International Federation
of Red Cross and Red Crescent Societies

Sierra Leone Cholera ERU Operation Review

Oral Rehydration Point, Mangay Loko, Bombali. *Photo: Hler Gudjonsson,IFRC*

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January 2013

KRISTJON THORKELSSON

It was with great sadness to learn of the death of Kristjon Thorkelsson of the Icelandic Red Cross who had provided so much value to the Sierra Leone cholera response operation.
Kristjon built WatSan capacity in the national society and played a leading role in the WatSan response to the 2012 cholera outbreak.

Kristjon had only just returned to Sierra Leone to pursue plans for the further development of clean water supply at the community level to provide the basis for a more resilient population in Sierra Leone when faced with the threat of epidemics.

His professionalism, enthusiasm and dedication will be sorely missed by all who knew him.

Acknowledgements

The author would like to thank all those involved in the cholera response operation and thank those that provided valuable contributions to the review either as beneficiary or community groups, FACT and ERU teams, headquarters staff at the IFRC and PNS, the country delegation in Freetown and most particularly to the volunteers and staff of the Sierra Leone Red Cross Society at the headquarters and branches who gave honest and insightful contributions to the review and who gave so much of their time and energy to reduce the loss of life and reduce the impact of the 2012 cholera outbreak in Sierra Leone.

Special thanks also to Hler Gudjonsson and Chiyuki Yoshida of the IFRC in Freetown and Haja Kultimi Karim of the Sierra Leone Red Cross Society for their organisation of the field mission and advice and support throughout the field mission.

Authors Note

This was a large and complex IFRC response to the outbreak of cholera in Sierra Leone. It was only possible to visit two of the four operational districts and the community visits were pre-selected by the IFRC and the SLRCS and do not attempt to be fully representative of the overall response. While efforts were made to contact a large number of the PNS HQ, FACT and ERU personnel it was not possible to make contact with all involved in the operation.
Statistics have been taken directly from various reports and hopefully represent an accurate reflection of the operation.
Quotes used in the report were recorded during interviews, but are not attributed to individuals.
While every effort has been made to reflect an accurate picture of the operation, any errors in report are entirely my own.

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No fit and healthy person should die from cholera.

The keys to survival from cholera are knowledge about cholera, early presentation in case of infection, good hygiene and access to ORS/SSS, clean water or water treatment.

The community base of the Red Cross/Red Crescent can play a critical role in reducing cholera based deaths and reducing the spread of cholera through community and public awareness programmes and providing the first line of intervention through establishing Oral Rehydration Points supported by trained Red Cross/Red Crescent volunteers. Some 80% to 90% of cholera patients can be stabilised with simple interventions at the Oral Rehydration Points thus saving lives and reducing the impact on the public health services.

The capacity of Red Cross/Red Crescent national societies with good volunteer networks, supported with technical advice, financial support and the use of the global assets of the International Federation should mean that cholera epidemics are stopped in their tracks.

The challenge to turning epidemic response into epidemic prevention requires a new look at how the IFRC understands the need for speed from the very beginning of an outbreak and how to refine its approach to supporting a national society in its response.

This review of the IFRC support to the Sierra Leone Red Cross Society response to the 2012 cholera outbreak provides ideas and concepts to promote a more coherent and evidence based rationale on how to make more effective use of IFRC global assets to stop, control, mitigate and respond to cholera epidemics. No fit and healthy person should die from cholera – that should be the indicator of success.

PRG, January 2013

Abbreviations

ACF	Action Contre la Faim
BHC	Basic Health Care (Emergency Response Unit)
CFR	Case Fatality Rate
CHF	Swiss Franc
CHM	Community Health Module (within the BHC ERU)
CTC	Cholera Treatment Centre
CTU	Cholera Treatment Unit
DHMT	District Health Management Team
DMIS	Disaster Management Information System
DMO	District Medical Officer
DREF	Disaster Relief Emergency Fund
ECV	Epidemic Control for Volunteers (training manual)
EOM	End of Mission
ERU	Emergency Response Unit
ERU WG	Emergency Response Unit Working Group
FACT	Field Assessment and Coordination Team
HNS	Host National Society
HQ	Headquarters
IFRC	International Federation of Red Cross and Red Crescent Societies
KAP	Knowledge, Attitudes and Practice
MOHS	Ministry of Health and Sanitation
MSF	Medecins Sans Frontieres
MSM	Mass Sanitation Module (ERU)
NGO	Non-governmental Organisation
OCHA	Office for the Coordination of Humanitarian Affairs
ORP	Oral Rehydration Point
ORS	Oral Rehydration Solution
PHE	Public Health Education
PHU	Public Health Unit
PNS	Participating National Society
PSP	Psycho-social Support Programme
RC	Red Cross
RDRT	Regional Disaster Response Team
SCF	Save the Children Fund
SL	Sierra Leone
SLRCS	Sierra Leone Red Cross Society
SOP	Standard Operating Procedures
SSS	Sugar Salt Solution
TOT	Training of Trainers
TL	Team Leader
UNICEF	United Nations Children's Fund
WatSan	Water and Sanitation
WHO	World Health Organisation

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1.0 Executive Summary

The use of the Global Disaster Response Tools for epidemic response presents a considerable challenge to the International Federation of Red Cross and Red Crescent Societies (IFRC), especially with the climate-change related increase in floods and associated epidemics.[1] In the Africa Zone, where government health infrastructure generally has less capacity than in other Zones, epidemics now represent over 25% of all national society emergency operations, most of which require international support.[2]

The original concept behind the development of the Emergency Response Unit (ERU) mechanism was to respond to a high concentration of beneficiary populations where the national services had been destroyed or severely disrupted. Over the past decade the ERUs have become more modular, more mobile and more flexible, but still struggle along with other components of the IFRC response mechanism to fully adapt to epidemic response with large dispersed affected populations where there is an existing national health infrastructure[3] and where there is a need to respond quickly to reduce the spread of a disease as opposed to responding to a known beneficiary population, as would be the case for earthquake or flood response.

The ERU cholera response in Sierra Leone provided an opportunity to re-visit the ERU mechanism and consider how the ERU tool for disaster response can be used most effectively for epidemic control and response. This review builds on previous studies of ERU cholera responses in Zimbabwe, Chad and Haiti.

Overall the response strategy for Sierra Leone was relevant and added value, though some actions could have taken place earlier, but the intervention did reduce the impact of the epidemic through the community hygiene sensitisation programme, through establishing more than 400 Oral Rehydration Points (ORP), through the provision of adequate supplies of ORS and Aqua-tabs, through WatSan interventions at the community and district levels and through case management and technical support for district hospitals. The overall management of the programme was good while the excellent capacity of the Sierra Leone Red Cross Society (SLRCS) and their close relationships with the national and local health authorities proved critical to the success of the programme.

The establishment of ORPs and the large sensitisation programme were major factors in reducing the impact of the epidemic, especially in regard to reducing the case fatality rate (CFR)[4] and reducing the impact on the government health structures[5] which had reached maximum capacity during the height of the epidemic.[6]

[1] Where water is a vector for the transmission of a disease
[2] Emergency Response statistics, DMIS: Response statistics are based on all recorded national responses, not only on international responses, such as the use of DREF and the Global Tools
[3] Except where an epidemic occurs after a crisis that has depleted national healthcare capacity
[4] The impact on the CFR is assumed and hard to define statistically

The IFRC cholera response plan was built around three possible epidemic scenarios: best-case, mid-case and worst-case with associated predictions on morbidity and mortality rates. Whether down to the response intervention or the natural life-span of the bacteria, the 'best case' scenario was close to the final impact of the epidemic. This meant that the ERU response could be considered as too large; however, the requested ERU response would have been appropriate had the epidemic moved towards a mid-case or worst-case scenario, though the overall ERU deployment was larger than that requested as not all PNS adhered to the ERU Deployment Order.

It is clear, however, that the ERUs were requested too late for an optimal response and that the entire response mechanism of the IFRC, from alert through DREF, to FACT, RDRT and ERU deployment has to be re-visited in regards to epidemic response.

Despite the late deployment the ERUs they provided useful services in the cholera response: the introduction of the tented screening and registration point at Makeni hospital was a very relevant ERU intervention, as was WatSan support for district hospitals and Public Health Units (PHU). Infection control and physical location advice for the district hospitals were certainly needed as was support for incineration and waste management. The late arrival of UNICEF drugs was partly mitigated by providing district hospitals with drugs from the Basic Healthcare Unit (BHC), however the failure to bring cholera kits was a lost opportunity as the cholera kit supplies could have a filled a gap in the anti-biotic supply chain.[7] The ERUs left the operation too early: while the cholera incidence fell sharply in August and September the ERUs could still have played a relevant role for a longer period, especially by supporting water and sanitation solutions at the PHUs. Bringing the functions of epidemiology and beneficiary communications with the ERUs can be considered as important contributing factors to the success of the operation and need to be considered as generally relevant functions in epidemic response.

While the ORPs played a critical role in the success of the operation, better support could have been provided to the SLRCS branches to strengthen the logistics capacity that should be a foundation of a successful ORP programme.

The balance between multilateral funding to the Emergency Appeal and the value assigned to the ERUs was disproportionate. While ERU funding is not fungible in nature, a smaller scale ERU response and larger multilateral funding would have been more appropriate to the context.

[5] ORPs stabilize patients through rehydration and thereby reduce the number of patients needing referral to the public health services

[6] Reference from a statement from the MOHS Cholera Crisis Taskforce

[7] The IFRC anticipated the Finnish Red Cross would deploy three cholera kits with the ERU; however the deployment order to the Finnish Red Cross stated 'treatment using IFRC cholera kits' which led to the confusion.

2.0 Background

In February 2012[8] the first confirmed case of cholera was reported in Sierra Leone. By the 8th of March the Sierra Leone Red Cross Society had deployed 500 volunteers and 30 staff providing health promotion services, first aid and psycho-social support. A Disaster Relief Emergency Fund (DREF) allocation of CHF 114,688 was provided on March 20 to assist 128,000 people as the cholera spread in Sierra Leone, killing 34 and infecting 2,137 people.[9]

By 25 July 2012 a new outbreak[10] had infected 1,500 people with 17 fatal cases;[11] these numbers increasing to 4,667 infected and 76 dead by 29 July.[12] Early the following month the SLRCS re-engaged the volunteers that had supported the spring operation and requested assessment assistance from the IFRC West Coast Regional Office. On 08 August the Regional Office called for a Field Assessment and Coordination Team (FACT), with a FACT Alert being issued the same day and a FACT team was deployed to Sierra Leone on 13 August, by which time the Ministry of Health and Sanitation stated there were 9,613 persons infected with 163 deaths and a case fatality rate of 1.7%.

On 14 August the FACT team requested Regional Disaster Response Team (RDRT) support with a request for Emergency Response Unit support three days later, the same day that the Government of Sierra Leone declared a state of emergency and requested international support to respond to the epidemic. The IFRC had issued a Preliminary Emergency Appeal of CHF 1,151,632 the day before, supported by an allocation of CHF 150,000 from the DREF. By 21 August the Finnish Red Cross Basic Health Care ERU had arrived in country alongside a Norwegian and Canadian Red Cross Community Health Module (CHM) from the BHC ERU, followed two days later by the arrival of an adapted British Red Cross Mass Sanitation (MSM) module 20 ERU. Two RDRT members arrived on 22 August to provide additional water and sanitation support.

The SLRCS made direct interventions to the government Office of the President to gain visa dispensation for the FACT and ERU teams that greatly facilitated the arrival of staff and equipment.

The arrival of the ERUs in week 33 coincided with the peak of the cholera outbreak with 21,140 cases reported in week 32, with 290 deaths and a case fatality rate of 2.0%. This peak was in line with the 'best case scenario' of 17,195 cases and 292 deaths, while the worst case scenario predicted 85,000 cases with over 1,400 deaths.

[8] Or November 2011 depending on the source (UNICEF)
[9] DMIS Field Reports of 6th and 8th March 2012.
[10] Some documents refer to a new cholera outbreak, though the emergency Glide number EP-2012-000041-SLE remained the same for the March and July cholera outbreaks.
[11] MSF report
[12] DMIS Field Report

The objectives of the ERU deployment were to support the goals of the Preliminary Emergency Appeal,[13] namely to:

i) Improve awareness of epidemics in 360,000 households in four districts
ii) Strengthen the capacity of the health facilities in the areas covered by the SLRC branches in the affected regions to deal with the cholera outbreak
iii) Reduce the spread of cholera through the provision safe water, sanitation and the promotion of safe hygiene practices.

FACT

The FACT quickly provided leadership and direction to an operational strategy that looked at worst-case/best-case scenarios, comparative analysis between rural and urban populations, a clear WASH strategy, a rural based response plan based on the capacities and activities of other organisations and initiated a Knowledge, Attitudes and Practice (KAP) survey which was the basis for the subsequent community messaging and beneficiary communications plan.

As no operations manager was identified the FACT Team extended their mission (with rotations) until the withdrawal of the ERUs on October 17th by which time the cholera case load had fallen dramatically. The FACT team was comprised of FACT Health who was also the Team Leader, FACT WatSan, Logistics and Information/Reporting. The FACT team, along with an epidemiologist from the Norwegian Red Cross were based in the capital Freetown.

ERU

With a large Non-governmental Organisation (NGO) presence in the capital Freetown and large SLRCS volunteer capacity in rural communities the FACT Team Leader (TL) decided to deploy the ERU and RDRT assets to rural areas where cholera was present and the CFR was high. The FACT TL decided to integrate the various ERU assets to work in combined teams in four targeted districts: Portloko, Kambia, Bombali and Tonkolili.

The Finnish Red Cross (FRC) BHC was split into two teams, one team deployed to Portloko hospital, the second team deployed to Makeni hospital in Bombali district. The Japanese Red Cross supported the Finnish RC by providing an epidemiologist who was located in Makeni providing case management training for hospital staff from Makeni and Portloko.

The Norwegian RC Community Health Module (CHM) was an adaptation of the full Basic Healthcare ERU and was also split into two teams, one team deployed to Portloko, also providing training support to Kambia, the second team deployed to Bombali, also

[13] The ERU contributions valued at CHF 1,389,250 were not included in the Appeal budgets or financial reports making it difficult to measure the ERU response in relation to the preliminary emergency appeal and subsequent revisions.

supporting the district of Tonkolili. The Norwegian team was supported by an ERU Health delegate from the Canadian Red Cross. The Norwegian Red Cross epidemiologist was located in Freetown providing data to all of the ERUs.

The British RC MSM was adapted from the full MSM 20 Module at the request of the FACT TL and focused on hygiene promotion (two staff), a sanitation engineer and a beneficiary communications delegate and was split into two teams, the first team being deployed to Portloko, supporting activities in Kambia, the second team deployed to Makeni town, supporting operations in Bombali and Tonkolili. The British RC ERU beneficiary communications delegate experienced in MSM ERU and recently out of the Haiti cholera operation supported all aspects of public health education as related to cholera.

The ERU teams were in-country and planning or operational from 21-23 August to 17 October. The BRC MSM Beneficiary Communications delegate stayed until 20 November.

The response operation had reached 1,131,613 people by late October, providing health care, including surveillance, hygiene promotion and social mobilisation as well as the provision of ORS, Sugar and Salt Solution (SSS) and water and sanitation hardware.

108 SLRCS key volunteers (surveillance volunteers) have been trained to manage cholera surveillance and 539 community volunteers with the surveillance volunteers managed 419 Oral Rehydration Points while 647 volunteers reached 355,000 beneficiaries through social mobilisation.[14] A mobile cinema programme reached over 13,000 direct beneficiaries while over 200,000 people were reached with health promotion messages.

[14] MDRSL003 Emergency Appeal Operational Update, Sierra Leone Cholera Epidemic, p8 October 2012

3.0 Purpose and Methodology

The purpose of the review is to examine the extent to which the operation has and is achieving its goals and expected results and to assess key achievements and challenges as well as consider areas for improvement within the operation and make recommendations to improve and inform future programming. The review also identifies lessons learned and good practices for sharing and replication with an emphasis on reviewing how the ERU modules were able to add value to the SLRC national cholera response and how the ERU response tool can be used most effectively for epidemic response in the future.

A desk review of documentation was conducted, including previous evaluations of cholera responses in Zimbabwe and Haiti; a study of the Sierra Leone emergency appeal process; a review of FACT and ERU reports posted on DMIS; a review of Office for the Coordination of Humanitarian Affairs (OCHA) and Ministry of Health and Sanitation (MOHS) documents; Operations Updates and general reports; epidemiology reports and delegate end-of-mission reports.

A structured questionnaire was used for Skype interviews with key informants based on the questions posed in the Terms of Reference. Unstructured follow-up Skype calls were made as required.

In the field meetings were held with the IFRC and SLRCS staff; representatives of the Ministry of Health and Sanitation; representatives from the United Nations (UNICEF and WHO) and from the NGO community (ACF, Save the Children and MSF). A meeting of the Cholera Task Force was attended to which questions were raised about the relationships between data collection from the ORPs and PHUs and the strain the cholera outbreak had on the capacity of the health infrastructure.

Field trips were conducted in Portloko and Bombali districts which included meetings and discussions with the SLCRS local branch staff and volunteers and local government health authorities including visits to the district hospitals in Bombali and Portloko. Community meetings were conducted in both districts including discussions with women and representatives from the SLRCS Community Women's Clubs. School children in the communities were tested on the knowledge they had gained through SLRCS school dissemination about cholera and good hygiene practices.[15] The community meetings combined group meetings and meetings with randomly selected families. A meeting with the market committee was conducted in Makeni including a marketplace tour to inspect water and sanitation projects that had been implemented in the marketplace. A number of ORPs were visited as were PHUs where water and sanitation programmes had been conducted and ORP volunteers and PHU staff were interviewed.

The provisional recommendations in regard to strategic options for the IFRC in cholera epidemic response were presented to three key NGOs involved in the Sierra Leone cholera response and to the WHO to cross-check their opinions and expectations regarding the potential IFRC added value in cholera epidemic response.

The key findings of the review were fed back to the SLRCS Secretary General and his senior management team before the consultant departed Sierra Leone. A draft report was issued to the IFRC and SLRCS for comments on 15 January 2013 before the report was finalised and issued on 29 January 2013.

[15] It was not confirmed if the school dissemination had come from the SLRCS volunteers, the cinema programme, from school authorities or from NGOs.

4.0 Findings[16]

4.1 General findings based on the key objectives of the review:

a) To examine the extent to which the operation has and is achieving its goals and expected result.

1. A decrease in the CFR is achieved through the provision of clinical case management and support to the MOHS emergency response.

- **A mobile BHC is operational and providing clinical case management support of up to 8,684 people of as per need based on the evolution of the epidemic**

  A limited amount of case management was conducted by the ERU but was not really required with the low case-load as the MOHS generally had sufficient capacity, though the extra support from the ERU was welcomed. There was possibly greater impact of the CFR from the social mobilisation than from case management. Deaths from cholera in Sierra Leone were almost entirely related to late case presentation at ORPs, PHUs or district hospitals, therefore reducing CFR comes from social mobilisation promoting early presentation and giving patients access to ORPs.
  Additional CTCs were not required, though supporting district hospitals with establishing tented reception areas for case identification, registration and triage was a useful added value to a normal hospital structure, as was support for incineration, infection control and the provision of some key drugs and equipment. Quote from ERU EOM report*: 'not to send clinics where a functional health service net with hospitals and clinics exist – it might need improvement but not replacement'.* While this quote was relevant for a best-case scenario, the planning was rightly built around preparation for at least a mid-case scenario.

2. Decrease the morbidity related to the cholera through the provision of community based management, referral and surveillance in five priority districts
It is not possible to directly relate reduced morbidity to IFRC/SLRCS activities[17] though there was consistent feedback from all interviewees that both morbidity and mortality rates were reduced following the cholera sensitisation programme. Cross-infection in hospitals supported by the ERUs reported reduced morbidity in the hospitals after isolating the cholera patients from the general hospital caseload.[18]

- **Improve the knowledge base of 788 volunteers**
  137 key volunteers were trained and 714 ORP volunteers in health promotion, community hygiene promotion and trained how to manage an ORP. These volunteers reached over 350,000 people with key health and hygiene messages. 14 SLRCS Branch health officers and 14 coaches from 14 SLRCS branches received ECV Training of Trainers (TOT) training leading to ECV training for a total of 778 SLRCS volunteers.
- **Reinforced volunteer referral system**
  The ORP training included referral system training. Field visits to ORP confirmed a clear knowledge of referral management by the ORP volunteers.
- **Households have improved knowledge of prevention, symptoms and early treatment**
  All individuals and households interviewed during the review were able to demonstrate a clear knowledge of using ORS and Aqua-tabs and fully understood the key hygiene messages related to cholera. A follow up to the original KAP survey should provide statistical evidence to better measure the level of knowledge transfer.
- **Provide oral zinc to under fives**
  This pilot project was not initiated as the PHUs provide zinc for the under-fives.

3. Improved epidemiological surveillance of epidemics is achieved through capacity building of the SLRCS and MOHS counterparts

[16] All headings i**n bold** in the chapter on Findings come directly from the Review Terms of Reference
[17] See Steve Powell 'Evaluation of CBHFA contribution to Cholera Emergency Health response in Sierra Leone'
[18] Based on feedback from hospital staff at two of the four assisted hospitals

- **Establish 40 ORPs and report weekly**
  419 ORP were established and were the foundation of the cholera response. Some technical reporting issues, such as access to phones or e mail are being resolved through support for the revised emergency appeal which will focus on an SMS based reporting system.
- **Contribute to improved data management at the national level**
  The IFRC/SLRCS assisted in data management from the beginning of the operation while the WHO scaled up its core role in this area during the course of the epidemic. The IFRC/SLRCS were measuring data from the ORPs while the MOHS was measuring information at the PHU level. If the PHU reporting did not reflect the ORP stabilisation of cholera cases (as opposed to referrals), the MOHS will be underreporting the cholera data.
  The unresolved reporting issue had much to do with the lack of a community based surveillance structure and the lack of a GIS data management system[19] which needs to be considered for future responses.
  The MSM ERU supported assessment data on WatSan needs which contributed to the direction of WatSan activities.

b) To assess key achievements and challenges as well as areas for improvement within the operation and make recommendations to improve and inform future programming.

Although the operation started at a time when the case load started to fall, the ability of the SLRCS and IFRC to establish over 400 ORPs in the community must be considered as a **major achievement**. In the sixteen chiefdoms were the SLRCS was operational they covered 44% of the total population. While only 751 patients were managed between weeks 37 – 40 by the 419 ORPs the ORP directly stabilised 96% of the patients[20] thus significantly reducing the impact on the already over-stretched public health services.
If the case load had developed along the lines of the worst-case scenario this could have represented nearly 3,500 patients being directly managed by the ORPs and kept out of over-burdened PHUs and district hospitals. With the potential to quickly scale up the number of ORP volunteers in other communities within the selected chiefdoms as well as scale up in new areas *the SLRCS has the potential to play a major role in a national epidemic control strategy.*
The CFR appears to have been directly influenced by the sensitisation programmes encouraging patients to present themselves early at an ORP, thus having a direct impact on reducing the loss of life, while the sensitisation programme almost certainly contributed to improved hygiene behaviour, thus contributing to the fall in the morbidity rate.[21] With an average attack rate of 0.5% and 300,000 people reached by social mobilisation one could extrapolate a potential 1,500 people did not get cholera due to the sensitisation programme and therefore approximately a further 30 lives saved.
The multiple programming of cholera sensitisation can be considered as an essential response to the cholera outbreak. Direct sensitisation by SLRCS volunteers, the very well-received cinema programme, the SLRCS radio slot and the leaflet campaign all contributed to changes in people's hygiene practices.
The challenges of the programme are not major but are relevant to the future scale up of the ORPs. The operation would have benefitted from a stronger support for SLRCS logistics, especially at the branch level. A branch cannot effectively support hundreds of ORPs without adequate means of transport. A number of motorbikes at the operational branches would be an important consideration for an ORP based programme, as well as an adequate budget for fuel, vehicle maintenance and repairs. Currently volunteers have been paying their own transport costs to visit branches to collect ORS and Aqua tabs. These costs should be reimbursed by the programme.

[19] PHU cholera reporting did not identify the location of the patient, thus potential spikes in the caseload were listed only by the PHU coverage area. Some presentations at PHUs came from locations outside the PHU coverage area. A more detailed approach to GIS could have helped better identify more precise locations which could in turn direct dedicated community health messaging targets
[20] Consolidated field data from ORPs
[21] It is not possible to statistically establish the impact of the sensitization programme as related to the natural 'bell curve' for the life of the cholera bacterium, but all government departments and NGOs interviewed considered sensitization programmes as being at the core to reducing the spread of cholera.

The early sensitisation programme focussed on prevention, which is important, and included cholera identification and response behaviour, but key messaging about early patient presentation at ORPs could possibly have been reinforced from the beginning of the sensitisation programme to reduce the potential of death due to late presentation.

c) To identify lessons learned and good practices for sharing and replication with an emphasis on reviewing how the ERU modules were able to add value to the SLRC national cholera response.

1. The MSM and CHM teams provided essential training in ECV and helped support the training and establishment of the ORPs. The ORP strategy was critical in reducing the pressure on the government health services.
2. The KAP survey at the beginning of the operation was essential to identify the key messaging and communications vehicles for changing attitudes to cholera.
3. Beneficiary communications support through the MSM provided considerable added value to the sensitisation programme which contributed to reducing deaths.
4. The use of cinema, SMS and radio, supported by the distribution of wind-up radios were clear best practice and added value to the sensitisation programme.
5. The epidemiologist provided as part of the BHU ERU provided essential data to the MSM and MCH teams.
6. Hospital support through setting up reception areas and infection control added value that would not have occurred without ERU support.
7. ERU advice to district hospitals on cholera management was important in isolating the cholera management from general hospital services.
8. ERU water, sanitation and infection control support to district hospitals and PHUs[22] helped support the whole network and added value in an area where other there were few if any other actors providing similar support.

[22] Most WatSan PHU support actually came from the FACT and RDRT teams

4.2 More specific findings based on the questions posed in the TOR

Quality, relevance and accountability

1. How effectively have previous lessons learnt from Zimbabwe, Chad[23] and Haiti cholera ERU operations been incorporated in to this response?
   a) The Zimbabwe cholera epidemic was similar to the scale and typology of the Sierra Leone epidemic with 12,000 cases (22,000 cases in SL) and 500 deaths (300 in SL). The informative evaluation of the Zimbabwe cholera response would have been a useful addition to the FACT/ERU briefing pack which was a lost opportunity as many of the recommendations from the Zimbabwe operation were highly relevant to the Sierra Leone operation. Quotes for the Zimbabwe review:
      - A decrease in cholera came at the same time as the ERU programme
      - Much of BHCU and M40 equipment was not used; it was inappropriate for this type of response
      - ERU WG should review Module mobility, flexibility and compactness
      - A combination of mobile and smaller satellite CTCs were required and not a standard BHCU
      - Integration of the Health and MSM was a major achievement
      - A proposed solution is repackaging the equipment of large and heavy ERU WatSan modules into smaller units that can be deployed as an entire ERU module but rapidly and easily partitioned on the ground and redirected to different geographical areas.

      While the modularisation of WatSan 15 and 40 was not entirely relevant in the case of Sierra Leone the concept is consistent with the need to rethink the BHC in the same terms for epidemic response. Smaller satellite CTCs is closer to the SL response requiring the establishment of a large number of ORPs.
   b) A large number of ERU delegates had previous experience from the Haiti operation, though this experience was not always useful in regard to the cholera response approach needed in Sierra Leone. The Haiti cholera response was set in a post-earthquake context with a Ministry of Health still struggling to develop capacity lost in the earthquake, thus ERUs were to some degree replacing lost governmental health capacity, which was never strong in the first place, as opposed to the Sierra Leone context where there were generally strong health services both at the central and district levels.
   c) The SLRCS was briefed by the FACT team on lessons learned from previous cholera response operations.
   d) The Beneficiary Communications experience in the Haiti cholera response provided evidence and impetus to support the Sierra Leone response with a large and effective Beneficiary Communications programme in Sierra Leone.

2. To what extent were the beneficiaries involved in planning, design and monitoring of the operation?
   a) The programme design of the sensitisation and ORP programmes came from volunteer and branch assessments conducted with the community leaders and the representatives at the community level of the SLRCS Mothers Club, SLRCS Fathers Club and SLRCS School Club, as well as from talks with the community level WatSan Committees and the town level market committees.

[23] The consultant was unable to locate evaluations of the Chad cholera response, thus this part of the review does not include lessons learned from the Chad operation

b) The KAP survey at the beginning of the operation provided an evidence-based foundation upon which to design the sensitisation and beneficiary communications strategy.

3. Were the IFRC[24] operation's strategies and priorities in line with the priorities of government authorities and other key coordination bodies (SLRCS, WHO, MoH) and other stakeholders including United Nations co-ordination mechanisms?
   a) The IFRC and SLRCS response was in line with the Cholera Emergency Preparedness and Response Plan for Sierra Leone drafted by the MOHS in June 2012, though the plan lacks certain details and clarity about ORPs which will hopefully be included in the revised draft following the 2012 emergency. WatSan support to PHUs is included in the national strategy, as is surveillance support and training. The FACT TL met with MOHS, UN and SLRCS representatives to ensure the response strategy was consistent with the broader response plan in the country. The SLRCS regularly attended national and regional cholera task-force meetings and ensured the district health officers and District Health Management Teams were kept up to date on the sensitisation and ORP programmes

4. Considering the ERU deployment: Review the timing of the actual alert and deployment versus the unfolding crisis and the decision making process behind the deployment of the ERUs.
   a) The deployment of ERUs could possibly have been avoided if response to the cholera outbreak had been initiated earlier by the Regional Office or the Zone Disaster Management Unit. If the SLRCS sensitisation programme had started earlier, along with the establishment of ORPs, the impact of the epidemic could have been reduced and managed within the capacity of the MOHS and the SLRCS.
   b) The SLRCS issued a DMIS field report on 29 July by which time there were 4,667 cases and 76 deaths, a 300% increase of cases and 400% increase in fatalities followed in the next four days.[25] This was clearly the time to act, but action was only taken 18 days later by which time a further 108 people had died and a further 6,300 people had been infected.[26] In another DMIS field report on 6th August the SLRCS indicated that a DREF request was planned, though the DREF was only issued as a loan to the Preliminary Emergency Appeal ten days later.
   c) The ERU deployment should have been sequenced, with beneficiary communications support deployed in June alongside a cash contribution to the SLRCS from DREF in June to re-establish the ORPs. Other ERU assets could have been deployed in July (as opposed to August) as the case load rose, especially CHM and the adapted MSM, and partial CTC supplies added later in July to support an increasing case-load at the district hospitals.
   d) There are no trigger points for ERU deployments for epidemics or indeed for the IFRC response mechanism as a whole. While the West Africa Regional Office requested FACT support within one day of its own assessment and the FACT team requested ERU support after being in-country for only three days and the ERUs arrived in-country within four to six days of the deployment order the initiation of these activities was more than a month too late. On average the ERUs were in Freetown for four days prior to deployment to the operational hubs and could be considered as operational in week 35. Unfortunately this was two weeks after the

[24] Note: TOR uses the term ERU here, but the use of the term IFRC is considered as more appropriate
[25] MSF announced 1,500 infected and 17 deaths on 25th July.
[26] See timelines and statistics in annex 7.4 'Operations Timeframe'.

peak of the cholera case-load which fell rapidly over the next four to six weeks. The CFR also fell rapidly from 2% in week 33 to 0.7% in week 34 and down to 0% in week 39.

The FACT Situation Report of 20 August reported a best case scenario of 17,000 cases and 292 deaths and stated *'the best case scenario would assume we are past the peak and on the downhill side. This seems unlikely with more districts infected this week'.* However, this is exactly what happened. If the worst case scenario of 85,000 cases and 1,400 deaths had occurred then the timing of the arrival of the ERUs would have been considered as more appropriate as would have been the mid-point projection of 35,000 cases and 600 deaths where the case-load peak around week 37, two to three weeks after the ERU operation started.

One could argue that this dilemma of timing an ERU deployment is made more complex by the size and cost of a full ERU deployment and that the perceived cost-benefit risk is reduced if small ERU modules can be deployed from the outset of an epidemic and added to if the situation requires.

In summary the timing and decision making were appropriate at the times decisions were made and the deployment process was appropriately rapid but the whole decision making process should have started earlier triggered by the first SLRCS DMIS report.

e) The ERUs left when the case-load fell, apparently triggered by the departure of the BHU. The departure of all services was too fast – an exit strategy prepared by the FACT would have helped define an appropriate use of ERU resources towards the end of the operation and could have led to a better phased and more strategic departure.

5. What are the constraints to early deployment of ERU's in epidemics?
   a) Epidemics need to be responded to quickly to avoid case load escalation, but the 'standard' cost of full ERU deployments constrains an early ERU response. There is a tendency to approach health ERUs from a position of supplies and hardware, as opposed to the human resource base that can provide the essential first wave of epidemic public health sensitisation and beneficiary communications. ERU assets need to be further modularised[27] so that a sequenced ERU response can be introduced. This approach may remove current financial constraints to ERU deployments.
   b) Back donors (governments) often have financial procedures to respond to emergencies (in the use of ERUs) rather than to limit or prevent epidemics using ERU assets.
   c) Epidemic development is more difficult to predict compared to known numbers of victims of earthquakes or floods. Scenario planning is still in its infancy though some general modules are available. It is therefore difficult to put a 'price' on an avoided victim (for example through social mobilisation and PHE) when conducting cost-benefit analysis and justifying response costs in relation to beneficiary numbers. Thus the size and cost of a full ERU can be a natural constraint to early deployment for epidemics but the concept of measuring case management compared to case avoidance needs to be reconsidered in any cost-benefit analysis.
   d) IFRC Zones (and possibly National Societies) are often reluctant to request ERU assets until an emergency has reached a critical stage. ERU 'light' if well explained to Zones and NS could encourage a greater use of ERU assets, especially in the 'light' mode for epidemic response.

[27] ERU modularization has been taking place for many years.

e) In the case of Sierra Leone the ERUs arrived in-country before site selection had been finalised, thus losing a few days in Freetown, though this is not a major concern.
f) The quick decision and strategy making of a highly competent FACT team clearly had a positive impact on the ERU response time.

6. Was the current design and flexibility of the MSM and Health ERU Modules adequate to address the cholera related challenges?
   a) The adapted MSM and CHM modules were deployed without administration and finance support. Even with small ERU modules, administration and finance are important functions that need to be added to any deployment as a core function.
   b) The early introduction of a KAP survey showed flexibility and imagination and provided an evidence-based foundation to the operational strategy.
   c) The initial lack of vehicle support for the operation was a constraint on the effective use of the ERUs. FACT Logistics needed to either identify constraints in local vehicle hire opportunities and order ERU vehicles or find quick solutions for vehicle hire in-country.
   d) While FACT and RDRT conducted a number of useful WatSan activities at the PHUs (and schools), and the BHC conducted WatSan activities at district hospitals, the WatSan hardware solutions never came a scale relative to the potential response to the epidemic.[28]
   e) An ERU module is required to support beneficiary communications and social mobilisation. The module needs to include projectors and speakers to support the effective cinema project and include other hardware/software so that community sensitisation can start quickly. The most likely location for such a module would be within the hygiene promotion function of an MSM ERU, though it could also be considered by the ERU Technical Working Group as a suitable asset for the CHM module within the BHU ERU.
   f) An epidemiologist was provided with the CHM. Epidemiology at the outset of an epidemic is critical as the projected scenarios will be critical to defining the response options. Epidemiology skills will be essential in the initial FACT deployment (as is evident from the Sierra Leone response). For epidemics GIS and data management would also be an important asset for epidemic response, GIS can have a direct influence of redirecting actions, such as identifying cholera spikes and relocating house to house sensitisation.[29]
   g) A full BHC was supplied in response to a request for a 'CTC Mode' BHU response. The majority of BHC ERU assets are not needed for epidemic response. Cholera kits were needed for the BHU, which brought, for example, saline solution which is not appropriate for cholera response. The inappropriate overall size of the ERU response put considerable pressure on the SLRCS, especially visa and travel support, which could have been avoided.

7. Would it be recommended to deploy these ERUs for similar outbreaks?
   a) ERU support to a similar outbreak needs to be sequenced over a timeline. The first and immediate requirement is for sensitisation and setting up ORPs through the national society. This should be done at the very earliest stage to limit the spread of

[28] The FACT request was for the software side of MSM, but a stronger hardware response would have added value.
[29] For example, the Canadian Red Cross CTC in Haiti used in-patient GIS information to re-direct house to house visits so volunteer sensitisation was targeted to daily hot-spots picked up from the in-patient data.

the bacterium. It should be deployed before other ERU assets such as CTC, BHC etc. The Zone DMU and Regional Offices need to act much faster when dealing with epidemic response and call immediately for a quick FACT response and appropriately sequenced ERU response. Depending on the scale of the epidemic, cholera kits should be provided immediately, either for direct use by the national society or by the local health authorities. If large numbers of patients are expected to present at regional hospitals, a tented 'reception' area and infection control assets will be of added value to help a district hospital separate cholera management and infection control from other regular medical services. Medical authorities may require technical support on cholera management from ERU personnel.

b) Water and sanitation support will likely be required at all levels of the public health network, including support for clean water supply, chlorination, pump repair, latrine construction and incineration facilities.

c) Only if the epidemic exceeds the capacity of the local and national health authorities will CTU or CTC modules be required. Reducing impact on the national health authorities is best provided through the establishment of ORPs and hygiene promotion. If CTU or CTC assets are required an assessment should determine if the water treatment assets are also required, noting the size and cost of deploying such assets. Nurse and doctor case management was generally not a requirement in the Sierra Leone response as the national health authorities had sufficient human resource assets, though training of national staff was a requirement. Initial assessments need to include a capacity statement regarding local health authority skills and available personnel. If cholera is not a common problem in the affected country then ERU health staff can provide essential capacity building for the local health authorities, as was the case with the BHU nurses in the Sierra Leone response.

8. Did the ERU show flexibility and adaptability and respond based on the request from SLRCS and the FACT team effectively?

   a) While the deployment orders are reasonably specific in regard to what was required, the ones used for this deployment did not include all the detail that was shared between the FACT and ERU Surge Officer. The 'adapted' MSM was clearly in response to the software approach requested by FACT as was the CHM response. The BHC CTC Mode did not happen and a full BHC was deployed with the inevitable consequences of having too many delegates and too much equipment. ERU deployment orders need to contain all possible references to the equipment and personnel needed and ERU PNS need to comply with the deployment order and not send complete ERU kits which are not requested.

   b) It is not understood why the ERUs left the operation so quickly. While the case-load had declined considerably, much work could have continued, especially supporting the local health authorities with water and sanitation support.

9. How effective was the integrated capacity building approach implemented by the ERU's?

   a) Attempts to integrate the ERU assets were only partially successful. As this was a first experience of integration for many ERU teams, it was not surprising that practical problems arose, such as accounting, allocation of vehicles and team leadership. ERU training is entirely based on single, self-sufficient ERUs and does not include the challenges of integration.

b) While the CHM and MSM modules integrated quite well, the integration did not carry across as successfully to the BHC.
c) The core of the programme was the ORP strategy, but in the ORP locations where soap, ORS, Aqua tabs and hygiene promotion leaflets were provided, there was very limited WatSan hardware support which could have added real value. While a large total population attended the cinema shows, with increased equipment there could have been a larger relationship to communities with SLRCS ORPs and cinema shows.
d) The integrated approach to ECV training was added value to capacity building.

10. Did integrating teams provide a more holistic approach and what were the major barriers to implementing with ERU's in this way?
    a) ERU team Integration did provide a more holistic approach to the response, despite the lack of experience and training to take an integrated approach. At the ORP level volunteer training and hygiene promotion were integrated with distribution of supplies of soap and ORS and the distribution of cholera leaflets. In the data from Bombali 39,635 benefitted from these activities (above) but only 2,496 people from this population also viewed the cinema programme. Noting the reported impact of the cinema programme,[30] a large scale up of equipment of the cinema programme could have had a greater impact. The same population received 955 household hygiene parcels through the MSM/SLRCS Logistics. It is understood[31] that the household hygiene parcel programme was limited to 4,000 parcels based on budget constraints rather than being a more strategically designed part of an integrated operation. A broader household hygiene parcel programme would have been appropriate to match other activities at the community level and an earlier procurement[32] would have matched other activities. WatSan hardware support was mostly provided to PHUs and schools with only 14 interventions in the Bombali district at the community level out of 205 communities receiving ORP support.[33] Thus while there was integration that added value, there were gaps where better integration could have added greater value.
    b) Some barriers to full integration included:
        - If two or more teams integrate, who is the team leader?
        - ERUs are reporting to their back-donors concerning the nationally supported ERU response, this is a barrier to needs based integrated planning, programming and reporting.
        - Integration creates administrative challenges, for example who pays for the vehicle rental used by an integrated ERU team, who signs agreements, who decides on accommodation or the allocation of vehicles? With limited SLRCS volunteer assets at the branch level, what are the priorities for the branch staff and volunteers when faced with competing demands from different ERU teams? One could assume integration makes prioritisation easier, but unless team leadership of an integrated response is clear, prioritisation can become even more complex than in a non-integrated environment.
        - ERU staff are not trained in response-based integration of ERU assets.
        - Can back office services such as administration, logistics, finance and human resource management be consolidated between ERUs to provide all integrated

[30] Based on volunteer and beneficiary feedback
[31] Based on interviews with IFRC field staff
[32] Distribution of household hygiene parcels only took place after the MSM had left the country and was later than the key hygiene promotion messaging at the community level
[33] SLRCS mapping of activities in communities : Bombali district

teams with a common service? The responses to this question was mixed, the general opinion being that finance and reporting needs to be delivered with each PNS ERU as national ERUs have different national reporting requirements, while administration and logistics could be a common service, perhaps better located within the FACT rather than within the ERU teams.

11. How effective were the additional technical capacities of epidemiology and beneficiary communications utilized by the operation and did they add value to outbreak response?
    a) Epidemiology is *'the study of the incidence and distribution of diseases, and of their control and prevention*'.[34] There were overall very positive comments from ERU and FACT team members regarding the services provided by the epidemiologist, though a number of questions remain that need to be considered when considering the type of service and profile to support ERU epidemic response:
        - Despite discussions with MOHS and UN agencies it remained unclear if ORP non-referred cases where included in MOHS statistics through the PHUs, which appeared to be reporting on in-patient cases and not including SLRCS ORP cases that were not referred to PHUs. This is a critical issue as IFRC data showed 95% of ORP cases were not referred to PHUs and were locally stabilised, thus the total government statistics could be significantly incorrect. There is also a risk of duplicated numbers for referred cases that would show in both PHU and SLRCS data. Health ERUs should consider how to manage and train for community based disease surveillance to avoid data confusion in future responses.
        - The MOHS and SLRCS statistics are unclear in regard to the differentiation between AWD and cholera, yet alone measles (especially for the under-fives) and typhoid. The MOHS stated that 'poor case identification' was one of the constraints to the cholera response programme and that continuous training of PHU and hospital staff was required. This is an area where an epidemiologist can assist, supported by improved training on community-based disease surveillance. However, from an operational point of view in response to cholera, case identification is not critical at the level of ORPs, who should be treating any case of diarrhoea with rehydration solutions regardless of any case being assessed as AWD or cholera.
        - ORP registration included referral numbers, but the weekly reports between weeks 37 to week 40 from ORPs did not include the number of referrals, thus making it difficult to measure the impact of the ORP strategy.[35] The reporting will improve once the planned SMS reporting from ORPs is introduced.
        - PHU data did not include GIS data, thus meaning a 'spike' in cholera cases could actually be anywhere within the geographical coverage of the PHU which did not help locate cholera hot-spots. Many positive cases came from the larger towns, but data did not identify if the patients were from the towns, had been referred to the towns or had independently travelled to the town district hospitals.
        - Reporting from PHUs was sporadic, thus many 'spikes' in cholera cases were actually reporting spikes, not cholera spikes.[36]
    b) In the Canadian Red Cross CTC intervention in Haiti inpatient GIS data led to revised home-visit planning: this was active data management that directly contributed to

[34] Oxford English Dictionary
[35] Data from Bombali district was later collected that included referral data.
[36] This is not a problem regarding the IFRC epidemiologist but reflects a general problem with epidemiology and therefore promotes the need for IFRC to consider the importance of epidemiology

the operational response.[37] For future IFRC cholera epidemic responses it would be useful to deploy a GIS data expert as well as an epidemiologist unless both skills can be found in one individual. All NGO and UN agencies involved in the response that were interviewed, as well as the MOHS at national and district level, agreed that case identification and community based disease surveillance were inadequate and that increased surveillance capacity and GIS solutions would have provided significant improvements to the Sierra Leone response.

c) The beneficiary communications took some time to establish, but clearly provided added value to the sensitisation programme already being conducted by the SLRCS volunteers in the communities. The cinema programme reached over 30,000 people while listenership numbers to the weekly radio programme are not known, though one could anticipate a listenership of over 1.5m people. The SMS messaging programme will be continued and refined in the spring of 2013. The provision of 500 wind-up radios appeared to increase community reception of the key messages.[38] While the beneficiary communications provided very useful messaging tools, the start-up was too slow which limited the overall impact. A faster deployment of ready-prepared beneficiary communications assets will be essential for future epidemic response, where speed of establishing hygiene messaging is critical to reduce mortality and morbidity.

d) One positive beneficiary project was the dissemination of key health and hygiene messages at the school level through the SLRCS Schools Club programme, as this provides the opportunity to change hygiene attitudes and practices for a new generation.[39]

e) It is worth noting that stigma was not an issue in the Sierra Leone context, as opposed to the significant stigma issued identified in the Haiti cholera outbreak of 2010. Beneficiary communications should be used for all epidemic responses but are even more essential in contexts where stigma is an issue where Beneficiary communications needs to work in combination with Psycho-social Support Programming (PSP) to identify types and causes of stigma and key messaging to respond to stigma.

12. How cost effective was the ERU operation given the needs in Sierra Leone and the response capacity of other actors?

a) The ERU response to Sierra Leone was not cost-effective for a number of reasons:

- The epidemic in Sierra Leone resulted in a 'best-case' scenario while the response strategy had to plan for a higher cholera caseload. ERU response to epidemics carries more cost-benefit risk than response to other types of disaster. While this is an inevitable consequence of epidemic response the cost-benefit risk can be seriously mitigated by introducing a more measured ERU response based on modularisation and deploying assets over a timeframe.
- The outbreak could have been managed earlier and potentially avoiding the need for an ERU response.
- A capacity building and technical support approach to the ERU deployment would have been more cost-effective.

[37] This is more relevant to urban outbreaks than rural outbreaks where village identification is more important than address identification

[38] Based on volunteer and community feedback at community meetings

[39] While using only a very small sample, all children questioned during community visits from the review team were able to demonstrate knowledge from learning through school hygiene programmes. Their families were aware of the key messaging given to their children

- The case-load was the 'best-scenario' making the cost per patient high.
- A full BHU was deployed instead of the requested CTC Mode, resulting in equipment and supplies of considerable value being transferred to the SLRCS and MOHS.

b) The capacity of the MOHS was possibly underestimated (while the capacity of operational partners in WatSan was probably over-estimated), though the MOHS capacity was stretched to the limit at the best-case scenario, thus ERUs arriving with CTC assets was an appropriate response even though the CTCs were not eventually required.[40]

c) While ERU doctors and nurses provided useful case management support and technical advice to local health authorities, this cannot be considered as essential or cost-effective.

d) Many functions carried out by ERUs, such as pump repairs, tank chlorination, access and egress infrastructure etc. were important. The capacity building of the SLRCS in WatSan provided by the ERU and FACT teams will make a valuable contribution to future outbreaks in Sierra Leone whereby the national society will be able to fulfil many of these basic WatSan services themselves.

e) Savings would have been made if beneficiary communications equipment had been provided as part of the ERU response, as local procurement was quite expensive.

f) While ERU funding is not fungible a multilateral cash support to the Emergency Appeal could have been a more efficient way to respond to the emergency in the initial stages, however, if there had been no ERU response a number of critical activities that saved lives would not have taken place.

[40] The MOHS stated they were stretched to the limit at a Cholera Crisis Coordination meeting attended by the review team. CTCs would almost certainly have been required if the mid-level scenario had developed.

13. What were some of the successes and opportunities in this operation?
    a) Successes included:
        - Good FACT assessment, strategy and decision making
        - FACT epidemiology skills were essential is providing the basis for designing the operational response plan
        - Conducting a KAP survey
        - Setting up ORPs
        - ECV training
        - Sensitisation and beneficiary communications including radio distribution, cinema, radio programme and SMS messaging
        - Screening capacity for district hospitals
        - WatSan support for district hospitals, PHUs
        - Cholera hospital management advice, infection control, incineration support
        - Note: these successes related to working with a strong NS with a solid volunteer base and a reasonably strong MOHS
    b) Opportunities include:
        - Slow response: start response earlier
        - Deploy Beneficiary Communications earlier through making it a standardised and equipped ERU module
        - Poor initial funding to Emergency Appeal
        - Get a proper vehicle plan to support ERU deployment
        - Get logistics support to the NS branches to support ORPs.
        - Bring clinical cholera kits
        - More hardware WatSan assessment and support would have had a positive impact
        - Having a strategic exit-plan for the ERUs

14. What problems and constraints were faced during implementation of the ERU operation (including issues of context etc.) and how were these dealt with?
    a) The BHC team was requested too late and arrived over-supplied (both staffing and supplies). Unresolved.
    b) The assessed availability of local hire vehicles was misunderstood or not well managed leaving the beginning of the ERU operation under-resourced for transport. Partially resolved with local vehicle hire.
    c) ERUs arriving without administration and finance capacity diminished team leader time focus on the programme strategy and implementation. Unresolved.
    d) In the first weeks of the epidemic the regional hospitals and PHUs lacked supplies of appropriate drugs; the supplies ordered through UNICEF were slow to arrive. While some of the drugs arriving with the BHC were useful, the early arrival of IFRC cholera kits could have filled an important gap in the overall cholera response.
    e) There was a lack of logistics support to SLRCS branches.

15. What unanticipated positive or negative consequences arose out of the ERU operation and why?
    a) The operation took place during a government review of the SLRCS statutes. The visibility of the SLRCS in the emergency response will certainly aid the progress of the new statutes. The observed ability of the SLRCS to call in Federation assets such as DREF, RDRT, FACT and ERU promoted the national understanding of the SLRCS being a member of a large and powerful organisation.
    b) The operation took place during Ramadan.

Effectiveness and efficiency of management

1. Has the ERU operation met and does it continue to meet its stated objectives in an efficient and effective way? (E.g. were inputs used in the best way to achieve outcomes and if not then why?)
   a) The objectives of the response were met or exceeded, especially in regard to the development of ORPs.
   b) Conducting a KAP survey allowed for good targeting of key messages.
   c) Efficiency was improved by the integration of the ERU teams, though this is an area for further study and improvement.
   d) While the original response plans were very relevant in the August 20th FACT plan, strategic reviews during the course of the operation did not take place – such reviews could have provided increased effectiveness in the use of the ERU assets assigned to the operation.
   e) The low-cost beneficiary communications was an effective and efficient way to change attitudes and behaviour of the public in relation to the threats of cholera.

2. Were adequate resources (financial, human, physical and informational) available and were they utilized effectively and efficiently?
   a) There were too many ERU assets deployed and the ERU assets were requested too late for full effectiveness. ERU response to epidemics must be considered differently to earthquake or flood response whereby there is not a 'one day' full response, but instead a sequenced ERU response is required needing ERU PNS to rethink the modularisation, packaging and warehousing protocols of ERU assets as well as a build-up of human resources over a period of time rather than a full staff deployment from the first day.
   b) Information support to the deployment was assisted by the deployment of an epidemiologist.
   c) Beneficiary communications would have benefitted from pre-procured equipment, such as projectors, speakers, recorders etc.

3. What Federation mechanisms and tools were used to promote good practice (e.g. Sphere, BPI, emergency assessment tools, VCA, etc.)?
   a) The KAP survey was the key tool to guide the response strategy.
   b) Planning and reporting was not based on Sphere. Quasi-VCA was used at the community level, but not in a structured way.
   c) The location planning for ORP was sensibly based on the distances between communities and access to PHUs. BPI was not an issue in the Sierra Leone context.

4. How effective were the ERU operation's processes for planning, priority setting, monitoring and quality management (e.g. internal reviews and other quality assurance mechanisms). Were regular reviews held at different stages of the operation?
   a) The original strategic plan from FACT/SLRCS was a major contribution to an effective operational response.
   b) The KAP survey provided a clear basis for planning and decision making.
   c) As the situation developed the operation would have benefitted from operational reviews at the strategic level which could have identified the need for cholera kits and reinforced WatSan support for communities and PHUs. The regular turn-over of

FACT and ERU personnel does not promote an effective environment for operations reviews.

5. Was there effective coordination with other Movement members / other stakeholders? How appropriate and effective were the inputs of partner organizations in the implementation of the operation?
   a) The SLRCS has an excellent relationship with the MOHS at both national and regional level. The SLRCS HQ staff attended the Cholera Task Force meetings in Freetown while the branches in Bombali and Portloko attended the weekly cholera meetings run by the District Health Management Teams. The branches also worked well with the PHUs.
   b) The cholera task force meetings included the main NGOs responding to the crisis.
   c) There were daily operations meetings held between the IFRC in Freetown and the SLRCS HQ.
   d) Useful cholera communications materials were provided by UNICEF. Although slightly delayed there was agreement across the MOHS, UN, Red Cross and NGOs on the key sensitisation messaging.

6. The ERUs formed a key support to SLRCS in its national cholera response operation. The review is expected to make recommendations for future ERU operations in Sierra Leone on cooperation with the host and affected National Society (SLRCS), relations with the IFRC field structures as well as cooperation with key local authorities such as Ministry of Health and Water Board.
   a) The government revised a draft Cholera disaster response and preparedness plan during 2012. The SLRCS needs to engage with the MOHS and WHO to ensure the next revision of the preparedness plan provides a clearer position of the SLRCS, especially in regard to the important role ORPs play in cholera response. The same document should also be revised reflecting the role the SLRCS can play in regard to hygiene sensitisation, key messaging through the weekly radio programme and SMS messaging.
   b) The SLRCS needs to engage with the Ministry of Water Resources to clarify its plans in regard to its support of community level water points.
   c) Future cholera programming in Sierra Leone needs to include a stronger level of logistics support to operational branches which are supporting ORPs, especially the provision of budgets for fuel, repair of vehicles and motorbikes.
   d) Future cholera response operations need to start earlier providing the SLRCS with the means to establish ORPs quickly and providing support to re-establish beneficiary communications and sensitisation programmes.[41]

Capacity of Sierra Leone Red Crescent Society

- What changes in capacity, capability, understanding and learning have occurred within the SLRCS as a result of the on-going operation? Are these appropriate? Are they sustainable?
  a) There was a substantial increase in the number of SLRCS volunteers, in particular for the management of ORPs. These volunteers can be retained and used for alternative activities such as hygiene promotion in the community. The sustainability of the volunteer force will

[41] See the document 'Behaviour Change Communications Strategy for Cholera and Recommendations for Sustainability of Beneficiary Communications Activities, Sharon Reader, November 2012'

require funding for regular programming, such as hygiene promotion, clean water protection and community based disaster risk reduction.

b) A large number of volunteers were trained in ECV, providing improved capability and learning in epidemic management. This skills transfer is sustainable as long as the SLRCS can retain these volunteers.

c) The SLRCS learnt new skills in beneficiary communications. These skills can be used for any future disaster in Sierra Leone. The new links with the radio and phone companies are sustainable over the mid and long term

- What added value did the ERU's provide to SLRC and its partners?
  a) The ECV training increased[42] the number of trained SLRCS key volunteers.
  b) The beneficiary communications radio, SMS and theatre projects provided new experiences for the SLRCS.
  c) The agreed key messaging for cholera response can be used for future cholera outbreaks.
  d) The MOHS learned key messages about cholera response and containment at the district hospital level.

[42] As additional to those trained in the January cholera operation

5.0 Conclusions

The SLRCS made a major contribution to the 2012-2013 cholera response operation, in particular the establishment of over 400 ORPs and a large-scale community sensitisation programme. From the data available it would appear that the actions taken by the SLRCS in the selected districts and chiefdoms had a significant impact on reducing the pressure on already stretched government health services and that the comprehensive sensitisation programme run in communities, informed by radio and texting, and supported by an innovative cinema programme has contributed to changing people's knowledge, attitudes and behaviour in how to prevent cholera and how to manage cholera.[43] The effective work done by the SLRCS demonstrated a well led, competent and respected national society that was able to attract and motivate new volunteers and was able to work closely with the government health officials at all levels. The new knowledge and capacities developed during the cholera operation will help place the SLRCS at the heart of any response to new health emergencies in Sierra Leone and the current opportunities to clearly place the SLRCS in the national Cholera Disaster Response and Preparedness Strategy for Sierra Leone need to be acted on quickly and with confidence.

International support to the summer outbreak of cholera was much too slow, though the FACT and ERU response was fast once the request for assistance had been made through the West Africa Regional Office of the IFRC, by which time the epidemic was close to its peak. Initiatives could have been taken in June to quickly provide DREF for ORPs and deploy ERU assets for beneficiary communications and community sensitisation – the objective being epidemic control rather than epidemic response. This delay in response to epidemics needs to be tackled by the Africa Zone and epidemic response timelines put into the new Disaster Response Standard Operating Procedures.

The strategy to focus on rural areas and focus on the establishment of ORPs and sensitisation programmes was entirely appropriate as few organisations had similar networks to work at the community level on a scale as provided by the SLRCS. While the need for CTCs was anticipated due to the scenarios, in effect CTCs were not required in the response as the government health authorities had sufficient capacity to cope with the best-case scenario, but the deployment of CTCs was appropriate based on the epidemic scenarios even if they were not used.

The timing of the larger ERU response in August appeared to be too late, though the timing would have been appropriate if the escalation of the epidemic had been towards the mid-level scenario or the worst-case scenario. A more subtle and phased ERU response to epidemics is required – this is outside the normal ERU operating procedures for the assessment and deployment of ERUs. The ERU response was too large for the best-case scenario needs and not always compliant with the FACT analysis and deployment orders. While this made the ERU deployment far from cost-effective, the ERUs provided valuable services especially in the areas of ECV training and sensibilisation; data collection and epidemiology; district hospital case reception and identification; infection control, waste

[43] The impact of the sensitisation programme will become clearer after a follow up to the initial KAP survey is conducted.

management, water and sanitation support and some limited water and sanitation support for PHUs.

Large amounts of supplies were never used in the operation and were handed over to the MOHS and SLRCS and the ERUs departed too early as no appropriate exit strategy had been developed.

There were good efforts to integrate the ERUs into more holistic units, with partial success identified in the integration of MSM and CHM modules. While integration would appear to offer a number of operational advantages further work is required regarding training and support services for integrated ERU approaches.

The overall operation can be considered as a success while the ERU response indicates the need to review the best use of ERU assets in response to cholera epidemics. Adjustments to ERU deployments will not, however, by themselves make a significant impact to epidemic response if not supported by an overall review of IFRC disaster response to epidemics, the starting point being a wide understanding from all disaster response decision makers within the IFRC to appreciate the critical importance of speed of response once an epidemic, or potential epidemic is identified.

Children watching an ORP exercise *Photo by Hler Gudjonsson*

6. Recommendations

These recommendations for cholera epidemic response are based on findings in the Sierra Leone response and may or may not be appropriate for other context. In Sierra Leone there existed a reasonably strong health ministry, a strong national society with good relations with the government health services, an absence of stigma surrounding cholera and a lack of violence and open access to all affected communities.

6.1 Key Strategic Recommendations

a) The Zone DMU needs to respond more quickly to cholera epidemics with a focus on sensitisation, beneficiary communications and ORPs.
b) Epidemic response needs to be highlighted in the Disaster Response Standard Operating Procedures with clear timeframes to promote fast response.
c) The IFRC, led by the Zone DMU should plan to stop epidemics, not respond to epidemics.
d) Quick response to epidemics should include having trigger points specified in SOPs, the fast use of DREF, even if an Emergency Appeal is anticipated, to promote early national society response. This approach needs to be included in the Zone Disaster response Standard Operating Procedures.
e) Zone awareness of the value and use of ERUs in epidemic response needs to be improved.
f) Promote multilateral funding to cholera Emergency Appeals to release funds to the national society quickly to enable it to initiate training and the establishment of ORPs.
g) Conduct a rapid KAP exercise to help advise the key sensitisation messaging.
h) Take a sequenced approach to ERU support to cholera epidemics prioritising quick support for sensitisation, beneficiary communications and ORPs, followed, as required, by reception and registration facilities attached to hospitals; WatSan and infection control support for district hospitals and WatSan support for PHUs. Only if government services become overwhelmed can one anticipate a need for full CTC deployments. This approach will make ERU deployments in response to cholera epidemics more cost-effective.
i) Modularise ERU assets so that specific modules can be identified and deployed.
j) Use the concept of ERU integration as a potential efficiency gain and review current training practices to see how integration could become a more standard practice.
k) Review administration, logistics and finance challenges when supporting integrated ERUs and develop the appropriate support procedures.
l) Develop beneficiary communications as a standardised module for MSM and CHM response.
m) Deploy an epidemiologist with the FACT team and with ERU deployments for longer-term epidemiology support.
n) Deploy a GIS data management delegate as part of ERU or FACT response to epidemic emergencies with appropriate software.

o) Deploy logistics support to the host national society as standard in epidemic response where the national society develops ORPs as part of its response.[44]
p) Deploy finance support to host national societies where the national society develops ORPs as part of its response.
q) When deploying modules from an ERU ensure adequate administration and finance support is deployed alongside the Module.

6.2 Specific Recommendations

a) Zone DMU and Zone Regional Office
   - Build fast epidemic response into the Africa Zone Emergency Relief Standard Operating Procedures
   - Call in RDRT, FACT and ERU assets quickly for cholera response
   - Build knowledge, awareness and capacity for effective cholera response with national societies in Africa
   - ERU contributions should be listed as response to the Emergency Appeal
   - The Emergency Appeal budget should include the value of the requested ERU assets

b) FACT
   - Ensure that FACT responses to epidemics includes an emergency health expert with epidemiology skills to lay down the framework for a response based on projections of the spread of the epidemic
   - Include in the FACT someone to support a quick KAP survey
   - FACT must assess the capacity and knowledge of the local health authorities in cholera treatment as ERU can deploy staff to build local health authority knowledge and capacity in cholera case management and district hospital design for cholera response
   - Assess vehicle rental availability to support ERU deployments, noting the short lifetime of the cholera bacterium
   - Assess branch logistics capacity to mobilise and support ORPs
   - Include previous cholera operations evaluations in the briefing pack
   - If FACT runs an operation to the conclusion of the ERU presence train ERU exit strategy management in the FACT training
   - Include a module on epidemic response lessons learned in the FACT training, including the potential for sequenced ERU deployments
   - Be specific in regard to cholera kit needs, this may not come as standard with a BHU/CTC
   - Assess if the government health structure will accept advice and training on cholera management and will accept screening and registration support. Such assessment will guide the type of possible ERU support needed from BHU, CTC, CTU, MSM etc.[45]

c) ERU Geneva
   - Be even more specific in the ERU deployment orders regarding personnel needs and profiles and modules/equipment needs, regardless of previous

[44] As opposed to logistics support for the ERUs. ERU logistics support may be needed, but is not the logistics priority
[45] In the case of Sierra Leone the government did request such assistance though it is not clear if this message was passed to district hospitals

correspondence with ERU PNS. The Zone DMU and FACT need to work more closely with the Emergency Health Unit in Geneva and the Senior Officer Surge ERU to achieve this improved clarity in the deployment order.

- Review with ERU PNS challenges and solutions to sequenced deployments of ERU assets
- Promote the need for Beneficiary Communications as a standardised module as part of MSM and possibly CHM (BHC). As a standardised module the Beneficiary Communications would be deployed with a full MSM (or BHC) deployment, or requested as a specific module for a particular response.
- Add more detail on standard equipment and personnel on the DMIS pages on ERUs
- Promote ERU training on integrated operational response
- Promote within the ERU PNS the study of administration, finance and logistics support for integrated ERU missions

d) ERU PNS
- Send full inventories of supplies in advance to the HNS
- Only send what is requested in the deployment order
- Review the ability to deploy specific ERU modules or specific assets in regard to packaging, labelling and warehousing
- Maintain stocks of Aqua-tabs and ORS
- Maintain stock of cholera kits
- Ensure BHU, CHM, CTU, MSM delegates are experienced to train on ECV
- Health ERUs should consider how to manage and train for community based disease surveillance to avoid data confusion in future responses
- Train health delegates in community approaches for epidemic response, including KAP, community-based disease surveillance and digital data gathering

e) Emergency Health Geneva
- The IFRC Emergency Health Unit should be closely involved in the specific content of the deployment order providing detailed information regarding the equipment and human resource requirements for the initial ERU response based on FACT assessments and response strategies.
- Put the electronic version of the KAP survey on-line on DMIS to assist future cholera response operations and share with Health ERU PNS
- Develop a standard KAP Survey for use in emergencies
- Develop KAP Guidelines on managing a KAP Survey and develop a KAP Training Module for use by Health ERU PNS.
- Put the electronic version of the Sierra Leone 'Stop Cholera' leaflet on-line on DMIS to assist future cholera response operations and share with Health ERU PNS
- Collect the ORP registration and reporting forms and put on DMIS to assist future cholera response operations and share with Health ERU PNS
- Review and create guidelines for the setting up and running of ORPs including volunteer guidelines to run an ORP and guidelines for ORP volunteers to test water quality.

- Develop generic ORP TOR and ORP equipment lists.
- Put the cinema film on-line on DMIS and share with all Health ERUs.

f) Beneficiary Communications
- Design, develop and finance a standardised Beneficiary Communications module as part of the ERU programme
- Beneficiary communications needs to start quickly and should be deployed with equipment, including 10+ projectors with associated small high quality speakers for cinema programmes; a computer loaded with design software for designing leaflets or pamphlets; digital recorders for radio programmes; a good quality printer; a large number of wind-up radios[46]
- A basic guide for volunteers on how to run cinema shows should be developed
- Put the Behaviour Change report (Sharon Reader) on DMIS as a key text on beneficiary communications and share with all ERU PNS

g) National Society support
- Support the host national society with transport, especially at the branch level. This could be through the provision of rented vehicles, motorbikes, repair and maintenance budget support, fuel support etc.
- Provide a delegate through the FACT to support the national society with finance and accounting.

h) Other
- Consider where GIS data management could come from.
- Review with Shelter Department the GIS software used by Shelter Cluster Information and consider appropriateness for epidemic response.
- Ensure ORPs provide GPS location.
- ORPs need mobile phones for daily and weekly reporting by SMS
- Don't chlorinate infected wells in cholera response, focus on Aqua-tabs and hand-pumps.

[46] Note: not all these products may be suitable in different contexts, but the proposed list of assets provides a general content list from which different assets can be selected.

7.0 Appendices

7.1 Terms of reference

Sierra Leone Cholera ERU Operation Review

Terms of Reference (ToR)

1. Context and Background

On July 11, 2012, the Sierra Leone Ministry of Health and Sanitation declared a cholera epidemic in 8 of the 14 districts in Sierra Leone, stretching from Kambia in the north to Pujehum in the south. The outbreak is reported to have started in Kambia district. Heavy rains and poorly constructed or non-existent toilet facilities has led to a contamination of the water sources (unprotected wells and streams). This, when combined with the movement of people for trade, social gatherings and other reasons may have led to the spread of the outbreak from Kambia to the rest of the affected areas.

Sierra Leone experienced its last cholera epidemic only five months ago, where outbreaks where reported in Kambia, Port Loko and Pujehan. The Sierra Leone Red Cross responded to this outbreak through an operation funded by the IFRC's DREF, mainly focusing on social mobilization and hygiene promotion activities. The operation was successfully completed within three months and the outbreak was reported under control.

By early August the spread and scale of the outbreak had prompted an international response. Predicted case load based on modeling estimated a possible 32000 cases by year end without intervention. Humanitarian agency response to the cholera outbreak was slow initially and focused on Freetown which left rural areas at risk.

The SLRCS is a key partner with the government of Sierra Leone. The MoH was in need of international support to effectively respond. To support the SLRC in their role as auxiliary to the government international ERU teams were deployed to 5 of the most effected districts to implement water and sanitation, community health and case management support.

The outbreak peaked 3 to 4 weeks after the ERU deployment and has continued to show a down ware trend. As of the 1st of November, 22 417 cases have been recorded with 293 deaths. The daily case load has reduced from a peak of over 2000 cases a day to fewer than 15.

2. Red Cross Red Crescent Action

During the outbreak in March, the NS trained and mobilized 300 Red Cross volunteers and 280 community volunteers from within the affected communities to assist in social mobilization activities, case tracing, administration of ORS to cholera patients and assistance with the referral of critical cases to treatment centres. The activities were carried out as a DREF operation which was completed on 21 May 2012.

At the declared outbreak in July 2012, the SLRCS re-engaged the volunteers involved in the earlier cholera response activities and started hygiene promotion activities. The NS is planning to intensify and expand these activities through this operation and to engage more volunteers to cover the extended regions.

The IFRC Africa West Coast Regional Representation mobilized a technical support team consisting of Watsan Delegate and Senior Heath Officer in the first week of August. The team supported the National Society in rapid assessments of the situation, identification of needs and current response gaps, and planning of relevant activities. Following this mission it was decided to launch an emergency appeal and to request international surge capacity.

To ensure adequate facilities are available to support the hygiene promotion activities, the NS engaged in WatSan hardware activities such as water point rehabilitation and provision of latrines, in communities, schools and health centres. Two members of the IFRC Regional Disaster Response Team were deployed for the operation and supported the implementation of these activities.

An IFRC FACT team was deployed on August 12, 2012, and recommended the deployment of the ERU teams, the Basic Health care unit to provide increased capacity and support to the national cholera response, and the MSM and CHM modules to focus on community engagement and support SLRC implementation plans. ERU teams arrived by the 20th August and stayed in country for 6 to 12 weeks. The ERU's in conjunction with SLRC and other partners implemented case management, clinical management and support, Hygiene and health promotion, early case identification and referral, established 370 oral rehydration points and improved access to safe water and sanitation.

3. Objectives of the review

To examine the extent to which the operation has and is achieving its goals and expected result.

To assess key achievements and challenges as well as areas for improvement within the operation and make recommendations to improve and inform future programming. These recommendations must be realistic within the context of the Federation's constitution and modus operandi.

To identify lessons learned and good practices for sharing and replication with an emphasis on reviewing how the ERU modules were able to add value to the SLRC national cholera response.

4. Scope of work

The review will focus on the ERU operation to date from the initial emergency through to the present recovery and reconstruction, and will address the following key questions / focus areas:

Quality, relevance and accountability

16. How effectively have previous lessons learnt from Zimbabwe, Chad and Haiti cholera ERU operations been incorporated in to this response?
17. To what extent were the beneficiaries involved in planning, design and monitoring of the operation?
18. Were the ERU operation's strategies and priorities in line with the priorities of government authorities and other key coordination bodies (SLRCS, WHO, MoH) and other stakeholders including United Nations co-ordination mechanisms?
19. Considering the ERU deployment:- Review the timing of the actual alert and deployment versus the unfolding crisis and the decision making process behind the deployment of the ERUs.
20. What are the constraints to early deployment of ERU's in epidemics?
21. Was the current design and flexibility of the MSM and Health ERU Modules adequate to address the cholera related challenges?
22. Would it be recommended to deploy these ERUs for similar outbreaks?
23. Did the ERU show flexibility and adaptability and respond based on the request from SLRCS and the FACT team effectively?
24. How effective was the integrated capacity building approach implemented by the ERU's?.
25. Did integrating teams provide a more holistic approach and what were the major barriers to implementing with ERU's in this way?
26. How effective were the additional technical capacities of epidemiology and beneficiary communications utilized by the operation and did they add value to outbreak response?
27. How cost effective was the ERU operation given the needs in Sierra Leona and the response capacity of other actors?
28. What were some of the successes and opportunities in this operation?
29. What problems and constraints were faced during implementation of the ERU operation (including issues of context etc.) and how were these dealt with?

30. What unanticipated positive or negative consequences arose out of the ERU operation and why?

Effectiveness and efficiency of management

8. Has the ERU operation met and does it continue to meet its stated objectives in an efficient and effective way? (E.g. were inputs used in the best way to achieve outcomes and if not then why?)
9. Were adequate resources (financial, human, physical and informational) available and were they utilized effectively and efficiently?
10. What Federation mechanisms and tools were used to promote good practice (e.g. Sphere, BPI, emergency assessment tools, VCA, etc.)?
11. How effective were the ERU operation's processes for planning, priority setting, monitoring and quality management (e.g. internal reviews and other quality assurance mechanisms). Were regular reviews held at different stages of the operation?
12. Was there effective coordination with other Movement members / other stakeholders? How appropriate and effective were the inputs of partner organizations in the implementation of the operation?.
13. The ERUs formed a key support to SLRCS in its national cholera response operation. The review is expected to make recommendations for future ERU operations in Sierra Leone on cooperation with the host and affected National Society (SLRCS), relations with the IFRC field structures as well as cooperation with key local authorities such as Ministry of Health and Water Board.

Capacity of Sierra Leone Red Crescent Society

- What changes in capacity, capability, understanding and learning have occurred within the SLRCS as a result of the on-going operation? Are these appropriate? Are they sustainable?
- What added value did the ERU's provide to SLRC and its partners?

5. Review methodology

The review will use a triangulation of the following methodologies:

- **Desk research and secondary data review of key documents:** the consultant will carry out a detailed review of all appeal documents, plans, reports and other relevant documentation

- **Key informant interviews / group interviews as appropriate**:

The consultant will interview:-

- Key SLRCS staff / volunteers;
- Relevant Federation secretariat staff in Geneva, the Zone Office, Regional Office and Sierra Leone;
- Representatives of the partner national societies; (including ERU leaders and/or team members deployed, ONS staff in charge of sending deployment);
- Key external stakeholders, such as members of the Government of Sierra Leone, MoHCW, WHO, UN agencies, NGOs and other stakeholders;
- Randomly selected members of the affected population with whom the Red Cross is working at community level.

- **Active learning groups:** The consultant will aim to hold one or two active learning group meetings with those involved in the operation (at least one meeting should be held at field level and if resources permit one at headquarters level). This would help to draw together a common

understanding of what went well, what went less well and an agreement on some of the key lessons learned.

- **Field visits to engage with recipient communities:** If time permits this would include focus group meetings with some of the beneficiaries in affected communities

- **End of visit debrief:** To share the broad findings of the review with staff and volunteers in the field, including SLRCS and other relevant stakeholders, and note their comments

6. Deliverables or outputs

The following outputs are expected to be delivered by the consultants:

- Inception note: This is a detailed work plan of how the consultants intend to undertake the task including the methodology etc.
- Evaluation report: The results of the review will be presented in a draft report for comment by the SLRCS and the Federation. The report should focus on delivering clear lessons for the ERU operation in Sierra Leone and for the wider Federation specifically focused on the value added by ERU's in epidemics. A final report should then be drawn up. This report should be no longer than 30 pages in a readable and visual format, with an executive summary of no more than two pages. All additional materials will be provided as annexes to the report. All information and analysis should be gender disaggregated to the extent possible. (See sample report format attached in annex 1 for guidance-it can be modified to suit the context of this review)

The evaluation report will be shared with participants and key stakeholders and it will also be made available to a wider audience through the Federation's standard communication channels, such as FedNet and the public website. Management commit to ensuring that the findings and in particular the lessons learned will then be shared with key departments across the Secretariat, and will feed into wider lesson learning linked to other major disaster response and recovery operations to feed into continued development of response capacity to epidemics.

8. The consultant

. The consultant should have the following skills and experience:

- Have a background that includes disaster response and or recovery / risk reduction;
- Be familiar with carrying out operational evaluations;
- Have experience of working at community level gathering beneficiary feedback through a variety of methodologies (and including gender vulnerability expertise);
- Have experience in facilitating lessons learned meetings/workshops involving different stakeholders;
- Ideally be familiar with the Red Cross/Red Crescent and / or be sensitive to the complexities and constraints associated with Federation/ SLRCS mandates.
- Possess analytical and communication skills
- Demonstrate experience in the use of both qualitative and quantitative methodologies
- Knowledge and experience of working in Africa and epidemics

9. Timeframe, location and logistics

It is estimated that the consultant will require between two to three weeks to carry out this review including; approximately four to five days for desk reviews in Geneva / Zone office, approximately five in the field and a further four to five days for clarification and write up of the draft report. The aim is to have the consultant in place to start the review by mid November and to provide a draft report for comment by mid of December 2012. Comments should be provided by the Federation Secretariat within one week to enable finalization of the report by the end of December at the latest.

Logistical support will be provided to the consult by the SLRCS and the Federation teams in Geneva and the field. These teams will help to set up interviews in Geneva and in the field, as well as providing the consultant with all necessary logistical support (e.g. travel, accommodation etc). There will also be a need for interpretation support in country, which should not be done by SLRCS staff or volunteers to maintain independence.

The review will focus on the cholera ERU operation and primarily in the five provinces where the SLRCS / Federation/ ERU operation has been based. The review however can look at the preparedness implementation in the other districts.

10. Budget

The budget will be calculated in detail once the ToR is approved

ANNEX 1:

EMERGENCY RESPONSE UNITS (ERU) DEPLOYED IN SIERRA LEONE:

A total of three ERUs were deployed in August 2012 to assist the SLRCS and the MoH in its national cholera operation. These ERUs came from Finland/ Japan, Norway/ Canada, and the United Kingdom with support from several other National Societies for FACT deployment and support including mapping services from America.

Brief description of the ERU modules deployed

The ERUs deployed were the three WatSan modules Mass Sanitation Module (MSM) as well as the Basic Health Care Unit with a community health module as follows:

Basic Health Care Unit:

This ERU provides immediate preventive, curative and community health care. It can deliver outpatient clinic service and mother and child health including uncomplicated. Moreover, community outreach, health promotion, epidemic control, surveillance, community-based psychosocial interventions, immunisation and therapeutic feeding can be conducted through optimized modules. The unit enables the care for a population of 30 thousand people, can care for 20 temporary inpatients, and provides referral services to other secondary and tertiary health facilities. Depending on the needs of the affected population and the specifics of the crisis, the BHC ERU can function in three ways: as the traditional fixed clinic, as a hub with smaller satellite clinics so as to increase the geographical area of operation, or as a full mobile clinic with light teams spreading out to communities affected and without geographical limitations. The BHC ERU supports affected or overwhelmed local health infrastructure, works with local health authorities and health professionals and fills the gaps created by an emergency. In Sierra Leone this ERU was provided by Finnish and Japanese in a joint deployment.

Community Health Module

The CHM deploys as a complementary unit to clinical care ERUs such as the basic health care unit. CHM will work in collaboration with deployed ERU teams in the field (Wat/San, specifically MSM). The CHM supports community based Epidemic control and disease prevention activities and will incorporate: key concepts of health promotion including (but not limited to) social mobilisation / community engagement and health education activities; Supporting disease monitoring and surveillance activities; relevant initial assessment, development of appropriate referral systems and engagement in continuous reassessment as required.

The CHM works in partnership with local counterparts and volunteers for all implementation:

When deployed jointly with WatSan ERUs, a close coordination should be established between both modules at the onset of the operation, especially in those scenarios where the CHM will become involved in control and prevention of diarrhoeal diseases and vector borne diseases.
The CHM will not engage in the provision of water and sanitation services (hardware). Therefore establishing the link to the WatSan ERU is vital at the onset of the operation.

Mass Sanitation Module 20 (for up to 20,000 beneficiaries)

This module provides basic sanitation facilities (latrines, vector control and waste management) for up to 20,000 beneficiaries as well as initiating hygiene promotion programmes. Hygiene promotion is an important part of the revised mass sanitation module in order to maximise the health benefits from appropriate excreta disposal and hand washing in particular. In Sierra Leone this ERU was provided by British Red Cross Society.

ANNEX 2

EVALUATION REPORT FORMAT:

This format has been developed to ensure consistency in the structure of evaluation/review reports. It gives an outline of the report while giving guidance notes for each section. This format should be provided to the consultants together with the TOR.

1. Title Page:

- IFRC Logo
- Title of the evaluation
- Dates of the Evaluation (month and year)
- Author

2. Acknowledgements:

Communities, team members, etc.

3. Table of contents:

Indicate a list of key elements in the report and their respective pages.

4. Executive Summary:

A brief one or two page overview of the report including the purpose/ objectives of the evaluation, who it was for, how it was carried out where and when, major results, conclusions and recommendations. Emphasis should be placed on the most important points.

5. Background information:

- What is the project about?
- How and when did it begin?
- What are the main objectives and key activities?

6. Purpose of the evaluation:

- What was the purpose of the evaluation and who were the intended audiences?
- What are the objectives and key questions the evaluation hopes to answer?
- What were the constraints/challenges?

7. Methodology:

- What was the category and number of participants?
- What were the evaluation methods used? Were the tools tested before use?
- How valid and reliable did the methods prove to be?
- What methods were used to analyze quantitative and qualitative information?
- What were the evaluator's biases that might have affected the evaluation and how were these counteracted?

8. Results and Discussion:

- What were the findings? (Findings should be summarized findings under themes and critically analyzed)

- Have tables, diagrams, charts and other visual presentation been utilized?
- Have the qualitative findings clearly been interpreted? (Giving examples of what people said is quiet revealing)
- Have case stories been included wherever possible?
- Has confidentiality been ensured?

9. Conclusions:

What is the summary of the answers to the original questions? (This should be presented without repeating facts in the results and discussion). Conclusions should flow logically and reflect the central findings.

10. Recommendations:

What are the areas of improvement? How can they be improved? Are the suggestions clear and given in order of priority? Are the areas of improvement relevant, realistic and appropriate? Has the timeframe for implementation been reflected?

11. Appendices:

This should include detailed information referred to in other sections examples include: details of methods used, work plans etc.

7. 2 FIELD SCHEDULE

TENTATIVE FIELD TRIP SCHEDULE FOR CONSULTANT

Name of Interlocutors from SLRCS Patrick STEVENS Haja Kultimi Karim

Day	DATE		EVENTS		PLACE	AGENDA	RESPONSIBILITY
Day1	Sun	6-Jan	Arrival at Family Kingdom	PM	Family Kingdom	Welcome to SL Discussion of ToR/trip plan	IFRC/Consultant
Day2	Mon	7-Jan	Briefing /Interview	AM	HQ SLRCS	Interview stakeholders from SLRCS/IFRC	IFRC/Consultant
			Interview	PM	MoHS/WHO/Central medical store	Interview stakeholders from MoHS	IFRC/Consultant
				NIGHT	Family Kingdom		
Day3	Tue	8-Jan	Field trip to PortLoko	AM	PortLoko Branch Office	Interview BHO/DHMT/Hospital Staff/benef group, visit ORPs and Wat-San activities areas	SLRCS/Consultant
			Move to Bombali	PM	Bombali Branch Office	Interview BHO	
				NIGHT	Makeni guest house		
Day4	Wed	9-Jan	Field trip to Bombali	AM	Bombali Branch Office	Interview BHO/DHMT/Hospital Staff/market committee, visit ORPs and Wat-San activities areas	SLRCS/Consultant
			Back to Free town	PM			
				NIGHT	Family Kingdom		
Day5	Thu	10-Jan	Meeting/Interview	AM	HQ SLRCS/ MSF/UN agencies/ Care international	Interview stakeholders and meeting with SLRCS/IFRC team	SLRCS/Consultant
				PM			
				NIGHT	Family Kingdom		
Day6	Fri	11-Jan	Debriefing/ Departure to next destination(pick-up time 15:00 at hotel)	AM	HQ SLRCS	Meeting with SLRCS/IFRC	SLRCS/Consultant
				PM	Family Kingdom		

7.3 Reference documents

Final Evaluation of Emergency Cholera Response on Hispaniola Island, Bob Pond and Yannick Brand, 01.02.2012

FACT Terms of Reference, IFRC, 11.08.2012

FACT updates, situation reports

ERU Terms of Reference

ERU reports, epidemiological summaries

Red Cross nar Salone takes to the airwaves, DMIS

DMIS field reports, 06.03.12, 10.03.12, 29.07.12, 06.08.12, 17.08.12

DREF Final Report, IFRC, 24.06.08

Cholera Emergency Preparedness and Response Plan, Government of Sierra Leone, June 2012

Preliminary Emergency Appeal, IFRC, 16.08.12

Emergency Appeal, IFRC, 17.09.12

Operations Update # 1, IFRC, 24.10.12

DREF Final Report, IFRC, 31.10.12

Donor Response Report, IFRC, 09.11.12

Behaviour Change Communication Strategy for Cholera, Sharon Reader, November 2012

Review of the ERU deployment in the Zimbabwe Cholera Operation, Libertad Gonzales and Marilyn Abraham, September 2009

End of Mission Report – Olaf Aasland, October 2012

Press Release, WHO, 30.08.12

Cholera Situation, OCHA, 15.08.12

Report, IRIN, 16.08.12

Sierra Leone Water Point Report, Ministry of Energy and Water Resources, 26.06.2012

Water Supply and Sanitation in Sierra Leone, AMCOW Country Status Overview

Cholera Response Briefing Pack, IFRC, 20.08.12

Cholera epidemic 2012, Lessons Learned, Ministry of Health and Sanitation, December 2012

Joint Log-Frame, British and Norwegian Red Cross

Epidemiological Summary of Cholera Outbreak, October 15 2012

Rapid Assessment of Toncolili cholera situation, Finnish/Japanese Red Cross, 7-8 September 2012

Rapid Assessment of Moymba District cholera situation

Evaluation of CBHFA contribution to Cholera Emergency Health response in Sierra Leone, Steve Powell, Draft, January 2013,

7.4 Interviewees

Interviews of out-of-country staff

Organization	Name	Title
IFRC Secretariat Geneva and Zone	Daniel Bolanos	Head DMU Africa Zone
	Panu Saaristu	Head Emergency Health Department
	Pieter de Rijke	Senior Officer Surge (ERU)
	Christine South	Senior Officer Quality and Accountability
	Dorothy Francis	Senior Officer Surge (FACT)
	Amanda McClelland	Emergency Health Advisor
	Zakari Issa	Regional Office WatSan Coordinator
Finnish RC	Anni Airaksinen	Programme Officer, West and Central Africa
	Päivi Laurila	Deputy Director International Operations
	Virpi Teinila	ERU Health Officer
British RC	Barry Armstrong	Disaster Response Manager
	Ellie Matthews	Disaster Response Support Officer
Japanese RC	Daisuke Fujieda	Deputy Director International Relief Operations
Canadian RC	Sebastien Jouffroy	ERU Senior Officer
Norwegian RC	Toon Vandenhove	Disaster Management Advisor

Interviews of Field Based personnel

Organization	Name	Title
IFRC	Cristina Hammond	FACT Information Management, (American Red Cross)
	Hler Gudjonsson	Head of Operations
	Amanda McClelland	FACT Team Leader (IFRC)
	Kristjon Thorkelsson	FACT WatSan (Icelandic RC)
	Chiyuki Yoshida	Health Delegate

	Tiina Saarikoski	FACT Team Leader (Finnish RC)
SLRCS	Emmanuel Tommy	Secretary General
	Haja Kultimi Karim	Health Coordinator
	Constant Kargbo	Disaster Management Director
	Mohammed Mansaray	Deputy Secretary General
	Frederic Amara	Logistics Coordinator
	Olive Strober	Health Coordinator
	Bai Saidu Kamara	Key Volunteer, Portloko
	Osman Conteh	Key Volunteer, Portloko
	Mabinty Kamara	Key Volunteer, Portloko
	Mustapha Conteh	Key Volunteer, Portloko
	Moysius Kamara	Key Volunteer, Portloko
	Bai Marro Sankoh	Key Volunteer, Portloko
MoHS	Dr Amare Jambai	Head of Disease Prevention Control
	Dr Sartie M Kanneh	District Medical Officer, Portloko District Health Management Team (DHMT)
	Mariama Moush	DHS, Portloko DHMT
	Elizabeth Imara Altoat	DHS, Portloko DHMT
	John P Nigaajia	Health Officer, Portloko DMMT
	Bai Sheka Wuiz	Health Officer, DHMT
	David Kanu	Surveillance Officer, Portloko DHMT
	Edmond Tommy	Monitoring and Evaluation Officer, Bombali DHMT
	Peter Songo	Health Education Officer, Bombali DHMT
	Christian Sonnoh	DHS, Bombali DHMT
	Ismail Bamgura	Nurse, Bombali Regional Hospital
	Mohamed Bendo Kamara	Public Health Aide, Lokomasama, Portloko
	Auejusta Alif	MCH Aide, Petif Junction
	Amara Vincent	Community Health Officer, Petif Junction
	Ismail Sasay	BHO, Portloko

	Ibrahim Santigi	Coach, Portloko
	Annie Tororka	BHO, Bombali
	Saidu Alieu Timbo	Coach, Bombali
	Kelfala Mansaroy	Coach, Bombali
British RC	Jean Gillardi	ERU Team Leader/Hygiene Promotion
	Dianne Moody	ERU MSM Team Leader
	Sharon Reader	ERU Beneficiary Communications
Canadian RC	David Allinson	ERU CHM
Finnish RC	Anni Kähkönen	ERU FAD
Norwegian RC	Tonje Tingberg	ERU CHM Team Leader
UN	Guarav Garg	Communications for Development Specialist, UNICEF
	Dr Charles Mugero	Advisor, WHO
	Balogun Charles Terry	Surveillance Officer, WHO
NGO	Angelica Fleischer	WASH Coordinator, ACF
	Yvonne Nzomukunda	Medical Coordinator, MSF
	Amie Lompri-Koroma	Health Programme Manager, SCF
	Claire Bader	Health Advisor, Save the Children

7.5 Operation timeframe

SIERRA LEONE – CHOLERA TIMELINES

Date	Infected	Dead	Source	Activity
				Glide: EP-2012-000041-SLE Appeal: MDRSL002
02.2012	1			1st confirmed case
06.03.12	6,043	27	DMIS	100 volunteers, 30 staff : Health promotion, 1st Aid, PSP
08.03.12	2,137	34	DMIS	ORS and SS stocks depleted. 500 volunteers
20.03.12			DREF FR	DREF CHF 114,688 to assist 128,000
				Glide: EP-2012-000041-SLE Appeal: MDRSL003
25.07.12	1,500	17	MSF	
29.07.12	4,667	76	DMIS	
06.08.12	4,893	81	DMIS	SLRCS Re-engaging March op volunteers
07-11.08.12			IFRC	IFRC West Coast Regional Office assessment
08.08.12	7,757	134	FACT TOR	
10.08.12			DMIS	FACT Information 17.52, FACT Alert 18.40
11.08.12	9,234	160	DPC/MOHS	Attack rate 0.26%
11.08.12				FACT TOR released
12.08.12	9,613	163	MOHS	Case fatality 1.7%
13.08.12			DMIS	FACT in-country
14.08.12			DMIS	FACT requests RDRT
14.08.12	10,800	176	WHO	
16.08.12				Government declares a state of emergency. 250 new infections per day. Requests Int assistance
16.08.12				Preliminary Emergency Appeal CHF 1,151,632 to assist 1,440,000 beneficiaries for six months
16.08.12			DMIS	ERU info, BHC, MSM
17.08.12			DMIS	ERU Alert 11.43. ERU Deploy 17.23 Fin/Jap BHC/CTC ; Nor/Can BHC/CHM; Brit MSM
17.08.12	10,905	184	DMIS	New strain: Asian type serogroup 0.139 Ogawa biotype. 300 vols, 50 staff, 5 dels
21.08.12			DMIS	ERU: BHC/CHM module in-country
23.08.12			DMIS	ERU: MSM in-country
30.08.12	13,934	232	WHO	Case Fatality 1.7%
17.09.12				Emergency Appeal CHF 1,358,780 to assist 1,539,206 + 2 million indirectly.
14.10.12	21,599	290	IFRC	Case Fatality 1.35%
17.10.12				ERU handover/close
23.10.12				First SLRC Radio show
24.10.12			IFRC Sitrep	1,131,613 beneficiaries reached. ERU value CHF 1,389,250. Cash and delegates: CHF 288,012
09.11.12			Donor Response	Request CHF 1,358,780, response CHF 480,664, plus bilateral CHF 1,043,275 (Brit, Finn, Nor)
20.11.12			ERU report	End of Ben-Comms mission