

Research Paper

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Sierra Leone's Response to the Ebola Outbreak Management Strategies and Key Responder Experiences



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Summary

- The 2014–16 West African Ebola epidemic was unprecedented in both scale and duration. By March 2016, when the World Health Organization (WHO) announced an end to the Public Health Emergency of International Concern declared in August 2014, some 28,616 confirmed, probable and suspected cases, with 11,310 deaths, had been reported in Guinea, Liberia and Sierra Leone – the three worst-affected countries.
- The exceptional magnitude and duration of the emergency meant that the response was honed over time, presenting a rare opportunity to study the management of the response as it matured. This paper focuses on Sierra Leone, which experienced the highest number of cases, with 14,124 infections, including 3,956 deaths, reported to WHO, and where the operational architecture of the Ebola response went through three main iterations over a 22-month period.
- The initial response to the outbreak was characterized by confusion, chaos and denial. While a country can be overwhelmed by a serious outbreak, a situation in which WHO fails to mobilize the assistance needed to help a national government take control of an epidemic is unusual. The rest of the international community was, meanwhile, slow to rally. The window of opportunity to contain the outbreak through conventional control approaches closed, and the outbreak became a humanitarian crisis.
- A number of international actors poured resources and expertise into the response, including through a specially created UN Mission for Ebola Emergency Response (UNMEER). The UK, through a joint civilian–military operation, took a leading role among Sierra Leone's international partners, including in overwhelmingly funding and supporting the National Ebola Response Centre (NERC) and a network of District Ebola Response Centres (DERCs).
- The paper draws on a set of interviews with key Sierra Leonean and international responders who were embedded in the various command-and-control structures during the emergency. These shed light on the challenges that, to varying degrees and at various times, affected the response. Among issues highlighted were political manoeuvring and probity, inadequate financial agility, lack of coordination, partner ambivalence towards response structures, and tensions in the key relationships.
- The NERC, chaired by Sierra Leone's president and under the operational control of the defence minister, was judged a qualified success, considering the varied agendas, operational cultures and complexity of the problems encountered. Decentralization of the response appeared to be important for the level of agility and tailoring necessary. As in most humanitarian operations, personalities and personal relationships appeared to be key to the functioning of the response.
- The establishment of a civilian-led, military-supported operation appeared to work well. However, what took shape in Sierra Leone in response to the Ebola outbreak reflected a rare convergence of factors that is unlikely to be replicated, and care should be taken not to generalize the applicability of the approach taken in this instance to future health crises.

1. Introduction

The West African outbreak of Ebola virus disease, first identified in Guinea on 21 March 2014, was the largest Ebola outbreak in history, infecting an estimated 28,616 people and causing an estimated 11,310 deaths across Guinea, Sierra Leone and Liberia, the three worst-affected countries (WHO, 2015a; WHO, 2016a).

Sierra Leone suffered the highest number of cases, with each of its 14 districts affected. Its first case was declared on 25 May 2014 in a region bordering Guinea, and its final one was recorded in the last week of January 2016. By 17 March 2016, when Sierra Leone was declared free of Ebola transmission for the second time, a total of 14,124 confirmed, probable and suspected cases (nearly half the regional total), with 3,956 deaths, had been reported to the World Health Organization (WHO, 2016b).

The initial response to the outbreak was characterized by confusion, chaos and denial. Sierra Leone's health system was already weak, and the government was unable to mount a robust response. WHO did not mobilize the level of assistance and expertise expected – a failure for which it has been widely criticized. The rest of the international community was slow to react to the alert sounded by Médecins Sans Frontières (MSF), which recognized the severity of the threat early on (DFID, 2016; DuBois et al., 2015; Médecins Sans Frontières, 2015a).

Five months into the outbreak, faced with a rapidly deepening humanitarian crisis and realizing that the existing systems were not working, Sierra Leone overhauled its response management structure and put in place the architecture that became a cornerstone of its strategy: a National Ebola Response Centre (NERC) that coordinated at the national level; and District Ebola Response Centres (DERCs) that served as command-and-control hubs in each of the 14 districts. As chairman of the NERC, President Ernest Koroma made the high-level policy and strategic decisions.

There are many institutional and media reports as well as academic publications containing not just severe criticism but also analysis and recommendations for key actors, including the UN, for better management of future global health crises (for instance, Médecins Sans Frontières, 2015b; Kamradt-Scott et al., 2015). The research undertaken for this paper aimed to bring a fresh perspective by focusing on the experiences and insights of key responders involved in the management structures. While community engagement was essential to the success of the response strategy, the research sought to understand how it was organized and coordinated. It starts by briefly describing the early response mechanisms and their functioning and demise, in order to provide context for discussion of the final response coordination architecture. It then outlines the structure and systems of the NERC, its challenges and evolution, and the quality and impact of the relationships between key responders within the NERC. This is followed by a similar examination of the DERCs. The role of specific actors – the UN, WHO, the UN Mission for Ebola Emergency Response (UNMEER), the UK government and the Sierra Leone military – and initiatives – the UK's Operation GRITROCK, the Western Area Surge and Operation Northern Push – is highlighted in various boxes throughout the paper. Finally, some conclusions are drawn about the roles played by various key responders and the factors influencing the establishment and outcome of the mechanisms used to respond to the outbreak.

Methodology

Qualitative research methods were used. The experience and perspectives of more than 70 key responders were ascertained through semi-structured¹ and unstructured telephone and face-to-face interviews between July 2015 and August 2016. Field research in Sierra Leone was conducted over a one-week period in September 2015 by three researchers from Chatham House. Interviewees included a broad range of actors involved in the management of the response at both national and district levels, including those working for non-governmental organizations (NGOs), UN agencies and donor agencies; Sierra Leonean government officials, military, ministers and staff; civil and military UK sources; diplomats from several donor countries; and advisers, independent contractors, doctors, nurses, epidemiologists and others embedded in the response structures. Interviewees were variously selected on the basis of whether they had held key positions in the response structures, had played other strategic roles, and/or had been recommended by other interviewees because of their relevant knowledge, and were willing and available to contribute to the research.

To encourage the disclosure of sensitive information and candid views, the identity of all interviewees, and all remarks quoted in this paper, remains anonymous. Where appropriate, their area of operation is indicated.

The interviews were supplemented with a review of relevant published and unpublished reports and papers, official statements, news reports, meeting minutes, recordings of testimony and other documents obtained by Chatham House.

¹ To guide the interviews, the authors developed a set of pre-defined questions, both specific and open-ended, tailored to each type of respondent. The questions were refined as the research progressed. Interviews also included unstructured conversation.

Box 1: Sierra Leone Ebola response timeline

2014

Late March	Following the identification of Ebola virus disease in neighbouring Guinea, Sierra Leone's Ministry of Health and Sanitation (MOHS) establishes the National Ebola Task Force to coordinate response.
25 May	Sierra Leone reports its first Ebola case.
11 July	The MOHS establishes the Ebola Operations Centre (EOC), co-led with the World Health Organization (WHO).
30 July	President Koroma declares a state of emergency and announces the establishment of the Presidential Task Force on Ebola, to which the EOC will report.
8 August	WHO declares Ebola a Public Health Emergency of International Concern.
29 August	President Koroma announces the replacement of the minister of health and sanitation and the reconstitution of the EOC, to be headed by the chief medical officer (CMO) and WHO.
Early September	A meeting of senior WHO officials and the UK government determines that the British military is best placed to bring robust command and control to Sierra Leone's response to the outbreak.
2 September	Médecins Sans Frontières (MSF) appeals to UN member states to intervene with not only civilian but also military resources.
18 September	The UN Security Council declares the outbreak a threat to security.
19 September	The establishment is announced of the UN Mission for Ebola Emergency Response (UNMEER).
21 September	Operation GRITROCK begins deployment, as part of a UK civilian–military task force that will go on to lead the international operational response.
17 October	The National Ebola Response Centre (NERC) replaces the EOC, chaired by President Koroma and under the operational control of Sierra Leone's minister of defence.
Late October	District Ebola Response Centres (DERCs) begin to roll out across the country.
Late November	Sierra Leone's outbreak peaks at more than 500 cases per week.

2015

March	The UK scales down engagement in the NERC and DERCs, with the outbreak stabilized and response architecture firmly in place.
May	UK personnel surge back into the NERC and DERCs in response to a spike in cases.
31 July	UNMEER closes its mission, although the UNMEER head stays on under WHO contract.
7 November	Sierra Leone is declared free of Ebola transmission for the first time.
13 November	The final UK military personnel within Operation GRITROCK leave Sierra Leone.

2016

January	The British civilian team leaves Sierra Leone as the UK's main operation ends. The NERC and DERCs are decommissioned, and their responsibilities transferred to government departments.
Mid- to late January	Two people are diagnosed with Ebola in Sierra Leone.
17 March	Sierra Leone is declared free of Ebola transmission for the second time, after 14,124 cases and 3,956 deaths.
29 March	WHO terminates the designation of the West African Ebola outbreak as a Public Health Emergency of International Concern.

2. Early Response Mechanisms

There were two main early response coordination mechanisms: the National Ebola Task Force, established in March 2014, and the Ebola Operations Centre, established in July. (Box 1 gives a timeline for the Ebola response over the period March 2014–March 2016.)

The National Ebola Task Force

The earliest response coordination mechanism was the National Ebola Task Force, established by the Ministry of Health and Sanitation (MOHS) in late March 2014 when the disease emerged in Guinea, but before the first case was detected in Sierra Leone (Republic of Sierra Leone, 2014).

The task force's strategy included the MOHS starting awareness campaigns and surveillance in the border areas. Other preparations, such as the training of lab technicians, healthcare workers and community surveillance teams, were undertaken with the assistance of WHO, the International Federation of Red Cross and Red Crescent Societies (IFRC) and MSF.

Once Ebola was confirmed in the country, two months later, the MOHS used the task force to organize the response around four technical 'pillars' that covered the classic response activities to an outbreak, such as surveillance, case management, social mobilization and logistics (Republic of Sierra Leone, 2014).

Sierra Leone's first case was reported on 25 May 2014 in the Kailahun district of the Eastern Province, but the origin of the outbreak was later traced to the funeral, on 10 May, of a local traditional healer who had been infected by Ebola patients who had crossed the border from Guinea to seek treatment from her (WHO: Regional Office for Africa, 2014a; WHO, 2015b).

Sources who were in the field at the start of the outbreak said the approach taken to control the disease in Kailahun was fairly routine. WHO supported the MOHS, with a handful of international organizations such as MSF, the IFRC, Save the Children, World Vision and the King's Sierra Leone Partnership.² The district medical officer and the chieftancy structure were brought on board; and community members nominated by the latter were trained in basic contact tracing and social mobilization and participated in the response under the direction of the chiefs. Ebola by-laws were put in place, and movement was restricted. MSF set up a local treatment centre in June 2014, containing a mobile laboratory run by Health Canada (WHO, 2014a).

National capacity was weak, and international institutions had few people on the ground when the outbreak began. Many NGOs already in the area were working on development, and these changed their focus to participate in the response. Nevertheless, there were far too few people for the scale of the task. The number of cases in Kailahun peaked at more than 80 a week in June 2014, then reduced to 10 new infections in the second week of August (WHO, 2014a). A total of 645 people were known to have contracted the disease in Kailahun, and although the outbreak was quelled there before the international community arrived en masse, it had meanwhile spread to the nearby district of Kenema, where the hospital became an infection amplifier, and continued to expand.

² The King's Sierra Leone Partnership is a partnership between the King's Health Partners – itself a partnership between King's College London, and Guy's and St Thomas', King's College Hospital and South London and Maudsley NHS Foundation Trusts – and Sierra Leone's Connaught Hospital, College of Medical and Allied Sciences, and Ministry of Health and Sanitation.

Chaired by the minister of health and sanitation, the task force convened daily. The early meetings attracted about 80 people, including the chief medical officer (CMO) and other senior MOHS staff, representatives of other government departments, four UN agencies – WHO, the UN Population Fund (UNFPA), the UN Children's Fund (UNICEF) and the World Food Programme (WFP) – together with donors and NGOs. However, informants reported that the mechanism was insufficient and ineffective. According to one participant, the meetings were 'long and ineffective. The early coordination lacked leadership, focus and there was a lot of flailing around. There was a real issue around gripping the size of the problem.'

The Ebola Operations Centre

By July 2014 it was clear that the task force mechanism was not working. The MOHS established an Ebola Operations Centre (EOC) on 11 July to serve as the response command-and-control centre (donor's unpublished slide presentation, 2015). Although the task force continued to meet and was considered the decision-making body, the daily meetings shifted to the EOC.

The EOC, co-chaired by the MOHS and WHO, was housed in a small annex at WHO's offices in the capital, Freetown. Its core comprised MOHS and other government officials, representatives of UN agencies, MSF, the IFRC and the International Rescue Committee (IRC). The US Centers for Disease Control and Prevention (CDC) later joined, and others attended sporadically.

The (now six) technical pillars were led by an MOHS director and co-chaired either by a UN agency or by the IFRC, which co-chaired the new burials pillar. International NGOs gave important support to operations on the ground. The coordination structure was replicated at the district level, through district task forces, led by the MOHS, that met daily (Olu et al., 2016).

The first case in Freetown was reported on 11 July, and as the outbreak subsequently became more visible there, some international organizations started to get a sense that the full magnitude of the problem was not being acknowledged in official circles.

Several Sierra Leonean and international interviewees judged the EOC to be highly dysfunctional. Its response mechanisms were said to be hampered by a lack of strategic planning, by serious infighting within the MOHS, and by arguments over money between the ministers of the various departments involved. Several interviewees said the EOC was little more than a talking shop, or that it served mainly as a technical review board for standard operating procedures for the technical pillars.

Donors reported that discussions with the MOHS, in the absence of strategic and operational planning, were frustrating. While they sought to determine what specifically needed to be paid for and how resourcing would be managed, officials would reportedly just keep quoting an amount and give vague categories. Donors said they turned to WHO for a more specific needs analysis, to no avail.

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Data sharing was a significant problem. Figures quoted by the MOHS were not matching WHO's, nor what responders were reporting from the field. Several interviewees said that WHO was not playing

an independent role, and that no one in authority wanted to admit to President Koroma how bad the situation was. Interviewees said there was no doubt the health minister was playing down the severity of the outbreak and the ministry's ability to cope with it. One UN agency responder who participated in the EOC admitted that international responders who were present were 'not strong enough' to tell the minister the strategy was not working. British participants in the response said that by late July they had decided that information coming out of the MOHS had to be ignored.

Several donors said they were themselves telling the president about the seriousness of the situation. It was stated during the course of the interviews that the death, on 29 July, of a leading front-line Sierra Leonean doctor (BBC News, 2014a) served as a wake-up call for President Koroma. On 30 July he declared a state of emergency and the establishment, under his personal chairmanship, of a Presidential Task Force on Ebola (State House, The Republic of Sierra Leone, 2014a).

This task force, set up to supplement the work of the EOC and facilitate Koroma's 'championing' of key response interventions, included the various ministries and became the body to which the EOC reported (Olu et al., 2016). Within two weeks, it was expanded to include development partners, political parties, legislators, representatives of civil society and other Ebola responders. Interviewees said that the task force convened once a week in day-long meetings. Participants widely judged this mechanism to have been ineffective, and it was later superseded.

EOC reform and demise

President Koroma visited the EOC on 31 July and again on 9 August (WHO: Regional Office for Africa, 2014b). One interviewee involved with it recalled:

The first time he came, he only found two people there – the secretary and the cleaner. He was very upset. The second time he came, there were 10 people. It was a bit embarrassing for WHO and the ministry.

The president subsequently appointed a staff member to the EOC. On 29 August, at a meeting with CDC's director in Freetown, he stated that, after consulting with representatives of the UN, WHO, the UK Department for International Development (DFID) and other donors, he had decided to review the structure of the EOC (Thomas, 2014). He appealed to the international community to step up its support. Later that day he announced that the minister of health and sanitation was to be replaced and the EOC reconstituted (State House, The Republic of Sierra Leone, 2014b). The new minister was not put in charge of the EOC, which was now to be led jointly by the CMO and WHO. A new operations coordinator (a former Sierra Leone minister of social welfare, whom the president brought over from the US) would take an overall management role, while the CMO was put in charge of the technical response. Interviewees said that following the reform of the EOC greater honesty was brought to the system regarding the scale of the problem.

To address the challenge of managing the response from Freetown while having to rely on district health teams, the operations coordinator devised the introduction of politically appointed district coordinators (DCs) to work alongside the district medical officers (DMOs). One of their responsibilities was to manage the Ebola response assets. But the dismissal of the health minister and the weakening of the power base of the ministry at the end of August was a cause of some bitterness, and in many places there were tensions between the DMOs and the new DCs.

Meanwhile, the WHO country representative had also been replaced. Interviewees said the incoming representative was prepared to challenge the MOHS, but that this did not translate into decisions at the EOC. A source from the donor community said that coordination remained poor and frustration

with the inadequacy of the national response continued. According to one member of the UK response team:

We were sitting in hours of meetings where people suggested actions, but nobody took note or followed up and no one took any fundamental decisions. Very little had changed. We gave it about six weeks.

Before long, it became clear that, despite the reform, the EOC was still not working. Sources said one of the problems was that its coordinator did not have a mandate to hold the various ministries to account, and there needed to be a change in structure in order to enable someone to hold such executive authority. By August, the disease had spread to all but two of Sierra Leone's 14 districts (National Ebola Response Centre, 2015). The UK dispatched an advance team to Sierra Leone that month to investigate what more might be needed.

By September planeloads of healthcare workers and supplies were arriving in the country, and some international responders were looking to the UN Office for the Coordination of Humanitarian Affairs (OCHA) to coordinate. Sources said that although resources were available, it was unclear what they should be spent on and so they remained unused:

There was a huge vacuum. There was no operational plan, but a growing understanding of the need for one and it was obvious that a major international intervention was going to be necessary.

Box 2: The UN system's early response

The failure of the UN system to provide effective leadership and coordination of the Ebola response in the early stages of the outbreak was widely cited by most of those interviewed, as well as within the highest echelons of the UN and WHO (WHO, 2015c).

The inadequacy of the early WHO response was felt by senior officials in the MOHS, who – aware of their own weaknesses in leadership and coordination – turned to WHO for direction, with little or no success.

A senior MOHS employee emphasized that the authorities had leaned heavily on WHO for leadership and guidance, but the then head of the WHO Sierra Leone office 'did not have enough knowledge in public health emergencies or even the skills to harness the collective knowledge of the ministry and mobilize resources for an effective collective response'.

According to a senior member of the UN Country Team (UNCT) in 2014–15, in the first stages of the epidemic it was the individual initiative of some UN agency staff, rather than a well-constructed strategy under a clear leadership structure, that resulted in the early UN inputs into the national response.

An interviewee from within the UN team said that when the first cases were announced in Sierra Leone, members of the UNCT had no specific guidance from either WHO or the UN Resident Coordinator, other than to maintain personal safety and to ensure that UN staff did not aggravate the crisis. In other words, they were to continue to do business as usual, with the exception of key agencies such as WHO that were collaborating with the MOHS and the government's EOC. A UN source said the epidemic was presented to staff by WHO as a health crisis confined to a certain part of the country and apparently under control by the authorities.

Reality soon proved otherwise, as the epidemic spread rapidly, and agency staff realized that their normal programmes could no longer continue to be their priority. Their mandates were completely misaligned with what was happening on the ground and the response that the government, NGOs and other development partners were trying to provide. The situation escalated swiftly beyond the realm of health to become a humanitarian crisis. Interviewees said that there were calls for OCHA to be brought in, once it was realized that what the response needed went well beyond the capacities of the UN Resident Coordinator or a single agency. One UN responder recalled:

At first we decided to mobilize resources from the Peacebuilding Fund, and in the meantime we redirected some of our core funding to create capacity for some sort of response.

WHO led the overall technical response within the UN, while UNFPA supported contact tracing and UNICEF led on social mobilization. However, sources considered that the UN's contribution to both these activities was initially weak, with a limited number of specialists deployed and other responders being forced to fill these roles as late as December 2014. In October UNDP was tasked with restoring essential services and took over the disbursement of World Bank-funded cash transfers for hazard pay bonuses to healthcare workers. (These had initially been channelled through the MOHS bank account at the EOC, and their non-payment had triggered strikes by healthcare workers.) WFP was a key player in logistics and the supply of food packages to quarantined homes, while OCHA supported information management. In December the International Organization for Migration (IOM) took over from the British military the running of the National Ebola Training Academy for health workers. It also engaged in infection prevention and control training for Ebola Treatment Unit (ETU) front-line workers and in border management issues (IOM, 2015).

Most interviewees were critical of the UN response as a whole. Some claimed the UN agencies, particularly their country-level representatives, were too deferential to the Sierra Leonean government. One UN staff member involved in the response commented:

In the early days the UN was not using its values and principles, its expertise and its resources to restore wellbeing in a country that was being ravaged by the Ebola virus. It did not make sense to us.

Box 3: WHO engagement

All interviewees who commented on WHO's performance expressed the view that the organization failed to mount a robust response early in the outbreak. This is in accordance with the findings of the independent assessment panel commissioned by WHO in 2015 to examine its response (Ebola Interim Assessment Panel, 2015). The interviewees considered that the expertise of representatives was apparently ill-matched to the outbreak, and that WHO was too close to the MOHS to act as proactively as was necessary to sound the alarm and push the government to act. Several interviewees said that WHO was somewhat invisible early in the outbreak.

WHO headquarters deployed to Sierra Leone 258 experts from the Global Outbreak Alert and Response Network (GOARN), which pools outbreak investigation and response expertise from institutions around the world through a WHO-based secretariat. The first expert arrived on 6 June 2014 to advise on the management of patients, and an average of 21 experts were in the field at any one time. One of the problems cited was that since funds to pay for contact tracing – critical for interrupting transmission of the virus – were not made available, scarcely any tracing was undertaken in the first three months. WHO also had staff in the field, but the level of experience was variable and the leadership was seen as weak. One source from the donor community recalled:

We sat in endless meetings with WHO to ask what they need, what the gaps were, and we didn't get any answers. We couldn't get any kind of analysis of what needed to be done.

At the end of August WHO's country representative, judged by several interviewees to be 'out of his depth and unsupported', was replaced, and the organization thereafter began to take a more active role in coordinating the response. It convened a weekly meeting of UN partners and donors, and worked around uncooperative district health management teams when necessary. Although this improved trust in WHO, resources and capacity remained low. It is particularly notable that it was UNFPA, rather than WHO, that initially spearheaded the UN's role in contact tracing.

WHO's response began to have a bigger impact after Director-General Margaret Chan appointed a veteran public health expert from its headquarters in late September to lead the operational response. He toured Sierra Leone to assess needs, and subsequently visited each district repeatedly. The central challenge was putting in place the machinery for WHO to recruit and deploy the appropriate expertise.

WHO's ranks were filled by repurposing the functions of staff already working for the agency first in Sierra Leone, then in other African countries and regions, and finally internationally. At the peak of its engagement there were more than 250 WHO technical personnel – epidemiologists, logisticians and some support staff – across the country, operating at both district and national levels.

This ratcheting up in the final quarter of 2014 was widely credited with instituting a step change in WHO's performance, enhancing the quality of leadership and staff at every level. Interviewees stated that they started to notice a significant difference in the competence and coherence of WHO's response in January 2015, with the reliable identification of some of the key infection transmission chains for the first time as well as strong support for contact tracing. In March WHO took over from UNFPA in most districts in leading the contact tracing aspect of the response, and its performance reportedly continued to strengthen thereafter. On 29 March 2016, two years after the West African outbreak was first detected, WHO terminated the designation of Public Health Emergency of International Concern that it had declared in August 2014.

3. Transition to A New Response Architecture

In early September 2014, as it became clear that a substantial international intervention was required to bolster the national response, senior officials from WHO met with the UK government – the most significant donor to Sierra Leone – and determined that the most appropriate entity to install crisis management and operational capabilities was the British military (Global Ebola Response, 2015).

The UK, which had a long-standing close relationship with Sierra Leone, already had a presence in the country, including diplomats, development officials and a small military contingent that was advising the government on security and justice sector matters. The UK pushed for a leadership role (DFID, 2015).

The official request from WHO and the Sierra Leonean government for the UK to step up assistance and lead the international effort came in early September 2014 (DFID, 2015). The UK government announced on 8 September that UK military engineers and medics would be sent to Sierra Leone to build and operate an Ebola treatment centre for local and international health workers (Department for International Development, Ministry of Defence, The Rt Hon Mark Francois MP, and The Rt Hon Justine Greening MP, 2014).

It is unclear to what extent this was linked to MSF's appeal to UN member states on 2 September for deployment of military assets, but one source said this was being discussed as early as July 2014, at the time the disease had spread to Freetown (Médecins Sans Frontières, 2015b). The initiative was declared before UN Secretary-General Ban Ki-moon announced on 19 September that he had established the UN Mission for Ebola Emergency Response (UNMEER), the first ever UN health emergency mission (see Box 3).

One senior UN interviewee contended that the commitment of military resources was an indicator of the perceived risk to UK security:

I don't think the UK would have deployed the UK military purely on the basis of humanitarian response. It was a national security threat as well as a humanitarian imperative, no question.

This period represented a turning point for the UK in that it now perceived the outbreak in terms of a direct threat to its own borders, given the lack of effective management of the expanding outbreak in Sierra Leone and the resultant risk of cases being imported, according to one British source. The UK started to build the foundations for a large-scale response:

We had a president [in Sierra Leone] who was listening to a minister of health who was spinning I don't know what; and secondly we had a WHO unable to offer an alternative version of truth nor to stand up to the Sierra Leonean authorities and say 'I don't think you are right, I think this is a big problem.' We, the British, just felt stuck. We went to consular planning at the point and started looking at what our options were.

Other interviewees said that when the need for a major international response became obvious, President Koroma was asked whether he wanted a Level-3 UN humanitarian crisis designation. This would have entailed the government handing over control of the response to the UN and the mobilization of the OCHA-led cluster system to structure and coordinate response activities. Koroma reportedly replied that he did not want that mechanism triggered in Sierra

Leone, which had recently emerged from a UN Security Council mandate. Sources said, however, that he was amenable to a Level-3 response in practice, if not in name, but that it had to be a Sierra Leone-led response.

On 17 September 2014 the UK government announced a further stepping up in support, pledging to deliver a total of 700 treatment beds and health worker training (Department for International Development, Foreign & Commonwealth Office, The Rt Hon Justine Greening MP, and The Rt Hon Philip Hammond MP, 2014).

The British, aware that they would have to come in at a scale that made a difference, began their main response deployment on 21 September 2014 (Operation GRITROCK Report, 2015). But they already had a sense that further engagement would probably be needed.

On arrival in Sierra Leone, the UK response team established a Combined Joint Interagency Task Force (CJIATF), with its headquarters in Freetown. Led by DFID, it joined the various UK government agencies involved in the response. British sources said that the task force was set up to be inclusive of a wide body of interests from NGOs, WHO, UN agencies, the government of Sierra Leone, the Sierra Leonean military, lead epidemiologists, USAID, UNMEER and representatives from national diplomatic services.

Assessing the options

In the first 48 hours, the British team undertook a comprehensive assessment, using the military's 'estimate process' framework, and drew up an operational plan. The assessment investigated the level of the government's capacity, what institutions and systems were in place, and how these were functioning. Leading elements of the UN and its agencies were consulted, and as UNMEER gained the capacity to move beyond its own establishment, the UK revised its plans to become more aligned with UNMEER's. The intention was to be able to hand over a stable and manageable structure for the UN response.

The incapacity of the MOHS to manage the response was already clear, but there was another national structure that some argued should have been deployable when Ebola became a crisis. Sierra Leone's Office of National Security (ONS), which DFID had helped to create years before, already had a department responsible for disaster risk management. It had a decentralized structure involving district disaster management committees comprising several government departments and pre-existing links with the traditional chiefs, who were important players in local governance.

The British military commander visited the ONS headquarters and crisis centre to assess its capacity for coordinating management of the crisis, and decided it would not be viable to build on. A senior military source said:

He found a small operations room, with two old laptops and one member of staff. The officials in the ONS were keen to push that with additional British funding, and vehicles, they could run the emergency response. The commander decided that getting them into a position to be effective would take time and detract from dealing with the emergency.

Several other interviewees echoed this British assessment. However, a few argued that not using this pre-existing structure – or, rather, inadequate development support for it in the preceding years that would enable it to stand up in a crisis – contributed to problems of cooperation with the new response coordination mechanisms. The ONS had a small liaison team in the NERC, and its staff

were embedded in the DERCs and participated in security operations, but it did not play a leading role in coordinating the response.

The prospect of UNMEER taking the command-and-control role was also considered. Interviewees recounted how its first representative arrived in Sierra Leone in late September 2014, followed by a rapid succession of visits from senior UN personnel who set out the vision of how the new body would function, including deployment of resources to the districts, establishment of a district-level operational platform through which foreign medical teams would work, and a structure for the operations of other responders. According to a member of the UK response team:

It sounded exactly right, but they couldn't lay out a view on how quickly they would be able to resource that and it became increasingly clear over time that they would struggle to resource it. All along our preference was that the UN would step into that space, but when it was clear they didn't have capacity early on to do that, it was our view to work with them, and as soon as they did have capacity we would have been delighted to have stepped out of that space. But the reality was that never happened through the life of the response.

Following a meeting of the UK's COBR³ crisis response mechanism on 8 October, the UK defence secretary announced a significant increase in support, including further military involvement with a plan to deploy more than 750 military personnel and other military assets to Sierra Leone (Ministry of Defence and DFID, 2014).

Box 4: UNMEER

The UN Mission for Ebola Emergency Response (UNMEER) was established on 19 September 2014, six months after the Ebola outbreak was declared. The UN's first emergency health mission, it was created to harness the competencies of the relevant UN actors under a single operational structure (WHO, 2015c). It aimed to unify the UN approach to the crisis, with five objectives: stopping the outbreak; treating the infected; ensuring essential services; preserving stability; and preventing further outbreaks (UN News Centre, 2014).

Interviewees' opinions differed on the role played by UNMEER, and many did not understand its mandate. Their comments ranged from 'useless', 'irrelevant' or 'parasitic', to 'benign' or 'critical', and depended on each interviewee's position in the response and the period under discussion.

Many interviewees said that in the crucial period between November 2014 and March 2015, UNMEER showed no strong leadership in Sierra Leone and that the vision of its taking on the critical district coordination aspect of the response never materialized.

One source said that even at its highest point of resourcing – around January or February 2015 – the most UNMEER had in each district was one international field crisis manager, and in a couple of districts a second more junior national information officer (more were added later):

We all desperately wanted UNMEER to work ... but you had people on their first posting overseas doing things they didn't really have experience to do, such as how to effectively coordinate and engage other structures while not bringing huge amounts of money or senior-level leverage.

Another interviewee working in a DERC said that successive embedded UNMEER representatives were 'too weak to be plugged into the system', and that the representatives merely reported to UNMEER what was happening at the DERC.

³ COBR (derived from Cabinet Office Briefing Rooms) is the term given to the high-level crisis response committee meetings convened to coordinate actions across UK government departments and other bodies in the event of emergencies or events deemed likely to affect the UK. In the case of the West African Ebola outbreak, COBR meetings oversaw the UK response to the situation on the ground, as well as preparedness for potential cases within the UK.

However, interviewees said the agency became a significant player in the response, particularly at the national level, when a new UNMEER lead was rotated into the response in March 2015. Described variously as 'brilliant' and 'extremely effective', she was credited with pulling together the key international players, not only coordinating the UN agency activities but also becoming a focal point for the donors. She was considered to have brought another voice of reason to the decision-making process, and wielded significant influence. In part this came from being included, along with the UK team lead, in the NERC CEO's weekly meetings with President Koroma.

Some key players outside the UN expressed the view that the UNMEER interface with government, particularly with the State House (the office of the head of state), was helpful in restoring trust, credibility and some appreciation of the UN's role as a key actor in the coordination of the response.

With funding from the UN's Ebola Response Multi-Partner Trust Fund, UNMEER paid the salaries of 32 core staff of the NERC and supported critical Ebola response surges at various times with more than \$550,000 from the trust fund (Multi-Partner Trust Fund, 2015). It also facilitated and tracked the deployment of UN resources in the districts, with its specialist logistics team playing a significant role in the deployment of ambulances. It coordinated its field crisis managers embedded in DERCs and also, with varying degrees of success, international NGOs, as well as providing supplies and logistics support.

UNMEER closed its mission on 31 July 2015 as the response evolved from a large-scale logistical effort to a targeted public health effort (Global Ebola Response, 2015). Its coordination duties were transferred to WHO, but the UNMEER lead in Sierra Leone remained embedded under a British-funded WHO contract to continue her role coordinating the UN agencies, donors and NGOs for the remainder of the response.

Conception of the NERC

The national response coordination mechanism that eventually became the cornerstone of Sierra Leone's operational strategy derived from a clear need for a bespoke command-and-control hub. One member of the UK response team said:

We knew we needed to step into this space. So we went to State House and explained that the EOC wasn't working and offered to present the president with options. Within 24 hours he called and asked to hear the options.

In presenting the options, the British expressed a preference for a completely new architecture – the concept of what was to become the NERC. Other donors said they had simultaneously been advocating such an option to the president, and he gave the green light in early October 2014.

4. The NERC

President Koroma formally announced on 18 October 2014 that he was reconfiguring the response to establish the NERC, and placing at its helm with immediate effect the minister of defence, who would report directly to him. At this point coordination of the response was taken out of the hands of the MOHS (State House, The Republic of Sierra Leone, 2014c).

The vast majority of interviewees – from both Sierra Leone and the international community – strongly defended this move. They saw it as the right decision – given the scale of the outbreak, the fact that it had escalated beyond a health issue to a humanitarian emergency, and the inability of the MOHS to demonstrate that it could adequately manage the response – even though it had knock-on effects that undermined certain aspects of the response.

However, a small number of interviewees – again across the board – considered that it was a strategic error. They argued that taking the strategic leadership away from the MOHS meant an opportunity was missed to build that capacity for the future. It might have been a good trade-off if the result was rapid containment at a time when the priority was keeping up with burials and scaling up treatment capacity, but not when the response turned out to be protracted and the primary need shifted to case finding and contact tracing – i.e. a key health ministry domain.

The MOHS was nevertheless integrated within the restructured response, with a seat at the decision-making table in the NERC. Most notably, it retained leadership of the technical pillars of the response, as a key implementer. MOHS staff chaired the technical pillars at the national and district levels, and accounted for a significant portion of the front-line workforce. They were employed in key activities such as surveillance and contact tracing, building and managing some of the Ebola treatment centres and treating patients, running isolation centres and a laboratory, driving ambulances and decontaminating homes, conducting burials and social mobilization.

Structure of the NERC

Spanning the responsibilities of both the MOHS and the ONS, the NERC was the third and final iteration of the national response mechanism, and was designed to provide national operational coherence, resourcing and direction. It began operating on 17 October 2014, the day the British military got the internet working in the building from which the NERC would operate, and the day before the president formally announced the new response structure (Tony Blair Africa Governance Initiative, 2014).

In the view of some interviewees, the NERC was placed under the control of the defence minister (as CEO) not only because he had the political clout to hold other ministers to account, but also because he was expected to work well with the British, having studied in England and lived there for 21 years.

Although the EOC's technical components were integrated into the NERC and expanded, compared with the previous coordination structures, the NERC established a greater separation between the technical and operational aspects of the response (Olu et al., 2016).

The NERC was initially staffed by British military and civilian members of the CJATF, the Republic of Sierra Leone Armed Forces (RSLAF) and the CEO's advisers. Additional personnel were recruited as the new centre developed. Several key managers were brought in from the Sierra Leonean diaspora. The Situation Room – the heart of the NERC – was directed by a UK-based Sierra Leonean financial risk analyst who had expertise in data analysis and information management. The director of planning and the head of the transition team were also Sierra Leoneans recalled from the UK, while the chief operating officer was a former minister of social welfare who had already been brought over from the US to coordinate the EOC. 'There was a strong sense of national commitment and a sense of team fighting for our country,' noted one senior Sierra Leonean expatriate within the NERC.

The main international partners were the British, the UN (represented by UNMEER), WHO and CDC. Funding for staff salaries and NERC activities came from several sources, much of it from DFID, but some key staff and initiatives were also funded by CDC and UNMEER. While there were several organizations involved, many interviewees stated that a triumvirate of the CEO, the British and UNMEER was dominant in the NERC leadership. Notably, at his regular Wednesday meetings with President Koroma, the CEO was accompanied by the British and UNMEER leads.

Box 5: The role of the Sierra Leonean military

The RSLAF played a key role in the response. Its personnel were first deployed in May 2014 as a security measure to assist with confrontations between communities and health workers. Throughout the response, soldiers continued to fulfil this security role, which widened to include protecting medical workers and burial teams, guarding Ebola treatment units and patient isolation centres, manning health checkpoints and quarantine boundaries, and chaperoning high-risk movements of medical personnel. Interviewees reported that in certain sensitive areas soldiers carried guns, but these were not loaded.

The RSLAF also coordinated surveillance teams in some areas, and operated three Ebola treatment units as well as providing engineering support to the British-built treatment centres. One source said that the RSLAF-run treatment centres played a major role in improving patient survival rates, with RSLAF doctors using intensive fluid replacement strategies that were then adopted by the foreign-run centres (where patient survival rates had been lower).

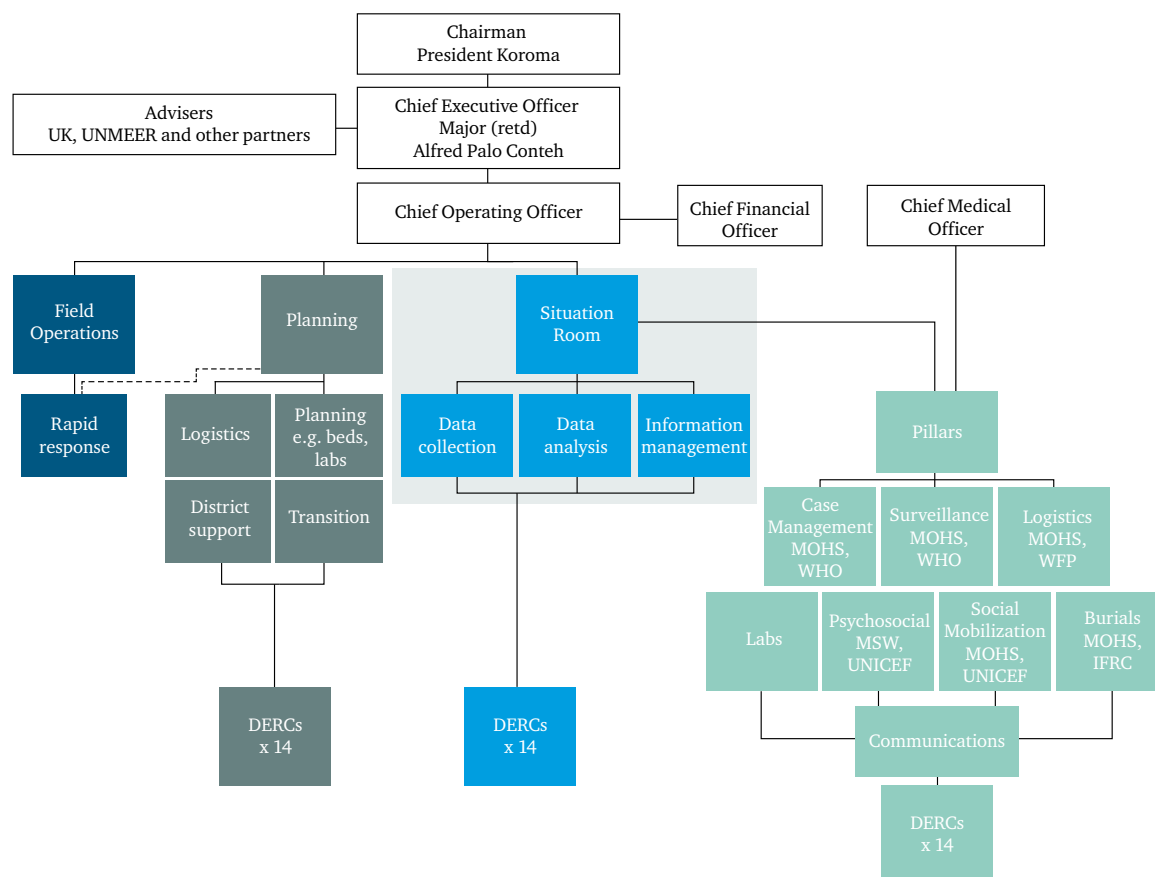
However, the work for which the RSLAF was universally acclaimed by interviewees was its key role in the functioning of the NERC and, at the district level, taking command of burials.

Already well regarded in the country, the performance of the RSLAF in the Ebola response was widely judged to have been 'first-class'. Several interviewees hailed the soldiers as 'heroes' of the response in Sierra Leone. Many attributed this professionalism and effective response, at least in part, to the 14-year history of defence engagement between the RSLAF and the British military, which provided significant guidance throughout (see also Box 5). The RSLAF was credited with bringing discipline, skill and a sense of duty to the response, with being better organized than other national responders, and having a better work ethic. According to one international civilian responder:

The Sierra Leonean military stand out as the group of people who went above and beyond on a daily basis. They just got on with the job. They were the only people, and I mean the only people, who worked seven days a week, and they never complained. They would be in there doing the day-to-day coordination, at the district and the national level, with nobody else in the office, and they kept themselves out of a lot of horrible politics that they could have fallen foul of very easily.

The structure of the NERC was very fluid, with functions being added and dropped and the hierarchy and reporting lines shifting as its work evolved to reflect operational innovations and needs. Figure 1 illustrates the set-up by early 2015.

Figure 1: The National Ebola Response Centre, 2015



Source: Chatham House.

The first element to be established was the Situation Room. Its core function was to collect and analyse real-time data and inform decision-making. MOHS and RSLAF staff assigned to it were paired with an embedded international responder – usually from WHO, CDC or the British military. The staff included an adviser from the Tony Blair Africa Governance Initiative (AGI); and the police and ONS were also represented, as were UNMEER and OCHA.

The NERC then expanded to take on other functions. A second main operational unit was the planning directorate, which developed the strategy for the response and was charged with involving partners, DERCs and communities in its implementation. It coordinated district plans and drove cross-border collaboration activities. It also devised a framework for event management and community ownership, developing and coordinating NERC special initiatives such as targeted surges of effort to trouble spots. Later, it took on a transition lead to manage the transfer of responsibilities to the relevant government departments at the end of the NERC's life.

The field operations unit was the third main operational arm of the NERC, and oversaw a rapid response team.

The NERC absorbed the technical pillars that had been used by the EOC, reconfiguring these as needs changed. The technical component of the response, through the pillars, remained the domain of the MOHS with its UN partners. The pillar leads were tasked with setting policy around the technical interventions of the response, coordinating the pillars in the districts, mobilizing the assets for their pillars and providing analysis to the NERC on the public health situation on the ground. Each pillar was led by an MOHS government official, with the support of a representative of an international organization, and worked with implementing partners that included community groups and local and international NGOs.

Interviewees stated that President Koroma, as chair of the NERC, was very much involved in setting the strategic direction of the response. He referred to himself as the 'Chief Social Mobiliser', assuming this role through regular broadcasts of Ebola messages and tours of affected areas, to engage the traditional chiefs and other community leaders in the response (National Ebola Response Centre, 2015).

Box 6: Operation GRITROCK

The UK military was widely recognized as contributing a critical capability to the response. Before the outbreak, it already had a small presence in the country and a long-standing relationship with its Sierra Leonean counterpart. In 2002, after the Sierra Leonean civil war, the UK set up the International Military Assistance Training Team (IMATT), which invested in professionalizing the RSLAF over more than a decade through training and mentoring (British Army, 2015). In 2013, when the RSLAF capacity was deemed sufficiently established, IMATT was replaced by the International Security Advisory Team (ISAT), a 10-person UK multi-disciplinary team that supports broader capacity-building in the security and justice sectors (UK Parliament, 2015; Thomas, 2013). As part of the transition, the UK military presence in Sierra Leone was scaled down from about 160 personnel to just seven, but a close advisory relationship was maintained between the two militaries. It was argued that this UK investment paid huge dividends in the Ebola response and serves as an exemplar for effective defence engagement. Military sources said that leveraging the well-developed relationships, knowledge and experience of some of the ISAT personnel turned out to be essential to the success of the operation.

The main UK military deployment, codenamed Operation GRITROCK, began on 21 September 2014 (Operation GRITROCK Report, 2015). The operation played a supporting role to DFID, which led the CJIATF. It contributed a mix of capabilities including command and control, engineers, infantry, medics, logisticians, communicators, media specialists and intelligence personnel. A support ship with hospital facilities for personnel, the Primary Casualty Receiving Ship Royal Fleet Auxiliary (RFA) Argus, was also deployed with three Merlin helicopters, and anchored off the coast of Freetown for six months (Think Defence, 2014).

An assessment conducted on arrival resulted in seven lines of effort for the military contribution to the UK response, which was delivered in three phases (Phase 1 – Contain & Protect; Phase 2 – Expand & Influence; Phase 3 – Eradicate) and underpinned the CJIATF strategy. The seven lines were:

1. **Command and Control:** This involved setting up the headquarters for the CJIATF, the structure through which the UK response was run, as well as the establishment of and support for the national and district response command-and-control structures.
2. **Construction:** This included six bespoke UK-funded 100-bed Ebola treatment units, which comprised the bulk of the treatment beds in Sierra Leone; and the provision of engineering support to NGO- or government-run units and support for the construction of patient isolation units.
3. **Treatment:** The UK military built and staffed a 20-bed ETU for healthcare workers who contracted the virus. It also established a hospital with limited surgical and trauma care within the CJIATF base, and a hospital with full surgical and diagnosis capability on board RFA Argus for troops ashore.
4. **Training:** The UK military bolstered MSF and WHO efforts to train healthcare workers and support staff for the treatment units by setting up an Ebola Training Academy at two sites in Freetown. The joint UK military, RSLAF, MOHS and NGO teams trained more than 4,200 people in five weeks.

5. **Influencing and Informing:** This line of operation, viewed by the military commander as the most important in reducing infection rates, focused on disseminating to the chiefdoms and villages the message about safe treatment and isolation, and included the CJATF commanders accompanying the president on his rounds to engage key community leaders in the response.
6. **Protection:** This included protecting the UK team from physical and health threats, and facilitating the evacuation of infected international responders.
7. **Sustainment:** The UK military assisted with receiving and distributing essential supplies and laboratory equipment to sustain the response.

The aims of the campaign, which had three rotations, were dovetailed with those of the wider UK response (CJIATF) and informed the NERC strategy. The focus of Operation GRITROCK 1, with an eventual deployment of more than 1,000 military personnel, was on stabilizing the capital, setting up an effective crisis management system across the country, building treatment centres and training healthcare workers, influencing behaviour at district level and below, clearing the backlog of dead bodies as the number of cases continued to climb, and building the command-and-control structures and systems to support the wider response. By the end of this five-month rotation, the outbreak was firmly in decline from its peak (in late November 2014) of more than 500 cases a week (National Ebola Response Centre, 2015).

For Operation GRITROCK 2, which took over in February 2015, the focus shifted to mass elimination of remaining infection pockets. By March cases were down to double digits a week, and it was decided to demilitarize the UK response – as DFID similarly scaled down. Military personnel were drawn down to about 250 after a gradual withdrawal from the districts (Ministry of Defence, 2015).

When Operation GRITROCK 3 began in late May 2015, a year after the first confirmed case in Sierra Leone, the military surged back into both the NERC and the remaining districts of concern after a spike in cases. The focus turned to wiping out the last half-dozen chains of transmission, with a more intelligence-led approach and a more refined quarantine strategy. Troop numbers gradually reduced again as the outbreak waned.

More than 1,500 UK military personnel were deployed to Sierra Leone over the 14-month Operation GRITROCK, which ended when the last eight personnel left Sierra Leone on 13 November 2015 (Ministry of Defence and The RT Hon Michael Fallon MP, 2015).

Interviewees almost unanimously commended the UK military, saying they were highly professional, disciplined and efficient, and that they managed their relationships well. Several stated that the operational management contributed by the military operation was critical to the response, and that this was a capacity that no other actor could bring. Some, however, were critical of how long it took to deliver the UK treatment beds, or considered that some military personnel appeared to resist integrating with a civilian-led response. Some military sources said they would have liked to have worked more closely with NGOs, but that many NGOs were reticent.

Coordination mechanisms within the NERC

Initially, the NERC held morning and evening briefings that were attended by more than 100 people. One interviewee who had been involved described the result:

We'd end up with a talking shop. Nobody would be prepared to make decisions, partly because it was so open that nobody wanted to say the wrong thing, but also because people would use it to grandstand.

These briefings were soon cut back to a single open meeting each evening. The morning ones were replaced by two rotating smaller management coordination meetings. One was for the Sierra Leonean leadership of the NERC only (the command group). The other, the 'co-ord meeting', comprised the command group plus the major international stakeholders in the NERC – the UK team, UNMEER and

WHO, and later CDC and UNICEF. USAID also joined later. Specific NGOs would be invited to the co-ord meeting when necessary.

The NERC had crucial convening power. The co-ord meeting, which convened three times a week, became its most critical coordination session, where differences regarding policy and strategy could be discussed and decisions made.

The UNMEER lead in the NERC held weekly coordination meetings with the front-line agencies, including UN agencies, and also met weekly with the development partners, including representatives of the key international NGO responders, ambassadors and others from the donor community. Not all NGOs involved in the response were consistent in using these platforms.

The technical pillars meanwhile coordinated among themselves through an Inter-pillar Action and Coordination Team (iPACT). This held regular meetings intended to exchange information, align work more effectively, target the deployment of NGOs, and improve communication with the Situation Room and the other operational components of the response. The pillars reported to the co-ord meeting on a rotational basis. Several sources said that the iPACT did not work as envisioned, with one claiming that it 'failed to deliver coherent, workable policies and demonstrated the poor coordination capacity of the MOHS and UN partnership'.

A recent paper by WHO and MOHS responders (Olu et al., 2016) acknowledges that the technical and operational components of the response were to some extent running separately, and that communication between them within the NERC was 'often suboptimal,' resulting in duplication of effort and competition. The authors argue that this occurred 'mainly because of a lack of understanding of the new coordination mechanism, as no orientation was provided on the new mechanisms for civil–military cooperation'.

It has been proposed that the NERC's success is attributable to its decision-making powers, human resource deployment and funding (Olu et al., 2016).

NERC challenges

Interviewees commented on a number of functional challenges that faced the NERC.

Data collection and sharing

One of the reasons for the establishment of the NERC was that data from the MOHS and WHO were inconsistent and unreliable. Getting data from the field was a major challenge during the NERC's first few months, and a lot of time was spent trying to find out what was happening in the districts. The district coordinators were overwhelmed, and information flow was patchy. The formal reporting line from the districts to the NERC did not work systematically, and interviewees commented that asset tracking was, as one put it, 'a nightmare'.

Information management reportedly improved after the NERC launched the Situation Room Academy, a training camp on mapping, mobile data collection and advanced Microsoft Excel. More than 600 people across 20 ministries subsequently received skills training to address the gaps identified.

Some interviewees said that lack of data sharing also hampered the response. One commented:

MOHS wouldn't share data with the NERC, but they would share it with WHO. We would only get the top-level data from MOHS, but not the granularity that was needed. WHO would publish its data. That had a material effect on the credibility of our data; people didn't trust the data coming out of the NERC and the President was asking DFID and AGI for data.

In part, this was because the priority reporting chain for agencies was to their own agency. Also, they were collecting data, but not necessarily the data needed for the response. The NERC convened a meeting of all agencies that were collecting data, and as a result trimmed back the key performance indicators from 160 to 41. By the end of January 2015 it had succeeded in harmonizing data collection sufficiently for an effective response.

Financial agility

A second challenge was the timely disbursement of funds from the NERC. The release of funds depended to some degree on which donor or other source was providing them. The lack of agility, due in part to bureaucracy and auditing requirements, caused considerable frustration, with many saying that for a time it hampered the response.

Resources reportedly often arrived late in the districts because of bureaucratic financial and logistical management systems (Olu et al., 2016). Interviewees said that the World Bank and the African Development Bank (AfDB) were particularly responsive to the problem from December 2014, and that the NERC was then able to unlock surge funding fairly quickly. Others, however, stated that problems with processing payments due to Ebola response workers were significant and persisted long into the response.

Coordination of partners

A third challenge was that each partner had its own strategy, which was not always aligned with the NERC's plans. Several interviewees noted that this applied mostly to donors, and one contended that if the three main power centres – the CJIATF, the NERC and UNMEER – had been more closely aligned at the outset, the whole response would have been executed more quickly. Several also remarked that coordination of NGOs at the national level was erratic during most of the response, while others said there was no NGO coordination to speak of.

A group of 15 international NGOs organized themselves into the Ebola Response Consortium, led by the IRC, to support the response across a range of activities from infection prevention and control and management of burial teams to surveillance and continuation of primary healthcare in some districts (Ebola Response Consortium, 2015).

However, although NGOs were key implementers of the technical response in the field, they were not major players in the operations side of the response. According to one senior response manager:

They participated in the pillars a great deal, and that's where a lot of the policy came from for the technical response. Were they at top table of strategy and management? No, but I'm not sure they should have been.

NGO coordination within the official structures was reported to be voluntary and not systematic; NGOs, like others, were allowed to attend NERC coordination meetings, but several interviewees said that although NGOs had tended to participate in the early response coordination mechanisms, this was

often not the case for the NERC sessions; nor did they make use of the other platforms set up for them to plug into the strategic discussions. One noted: 'When you have NGOs who want to be independent you have to take it into account, and to cater for a coordination place for them is difficult.'

Meanwhile, the British held their own daily evening briefing at their headquarters outside the NERC, and during its first few months often dealt directly with the districts. One interviewee explained:

The coordination of partners was a big problem. You start to understand why the British went direct to the DERCs. Things did get stuck. That shortened the timeframe of getting to the front line, but the problem is that tended to happen where the relationship with the district coordinator was good, so the district response was uneven. It also meant that because the DERCs were getting what they needed directly from the British, they didn't feel they needed to cooperate with the NERC. This all slowed down getting on top of the outbreak.

Another interviewee was more critical, however:

This didn't just slow things down. It completely altered the shape of the response in line with how they thought it should go, ignoring the host nation machinery that was supposed to be the coordination mechanism that everybody bought into.

Tensions within the NERC

Interviewees considered that a number of tensions with partners hampered the functioning of the NERC. As one described it, the ideal, functional scenario would have been for national and international partners to fully support the NERC in determining technically how to defeat Ebola, and for resources to be mobilized to achieve that result under a coherent single strategy. The NERC would give the districts the resources, and the DERCs would deliver the response on the front line. They would give feedback on what needed to be addressed to the NERC, which would then facilitate those needs, in a constant loop.

You had different organizations deciding where they thought the priorities were. They said you can have a bit of our people, you can have a bit of our resource, but we're going to control the rest and do those things our way. I thought that was wrong. This half-way thing creates huge rifts.

Tensions were not unexpected: part of the challenge was the sheer diversity of responders, with their assorted backgrounds and agendas. There were cultural differences between military and civilian responders, but there were also different approaches within the civilian community – such as between those normally engaged in development and those who worked on humanitarian emergencies, and sometimes there was a resistance to adapting. Another interviewee recalled:

You had people on all sides who exploited the differences. You had people who sought to bring things together and you had people who sought to tear things apart, as is the case in all humanitarian response. And individual and organizational vested interests are the kryptonite of effective humanitarian response; they really are.

The three main tensions within the NERC appeared to stem from the relationship between the MOHS and the NERC; differences between the public health/humanitarian approach and the authoritarian approach; and relations between the British and some of the senior members of the NERC. Initial tension between the donor partners and the NERC was also reported.

Tensions between the MOHS and the NERC

Several interviewees said that there was serious friction between the NERC and the leadership of the MOHS, adding that senior MOHS staff were embittered over their disenfranchisement, did not engage as fully as they should have done in the early stages, despite being invited to take a board-level role in the NERC, and then started to 'land grab' as the response started to tail off. One commented:

In first week of November [2014], none of the ministry people would attend the NERC meetings. There were empty seats for two or three weeks, until the president ordered them to go. Then they came, but wouldn't engage. This went on for months.

According to one NERC source, the MOHS was frequently a stumbling block in the first month or so after the NERC's establishment, for instance shutting hospitals, removing equipment or sacking staff:

They were actively working against us. They were very disruptive and the aim was to have the power back to run the Ebola response and we couldn't allow that.

MOHS engagement with the NERC improved for the most part as the response continued, and engagement at the pillar lead level was not really regarded as an issue. However, sources reported that tensions remained. Senior MOHS leaders rarely attended key NERC meetings even during the later stages of the response; and in September 2015, when post-NERC transition planning was under way, while the ONS leadership was engaging in the preparations, its counterparts at the MOHS were not. For instance, after the president announced an extension of the NERC's term, in early September, it was stated that not a single DMO turned up to the ensuing district planning meeting.

Tension between public health and enforcement approaches

There appeared to be a persistent tension between Sierra Leoneans who wanted to take a more authoritarian approach, and international responders whose preference was for a more permissive, educational approach.

Some have argued that the response was essentially securitized, through the use of international military personnel, the government's imposition of 'coercive' control measures, and the appointment of the minister of defence to lead the response (DuBois et al., 2015). But many of the strategies such as lockdowns or stay-at-homes, mass quarantines, army and police checkpoints, threats of arrest for withholding information on cases, and fines for violations of Ebola by-laws preceded both the UK military engagement and the defence minister's appointment.

One area of contention was the government's use of militaristic language around the response. Many sources with a public health background reported feeling uncomfortable with the use of terms such as 'lockdown', 'ingress from Guinea', 'the war on Ebola', 'inmates', 'escaped' and 'absconded', and some said that for the UN and other international responders, getting such language out of the response lexicon was a challenge in itself.

Interviewees also stated that some of the major initiatives in the response were originally conceived to be more authoritarian than they turned out to be after international partners had intervened to soften them.

Box 7: The Western Area Surge

The development and refining of a key operation in the response – the Western Area Surge – is one example of how the gap between the public health and military mindsets in the response was bridged by means of a plan that forced better coordination.

In November 2014 half of the Ebola cases in Sierra Leone were coming from the Western Area, encompassing Freetown and its outskirts, and response managers suspected that there were many hidden cases in the community.

With data modelling showing that there were now enough Ebola treatment beds, the leadership of the NERC, with funding from the AfDB, devised a strategy to intensify control efforts in the Western Area over a one-month period. It was declared this would involve sending the Sierra Leonean military in overnight to track down and remove the sick from their homes in one fell swoop.

One interviewee said that public health partners in the NERC, who believed in a softer, community support-oriented approach, were horrified, fearing that the strategy would drive Ebola cases underground:

It was mad stuff, but I honestly believe the CEO did that as a ruse, knowing full well that it would force everyone to get organized. I think he was putting a shot across everyone's bows and saying, 'Unless you guys get into the field and sort this out, I'm going to use a nuclear weapon here.' Sometimes you have to play the bad cop, and it did galvanize everyone. All of a sudden UNICEF, WHO, the ministry of health came together, and the international community, the ministries and everyone else did come up with something better.

The operation was delayed for a few weeks so that the plan could be refined and projections made of the expected number of cases and beds needed. In the end, a massive community mobilization initiative was launched before the case-finding began. This was implemented by medical staff instead of the military, which became the operational support to the surge instead of its front end. Additionally, malaria treatment days were instituted before the case-finding, so that isolation units were not overwhelmed with febrile patients and those suffering from malaria were not mixed with Ebola patients.

The operation was deemed a success, and elements of the Western Area Surge, such as greater numbers of ambulances and surveillance officers, as well as increased community mobilization efforts and other resources, remained in place for the remainder of the response.

One international epidemiologist said that he achieved more by paying community members to inform on sick people than he did by using the official system, which entailed fines for hiding patients or failing to report someone who was ill. He offered 150,000 leones for information and access to a family or community member, and another 100,000 leones if the person tested positive for Ebola.

However, a key Sierra Leonean responder stated that the NERC leadership knew that the population would not find it easy to remain in quarantine for 21 days and believed the only way to break the chains of transmission was to take a tough approach. According to this source, using the military brought a sharpness to the response, and the population respected the military:

There was no other way. We had to come in strong. We know our people and we know what would work with them. Carrots and carrots don't work. Once in a while you needed the stick.

While some international responders said that it was unclear whether the population mostly complied or hid in response to this approach, other international responders held the view that an authoritarian approach was culturally appropriate. One commented:

People wanted rules, they wanted an authoritative, militarized approach. The culture was supportive of coming down hard on people who break the rules. It wasn't only popular, it resonated and worked in Sierra Leone, which is very structured around traditional authority. The international community was critical of it at the time, but the lockdown was very popular with the Sierra Leonean population. There was gentle push-back and lack of support, but it wasn't heavy.

One international military source said that the approach was actually softer than it could have been.

It hasn't been a punitive campaign. Had we done that, we could have brought it under control a lot quicker, but that wouldn't have been palatable and the long-term implications would have been difficult. For example, some of the NGO partners might have walked out. It got tougher towards the end, but to an acceptable level.

According to another, however, that many of the authoritarian measures were not well enforced. Traditional healers who were undermining the response or defying control measures were left in place, quarantine was not strictly enforced and many other control measures were circumvented, largely without sanctions.

Nevertheless, some interviewees applauded the role of Sierra Leone's military, ONS, police force and wider security services – one for example saying they did a 'phenomenal job' through their restraint and commitment – in preventing the outbreak from becoming a security crisis across the country.

About 2,000 police officers were involved in the response, undertaking a range of security operations from manning temperature-check and hand-washing checkpoints and reporting residents who crossed the quarantine cordons to quelling isolated incidents of civil disorder.

While many interviewees felt that the work of the ONS was not effective or fully aligned with the government strategy, one interviewee credited it with playing a significant role in using its intelligence feeds to highlight and advise on security risks across the country:

They [the ONS] picked up on tensions before they became major flash points. That was huge.

Tension between the donor community and the NERC

Several interviewees cited a district resource-planning exercise coordinated by the NERC in late 2014, during a period of poor cooperation among its partners, as an example of apparent donor ambivalence at this time. The NERC convened a workshop for DERC leaders to train them in use of a resource-planning tool, and then sent them away to define what they needed. The NERC subsequently vetted, modified and consolidated the plans before meeting with donors in December 2014 to report on the needs and seek the resources to match them. One interviewee who attended the meeting recalled:

This should have taken two weeks, maximum, but over the next two months various people slowed that process down so that it became irrelevant. In the background, organizations were feeding resources down to the districts and making the whole process invalid because it was changing. It ended in a meeting where someone from UNMEER, someone from DFID, who hadn't engaged properly, sat with people from the NERC and just went, 'Yeah, they don't need that, they don't need that. We might give them a few of those, but they don't need that.' The process did eventually end up in some resources trickling down to district level, but the outcome bore very little resemblance to anything that had been proposed. The gulf was enormous. It was mad, and it was politics.'

Some interviewees said they believed the donors did not trust the DERCs' needs assessments or the audit trail; others that key individuals did not want the NERC involved in coordinating the districts and resourcing them. One commented: 'They were doing a tabletop reallocation of the resources that undermined the exercise in spirit and in practice. It was fundamentally condescending to think they know more what a district needs than the district itself says.' Another added: 'All of this undermined the authority and therefore the coordinating power of the DERCs and the NERC.'

Box 8: The UK government response

Although a range of international partners provided critical support to the response, it was DFID – on behalf of the UK government – that overwhelmingly funded and supported a national response architecture in Sierra Leone that brought together disparate actors and agencies and enabled the containment and eventually the elimination of the virus.

The overall UK contribution comprised a £427 million package that included provision of 1,600 treatment and isolation beds (more than half the total), the building of six Ebola treatment units, the funding of three laboratories, the provision of more than 1 million safety suits, the supply of vehicles and other aid supplies, support for 140 burial teams, and the training of more than 10,000 front-line healthcare workers. DFID also funded the vast majority of NGO programming across the country. Around 1,800 UK personnel were deployed, including around 1,500 military and 200 surge staff from DFID, plus staff and specialists from the National Health Service (NHS) and Public Health England (DFID, 2015).

DFID led the UK response through a senior director, heading the CJIATF, deputies from the military and the Foreign and Commonwealth Office (FCO) – respectively a brigadier, who ran CJIATF operations, and the high commissioner to Sierra Leone, who took charge of the political relationships.

There was a broad mix of response cultures within the UK contingent. In addition to the high-level division between the military, DFID and the FCO, there were several different cultures within DFID alone, with a mix of humanitarian specialists and development specialists, staff who were based in Sierra Leone and those who came in with the surge. Another level of complexity was added by the UK government in London, which initially set the strategic direction. Cultural and operational differences created challenges for efficiency but appear to have been overcome: despite reports of occasional frictions, interviewees considered that the team worked well together for the most part.

Both civilian and military personnel brought with them similar skills in a range of areas, resulting in much overlap – for instance in anthropological knowledge of and experience in Sierra Leone – but interviewees saw their different specializations as useful. According to civilian sources, the military brought coherence to the operational effect on the ground, and the strengths it contributed to the UK partnership included the ability to make order out of a crisis, strong command-and-control capabilities, flexibility, and the capacity to gather information and see patterns in the outbreak, as well as to see potential solutions to operational problems. As summed up by one interviewee: 'What the military are good at is going into an area where there is pandemonium, where no one knows what's going on, where there are no methods or no processes, and sorting it out.'

With regard to the civilian contribution, sources cited particular strengths as an understanding of how NGOs operate and think, and of the politics of Sierra Leone and international responses, as well as knowledge of financial mechanisms for getting resources into the response. Diplomats from the FCO were seen as having played an important role in using political levers to facilitate UK influence in the NERC and to mediate between the NERC and other stakeholders – from the Sierra Leonean government and the US presence to the CJIATF itself. In fact, this role was regarded as probably the most sensitively placed and quietly effective in the NERC.

The success of this concept of the British military supporting DFID in this sort of humanitarian crisis – the first time such an arrangement was tried – was attributed to the shared aims and intense focus of the various contingents, even though they had different ways and means.

DFID relied heavily on NGOs to implement the British-funded response in the field, and a key part of the British strategy was to deliver a world-class, bespoke ETU for healthcare workers, staffed by UK military medics. This was considered critical in persuading NGO healthcare workers to go to Sierra Leone, as it gave reassurance that in the event of their contracting Ebola they would get the best treatment available before being evacuated. It also satisfied their insurers.

The decision to build semi-permanent structures for the ETUs, rather than lower-specification field hospitals more quickly, was controversial, and interviewees said that DFID took a reputational hit over the time taken to bring the beds into service. The last British-built unit opened in mid-December 2014 (Operation GRITROCK Report, 2015). A study published in November 2015 concluded that while the beds saved lives, a further 12,500 cases could have been averted had the beds been made available a month earlier (Kucharski et al., 2015).

A broad range of national and international responders, including from within DFID itself, acknowledged that the initial CJATF approach caused friction in the NERC: simultaneously setting up new organizations, processes and plans while attempting to reconcile different cultures, working practices and personalities in the face of an increasingly serious situation was bound to be fraught with difficulty. Several interviewees noted that a shift in DFID's approach around March 2015 was successful in bringing the UK response, and that of other major partners, more into alignment with the NERC, resulting in better collaboration and a more refined response.

Tensions between the British team and the NERC

Several interviewees described the relationship between the British response team and the NERC as complex and, for a time, conflictual. Although they were closely involved in its establishment and operation, some British responders embedded in the NERC at first seemed reluctant to back it wholeheartedly.

The Sierra Leonean national command structure started with the president, with the NERC below him and then the DERCs. Meanwhile, the British had their own structure, with CJATF at its headquarters, British responders embedded in the NERC, and district support teams embedded in the DERCs. British responders had their own briefings and reporting lines: while the DERCs reported to the NERC, for some time the British teams in the DERCs reported to the British headquarters, as was normal for any British deployment. One senior British responder was critical:

You had this sort of parallel reporting and I didn't think it was helpful. We could have had a better effect if we had a single unified command structure.

Some interviewees felt the NERC was designed to put a Sierra Leonean face on a British-run operation. Others contended the Sierra Leoneans were at all times in charge at the NERC, with strong support chiefly from the British but also from other international partners. Another perspective offered was that the NERC made the decisions, but the British could affect implementation because they held the purse strings for a large part of the operational response. Others considered that there elements of all these in play, as summarized by one interviewee:

At the end of the day it's the NERC and president who make the decisions. The UK then make some decisions around the NERC independently if they don't like what the NERC is doing.

However, the answer to the question of who really controlled the Ebola response in Sierra Leone, and to what extent it was unified, appears to depend on which period and what aspects are being discussed. Moreover, interviewees said the UK was asked to take the lead, but that it was unclear exactly what that meant. One British responder recalled:

It was a strange scenario of hot and cold where we [didn't] want to be responsible for coordinating with everybody but we were a little frustrated when the other actors were operating outside of the UK's framework of operations. We saw a lot of the UK saying x activity needs to be done by the UN, or somebody else, then they would get on and do it themselves. Then the UN or NGO would try to do it, only to find that the UK had already contracted another NGO to do it. There was this kind of slightly erratic approach, which made it a bit challenging.

As already noted, initial tensions between the British and some of the Sierra Leonean leadership in the NERC over control of the response were widely acknowledged, and several sources said that relations became quite unpleasant at some stages, particularly as the NERC started to assert more autonomy towards the end of 2014. The NERC was not wholly dependent on UK funds, since it also had UN,

World Bank and some other donor funding at its disposal, but many of the key NGOs implementing the response in the districts were funded by the UK. One interviewee described a meeting that took place in December 2014 between NERC leaders and the UK team:

The British were stage-managing everything. The agenda was what they want out of the NERC. The conversation was how the NERC was getting too big for its boots. The NERC leadership was getting more independent and [the British] were complaining about a sense of not being in control.

Several interviewees expressed the view that the UK team did not fully back the NERC for some time. Many explained the dynamic as the British filling a vacuum where they saw one, with one interviewee saying that although the NERC was theoretically right for the task, participants struggled to make it function at first and British credibility was on the line. Others said that where people showed leadership the British supported them; and that while the aim was always to get the Sierra Leoneans to run the NERC, it was sometimes necessary to intervene.

However, many UK interviewees acknowledged that the British could have supported the NERC better once the outbreak began to decline. One commented:

We had operational decisions to make, and the NERC wasn't in a [fit] state in that early period. People would forgive us for the initial period because everyone understood what a mess it was. The bit that annoys people is the fact that once the NERC was established, we did not lean into it in a way that would allow it to succeed. Maybe that parallel system got a bit entrenched; I think we got it to a point in December [2014] where we should have been doing a lot more empowering of the Sierra Leoneans.

Once the NERC was established, the Sierra Leonean government response was led, in detail, by President Koroma. Several interviewees confirmed that he made the key decisions on policy issues, and although the British had significant access to him, they stood by his choices. Interviewees cited quarantine as an instance where the British lobbied against a particular strategy but Koroma ordered it nonetheless.

One interviewee considered that while it was fair to say that the British did not give the Sierra Leoneans enough public credit for the success of the response, the perceived power dynamics in reality reflected a complex agenda: those with whom the British felt they worked closely would say it was a British-supported operation; while those whose interests were undermined, or with whom (for whatever reason) the British felt they could not work closely, would be likely to see it as a British takeover.

According to another source, the dynamic between the British and the Sierra Leoneans in the NERC was largely a function of the context at any given time:

At the beginning, the UK were very scared, not trusting the government. What do you do? Sometimes you push them aside, and then as time goes by you develop a bit more confidence, you find local partners who are more credible. Maybe you take out one or two more of your hawkish people and you put in a few more partnership-oriented people and then the relationship changes and it evolves, becomes more mature.

Several interviewees reported that the relationship became much more collaborative from March 2015, with tensions easing when the UK team began to be more supportive of the NERC. Interviewees said that they sensed the British tried to harness the resources of other response partners, looking for coordination opportunities, avoiding duplication and engaging in a more open dialogue with them. Following a fall in infection rates, the plan was to focus efforts on making the NERC more effective so that UK staff could be withdrawn within months, enabling the whole operation to be run independently by the Sierra Leoneans.

Coordination reportedly continued to improve as the response matured. Interviewees commented that towards the end they had more of a sense that the NERC had the full support of the British and that most tensions had been resolved. There was no clear consensus on the extent to which this shift was attributable to personalities, attitudes and engagement styles; to issues being worked out over time and the NERC's overall capacity strengthening; or to a change in what was called for at that stage of the outbreak.

One British source said that by March 2015, at which time there was a change in the CJITF's leadership, there was clear respect for what the UK had done, but slight hostility from the NERC leadership was detectable over the way the UK had been interacting with the NERC. There was concern that the British were operating in parallel and not endorsing the NERC. Meanwhile, according to one interviewee from the UK side, it was considered that policy was being made by President Koroma, in consultation with the British, and that the NERC was more symbolic than functional:

The view was that the focus should be placed on the DERCs. There were things you could have driven without [the NERC], faster, but in terms of the relationship issue, there were only UK DERCs left and we were heading for trouble, as the NERC was focused on the same districts. There was potential for loads of conflict and it wouldn't work if we weren't pulling together.

After a period of gradual withdrawal of UK staff from the NERC between March and May 2015, more UK staff were put in and the UK's separate headquarters briefings were phased out, so that all coordination was channeled through the NERC. A Sierra Leonean interviewee said in September 2015:

There has been a huge shift. Before this, senior Sierra Leonean personalities at that NERC didn't feel ownership of the response. They thought it was a British response. They sat back, didn't innovate. They have since shown they are capable of more.

One long-time international humanitarian responder said that by the end of the response, coordination between the international community and the host country was the strongest he had experienced.

Box 9: Operation Northern Push

One NERC initiative in June 2015 was cited as an example of the refinements in collaboration that characterized the later stage of the response.

By the early summer of 2015, the response was stagnating and needed reinvigorating. The virus was stubbornly persisting in two districts and spreading to the Western Area; and, according to one response leader, responders were getting tired, losing will and not maintaining the intensity of response required.

One interviewee credited the collaboration around the NERC's Operation Northern Push with ending the coordination problems between the two parallel systems that had been an earlier source of tension. This operation aimed to bring a surge of case investigators and social mobilization into the two districts that remained problematic.

The plan was developed in a single day among the partners within the NERC, including the CDC lead, UNMEER and AGI staff. The British military devised the structure of the operation, the NERC's co-ord group signed off on the plan, and it was presented to the president the next day. It included a disciplined reporting system between the DERCs and the NERC, and was the first time the NERC exerted strategic pressure on the districts to determine what components were needed and how they should be operationalized. Having created their plans, the DERCs were required to report them to the NERC. Weekly joint visits to the districts by the NERC leadership together with the British, UNMEER, the IFRC, UNICEF and CDC were introduced to assess progress and resource needs. A senior response manager considered that the operation was a watershed not only in refining but in integrating the response, finally achieving true partnership between the NERC and international responders.

5. The DERCS

Origin of the DERCS

By September 2014 the backlog of burials was considered the major bottleneck and risk in the response (Operation GRITROCK Report, 2015). There were bodies piling up in the streets of Freetown, and residents had protested over the slow collection (UNMEER, 2014). The burial vehicle teams in the Western Area were not setting out to pick up bodies until about 1 pm each day because it would take them until that time to get the vehicles ready.

The CJATF tasked a UK army colonel with carrying out a review to assess how this could be improved. On 19 October, with a staff member from AGI and others, he set up a command centre for the task. Thereafter, burial teams would bring their vehicles in to the RSLAF base each evening, where they were washed, repaired, refuelled and restocked overnight and positioned in strategic locations around the capital in time to go out at 8 am. The IFRC and the NGO Concern were recruited and trained to manage the new system. The command centre was essentially a breakaway from the MOHS-led district response, establishing a command-and-control mechanism at a new location, the British Council.

Within three or four days the backlog had been cleared; within a week more than 80 per cent of bodies in the Western Area were being buried within 24 hours; within two weeks the rate was 95 per cent; and a few days later it reached 100 per cent (Operation GRITROCK Report, 2015).

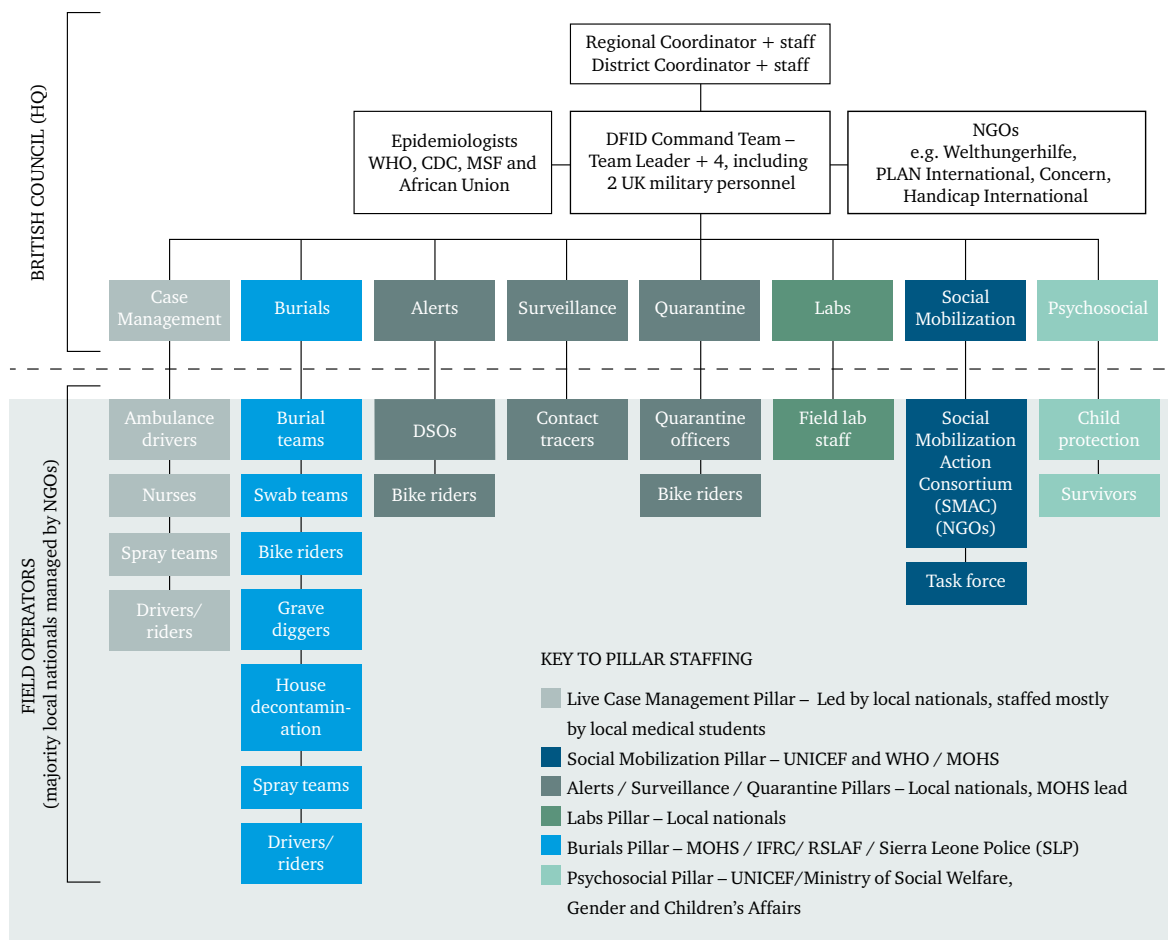
Days later, the president ordered all Ebola functions in the district to be moved to the new command centre, which soon expanded to other interventions. The system was built in blocks, according to the most urgent priorities, and NGO partners were recruited to manage them.

The success of this initiative was a proof of concept for the efficiencies that command and control could bring, and was a turning point in the response. Interviewees said the president visited and asked for it to be replicated in all districts, so over a period of about six weeks, in parallel with the establishment of the NERC, the new DERCS, modelled on the Western Area command centre, were established in all 14 districts, with UK support staff embedded in the eight where the disease was most active.

Structure of the DERCS

The idea was to bring planning, operations, logistics, finance and administration together into one place, as a district-level equivalent of the NERC. The DERCS were designed to be adaptable to local needs, so each one was different. Figure 2 shows the eventual configuration of the Western Area Ebola Response Centre, the DERC for Freetown and its outskirts, from where around 130 people managed more than 1,300 front-line responders.

Figure 2: Western Area Emergency Response Centre staff structure, September 2015



Source: Major Billy Perham Royal Marines, for Chatham House.

Under a standard structure, the DERCs were co-headed by a politically appointed Sierra Leonean DC and the DMO, although there was some variation in practice. UNMEER had a field crisis manager embedded in each DERC. In addition, each of the British-supported DERCs initially had a UK military staff member, and, by January 2015, a District Ebola Support Team (DEST) to help run operations. The DEST comprised a mix of usually five or six UK military and civilian personnel. The head of the DEST was a DFID civil servant or contractor, and the chief of staff came from the UK military. The UK deployed 80 people in the DERCs at the peak of the outbreak (Operation GRITROCK Report, 2015).

Each of the DERCs that did not have a British DEST was supported mainly by NGOs and had an RSLAF chief of staff.

While operational decisions were in general made by the international partners in the DERCs, the district coordinators tended to take charge of the local interface, including engagement with traditional chiefs and other community leaders. The disease control interventions were implemented through the pillars, which (as at the national level) were led by MOHS staff in partnership with a UN agency. At the district level, the pillar leads were in charge of implementing the technical advice and addressing technical questions, and guided strategic priorities, provided the medical response and developed recommendations. The epidemiology work was led by WHO and CDC.

NGOs were the main implementing partners, and managed the front-line response workers – the vast majority of whom were Sierra Leonean. RSLAF staff ran the command-and-control operation for burials. Contrary to what had happened under the early response mechanisms, the traditional authorities – i.e. paramount, section and village chiefs, as well as other community leaders – were not systematically woven into the fabric of the DERCs, and there were reports that as late as February–March 2015 social mobilization activities were attempted without following the approach of engaging the village chiefs, as would be expected by convention in Sierra Leone. However, paramount chiefs participated regularly in DERC meetings, reportedly after fearing marginalization in the new system and successfully petitioning the president's office to be included (Olu et al., 2016; Richards, 2016: p. 131).

Challenges in the DERCs

Interviewees reported that the functionality of the DERCs was variable, with much depending on the quality of the relationship between the DC and the DMO. Some spoke of tension and conflict between the DC, the DMO, the DEST and the UNMEER field crisis manager over control of the outbreak response (Olu et al., 2016).

DC–DMO relationships

The tension between the MOHS and the NERC also played out, to varying degrees, in the districts between the DCs and the DMOs. According to one interviewee:

I saw incidents where burial teams were delayed because district medical officers didn't let their staff go. There was sabotage going on. There was lots of dysfunctional stuff happening on an individual basis. Individuals exploited the tension between the MOHS and the NERC.

The DMOs were intended to have as much ownership of the response as the DCs, but interviewees said that initially it was difficult for them to get space at the table to give their opinion on the medical approach because many of the DCs saw the role as an opportunity to further their own political ambitions. The DMOs also felt disenfranchised after the president took control of the response out of the hands of the MOHS, and many reportedly became disengaged. One interviewee commented:

The libretto that played out at the national level meant there was an inherent distrust between [the DCs] and the DMOs in most of the districts. Where both were reasonable people, they found a way to put it back together, but the starting condition was basically DERC and DMO are different entities.

This interviewee added that when the response was focused on building beds and catching up with the burials backlog, this tension was not such a threat to the success of the response, but when the focus shifted to surveillance, case finding, contact tracing and community mobilization the medical officer became much more important and problems in the relationship needed to be resolved.

Another interviewee stated that when the president put out a clear message that it was to be an equally led response, this created the space for the DMOs to come back in. WHO had by January 2015 brought its own response up to scale, including at the district level, and it helped to bring the DMOs back in some of the districts. This brought balance, and allowed for a substantive shift in the response between January and March. The district response became much more technically led, with the operational capacity supporting the achievement of the technical objectives, the interviewee said.

However, tensions reportedly persisted in some areas, and in at least one DERC the DMO remained disengaged, rarely visiting the centre. Some interviewees noted that this was preferable to having to contend with a combative relationship that hampered the response.

While several interviewees said that British desks in the DERCs were crucial to their functioning, it was noted that some successful district campaigns were dealt with locally and not British-led.

NGO coordination

Sources said that it took some time for coordination across the DERCs to work well, but added that coordination of NGOs was a specific challenge in some districts where several NGOs continued to operate outside the net of the DERC, and not in alignment with its strategy. This meant that setting up services and maximizing resources did not always happen as it should, sometimes undermining the DERCs' efforts to gain trust in the community.

For instance, one DERC leader found it problematic that NGOs engaged in contact tracing on the back of their role providing supplies to families in quarantine:

They just took it upon themselves to start taking temperatures, travel and contact histories. There was already a contact-tracing team from the DERC visiting them over several days to monitor symptoms and gather information on exposure to risk. There were several organizations coming several times a day to these areas saying and doing similar or different things, and it undermined our ability to build trust in those communities. It became a problem when there were fewer cases because the NGOs had less to do, so they would all gravitate to fewer quarantined homes to report back to their funders that they were doing something. Stopping it was challenging.

Social mobilization was a particularly difficult area of coordination at the district level, interviewees said, as it attracted a large proportion of the NGOs. This pillar was led by UNICEF. A DFID-funded consortium of NGOs called the Social Mobilization Action Consortium (SMAC) was set up around five leading agencies and their networks to support its implementation, but some interviewees said it acted as a parallel, competing structure rather than through the DERCs, resulting in significantly uneven coverage. As late as the summer of 2015, an NGO mapping exercise in one district revealed that several social mobilization groups were active in one area that had not had an Ebola case for 90 days, while hardly any were covering another area where the outbreak was active. Interviewees said the British and UNMEER improved the coordination of NGOs by placing more focus on this aspect as the response matured, but that it was never systematic.

Another challenge for coordination was the frequent rotation of international civilian staff, with most CDC staff on four-week rotations, some DFID staff working a pattern of six weeks on, two weeks off, and UN agency staff and UNMEER field coordinators also working patterns that were inconsistent with others. This had an impact on establishing relationships and continuity in the response, as well as on cost and efficiency.

Political issues

Politics within and around the operation of the DERCs (as in some instances at the level of the NERC) was a significant challenge. Interviewees said the main political issues were around money and corruption (discussed further below) and power struggles, and that in some areas of the country it was impossible wholly to dissociate response activity from the political environment.

Several said that they saw Ebola as an issue of regime stability for President Koroma, noting that he appointed mostly members of his own party to head the DERs. Political parties, jockeying for primacy at the district level, used the Ebola response to leverage their own political ambitions. One interviewee said the amount of time that had to be spent on governance analysis and navigating the 'riotous political battlefield' meant that in one district getting to zero Ebola cases took about two or three months longer than in other districts. To understanding the political landscape involved deciphering the structure of district councils and the political networks, their role in blocking tactics and counter-messaging, and how these efforts were having a negative effect on communities' willingness to contribute to the response.

One example of how party politics hampered the response was described in detail by one source:

WHO had recruited all 25 members of the district council, but didn't realize they were in an intra-political conflict within the APC [All People's Congress]. This dated back to a point where the district councils were divested of development budget administration, particularly the health budget. In order to punish the APC party, and in particular the president, all 25 members of the district council, in their capacity [as] having been recruited by WHO to be contact tracing supervisors, would simply drag their feet through treacle. They would see everything happening and they would do nothing to effect positive outcomes in contact tracing. These kinds of things were really railing against us and it took a bit of time to understand this.

The same source explained that, in order to be effective, it was necessary to engage in the politics – even though this did not sit well with those who believed in taking a 'classic' humanitarian response approach – by quietly applying political leverage, for instance by strategically copying selected people in to emails in order to set in motion a process whereby problems were escalated through Sierra Leone's national architecture with a view to getting them resolved.

Key Sierra Leonean interviewees said that the British were crucial in defusing the politics. Once the UK responders understood the patron–client relationships, it became fairly easy to overcome the negative effects, in some cases by building the political capital of the DC to apply the right levers to clear bottlenecks. Once those who were blocking progress were in some way neutralized, the way was open for others to step into their role, quickening the pace of transition to zero Ebola cases.

An example was cited of efforts to control Ebola in a rural market area near the border with Guinea being hampered by tactics aimed at preventing the erosion of financial interests, particularly in the cross-border trade of fuel (which is about 40 per cent cheaper in Sierra Leone than in Guinea). Once the British had worked out how the structure of patrimony operated in this area, they applied political pressure on key individuals and began to uncover who had controlling influence. As they got closer to the source of influence, action was taken within the patronage group and the problem was resolved.

One source of tension between the Sierra Leonean government and the international community was the politicization of burials. Safe and dignified burial was a central part of the response, but the authorities sometimes granted exceptions to the rules on location for a favoured few connected individuals, which undermined the integrity of the system. Interviewees said that the government wanted to relax the rules but the British resisted firmly. People began to see loopholes in enforcement and these got bigger and bigger, hindering control of the outbreak.

UK responders were sometimes able to defuse the politics by taking pressure off Sierra Leoneans targeted by political manoeuvring. For instance, early in the response there were occasions when a politician would phone the dispatcher or ambulance drivers who were out collecting bodies and divert them to the home of a friend. Such a request would result in hours of debate over ethics,

and the politician's priority would eventually prevail – regardless of the response priorities. However, once the British intervened to organize the body collection and burials system, they buffered the Sierra Leonean front-line workers and medical officers from political interference and neutralized the effect by routing all such requests through the DERC, taking the calls themselves if necessary.

Corruption

A 2015 Transparency International report on corruption in Africa found, *inter alia*, that bribery rates in Sierra Leone were 'very high', that corruption is perceived to be more extensive in the public sector in Sierra Leone (and Liberia) than in many other countries in the region, and that corruption may have hampered the Ebola response (Transparency International, 2015).

Interviewees who commented on this aspect during research for this paper considered that corruption was a significant barrier to control, and that in addition to its direct effects, the long-standing mistrust of government officials it had generated inhibited community buy-in to the response.

According to some interviewees, their experience was that money and corruption politics were more important than party politics, particularly at the national level, and that channels and instances of corruption threaded through the response. Examples given included bribes required to get papers signed to build treatment centres; vehicles going missing; illegal charges for vehicle passes to enter or leave quarantine zones; and rain gear and personal protective equipment turning up on the black market.

One particular problem was the inclusion of bogus names on the MOHS list of those entitled to hazard pay. Towards the end of 2014 hundreds of Ebola health workers went on strike over unpaid hazard bonuses, and there had already been similar strikes in August in Kenema district as the outbreak was expanding there (O'Carroll, 2015; BBC News, 2014b; Reuters, 2014). There was suspicion that payments were being diverted to fictitious workers on the MOHS roster. A key response manager recalled that at one point a list of 12,000 names for hazard payments was submitted to the NERC, but only about half of the names had unique phone numbers, revealing that the list had been doubled with 'ghost' healthcare workers.

Such concerns were confirmed by two national audit reports covering the period from May 2014 to April 2015 – one for the period before the NERC was established, and one after. Both found inadequate control mechanisms over, or in accounting for, response funds in a range of areas including vehicle fleet management, procurement of supplies and services, hazard payments to health workers, and tax withholding (Audit Service Sierra Leone, 2015a; Audit Service Sierra Leone, 2015b). The second report found that financial management had improved as the response to the outbreak developed, but it listed several remaining concerns. Some of the discrepancies noted in the earlier report could be explained, but others remained unresolved.

6. Final Transition

In March 2015, with the number of cases per week down to double digits and the command-and-control systems firmly in place in the DERCs, the British decided to gradually scale back their presence – particularly military personnel – in the response structures, and to hand over more of the management to the Sierra Leoneans (WHO, 2016c).

However, interviewees stated that the new head of the UK response team who had rotated in in March was not as convinced of the strategy. After some debate, the withdrawal of military and then civilian personnel went ahead, with the UK military force being reduced from about 700 to 250 (unpublished UK military report, 2015). By 12 May 2015 Sierra Leone had gone for eight days without an Ebola case and the virus had been beaten back into three quarantined homes (WHO, 2015e). The healthcare worker Ebola treatment unit had not seen a patient since the middle of March. The outlook was good. However, some interviewees noted that at the time they thought the withdrawal was premature because the capacity of the DERCs was fragile.

Soon afterwards, an infected woman left a quarantined house and went back to her home, causing a spike in cases. This prompted the British to put military personnel back into the DERCs in the remaining trouble spots, and key people back into the NERC. Thereafter, the British maintained a presence until Ebola transmission was stopped and the NERC and DERCs were decommissioned.

Sierra Leone is now in the second phase of its 2015–17 recovery strategy. This aims to restore normalcy and build social services.

WHO declared Sierra Leone free of Ebola transmission for the first time on 7 November 2015 (WHO, 2016d). Following the declaration, the British began to wrap up their operation, sending the military home shortly thereafter. DFID remained until January 2016, when the NERC was closed (Foryoh, 2016). The NERC's responsibilities were divided among the ONS, the MOHS and the Ministry of Social Welfare, Gender and Children's Affairs, while the DERCs were absorbed by the District Management Health Teams (Foryoh, 2016). After a flare-up in January, WHO declared the end of Ebola transmission in Sierra Leone for a second time on 17 March (WHO, 2016e). On 29 March, two years after the West African outbreak was first detected, WHO terminated the designation of Public Health Emergency of International Concern that had been declared in August 2014 (WHO, 2016a).

Sierra Leone is now in the second phase of its 2015–17 recovery strategy. This aims to restore normalcy and build social services, including the capacity of the MOHS and the ONS, as well as other responsible institutions, to replace the functions taken on from the NERC and the DERCs, and to improve strategic and operational performance (National Ebola Response Centre, 2015; Government of Sierra Leone, 2015).

Box 10: Selected bilateral contributions to Sierra Leone's Ebola response

While the UK was the most significant donor and played a leading role in the management of the response in Sierra Leone, a broad range of countries contributed in various ways (DFID and RT Hon Justine Greening MP, 2016). Some of these are summarized as follows:

African Union: The African Union (AU) plugged into the response through various international agencies and NGOs, contributing a mix of skills ranging from infection control, burials, psychosocial support and epidemiology, to nursing, clinical care and laboratory diagnosis (Musabayana, 2016). Over 350 volunteers from more than 10 African countries were deployed to Sierra Leone under the AU (African Union, 2015).

Canada: The Canadians set up mobile laboratories and infection prevention and control activities, and deployed doctors and nurses from the military to work with their British counterparts in the health worker ETU. A total of 79 medical and support personnel from the Canadian Armed Forces took part in the six-month operation, passing through the UK for pre-deployment training.

China: China sent a 59-person medical team from the Chinese Center for Disease Control, including epidemiologists, laboratory technicians, doctors and nurses (WHO, 2014b). The most visible Chinese activities included the setting up and running of a laboratory and an Ebola treatment unit. The Chinese also conducted Ebola vaccine research (ReliefWeb, 2015).

Cuba: A Cuban team of 165 doctors, nurses and other healthcare workers arrived in October 2014; this was the largest foreign medical team from a single country (WHO: Regional Office for Africa, 2015).

US: The US government committed approximately \$300 million to support the response in Sierra Leone – an amount second only to that of the British commitment (US Department of State, 2015). Although the US government response as a whole was most visible in Liberia, CDC's largest presence in West Africa was in Sierra Leone, with more than 1,000 of its personnel being sent to the country (the agency's biggest ever deployment). CDC played a major role in the technical response, serving as its scientific and epidemiological backbone before WHO scaled up its own capacity, and then continuing to play a critical role as a leading technical partner. The agency had a voice at the national coordination table, and conducted surveillance work, outbreak investigations, diagnostic testing, screening at ports, and infection prevention and control training. It collaborated with the MOHS to establish and maintain the database of Ebola cases for the country. It also mentored contact tracers, advised on patient management and ran a large Ebola vaccine trial. The US also provided funding for the NERC, for NGOs and UN agencies, supported burial teams, and constructed and funded isolation and treatment units.

Response leaders acknowledged that bilateral support for the response – from money to manpower – came from many other countries, and was included in the CJIATF. They cited as examples: medical teams from South Korea, Denmark, New Zealand and Norway; the Norwegian Air Force providing a vital air bridge for laboratory equipment and supplies; the Netherlands supporting a lab and vital military deliveries of DFID aid equipment; Ireland contributing troops to the UK military-run health worker treatment facility and to work in the DERCS; and the Australian government underwriting an ETU.

7. Conclusion

In the 22 months from the establishment of the National Ebola Task Force in March 2014 to the closure of the NERC and the DERCs in January 2016, the operational architecture of Sierra Leone's Ebola response went through three main iterations. The unusually long duration of the outbreak meant that the response was honed over time, and this provided a rare opportunity to study its management as it matured.

The circumstances that enabled the British to take on such a significant role were rare. Ebola is a disease that inspires extreme fear, and the scale of the outbreak was unprecedented. In addition, the UK's extraordinary level of influence was born out of a long-standing, strong relationship with Sierra Leone, including close ties between the two militaries.

Interviewees stated that Sierra Leone is a country that respects the military – its own and the British – and that in some areas UK armed forces were made extraordinarily welcome. The depth to which the British, and particularly the British military, were able to embed themselves in the national response seems to a large degree attributable to the strength of the historical relationship, which was considered to have provided an immediate platform of mutual trust and collaboration. In addition, the deployment of UK forces was accommodated within a strategy that was already using military resources.

While a country can be overwhelmed by an outbreak, a situation in which WHO fails to help the national government take control of the outbreak is unusual. WHO was not able to facilitate or provide the necessary coordination during the window of opportunity before the outbreak escalated out of control; an OCHA-led UN cluster system was not brought in to fill the gap; and then UNMEER – created as an alternative UN mechanism – did not fulfil that function either.

This was a rare convergence of factors that is unlikely to be replicated, and care should be taken not to generalize the applicability of the approach taken in Sierra Leone to future health crises. Nevertheless, the experience provides some insights that may be useful for future crises. The set-up of a civilian-led, military-supported operation appeared to work well, and it seems that the success of the interagency cooperation can in part be attributed to the willingness of individuals to overcome frictions and difficulties. However, while the differences in ways of working and in command-and-control structures were overcome, efficiency and coherence might have been better had, for instance, there been one joint information system architecture instead of two. The final coordination structures were not created from some pre-defined best practice; rather, they were driven by events on the ground, an amalgamation of ideas, and political and donor willingness.

The NERC, through a 'lessons learned' exercise that it conducted at the close of the outbreak, identified a need to develop principles around the use of military assets in a public health emergency response in Sierra Leone. It recommended leveraging the experience gained from this outbreak by 'providing appropriate training and clarifying protocols on their role in civil affairs during emergencies' (National Ebola Response Centre, 2015).

Decentralization of the response, which involved more than 35,000 Ebola response workers across the country, appeared to be important for the level of agility and tailoring necessary (National Ebola

Response Centre, 2015). While coordination and collaboration in the DERCs was difficult, in part because of the turnover in personnel and the sheer volume of organizations in the districts, the provision of a focal point for partners to work through in the field was generally regarded as one of the DERCs' most important contributions. And despite the challenges, several interviewees saw the DERCs, through which the crucial targeted population behaviour change campaign was delivered, as one of the biggest strategic successes of the response in Sierra Leone and a key 'battle winner'.

However, while most considered that the DERCs were a necessary and critical creation, some felt that the response would have gone more smoothly, and the outbreak been stopped more quickly, had the existing architecture of the district security committees, headed by the ONS, instead been co-opted at the outset and bolstered. According to one international civilian responder:

At the national level, the (ONS) disaster unit was very under-resourced, but the district security committees were very functional and ONS, the police, the military, the local government, the chiefs, were all very much part of that structure. Had that system been activated, it would have brought on the local leadership, both traditional and political, which the response never did. And the ministry of health at the district level would have gone straight into that mechanism, as they were part of it anyway. What we had with the NERC and DERC structure was continual conflict between the NERC and the districts, between the district administration and health teams and the imposed district coordinators who came out of the president's office.

Most interviewees judged the NERC to have been a qualified success, considering that it was staffed by a team of people who had never been trained to work together, all reporting to different people and coming with different agendas. That the UK acted in parallel with the NERC in the first few months did seem to have adverse consequences for key relationships, but the net impact of these on the outcome of the response is difficult to ascertain. And despite the tensions that often arise naturally when different groups work together, the various partners involved in the response largely converged around the NERC. It had data; it responded to what it was seeing; and, by and large, the response was channelled through it.

The problems faced during the Ebola response in Sierra Leone were complex, and policy and strategy were constructed as the response developed. There were many and diverse players, most of whom had no experience of epidemic response, let alone of an Ebola response. Regardless of the systems and management structures that were put in place, however, at almost every level personalities and personal relationships appeared to be key to the functioning of the response. An important illustration of this is that while several interviewees said that they did not rate UNMEER's performance highly overall, the UNMEER lead in the NERC from March 2015 onwards appears to have been an exception.

It is clear from the research for this paper that, while there were many bumps along the road, the response mechanism became more refined over time. After a few struggles for control, and other challenges, it seems eventually to have reached a balance.

The response was not integrated under a single command, but it was to a certain degree coordinated, and coordination improved as the response matured. It seems that the Sierra Leoneans did not really have the power to impose a unified, integrated managerial mechanism, but this is reflective of the way humanitarian response tends to operate more generally. A well-coordinated response may be more functional than one that is poorly integrated, and in an emergency the energy required to gain complete command and control over the whole process may often be more effectively expended in enhancing coordination, in the interests of a better overall result.

Acronyms

AfDB	African Development Bank
AGI	Tony Blair Africa Governance Initiative
AU	African Union
CDC	(US) Centers for Disease Control and Prevention
CEO	chief executive officer
CJIATF	Combined Joint Interagency Task Force
CMO	chief medical officer
COBR	(UK) Cabinet Office Briefing Room
DC	district coordinator
DERC	District Ebola Response Centre
DEST	District Ebola Support Team
DFID	(UK) Department for International Development
DMO	district medical officer
EOC	Ebola Operations Centre
ETU	Ebola Treatment Unit
FCO	(UK) Foreign and Commonwealth Office
GOARN	Global Outbreak Alert and Response Network
IFRC	International Federation of Red Cross and Red Crescent Societies
IMATT	International Military Assistance Training Team
IOM	International Organization for Migration
iPACT	Inter-pillar Action and Coordination Team
IRC	International Rescue Committee
ISAT	International Security Advisory Team
MOHS	Ministry of Health and Sanitation
MSF	Médecins Sans Frontières (Doctors Without Borders)
MSW	Ministry of Social Welfare, Gender and Children's Affairs
NERC	National Ebola Response Centre
NGO	non-governmental organization
NHS	(UK) National Health Service
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
ONS	Office of National Security
RFA	Royal Fleet Auxiliary
RSLAF	Republic of Sierra Leone Armed Forces
SMAC	Social Mobilization Action Consortium
UNCT	United Nations Country Team
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNMEER	United Nations Mission for Ebola Emergency Response
USAID	United States Agency for International Development
WFP	World Food Programme
WHO	World Health Organization

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Cover image: A soldier during inspections for signs of fever, one of the symptoms of Ebola, at a checkpoint in Nikabo, a village in Kenema, Sierra Leone, on 27 August 2014.

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