.02, CI=0.74-1.42) than those not affected with Ebola. Further they are 1.62 times and 1.21 times more likely to use handwashing facilities and adopt water hygiene practices respectively than those in communities not affected with Ebola. Meanwhile, the prevalence of Ebola was observed not to have influenced households to await swabbing for Ebola-suspected cases (OR=041, CI=0.31-0.54)- which explains that sensitization effort in this regard was not enforced over-time in the cause of implementation. On the other hand, improved water supply interventions proved to have largely influenced hand hygiene practices such as having handwashing facility (OR=1.43, CI=0.95-2.18) and washing hands before food preparation (OR=2.33, C1=01.60-3.38). Thus, sensitization effort alone was not enough to effect change in improved risk-minimising behaviours in the intervention zone.

Table 4: Logistic regression model showing the relationship (Odds Ratio) between risk minimizing behaviours and Ebola-affected and availability of water facilities across the four intervention districts

Explanatory factors	Maximum number of observations (N=1,147)	Ebola-Affected Odds Ratios (OR) 95% CI	Community with safe/ improved water source Odds Ratios (OR) 95% CI	Have access to safe/ improved water source Odds Ratios (OR) 95% CI
Can correct state 3 means of EVD transmission, prevention, signs & symptoms	1,147	1.02***(0.74-1.42)	0.88***(0.63-1.24)	1.02***(0.63-1.24)
HH has handwashing facility	1,147	1.61*(1.12-2.31)	1.43*(0.95-2.18)	0.65*(0.46-0.93)
HH drinking water always covered	1,147	1.21***(0.79-1.85)	0.62*(0.40-0.99)	0.83***(0.55-1.26)
HH members wash hands before food preparation	1,147	0.76***(0.53-1.08)	2.33**(1.60-3.38)	2.13**(1.50-3.01)
HH members wash hands after toilet use	1,147	0.05***(0.00-1.22)	0.77***(0.53-1.12)	1.08***(0.77-1.51)
HH willing to await swabbing for deceased relative suspected with Ebola.	1,147	0.41**(0.31-0.54)	1.98**(0.98-2.85)	1.16***(0.89-1.52)

*p<0.05 (statistically significant)
**p<0.001 (statistically significant)
***p>0.05 (not significant)

Rural-urban comparison further revealed that Programme efforts towards improved risk-minimising behavior on disease prevention and transmission largely influenced urban households than rural households- even though rural households were observed to be 1.59 times more likely to use handwashing facilities (OR=1.59, CI=0.77-3.38) than urban households (OR=0.63, CI=0.31-1.30). (See Table 17)

Table 5: Logistic regression model showing the relationship (Odds Ratio) between risk minimizing behaviours and rural-urban settings across the four intervention districts

Explanatory factors	Maximum number of observations (N=1,147)	Urban Households Odds Ratios (OR) 95% CI	Rural Households Odds Ratios (OR) 95% CI
Can correct state 3 means of EVD transmission, prevention, signs & symptoms	1,147	1.19***(0.56-2.49)	0.84***(0.40-1.77)
HH has handwashing facility	1,147	0.63***(0.31-1.30)	1.59***(0.77-3.28)
HH drinking water always covered	1,147	1.79***(0.52-6.14)	0.56***(0.16-1.91)
HH members wash hands before food preparation	1,147	2.12***(0.97-4.60)	0.47***(0.23-1.03)
HH members wash hands after toilet use	1,147	1.03***(0.49-2.16)	0.97***(0.46-2.04)
HH willing to await swabbing for deceased relative suspected with Ebola.	1,147	2.74**(1.46-5.16)	0.36*(0.19-0.68)

*p<0.05 (statistically significant)
**p<0.001 (statistically significant)
***p>0.05 (not significant)

- **IR1.3: Improve access to and behaviours concerning water, sanitation and hygiene**

The ECRHS1 Programme demonstrated outstanding performance in relation to 'improved access to and behaviours concerning water, sanitation and hygiene (WASH). In particular, the evaluation observed significant progress in proportion of households with access to safe/improved drinking source[10]. As presented in Figure 17, access to improved/safe drinking water in the ECRHS1 Programme intervention districts markedly increased by 37.4 percentage point from 11.5 percent at Programme inception (2015) to 55.9 percent at end phase of the Programme.

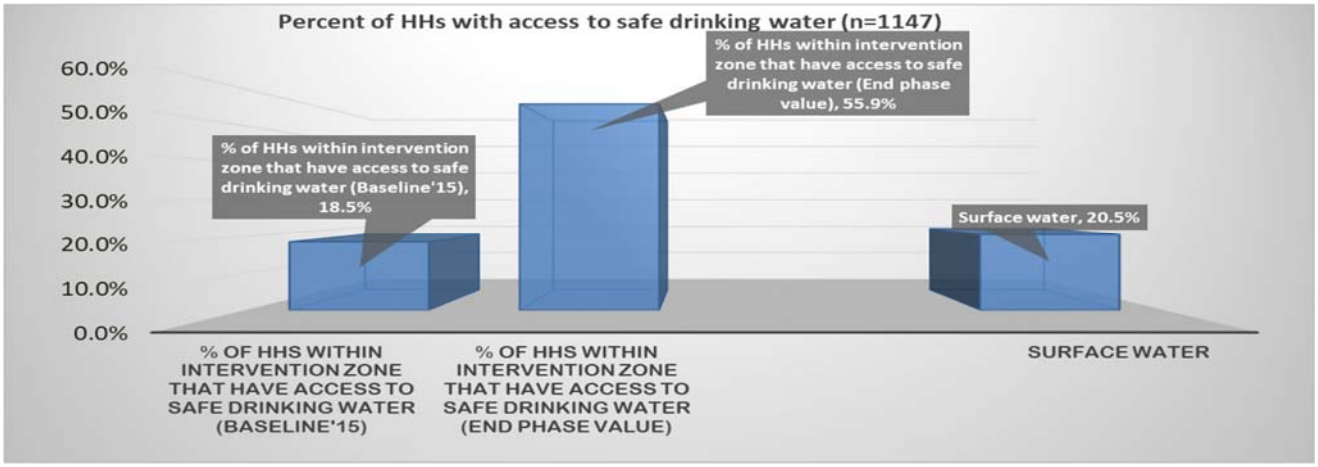

Figure 19: Percent of households who reported access to safe drinking water

[10] Improved/safe drinking water considered for purpose of the evaluation include any of the following: piped water, tube well/borehole, protected dug well, protected spring, packaged water. See MICS 2017 Report (p.268)

Further analyses indicate that 69.3 percent of 1,147 households interviewed live in communities with safe/improved water facilities. Also, 34.3 percent of all households interviewed live in communities with ECRHS1 rehabilitated water source. This shows that the ECRHS Programme contributed to the provision of safe/improved water source for 49.4 percent of households living in communities with safe/improved water facilities. However, only 56.5 percent of households interviewed agreed to be using the ECRHS rehabilitated water points as their main source of drinking water (see Figure 18).

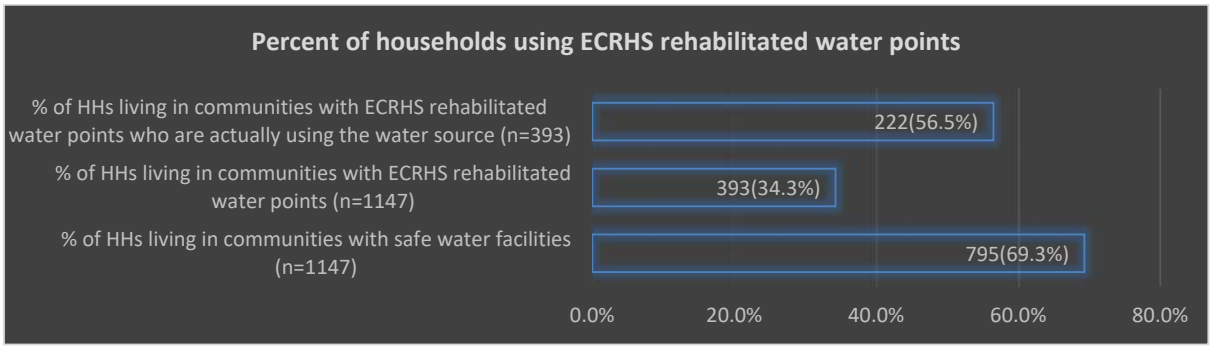

Figure 20: Percent of household using ECRHS rehabilitated water points

Those (63 households)[11] who claimed not to be using the ECRHS rehabilitated water points majorly perceived the water to have been contaminated (51%) and to have lacked regular treatment (49%). In addition, 29 percent (as shown in Figure 19) claimed that water dried up and therefore could not be used. Households from ten communities (1 from Bombali, 8 from Koinadugu and 1 from Tonkoli districts)[12] reportedly claimed that the ECRHS rehabilitated water points dried up. This finding is particularly important and revealed some flaws in timing and appropriateness of sinking (increasing depth) of rehabilitated water points in communities targeted by the ECRHS1 Programme.

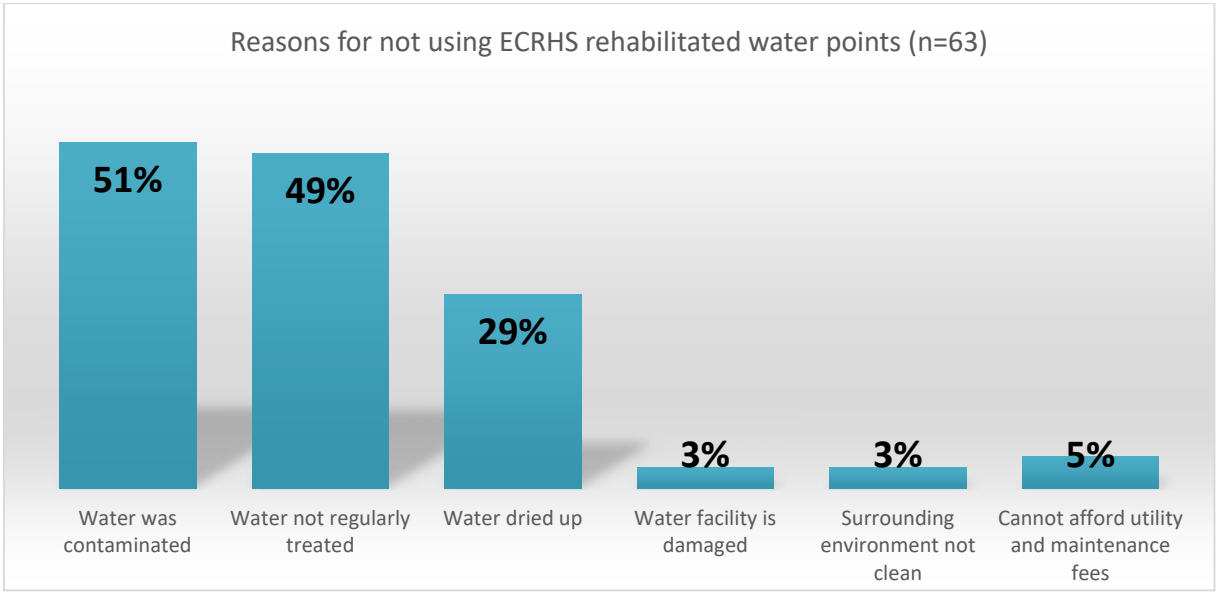

Figure 21: Reasons for not using ECRHS rehabilitated water points (n=63)

District level analysis revealed that Kambia and Tonkolili districts are the most deprived from provision of improved access to safe drinking water. Only 11.4 percent and 40.4 percent of households interviewed in Tonkolili and Kambia districts respectively have access to safe/improved water source (See Figure 20).

[11] Thirteen (13) households also reported they don't know whether the water source was ECRHS rehabilitated well.
[12] Households reporting that ECRHS rehabilitated water well dried up and therefore could not use it are from Mabon (in Tonkolili district), Kortuhun (in Bombali district), and Yataya, Static, Kamayimbo, Kamba Mamudia, Komaya, Kasanikoro and Kabala (in Koinadugu district).

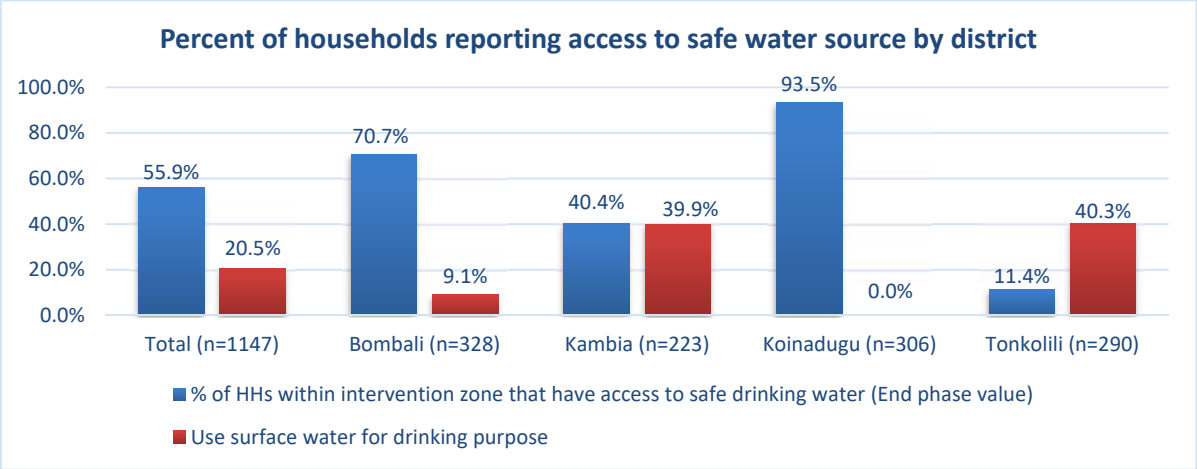

Figure 22: Percent of households reporting access to safe/improved water source by district

Binary logistic regression analysis further presented differences in exposure to WASH intervention across the four (4) intervention districts. For the purpose of the ECRHS Programme the rural-urban and accessible-remote rural strata are the explanatory variables, while availability and access are the outcome variables regarding efforts towards improved access to safe water in the intervention communities.

Urban-rural comparison (as shown in Table 18) revealed that households in rural communities are less exposed to improved water supply interventions (0R=0.53, CI=0.06-0.30), and urban households are almost 2 times more likely to be exposed to improved water supply interventions (OR=1.90, CI=1.02-3.53) than those in rural areas. These results further reflect on access to improved water supply with an extremely marked rural-urban variation with statistical significance at 95 percent confidence interval. The predictions revealed that urban households are over 7 times (OR=7.33, CI=3.33-16.25) more likely to access improved/ safe water supply than those in rural areas (OR=0.14, CI=0.06-0.30). Overall, remote rural communities proved to be most vulnerable to improved/safe water supply interventions. According to the findings, households in accessible rural communities are almost 2 times (OR=1.89, CI=1.44-2.47) most likely to have benefitted from water supply interventions, and 3 times most likely (OR=2.86, CI=2.19-3.74) to access safe/improved water source than those in remote rural communities.

Table 17: Logistic regression model showing the relationship (Odds Ratio) between urban rural characteristics and availability of and access to safe/improved water supply across the four intervention districts

Explanatory factors	Maximum number of observations (N=1,147)	Availability of safe/ improved drinking water supply Odds Ratios (OR) 95% CI	Access to safe/ improved water source Odds Ratios (OR) 95% CI
Urban-Rural Strata			
Urban communities	1,147	1.90*(1.02-3.53)	7.36**(3.33-16.25)
Rural communities	1,147	0.53*(0.28-0.98)	0.14**(0.06-0.30)
Accessible-Remote Rural Strata			
Accessible rural communities	1,080	1.89**(1.44-2.47)	2.86**(2.19-3.74)
Remote rural communities	1,080	0.53**(0.40-0.70)	0.30**(0.27-0.46)

*p<0.05 (statistically significant)
**p<0.001 (statistically significant)

3.2.2 Intermediate Results for Objective 2:

Two intermediate results were identified for objective two of the ECRHS I Programme. However, the intermediate result 'IR2.2: The Primary Health Units are able to provide essential health services' was identified at baseline level, while 'IR2.1: Access to Sexual Reproductive Health and Family Planning increased' was identified at midterm period. Notably five objective verifiable indicators were identified at baseline level and targets were set for each of the indicators to ascertain level of achievement of the expected result of 'proportion of PHUs able to provide essential health services (basic/primary health services ensured)' at the end of Programme implementation.

3.2.2.1 IR2.1: Access to Sexual Reproductive Health and Family Planning Services

Intermediate Result 2.1: Access to Sexual Reproductive Health (SRH) and Family Planning was an additional indicator identified at midterm period of the implementation. Three targets were identified for this expected result; but only one of these was achieved- that is 'percent of Long Acting and Reversible Contraceptive (LARC) users among FP users (women aged 15-49) using LARC methods- which was achieved and exceed by 9 percent. Although target set for 'proportion of births attended by skilled birth personnel was not achieved, the Programme was observed to have demonstrated highly satisfactory performance- with 99 percent of target achieved. However, 'percent of women aged 15-49 using modern contraceptives in all ECRHS Programme districts' was low- showing a decrease from 39.5 percent at midterm period to 37 percent at end of Programme implementation. (See Table 21)

Table 18: Access to Sexual Reproductive Health and Family Planning Services

Summary of Objectives	Indicator Definition (September 2017)	Results from mid-term evaluation July 2017	New Target value % or # Sep 2018	Endline value	Description of progress
Intermediate Result 2.1: Access to Sexual Reproductive Health and Family Planning increased.	% of Long Acting and Reversible Contraceptive (LARC) users among total FP users (women in reproductive age group (15-49 yrs) using LARC methods (implant or IUD) in all ECHRS Programme districts)	46.7%	50.0%	59.0%	Outstanding performance
	CARE Ind: % of women aged 15-49 using modern contraceptives in all ECHRS Programme districts)	39.5%	50.0%	37.0%	Moderate performance
	CARE Ind: Proportion of births attended by skilled health personnel	95.9%	97.0%	96.3%	Highly satisfactory

Demand and supply were further analysed to ascertain efforts made in meeting women's sexual and reproductive health needs in the intervention districts. The evaluation observed high level of demand satisfied among women aged 15-49 who are sexually active, not pregnant, fecund and who desire either to have no additional children or postpone their next pregnancy in the intervention zone. Over 72 percent of women in this category expressed demand satisfied and this was confirmed by low proportion of women in the intervention zone who demonstrated unmet needs (14%). The finding is confirmed by the high proportion of PHUs in the intervention zone offering at least three (3) FP methods according to the national programme. As depicted in Figure 27, about 87 percent of 77 PHUs assessed were observed to have stocks of at least three FP-commodities during the time of assessment. The FP commodity supplies were high across all districts- even though Tonkolili district presented the lowest stocks of supplies (70%) at the time of the assessment.

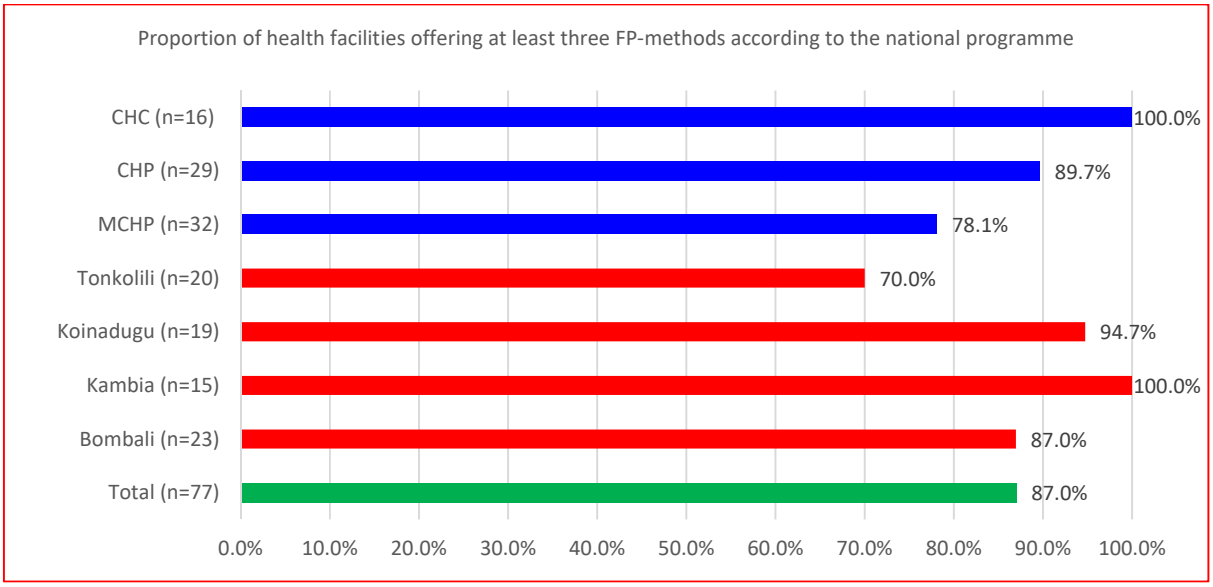

Figure 23: Percent of PHUs in the intervention zone offering at least three FP methods according to the national programme

Contribution analyses on FP-commodity supplies proved CARE International as the highest distributor of FP-commodity among non-governmental organisations and agencies working on sexual reproductive health in the intervention zone. Notably three non-governmental organisations/agencies (in addition to the Ministry of Health) are working in the FP-commodity supply change management in the intervention. These include CARE International, Marie Stopes and UNFPA. Specifically, CARE International contribute to the supply of FP-commodities to about 45 percent of PHUs across the intervention districts (see Figure 28). Meanwhile visibility of FP-community supply is high Kambia district than the other districts- which further confirmed the reasons for which Kambia district presented the highest proportion of demand satisfied (91.4%) and lowest proportion of unmet needs (4%) for contraception across the four intervention districts.

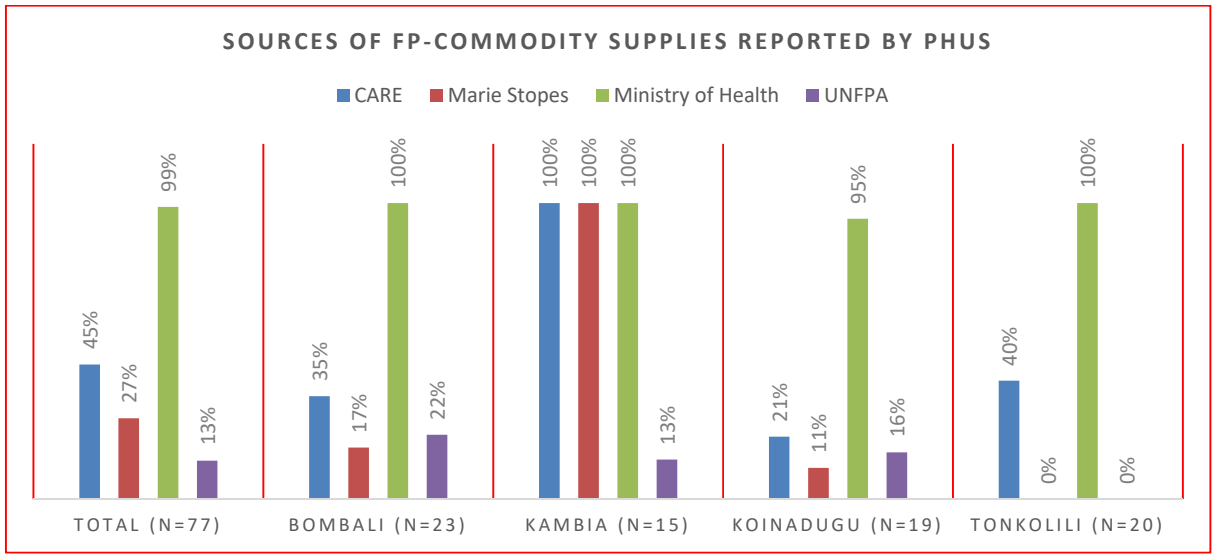

Figure 24: Sources of FP-commodity supplies received by PHUs in the intervention zone

Although high proportion (90.8%) of both men/women acknowledged that they are aware of available FP methods, knowledge on the variety of FP methods available/ used was relatively low among both men and women in the intervention districts. Only 46 percent of a total of 1,608 men (>15 years) and women (15-49 years) interviewed across the intervention districts demonstrated knowledge of at least 3 modern FP-methods. The proportion is even lower for men (33.3%) and women (50.1%). (See Figure 29)

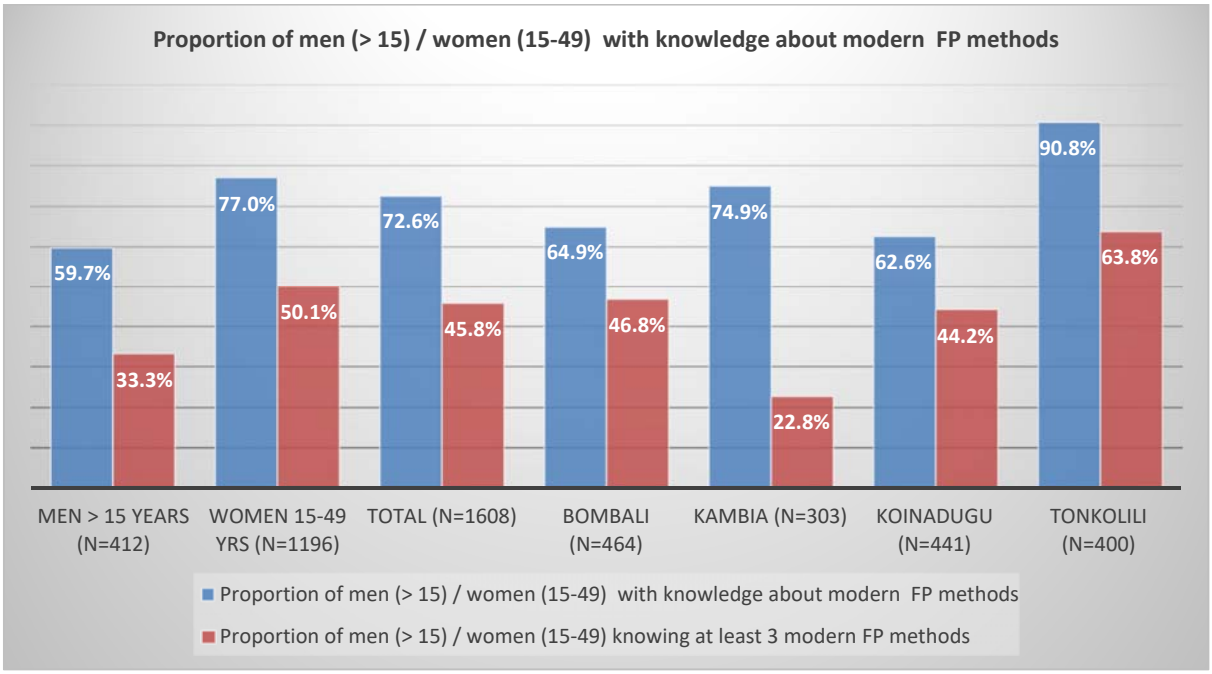

Figure 25: Proportion of men (>15) and women (15-49) with knowledge about modern FP-methods

3.2.2.2 IR2.2: The primary health units are able to provide essential health services

The Programme achieved and exceeded 80 percent (4) of the five targets set- with outstanding performance, while also showing highly satisfactory performance for 1(20%) of the five targets. The outcome on PHUs with sufficient supplies and equipment was quite impressive- considering that this indicator was not largely influenced by the project. As presented in Table 19, the endline result showed that baseline situation on supplies and equipment markedly improved by about 30 percent after the ECRHS1 Project implementation phase. (See Table 19)

Table 6: Level of achievement of targets set to achieve intermediate results for objective

Summary of Objectives	Indicator Definition	Baseline Value; 2015	Target value %o#.	Endline value	Description of progress
IR 2.2: The primary health units are able to provide essential health services (Basic /primary health services are ensured)	% of PHUs within intervention zone with essential stocks of infection prevention control supplies (gloves, masks, soap, bucket for handwashing)	51.0%	55.0%	63.6%	Target achieved & exceeded- outstanding performance
	% of PHUs within intervention zone with supplies and equipment to provide routine services (no stock-outs)	51.0%	65.0%	80.8%	Target achieved & exceeded- outstanding performance
	% of PHUs within intervention zone that have stock of essential medicines ANC (no stock out)	14.0%	20.0%	68.8%	Target achieved & exceeded- outstanding performance
	% of PHUs within intervention zone that have stock of essential child health medicines	74.0%	80.0%	85.7%	Target achieved & exceeded- outstanding performance
	% of PHU personnel trained within intervention zone on Infection Prevention Control	90.0%	90.0%	84.3%	Highly Satisfactory

These results from assessment of health facilities further affirmed claims made by community members engaged during the evaluation, as well as efforts made in strengthening the health systems. Notably, availability and utilization of routine health services dramatically declined during the Ebola outbreak. Maternal and child health, immunization, malaria, HIV and family planning services were reportedly suspended in many PHUs- given that most of them were unable to provide adequate safety measures for staff and clients. Many patients therefore stopped seeking these facilities during the outbreak. This means the already weak system for routine primary health care and curative services almost collapsed during the Ebola epidemic. Hence these findings confirm that one of the the expected output of the ECRHS1 Programme, which is 'to contribute to the restoration of essential health services to improve on the health status of people across the four intervention districts in northern Sierra Leone' was largely achieved.

Detailed analyses of findings from the health facility assessment are further explained in terms of a) provision of essential infection prevention control (IPC) supplies b) provision of essential health services (immunization, safe delivery, family planning, HIV counseling and testing), c) provision of essential ANC medicines, d) provision of essential child health medicines, and e) nature of the post-Ebola surveillance responses. Additional indicators on sexual reproductive health and FP services was also captured in the discussions.

- **Provision of essential infection prevention and control (IPC) supplies**

The Programme exceeded the baseline target set for 'proportion of PHUs with infection prevention and control (IPC) supplies(including gloves, masks, soap and bucket for handwashing)' in the intervention zone. The essential stock of IPC materials considered for measuring progress as per Programme design include gloves, masks, soap and bucket for handwashing). The proportion of PHUs with these IPC supplies (with no stockout) was 63.6 percent at the time of assessment. This figure is about 9 percentage points above the baseline target, and therefore shows an outstanding performance of the Programme in relation to infection prevention and control. Meanwhile district level comparisons revealed that health facilities in Tonkoli (30%) and Koinadugu (52.6%) to be highly deprived of IPC supplies compared to Bombali (100%) and Kambia (66.7%). At PHU level, MCHPs are more deprived of essential IPC supplies (40.6%) than CHCs (93.8%) and CHPs (72.4%). (See Figure 23)

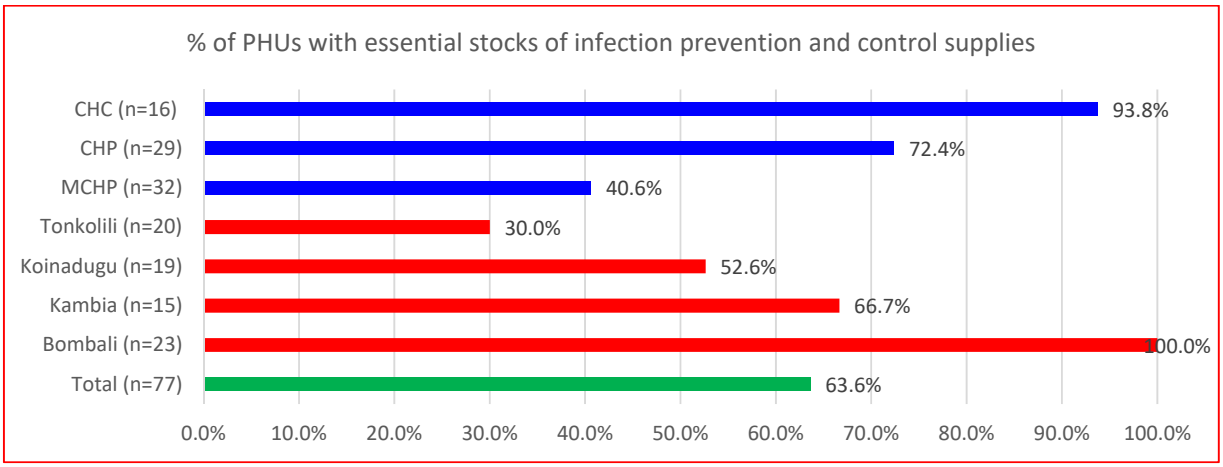

Figure 26: Percent of PHUs with essential stocks of infection prevention and control supplies in the intervention zone

Additionally, the proportion of PHUs personnel trained on IPC reached a highly satisfactory level (84.3%) but fell short of the baseline target set (90%). Frequent transfers of PHU staff was reportedly a major factor for the drop in trained personnel at most health facilities.

- **Provision of essential ANC medicines**

The findings revealed marked improvement in the 'proportion of PHUs that have stocks of essential ANC medicines' in the intervention zone. The target set against this indicator (20%) was achieved and more than tripled (68.8%) at the end of implementation. Impressively, there was a statistically significant change in situation at the inception of Programme- with marked increase by about 55 percentage points from Programme inception (2015) to completion (end phase). However, district level figures revealed Koinadugu district to be highly deprived of essential ANC medicines (including Folic acid and Albendazole)[13] (31.6%) compared to the other three intervention districts (see Figure 31). At PHU level, MCHPs are more deprived (56.3%) compared to CHCs (87.5%) and CHPs (72.4%). (See Figure 24)

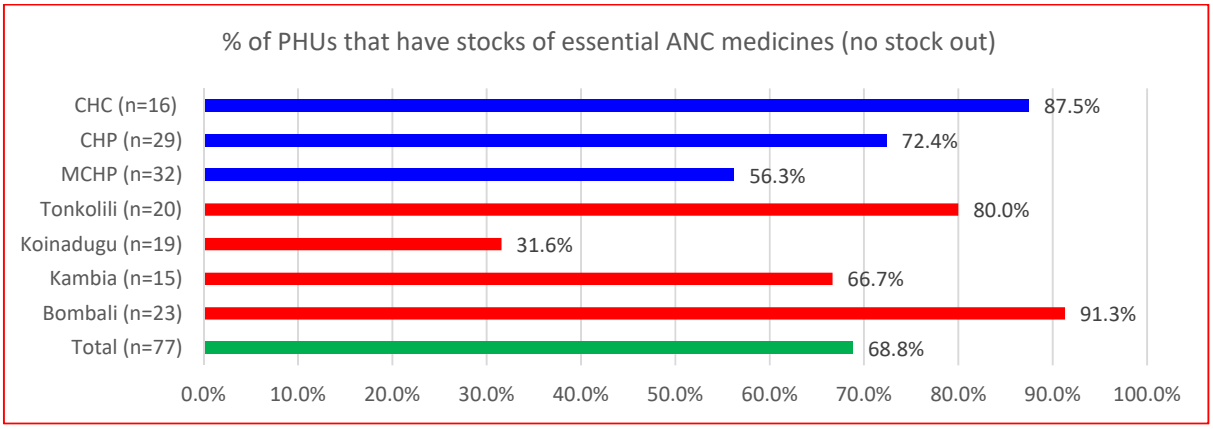

Figure 27: Percent of PHUs that have essential ANC medicines in the intervention zone

- **Provision of essential child health medicines**

Target set for 'proportion of PHUs within the intervention zone that have stocks of essential child health medicines(including ACT/Artemeter/Coartem, Amoxicillin/Cotrimazole, Paracetamol and ORS)[14]' was achieved and exceeded at the end the end of implementation. Findings from the health facility assessment

[13] Essential ANC medicines captured in the analysis included the complete package (Folic acid+ Albendazole) identified from the Programme document

[14] Essential child health medicines captured in the analyses included Artemisinin-based combination therapy (ACT)/Artemether/Coartem + Amoxicillin/cotrimoxazole + paracetamol + ORS

showed the baseline target (80%) to have been achieved and exceeded by approximately 6 percentage points at the end of implementation. District level analyses showed Koinadugu district to be deprived of supplies of child health medicines. As depicted in Figure 25, only 42.1 percent of PHUs had supplies of essential child health medicines, while 100 percent of PHUs from the other districts observably had all essential child health medicines (with no stockouts) at the time of assessment. At PHU level, availability of child medicines was observed in at least 78 percent of the different categories of PHUs.

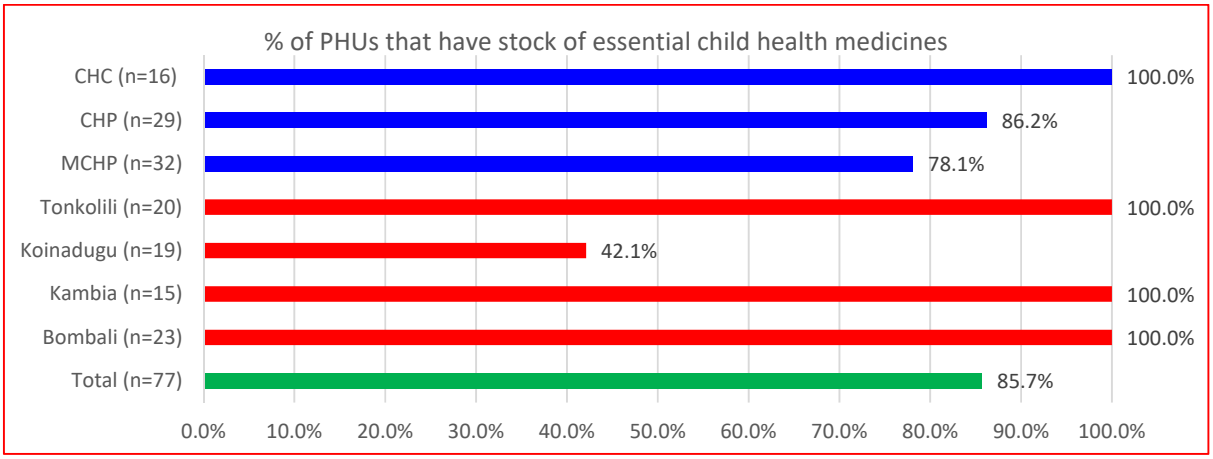

Figure 28: Percent of PHUs that have essential child health medicines in the intervention zone

- **Provision of supplies and equipment to provide routine services**

Findings on supplies and equipment to provide routine services were impressive. As highlighted in Table 20, twelve essential supplies and equipment were captured in the analyses, and percent of PHUs reporting these supplies and equipment was relatively high across the four intervention districts. An average of 80.8 percent of PHUs assessed within the intervention zone reportedly have the selected essential supplies and equipment for routine services. .This result was approximately 30 percent and 16 percent above the baseline situation and targets respectively- hence depicted an outstanding performance. Results were also relatively high across levels of PHUs assessed.

Table 7: Proportion of PHUs assessed in the intervention zone with supplies and equipment for routine services

Supplies and equipment for routine services	Total (n=63)	Bombali (n=22)	Kambia (n=14)	Koinadugu (n=9)	Tonkolili (n=18)	MCHP (n=26)	CHP (n=21)	CHC (n=16)
[a] Standard delivery beds/tables	69.8%	81.8%	78.6%	33.3%	66.7%	53.8%	81.0%	81.3%
[b] Pairs of artery forceps	73.0%	86.4%	50.0%	44.4%	88.9%	65.4%	85.7%	68.8%
[c] Pairs of scissor	44.4%	59.1%	14.3%	33.3%	55.6%	34.6%	52.4%	50.0%
[d] Tray with cover	66.7%	72.7%	78.6%	55.6%	55.6%	57.7%	71.4%	75.0%
[e] BP machines	74.6%	90.9%	42.9%	66.7%	83.3%	69.2%	95.2%	56.3%
[f] Cotton wool	90.5%	81.8%	92.9%	100.0%	94.4%	100.0%	81.0%	87.5%
[g] Thermometers	71.4%	68.2%	78.6%	77.8%	66.7%	76.9%	71.4%	62.5%
[h] IV stands	34.9%	31.8%	35.7%	33.3%	38.9%	19.2%	33.3%	62.5%
[i] Placenta dish/ kidney basin	84.1%	81.8%	78.6%	77.8%	94.4%	84.6%	81.0%	87.5%
[j] Resuscitation trolley or cabinet	15.9%	22.7%	7.1%	0.0%	22.2%	3.8%	23.8%	25.0%
[l] Needle, syringes and cannulas	79.4%	63.6%	93.3%	88.9%	77.8%	92.3%	71.4%	68.8%
[m] Vacuum extractor (ventous) for assisted vaginal delivery	25.4%	31.8%	35.7%	11.1%	16.7%	3.8%	23.8%	62.5%
[n] Dilators/ Manual Vacuum Aspirator (MVA) for removal of retained products	22.2%	18.2%	35.7%	11.1%	22.2%	11.5%	9.5%	56.3%
[o] Cord clamps or clean cord ties	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
[q] Ambu resuscitator and mask for neonates	92.1%	95.5%	71.4%	100.0%	100.0%	88.5%	95.2%	93.8%
[r] MUAC tape/tape line	98.4%	95.5%	100.0%	100.0%	100.0%	100.0%	95.2%	100.0%
[s] Hanging scales	95.2%	95.5%	92.9%	100.0%	94.4%	100.0%	90.5%	93.8%
% with sufficient supplies & equipment (12 selected items) for routine services	**80.8%**	**82.6%**	**74.4%**	**78.7%**	**84.3%**	**80.8%**	**82.5%**	**78.6%**

In spite of the notable improvement, stockout of the selected essential supplies and equipment was observed in about 19 percent of PHUs assessed. This means some health catchment communities are still deprived of quality routine services in the intervention zones. Surprisingly, more CHCs (21.4%), which are expected to

be well established for Basic Emergency Obstetric and Neonatal Care (BEmONC) reported stockouts than the MCHPs (80.8%) and CHPs (82.5%). These findings on stockout in the intervention zone strongly reflects on negative the community perceptions about improvement in supplies of equipment and medicines for routine services. As documented from focus group discussions, 43.3 percent of 60 communities engaged argued that availability of equipment and medicines has either remained the same (33.3%) or worse than situation about three years back (see Figure 26).

"One of the reasons for frequent referrals to the government hospital is the lack of appropriate (inadequate) tools or equipment to take care of patients especially pregnant women…The health facilities around our catchment area really require the necessary tools or equipment to make work easier…This is a major challenge we are facing, and therefore require attention urgent attention. "

FGD Participant, Madina Community, Yoni Chiefdom, Tonkolili District

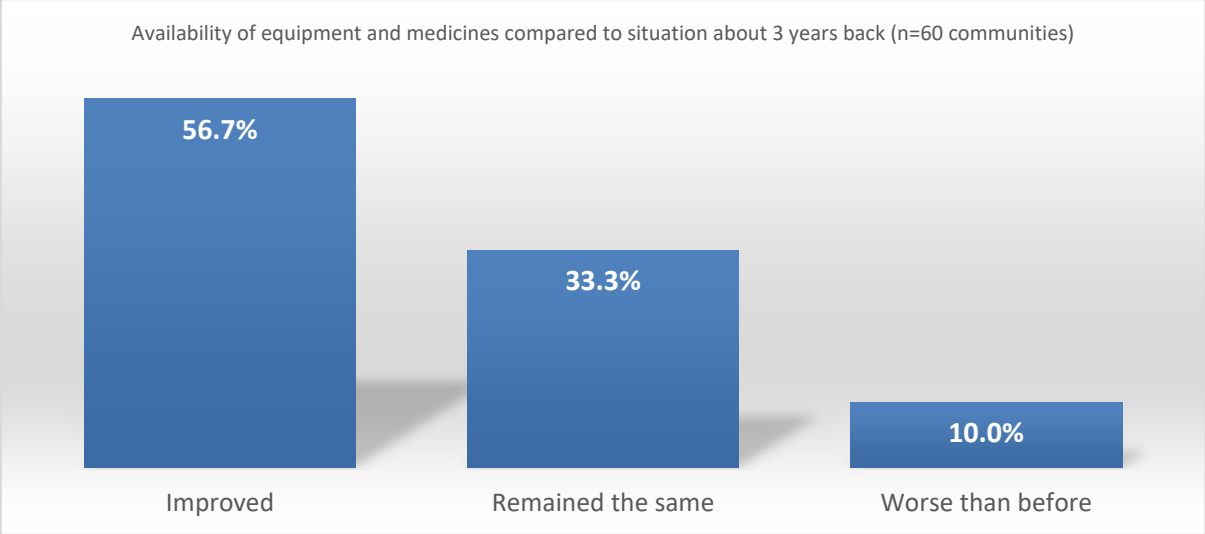

Figure 29: Perceptions of communities about the availability of equipment and medicines at PHUs

3.2.2.3 IR3.1: Improve family and community resilience to shocks (adequate food security to defend diseases)

The baseline target of the ECRHS1 Programme for Seed Voucher support was 7,500 vulnerable households across the four intervention districts. The evaluation observed that this target was exceeded by approximated 33 percent- showing outstanding performance of the Programme contribution to improved family and community resilience to shock. (See Table 21)

Table 8: Number of vulnerable households who received/benefit from Seed Voucher Support

Summary of Objectives	Indicator Definition	Baseline Value; 2015	Target value (%/#)	Endline value (%/#)	Description of progress
IR 3.1: Improve family and community resilience to shocks (Adequate food security to defend diseases)	# of vulnerable households who received/benefit from Seed Voucher support	0	7,500	10,039	Outstanding performance

Insight stories/case studies documented during the evaluation partly explain that the seed voucher component of the ECRHS 1 Programme largely contributed to efforts made in restoring livelihoods and promoting better health outcomes for household members in vulnerable communities targeted.

"The Seed Voucher given to us was one of the best Programme ideas we have ever received…most of us have used the returns from our investments to pay school/college fees for our children and pay medical bills, etc. We also reinvest it in the same farm work to generate more revenue and food for our household… the Programme is indeed a real life-changing idea. We really appreciate CARE International for this intervention"

FGD Participant, Yarema Community, Gbonkelenkeh Chiefdom, Tonkolili District

One of the insight stories on the impact of the Seed Voucher component of the ECRHS I Programme is presented in Box 5.

BOX 5: CASE STUDY OF SEED VOUCHER BENEFITS DOCUMENTED IN KAMBA MAMOUDIA, FOLOSABA DEMBELIA CHIEFDOM, KOINADUGU DISTRICT

Saio Koroma is one of the Seed Voucher beneficiaries in Kamba Mamoudia community, Folosaba Dembelia chiefdom in Koinadugu district. According to her, things were difficult for her household before the Seed Voucher benefit was received. But after making good use of the seed voucher support, life has returned to normalcy, and dignity has been restored to her household.

"Prior to the Seed Voucher intervention, life was very difficult… my household had no source of livelihoods. We used to beg or loan food and money and found it so difficult to repay …but we started experiencing a turnaround the very moment my household received the seed support…My household received 25 kilo of groundnut seeds which I decided to plant in order to multiply the seeds with a vision to increase my investment. Indeed things worked well as planned. In the first year of harvest the return was 2 bags (100 Kilo), which is four times the seed received. The harvest kept increasing over the years. Currently I have over three bags of stored groundnut seeds…with this achievement, I am able to provide food support for my entire family. Also, with the savings from my groundnut seeds, I can pay schools and medical expenses for everyone in the family… In fact, I am giving out groundnut seeds in the form of loan to some community members. I am really grateful to CARE International for the Seed Voucher support. The program has restored my dignity due to my economic independence.", says Saio Koroma.

3.2.2.4 Nature of post-Ebola surveillance and response system

During the Ebola outbreak, frontline activities to contain and eliminate the disease included detecting cases in communities, isolating them, getting them into either Community Care Centres (CCCs), Holding Centers or treatment units. People who had contract with affected persons were also traced and monitored. Meanwhile, surveillance and contact tracing teams were established by DHMTs and the District Ebola Response Centres (DERCs) with little involvement of local communities. Many community-level social mobilizers contact tracers and surveillance teams were recruited at district level or even from outside the district, and therefore not seen as 'local' but strangers and outsiders. Affected communities were therefore fearful of these external interventions and consistently resisted the teams. This situation was compounded by top-down response efforts- with communities having passive role to play- hence showing wide disconnect between the communities and health system in the surveillance efforts. The ECRHS1 Programme was observed to have largely contributed to knotting these loosed ends by better engaging community-changed agents in a more responsible way to protect themselves against transmissions. This was noted to have resulted in stronger and more effective linkages between communities and the health system.

The Programme was observed to have initially built on the Community Watch Group (CWG) model adopted by ABC-Development in order to foster community-based surveillance across the intervention zones. The CWGs were trained in community-based surveillance and linked with the alert systems established between surveillance teams and the DERC. Lessons learnt from this model were eventually rolled out to the Community Health Workers (CHWs) programme as part of the efforts for transitioning and longer-term programming on health system strengthening (HHS) in Sierra Leone. The evaluation observed expanded role of the CHWs from Integrated Community Case Management (iCCM) of childhood malaria, pneumonia and diarrhoea to integrated disease surveillance and provision of comprehensive primary health care (including sexual, reproductive, maternal and child health) at community level. The CHW network was observed as the most effective community-based surveillance structure and has established well connected link with PHUs and DHMTs over the course of the ECRHS1 Programme implementation across the four intervention districts.

The evaluation noted that CHWs are highly recognized by community members, PHU personnel and DHMTs as effective community-based surveillance structures that are actively engaged in identifying recommended Community Based Surveillance (CBS) priority diseases and events in their communities and reporting them through the appropriate reporting channel. Similar activities carried out by CHWs included identifying events such as pregnancy, child illnesses with danger signs, maternal deaths, etc and making immediate referrals of unfolding events. Community Based Surveillance was particularly as an instrumental strategy in the Integrated Disease Surveillance and Response (IDSR) system and in reducing maternal and child mortality and morbidity

in the intervention district. Figure 30 shows the reporting structure and CBS activities noted from the evaluation.

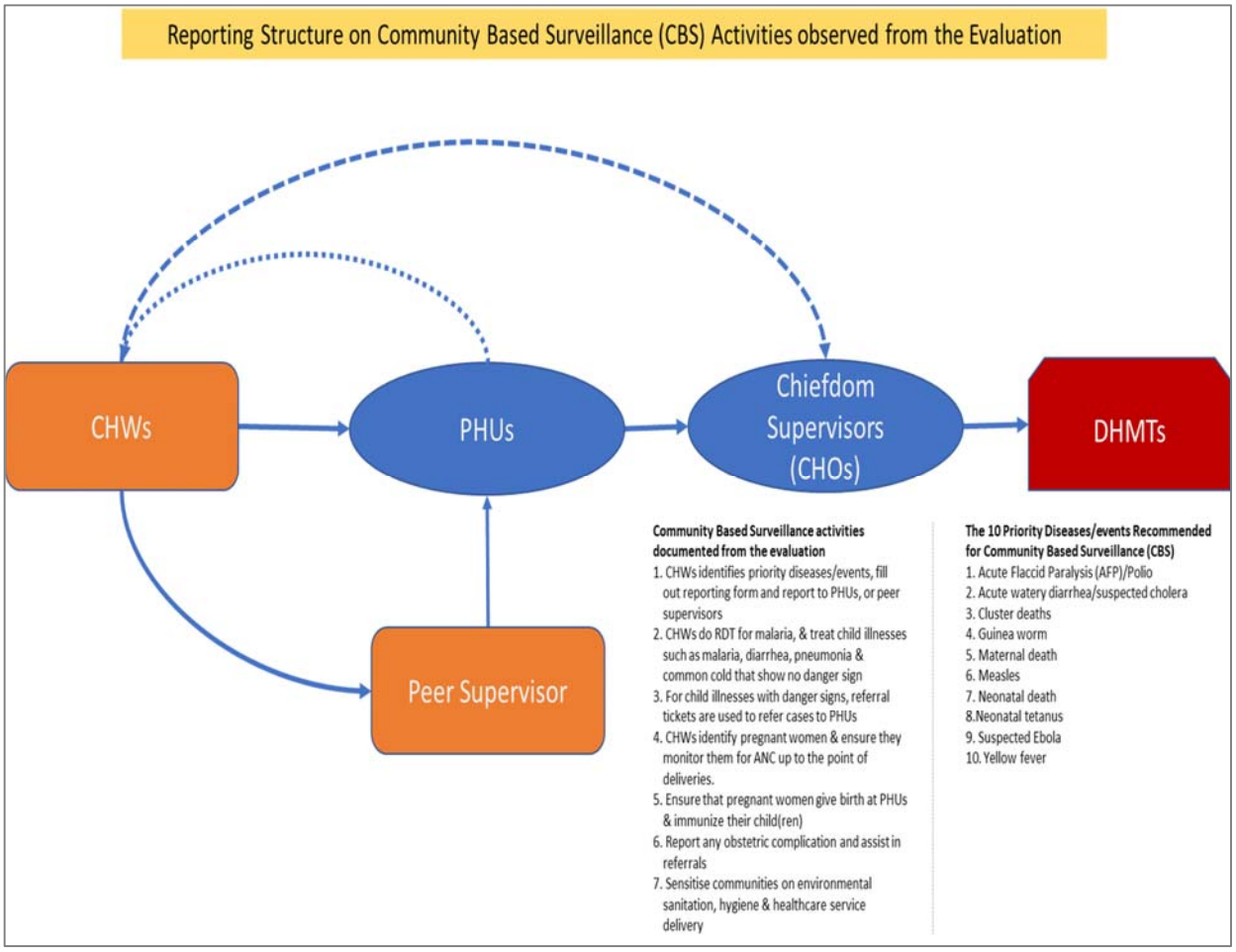

Figure 30: Reporting structure on CBS activities observed in the intervention districts

3.3 Relevance of the Programme

The ECRHS1 Programme is a complex Programme with three (3) key components that collectively connect to improved health status of people in the northern province, but also link strongly with specific national policies and programmes on health/SRH, WASH and livelihoods in Sierra Leone. The evaluation therefore examined alignment of the ECRHS1 Programme with existing policies and programmes related to health, SRH and nutrition in Sierra Leone. The evaluation further examined whether the Programme addressed the identified problems, needs and expectations of the communities.

3.3.1 Programme Alignment with National Policies

The design and objectives of the ECRHS1 Programme strongly align with the strategic drive and objectives of the 'Sierra Leone National Reproductive, Maternal, Newborn, Child and Adolescent Health Policy'. The overall programming of the ECRHS1 Programme included considering a longer-term view and putting in place preparations for the transition to an extended health system strengthening (HSS) once Ebola subsides. This view conforms with the RMNCAH strategic direction for 're-establishing and consolidating RMNCAH services and health system strengthening (HSS) in response to the impact of, and lessons learnt from the EVD outbreak'. The Programme also contributed to the implementation of the National Health Sector Recovery Plan.; and has a strong SRH component that further aligns with the country's commitment to the Global Family Planning 2020 agreement. In particular, the evaluation observed very high proportion of demand satisfied and lower proportion of unmet needs among women aged 15-49 across the intervention distributions. Cognizance that the Programme was active in FP-commodity supply and sensitization in the intervention zone, these results strongly support the ECRHS Programme's contribution to the government's

commitment to reduce unmet need for FP from 30 percent in 2013 to 20 percent in 2021 as stated in the FP2020 agreement.

One of the expected results of the ECRHS1 Programme was to ensure improved access to and behaviours concerning water, sanitation and hygiene (WASH). While the Programme achieved its baseline targets, mostly in terms of access to safe drinking water, it is obvious that it contributed to the implementation of the broader rural water supply sub-sector policy objective of 'improving health…of the rural population through improved access to adequate safe water'.

3.3.2 Addressing the identified problems, needs and expectations of the communities

The Programme achieved most of its objectives and targets set to achieve the objective verifiable indicators. This had meant most of the gaps and problems identified at the initial stage of the Programme were addressed. The Programme succeeded to solving the problem of long-term disconnect initially observed between the health system and communities, by fostering stronger and more effective linkages through the community-based surveillance (CBS) structures supported in the course of implementation. The health system was observed to have regained normalcy. This was justified by the effective routine ANC, child and sexual reproductive health services offered by PHUs. The increased access to the services offered by PHUs in the ECRHS1 intervention zone further confirmed the restoration of trust in the health system. Majority of community members engaged through FGD sessions and personal interviews cited the health facility as their regular point of contact in times of illness, and expressly appreciated the services currently provided by the health facilities. Approximately 98 percent of 1,147 household respondents interviewed reported to have always visited the health facility when any household member need healthcare; and 91 percent of this proportion agreed that they trust in the services provided at the facility.

"I appreciate the status and services provided by the health facilities. Drugs are available and very effective. In addition, the health workers are committed and polite. They always encourage us to visit the facility whenever a member of the household gets sick..."

Fatmata Kamara, Household Respondent, Makarie Community, Gbleh Dixon Chiefdom, Kambia District

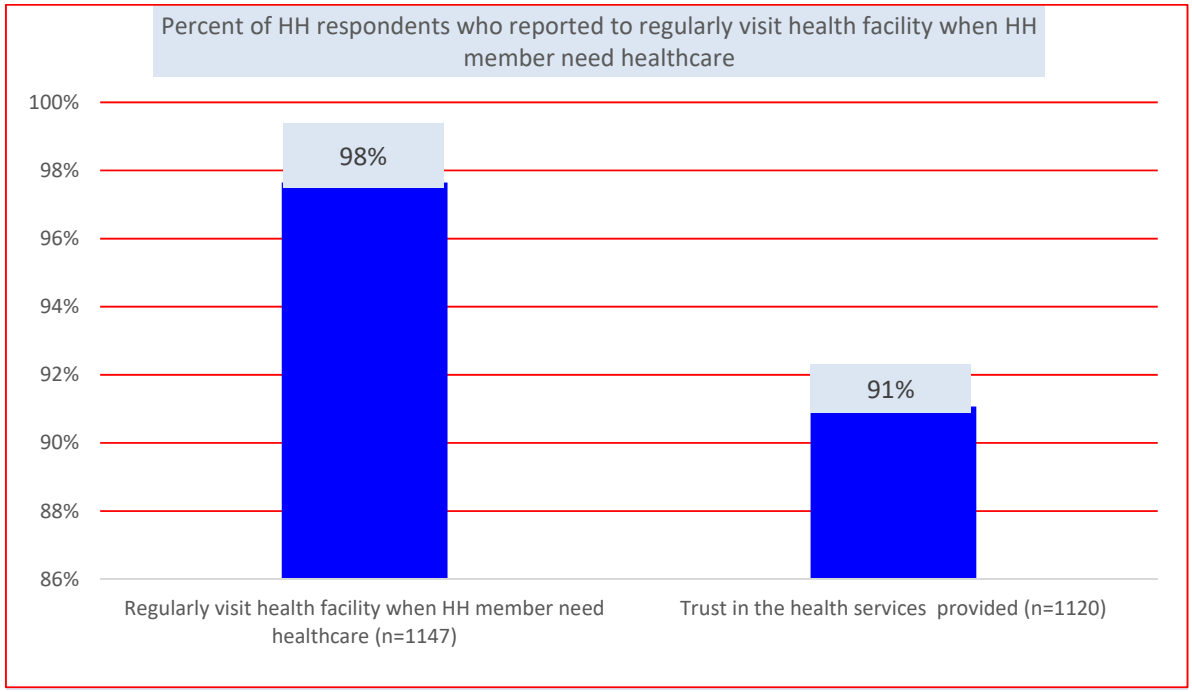

Figure 31: Percent of HH respondents who reported to regularly visit health facility when HH member need healthcare.

3.4 Efficiency of the Programme

The evaluation assessed the extent to which the programme used available resources. The extent to which activities were delivered on time and within budget, and challenges that would have undermined timely delivery were also included as critical factors in the assessment. Findings on efficiency of the ECRHS1 Programme were therefore documented under four (4) sub-sections: a) programme management, b) funds management, c) collaboration with other actors and d) monitoring and evaluation.

3.4.1 Programme management

Although some inadvertent minor flaws in the implementation process were noted, the programme was well managed. Well established management structures with decentralized functions were observed. Notably, direct implementation of programme was done by CARE through its partners including the Ministry of Health and Sanitation (DHMTs led by the District Medical Officer), MADAM (in Bombali district), RODA (in Tonkolili district), ABC-Development (in Kambia district) and ADP in Koinadugu district. The Mano River Union (MRU) Secretariat also served as partner to coordinate border activities. The staffing and requisite qualifications, and length of partner's experience in implementing programmes in the intervention districts were noted to have collectively led to the successful results of the Programme. Staff capacity was reportedly adequate to execute the activities on time.

CARE International served as the lead agency, and therefore provided technical assistance to partner organisations. The organization reportedly ensured quality implementation by monitoring programmatic implementation of the partners and providing oversight of grant management, accountability and compliance. At regional and district level, CARE was observed to have provided the human resources capacity for implementation, monitoring and coordination. From the practical point of observation, the programme considered staffing for the various components of the ECRHS1 Programme for quality and timely delivery. In addition to the District Programme Coordinator, each of the Programme teams comprises of a Surveillance Officer, WASH Officer, Livelihoods Officer and Accountability Monitor. Each of these positions provided technical oversight to the specific sectors of the Programme. For instance, the Surveillance Officer was responsible for quality implementation of Programme deliverables in the health sector, while the WASH Officer ensured sustainable implementation of WASH activities.

Partner organisations were responsible for coordination of field implementation of the Programme components. Each of the partner organisations reportedly have Programme Officers and at least two Field Officers who aided in social mobilization and coordination of field activities on water, sanitation and hysgiene (WASH) and livelihoods (including Cash for Work, Seed Voucher and VSLA) in the beneficiary communities. The implementing partners also had strong link with the DHMTs and were therefore strongly involved in training activities conducted by DHMTs at both district and community (PHU) level in the respective intervention districts.

Training and capacity building were observably strong components of the ECRHS1 Programme inputs. Training and capacity building inputs particularly reflected on expected outputs from the Programme such as a) output 2.1.2: Strengthened DHMTs and PHUs, and b) Output 2.1.3: Restore trust in the health system. The Programme was observed to have responded to the needs and resource gaps of DHMTs including provision of vehicles and motorbikes and communication facilities. These logistical supports were reportedly appreciated by DHMTs across the four intervention districts and led to enhanced administrative and supervisory functions. Meanwhile, the DHMTs were overwhelmed with frequent surveillance, monitoring and review activities particularly in relations to the Integrated Disease Surveillance and Response (IDSR), and therefore required fuel and monitoring supports. Although the initial design of the Programme did not include such supports, further adjustments to meet these needs were made to increase efficiency in the DHMTs activities.

"We really appreciated the ECRHS1 intervention in our district… we were overwhelmed with the Maternal Death Surveillance and Response (MDSR) in bid to improve quality of care and reduce avoidable maternal deaths in the district. MDSR system requires any maternal death to be accompanied by follow-up monitoring to identify avoidable factors that led to the death, conduct review meetings and make recommendations for action…similar actions are also required for some priority disease episodes. These processes have high cost implications that could not be

handled by the DHMT alone. Thanks, the ECRHS Programme which provided continued support in the form of fuel, and for review meetings during the ECRHS1 Programme implementation."

DHMT Member, Kambia District

Training and capacity building support to PHUs and health personnel was also central in the ECRHS1 Programme implementation. The Programme provided continued support PHUs with basic ANC and newborn child equipment, Infection Prevention and Control (IPC) supplies and Sexual Reproductive Health (SRH)/ FP-commodity supplies (implant-Jadelle, Depo-Provera, microgynon). Further, PHU staff reportedly received training from the Programme on a) IPC and facility waste management, b) SRH/FP, c) risk assessment and management of pregnancy complications, obstetric emergencies, post-partum haemorrhage, sepsis, labor and delivery, partograph, post-partum care and newborn care. These supports resultantly led to improved health service delivery, restoration of trust in the health system and improved health status in the intervention districts.

Programme formed and trained over 250 village savings and loan Association (VSLA) in the region, and trained on group leadership and elections, social funds, share purchase and credit policies, development of group constitution and first savings meetings (shares). VSLA beneficiaries were also trained on financial literacy and basic household management. The VSLA support was critical for enhanced knowledge and skills to plan and manage village savings and loan (VSL) and income generating activities (IGAs). Resultantly these supports contributed to increased resilience among the affected population and the space is used in the programme for women to access knowledge on SRH issues.

3.4.2 Funds management

The Programme management demonstrated sound budget management system observed at both country and local office level. At the Country Office of CARE International, strict financial and procurement rules for both restrictive and unrestrictive Programmes are enforced.

Analysis of the ECRHS1 Programme budget showed that budget was efficiently managed. Expenditures were within planned budget for main budget line headings on general implementation cost, staff salaries and benefits. This showed that budget was realistic and staff needs were met. Although the ECRHS1 Programme had a supplementary phase, the extension was done on no cost, using already budgeted costs in the initial financial Programme. The overall burn rate was within the total budget for the Programme, indicative of good financial management of programme resources.

The organization has two types of payment- the online payment and offline payment. The online payment particularly goes through a rigorous cycle, and uses cloud system where approval of request is made remotely online by the budget holders/ authorized bank account signatories. The online payment is highly applicable to agreements between CARE and external vendors hired to carry out specific tasks (e.g contractors for rehabilitations, external trainers, etc.). Box 7 below presents details on the online payment cycle at instituted by CARE International.

Box 7: The Online Payment Cycle at CARE: Best Practice of Sound Budget Management System

The online payment starts with raising a Purchase Request (PR) which includes full details of payment including Amounts, quantity/unit measure, Programme ID Fund Code and Activity ID (otherwise known as Days Charging Details). Once the PR is raised online, it will be automatically routed to the budget holders or authorised signatories, who approve based on amount requested or approval level. After approval, the PR is assigned a unique Purchase Order (PO) number and will be made available to the Procurement Unit who generates, print and approve this PO based on the amount, and the vendor will sign. At this level, the PO becomes a legal document between CARE and the Vendor stating all terms and conditions of CARE. This will now follow payment request by the procurement unit which goes through the finance department, where the Finance Manager scrutinises and confirm every charging details and documentation. Once Finance Department is satisfied, the request is then submitted to the Country Director for Final approval. Even after this stage, the Finance Department (Finance Officer) will review the same document to ensure it meets the minimum requirement of CARE and the Donor. Also, at this stage, the finance department can further request for justification from the Procument Department (if required); and this must include GRN (Goods Received Note) where necessary. As soon as every confirmation is made, the Finance Department can finally process the payment online with people soft grant and Financial Management System. At this stage the Finance Department will copy the online PO being created and posted by the Procurement Department (meaning finance department cannot do any further changes to the document); and the payment will then run using Pay Cycle which assigns a specified checked number to each voucher online.

The offline payment does not go through Purchase Request (PR) and Purchasing Order (PO), and this is mostly applicable to the Programme staff and local partners. Meanwhile such payment must be supported with sufficient justification including emails with appropriate charging details attached. Most importantly, approvals are delayed for further activities without prior submission of reports and liquidations for previous activities. At field office level, Field Admin/Logistic Officer was reportedly hired at based in CARE International Regional Officer in Makeni and mandated to provide support (such as petty cash management) to the field offices. A Grant Coordinator was also hired, and was responsible to review all grants liquidations from partners and provided capacity building training to partners on how to manage Programme portfolios, etc. These procedures clearly revealed that highly efficient budget management system was introduced in ECRHS1 Programme implementation.

3.4.3 Programme steering, communication and interaction with recipient, involvement of GoSL and its decentralised structures

The evaluation proved the ECRHS1 Programme to have been well coordinated, with very effective collaboration between the program steering committee, CARE, GoSL and its decentralized structures. Programme inception ensured that all relevant actors to the Programme (including partners and local authorities) were engaged. This was done by sectors based on the different components of the Programme. This allowed for a well aligned Programme activities with district and national programmes; and wastage and duplication of efforts were appropriately addressed. Collaboration was further observed to be well placed for appropriate targeting and effective operations in the intervention districts.

At Programme inception, for instance, the decentralized structures of the Ministry of Health (the DHMTs) in each of the intervention districts regularly convened health sector coordination meetings where actors working on health intervention shared their Programme ideas and areas of operations. This served as an excellent strategy for the DHMTs and Programme team to map out chiefdoms and capacity needs of PHUs targeted. Coordination meetings further built synergies between the ECRHS1 Programme and other Programmes, and therefore fostered wider coverage and greater impact on improved health outcome in the intervention districts.

The involvement of the Ministry of Agriculture and Food Security (MAFFS) enhanced effective monitoring and appropriate targeting from the livelihoods component of the ECRHS1 Programme. Prior to the Programme, MAFFS led the pre-selection process for Seed Voucher beneficiaries. This started with identifying communities and households with high rates of food insufficiency and malnutrition, as well as low income level using the Comprehensive Food Assessment and Vulnerability Survey (CFAVS). Beneficiary targeting was followed by selection of Vendors. CARE further collaborated with MAFFS, who worked with 'Seed Tech' to check vendors and test seed viability during the Seed Fair. These strategies led to successful implementation of the Seed Voucher component of the ECRHS1 Programme.

The District Water Directorate of the devolved Ministry of Water Resources (MWR) was actively involved at the initial stage of the ECRHS1 Programme. The MWR helped in setting standards for selection of communities and PHUs for water point rehabilitation. The ministry led the mapping of WASH beneficiary communities considering communities with non-functional water points, as well as seasonality and sinking factors. The Ministry further played advisory role in terms of replacement of water points with stainless steel pumps, water quality analysis and treatment. Although the directorate has the responsibility to promote rural water supply, the Programme did not encourage follow-up monitoring for technical support where necessary. This may be a major reason for non-functional water points and water management committees in a couple of beneficiary communities.

The involvement of Local Authorities in the ECRHS1 Programme implementation increased interconnectedness between community structures, local administration and the overall health system. All chiefdom authorities engaged the evaluation appreciated their involvement in the health system, expressed the demonstrated role they played in their chiefdoms as a result of the knowledge gained from health sector briefings. Involvement of chiefdom authorities in disease surveillance has led to better result in combating outbreaks from cross-border activities. This was not from the Joint Border Security and Confidence Building (JBSCB) initiative in Kambia district. Box 8 presents

Box 8: Best practices from involvement of local administration in health intervention

Building Confidence in Cross Border Disease Surveillance: Best Practice from the Joint Border Security and Confidence Building (JBSCB) Initiative in Kambia District

The Joint Border Security and Confidence Building (JBSCB) initiative in Kambia district served as an epitome of best practices on MRU border initiatives to combat negative factors that perpetuate cross-border initiatives. Kambia district in Sierra Leone shares border Forecariah in Guinea. The two districts have common and unavoidable border practices that can lead to disease proliferation from either side of Sierra Leone and Guinea. As documented from key informant interviews in Mafaray, Chiefdom headquarter of Gblen Dixon chiefdom, a lot of activities that may lead to disease outbreaks take place between communities sharing border in Kambia district and Forecariah.

- A lot of intermarriages take place between the two districts
- Communities along the border areas from Forecariah frequently seek healthcare services in Kambia district since they are closer to these health facilities than those in Forecariah.
- There are many markets days observed in Forecariah and are frequently visited by Sierra Leoneans from Kambia. Market days are observed on a) Mondays in Malifou (Guinea), b) Tuesdays in Farmoriah (Guinea), c) Fridays in Maferenya (Guinea) in addition to market days held everyday in Pamlap.
- Migration of Sierra Leoneans to Guinea border areas in also reportedly caused by search for agricultural activities.

Also noted was reported poor healthcare seeking behaviors and weak health system in the Guinea border areas. Communities in Forecariah tend to seek herbalists as first point of contact for certain strange illnesses- a reason for a measle outbreak from Fouta in Guinea that lead to 11 affected cases in both Fouta (in Forecariah, Guinea)) and Glen Dixon chiefdom (in Kambia, Sierra Leone). The situation leaves Sierra Leonean vulnerable, especially due to acceptance of sick relatives who got married in Guinea and patients from Guinea border communities seeking healthcare in Sierra Leone after contracting diseases. The establishment of Joint Border Security and Confidence Building Units (JBSCBU) was observed to have curb this situation. Notably JBSCBUs mobilise and link Health Service Providers and Chiefdom authorities (including Paramount Chiefs) from both ends of the shared borders between Guinea and Sierra Leone. Whereas chiefdom authorities meet, shared and seek solutions to common cross border concerns, health service providers from both ends of the border meet interchangeably to discuss issues related to Infection Prevention and Control (IPCs), positive health seeking behaviors, WASH and disease surveillance. The District Health Sister (DHS1) and other Focal Persons in Kambia have been particularly moving to communities in Forecariah to work with CHOs and share best practices from Sierra Leone. This resulted in training of CHOs in Guinea and hence improvement in health seeking behavior and effective disease surveillance from both ends of the shared.

3.5 Changes in general conditions (context)and perspectives

The ECRHS1 Programme was commended by stakeholders interviewed from various sectors (including health/SRH, Agriculture/nutrition, water supply and sanitation) as an integrated approach that largely contributed to filling existing gaps/challenges from those sectors at both national and district level. As discussed in the relevance section of this report, the Programme largely contributed to addressing policy/programmes implementation gaps/challenges in disease surveillance, water supply and management, infection prevention and control (IPC), food security/nutrition and to some extent, water supply and management.

Gender was also critical in efforts to improve health status and increase resilience for vulnerable population in the intervention zone. As documented in the ECRHS1 Programme the Ebola crisis had broader impact on maternal and reproductive health services- raising widespread concerns of women dying at home from complications of pregnancy and childbirth. The crisis particularly had impact on pregnant women since health facilities were overwhelmed with Ebola patients and health workers were afraid to treat women experiencing bleeding/haemorrhaging associated to pregnancy complications. The response from the ECRHS1 Programme contributed largely to addressing these issues. Birth attended by the health facilities marked increased. In addition, there were widespread testimonies across communities in the intervention zone that antenatal and post-partum care have markedly improved. This largely explains rapid improvement in the health status of women in post-Ebola era in northern Sierra Leone.

Women and girls take on majority of care-taking roles on WASH and are mostly vulnerable to the broader implications of negative coping strategies. They are also disadvantaged in making independent decisions on access to contraceptives and sexual reproductive health services. The Programme was observed to have contributed to addressing negative livelihoods coping strategies by largely involving women in the seed voucher and village savings loan scheme in the intervention zone. The Social Analysis Action (SAA), CARE's global methodology to gender transformation, was particularly useful for female members of VSL beneficiaries to explore and challenge social norms, beliefs and practices that shape their lives in their communities. VSLA beneficiaries are already expressly experiencing the benefits from the opportunity. It has raised income and improved food access for targeted population. Savings are already used by beneficiaries to take care of their health particularly to access health services that are not covered by the free healthcare initiatives (FHI) across the health catchment areas. However, although the Programme achieved its baseline targets on access to improved water supply, the achievement was still far from meeting the water supply needs of the population in the intervention zones. Over 40 percent of households notably suffer from water shortage, and this burden is mainly carried by women across the intervention communities.

3.6 Programme sustainability

The evaluation established the following attempts as relevant to sustain activities beyond the programme period:

- **Government partnership:** The ECRHS programme and the various government counterparts have developed a commendable partnership throughout the period of implementation. It is evident that the government (district and national levels) is happy with the support provided by the programme, especially as it closely aligns with government plans and priority areas. The programme also endeavors to engage the relevant government departments at all stages of the programme, which is empowering and seen as process to sustaining the activities after the programme.
- **Community-based Approach:** Having communities at the heart of Ebola response is an innovative strategy of addressing epidemics. The community early alert systems established were strengthened and remain functional and effective throughout the intervention districts, and this is likely very sustainable. This is evidence as Community Health Workers (CHWs) are continually participating in IDSR during period when the programme activities were not happening. In addition, the activities of the CHWs were particularly highly visible in all communities targeted during the evaluation.
- **Supply Chain of FP:** The Ministry of Health and Sanitation (MOHS) demonstrated strong visibility in the distribution of FP commodity in the intervention zone - with over 90 percent of all PHUs assessed reportedly receiving FP commodities from MoHS. This complementary action is perceived as a process to sustaining the supply chain of FP commodities, revealing the Ministry's ability to continue with FP commodity supply beyond the Programme implementation. During the last one year of the programme, the ECRHS family planning commodities encountered holdup at the port, yet the DHMTs (MOHS) managed to maintain supplies.
- **Referral System:** The programme supported the MoHS is the referral process, and the introduction of the National Emergency Medical Service (NEMS) system has observably increased ambulance services in the intervention zone - which further strengthens and guarantees increased efficiency and sustainability in the referrals system across the intervention districts. The MoHS has now positioned ambulances across all districts to support the referral system and this is evidence that the MOSH would sustain that activity following programme.
- **Working through Community Based Organisations:** There is strong involvement of Civil Society Organizations (CSOs) as programme partners in all districts of intervention. Due to their presence in the communities, implementing partners employ frequent on site-visit monitoring mechanism to beneficiaries individual and facilities to ensure that the resources given to them prudently used and also assess progress. This ensures continued interaction between the organisations and beneficiaries of the programme.

3.7 Key challenges and lessons learnt/best practices

3.7.1 Challenges documented from the evaluation

The evaluation further noted several challenges reported by stakeholders interviewed. The challenges noted were either linked to field implementation, coordination or capacity supports to PHUs. Major challenges documented from stakeholder responses include, but not limited to the following:

- The frequent transfer of health personnel was a major concern raised by all stakeholders interviewed during the evaluation. While training of healthcare staff was crucial in efforts to strengthen the healthcare system, frequent transfers of staff already trained by the programme may have undermined gains made over the programme years. This situation was notably compounded by limited coverage and fewer targeting of staff per PHU in the intervention districts. Similarly, the transfer of district level health staff such as District Medical Officers (DMOs), District Health Sisters (DHS) and District Health Surveillance Officers reportedly militated against the smooth implementation of joint monitoring activities between the programme staff and DHMTs.
- Considering the large geography of the intervention area, mobility was also a common concern raised by implementing partners. Notably the logistics material provided were not sufficient, e.g. only two motorbikes were available for an average of three field staff at each of the partner offices. This constrained the field activities to some extent, since they have to monitor over 50 catchments in each district.
- Water shortage and lack of functional solar power were reported as a major concern by many PHUs in the intervention district. These shortfalls reportedly have negative implications for service delivery including birth attended at PHUs and may increase home deliveries particular night deliveries.

3.7.2 Lessons learnt/best practices

- The ECRHS programme is led the development of the ***Emergency Preparedness Response Plans*** (EPRP) across the five districts of operation. The EPRP is highlighted here as it is considered to be a good practice to develop long-term response plans to future shocks and stresses. The EPRP engaged major development and relief agencies in these regions, to discuss potential future threats, and response activation mechanisms, should these occur. EPRPs are an excellent tool to bring better coordination and response, as these are pre-planned and identify organizational responsibilities, agreed beforehand.

4 The ***water management scheme*** developed by the Ministry of Water Resources (MWR) in collaboration with Inter-AID was another best practice observed during the evaluation. Once the Water Management Committees/Pump Caretakers are established and trained, they are linked with the 'Pump Technician' assigned to the catchment area, who has the price list of spare parts for preventive maintenance. The community covers the cost of spare parts needed (after assessment), transportation for the technician, and man-power. Cost for man power is fixed (currently at Le60,000) for six months-which means a warranty of six months is allowed, and the technician must ensure maintenance required within six months after fixture. Chlorination is also done at a fixed cost of Le10,000 when required. These costs are low and viewed as a good practice, which can also be replicated across the country.

5 The ECRHS programme implementation strategies allowed ***community participation***. From the onset, the programme involved community and key stakeholders at all levels to select potential programme sites, where they chose a list of communities that would most benefit from the programme and also having the community themselves select individuals to benefit from commodities for these interventions, such as seed vouchers significantly reduced the tension as community members, through dialogue and reflection, recognize this approach. Still, the Community Social Autopsy Committees observed in Kambia district serves as an innovative social autopsy initiative adopted by the DHMTs in the Maternal Death Surveillance and Response (MDSR) system. The committee involved community influencers to social change (local authorities) and those likely to influence maternal death through delays, traditional beliefs, etc. Each committee comprises of 5 members including 1 CHW, health staff, Paramount Chief, TBA and 1 FMC member. The committee frequent meets (especially in an event of home delivery and maternal death) to discuss causes of home delivery, pregnancy complications, maternal death and take appropriate actions to prevent future events. The committee carry out sensitization and encourage ANC and childbirth at health facility.

6 The programme closely ***worked with district teams***, conducting their regular coordination meetings, and to connecting experts from the District teams to provide required trainings in the programme.

Adopting this approach, the programme is careful not to erode existing capacities within government, and rather connects experts to build capacities further down the chain, as well as ensuring the government remains the lead coordinator of all development and relief work in their respective areas.

7 ***Seed vouchers*** have gained considerable attention globally due to its several advantages and MAFFS recognized the approach as the first of its time and validated. Seed vouchers significantly reduce logistical pressures, where organizations are relieved of the burden to secure seeds, transport and supply seeds to beneficiaries. At the same time, this is an excellent approach to re-energize local markets, which is key to developing long-term sustainable self-reliant systems to the value chain.

8 The ***cross-boarder initiative*** is one of its type in the country and commended as a best practice on efforts to contain and prevent cross border diseases proliferation along the MRU border areas. Engagement of health service providers and chiefdom stakeholders from both sides of the borders and linking them to share common concerns and best practices serve as learning and confidence building event to address disease transmission and other public health issues in the border areas. The initiative is now part of the two health departments as they are in constant conversation on happenings along the board communities and facilities. This should be replicated in all boarders of the country, along Sierra Leone/Liberia and other boarders of Sierra Leone / Guinea.

4. CONCLUSION

The Programme achieved 100 percent of its targets aligned to three module objectives. Impressively, 75 percent (30) of the four baseline targets were exceeded. These results show that the ECRHS Phase1 Programme achieved its specific objectives of 1) Containment (and Stopping) of Ebola outbreak, 2) stabilizing the health system, and 3) Increase Resilience of affected population within the intervention area. The outstanding performance of the ECRHS Phase1 Programme is expected to directly reflect on the overall health situation of Sierra Leoneans in the four northern districts. In addition, the ECRHS Phase1 Programme achieved about 7 (63.6%) of 12 baseline targets of the intermediate results identified in the MEAL framework. Despite its shortfalls, the Programme further demonstrated highly satisfactory performance in two (11%) of the 11 baseline targets. However, the Programme demonstrated moderate to highly unsatisfactory performance in two other baseline targets set at intermediate results level.

This evaluation can therefore conclude that the investments in the Programme were remarkably profitable to the health of the population in the intervention districts of Sierra Leone. Overall, the Programme remains relevant as it addresses specific issues identified as such at local and national levels.

5. RECOMMENDATIONS (ECRHS11, DECISION MAKERS, UPSCALING OF SRH ACTIVITIES)

Lessons learnt, best practices and challenges observed however presented the need for either replications or improvement of similar intervention in the future. Few recommendations were therefore made from these findings using the building blocks of health system strengthening.

- **Health service delivery**
  - ✓ There is great need for health service quality improvements and maintenance following the highly unsatisfactory result of the data on PHUs medical supplies and equipment availability for service provision. Therefore, adequate provision of medical supplies and equipment is still very much essential in improving the quality of health service delivery.
  - ✓ Investing in rehabilitation of maternity wards and relevant functional equipment provision and installations will increase access to safe delivery service which encourages better health seeking behavior by community members as a result of safer deliveries occurring at facility level.

- **Health information systems**
  - ✓ Strengthening community based surveillance (CBS) is crucial in order to consolidate on the gains made within the Programme intervention areas where CBS activities through CHWs demonstrated an effective channel for timely reporting that prevented the spread of diseases of public health importance including Ebola. The community base surveillance played an integral role in breaking the chain of transmission of the Ebola virus. The linkage of the CBS structure with the facility based reporting to the district and national level contributed to the consistency and completeness of the IDSR reports which requires extension beyond the intervention areas.
  - ✓ Strengthening the provision of HMIS tools and registers in facility is crucial as an accountability measure that can be used during spot check and monitoring of the service providers' activities and reports.

- **Access to essential medicines**
  - ✓ There is continued requirement for strengthening the provision of drugs and FP commodities within the health facilities and to make the supply chain more functional from the national level to the last mile to reduce stock out of essential drugs including FP commodities.
  - ✓ Increasing access to FP services and FP commodity supplies showing high demand among women in reproductive age (15-49 years) is particularly crucial for the successful implementation of sexual reproductive health (SRH) program in the country. Notably, there is an increased demand for Long Acting Reversible Contraceptives (observably Jadelle), and Hormonal Contraceptives (observably Depo Provera injectable). Consistency in increased supply of these commodities is highly recommended. It is noteworthy however that these commodities have been freely distributed; therefore, any change in this approach would require further sensitization strategy to encourage existing users and increase access.

- ✓ Exploring the functionality of the Facility Management Committee (FMC) is essential in stabilizing the health facility drugs and medical supplies at facility level. This will address the issue of regular stock out of drugs and medical supplies as the involvement of the functional FMCs will serve as the accountability mechanism to ensure proper management of the available drugs and FP commodities hence, increasing access of essential medicines to clients at the facility level.

- **Health systems financing**
  - ✓ Advocacy to the governments in increasing the health budgets remain crucial in order to create avenues to address some salient issues regarding health service delivery especially in the area of increasing the health workforce which is grossly underfunded at the moment with more volunteers manning the health facilities in the Sierra Leone context. The use of volunteers is having a negative impact in the provision of quality health service delivery.

- **Leadership and governance.**
  - ✓ Promoting policies that decentralize resource allocation with good coordination among government parastatals at district level will strengthen accountability measures by making local leaders like DHMT to be more accountable towards service delivery performance.
  - ✓ Community engagement of key stakeholders is essential in strengthening inclusive governance at all levels as all stakeholders are involved in various aspects of health service provision and management of the health facilities. An all-inclusive governance should be promoted to aid local leadership and hence improve service delivery performance with community ownership for sustainability.

- **Water, Sanitation and Hygiene (ECRHS11 and decision makers)**
  - ✓ Increasing coverage of water point rehabilitation cannot be overemphasized. Although the ECRHS1 Programme reach its baseline targets on access to safe drinking, several households and communities remain deprived of safe drinking water supply. It is recommended WASH be prioritized in future health intervention. Meanwhile, exit package including establishing and strengthening Water Management Committees by linking them with technicians should be given due consideration. The committee should also be trained in fundraising activities and hygiene in each beneficiary communities. Promotional materials on sanitation and hygiene show be developed and widely distributed in communities in the intervention zone.

ANNEXES

Annex I: Terms of Reference

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Annex II: Household/Personal Interviews Questionnaires

Household/PI Questionnaire

Annex III: Health Facility Assessment Tool

Health Facility Assessment Tool (FIN.

Annex IV: Focus Group Discussion (FGD) Guide

FGD Guide_ECRHS Final Evaluation.docx

Annex V: Key Informant Interviews (KIIs) Guide

KII Guide_ECRHS Final Evaluation.docx

Annex VI: Key Informant Interviews Guide for CHWs/CWM

CHW and Water maintenance or FMC (