Charity Medicine for the Global Poor: Humanitarian Ethics and the Nigerian Lead-Poisoning Outbreak

by

John David Pringle

A thesis submitted in conformity with the requirements for the degree of Doctor of Philosophy

Dalla Lana School of Public Health & Joint Centre for Bioethics
University of Toronto

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2015

Abstract

Background: Beginning in 2010, an unprecedented lead-poisoning outbreak in northern Nigeria has killed more than 700 children and endangered thousands more. The outbreak exemplified the intersection of global inequality, material poverty, economic globalization, and poverty-driven resource extraction. The international response – in which I participated – raised profound ethical challenges. The goal of this thesis is to examine the issues, challenges and frustrations in the international humanitarian response as an inquiry in humanitarian ethics.

Methodology: A qualitative study using data from (1) a media and document review and (2) twenty-one key informant interviews of key international humanitarian actors. Analysis drew upon critical theory to reveal the context of the Nigerian lead-poisoning outbreak, the international humanitarian response, and the ethical issues and challenges encountered.

Results: Working under adverse conditions, key informants experienced frustration and dismay at broader societal forces which surrounded the outbreak and the paucity of public health services in the northern region of Nigeria. Media accounts corresponded with organizations’ public communications and advocacy campaigns. There were significant tensions surrounding
state obligation to its citizens, poverty-driven resource extraction, the medicalization of crisis, and contemporary humanitarianism under global capitalism.

**Conclusions:** The case of the Nigerian lead-poisoning outbreak exemplifies the workings and failings of a humanitarian response to a global economy-generated environmental disaster in a post-colonial, neoliberal, lower-middle income country. Grinding poverty, inaccessible healthcare, and a laissez-faire outbreak response proved threats to public health. The humanitarian response to the Nigerian lead-poisoning outbreak was less the Dunantist tradition of humanitarianism and more akin to charity medicine for the global poor, which flourishes under neoliberalism and its disasters, thereby inadvertently supporting neoliberalism’s policies and reshaping the contours of humanitarianism. This thesis identifies profound ethical issues and dilemmas in contemporary humanitarianism to further discussion of humanitarian ethics.
Acknowledgments

The writing of this thesis has been a journey, one that would not have been successful without immeasurable support. Thank you to my patient and encouraging supervisor, Donald Cole, and my thesis committee Anne-Emanuelle Birn and Ross Upshur. Thank you to my partner and love-of-my-life Laurie Gashinski and step-son Matthew Crosgrove. Thank you to my parents, family, friends, and neighbours who sustained me with emotional and material support. Thank you to MSF Canada, in particular to Executive Director Stephen Cornish and President Bruce Lampard, for encouraging this thesis and providing office support for interview transcription. I hope to continue to repay the favour as an active association member. Alex Armstrong walked me through the economic analysis. Toby Moorsom was invaluable with historical materialism. Aaron Orkin pushed my critical thinking on humanitarian governance. I am thankful for having received the University of Toronto Open Scholarship, the Doctoral Completion Award, and the Peter A Singer Award in Bioethics.

I am grateful to the MSF-OCA Emergency Desk for providing me the opportunity to be a part of the emergency response to the Nigerian lead-poisoning outbreak in early 2010. I worked alongside many exceptional MSF colleagues, local and expat, too many to name, whose commitments put me in awe. The TerraGraphics Foundation’s Ian von Lindern, Casey Bartrem and Simba Tirima deserve special recognition. The goal of this thesis was largely driven by our late night discussions, reflecting on intense experiences, exhausted by heat, questioning the meaning of it all. My best hope for this thesis is that it furthers those conversations.

This thesis would not have been possible without the contribution of its interview participants. Interviewees were candid and honest, their stories rich and multilayered. I hope this thesis does them justice.

Finally, this thesis is dedicated to the children of Zamfara, the children for whom poverty is not an abstraction but life itself, life so vulnerable that so many succumbed from just a thin layer of lead-contaminated dust. We should never see gold without thinking of them.
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<tr>
<td>AFP</td>
<td>Agence France-Presse</td>
</tr>
<tr>
<td>ASM</td>
<td>Artisanal and small-scale mining</td>
</tr>
<tr>
<td>ASV</td>
<td>Laboratory anodic stripping voltammetry (method for blood lead measurement)</td>
</tr>
<tr>
<td>BLL</td>
<td>Blood-Lead Level</td>
</tr>
<tr>
<td>CASM</td>
<td>Communities and Small Scale Mining initiative (World Bank initiative)</td>
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<tr>
<td>CDC</td>
<td>(US) Centers for Disease Control and Prevention</td>
</tr>
<tr>
<td>CERF</td>
<td>Central Emergency Response Fund (UN)</td>
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<tr>
<td>DMSA</td>
<td>Dimercaptosuccinic acid or succimer, the oral chelation drug</td>
</tr>
<tr>
<td>EPA</td>
<td>Environmental Protection Agency (US)</td>
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<tr>
<td>Expat</td>
<td>Expatriate</td>
</tr>
<tr>
<td>FMoH</td>
<td>Federal Ministry of Health</td>
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<tr>
<td>FTM</td>
<td>Follow The Money (Nigeria)</td>
</tr>
<tr>
<td>GFAAS</td>
<td>Graphite Furnace Atomic Absorption Spectrometry (for blood lead measurement)</td>
</tr>
<tr>
<td>ICRC</td>
<td>International Committee of the Red Cross</td>
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<tr>
<td>IFRC</td>
<td>International Federation of the Red Cross</td>
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<tr>
<td>IPE</td>
<td>international political economy</td>
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<tr>
<td>IQ</td>
<td>intelligence quotient</td>
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<tr>
<td>IRIN</td>
<td>Integrated Regional Information Networks (humanitarian news source)</td>
</tr>
<tr>
<td>LGA</td>
<td>Local Government Authority</td>
</tr>
<tr>
<td>mcg</td>
<td>Microgram, one millionth of a gram</td>
</tr>
<tr>
<td>mcg/dl</td>
<td>Microgram per decilitre</td>
</tr>
<tr>
<td>mcg/m³</td>
<td>Microgram per cubic metre</td>
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<tr>
<td>MeSH</td>
<td>Medical subject heading (Ovid Medline®)</td>
</tr>
<tr>
<td>MSF</td>
<td>Médecins Sans Frontières (Doctors Without Borders)</td>
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<tr>
<td>MSF-OCA</td>
<td>Médecins Sans Frontières – Operational Centre Amsterdam</td>
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<tr>
<td>NCDC</td>
<td>Nigeria Center for Disease Control</td>
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<tr>
<td>OCHA</td>
<td>Office for the Coordination of Humanitarian Affairs (UN)</td>
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<tr>
<td>ppb</td>
<td>parts per billion</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<td>--------------</td>
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<tr>
<td>ppm</td>
<td>parts per million</td>
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<tr>
<td>R2P</td>
<td>Responsibility to Protect initiative</td>
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<tr>
<td>REB</td>
<td>research ethics board</td>
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<tr>
<td>TEL</td>
<td>tetraethyl lead (in leaded gasoline)</td>
</tr>
<tr>
<td>TG</td>
<td>TerraGraphics Environmental Engineering (private US-based company)</td>
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<tr>
<td>UNEP</td>
<td>United Nations Environment Program</td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children's Fund</td>
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<tr>
<td>US EPA</td>
<td>United States Environmental Protection Agency</td>
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<tr>
<td>VoIP</td>
<td>Voice over the internet protocol</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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<tr>
<td>XRF</td>
<td>X-Ray Fluorescence Analyzer for measuring environmental lead</td>
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Preface

“There is a crack, a crack in everything. That's how the light gets in.” – Leonard Cohen

When the topic of the global poor comes up, I hear people solemnly say that we should be thankful for what we have. Yet when I consider this, I feel despair rather than gratitude. How have we come to accept poverty and suffering as a tradeoff for rampant consumerism and the über-wealth of a few? To be thankful for what we have is code for passive acceptance: acceptance that tremendous advancements in science and technology overstep the needs of the poor to serve corporate interests, ruthless resource extraction, extrajudicial surveillance and state violence; and acceptance that disasters in global health are the domain of charity. Disasters from neoliberal economic policies – such as those rooted in gross inequality and climate change – are not signs of capitalism’s failure but of its process. Its shocks create new opportunities for disaster capitalists and enthusiastic NGOs (Klein, 2007). Its humanitarian responses medicalize social injustice under a minimalist morality (Raich, 2002) while celebrating the heroes of charity medicine (Redfield, 2013).


I have a personal connection to the lead-affected region of northern Nigeria. In 2006, I spent several months travelling across northern Nigeria investigating and responding to outbreaks of meningitis as an MSF epidemiologist. Then in 2010, I returned to northern Nigeria with MSF to assist with the emergency response to the lead-poisoning outbreak. With local and expat colleagues, I helped conduct epidemiologic investigations and organize groups of children for hospital admission and chelation therapy. Back here at home, this study has been my way, however small, to express concern for the children of Zamfara.

1 “Anthem” from the album The Future (1992), Columbia Records.
SECTION A: INTRODUCTION AND RESEARCH QUESTION
Chapter 1: From field mission to doctoral thesis: The formation of a critical investigation

“Why is MSF so busy in Nigeria when ... there is no war?”

1.1 Introduction to thesis

The ongoing lead-poisoning outbreak of northern Nigeria has been devastating. First detected in March 2010, it still lingers at the time of writing this thesis. The outbreak occurred in Zamfara State in northwestern Nigeria, an impoverished semi-arid rural area at the edge of the Sahel (see Appendix 1: Map of Nigeria with highlight of the affected area in Zamfara State). To date, it is estimated that more than 700 children have died, over 40 percent of the children under five in one village alone, and that thousands more remain dangerously poisoned. There is an entire generation of village residents at risk of serious short and long-term health effects, including death (Blacksmith Institute, 2011a; CNN, 2010a). The outbreak has been described as unprecedented, the worst of its kind in recorded history (CNN, 2010b; Dooyema et al., 2011; Shanks, 2010). One report states, “Never before has there been a lead-poisoning epidemic of this magnitude anywhere in the world” (Blacksmith Institute, 2011a p. 22).

Shortly after the onset of the epidemic, I arrived as an epidemiologist with the international medical humanitarian organization Médecins Sans Frontières (MSF). I was part of an interdisciplinary team sent by the MSF Emergency Desk to rapidly assess the situation and set up a chelation treatment project. Others in my team got to work renovating a local hospital ward — it required extensive repairs and was in need of water, sanitation and electricity — while I travelled to the affected remote rural villages each day to collaborate with village leaders and families, and to document the extent of the disaster. I was there for a two-month period (May 26 to July 22, 2010).

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2 Quote from MSF colleague in northern Nigeria, personal communication, June 2010.

Most of my days were spent walking through the worst affected villages of Yargalma and Dareta (populations of about 2,000 each) with a dozen or so inquisitive children in tow. While in the villages, I worked closely with a Nigerian MSF nurse named Adama. Adama proved a skilled language and cultural interpreter (the affected villages were Hausa). Under shari’a law, I was forbidden from entering homes without the husband present. However, Adama and my female colleagues were permitted to enter homes and to speak with women about the health of their children. We had no maps of the villages and knew of no address system, so collectively we hand-sketched our maps and assigned numbers to family compounds.

Our primary task was to organize cohorts of children for in-hospital chelation therapy. Many of the children showed blatant signs of acute lead poisoning, and many siblings had already succumbed. It was a race against time to get the hospital ward functioning, the treatment protocol finalized, and the chelation drug imported. MSF’s international toxicology consultants called the situation unprecedented; never before had they seen so many children so acutely lead poisoned. The isolated resource-poor environment made matters that much worse.

The poisonous lead particles were in the fine white dust that blanketed affected villages. The dust had emanated from the grinding and pounding of stone ore in the pursuit of gold. For two months on site, I witnessed conditions of extreme poverty and the disastrous consequences of the unsafe artisanal gold mining. While the lead in the stone was a product of nature, the underlying poverty and neglect for public health was not. The situation made me reflect on my previous mission with MSF in northern Nigeria responding to epidemics of meningitis. In particular, I wondered about the persistent need for private international humanitarian non-governmental organizations (NGOs) like MSF in northern Nigeria. As my frustrated colleagues often asked, why is MSF so busy in Nigeria when Nigeria is one of the wealthier countries in sub-Saharan Africa and there is no war?

Drawing upon Michel Foucault (1926-1984), this thesis aims to problematize contemporary international humanitarianism. It does so through an inquiry of ethics using the case of the

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4 Not her real name.
Nigerian lead-poisoning outbreak. The thesis sees humanitarian not as ‘a given’ but as ‘a question’ (Rabinow & Rose, 2003), a social construct not fully articulated. And while humanitarianism is often celebrated (consider how MSF won the Nobel Peace Prize in 1999), this thesis questions humanitarianism as a historically situated philanthropic mode of power.

For Foucault, this sort of critique calls into question taken-for-granted ways of thinking:

> A critique is not a matter of saying that things are not right as they are. It is a matter of pointing out on what kinds of assumptions, what kinds of familiar, unchallenged, unconsidered modes of thought the practices that we accept rest (Foucault, 1988 p. 155).

One type of Foucauldian analysis entails an examination of a *regime of practice* rather than of institutions, theories or ideologies in isolation. Here the focus is on relations between values and social power. A society’s values, values considered normal and tolerable, are not based in nature, but determine and are determined by how societies exercise control. Values that may be considered timeless and absolute are in historical flux relative to who has power, and how and where that power is exercised. Contemporary international humanitarianism has evolved into a regime of practice, a constellation of values, knowledge and actions with profound significance for the lives of many.

Humanitarianism is an expression of social values. In answer to “what is humanitarianism?” the anthropologist, sociologist and a prominent author on humanitarianism Didier Fassin responds:

> [Humanitarianism] is both a moral discourse (based on responsibility towards victims) and a political resource (serving specific interests) to justify action considered to be in favour of others exposed to vital danger, action taken in the name of a shared humanity. Its ambition is thus indivisible (it includes all human beings without distinction of race, class, religion, ideology), but its implementation is always situated (where others are thought to be in need of assistance) (Fassin, 2010 p. 239).

Humanitarian healthcare (the humanitarian provision of medical and public health services) – including decisions about how it is allocated – is a regime of practice with implicit values that warrant scrutiny. What threshold of sickness and death qualifies for humanitarian healthcare?
What level of healthcare (from rudimentary care to advanced treatment) will be provided and to whom? At what point is humanitarian healthcare withdrawn? These are life-and-death decisions made by a few affecting many – the very essence of social power over human lives, or biopower. According to Foucault, biopower is “an explosion of numerous and diverse techniques for achieving the subjugations of bodies and the control of populations” (Foucault, 1980a p. 140). Biopower is inherent in the humanitarianism that Donini (2010) refers to as the humanitarian internationale, the familiar Northern/Western private NGOs with expansion into the Global South. It is a humanitarianism that is “an ideology, a movement and a profession” (ibid, p. S226). Donini notes that this dominant discourse holds the humanitarian internationale as the default mechanism for aid provision and distribution in crises around the world, particularly in the Global South. This is the particular form of humanitarianism under scrutiny in this thesis.

Humanitarianism represents substantial economic power. Over the last five years, humanitarian organizations had a combined annual operating budget of between US$17 and 20 billion, a quarter of it channeled through private international NGOs (Development Initiatives, 2013). In 2013, MSF alone had a budget of over US$1.2 billion, with 89 per cent of funding coming from private donors (MSF, 2013). Rather than celebrating the apparent windfall of philanthropy, this author notes apprehension within humanitarianism’s seasoned veterans. Why is it that private international NGOs are flourishing under global neoliberal capitalism? Does humanitarianism’s economic success – a problematic notion in itself – come at a cost? If so, what is the cost, what is displaced, and what is hidden from view?

This thesis problematizes contemporary humanitarianism by emphasizing ethical considerations in the origins and response to the lead-poisoning outbreak of northern Nigeria. The case of the lead-poisoning outbreak exemplified powerful societal determinants of health from the global to the local. At the global level, there was gradual deregulation of global financial markets that culminated in the 2008 global financial crisis and the corresponding worst global recession since the Second World War. As investors withdrew from the volatile stock market, prices of gold began to climb. Consequences unfolded with particular acuity in Nigeria, a country ravaged by colonialism, military dictatorship, kleptocracy, multinational corporate exploitation, and regressive austerity programs. At the time of the outbreak in northern Nigeria, there was a
paucity of essential healthcare services with little to no outbreak-focused disease surveillance (apart from what international NGOs had to offer). Outbreaks of meningitis, measles and cholera raged unchecked. In fact, disease outbreaks were so recurrent and entrenched that MSF, for many years, has had memorandums of understanding with the various levels of government allowing it to be in the country in order to detect and respond to disease outbreaks. This was how the Nigerian lead-poisoning outbreak came to light in March 2010.

In this thesis, I show how the humanitarian response to the Nigerian lead-poisoning outbreak was what Foucault would describe as a *threshold moment in the history of ideas* – an event where inconsistencies and tensions were forced into view. The scope of the lead-poisoning outbreak was unprecedented for modern times: so too was the humanitarian response, with its provision of chelation therapy and environmental remediation. In this context, humanitarianism’s form of visibility changed, and commonly held assumptions were destabilized. The traditional notion of the Dunantist humanitarianism born in the battlefield further morphed to encompass an environmental public health disaster closely tied into the global economy. On the surface and according to standard criteria, the humanitarian response to the emergency was rational: mortality rates had surpassed the emergency threshold, more than doubling the baseline mortality rate. However, seen critically, the humanitarian response papered over fractures in global health, emblematic of a *charity medicine for the global poor*. Despite the heroic efforts of all involved, difficult questions remained. How did so many children come to die from lead poisoning? Why was it left to private foreign organizations to come to the rescue?

The thesis takes the investigative form of a social autopsy, similar to Eric Klinenberg’s telling of the 1995 heat wave disaster in Chicago (Klinenberg, 2002). During the Chicago heat wave, over 700 people died, a great many of them poor, socially isolated seniors who lived alone and who died alone. Klinenberg looked beyond high temperatures. He situated the deaths within social and political institutions functioning (and malfunctioning) as a complex system of organs. His

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5 As shown in Section 2.2, prevailing notions of humanitarianism are subject to change. Earlier humanitarians predate Dunant by nearly half a century. These humanitarians responded to suffering broadly to address matters such as slavery, destitution, inhumane forms of punishment and incarceration, and cruelty to animals (Barnett 2011, p. 5).
social autopsy approach examined the whole system in determining cause of death. Klinenberg conducted his social autopsy through extensive fieldwork, interviews and archival research. This thesis conducted its social autopsy through an examination of history, the political economy of artisanal gold mining, media and document reviews, and key informant interviews. This account, like Klinenberg’s account, builds narratives around a tragic historic event to offer important insights for public health and global health ethics.

1.2 Synopsis of the lead-poisoning outbreak

In February 2010, dozens of young children in Yargalma, a remote rural village in northern Nigeria, were acutely ill and dying. The local community health worker administered the last of his meagre drug supply with no effect. At this time he reported the problem to his superior, but rather than receiving adequate assistance, he was sent more antimalarial drugs of the kind that had already proved ineffective (personal communication with health worker, June 2010).

Meanwhile, more children of Yargalma were arriving at his clinic each day with lethargy, fever, vomiting, weight loss, bulging fontanels, nuchal rigidity, partial paralysis, and seizures. Over days and weeks, dozens of children died. On 29 March 2010, an outbreak surveillance team from MSF heard about the deaths, and after witnessing the crisis first-hand, assembled a team to provide 24-hour medical care for the children. Some wondered whether this was a novel infectious disease. But while signs and symptoms resembled meningitis and cerebral malaria, treatments for those diseases provided little benefit.

Mothers of the sick children disclosed to the health workers that there had been an increase in the number of rock grinding machines and gold extraction activities in the village around the time of the first deaths. The price of gold was surging as a result of the recent global financial crisis. As wealthy investors withdrew from the stock market and invested in gold, men from rural villages in northern Nigeria went out in search of it. They laboured by hand and with rudimentary machines to extract flecks of gold from locally mined ore, a process known as artisanal mining. It was exhausting, dusty work, but they were poor subsistence farmers and artisanal mining was proving lucrative – and a way to subsidize/supplement meagre earnings from farming.
With special permission from the Nigerian government, MSF fieldworkers sent blood samples to an accredited lab in Germany. A few weeks later the lab notified them of the results: the blood samples had dangerously high lead concentrations ranging from 109 to 370 mcg/dl (personal field note, May 2010). For children, a blood lead level of 10 mcg/dl is considered elevated and a level greater than 100 mcg/dl is considered fatal (Committee on Environmental Health, 2005). In light of the lab findings, local officials and aid workers investigated artisanal gold mining activities in and around homes and villages as the source of the heavy metal contamination. Environmental samples confirmed that an ore of unusually high lead content, some exceeding ten percent lead by weight, had entered the local chain of production (Blacksmith Institute, 2011a). While the village of Yargalma was the epicentre of the epidemic, numerous other villages in the region were also highly contaminated.

Starting with MSF’s initial investigation on 29 March 2010, MSF provided 24-hour on-site supportive medical care in the Yargalma village health clinic. In the weeks and months that followed, MSF established two field hospitals in proximity to the worst affected villages of Yargalma and Dareta. MSF brought in a workforce of foreign (expatriate or expat) and Nigerian (national) staff, establishing a free emergency chelation therapy project for the lead-poisoned children. In addition to its clinical action, MSF helped to organize remediation efforts and advocated for improved health services for the vulnerable population (Shanks, 2010). The aid workers came to witness first-hand how rural poverty and high gold prices drove villagers into artisanal gold mining. The absence of occupational and environmental safety measures played a role in the environmental public health disaster.

The lead-poisoning outbreak was detected by MSF, not by the government. For years, Nigeria’s disease outbreak surveillance system had been inadequate, effectively delegating the responsibility to MSF through a formal memorandum of understanding. I personally was part of this process when, in 2006, I researched and evaluated the Nigerian Integrated Disease Surveillance Reporting System (Appendix 2). The report I wrote for MSF concluded that there were fatal flaws in the system preventing the system from rapidly identifying and responding to disease outbreaks. For example, the Focal Person that was relied upon to relay vital information seldom had a functioning motorbike or petrol for the motorbike. Furthermore, the Focal Persons
that I interviewed at that time had no interest in relaying information, because in all previous outbreaks, the information had not been acted upon and no assistance had ever arrived. The Focal Persons had no interest beyond maintaining their title and receiving their pay. From that point forward, MSF instituted its own active surveillance system, monitoring primarily for meningitis outbreaks, but also for measles and cholera outbreaks.

Given that the government public health system was inadequate, the lead-poisoning outbreak demanded a humanitarian response from foreign organizations, most notably MSF, TerraGraphics Environmental Engineering, and the US Centres for Disease Control and Prevention (CDC). The humanitarian response was commendable and no doubt it saved many lives. However, the humanitarian response was not a comprehensive response. Poverty and artisanal mining persist, and the long-term prognosis for the lead-affected children of Zamfara remains dire.

1.2.1 Timeline of key events

Chronology is a crucial component of this thesis. As the events surrounding the Nigerian lead-poisoning outbreak unfolded, they brought with them unique issues, challenges and frustrations of profound ethical import. I placed this timeline of key events here in the first chapter to provide a tool for better understanding what lies ahead. Constructed through the research by extracting information from published reports and key informant interviews, it serves as a chronological base on which to situate the research findings. The timeline spans from the start of the lead-poisoning outbreak in early 2010 to September 2013 (Figure 1).

Figure 1. Timeline of key events

(Timeline of key events covers the next four pages, one page per year)
Phase 1: Acute Emergency Phase

(February 2010) When children of Yargalma were said to have started dying in increasing numbers.

(29 March 2010) Outbreak is discovered by MSF team while investigating meningitis outbreaks: 39 recent child graves in Yargalma and many young children with vomiting and seizures.

(2 April 2 to 8 May 2010) Active case finding results in the identification of more than 100 fresh child graves in six villages and more than 200 cases of suspected lead poisoning.

(15 to 20 April 2010) Eruption of volcano in Iceland creates an ash cloud delaying flights throughout Europe. Delayed blood lead lab results show concentrations from 100-400 mcg/dl with an average BLL of 197 mcg/dl.

(16-19 May 2010) CDC is formally notified of the crisis, FELTP team is deployed and a CDC team arrives in Zamfara State.

(20 May to 1 June 2010) CDC team investigates Dareta and Yargalma while MSF prepares its field hospital in Bukkuyum. Remediation of Yargalma and Dareta from May to July.

(20 May to 1 June 2010) CDC team investigates Dareta and Yargalma while MSF prepares its field hospital in Bukkuyum. Remediation of Yargalma and Dareta from May to July.

(26 May 2010) This researcher begins mission as epidemiologist with MSF.

(2 June 2010) MSF starts chelation therapy for the worst affected children with an immediate decline in child mortality.

(4 June 2010) BBC News online: “Nigeria – lead poisoning kills 100 children in north”.

(7-13 June 2010) First spike in online news coverage about the discovery of the outbreak.

(8 June 2010) Environmental remediation begins in Yargalma and Dareta.

(10 June 2010) Local remediation teams strike for not having been paid by the government.

(14 June 2010) MSF posts its first news blog about the crisis: “MSF Helps Treat Children with Lead Poisoning”.

(15 July 2010) The acute emergency phase winds down with a marked decline in numbers of symptomatic children. Outpatient protocol begins formulation.

(16 July 2010) The online publication of the CDC’s Morbidity and Mortality Weekly Report (MMWR) describes the outbreak and presents the results of CDC’s house-to-house surveys in Yargalma and Dareta.

(22 July 2010) This researcher ends field mission.


(1 October 2010) Heavy rains impede remediation efforts.

(6 October 2010) MSF’s Press Release headline: “Lead poisoning continues to affect hundreds of children in northwestern Nigeria”. There is the second spike in online news coverage followed by one-and-a-half years with sparse news coverage.

(2 December 2010) Human Rights Watch publishes its first online news blog about the crisis.
2011

(September 2010 to March 2011: The **Phase 2** remediation of five additional villages: Abare, Sunke, Tungar Daji, Duza, and Tungar Guru.)

(18 May 2011) MSF, TerraGraphics and Blacksmith Institute are awarded the UN Green Star Award.


(June to December 2011) Cholera outbreak: MSF provides emergency response throughout four northwestern states, treating over 2,000 patients.

(7 September 2011) MSF identifies alarming increases in blood lead levels in children in certain areas suggesting the resumption of artisanal gold mining, confirmed by the communities themselves. Community health education programs implemented.

(1 November 2011) Online news account from Human Rights Watch researcher Jane Cohen who had recently visited the affected area
(9 January 2012) Tens of thousands of Nigerians demonstrate in the streets in a general strike. International conference is rescheduled for May.

(16 January 2012) Nigerian government relents to public demands and strikes end.

(30 March 2012) In a nationally televised meeting with the Nigerian Minister of Mines, MSF delivered key messages about safe mining practices and remediation of lead-contaminated sites as a result of artisanal mining in Zamfara State.

(5 April 2012) Five MSF national staff members from the Zamfara Heavy Metal Poisoning project in Nigeria were involved in a serious accident while heading to the state capital for the Easter weekend aboard a private car belonging to an acquaintance. Tragically, Samson Adeyemi Adewumi, who worked as a Medical Data Processor with MSF in Zamfara, died from his injuries. The others had non-life-threatening injuries.

(May 2012) Publication of MSF Briefing Paper “Lead Poisoning Crisis in Zamfara State northern Nigeria”

(6 May 2012) Human Rights Watch published online its advocacy piece “Nigeria: Show commitment on child lead poisoning” echoing MSF’s call for more high-level government action towards the outbreak.

(9-10 May 2012) International conference in Abuja: There is widespread disappointment that many high-level government ministers did not attend. Delegates focus on the three pillars of remediation, safer mining and medical treatment. MSF pushes for federal funding of remediation.

(10 May 2012) MSF publicizes and posts online the Action Plan agreed upon by conference delegates: there is a third spike in online news coverage.

(25 May 2012) The Nigerian President promises four million dollars for environmental remediation in Bagega but no money is released for a long time.

(19 July 2012) MSF posts its short film “Lead Poisoining Nigeria 2012” which includes an interview of Dr. Henry Gadzama, MSF Assistant Medical Coordinator in Nigeria.

(September 2012) Hamzat Lawal and Oludotun Babayemi start the social network campaign Follow The Money of Nigeria and #SaveBagega to advocate for the release of government funds for the remediation of Bagega: the campaign is endorsed by Human Rights Watch.

(31 October 2012) Remediation of Bagega was due to begin at the end of the rainy season, but promised federal funding was still not released.


<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>28 January 2013</td>
<td>Start of <strong>Phase 3</strong>: Federal funding is finally released for the remediation of Bagega.</td>
</tr>
<tr>
<td>11 February 2013</td>
<td>Remediation of Bagega begins.</td>
</tr>
<tr>
<td>21 March 2013</td>
<td>Publication: Plumlee et al., Linking geological and health sciences to assess childhood lead poisoning from artisanal gold mining in Nigeria.</td>
</tr>
<tr>
<td>April 2013</td>
<td>There is a fourth spike in online news coverage regarding the remediation and chelation treatment of Bagega.</td>
</tr>
<tr>
<td>15 April 2013</td>
<td>Toronto Star runs a multi-page feature of the lead-poisoning outbreak.</td>
</tr>
<tr>
<td>23 April 2013</td>
<td>MSF issued a public statement saying that because environmental remediation in Bagega is finally underway, MSF is finally able to initiate chelation therapy to the lead-poisoned children of Bagega.</td>
</tr>
<tr>
<td>1 August 2013</td>
<td>The environmental remediation of Bagega is completed while children are still undergoing chelation therapy.</td>
</tr>
</tbody>
</table>
1.3 Critical reflection and formation of the research question

At the heart of this thesis is an examination of humanitarianism’s role in the reproduction of hegemony. Hegemony, in the Gramscian sense, refers “not only to political and economic control, but also the ability of the dominant class to project its own way of seeing the world so that those who are subordinated by it accept it as ‘common sense’ and ‘natural’”.6 Hegemony relates to how humanitarianism, as a contentious multiply-viewed social phenomenon (or a social construction, that is, a product of historical events, social forces, and ideology),7 is implicated in the ideological sustainability of global neoliberal capitalism. To address this concern, this study seeks to expose humanitarian’s problematic nature through the case of the Nigerian lead-poisoning outbreak. To be clear, the saving of lives and the alleviating of suffering is not at issue, but rather the triumphantism surrounding contemporary humanitarianism, the humanitarian response as a feel-good opiate with the illusion of moral victory and neutrality in the face of global health injustice (Raich, 2002). The concern is that political structures privilege humanitarianism over other forms of resilience and succor, preferring standardization and professionalization over meaningful change and social justice (Redfield, 2013). This thesis proceeds on the assumption that another humanitarianism is possible (Barnett, 2011).

The lead-poisoning outbreak of northern Nigeria has garnered much research interest. Biomedical research examining blood lead levels and clinical response to chelation therapy is underway by colleagues at MSF (Greig et al., 2014; Thurtle, Greig, Dargan, Cooney, & Ariti, 2013).8 Research on environmental lead contamination is underway by colleagues at Blacksmith Institute and TerraGraphics (Plumlee et al., 2013). Reports of the house-to-house survey were published by colleagues at the CDC (CDC, 2010b; Dooyema et al., 2011; Dooyema et al., 2012).

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7 For a critique of the notion of social construction, see Hacking, 1999.

8 I am cited in the acknowledgements of the 2014 article.
What remains lacking is a critical examination of the broad picture: what happened, why did it happen, and why did the response unfold as it did (Box 1)?

**Box 1: Problem statement**

The 2010 lead-poisoning outbreak of northern Nigeria is an environmental public health disaster exemplifying the intersection of global inequality, material poverty, economic globalization, and contemporary humanitarianism. There is a need for a deeper understanding of the ethical dimensions of the disaster and its international response. To date, the Nigerian lead-poisoning outbreak has not been examined with a humanitarian ethics lens. Such an investigation will have operational and theoretical importance for stakeholders in global health and staff and leaders in the international humanitarian movement.

In light of the problem statement, the goal of the thesis is to problematize contemporary international humanitarianism by examining the ethical issues inherent in the lead-poisoning outbreak’s humanitarian response (Box 2).

**Box 2: Research question**

What were the issues, challenges and frustrations in providing the international humanitarian response, based upon an inquiry in humanitarian ethics?

Issues, challenges and frustrations reveal the limitations and failings of the *humanitarian internationale*: the cracks in the system exposing contemporary humanitarianism’s problematic nature. The cracks warrant ethical contemplation, rooted in ethical quandary.

The research question is situated within a particular context: an impoverished state in northern Nigeria subjected to a history of colonization, military dictatorship, corporate exploitation, neoliberal austerity, and some of the highest maternal-child mortality rates in the world. With attention to societal determinants of health, the thesis presents chapters on the history of Nigeria and the political economy of artisanal gold mining. The research question is also situated within
a particular chronology, the sequence of events surrounding the lead-poisoning outbreak and the humanitarian response (as per Figure 1 above).

Once the issues, challenges and frustrations in providing the international humanitarian response are considered, the thesis extrapolates the findings to ethical significance at the global level. Specifically, the thesis discusses what the research findings mean for global health and the international humanitarian complex. The context, chronology and extrapolation can be seen as a subset of research questions supporting the central research question (Figure 2).

Figure 2. Research question and subset of supporting questions

What were the issues, challenges and frustrations in providing the international humanitarian response, based upon an inquiry in humanitarian ethics?

i. What was the context of the Nigerian lead-poisoning outbreak in terms of societal determinants of health and the political economy of artisanal gold mining?

ii. How did the international response to the Nigerian lead-poisoning outbreak unfold, and what were the roles of regional, national, and international actors (and interactions among them) in identifying and addressing the outbreak?

iii. How does the international humanitarian response to the Nigerian lead-poisoning outbreak further an understanding of humanitarianism and contemporary issues in humanitarian ethics?

Using the case of the Nigerian lead-poisoning outbreak, this thesis examines ethics in humanitarianism (operational in-the-field challenges), ethics of humanitarianism (societal and policy issues), and ethics for humanitarianism (substantive normative ethics). It addresses
tensions between presumed universal standards and acceptability, and local material and social conditions, from a cross-cultural/societal perspective. It examines how international organizations became involved (policy and decision-making processes), how individual field workers became involved (motivations and perceptions), the particular challenges at headquarter and field levels, and how these challenges were understood and addressed.

In the practice of international health (for a discussion of international health vs. global health, see Section 4.3), there is potential as well as limitations to the contribution of organizations and individuals. Birn et al. identified international health as operating at three levels, noting that all three operate simultaneously but that each is constrained by the next higher level (Birn, Pillay, & Holtz, 2009 pp. 698-9):

1. Motivations and actions of individuals,
2. Missions and interventions of organizations, and
3. Logic and structures of the world order.

These levels guide an understanding of the international emergency response to the Nigerian lead-poisoning outbreak: field workers had their own personal motivations and perceptions; they functioned within their organizations’ structures and mandates; and each organization, in turn, functioned within the local, national and international political and economic climate. How, from the point of view of those involved, did these levels interact during the Nigerian lead-poisoning outbreak? How were problematic aspects of the outbreak-response perceived and addressed? This thesis explores these questions and others in addressing its central research question.

Building on the events of the lead-poisoning outbreak, this thesis is interested in the moral experience of those involved in the international response:

Moral experience comprises, but is not limited to, aspects of experience that give rise to sentiments of ‘right and wrong’, ‘good or bad’, remorse, guilt, responsibility, justice, or distressed or fulfilled conscience. Moral experience goes beyond moral justification and reasoning, and is rooted in social and cultural contexts and relationships (Carnevale et al., 2006 p. 71, as cited in Hunt, 2009a p. 419).
Moral experiences are discerned from moral sentiments, emotions such as pity or compassion that direct our attention to the suffering of others and make us want to remedy them (Fassin, 2012 p. 1). The moral experiences of the international responders shed light on humanitarianism’s problematic nature.

In the interest of full disclosure, I am a participant in the story, one who has ‘done humanitarian work’ and who is politically aligned with the humanitarian movement. Hence, I am subject to the critic’s dilemma: calling into question what I inherently wish to defend or believe justified. Therefore to be clear, this thesis is not accusatory – not premised on right and wrong, guilt and innocence. It aims to situate itself theoretically beyond unhelpful polemics. It embraces reflexivity and eschews the objectivity of positivism. With a Foucauldian approach, this thesis places value in critical reflection. The subject is not humanitarianism as a thing that exists in nature, but humanitarianism as a shifting social construct with hidden conduits for global capitalist hegemony. My ultimate concern is how to more effectively tackle the perpetuation of global health inequality and suffering.

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10 I have carried out several missions with MSF (including the early response to the lead-poisoning outbreak of northern Nigeria) and I am an active association member of MSF in Canada.

11 I use the term “unhelpful polemics” as it relates to the work of Foucault, who followed in the work of Friedrich Nietzsche (1844-1900). Foucault viewed polemics as unhelpful or “sterilizing” (Foucault, 1997 p. 113).
1.4 Layout of the thesis

The thesis is organized into five sections representing the various stages of the research (Box 3):

**Box 3: Sections of the thesis**

<table>
<thead>
<tr>
<th>Section</th>
<th>Chapters</th>
<th>Description</th>
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<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>Introduction and research question</td>
</tr>
<tr>
<td>B</td>
<td>2, 3</td>
<td>Reviews of the literature</td>
</tr>
<tr>
<td>C</td>
<td>4, 5</td>
<td>Theory and research methodology</td>
</tr>
<tr>
<td>D</td>
<td>6, 7, 8, 9</td>
<td>Research findings and analysis</td>
</tr>
<tr>
<td>E</td>
<td>10</td>
<td>Discussion</td>
</tr>
</tbody>
</table>

**Section A: Introduction**

Chapter 1, this current chapter, was an introduction to the thesis overall. It included a synopsis of the Nigerian lead-poisoning outbreak and presented the reasoning that went into the formulation of the research question. It provided the rationale for the research, demonstrating the need to problematize contemporary international humanitarianism through the case of the Nigerian lead-poisoning outbreak. It asked: what were the issues, challenges and frustrations in providing the international humanitarian response, as seen through an inquiry in humanitarian ethics? It described the importance of moral experience in elucidating ethics *in, of, and for* humanitarianism. I positioned myself as a participant in this inquiry and underlined the importance of transparency and reflexivity. At stake is a deeper understanding of humanitarianism and contemporary issues in humanitarian ethics beyond battlefield ethics.

**Section B: Reviews of the literature**

Chapter 2 presents the literature on humanitarianism and humanitarian action, most commonly described as the saving of lives, the alleviating of suffering and the restoring of human dignity.
Various definitions of humanitarianism start the discussion, followed by humanitarian motivations and the various ways in which humanitarianism is conceptualized and problematized. With roots in cosmopolitanism, humanitarian discourse was informed by the inhumanity of war and the complex emergency. Although the humanitarianism that pertains to the Nigerian lead-poisoning outbreak did not involve war, no discussion of humanitarianism is complete without consideration of political violence, the complex emergency and the management of communicable diseases.\(^{12}\)

Chapter 3 presents the literature on lead and lead poisoning in human societies throughout history. It begins with a discussion of the use of lead in industry in early human history to the advent of leaded gasoline in 1923. Following is a discussion of the effects of lead on human health and current treatments for lead poisoning. The chapter includes the epidemiology of lead exposure in Nigeria along with a snapshot of contemporary lead-poisoning outbreaks throughout the world, focusing particularly on China. The literature review found a troubling history of powerful capitalist industrialist forces manipulating and intimidating legislators and public health advocates in pursuit of corporate profit. Capitalist forces suppressed impartial scientific inquiry and sabotaged democratic attempts at defending public health. Sadly, public health institutions were largely submissive. Forces for progressive change emanated from the fringe and grassroots. The tragic consequences of this history are still unfolding in a legacy of atmospheric and environmental lead contamination, with generations of people with elevated lead burdens. The social and environmental costs have yet to be fully quantified.

**Section C: Theory and research methodology**

Having presented the research questions and reviews of the literature, the thesis proceeds to theory and research methodology. Chapter 4 presents ‘big ideas’ in relevant philosophy and theory in order to set the stage for the research study’s theoretical approach and analytic lens. Chapter 4 discusses theory in bioethics, public health ethics, global health ethics, and humanitarian ethics. From there, Chapter 4 examines theory pertaining to this study, namely

\(^{12}\) For example, concern for measles outbreaks is a recurrent topic, and measles vaccination of children is one of the highest priorities in the acute phase of humanitarian emergencies (Sphere Project, 2004).
qualitative research theory, critical theory, and the Foucauldian analysis. Such an approach provides a unique application of critical theory in humanitarian ethics.

Chapter 5 presents the research methodology used in the investigation, including a historical account of Nigeria, an analysis of the political economy of artisanal gold mining, and the collection of two primary sources of data: (1) media and organization documents, and (2) key informant interviews. Chapter 5 presents concisely the methods of data collection and data analysis. It describes the research ethics considerations particular to this research along with the informed consent process. Chapter 5 ends with reflections on humanitarian research ethics and the unique challenges of conducting research in humanitarian emergencies.

Section D: Research findings
Research findings are presented in Chapters 6 to Chapter 9. Chapter 6 provides an overview of the Nigerian context in terms of its politics and history. The Chapter covers early history and British colonial rule, nationalist movements and independence, and civil war and the making of the neoliberal rentier state. Chapter 7 presents a political economy analysis of poverty and artisanal gold mining in the Nigerian context. The macro-economic analysis examines globalization, neoliberalism, and the global gold market as contextual societal determinants of health.

Chapter 8 and Chapter 9 present findings from primary data sources: the media and document analysis, and the key informant interviews. Chapter 8 follows online media accounts as the lead-poisoning outbreak unfolds. It found that spikes in media coverage coincided with communiqués issued by the international organizations involved in the humanitarian response. Chapter 9 presents findings from the key-informant interview data analysis. It found that interviewees felt great personal satisfaction and privilege in providing direct medical and remediation assistance to the affected population, although they endured physical and emotional stress while working under adverse conditions. There was pervasive frustration with the lack of commitment to the response. Funding remained a constant stress and challenge throughout.
Section E: Discussion

Chapter 10 presents a higher order conceptualization of all the research findings in problematizing contemporary humanitarianism in the case of the Nigerian lead-poisoning outbreak. The Chapter merges key findings from all components of the investigation: the historical account of Nigeria (Chapter 6); the political economy analysis of artisanal mining (Chapter 7); the media and document analysis (Chapter 8); and the key informant interviews (Chapter 9). The chapter extrapolates research findings in articulating a response to sub-question (iii) of how the international humanitarian response to the Nigerian lead-poisoning outbreak furthers an understanding of humanitarianism and contemporary issues in humanitarian ethics. Then, in keeping with the qualitative research paradigm, the chapter presents counterfactual arguments, strengths and limitations of the research, and areas for future investigation. The thesis ends with a note on self-reflection.

Following this introductory chapter, the thesis advances to reviews of the literature on (1) humanitarianism and (2) lead and lead poisoning.
SECTION B: REVIEWS OF THE LITERATURE
Chapter 2: On humanitarianism: “The politics of precarious lives”

2.1 Introduction to chapter

Humanitarianism refers to the field of humanitarian aid: assistance designed to save lives, alleviate suffering and maintain and protect human dignity during and in the aftermath of large-scale emergencies. The emergencies/disasters/crises to which humanitarianism responds may be broadly described as problems of human suffering and crises of humanity (Radice, 2009). Unlike other forms of foreign assistance, humanitarian aid is to be guided by the principles of neutrality, impartiality and independence. Unlike development aid, humanitarian aid is generally intended to be short-term in nature and in response to immediate needs following disaster. While discerning between humanitarian aid and development aid may seem straightforward, in practice the two are often blurred, particularly in “situations of prolonged vulnerability”.

This chapter presents a review of the literature on humanitarianism. It begins with a history of humanitarianism and presents its various contestations. Then contemporary humanitarianism is examined along with its discursive formation in war and the complex emergency.

2.2 History of humanitarianism

Any history of humanitarianism is necessarily a history of “man’s inhumanity to man” considering how “more inhumanity has been done by man himself than any other of nature’s causes.” And while violence and cruelty evolve with grim efficiency, humanitarianism keeps pace, although not on its own terms (Barnett, 2011 p. 194).

\[\text{Accessed January 10, 2014.}\]

\[\text{Retrieved April 15, 2012.}\]

\[\text{Retrieved April 15, 2012.}\]
A comprehensive history of war, disasters, and humanitarian organizations is beyond the scope of this thesis. However, the topic has been covered well elsewhere (for examples, see Barnett & Weiss, 2008; Barnett, 2011; Fassin & Pandolfi, 2010; Rieff, 2002; Terry, 2002). Many accounts of humanitarianism’s history offer a whiggish interpretation, “a version of history that postulates a single passage into the modern world” (Lindemann, 1999) based on a logical unfolding of progress according to present standards. In the history of humanitarianism, the origin story begins with Jean-Henri Dunant, the Battle of Solferino, and the birth of the International Committee of the Red Cross (ICRC).

In what Barnett refers to as historical amnesia, “the standard and abbreviated history of humanitarianism features Henry Dunant as accidental patriarch, his moment of inspiration in 1859” (Barnett, 2011 p. 1). Dunant (1828-1910) was a Swiss businessman who found himself witness to the tragic aftermath of the Battle of Solferino in 1859 in what is now northern Italy. Dunant’s writings and ideas lead to the creation of the ICRC in 1863 and the Geneva Convention of 1864. Historically, Red Cross workers rallied around the battle site, treating the wounded, transporting them by ambulance to field hospitals. Soon attention turned from wounded combatants and prisoners of war to civilians devastated by the direct and indirect consequences of war. Providing such assistance came at great cost to Red Cross workers (Sphere Project, 2004; Junod, 1951).

Official (Boissier, 1985; Dunant, 1959) and critical (Hutchinson, 1996) accounts of the history of the ICRC document this narrative of the roots of international humanitarianism up to and including WWI and WWII. An important event in the history of the ICRC marked the birth of MSF. During the Biafran War in Nigeria (July 1967 to January 1970), the ICRC provided humanitarian aid but remained silent in the face of an apparent genocide; in the name of neutrality, it refused to take a moral stand against the war (Hutchinson, 1996). Driven by frustration, a group of French doctors broke away from the ICRC in order to speak out against the atrocity, and with a group of journalists went on to found the Médecins Sans Frontières (MSF) movement in Paris in 1971 (for a more complete history of MSF, see Redfield, 2013).
Since then, MSF has used its position to speak out against mass atrocities and gross violations of human rights witnessed by MSF aid workers in the line of their work.\footnote{http://speakingout.msf.org/ Accessed 15 April 2014.}

Barnett (2011) identifies three distinct periods of humanitarianism (ibid, p. 7):

1. Age of imperial humanitarianism: late eighteenth century to WWII
2. Age of neo-humanitarianism: end of WWII to the end of the Cold War
3. Age of liberal humanitarianism: end of the Cold War to present.

A drastic transformation of humanitarianism occurred in the 1990s with the end of the Cold War and a flood of new wars resulting in complex emergencies. Humanitarian response increasingly correlated with international media attention, in turn correlating with donor nations’ strategic interests. Since the end of the cold war, the term humanitarian has come to describe the response aims of relief and rehabilitation of masses of people regardless of the response motivation (Albala-Bertrand, 2000).

Following his investigation into the history of humanitarianism, Barnett comes to question the standard Dunantist narrative and focusses instead on well-established patterns within humanitarianism. He argues that the tensions attributed to the 1990s actually existed since the beginning of humanitarianism, predating Dunant by nearly half a century. An early form of humanitarianism responded to matters such as slavery, destitution, inhumane forms of punishment and incarceration, and cruelty to animals, demonstrating that other forms of humanitarianism are possible (Barnett, 2011).

The principles of impartiality, neutrality, and independence were not intrinsic to humanitarianism, but implanted over decades of action and debate in what Barnett calls “lived ethics” (Barnett, 2011 pp. 5-6):

Stories about humanitarianism tend to be organized around binaries, most prominently ethics versus politics. Humanitarianism presents itself as living in a world of ethics, constantly battling the forces of evil and indifference (ibid, p. 6).
Attributing tensions to “the reality of the world” rather than to humanitarianism *per se*, Barnett identifies some of these paradoxes and dilemmas. Key among them is how humanitarian organizations must choose among “the least bad of awful alternatives”; humanitarian aid workers are not as virtuous as portrayed by admirers; humanitarian organizations can be market-driven; and humanitarian intentions can result in devastating consequences (ibid, p. 6).

### 2.3 Humanitarianism contested

In considering critiques of humanitarianism, I discern between critiques of the moral case for humanitarianism (the act of providing life-saving assistance to those in need) and critiques of substantive humanitarianism (its real-world manifestations and the international humanitarian enterprise). Putting aside fringe extreme right-wing or libertarian arguments that oppose providing life-saving assistance to populations in crisis, I turn to criticisms of the contemporary international humanitarian enterprise. Being careful not to conflate humanitarianism with the euphemism *humanitarian intervention* (the use of military force for supposedly humanitarian purposes), I side-step contentious debate about just war and use of military force to protect civilian populations. Like Rieff, I see these as separate issues (Rieff, 2002), and I understand humanitarianism to exclude the use or display of force. However, I discuss humanitarianism’s tumultuous relationship with the human rights movement as well as with the United Nations Responsibility to Protect (R2P) initiative.

Humanitarianism has been criticized by some Marxists as a “feel good” opiate (Barnett, 2011 p. 6) perpetuating structural inequalities. The political philosopher and activist Noam Chomsky warns against its innate tendency towards imperialism and interventionism (Chomsky, 1994) while maintaining the benevolent image of noble charity:

> The prospective leader of ‘humanitarian intervention’ is also notorious for its ability to maintain a self-image of benevolence whatever it does, a trait that impressed de Tocqueville 150 years ago. Observing one of the great atrocities, he

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18 Critics often conflate humanitarianism with ‘humanitarian intervention’ and ‘humanitarian war’ making it difficult to discern between criticisms of humanitarianism and military aggression. For an example of this conflation, I note the Munk Debate on humanitarian intervention (Munk Debates, 2008).
was struck that Americans could deprive Indians of their rights and exterminate them ‘with singular felicity, tranquilly, legally, philanthropically, without shedding blood, and without violating a single great principle of morality in the eyes of the world.’ It was impossible to destroy people with ‘more respect for the laws of humanity,’ he wrote. So it has always been, to this day (Chomsky, 2008).

A challenge for proponents of humanitarianism is that it is by definition an emblem of failure; “the disaster has already happened; the famine has started; the cholera is raging; or the refugees are already on the move” (Rieff, 2002 p. 21). How do we measure success for humanitarianism in a context of inhumanity?

There is danger in labelling humanitarianism a success when the dead are well fed:

A key concern of this perspective is to avoid humanitarianism becoming the cover for a bloodbath of “well-fed dead”. In the case of such an event, it warns us that the ‘well-fed dead’ will not be served by describing their plight primarily as a humanitarian one. Their plight may well present components relevant to a response by professional humanitarians, but that does not mean that their plight is adequately described by the humanitarian actions that may occur. Importantly, this may ignore or diminish their status as victims of crimes. In brief, the value-added of humanitarianism as an idea is best achieved by a humble and limited usage of the term (Radice, 2009 p. 5).

And as an MSF member bluntly said, “If they’re massacring people, then there’s no need to vaccinate” (Redfield, 2013 p. 111). This highlights what Sadako Ogata, the former UN high commissioner for refugees, often said, “There are no humanitarian solutions to humanitarian problems, there are only political solutions” (Ogata, 2005; UNHCR, 2010 p. 25).

According to Radice, humanitarianism represents our discussion about human suffering and what should be done about it. He cautions against using “humanitarian” merely as an adjective to describe “problem”, “emergency” or “solution” as it implies a universally agreed-upon understanding of human suffering and necessary response (Radice, 2009). Instead, Radice argues that we need to explore “the broad framings through which suffering might plausibly be understood and operationalized as a cause for concern within the particular context of humanitarian discussions” (ibid, p. 2). According to Radice, a problem with humanitarianism is
the notion of humanity itself: our understanding of humanity is framed through experiences of “inhumanity”, giving us a political understanding of humanity.

One particular concern with humanitarianism is that labeling unacceptable and unjustifiable human suffering as a humanitarian crisis can have a sanitizing effect:

The simple fact that the genocide in Rwanda or massacres of civil populations and a strategy of terror in Bosnia could be labeled as ‘humanitarian crises’ is sadly eloquent ... The UN as well as governments, the press, and the NGOs are constantly using this formula, which leads me to wonder if Auschwitz would be considered a ‘humanitarian crisis’ were it to happen today (Brauman, 2004 p. 411).

Brauman’s point is that labeling the Holocaust a humanitarian crisis avoids discussion about causation, creating a dangerous cognitive dissonance within international public discourse. Because genocide cannot be stopped by humanitarian aid workers, it is dangerous to describe genocide as a humanitarian problem or as a problem primarily for humanitarians. However, Radice argues that Brauman’s comment obscures the wider sense of humanitarianism as a vital discussion in which Auschwitz can and should be articulated as a humanitarian crisis in the sense of a crisis of humanity.

Humanitarianism becomes necessary when all else fails. Nicolas de Torrente, Executive Director of MSF at the time, explained in his article about humanitarianism during the recent war against Iraq:

Humanitarian organizations do not have or claim to have a monopoly on assistance. On the contrary, the provision of essential services to the Iraqi people is the responsibility of the political authority in charge, currently the United States as the Occupying Power. To carry out its reconstruction responsibilities, the United States may partner with civilian relief agencies and private contractors. In contrast, humanitarian organizations become relevant and are directed to take action when civilians suffer unduly as a result of political failure, conflict, and crisis (de Torrente, 2004 p. 3. Italics added by author for emphasis).

Humanitarianism conjoins theory and practice; it cannot be conceptualized in terms of a singular ethic or practice. Humanitarianism is “based on concepts that seem to have a certain amount of
trans-historical resonance, even as they change and are redefined over time” (Radice, 2009 p. 8). “The simple humanitarian idea that people in extremis have a right to relief and protection is subject to a host of countervailing and intrusive forces” (Smillie & Minear, 2004 p. 9). There are many organizations involved in humanitarian action, all embracing humanitarian principles but with many interpretations of these principles. Alex de Waal is critical of the philanthropic mode of power. He describes the institutional behaviour and progressive expansion of the humanitarian enterprise into geopolitics as the humanitarian internationale (de Waal, 2007 p. 201).

2.4 Humanitarianism and politics

Some contemporary humanitarians have a tendency to seek a space, both physical and conceptual, apart from politics. They do not deny that their actions have political consequences, but rather they argue for a humanitarian response based on the humane and not the political. This gives humanitarianism the borderless (sans frontières) quality that James Orbinski described in his MSF Nobel Peace Prize acceptance speech:

Humanitarianism occurs where the political has failed or is in crisis. We act not to assume political responsibility, but firstly to relieve the inhuman suffering of failure. The act must be free of political influence, and the political must recognize its responsibility to ensure that the humanitarian can exist. […] Humanitarian responsibility has no frontiers. Wherever in the world there is manifest distress, the humanitarian by vocation must respond. By contrast, the political knows borders, and where crisis occurs, political response will vary because historical relations, balance of power, and the interests of one or the other must be considered. The time and space of the humanitarian are not those of the political (MSF, 1999).

In-house debate between the political and nonpolitical is a prominent feature of contemporary humanitarianism. Tensions lie between the nonpolitical project of humanitarianism and the politically charged act of assisting the most in need and most vulnerable in conflict and crisis situations.

For the humanitarian aid worker, a nonpolitical humanitarianism is a necessary strategy for improving access to populations in danger from armed belligerents (Junod, 1951). Here the aid worker wields the humanitarian principles:
The key humanitarian principles embody the (ever fragile) political agreement among belligerents about the conditions for humanitarian activity in the midst of crisis … [even though] no matter how the fundamental principles of humanitarian action are interpreted, applying them to a situation does not ensure infallible results (de Torrente, 2004 p. 5).

According to de Torrente, during the Iraq War, the U.S. government subverted the independent role of humanitarian organizations by taking control of humanitarian aid efforts. In a speech that makes principled humanitarians cringe, the Secretary of State Colin Powell made his notorious *force multiplier* reference:

As I speak, just as surely as our diplomats and military, American NGOs are out there serving and sacrificing on the front lines of freedom … I am serious about making sure we have the best relationship with the NGOs who are such a force multiplier for us, such an important part of our combat team. [We are] all committed to the same, singular purpose to help every man and woman in the world who is in need, who is hungry, who is without hope, to help every one of them fill a belly, get a roof over their heads, educate their children, have hope (Powell, 2001).

Clearly the George W. Bush Administration did not concern itself with the humanitarian principles of impartiality, neutrality and independence. Many U.S.-based NGOs reluctantly accepted these terms, “in keeping with their ‘Wilsonian’ tradition of finding a basic compatibility between humanitarian aims and U.S. foreign policy” (de Torrente, 2004 p 9).¹⁹ Many other NGOs refused to participate, precisely because of the violation, in what has be called an *ethic of refusal* (Hofman & Delaunay, 2010).

In addition to facilitating their access to Iraq, NGOs joining the U.S. combat team obtained facilitated access to U.S. government funding for work in Iraq. While many U.S.-based NGOs agreed to cooperate with the invading force, other NGOs, mainly in Europe, took the political stance of opposing the war and refusing to work with the U.S. military. The objections were not solely principled; there was concern that equating humanitarian assistance with the U.S. war

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¹⁹ One may see a parallel with the “embedding” of journalists during the Iraq War unlike the Vietnam War.
effort would put aid organizations, their workers and their aid recipients at additional risk in Iraq and elsewhere.

De Torrente concludes that the U.S. violations of international humanitarian law strengthen the need for humanitarian independence:

The politicization of humanitarian aid has put the ability of humanitarian organizations to reach out to all victims, whoever and wherever they are, in jeopardy. As fighting continues in Iraq, and as conflicts continue to rage around the world, victims will need more, not less, principled humanitarian action that responds on the basis of needs alone (de Torrente, 2004 p. 29).

In his rebuttal to de Torrente, Paul O’Brien, an advocacy coordinator for CARE in Afghanistan since November 2001, argues that humanitarianism is and should be political, and he goes as far as to argue that accepting funding from belligerents in war can make both principled and pragmatic sense (O’Brien, 2004). O’Brien defines politics as concerning the decision-making process through which policy makers allocate resources and power. He argues that humanitarianism is a political ideology, and that the politicization of aid is a tautology: humanitarian action channels resources and power in a certain direction and in a certain way, just as it is political to mandate the redistribution of resources from the powerful to the marginalized (ibid, pp. 31-32).

O’Brien notes that there is diminishing consensus on the political value of humanitarian independence:

That independence has always relied upon belligerents accepting the notion that humanitarianism should not substantially alter the military outcome or political consequences of a conflict. In contexts such as Afghanistan and Iraq, humanitarians are unlikely to convince warring parties that they should be left alone because their aid is of no political or military importance. With belligerents increasingly willing to either co-opt or attack humanitarian work, his response that ‘humanitarian action is not a political project’ rings like an honorable lament for the past, but no longer provides adequate guidance to humanitarian actors in highly politicized settings (O’Brien, 2004 p. 32).
According to O’Brien, humanitarian actors need more humility in acknowledging that humanitarians do not control or even significantly influence humanitarian space, and that “we are but one small voice in a complex political matrix. We cannot dictate the humanitarian future of threatened populations, but we may be able to influence them by engaging in political debate” (O’Brien, 2004 p. 34).

Does the choice have to be political versus nonpolitical? Hugo Slim, in his reply to Rieff’s seminal book *A Bed for The Night*, agrees that humanitarianism is being politicized, and that it always has been. However, this is not an issue in and of itself, for “there can be good politics, bad politics, and some politics that are better than others” (Slim, 2003).

For Slim, an important political question regards the extent of the humanitarian’s responsibilities and duty to care:

> However, doing anything to, with or for people always incurs a secondary morality. Humanitarian action is no exception. It would be wrong simply to save and protect people in any way. There are good and bad ways to save people that are determined by wider moral goods around their personal, social and economic dignity. You can’t just save and leave. You can’t just save by cruelly concentrating people in camps. You can’t just focus on a few survivalist priorities while driving up local rents and salaries in a way that impoverishes others and starts a brain-drain. You can’t just save people without an eye to their continued protection or their future livelihood. … As any humanitarian worker will tell you, real relationships between people means that you cannot just stop helping because they are alive and have not died. Being alive brings with it wider needs and wider moral goods (Slim, 2003 p. 3).

The *secondary morality* brings into question the outer limits of humanitarianism and boundaries with developmentalism, human rights, and the protection of civilian populations. Setting boundaries has tremendous ethical implications (Ford, Zachariah, Mills, & Upshur, 2010). In discerning between classic humanitarianism and modern humanitarianism, co-founder of MSF Bernard Kouchner stated, “Classic humanitarianism protects the victims and accepts [massacres] as reality. Modern humanitarianism accepts no such thing. Its ambition is to prevent the massacres” (Rieff, 2002 p. 288).
Who fulfills this ambition and how? For Orbinski, such decisions are made day-to-day in the field by aid workers:

When I began working with MSF, I naively accepted the cloak of apolitical doctor. I believed humanitarianism – with its principles of neutrality, impartiality and independence – to be outside of politics, in some ways even superior to it, and a way of avoiding its messy business. But I would come to see humanitarianism not as separate from politics but in relation to it, and as a challenge to political choices that too often kill or allow others to be killed (Orbinski, 2008 p. 6).

Humanitarianism’s boundary with human rights deserves further mention. As Barnett (2011) puts it, human rights is humanitarianism’s “more famous cousin” (ibid, p. 16):

Humanitarianism and human rights share various traits, but they are not synonymous, a point that needs stressing … . Human rights relies on a discourse of rights, humanitarianism a discourse of needs. Human rights focuses on legal discourse and frameworks, whereas humanitarianism shifts attention to moral codes and sentiments. Human rights typically focuses on the long-term goal of eliminating the causes of suffering, humanitarianism on the urgent goal of keeping people alive (ibid, 16).

For the human rights proponent Michael Ignatieff, human rights provide the international community with a basis for deliberation:

In this argument, the ground we share may actually be quite limited – not much more than the basic intuition that what is pain and humiliation for you is bound to be pain and humiliation for me. But this is already something. In such a future, shared among equals, rights are not the universal credo of a global society, not a secular religion, but something much more limited and yet just as valuable: the shared vocabulary from which our arguments can begin, and the bare human minimum from which differing ideas of human flourishing can take root (Ignatieff, 2001 p. 116).

However, the growing discourse of human rights has not lessened the need for humanitarian action. Rieff comes down hard on the false hope that human rights conventions provide protection, and argues that normative and rights-based language and laws have proved ineffective and irrelevant in the context of war. Rieff further argues that human rights discourse focusses on negative freedoms such as the freedom not to be tortured, killed, or deprived of the
vote etc., and not on positive liberties such as the right to work, the right to education, and the right to a social and international order in which the rights and freedoms set forth in the UN’s Universal Declaration of Human Rights can be realized (Rieff, 2002 p. 312).

2.5 Defining and deconstructing contemporary humanitarianism

Humanitarianism, a term “fraught with ambiguities,” can be defined broadly as an ideology, a movement and a profession (Donini, 2010 p. S220). David Rieff, a critical researcher, policy analyst and author on humanitarianism and international affairs, writes, “For at its core, humanitarianism remains the vocation of helping people when they most desperately need help, when they have lost or stand at risk of losing everything they have, including their lives” (Rieff, 2002 p. 27). Rieff succinctly summarizes the humanitarian vocation in a quote from an ICRC official: “to bring a measure of humanity, always insufficient, into situations that should not exist” (Rieff, 2002 p. 19).

The Organization for Economic Co-operation and Development (OECD) defines humanitarian aid with a list of ingredients:

Within the overall definition of official development assistance, humanitarian aid is assistance designed to save lives, alleviate suffering and maintain and protect human dignity during and in the aftermath of emergencies. To be classified as humanitarian, aid should be consistent with the humanitarian principles of humanity, impartiality, neutrality and independence. Humanitarian aid includes: disaster prevention and preparedness; the provision of shelter, food, water and sanitation, health services and other items of assistance for the benefit of affected people and to facilitate the return to normal lives and livelihoods; measures to promote and protect the safety, welfare and dignity of civilians and those no longer taking part in hostilities and rehabilitation, reconstruction and transition assistance while the emergency situation persists. Activities to protect the security of persons or property through the use or display of force are excluded (OECD, 2011).

The exclusion of the protection of security through the use of force is an important negative defining feature.
Humanitarian action is a term used synonymously with humanitarian aid but is suggestive of an active rather than passive approach. Humanitarian action implies an element of solidarity with beneficiaries. David Rieff quotes from Pope Benedict XVI in defining solidarity as “not a feeling of vague compassion or shallow distress at the misfortunes of so many people, both near and far. On the contrary, it is a firm and persevering determination to commit oneself to the common good; that is to say, to the good of all and of each individual, because we are all really responsible for all” (Rieff, 2010). Solidarity means giving support to a stranger on their own terms; it differs from community in that it is extended to strangers, and differs from philanthropy because it is given on the stranger’s own terms, not that of the giver. The extent to which the stranger’s own terms are actualized in humanitarianism is subject to debate. Critics here summon concern about paternalism. MSF associates témoignage with solidarity, a term to describe their willingness to speak on behalf of the populations that they serve in order to bring abuses and intolerable situations to the public eye (de Torrente, 2004; MSF, 2006; MSF, 2006; Pictet, 1979).

Humanitarianism aims to alleviate the suffering of groups of people by providing care in the form of material assistance. While still an intensely personal act (most aid workers vividly recall interactions with individual aid recipients), humanitarian action comes in response to populations in danger and communities in distress. Providing care to groups of people requires coordinated, collective responses: it calls for workers with a range of skills and from a variety of vocations – whatever demanded by the crisis.

For some, humanitarianism stems from the moral sentiment of compassion – a feeling invoked by witnessing the suffering of others. This ability to feel compassion is intrinsically human but externally influenced by factors such as societal values and norms. Compassion, however manifested, is deemed a universal human trait and not exclusive to any particular religion, culture, nationality or other group of people. Compassion moves people to act. How compassion

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21 Consider the many historical and contemporary examples of socially rationalized structural and physical violence. Also consider the somewhat arbitrary and yet socially acceptable incongruent compassion we show for animals (house pets versus food animals).
is manifested is also influenced by societal values and norms, such as gender expectations (e.g., boys don’t cry). There are many ways one may demonstrate compassion, from donating money and participating in political action, to providing direct aid and (paradoxically) committing acts of violence. Merriam-Webster defines compassion as the sympathetic consciousness of other’s distress together with a desire to alleviate it: it relates to humanitarianism in that humanitarianism can be seen as acts of compassion in particular circumstances (in a foreign land, during time of crisis, for populations in distress).

Research by Hunt and colleagues on the moral experience of Canadian healthcare professionals in humanitarian work found a cluster of motivations that influenced decisions to participate (Hunt, 2009a). These motivations included desires to offer tangible assistance to people in need; to learn about new parts of the world; to experience unique challenges; and to develop relationships with those in other cultures. Interviewees acknowledged that unrealistic expectations can lead to disappointment:

You don’t always see the results and you have these questions, ‘is this really worth it?’ Then you start to think, ‘Well, what am I doing here? I have sacrificed so much to come here, and it is not clear that I am making any headway’ (ibid, p. 520).

Clearly, motivations on the part of humanitarian actors are varied and complex, ranging from the selfless (I want to save the world) to the selfish (this will look good on my résumé), but “as long as the work they do is valuable, these motivations are of little importance” (Rieff, 2011). Except, as Hunt’s study uncovers, motivations can influence how humanitarians act in the field and how they relate to colleagues and beneficiaries.

Humanitarianism is about efforts to alleviate the suffering of groups of people by providing care in the form of material assistance. However, not all alleviation of the suffering of groups of people constitutes humanitarianism. Many societies include the provision of essential and emergency services – first-responders, hospitals, medical clinics, emergency shelters, drug

programs, and food banks – yet we do not consider this to be humanitarianism. Instead, these essential and emergency services are viewed as standard public institutions and social safety nets. These essential and emergency services are typically tax funded with regular paid employees (not primarily volunteers), with relatively stable working environments (no expectation of great personal risk), offering provision for their own (not for ‘others’ in far off places), and with collective protection, regulation and oversight (not incompetence, abuse and neglect). Where there are cracks, they are often filled by local religious organizations (such as soup kitchens).

Therefore, it may seem reasonable to define humanitarianism simply as that which fills the vacuum created by the absence of such social safety nets. We could define humanitarianism as care provided by volunteers, at great personal risk, in far off lands, in a context of government incompetence, abuse or neglect, and typically (as defined in international humanitarian law) during armed conflict (ICRC, 2004). However, are these defining characteristics of humanitarianism, or do they simply describe its conditions? When humanitarian aid workers are paid competitive wages (as many are), we still consider it to be humanitarianism. If we accept unsafe working conditions, travel to far off lands and local government neglect as constants, then can we reduce humanitarianism to free aid provided by foreigners?

If there were neither international humanitarian law nor formal international humanitarian organizations, there would still be those among us moved by compassion, solidarity, or whatever motivation, to respond to large-scale suffering of whatever cause and in whatever place; and we would call them humanitarians. Whether the suffering were acute from earthquakes or cholera outbreaks, or chronic from protracted war or the HIV/AIDS/TB pandemic, some among us would travel across borders to provide direct material assistance and would get the humanitarian label. Therefore it might seem logical to conceptualize humanitarianism in terms of the responder, rather than the response. However, if humanitarianism were about the responder, then emphasis would be on personalities and intentions (as with virtue ethics) despite the obvious importance of outcomes. Conversely, if humanitarianism were about outcomes (as with consequentialism) then anyone providing an adequate outcome would be considered humanitarian including belligerents, militaries and corporations.
Clearly, there is conceptual significance regarding both responder and outcome. Then what of populations in crisis? What is their relevance in how we understand humanitarianism? Who is eligible for aid? A full understanding of humanitarianism considers all related elements (Box 4).

**Box 4: Deconstructing humanitarianism**

Humanitarianism = context + cause + population + responder + response + outcome

The definition of humanitarianism is fluid and dynamic. It is defined by those who need to define it for means and for ends. It may be defined as political or non-political, secular or non-secular, as a movement or an institution, as short-term emergency response or long-term development, and with or without humanitarian principles. As Barnett (2011) argues, “[w]e live in a world of humanitarianisms, not humanitarianism” (ibid, p. 10).

In conceptualizing contemporary humanitarianism, it is important to consider empirical accounts of the work itself. Many, often harrowing accounts have been written from the perspectives of the expatriate (expat) humanitarian aid worker (for examples, see Bortolotti, 2006; Burnett, 2005; Maskalyk, 2009; Olson, 1999; Orbinski, 2008). Such accounts speak of experiences in providing humanitarian aid during war, social violence, population displacement, complex emergencies, disease outbreaks, and within the international humanitarian complex. Of all the themes, the most vivid is that of war.

### 2.6 Humanitarianism’s discursive formation in war

War is often the cause and context of crises and is persistent in devastating and displacing civilian populations. The Global Burden of Disease Study predicts that by 2030, injury from war and civil conflict, particularly among young adults, will account for 0.63 to 1.04 % of disability-adjusted life years (DALYs) globally. As a comparison, this is only slightly below tuberculosis which will account for 0.95 to 1.11 % of DALYs (WHO, 2008). However, the actual percent of DALYs attributable to war is likely much higher, as the Global Burden of Disease Study does
not include the farther reaching effects of war, such as psychological trauma, malnutrition, communicable disease outbreaks, and the consequence of collapsed social institutions.

Currently, more than 42 million people have fled their homes due to war and political violence (OCHA, 2009b; UNHCR, 2009). Of these, 38% are refugees, falling under the protection of the UN High Commissioner for Refugees (UNHCR, 2008). The majority 62% are internally displaced persons (IDPs). The 26 million IDPs, by definition, have not crossed an international border to obtain refugee status. They may be unable to afford the journey, the journey may be too dangerous, or they may be turned away at the border. Trapped within their own countries, IDPs are particularly vulnerable (Internal Displacement Monitoring Centre, 2009; Salama, Spiegel, Talley, & Waldman, 2004). The public health issues are similar regardless of the legal status of the people displaced (Paquet & Hanquet, 1998); for the purpose of this study, the generic term ‘refugee’ is used to indicate the displaced, regardless of whether refugee or IDP.

Wars tend to be fought between and within unstable resource-poor countries. Suffering is exceptionally acute when the effects of war on civilians are compounded by a baseline of poverty and poor nutrition. Civilians are entitled to protection, and humanitarian actors are entitled to access civilians in order to provide assistance. International humanitarian law (the law of armed conflict) has evolved defining and protecting these rights. The main treaties are codified in the four Geneva Conventions of 1949 and their Additional Protocols, applying in situations of armed conflict to protect life, health, and human dignity (ICRC, 1949; United Nations, 1979; United Nations, 1989; United Nations, October 21, 1950). Nearly every State in the world has agreed to be bound by them, and many provisions of international humanitarian law are accepted as customary law (as general rules by which all States are bound).  

International humanitarian law is intended to prevent the human catastrophe that would require a humanitarian response. For example, parties to the conflict and/or occupying powers have the obligation to ensure that civilian populations under their control are adequately provided with food, medical supplies, clothing, bedding, means of shelter and other items essential to their

survival. A catastrophe results when political and military powers do not honour their obligations or intentionally target civilians, in violation of international humanitarian law. It is in such a catastrophe that emergency humanitarian aid organizations find themselves working.

War and political violence create mass civilian displacement and overcrowded settlement camps and urban centres. During this traumatic time, there is a lack of adequate shelter, food, water, sanitation, and medical care. Disease outbreaks are common, affecting large numbers of already vulnerable people. This marks the emergency phase, empirically determined by high mortality rates. During this time, there is a critical need for case management and emergency public health interventions to prevent further morbidity and mortality, particularly amongst the most vulnerable subpopulations. The most vulnerable subpopulations include (MSF, 1997):

- Women and female-headed households
- Children and unaccompanied minors
- The elderly
- The disabled
- Ethnic, religious or political minority groups
- Urban refugees in a rural environment

Displacement emergencies are a result of political failure accompanied by social institution collapse, demanding a rapid humanitarian response. Over 90% of aid, while coordinated by the United Nations, is provided by non-governmental organizations (NGOs) (Burkle, 2006). Furthermore, civilian beneficiaries are entitled to reasonable standards of assistance from humanitarian actors. In recent years, these standards have been collaboratively defined by the Sphere Project’s Humanitarian Charter and Minimum Standards in Disaster Response (Sphere Project, 2004).

Most complex emergencies occur in sub-Saharan Africa and Asia, with populations displaced internally and within rural environments (Burkle, 2006). However, within the last decade, rural populations are moving into urban areas, seeking security, social services, and better prospects for the future. The displacement of populations to urban settings adds a layer of complexity, particularly for humanitarian assistance and public health interventions (Burkle, 2006).
Militaries often attempt to appropriate humanitarian planning, blurring a crucial distinction between military and humanitarian objectives. While some welcome (typically NATO and the US) military involvement (U.S. Department of State, 2003), most deem it a dangerous expansion of the military sphere of influence (Ford, 2001; International Council of Voluntary Agencies, 2003; McHarg, 2006; MSF, 2004a; Posner, 2006; Rieff, 2002; Vilasanjuan, 2003). Military humanitarianism can serve as cover for military operations. For example, in Afghanistan, the U.S. military subverted humanitarian projects with soldiers in civilian clothing who were often armed, using humanitarian aid work as a cover for information gathering (Bishop, 2003). Such non-neutrality spreads distrust towards all NGOS, putting aid workers and recipients at risk. I have written about this concern (Pringle, 2008).

2.7 The complex emergency

Displaced populations are particularly vulnerable to communicable disease outbreaks due to risk factors such as overcrowding, poor sanitation, inadequate health care and high rates of malnutrition (Moore, Toole, Nieburg, Waldman, & Broome, 1990). Diarrheal diseases are persistently a major cause of morbidity and mortality, resulting from inadequate quality and quantity of water, substandard and insufficient sanitation, overcrowding, and scarcity of soap and poor hygiene (Connolly et al., 2004). The term complex emergency was originally defined by the Inter-Agency Standing Committee to describe situations where multiple causes combine to cause catastrophe. The IASC’s current definition is “a humanitarian crisis in a country, region or society where there is total or considerable breakdown of authority resulting from internal or external conflict and which requires an international response that goes beyond the mandate or capacity of any single agency and/or the ongoing UN country program” (International Organization for Migration, 2002). The United Nations Office for the Coordination of Humanitarian Affairs (OCHA) defines complex emergency as “a humanitarian crisis typically characterized by extensive violence and loss of life, massive displacements of people, widespread damage to societies and economies, and hindrance of humanitarian assistance by security risks and political and military constraints” (OCHA, 2009a). Therefore, key components include extensive violence, population displacement, societal break-down, high rates of morbidity and mortality, and problems in providing assistance and protection.
Complex emergencies may be described in terms of phases, such as emergency and post-emergency (Howarth, Healing, & Banatvala, 1997; MSF, 1997; Paquet & Hanquet, 1998; Schull & Shanks, 2001; Spiegel, Sheik, Gotway-Crawford, & Salama, 2002), or sudden, complex-continuing, and slow onset (Redmond, 2005). Specific criteria may be used in determining the emergency phase, but the main benchmark is the crude mortality rate (CMR), the number of deaths per 10,000 per day. MSF and UNHCR consider an emergency to have a CMR of > 1 per 10,000 per day, or an Under 5 Mortality Rate of > 2 per 10,000 per day (MSF, 1997; UNHCR, 2007). The Sphere Project uses CMR thresholds specific to geographical areas (Sphere Project, 2004). Burkle argues for categorizing complex emergencies according to epidemiological and response models: the developing country model; the smoldering or chronic country model; and the developed country model, in order to better appreciate the socio-political context and necessary international response (Burkle, 2006).

The emergency phase is the most critical time for life-saving humanitarian assistance and public health interventions. The top ten priorities during the emergency phase are as follows (Brown et al., 2008; MSF, 1997):

1.) Initial assessment 6.) Health care 2.) Measles immunization 7.) Control of communicable diseases and epidemics 3.) Water & sanitation 8.) Public health surveillance 4.) Food & nutrition 9.) Human resources and training 5.) Shelter & site planning 10.) Coordination

The most frequent diseases responsible for the highest morbidity and mortality in refugee camp settings are as follows (Connolly et al., 2004; MSF, 1997; Schull & Shanks, 2001; Zwi et al., 2006):

1.) Acute respiratory infections 4.) Diarrheal diseases 2.) Measles 5.) Malnutrition 3.) Malaria
Specific diarrheal outbreaks include cholera (Hatch, Waldman, Lungu, & Piri, 1994; Moren et al., 1991; Valenciano, Coulombier, & Cardozo, 2003) and bacillary dysentery or *shigellosis* (Paquet & Hanquet, 1998). Other common outbreaks include hepatitis and meningitis (MSF, 1997). Meningitis epidemics are most common in the 600 km wide meningitis belt of sub-Saharan Africa (Moore et al., 1990), including northern Nigeria. However, measles outbreaks can prove exceptionally ferocious.

Measles presents an example of one of the many public health challenges in humanitarianism. During a complex emergency, one of the first priorities for public health aid workers is to vaccinate against measles. The Sphere Project’s Minimum Standards in Disaster Response asserts that measles vaccination of children is one of the highest priorities in the acute phase of humanitarian emergencies (Sphere Project, 2004). Measles immunization should be started immediately if vaccine coverage rates are less than 90% among children aged 6 months to 15 years (Kamugisha, Cairns, & Akim, 2003; WHO, 2003). Without full vaccination coverage, the death rate from measles can be as high as 40% (Schull & Shanks, 2001). Outbreaks of measles are frequent in camp settings due to high concentrations of susceptible children even in relatively well immunized populations, combined with poor nutritional status and vitamin A deficiency (Paquet & Hanquet, 1998). Measles vaccination campaigns are one of the most cost-effective public health interventions (Connolly et al., 2004), and may be combined with vitamin A supplementation and nutritional screening.

In stable situations, measles case fatality rates in developing countries are 3 to 5% compared to industrialized countries at 0.1% (WHO, 1999). The highest mortality rates from measles ever recorded in refugee populations were 53% in eastern Sudan and 42% in Somalia, both in 1985 (Connolly et al., 2004). Common complications include secondary respiratory infections, malnutrition, encephalitis and blindness (xerophthalmia) (Grais et al., 2007; MSF, 1997; Paquet & Hanquet, 1998).

## 2.8 Summary of humanitarianism literature review

Humanitarianism is the practice of and the discourse about saving lives, alleviating suffering and maintaining and protecting human dignity during and in the aftermath of crises. Atrocities are
crises of humanity with extreme levels of complexity. Humanitarian action is an emblem of failure subject to a long history of political, economic and social forces. A full understanding of humanitarianism accounts for cause, context, beneficiary, responder, response, and outcome. For the researcher, the humanitarian context imposes unique ethical challenges and opportunities. For the humanitarian aid worker, regardless of motivation, the humanitarian vocation imposes near-impossible ethical hurdles. In the end, “Humanitarianism is about the struggle to create the space to be fully human” (Orbinski, 2008 p. 8).
Chapter 3 : On lead and lead poisoning

“The cause of lead poisoning is clear – it is a plague of our own creation.”

3.1 Introduction to chapter

Because of its notoriety, there is ample literature on lead in the health and social sciences as well as in popular media. Overviews of lead poisoning focus on symptoms and treatment, with discussion of one or more of three broad categories: (1) early history from ancient times to pre-1910; (2) recent history from 1910, when lead began to draw the attention of health professionals; and (3) issues surrounding occupational, pediatric, and environmental exposure. The volume of literature has grown substantially since the 1960s, primarily in the U.S., due to activists, pediatricians and scientists sounding the alarm over lead-based paints and leaded gasoline. Leaded gasoline is a dominant topic among historians, political scientists, and legal scholars, “given its central role in what became an environmental and toxicological epidemic” (Warren, 2000 p. 6). Currently, there is growing research on the health effects of even low-level exposure.

From a global perspective, for over 35 years the WHO and the International Programme on Chemical Safety have investigated the adverse effects on health of lead in the environment. The WHO has conducted four major reviews on human health risks from foodborne lead since 1972, and its various task groups have established health-based guidance values for lead in water, air and the workplace. During the last 10 years, the WHO has turned its focus to the effects of lead on neuro-behavioural development of children at low levels of exposure (WHO, 2010a).

This chapter provides an overview of the central themes in the literature on the topic of lead as a public health threat. There is a focus on troubling aspects of lead’s relationship with humans – such an approach provides historical context and meaning for that which follows in this study. This chapter does not provide comprehensive medical instruction for diagnosing and treating

24 (Warren, 2000 p. 7)
lead poisoning since this information is readily found in most toxicology textbooks. However, an overview on diagnosis and treatment provides segue into the challenges posed by the Nigerian lead-poisoning outbreak.

This literature review presents the broad themes that appear in the literature of lead and lead poisoning:

- The useful metal: History of lead and lead in society
- Leaded gasoline and the criminal poisoning of our planet
- Lead exposure: A foregone conclusion?
- Effects of lead on health
- Treatment
- Epidemiology
- Lead exposure in Nigeria
- Lead-poisoning outbreaks with epicenters in China

Finally, this Chapter concludes with a summary of key messages of relevance to our understanding of the Nigerian lead-poisoning outbreak.

3.2 The useful metal: The history of lead, its uses and dangers

Lead (Pb, plumbum) is a blue-gray malleable metal. Lead is the most abundant of the heavy metals, occurring naturally in the earth’s crust at approximately 0.002 percent (Tong, von Schirnding, & Prapamontol, 2000). It is usually found in ore with silver, zinc, and copper, or in mineral compounds as galena (lead sulfide), anglesite (lead sulfate), cerussite (lead carbonate), mimetite (lead chloroarsenate) and pyromorphite (lead chlorophosphate) (U.S. Department of Health and Human Services, 2007; WHO, 2010a). While humans require trace amounts of certain (essential) heavy metals, such as iron, zinc, copper, manganese, chromium, molybdenum and selenium, other heavy metals such as mercury, plutonium, and lead are toxic metals that have no known vital or beneficial effect on humans (Goyer, 1997). Essential metals are widely found in nature, whereas humans evolved with very little lead exposure; this may help explain
why humans suffer adverse health effects with even low levels of lead in the body. Because lead is odorless, colorless and tasteless, it must be detected through chemical analysis (Warren, 2000).

Inorganic lead is the form of lead found in old paint, soil, dust and various consumer products. Its most common forms are white lead (a lead carbonate compound), yellow lead (lead chromate, lead monoxide) or red lead (lead tetraoxide) (WHO, 2010a). Lead acetate, or sugar of lead, has a sweetish taste, serving as a sugar substitute throughout history, even into the 19th century; leaded wine has been implicated in the fall of Rome (Reddy & Braun, 2010; Watt, 2001). Tetra-ethyl lead, an organic lead, is the form used in leaded gasoline. Organic lead is extremely dangerous, as it is absorbed through the skin and is highly toxic to the brain and central nervous system, more so than inorganic lead (WHO, 2010a).

Lead has been prized in industry given its availability, high density, low melting point, and corrosion resistance (CDC, 2007; Watt, 2001). As early as the 4th millennium BCE, silver and lead in ore were being separated in the process of liquation in Asia Minor and on the islands of the Aegean Sea.

But lead’s toxic effects also became known long ago – nearly three thousand years ago (Kitman, 2000), making lead poisoning (plumbism) one of the first known and most widely studied occupational and environmental hazards (Kovarik, 2005). A poem by Greek physician Nicander in 200 BCE helps demonstrate that the dangers of lead and its toxicity have been well known since antiquity. 25 Lead poisoning was common in Roman times as lead was used in water pipes, earthenware containers, and wine making and storage. Bernardino Ramazzini, regarded as the father of occupational medicine, wrote in 1713 of lead poisoning in potters and portrait painters:

In almost all cities there are other workers who habitually incur serious maladies from the deadly fumes of metals. Among these are the potters … When they need

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25 “Consider the hateful brew compounded with gleaming, deadly WHITE LEAD … for this affliction is severe … His body too grows chill, while sometimes his eyes behold strange illusions or else he drowses; nor can he bestir his limbs as heretofore, and he succumbs to the over-mastering fatigue.” From Gow, A.S.F. & Scholfield, A.F. (1953). Poems and Poetical Fragments: Nicander of Colophon. Cambridge University Press, p. 99. As cited in part by (Warren, 2000 p. 20).
roasted or calcined lead for glazing their pots, they grind the lead in marble vessels … During this process, their mouths, nostrils, and the whole body take in the lead poison … First their hands become palsied, then they become paralytic, splenetic, lethargic, and toothless (cited in Robbins & Landrigan, 2006 p. 213).

Occupational exposure dates back the farthest in the history of public health. Occupational lead poisoning was common among industrial workers in the 19th and early 20th centuries, as workers were exposed to lead in smelting, painting, plumbing, printing, and in many other forms of industry (Tong et al., 2000). During this time, workers in lead-using industries were the hapless subjects of lead-poisoning research.

Given that children are more susceptible to lead, occupational health researchers began turning their attention to pediatric lead poisoning at the beginning of the 20th century. In 1904, the Australian physician J. Lockhart Gibson published a seminal article on childhood lead poisoning entitled, “A plea for painted railing and painted walls of rooms as the source of lead poisoning amongst Queensland children” (Gibson, 1904; Rosner, Markowitz, & Lanphear, 2005). Findings from occupational studies informed understanding regarding pediatric and environmental exposures. Occupational and pediatric lead poisoning was seen to occur within defined locations and from specific sources, in contrast to environmental lead exposure which is universal and affects the general population.

Lead does not vaporize or break down over time. As a result, the lead that contaminates the environment is anthropogenic – put there by human activity. Worldwide, it is estimated that modern human lead exposure is 300 to 500 times greater than background or natural levels (Kitman, 2000). A tremendous amount of this lead is in the atmosphere as a result of leaded gasoline, which is troubling considering “You can choose whether to smoke, but you can't pick the air you breathe, even if it is contaminated by lead particles from automobile exhaust” (Kitman, 2000).

Yet despite its well-known dangers, industrialists continued to regard lead as “the useful metal” through much of the 20th century (Warren, 2000). Given that lead was well established as a dangerous toxin, why was it so consistently used in commercial products? Ignorance of the dangers posed by lead is not a sufficient explanation (Bellinger & Bellinger, 2006). Rosner and
Markowitz explain how, during the first half of the last century, industrial powers such as General Motors, DuPont and Standard Oil, undermined the public health revelations about lead as a public health threat (Markowitz & Rosner, 2013; Rosner & Markowitz, 2002; Rosner & Markowitz, 2007). These corporate giants achieved their goal by: (1) controlling lead-related research through the sponsoring and funding of university research; (2) shaping public perception of lead by marketing lead as an indispensable and healthful element that is safe for children; and (3) exempting lead from normal public health and regulatory oversight.²⁶

The industry’s approach went so far as to silence, sometimes through intimidation, researchers and clinicians that identified lead as a public health hazard (Markowitz & Rosner, 2013). In 1931, a researcher in Boston identified lead paint as the most frequent source of lead poisoning in children. The article was published in the Journal of the American Medical Association (Vogt, 1932). A representative of the Lead Industries Association paid a visit to Boston to discuss the ‘unfavorable publicity’. According to Rosner and Markowitz:

We do not know what transpired in these meetings, but their tenor can be gleaned from a 1933 correspondence … ‘Please be advised that our Bulletin article received a great deal of publicity against which there was strong remonstrance by the Lead Industries Association. You will readily understand that we wish to avoid any controversy with the lead people.’ … Given that one of the most respected and established insurance companies in the United States was intimidated by the [Lead Industries Association], it is no wonder that lead poisoning among children received so little publicity in the years between World War I and World War II (Rosner & Markowitz, 2007 p. 744, citing in part correspondence from Louis Dublin to Ella Oppenheimer, September 14, 1933).

By the 1950s, the scientific evidence against lead paint was overwhelming. However, by this point, tetra-ethyl lead for gasoline was replacing lead in paint as the dominant market for lead ore. According to Rosner and Markowitz, the lead industry grudgingly acknowledged that lead paint was a danger to children, and turned its attention to leaded gasoline (Rosner & Markowitz, 2007).

3.3 Leaded gasoline and the criminal poisoning of our planet

In 1921, while working at General Motors Research Corporation in Dayton Ohio, Thomas Midgley Jr. discovered that tetra-ethyl lead (TEL) reduced engine knock or pinging in internal-combustion engines. On February 1, 1923, the Ethyl Gasoline Corporation (Ethyl Corporation for short), a joint enterprise set up by three of America’s largest corporations: General Motors, Du Pont, and Standard Oil of New Jersey (now Exxon), released TEL to the public. The Ethyl Corporation called their gasoline additive ‘ethyl’ because it sounded more marketable than ‘lead’ (Bryson, 2004 p. 150). Early advertisements promoted speed and power without even mentioning lead as the active ingredient (Kitman, 2000).

Almost immediately after TEL went into production, workers became lead poisoned:

On October 26, 1924, the first of five workers who would die in quick succession at Standard Oil's Bayway TEL works perished, after wrenching fits of violent insanity; thirty-five other workers would experience tremors, hallucinations, severe palsies and other serious neurological symptoms of organic lead poisoning. In total, more than 80 percent of the Bayway staff would die or suffer severe poisoning (Kitman, 2000).

A headline in a front-page story in the New York Times reported, “Odd Gas Kills One, Makes Four Insane”. A supervisor at the Bayway facility told reporters, “These men probably went insane because they worked too hard” (Bryson, 2004; Kovarik, 2005; Markowitz & Rosner, 2003). The father of one of the deceased said that his son was told by the company doctors that working at the plant would not hurt him, and that he would have to get used to it or else quit his job (Markowitz & Rosner, 2003).

Despite the seriousness of the risk to health posed by leaded gasoline, the Ethyl Corporation denied the crisis for decades in order to protect its profits (Kovarik, 2005). The deception was made easier given that the risks were not easily quantifiable. For more than four decades, most

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27 Midgley also went on to invent chlorofluorocarbons (CFCs) for refrigerators. Half a century later, CFCs were found to destroy ozone in the stratosphere (Bryson, 2004).
scientific research regarding the health effects of leaded gasoline was underwritten and controlled by the “original lead cabal” – Du Pont, GM and Standard Oil (Bryson, 2004). Of course, this research was biased towards the industry's pro-lead position; independent scientists who eventually exposed the flawed research were threatened and defamed by lead profiteers and their hired hands (Bryson, 2004; Kitman, 2000). Furthermore, executives falsely claimed there was no alternative to leaded gasoline:

When scientists objected to the introduction of leaded gasoline in the 1920s, they felt they had the obvious benefit of historical understanding. But deliberate miscalculations of the volume of leaded gasoline residues, political opposition, and positivistic attitudes about science meant that public health advocates could not block industry’s use of lead in gasoline in the 1920s. Ethyl and the industries presented a very clear challenge to public health. There claimed to be no alternatives to leaded gasoline, which was a “gift of God” necessary to the functioning of modern civilization (Kovarik, 2005 p. 394).²⁹

It took fifty years for scientific, legal and regulatory challenges to start affecting change. It is important to note that it took scientists from outside official public health circles to have the greatest impact: geochemist Clair Patterson, who exposed flaws in the scientific methods of the lead industries, and Herbert Needleman, a psychiatrist whose epidemiologic studies correlated higher lead levels with worse school performance and lower IQ levels in children (Kovarik, 2005). Patterson’s studies of ice cores showed that before the introduction of leaded gasoline in 1923 there was almost no lead in the atmosphere, and since then the level has climbed steadily and dangerously (Bryson, 2004).³⁰

Environmental lead levels have increased more than 1,000-fold over the past three centuries, but the greatest increase occurred between 1950 and 2000 due to worldwide use of leaded gasoline (U.S. Department of Health and Human Services, 2007). Many lessons can be learned from the

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²⁹ At a U.S. Surgeon General hearing over leaded gasoline in 1925, Standard Oil’s Frank Howard (soon to be an Ethyl director) pronounced that TEL was “a gift of God” that conscience and the march of human progress compelled General Motors to exploit. Years later, Howard would be forced to relinquish his Standard post for collaborating with Nazi Germany, but he would retain his seat at Ethyl (Kitman, 2000).

³⁰ His seminal paper is Patterson, C. (1965). Contaminated and natural lead environments of man. Archives of Environmental Health, 11, 344-360. Further to his credit, Patterson also accurately calculated the age of the planet.
leaded gasoline public health disaster. It is important for public health historians to recount the story of this “sad and sordid commercial venture that would tiptoe its way quietly into the black hole of history if the captains of industry were to have their way” (Kitman, 2000).

Lead as an air pollutant is discharged into soil and water. The use of lead in gasoline is a major contributor to lead in soil; lead in the atmosphere, primarily from leaded gasoline, travels long distances and then falls from the air in rain onto land and surface water (U.S. Department of Health and Human Services, 2007). Once lead falls onto soil, it adheres to soil particles and remains in the upper layer of the soil. Small amounts of lead enter rivers, lakes, and streams where contaminated soil is moved by rainwater. Lead accumulates in plants and animals from contaminated air, water, and soil. Lead is commonly found in soil near roadways, older houses, old orchards, mining areas, industrial sites, power plants, incinerators, landfills, and hazardous waste sites (WHO, 2012b). Given this concern, the WHO established a health-based level for lead in drinking water at 0.1 milligrams per litre (WHO, 1993).

In the U.S. between 1976 and 1989, when lead in gasoline was reduced by 99 percent, average blood lead levels decreased from 17.1 mcg/dl in the 1970s to 2.7 mcg/dl in the 1990s (Tsai & Hatfield, 2011). The relationship between air lead exposure and blood lead exhibits this downward curvilinearity (Figure 3).
Starting 1 January 1996 lead was banned for use in gasoline for motor vehicles in the U.S.; however, tetra-ethyl lead is still tolerated in gasoline for off-road vehicles and airplanes (U.S. Department of Health and Human Services, 2007). Leaded gasoline in cars was banned in Canada in 1990. Since then, lead in the air of most Canadian cities has dropped below detectable levels (Health Canada, 2007). In Europe, urban air lead levels are typically between 0.15 and 0.5 mcg/m³ (WHO, 2000). The WHO guideline considers 0.5 mcg/m³ an acceptable upper threshold for annual average concentrations of lead in the air (WHO, 2010b).

Leaded gasoline is still used in some developing countries. The United Nations Environment Program (UNEP) established the Partnership for Clean Fuels and Vehicles (PCVF) “to assist developing countries to reduce vehicular air pollution through the promotion of lead-free, low sulphur fuels and cleaner vehicle standards and technologies” (UNEP, 2012). According to the Partnership, Nigeria aimed to phase out leaded gasoline by 2003. As of January 2012, countries still using leaded gasoline include Afghanistan, Myanmar, North Korea, Algeria, Yemen, and
Iraq (Figure 4). The best estimate of the global benefits from the phase-out of leaded gasoline is $2.45 trillion per year (Tsai & Hatfield, 2011).

Figure 4. “The Tree of Death: How to end the sale of leaded petrol in remaining six countries?”


3.4 Lead exposure: Are we resigned to it?

“The lead market is small, but after 30 years of relative stagnation it has exploded into life.”

(NNR Global, 2010)

Global lead production is approximately 8 million tons per year and increasing, with about half produced from recycled scrap. Lead-acid batteries account for 80 percent of the world’s lead consumption; in recent years the price of lead has quadrupled due to the demand for lead-acid batteries in China (NNR Global, 2010). Lead and lead alloys are still commonly found in pipes, storage batteries, weights, shot and ammunition, cable covers, and sheets to shield from
radiation. Lead compounds are used as pigments in paints, dyes, and ceramic glazes and in caulk (CDC, 2007). Studies in the U.S. have found lead in a variety of sources such as paint in homes built before 1978, in water pumped through leaded pipes, and in imported items such as clay pots, candies, make-up, jewelry, and certain home remedies. Currently, the largest use for lead is in lead-acid batteries for the automobile industry (CDC, 2012a).

According to the WHO, current sources of children’s lead exposure are (WHO, 2010a):

- Leaded gasoline
- Lead from an active industry such as mining (especially in soils)
- Lead-based paints and pigments
- Lead solder in food cans
- Ceramic glazes
- Drinking-water systems with lead solder and lead pipes
- Lead in such products as traditional medicines, folk remedies, cosmetics, and toys
- Lead released by incineration of lead-containing waste
- Lead in electronic waste (e-waste)
- Lead in the food chain, via contaminated soil
- Lead contamination as a legacy of historical contamination from former industrial sites.

As with other toxins, the complete exposure pathway of lead has five components: (1) a source of contamination, such as deteriorating lead-based paint on walls or open burning of waste; (2) an environmental medium and transport mechanism, such as lead contaminated dust on the floor of a home, lead smoke from open burning, or lead exhaust from leaded gasoline; (3) a point of exposure, such as children’s hands or the floor; (4) a route of exposure, such as eating the dust through hand-to-mouth behaviours; and (5) an exposed population, such as children in the home environment (WHO, 2010a). Figure 5 illustrates the complexity of lead’s environmental and biological pathways.
As mentioned, children are more susceptible to lead, both in terms of exposure and outcome. Compared with adults, a bigger proportion of the amount of lead swallowed will enter the blood in children. According to lead’s toxicological profile:

Shortly after lead gets into your body, it travels in the blood to the ‘soft tissues’ and organs (such as the liver, kidneys, lungs, brain, spleen, muscles, and heart). After several weeks, most of the lead moves into your bones and teeth. In adults, about 94% of the total amount of lead in the body is contained in the bones and teeth. About 73% of the lead in children’s bodies is stored in their bones. Some of the lead can stay in your bones for decades; however, some lead can leave your bones and reenter your blood and organs under certain circumstances (e.g., during
pregnancy and periods of breast feeding, after a bone is broken, and during advancing age). … About 99% of the amount of lead taken into the body of an adult will leave in the waste within a couple of weeks, but only about 32% of the lead taken into the body of a child will leave in the waste (U.S. Department of Health and Human Services, 2007 pp. 7-8).

During pregnancy, maternal lead mobilizes from bone to blood and then crosses the placenta, so that maternal and fetal blood lead levels are virtually identical. Once in fetal circulation, lead crosses the blood-brain barrier (WHO, 2010a). Once in the developing brain, lead interferes with brain growth, development and differentiation; damage caused by chronic, low-level exposure to lead is irreversible and untreatable (Rogan et al., 2001). Fetuses exposed to lead in the womb may be born prematurely and with lower birth weights. Exposure in the womb, in infancy, or in early childhood has been shown to slow mental development and cause lower intelligence later in childhood (U.S. Department of Health and Human Services, 2007). Although lead appears in human milk, the concentration is much lower than that found in whole blood, so little is transferred to the infant (WHO, 2010a).31

Child vulnerability extends from prenatal life into infancy and early childhood. Children are exposed to lead from swallowing and breathing in contaminated dirt, dust, or sand while playing on the ground. This proximity makes it easier for children to be exposed to lead than adults (WHO, 2010a). Environmental lead contamination is assessed by collecting and analyzing soil samples with x-ray fluorescence (XRF) spectrometers, as was done in areas affected by the Nigerian lead-poisoning outbreak (Joint UNEP/OCHA Environment Unit, 2010).

3.5 Effects of lead on health

Lead is a cumulative toxicant, affecting multiple body systems including the neurological, haematological, gastrointestinal, cardiovascular and renal systems (WHO, 2012a). There is no threshold below which lead has no apparent adverse effect; there is no level of lead exposure that has been identified as not being associated with some risk of health effects (CDC, 2007; WHO, 2010).

31 This suggests that during the Nigerian lead-poisoning outbreak, breastfeeding was not contraindicated.
Lead is especially harmful to the developing brains of fetuses and young children, as well as to pregnant women (WHO, 2012b).

Lead poisoning is typically a chronic disease, due to cumulative intake of lead, sometimes involving acute symptomatic episodes. However, in the majority of cases, children with lead poisoning are asymptomatic, which can delay or prevent a proper diagnosis:

However, during this time effects on a cellular level are occurring resulting in subtle changes in the child. These include impairment of IQ and other cognitive effects, decreased heme synthesis, and interference in vitamin D metabolism. In children, overt clinical symptoms of cumulative lead poisoning generally begin with loss of appetite and abdominal pain. They are, however, easily confused with other diseases that can cause the same symptoms. If the disease is not recognized at this stage, the clinical presentation in children may proceed to signs of increased intracranial pressure (projectile vomiting, altered state of consciousness, seizures) (Lowry, 2012).

Because the clinical signs and symptoms of lead poisoning are nonspecific, and virtually all of the lead in blood is bound to red blood cells, a venous blood lead measurement is required for diagnosis. (Lowry, 2012). Venous blood samples can undergo lead analysis with graphite furnace atomic absorption spectrometry (GFAAS). Blood lead levels (BLLs) are expressed in micrograms per deciliters (mcg/dl). Appendix 3 illustrates the low range of blood lead levels exhibiting various symptoms in children.

Until recently, by CDC standards, children with a blood lead level of 10 mcg/dl or higher were considered as having a blood lead level of concern which called for primary prevention activities: informing parents of the test result, inquiring about lead exposure, providing information about exposure prevention, and performing follow-up testing. However, given accumulating scientific evidence of adverse effects for blood lead levels of lower than 10 mcg/dl, the CDC has revisited this threshold.

32 Graphite furnace atomic absorption spectrometry (GFAAS), the preferred technique of many laboratories, was introduced in the 1980s with capacity to test lower concentrations of lead in blood. GFAAS is an automated and highly complex technique that provided a more cost-effective approach to screening. GFAAS has a detection limit of ~1 mcg/dl and a unit can be purchased for $30,000-$50,000 (CDC, 2010a).
In January 2012, the CDC Advisory Committee on Childhood Lead Poisoning Prevention recommended the “elimination of the use of the term ‘blood lead level of concern’ based on the compelling evidence that low BLLs are associated with IQ deficits, attention-related behaviors, and poor academic achievement. The absence of an identified BLL without deleterious effects, combined with the evidence that these effects appear to be irreversible, underscores the critical importance of primary prevention” (CDC, 2012b; Wedeen, 2011). The Advisory Committee recommended using a reference value based on the 97.5th percentile of the blood lead level distribution among children one to five years old in the U.S. (currently, 5 mcg/dl) to identify children with elevated blood lead levels.

The change in blood lead level of concern over time helps illustrate what Warren calls negotiating acceptable risk that has balanced the needs of lead producers and consumers (Figure 6).

Figure 6. Changes over time in the definition of elevated blood lead level

![Graph showing changes over time in the definition of elevated blood lead level]

* Currently eliminating the term blood lead level of concern given no known safe threshold (CDC, 2012b). Source: Adapted from (Bellinger & Bellinger, 2006 p. 854).

However, absorbed lead is not just distributed in the blood, but also in the soft tissues and bone. Therefore, blood lead levels do not tell the whole story. The residence times of lead in these
compartments are estimated at 35 days in blood, 40 days in soft tissues; 3 to 4 years in trabecular bone; and 16 to 20 years in cortical bone. The greater the body lead burden the slower the rate of disappearance from the tissues, including blood. Therefore, blood lead measurements are not particularly helpful in making a retrospective diagnosis. Injury from lead to the kidneys and CNS may remain long after blood lead levels have decreased due to distribution and elimination. Currently, it is not possible to make a retrospective diagnosis of lead poisoning in a child on the sole basis of current blood lead levels (Lowry, 2012 p. 3).

Acute lead toxicity causes encephalopathy in both adults and children. High lead levels severely damage the brain and kidneys in adults and children and ultimately result in death. In pregnant women, high levels of exposure to lead may cause miscarriage. High-level exposure in men can damage the organs responsible for sperm production. Prolonged exposure results in dullness, irritability, poor attention span, epigastric pain, constipation, vomiting, convulsions, coma, and death. But the greatest threat is to children (U.S. Department of Health and Human Services, 2007).

The effects of lead on children vary according to extent of exposure. A child with high blood lead levels may develop anemia, kidney damage, colic, muscle weakness, and brain damage, which may result in death. High-level exposure sometimes results in lead sulphide staining of the gum line, commonly called the lead line (Pagliuca et al., 1990). The term lead line can also refer to the appearance of lead in X-rays of the metaphyses of long bones. This author notes that the U.S. Toxicological Profile for Lead uses the term lead line to describe both (U.S. Department of Health and Human Services, 2007).

Lead poisoning in children can leave residual cognitive deficits still detectable in adulthood. Prospective studies suggest that an IQ decline of 1 to 5 points is associated with an increase in blood lead level of 10 mcg/dl. Further recent studies have shown neurobehavioral deficits in children associated with blood lead levels of less than 10 mcg/dl and an apparent lack of threshold down to even the lowest blood lead levels (U.S. Department of Health and Human Services, 2007):
However, absorbed lead is not just distributed in the blood, but also in the soft tissues and bone. Therefore, blood lead levels do not tell the whole story. The residence times of lead in these compartments are estimated at 35 days in blood, 40 days in soft tissues; 3 to 4 years in trabecular bone; and 16 to 20 years in cortical bone. The greater the body lead burden the slower the rate of disappearance from the tissues, including blood. Therefore, blood lead measurements are not particularly helpful in making a retrospective diagnosis. Injury from lead to the kidneys and CNS may remain long after blood lead levels have decreased due to distribution and elimination. Currently, it is not possible to make a retrospective diagnosis of lead poisoning in a child on the sole basis of current blood lead levels (Lowry, 2012 p. 3).

Acute lead toxicity causes encephalopathy in both adults and children. High lead levels severely damage the brain and kidneys in adults and children and ultimately result in death. In pregnant women, high levels of exposure to lead may cause miscarriage. High-level exposure in men can damage the organs responsible for sperm production. Prolonged exposure results in dullness, irritability, poor attention span, epigastric pain, constipation, vomiting, convulsions, coma, and death. But the greatest threat is to children (U.S. Department of Health and Human Services, 2007).

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During brain development, lead interferes with the trimming and pruning of synapses, migration of neurons, and neuron/glia interactions. Alterations of any of these processes may result in failure to establish appropriate connections between structures and eventually in permanently altered functions. Because different brain areas mature at different times, the final outcome of the exposure to lead during development (i.e., in utero vs. pediatric exposure) will vary depending on the time of exposure. This has been demonstrated in studies in animals. The time of exposure-specific response appears to have contributed to the failure to identify a ‘behavioral signature’ of lead exposure in children (U.S. Department of Health and Human Services, 2007 pp. 24-25).

As previously stated, the toxic effects of lead have been known for centuries. However, research in the last few decades highlight the danger of even a relatively low level of lead in blood (Bellinger, 2011; Nawrot & Staessen, 2006; U.S. Department of Health and Human Services, 2007). Lower blood lead levels in children have much less severe but still important effects on development and behavior. Lead is now known to produce a spectrum of injury including loss of cognition, shortening of attention span, alteration of behaviour, dyslexia, attention deficit disorder, hypertension, renal impairment, immunotoxicity and toxicity to the reproductive organs; these effects are generally permanent (WHO, 2010a).

### 3.6 Treatment

The first and most essential step in treating a child for lead poisoning is to remove the lead from the child’s environment via remediation (or, equivalently, remove the child from the lead-contaminated environment). CDC guidelines still stand calling for the evaluation and chelation treatment of children with blood lead levels of 45 mcg/dl and higher (CDC, 2012a). Chelation therapy is the medical treatment for reducing the toxic effects of metals. Chelating agents bind to toxic metal ions to form complex structures which are easily excreted from the body (Flora & Pachouri, 2010).

It must be noted that once a person is receiving chelation therapy, the person may be more susceptible to lead absorption than before treatment; therefore, chelation treatment is not only futile but dangerous should the child’s lead exposure persist: “Chelation therapy with ongoing exposure is never recommended. Instead, patient heavily exposed to lead may be removed from
the site and then only then chelation therapy should be administered” (Flora & Pachouri, 2010 p. 2770).

Chelation therapy is most affective at treating high blood lead levels (greater than 45 mcg/dl) but less affective at treating lower blood lead levels (Lowry, 2012). Chelating agents bind with the lead in the blood and allow it to be excreted. Intravenous chelation drugs include Edetate Calcium Disodium (CaNa2EDTA) and British AntiLewisite (BAL, Dimercaprol). Oral chelation drugs include 2,3 Dimercaptosuccinic Acid (DMSA, succimer), DMPS (Unithiol) and penicillamine (Lowry, 2012).

Succimer (DMSA) was the oral chelating agent used to treat the lead-poisoned children in the 2010 lead-poisoning outbreak of northern Nigeria. Succimer was approved by US Food and Drug Administration in 1991 for the treatment of lead poisoning in children with blood concentrations above 45 mcg/dl. Current guidelines recommend treatment with succimer for children with blood lead concentrations between 45 mcg/dl and 69 mcg/dl if they are protected from continuing exposure to lead and have no signs of encephalopathy (Volans, Karalliedde, & Wiseman, 2010). Succimer is most convenient for use in rural areas of developing countries because it is can be given orally, does not necessitate hospital admission and has a good adverse effect profile. The drug was used successfully for treating acute high blood lead levels in Peru and Senegal (ibid, p. 9).

Chelation therapy can swiftly but temporarily drop the blood lead level. Then the blood lead concentration will gradually increase as the lead equilibrates between bone, organs and blood compartments. Because the risk of adverse effects of lead is related to blood lead concentration, children receiving chelation treatment need close medical monitoring (Lowry, 2012). And chelating agents themselves can have serious side effects (Flora & Pachouri, 2010). An optimal chelating drug maximizes lead excretion, is administered easily, and proves to be affordable and safe (Lowry, 2012). The benefits and limitations of chelation therapy are presented in Table 1.

33 This is a large and ongoing issue in the response to the Nigerian lead-poisoning outbreak, where artisanal mining persists.
Table 1: Benefits and limitation of chelation therapy

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective against acute poisoning</td>
<td>Redistributes toxic metal</td>
</tr>
<tr>
<td>Forms non-toxic complexes</td>
<td>Essential metal loss</td>
</tr>
<tr>
<td>Removes metal from soft tissues</td>
<td>No removal of metal from intracellular sites</td>
</tr>
<tr>
<td>Available as oral therapy</td>
<td>Hepatotoxicity and nephrotoxicity</td>
</tr>
<tr>
<td></td>
<td>Poor clinical recovery</td>
</tr>
<tr>
<td></td>
<td>Headache, nausea, increased blood pressure</td>
</tr>
</tbody>
</table>

Source: Adapted from (Flora & Pachouri, 2010 p. 2762).

Lead poisoned children with iron deficiency should be treated for anemia since the anemia may be worse with high lead and low iron. Additionally, these children need a diet sufficient in trace elements including calcium and vitamin C. Despite the benefits of chelation, it must be noted that “no therapy can replace dead neurons” (Landrigan & Graef, 1987 p. 583).

3.7 Lead epidemiology

According to the WHO, lead exposure is estimated to account for 0.6 percent of the global burden of disease, with the highest burden in developing regions (WHO, 2012a). The Global Health Observatory estimates that exposure to lead caused 143,000 deaths in adults from cardiovascular diseases (2004 estimates) (WHO, 2005). Disability Adjusted Life Years (DALYs) is a measure combining the years of life lost as a result of premature death and the years lived with a disease. Among the 9.0 million DALYs caused by lead exposure, 1.8 million DALYs were due to cardiovascular diseases in adults, and 7.2 million DALYs were a result of some degree of intellectual disability due to lead-associated IQ deficits. Childhood lead exposure is estimated to contribute to about 600,000 new cases of children with intellectual disabilities every year (WHO, 2012a).

The CDC Advisory Committee determined that there are approximately 450,000 children in the U.S. with blood lead levels higher than 5 mcg/dl, despite the CDC’s Childhood Lead Poisoning Prevention Program commitment to the goal of eliminating elevated blood lead levels in children by 2010 (CDC, 2012c). WHO estimates in 2004 estimate that 16 percent of all children worldwide have blood lead levels above 10 mcg/dl (WHO, 2010a). Of children with elevated
levels, an estimated 90 percent live in low-income regions, and almost all (98 percent) of the disease burden occurs in developing countries (WHO, 2010a).

Low socioeconomic status is persistently a risk factor for lead exposure. Proximity to mining, smelting, battery factories and cottage industries are risk factors for lead exposure particular to children in developing countries (Tong et al., 2000; WHO, 2010a). Acute symptomatic lead poisoning still occurs today and is most commonly detected among children in low-income countries and marginalized populations or in children living in lead-polluted sites. The burden of lead puts great economic burdens on families and societies. When exposure to lead is widespread, low level toxicity damages health, reduce intelligence, damages economies, and incapacitates future leadership.

By extrapolating the effects of lead at the individual level, it is reasonable to assume that lead exposure at the population level jeopardizes the future security of entire communities and countries (WHO, 2010a). According to the WHO (2010a), a large and widespread population-level exposure to lead would decrease mean IQ. This would result in a substantial increase in the number of children with diminished intelligence and mental retardation. Inversely, there would be a substantial reduction in the number of children of high intelligence. Such a population could expect to see a substantial increase in the number of children who do poorly in school, who may require special education and other remedial programs, and who may be less apt to fully contribute to society as adults. There would be a reduction in the number of potential community leaders and an increase in socioeconomic disparity between areas with high and low levels of population-level lead exposure.

An economic analysis conducted in the U.S. found that the current cost of childhood lead was US$ 43 billion per year. Its cost-benefit analysis suggests that every dollar spent to reduce lead hazards achieves a benefit of $17 to $220 (CDC, 2012d). This cost-benefit ratio was noted to be better than that for vaccines, which have long been described as the single most cost-beneficial medical or public health intervention (CDC, 2012d; WHO, 2010a).

\[34\] Referring to the mental disorder in the DSM IV–TR.
3.8 Lead exposure in Nigeria

“Dust, of course, is capable of being both swallowed and inhaled.” (Gibson, 1904)

Several studies have indicated the high burden of lead on children of Nigerian cities. A study of the prevalence of elevated blood lead levels in children 1 to 6 years old in Kaduna, northern Nigeria, found a mean BLL of 10.6 mcg/dl, and that 2 percent of the children had BLLs greater than 30 mcg/dl (Nriagu, Oleru, Cudjoe, & Chine, 1997). The study’s highest levels, found in children of 5 years old, were attributed to the tendency for this age group to play longer in contaminated outdoor environments. A study of the causes of lead toxicity in Jos notes that a previous community survey found that 70 percent of children 6 to 35 months of age had BLLs of 10 mcg/dl and higher (Wright, Thacher, Pfitzner, Fischer, & Pettifor, 2005). The study sought to investigate exposures associated with elevated blood lead levels, and found that 34 percent of all individuals tested had BLLs at or above 10 mcg/dl. Multiple risk factors were present, such as age of 5 years and under, mud housing, clay pot water storage, and lack of pipe borne water. The authors note that these latter risk factors are likely proxy indicators for lower socioeconomic status, rather than risk factors themselves.

A study investigated the prevalence of elevated blood lead levels in children of three major cities in Nigeria: Ibadan (southwestern region), Nnewi (southeastern region), and Port Harcourt (Niger Delta region). The study involved 639 children ages 2 to 9 years old, and found a mean BLL of 8.9 mcg/dl, with a range of 1 to 52 mcg/dl. Approximately 25 percent of the children had BLLs greater than 10 mcg/dl (Nriagu et al., 2008). The study authors wrote in 2008:

A child in Nigeria is exposed to lead from many sources. At the top of the list are automobiles in the country which still burn leaded gasoline. Although there was a plan to reduce the lead content of Nigerian gasoline, … there is no evidence to suggest that the program has been implemented (Nriagu et al., 2008 p. 599).

A case-control study of occupational lead poisoning in Nigeria examined lead-exposed workers in Southwest Nigeria, as well as conducted a survey of non-occupational workers in Northwest Nigeria (Adeniyi & Anetor, 1999). The study reports that the universal upper limit of acceptable BLL in lead-occupation workers is 40 mcg/dl (no source was provided). Despite this high
threshold, 95 percent of workers had BLLs above 40 mcg/dl, and 40 percent had BLLs above 60 mcg/dl. Of the controls, remarkably 19 percent had BLLs above 40 mcg/dl and 4 percent had BLLs above 60 mcg/dl. The authors attribute high rates of elevated blood lead levels in Northwest Nigeria primarily to leaded gasoline. The authors conclude by saying that “precautionary measures appear desirable by all who are occupationally or environmentally exposed to lead”. This perplexing statement makes no mention of what these precautionary measures might be.

A study measuring roadside surface soils, dust particles and rain water samples from various urban cities in Southeastern Nigeria found “astonishing” levels of lead contamination (Nduka & Orisakwe, 2010 p. 2509). The ubiquity of lead in the Nigerian environment is attributed to automobile emissions, industrial effluents, paint flakes, refuse dumps and electronic waste. Two years before the Nigerian lead-poisoning outbreak, the authors wrote:

> We suggest that the African public health community strengthen their efforts to prevent lead poisoning in African children through a holistic approach that includes the promulgation and enforcement of appropriate legislation as well as research on mitigation measures (Nduka & Orisakwe, 2010 p. 2511).

This suggestion is ever more pertinent today.

### 3.9 Lead-poisoning outbreaks

> “Acute symptomatic lead poisoning, once a common problem, is now a rare event. Lead encephalopathy is even rarer. Most pediatric residents will not see a case of acute plumbism during their training; few will encounter the problem in their career” (Needleman, 2004 p. 252).

This thesis uses the term outbreak as synonymous with epidemic. While one would be technically correct to describe the lead poisonings in Zamfara State as an epidemic, common usage (perhaps colloquially) has adopted the word outbreak.\(^{35}\) In contrast to individual cases or

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\(^{35}\) John Last, in his Dictionary of Public Health, defines outbreak as a small localized cluster of cases, sometimes a euphemism used to downplay the seriousness of an epidemic. Last notes that the word epidemic originally applied to
small clusters of cases, lead-poisoning outbreaks may be rare but have occurred persistently in recent history. For example, during 1870 to 1900 in the Rocky Mountain States of the U.S., there was an outbreak of lead poisoning following the discovery and extraction of lead deposits. Utah was the worst affected state, with an estimated 30,000 cases of lead poisoning, primarily amongst labourers (Robbins & Landrigan, 2006 p. 214).

Outbreaks of lead poisoning occasionally made it into medical journals. In 1922, an outbreak of lead poisoning was attributed to beer in Middlesex, England (Anon., 1922). The medical officer of health found that the outbreak “was limited to persons resorting to certain public-houses… It was discovered that a lead glaze had been used in the preparation of the enamel and that from this source, by means of the plumbo-solvent properties of its sugars, the beer became contaminated” (ibid, p. 349).

In 1956, an outbreak of lead poisoning in England was attributed to the use of scrap batteries as domestic fuel. Ten children of five different families were severely affected, and two died before diagnosis. Fifty other children showed signs of absorption of lead. Poverty was identified as a risk factor for this type of exposure:

Scrapped lead batteries were found to be in widespread use in one area of the town, as a cheap substitute fuel on open fires, especially when funds would not meet the cost of coal. In some households the burning of batteries was intermittent as pay-day drew near, whereas in others it was a more constant practice. A hand-cart, sackful, or pram-load of broken batteries cost from 6d. to 1s. at a neighbouring scrap-yard. … In the present families toddlers were regularly engaged in handling the fuel, and babies not yet able to walk played in the ash-bucket without restraint (Travers, Rendle-Short, & Harvey, 1956 p. 116).

outbreaks of contagious disease, but broadened in the 20th century to include conditions of non-infectious origin (Last, 2007).
In discussing the outbreak in England, the study authors refer back to a similar outbreak in the U.S. in what they consider to be the textbook example linking poverty to scrap battery lead toxicity:

The classic account is that of Williams et al. (1933), from Baltimore, of 20 Negro families living in abject poverty during the great depression. There, similarly, scrap batteries were available at nominal cost from two junk shops, which between them dismantled 2500 batteries weekly. 3 mothers and 40 children were affected. 5 showed encephalitis, the 1st case presenting like ours as suspect tuberculous meningitis with convulsions and stupor. 25 cases showed radiographic bone changes, 23 showed stippling of red blood-cells. 30 showed a lead line in the gums – other workers say this is seldom seen in young children (Travers et al., 1956 p. 116, citing McKhann & Karpinski, 1948, Brenneman’s Practice of Pediatrics. Hagerstown, Maryland; vol. 1, Chap. 18).

In the study of the outbreak in England, the authors consider the prognosis regarding mentality as unfavourable, stating that, even in the absence of gross encephalopathy, it is unlikely that the young children’s mental development would be spared. This dire prognosis remains true for victims of lead-poisoning outbreaks of today.

To put the Nigerian lead-poisoning outbreak in historical perspective, I conducted a literature search of comparable lead-poisoning outbreaks. A search for articles in Ovid Medline® 1946 to Week 3, 2012, finds that the medical subject heading (MeSH) Lead Poisoning (auto-explored) results in 10,204 articles. However, no articles have a combined medical subject headings of Lead Poisoning and Epidemics. Just 38 articles combine the medical subject headings of Lead Poisoning and Disease Outbreaks. Ovid Medline® defines its Medical Subject Heading Disease Outbreaks as “Sudden increase in the incidence of a disease. The concept includes EPIDEMICS and PANDEMIC” (Ovid Technologies, 2000).

Of the 38 articles that include both Lead Poisoning and Disease Outbreaks, 10 are veterinary articles, 11 are reviews or editorials, 2 pertain to economics, 1 identifies lead poisoning as a risk for a separate disease, and just 14 discuss actual lead-poisoning outbreaks. Of these 14 articles on lead-poisoning outbreaks, a total of 8 outbreaks are discussed in detail. Ironically, articles on the lead-poisoning outbreak in northern Nigeria did not include the MeSH of Disease Outbreaks,
unlike other lead-poisoning outbreaks. I raised the issue with Ovid.com Technical Support. A Technical Support Engineer responded, “The mapping is done by the National Library of Medicine. I'm checking to see how this can be corrected” (E-mail communication, 11 July 2012).

Additional search methods such as searching Google Scholar, online news sources, and reference lists of relevant articles identified 2 additional outbreaks in the literature. This resulted in a total of 11 separate lead-poisoning outbreaks (including the 2010 Nigerian lead-poisoning outbreak), presented below.

There is unlikely to be consensus on what defines a lead-poisoning epidemic or outbreak. Elevated blood lead levels across a country may be considered an epidemic, even in the absence of acute symptomatic cases. Similarly, a few cases resulting from ingested lead-based paint chips over several years in one city may be considered an outbreak. However, the intent of this literature search is to identify accounts of acute symptomatic lead poisonings comparable in some aspects to the Nigerian lead-poisoning outbreak. Therefore, I exclude epidemiological or cross-sectional surveys identifying asymptomatic elevated blood lead levels (e.g., in industrial settings) as well as individual case studies of acute lead poisonings (e.g., from ingested paint chips). The 11 lead-poisoning outbreaks are presented below in chronological order. Given its gravity, the eleventh outbreak, that of China, is elaborated separately.

1. In Raleigh, North Carolina, a 1977 study of children of battery workers found that lead dust was contaminating homes via parental work clothing for 40 of the 58 children whose mothers worked in a battery factory. Blood lead levels were highest in children less than 3 years old and declined with age. All children were asymptomatic, and all had normal findings on physical examinations (Dolcourt, Hamrick, O'Tuama, Wooten, & Barker, 1978). I mention this study for the transmission of lead dust through work clothing, as occurred in the Nigerian lead-poisoning outbreak.

2. In 1982 in a rural Palestinian village south of Nablus in the West Bank, there was a lead-poisoning outbreak linked to contaminated flour. A survey of schoolchildren revealed elevated blood lead levels in 30 percent of the children. Home-made flour was contaminated by lead fillings used to secure the housing of the driveshaft to the millstone.
The authors note that similar outbreaks from contaminated flour were reported in Spain, Turkey, Greece and Albania. The authors state that this problem has existed since antiquity because flour mills employing lead parts were introduced to Palestine and other countries during the Roman conquest. The authors describe a related outbreak of lead poisoning in a West Bank Palestinian family where all 13 members of the family (two children and 11 adults) were lead poisoned and hospitalization for gastroenteritis, headache, joint pain, weight loss, and altered vision: BLLs ranged from 42 to 84 mcg/dl (Hershko, 2005).

3. Over a twenty month period between September 1987 and May 1989, 25 Omani infants were admitted to hospital with acute lead encephalopathy. They ranged in age from 1 to 8 months old. The source of poisoning was a local traditional medication. Despite chelation therapy, three infants died, 11 infants were left with residual neurological impairments, and only 11 infants were neurologically normal at time of discharge (Woolf, 1990).

4. In Oregon in 1988, a total of 51 cases (37 suspected and 14 confirmed) of lead poisoning resulted from intravenous use of tainted methamphetamine. BLLs ranged from 49 to 513 mcg/dl. A sample of the methamphetamine was found to be 60 percent lead by weight (CDC, 1989; CDC, 1990).

5. In 1990, there were 4 cases in the U.K. of men with symptomatic lead poisoning resulting from the oxyacetylene cutting of lead-painted ironwork. All cases underwent chelation therapy with effect (Pagliuca et al., 1990).

6. In 1994 in multiple areas of Hungary, cases of adult lead poisoning were caused by the ingestion of ground paprika contaminated with lead tetroxide (red lead). Of the 141 exposed, 53 were symptomatic, particularly with colic and anemia. All received chelation therapy with complete clinical recovery (Kakosy, Hudak, & Naray, 1996).

7. In 1996 in Croatia, Ayurvedic metal-mineral tonics were investigated for lead contamination. Ayurveda is a traditional form of medicine practiced mostly in the eastern countries of India, Sri Lanka, Bangladesh, Pakistan, Burma, Bhutan, Tibet and Mongolia.
Of 29 subjects, 5 adults had high blood lead levels but were asymptomatic. They were provided with chelation therapy (Jurasovic, Pizent, Pongracic, Prpic-Majic, & Restek-Samarzija, 1996).

8. In 2004 in Poland, 27 male workers with suspected lead poisoning were hospitalized with abdominal cramps and anemia. They were involved in removing old lead-containing paint from high voltage towers (Krawczyk et al., 2006).

9. A lead-poisoning outbreak occurred in a town on the outskirts of Dakar, Senegal, from late 2007 to early 2008. Given a rise in the price of lead, a battery recycler created a “lead rush” by offering money for scrap lead, and people took to scrounging through waste generated by years of localized smelting of used lead-acid batteries. The entire community became contaminated with lead. First, neighbourhood animals showed signs of illness, followed by residents. Within months, at least 18 children died from acute lead poisoning. The Senegal Ministry of Health tested the blood of families of the deceased children and found BLLs ranging from 77 to 131 mcg/dl. In June 2008, the WHO and the Blacksmith Institute arrived to assist with the response. A WHO survey of affected residents tested 50 children, and all had elevated BLLs ranging from 40 to 614 mcg/dl. Of the 50 children tested, 27 had life-threatening BLLs or showed signs of neurological damage. According to the authors, the two-year assessment and remediation process set a model for responding to contamination caused by used lead-acid battery recycling “in other economically depressed communities worldwide” (Jones, Diop, Block, Smith-Jones, & Smith-Jones, 2011 p. 16).

10. In line with historical studies relating poverty and lead exposure is the 2010 Nigerian lead-poisoning outbreak. It has been described as unprecedented and the worst such recorded outbreak in modern human history (CNN, 2010b; Dooyema et al., 2011; Shanks, 2010). According to TerraGraphics: “Never before has there been a lead poisoning epidemic of this magnitude anywhere in the world. The project was initiated in a triage situation in remote locations with limited access, no infrastructure, and little or no health care facilities. Most compounds and public areas were contaminated meaning that, for many of the residents no relief from exposures was available” (TerraGraphics, 2011).
Clearly, the Nigerian lead-poisoning outbreak was unprecedented in the modern period in its size and scope, in addition to its challenges for emergency responders.

11. According to news reports, in preceding years, thousands of workers, villagers and children in at least 9 of mainland China’s 31 province-level regions have been found to be suffering from lead poisoning caused by pollution from battery factories and metal smelters (BBC News, 2011a; Human Rights Watch, 2011; Jiangtiao, 2012; LaFraniere, 2011). Human Rights Watch predicts that hundreds of thousands of Chinese children will suffer from permanent mental and physical disabilities as a result of lead poisoning (Human Rights Watch, 2011). The current crisis in China represents numerous lead-poisoning outbreaks and is described below (see Appendix 4).

3.10 Lead-poisoning outbreak in China

China, which accounts for approximately 60 percent of global lead production, has experienced numerous lead-poisoning outbreaks. The lead-acid battery industry has grown by 20 percent a year since 2005, and is expected to expand further. China now has some 2,000 lead-acid battery factories and 1,000 battery-recycling plants. For regulators and environmental law enforcers, the situation is unmanageable (LaFraniere, 2011).

According to a Reuters news report, 15,000 people were being relocated from Jiyuan in central Henan province to other locations after 1,000 children living around China's largest smelter plant (owned and operated by Yuguang Gold and Lead) were found to have elevated blood lead levels. 70 percent of the relocation cost is to be paid by local government and the smelter company, while the rest is to be paid by the residents themselves. According to government officials, production was suspended at 32 of 35 lead plants. The affected area includes people from 10 different villages (Reuters, 2009).

In the Chinese Village of Mengxi, lead contamination has resulted from the Zhejiang Haijiu Battery Factory, a maker of lead-acid batteries for motorcycles and electric bikes. The factory remained in operation for six years despite flagrant environmental violations: 233 adults and 99
children were ultimately found to have “concentrations of lead in their blood, up to seven times the level deemed safe by the Chinese government.” One of the factory workers was told that his 3-year-old daughter had enough lead to cause irreversible intellectual damage:

At the moment I heard the doctor say that, my heart was shattered. We wanted this child to have everything. That’s why we worked this hard. That’s why we poisoned ourselves at this factory. Now it turns out the child is poisoned too. I have no words to describe how I feel (LaFraniere, 2011).

This author heard similar laments from parents of children affected by the Nigerian lead-poisoning outbreak, discussed in the findings of the thesis.

The lead poisonings have generated political shockwaves. According to Human Rights Watch (2011), in the midst of these lead-poisoning outbreaks, Chinese government officials began restricting access to lead testing, withholding and falsifying test results, and denying children treatment. Family members and journalists seeking information about the crises are intimidated and harassed (Human Rights Watch, 2011). Human Rights Watch has investigated heavily lead-contaminated villages in Henan, Yunnan, Shaanxi, and Hunan provinces. A resident living near a battery factory was told by a local official, “Whoever makes noise will not receive compensation or medical treatment” (LaFraniere, 2011).

The Human Rights Watch’s report My Children Have Been Poisoned (2011) is based on documents and interviews in Henan, Yunnan, Shaanxi and Hunan provinces. The report concludes that:

While lead poisoning in China has been reported on in domestic and international media, what is missing from these reports is that nothing is being done for the medical needs of children suffering the biological and neurological effects lead poisoning, and who face permanent disability. Our research found that authorities are instead covering up the scope of lead poisoning, denying health care to millions of children at risk, and harassing and detaining parents seeking essential medical information and treatment for their children (press release summary).

The report finds that local governments are allowing factories to operate without safeguards and in violation of Chinese environmental laws. Similar to the Nigerian lead-poisoning outbreak,
rapid economic development, coupled with weak enforcement of environmental regulations, has created a public health catastrophe.

3.11 Summary of lead and lead poisoning

The Nigerian lead-poisoning outbreak falls within a long and tragic history of environmental public health disasters, in line with Minamata, Japan (1956), Seveso, Italy (1976), Bhopal, India (1984), Basel, Switzerland (1986), Chernobyl, Ukraine (1986), the Aral Sea disaster (ongoing), and the many more human-caused industrial/mining/chemical/nuclear disasters. Each of these disasters imposes lasting health, social, cultural and economic losses. Closer to home, there is the Ontario Minamata disease disaster; in 1962, Dryden Chemicals dumped an estimated 10 metric tonnes of mercury into the Wabigoon River. The mercury poisoned the fish, which in turn poisoned the Indigenous Peoples of the Asubpeeschoseewagong (Grassy Narrows), Wabaseemoong (Whitedog), and Wabauskang First Nations. Half a century later, residents of Grassy Narrows are still experiencing long-term health, social and economic effects (Anon., 2012). Mercury levels in the fish have yet to return to safe levels, and current large scale logging in the area is thought to exacerbate the problem (Wawatay News, 2012). As with the Nigerian lead-poisoning outbreak, the disaster has tended to attract foreign researchers (CBC News, 2012; Harada et al., 2011; Willow, 2009).


In whatever problems lead was implicated, ensuing debates sought to balance the perceived needs of producers and consumers with the potential health consequences – in short, to negotiate the definition of acceptable risk. Hence, the history of lead poisoning is useful for getting at broad changes in the culture because efforts to deal with it have made its presence in the regulatory arena nearly as widespread as in the physical environment (ibid, p. 2).

The history of lead and public health demonstrates challenges in translating scientific knowledge into public health policy (Bellinger & Bellinger, 2006). Corporate self-interest, political lobbying and manipulation of public and scientific perception have undermined efforts to protect the public from lead (Rosner & Markowitz, 2002). In the early 20th century, public health officials were particularly subject to lead industry ploy:
Public health officials … slowly picked up on the cases of lead poisoning that were being reported. Ironically, the lead industry itself was quite attuned to the incidence of lead poisoning because it feared that attention in the media could devastate the expanding consumer lead market which, by the 1920s, included not simply lead paint, but lead pipes, lead car batteries, and lead in gasoline. Over the next 30 years, the industry embarked on a program to control and delimit the scientific study of childhood lead poisoning and to obscure the relationship (Rosner et al., 2005 p. 297).

The addition, and eventual removal, of lead from paint and gasoline, as well as changing definitions of blood lead level of concern, underscores broad changes in public/expert notions of acceptable risk. It is right to be critical of public health in this history given that public health professionals often failed to serve the public interest, and instead fell prey to lead industry lobbying. As the history of leaded gasoline has shown, there are occasions when we benefit from scientists and activists outside of public health official circles to defend the public health. In this regard, “[s]omehow we must make the cure more profitable than the disease” (Warren, 2000 p. 258).
SECTION C: THEORY AND RESEARCH METHODOLOGY
Chapter 4: Research philosophy and theoretical approach

“We do not see things as they are, we see things as we are.” – Anais Nin

4.1 Introduction to chapter

This chapter discusses philosophical theories behind the key themes of the thesis. Bioethics, public health ethics, global health ethics, and humanitarian ethics are substantive areas of ethics for delineation of theoretical grounding; their theories are presented here. Over the various theories, notions of health and healthcare are pushed from individualistic clinical considerations to broader communal and cosmopolitan considerations. Once the theories behind these substantive areas of ethics are presented, the chapter moves to theory behind the research methodology. Specifically, the chapter examines theory in qualitative research. It explains this author’s decision to employ critical theory, given its appropriateness for situating the research question and guiding the research analysis. Qualitative research methodology and critical theory provided a methodology befitting the thesis’ objectives with explicit philosophical assumptions about the nature of social reality (ontology), the nature of knowledge (epistemology), the purpose of research, and the place of the research within the social context (Greenhalgh & Russell, 2009). Finally, Foucault’s theories of governmentality and biopower are presented as key analytic tools in problematizing humanitarianism in the case of the Nigerian lead-poisoning outbreak.

4.2 Theory in bioethics and public health ethics

“The protection and promotion of the health and welfare of its citizens is considered to be one of the most important functions of the modern state” (Rosen, 1958 p. 17).

Ethics is a reflective task where one needs to be explicit about beliefs, values and rationales in a context of rational discourse (Upshur, 2002). Ethics is a field deriving from Western philosophy, exemplified by Aristotelian and Kantian moral theory, with inherent biases, values and assumptions. For example, the field has been challenged for biases against non-human animals, women, and non-Western cultures (Sterba, 2000). Ethics is founded in unifying normative moral theories which provide justification of action. Examples include consequentialism, deontology and virtue theory. It is beyond the scope of this paper to argue for a particular unifying moral
theory – instead this paper acknowledges what Rawls refers to as the fact of reasonable pluralism, “which is the incontestable fact that in a free society people striving to lead their lives ethically will subscribe to conflicting moral and religious doctrines, many of which will be reasonable…” (Rawls, 1993).\(^3\) Reasonable pluralism is relevant to the field of bioethics (Ainslie, 2002), and by extension, global health and humanitarian ethics.

Beauchamp and Childress argue that it is desirable to address (theoretical) pluralism by sidestepping arguments over unifying moral ethical theories and instead to achieve agreement on key principles. They propose in their bioethics framework the principles of autonomy, beneficence, nonmaleficence, and justice. The principle of autonomy recognizes the rights of patients to self-determination and is rooted in respect for each patient’s ability to make informed decisions about personal matters, such as choosing or refusing treatment. The principle of beneficence means that healthcare providers ought to take actions that serve the best interests of their patients. The principle of nonmaleficence is “first, do no harm” (Latin: primum non nocere). The principle of justice concerns the distribution of scarce health resources, with consideration of fairness and equality in deciding who gets what treatment (Beauchamp & Childress, 2009).

Beauchamp and Childress’ principlism is oriented towards an individualized medical ethic that is often insufficient in addressing complex sociopolitical issues pertaining to health. As Upshur states:

[Beauchamp and Childress’] well-known framework requires weighing and balancing considerations of respect for persons enshrined in the principle of autonomy, concerns for promoting welfare and well-being through the principle of beneficence, avoiding doing harm as encapsulated in the principle of nonmaleficence and concerns for justice. The first three principles apply primarily in terms of interactions between individuals; consideration of them typically plays out in a health-care provider/patient relationship. Only considerations of justice

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\(^3\) I mention Rawls’ (1921-2002) reasonable pluralism because it provides a compelling and frequently cited justification for sidestepping arguments in favour of a particular moral theory. While Rawls also addressed issues in global justice (see for example, Rawls, J. [1999]. The Law of Peoples: with ‘The Idea of Public Reason Revisited.’ Cambridge: Harvard University Press), this thesis adopts a Foucauldian approach rather than Rawls’ political liberalism for its theoretical lens.
require the integration of the views of the broader community. Much bioethics scholarship, therefore, has been concerned with individual-level ethical issues (Upshur, 2013 p. 12).

Individual-oriented medical ethics is broadened by the field of bioethics. Henk ten Have, Director of the Center for Healthcare Ethics at Duquesne University, cites Van Rensselaer Potter (1911-2001) as the first person to employ the term ‘bioethics’ (ten Have, 2013 p. 602). According to ten Have, Potter found that the individualized approach to ethics did not sufficiently address the multiple levels and complexities surrounding his understanding of cancer:

His long years of cancer research convinced Potter that a broader approach beyond the individual medical perspective was necessary. At the same time he regretted that his long-term preoccupation with cancer had prevented him from addressing more important issues. Potter summarized these priority problems of our time as the six P’s: population, peace, pollution, poverty, politics, and progress (Potter, 1971, as cited by ten Have, 2013 p. 602).

Potter proposed “a new discipline that combines the science of living systems, or biological knowledge (*bio*) with the knowledge of human value systems and philosophy (*ethics*)” (ten Have, 2013 p. 603).

Bioethics has since been embraced internationally. On 19 October 2005, the 191 member states of UNESCO unanimously adopted the Bioethics Declaration, agreeing on 15 ethical principles as fundamental for global bioethics. According to the Declaration, the following principles are to be respected:37

1. Human dignity and human rights
2. Benefit and harm
3. Autonomy and individual responsibility
4. Consent
5. Persons without the capacity to consent

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6. Respect for human vulnerability and personal integrity
7. Privacy and confidentiality
8. Equality, justice and equity
9. Non-discrimination and non-stigmatization
10. Respect for cultural diversity and pluralism
11. Solidarity and cooperation
12. Social responsibility and health
13. Sharing of benefits
14. Protecting future generations
15. Protection of the environment, the biosphere and biodiversity

Because economic factors played a large role in the Nigerian lead-poisoning outbreak in terms of absolute poverty and paucity of state-funded healthcare or public health, I examined the Declaration for mentions of economics. The Declaration recognizes that health depends on psychosocial and cultural factors, but does not explicitly mention economic factors. However, under Principle 14 (social responsibility and health), the Declaration states that “the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition” (italics added by this author). Based on this reading, a possible interpretation is that individuals have the right to health regardless of economic condition, but health is not considered (explicitly) dependent on economic factors. This interpretation essentially absolves economic factors from culpability in ill health. Furthermore, neither inequality nor inequity is mentioned in the Declaration. Global bioethics, according to the Declaration, does not seem to challenge global capitalism.

Public health ethics is attracting growing interest within the field of bioethics (Dawson & Verweij, 2008). Changing economic and political circumstances have powerful repercussions for social conditions and public health, requiring new and innovative public health policies. As Rudolf Virchow (1821-1902) is often quoted, “Medicine is a social science, and politics is nothing more than medicine on a large scale.” Public health ethics examines the ethical aspects of this medicine as a social science, providing philosophical guidance for ethical public health policy.
There is not one overarching theory for public health ethics, not one philosophical typology (Callahan & Jennings, 2002); it draws from a range of theories such as utilitarianism, liberalism, communitarianism, feminism, anthropology, and social justice. Public health ethics is amenable to principlism. Beauchamp and Childress suggested the principles of effectiveness, proportionality, necessity, least infringement, and public justification (Childress et al., 2002). Upshur proposed the harm principle, the principle of least restrictive or coercive means, the reciprocity principle, and the transparency principle (Upshur, 2002). Public health ethics is not static. Public health is called upon by activists to be more than a regime of practice, rather “a social movement to support collective public health action at all levels of society – personal, community, national, regional, global, and planetary” (Horton et al., 2014 p. 847). The notion of global and planetary public health ethics leads into global health ethics.

4.3 Theory in global health ethics

Global health ethics may be viewed as public health ethics writ large. Global health ethics aims to acknowledge and address health issues within a global context of deep and widening inequality in wealth and health. To adequately frame ethical issues pertaining to global inequity, one must extend focus “from the micro-level of individual health and the ethics of interpersonal relationships to include ethical considerations regarding public and population health, and justice concerns more generally” (Benatar & Brock, 2011 p. 1).

The term global health may be understood differently by researchers, workers and activists with diverse interests, priorities and social experiences. Koplan et al. offer a distinction between global health, international health and public health:

The preference for use of the term global health where international health might previously have been used runs parallel to a shift in philosophy and attitude that emphasises the mutuality of real partnership, a pooling of experience and knowledge, and a two-way flow between developed and developing countries. Global health thus uses the resources, knowledge, and experience of diverse societies to address health challenges throughout the world (Koplan et al., 2009 pp. 1994-5).
However, as Birn points out, Koplan et al. evade many crucial issues, such as who are the stakeholders and who wields power in global health. Nor does Koplan et al. mention issues regarding who and what drives the global health agenda and to what ends (Birn, 2011b p. 107). Birn’s arguments are fitting given events surrounding the current global financial crisis and what Gill (using a Gramscian term) sees broadly as the global organic crisis (Gill, 2008; Gill, 2010).

Global health may be seen as the broadest form of public health, with aims to decrease the worldwide burden of disease, with priority given to those risk factors and diseases that make the greatest contribution to this burden. Resources are to be directed to maximise the potential health effects of multi-level interventions (Stuckler & McKee, 2008). This thesis uses the term global health to represent a social concept and an area of health research and action “in a world characterized by spectacular medical advances and amazing economic growth but also by aggravation of wide disparities in health and well-being by powerful social forces. Such a world is now under severe threat” (Benatar & Upshur, 2011 p. 14). Topics in global health include epidemiological measures of health and well-being (Benatar & Upshur, 2011); globalization and health (Labonte & Schrecker, 2011); societal determinants of health (Birn, 2011a); gender inequality and differences (Doyal & Payne, 2011); and health systems (McKee, 2011), to name a few. Global health can provide an opportunity for collaboration in addressing the many threats to our collective health, well-being, and survival.

Global health ethics addresses ethical issues within global health research and action (or inaction). A normative approach identifies global wrongs related to health, such as structural global inequalities, and seeks to redress them. A substantive approach takes us closer to peoples’ life situations, making the claim that global inequalities in health are ethically wrong in and of themselves or because of the nature of their causes (Hunter & Dawson, 2011 pp. 78-79). Substantive ethics refers to the moral content rather than the process of moral decisions (Pellegrino, 1996).

Compelling normative claims can be made for a substantive global health ethics, such as those presented by Hunter and Dawson (2011). In arguing for more to be done to help the world’s poor, the philosopher Peter Singer makes a beneficence claim. Singer argues that people ought to make a much greater effort to reduce poverty and suffering, and, more specifically, that those in
the developed world have direct responsibilities to aid those in the developing world (Singer, 1972). He reasons, “If we can prevent something bad without sacrificing anything of comparable significance, we ought to do it; absolute poverty is bad; there is some poverty we can prevent without sacrificing anything of comparable moral significance; therefore we ought to prevent some absolute poverty” (Singer, 1993 pp. 230-231). This is a positive assertion in that we have an obligation to provide benefit for others. Questions may abound on the meaning of comparable moral significance, but whatever challenges there are to this assertion, few can argue against the extent and severity of poverty globally.

According to Hunter and Dawson, Thomas Pogge agrees with Singer about how we have an obligation to respond to those in poverty throughout the world. However, Pogge arrives at this conclusion based on negative duties not to harm others, and to provide restitution when we have done so (Pogge, 2008). In terms of global health ethics, examples of harm may be historic and current injustices such as colonialism and neocolonialism, respectively. Pogge goes on to provide moral arguments that serve as a guide for international NGOs in deciding how to act (Pogge, 2011).

There are many substantive arguments for a normative global health ethics. However, Hunter and Dawson feel that we do not need to accept any particular argument because “any reasonable theory or view is going to accept that global ethical and political concerns need to be addressed, if only because when they are not, there is a tendency for this to end up in our own backyard, as can happen for example in regard to infectious diseases and other public health issues” (ibid, p. 86). It is interesting that they and others (see Selgelid, 2011) use the concern that a public health problem could end up in our backyard to justify action, as somewhat of a default argument. When it is unlikely that a public health disaster will end up in our backyard, as is the case of the Nigerian lead-poisoning outbreak, why and how are we compelled to act? What, if any, ethical reasoning compels an international response? These issues pertain to humanitarian ethics.

Not all within the field of global health look to ethics. There are those engaged in global ill-health solely to capitalize on it. Armies of researchers work for disaster capitalism, marketing ever-greater security for the über-rich while devising new and efficient ways to exploit the poor and traumatized (Klein, 2007):
As the free market economy has no social or moral requisites, war, disaster, and instability are suitable avenues for profit. Accordingly, market interests will attempt to privatize sectors like defense and military, and use war and instability to their profit.\(^{38}\)

The wealthy can purchase high-end emergency shelter from private security companies, while also thwarting publically financed efforts to protect the poor (Kay & Grey, 2005). And while polar ice-caps melt into oblivion, capitalists are moving in to exploit new oil reserves, open shipping lanes, and privatize public land for commercial use (McCarthy, 2011).

Assaults on global health are not accidental, random or natural, but mostly foreseeable and intentional:

For those left or cast outside the market system – a vast reservoir of apparently disposable people bereft of social protections and supportive social structures – there is little to be expected from neoliberalization except poverty, hunger, disease, and despair. Their only hope is somehow to scramble aboard the market system either as petty commodity producers, as informal vendors, as petty predators to beg, steal, or violently secure some crumbs from the rich man’s table, or as participants in the vast illegal trade of trafficking in drugs, guns, women, or anything else illegal for which there is a demand. This is the Malthusian world blaming on its victims (Harvey, 2005).

Global ill-health stems from practices of power. Global health as a project of modernity is undermined by hegemonic forces that are faster, sleeker, better financed, and strategically marketed (Klein, 2007). Therefore, global health ethics has come into lexicon because the current state of global ill-health is deeply unethical. Global health ethics is not a passive endeavor. To confront global ill-health, global health ethics must engage in ethics education, research, mentorships, innovation, and activism (Pinto & Upshur, 2013). For this researcher-author-humanitarian, global health ethics is a term of defiance.

\(^{38}\) \url{http://shockdoctrinesummary.blogspot.ca/} Accessed 10 January 2014.
4.4 Theory in humanitarian ethics

This thesis views humanitarian ethics as a subset of global health ethics, given that humanitarianism is in reaction to crises in global health. While motivations vary for humanitarian actors (a discussion explored in the literature review, Chapter 2), the humanitarian movement is theoretically situated in cosmopolitanism, where humanitarian actors and beneficiaries come together as *citizens of the world* (Derrida, 2002); in a “universality plus difference” (Appiah, 2006 p. 151). Boundaries between nations, states, cultures and societies are morally irrelevant, most acutely felt in times of crisis. International humanitarianism is an ethical response to crisis, where “a common source of moral legitimacy for medical humanitarian organizations is their cosmopolitan appeal to distributive justice and collective responsibility” (Calain, 2012b).

In his publication “Famine, affluence and morality” Peter Singer argues that those of us who have benefited from economic injustices have a moral obligation to assist those who suffer under them (Singer, 1972). The moral obligation to assist means more than giving spare change to charity, where the “charitable-industrial complex” (Buffett, 2013) “lets governments off the hook” and “inadvertently colludes with the inaction of politicians” (Marmur, 2012). As put forth in the MSF Nobel Peace Prize Lecture, humanitarian action is not a contented action, nor is it merely charity; it is “an act of indignation, a refusal to accept an active or passive assault on the other” (MSF, 1999). It stems from the notion of humanity, that all persons are entitled to dignity and equality, and to be treated humanely in all circumstances solely due to one’s membership in humanity. From the notion of humanity stems the humanitarian imperative; human suffering must be addressed wherever it is found, with particular attention to the most vulnerable. There is a right to receive humanitarian assistance and a right to offer it (ICRC, 1996; Pictet, 1979; UNICEF, 2003). Humanitarian ethics’ core principles of impartiality, neutrality and independence stem from the humanitarian imperative.

Neutrality refers to abstaining from engaging in military operations or taking sides in hostilities or controversies of a political, religious or ideological nature. Impartiality means providing assistance based on need alone and without discrimination, with priority given to the most urgent cases of distress (de Torrente, 2004; Harroff-Tavel, 1989; ICRC, 1996). Neutrality and
impartiality need not be passive or condone human-rights violations; humanitarian aid workers may speak out and condemn any party in a conflict which they witness breaching human rights or humanitarian law (e.g. témoignage). The important distinction is that humanitarian’s criticisms are directed against people or groups based on what they do, not on who they are (Tanguy & Terry, 1999).

The principle of independence stipulates that humanitarian action serves only the interests of its beneficiaries and not political, religious, or other agendas (ICRC, 1996). For example, there ought not to be covert military operations or religious proselytism within the arena of humanitarian action:

> These fundamental principles serve two essential purposes. They embody humanitarian action's single-minded purpose of alleviating suffering, unconditionally and without any ulterior motive. They also serve as operational tools that help in obtaining both the consent of belligerents and the trust of communities for the presence and activities of humanitarian organizations, particularly in highly volatile contexts (de Torrente, 2004 p. 5).

As importantly, there ought not to be external manipulation, real or perceived, of humanitarian resources. The issue here is that independence may be compromised when humanitarian organizations depend on state-funding for existence:

> This gives donor countries undue leverage for co-opting assistance in service of their political needs and leads beneficiaries to question the motives of aid workers. (MSF teams in Pakistan were asked repeatedly by displaced people this past summer, ‘Where do you get your funds?’) In Afghanistan, the majority of countries who fund Western aid organizations are part of the international coalition. But financial independence does not automatically make an organization a neutral or impartial actor – that can only be obtained through action (MSF, 2010a).

Funding from private individuals rather than institutional donors allows humanitarian organizations to avoid politically motivated donations or financial dependence on countries that are also belligerents. For example, MSF was able to refuse institutional money in Somalia, Iraq, Afghanistan, Pakistan and Colombia, and it evaluates its funding sources on a case-by-case basis: “There is a big difference between taking institutional funding for tuberculosis in
Swaziland, versus being funded by a belligerent party in a war zone” (IRIN, 2012). The humanitarian principles are not accepted universally and without reservation or controversy. Nor are they sufficient to address the many issues stemming from contemporary humanitarian action, as this thesis goes on to demonstrate. Special considerations of humanitarian research ethics are discussed in the following chapter (Section 5.8). Having discussed the various theories pertaining to substantive areas of the thesis, the chapter now moves into theory pertaining to its research methodology.

4.5 Qualitative research and critical theory

This thesis employs a qualitative research paradigm. Qualitative methodology emphasizes the human focus of health research (Slavnic, 2010) and typically involves three kinds of data collection: in-depth, open-ended interviews; direct observations; and written documents. Given the nature of the data collection,

> [t]he quality of qualitative data depends to a great extent on the methodological skill, sensitivity, and integrity of the researcher. Systematic and rigorous observation involves far more than just being present and looking around. Skillful interviewing involves much more than just asking questions. Content analysis requires considerably more than just reading to see what is there. Generating useful and credible qualitative findings through observation, interviewing, and content analysis requires discipline, knowledge, training, practice, creativity, and hard work (Patton, 2005 p. 1633).

In this study, the main sources of data are key informant interviews followed by online news media and organization communiqués.

A paradigm represents a worldview based on ontological, epistemological, and methodological assumptions, defining the nature of the world, the individual’s place in it, and the range of possible relationships to the world and its parts (Kuhn, 1962). Paradigms are human constructs, relying on persuasiveness and utility rather than proof; however well argued, a paradigm cannot be proven and is therefore accepted on personal belief (Guba & Lincoln, 1994). Three contrasting paradigms in the social sciences are positivism, post-positivism, and critical theory. Positivism is associated with the French philosopher Auguste Comte (1798-1857). It holds the
belief that information derived by virtue of scientific analysis and observation is the exclusive source of all authoritative knowledge “to discover the immutable universal laws governing the known universe”.\footnote{“Positivism”. Ian Buchanan (2014). In A Dictionary of Critical Theory. Oxford University Press.} Post-positivism is associated with Karl Popper (1902-1994), the Austrian-born but British-based philosopher of science and politics. Post-positivists emphasize that subjectivity and bias are inherent in science and that human knowledge is conjectural. Like positivists, post-positivists believe in an objective truth, but believe it can be known only imperfectly and probabilistically.\footnote{“Popper, Karl”. Ian Buchanan (2014). In A Dictionary of Critical Theory. Oxford University Press.}

Critical theory research methodology has roots in the anti-positivist social theorist Max Weber (1864-1920). Weber argued for non-empirical interpretive methods for sociology research and placed importance on understanding the meanings and purposes that individuals attach to their own actions. Eakin \textit{et al.} apply this approach to the study of health promotion, calling the approach, the \textit{Critical Social Science Perspective} (Eakin, Robertson, Poland, Coburn, & Edwards, 1996). A Critical Social Science Perspective poses a set of reflexive questions, where reflexivity is “the capacity to locate one’s research activity in the same social world as the phenomena being studied, to explain the nature of research within the same framework as is used to theorize about the objects of study” (ibid, p. 158). This approach questions the implicit assumptions and ideology underlying the research, and the role of power, contradiction, and dialectical relationships in theory and research practice (ibid, p. 159).

Research grounded in critical theory focuses on the material and social conditions of domination and oppression:

Critical researchers assume that social reality is historically constituted and that it is produced and reproduced by people. Although people can consciously act to change their social and economic circumstances, critical researchers recognize that their ability to do so is constrained by various forms of social, cultural and political domination. The main task of critical research is seen as being one of social critique, whereby the restrictive and alienating conditions of the status quo
are brought to light. Critical research focuses on the oppositions, conflicts and contradictions in contemporary society, and seeks to be emancipatory i.e. it should help to eliminate the causes of alienation and domination (Myers, 1997).

Critical theory has three essential distinguishing features (Guess, 1981 p. 2):

1. Critical theory guides human action for enlightenment and emancipation. Enlightenment is identifying one’s true interests, and emancipation is freedom from coercion (particularly that which is self-imposed);

2. Critical theory has cognitive content (it serves as a form of knowledge); and

3. Critical theory differs epistemologically from positivist theories in the natural sciences in that it is reflective or self-referential rather than objectifying.

Critical theory has a rich tradition with roots in Marxism. Karl Marx (1818-83) developed political theory through critical examinations of society, concluding that the existence of classes is bound up with the particular historical phases in the development of production; the class struggle necessarily leads to the dictatorship of the proletariat; and this dictatorship itself only constitutes the transition to the abolition of all classes and to a classless society.41 The Marxist methodological approach is that of historical materialism.

Critical theory and Marxist thought has been carried forward by many contemporary philosophers and social scientists including those at the Frankfurt School or the Institut für Sozialforschung (Institute for Social Research) established in Frankfurt, Germany, in 1923. Most members were both Jewish and Marxist, forced to flee Nazi Germany. Most fled to the USA and the Institute became affiliated with Columbia University from 1931 until 1949, when it returned to Frankfurt. From 1936, the Institute referred to its work as the ‘critical theory of society’. For many years, ‘critical theory’ stood as a code for the Institute’s Marxism, historical materialism, and critique of political economy. 42

Also known as the materialist conception of history formulated by Marx and Engels (Hardcastle, 1978), a primary classical view of historical materialism is seeking “the ultimate cause and the great moving power of all important historic events in the economic development of society, in the changes in the modes of production and exchange, in the consequent division of society into distinct classes, and in the struggle of these classes against one another” (Engels, 1880).

According to historical materialism, changes in the productive forces of a society lead to social conflict, and the specific forms of social organization that emerge reflect the underlying structure of the means of production. Historical materialism is historical because it examines structural change in terms of class and class struggles over time, and is materialist because it examines the role of material (i.e., economic) factors in shaping society (Rupert & Smith, 2002). Historical materialism takes a critical perspective of international political economy, questioning the exploitative nature of economic relations (Cohn, 2010).

Exploitative economic relations cause much of the world’s population to live in deep deprivation. According to the World Bank, 2.4 billion people lived on less than US $2 a day in 2010, the average poverty line in developing countries. The situation is dire with an ever widening gap between rich and poor. Marshall Sahlins wrote that poverty is not a natural occurrence, but that is socially constructed: a particularly relevant claim under global capitalism:

> Poverty is not a certain small amount of goods, nor is it just a relation between means and ends; above all it is a relation between people. Poverty is a social status. As such it is the invention of civilisation. It has grown with civilisation, at

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44 Historical materialism marks a break after which point the field of political economy became synonymous with critical method. This break was most clearly articulated in Marx’s The German Ideology. The process of stripping economic thought of its political dimensions – and detaching from the field of political economy – can be derived from the life work of Ellen Meiksins Wood, but is particularly in Democracy Against Capitalism: Renewing Historical Materialism (1995), especially Chapter 1, “The separation of the economic and the political in capitalism”. An important and relevant critique of the structure of knowledge in capitalist societies and their university systems is within Georg Lukacs’ History and Class Consciousness: Studies in Marxist Dialectics (1967, translation by Rodney Livingstone, 1971).

once as an invidious distinction between classes and more importantly as a tributary relation (Sahlins, 1972 p. 37).

Poverty persists in a global economic system predicated in exploitative relations. Exploitative relations are perpetuated by political and economic ideology. For Jürgen Habermas (b. 1929), a product of the Frankfurt School of critical theory, ideology is fundamentally false consciousness acquired under conditions of coercion. An ideological form of consciousness legitimizes social practices and institutions, mistaking social arrangements for natural phenomenon and objective fact. Ridding oneself of ideology is a necessary step against repression and towards emancipation (Guess, 1981). Critical theory provides a means to reveal the ideological foundations of economic systems and social institutions. In applying critical theory to the study of humanitarianism, the thesis questions the legitimacy of a global capitalist system that makes life so precarious for so many, and then offers charity medicine in return. A Foucauldian approach is a way to question and expose the governmentality and biopower inherent in humanitarian’s charity medicine for the global poor.

4.6 Foucauldian analysis

*It seems to me that the real political task in a society such as ours is to criticize the workings of institutions, which appear to be both neutral and independent; to criticize and attack them in such a manner that the political violence which has always exercised itself obscurely through them will be unmasked, so that one can fight against them.*

Michel Foucault (1926-84) life’s work was to develop a comprehensive methodology for exposing the workings of modern power. Foucault was a French philosopher and social theorist, well known for his critical studies of social institutions and analytics of power. Foucault devised conceptual tools to examine and challenge power structures with the ultimate goal of human liberation. Foucault did not provide a normative foundation for his approach, but rather based his philosophical inquiry in history (Realpolitik) told in terms of conflict and power (Flyvbjerg, 1998 p. 211). He strived for rationality, declaring “that criticism is no longer going to be practiced in

46 Quoting Foucault in Foucault & Chomsky, 1971.
the search for formal structures with universal value, but rather as a historical investigation” (Foucault, 1984 pp. 45-46, as cited in Flyvbjerg, 1998 p. 220).47

Foucault’s intellectual mentors such as Louis Althusser (1918-90) and Jean-Paul Sartre (1905-80) had strong ties to Marxism, and for about a year, Foucault was a member of the French Communist Party. However, as he developed his approach, Foucault sought a separate critical framework to address contemporary social problems. Foucault was concerned that Marxism was a polemic, where anyone who did not accept the framework was considered an enemy. Declaring polemics as unhelpful, Foucault sought problematization, seeking partnerships in the search for solutions to real-life problems. Problematization draws questions from lived experiences in society, seeking political discussion driven by the problems themselves rather than by established theories – such as Marxism – that may not always be most relevant.

However, Foucault highly regarded Marxism, and drew from Marx in his own work:

> I often quote concepts, texts and phrases from Marx, but without feeling obliged to add the authenticating label of a footnote with a laudatory phrase to accompany the quotation. As long as one does that, one is regarded as someone who knows and reveres Marx, and will be suitably honoured in the so-called Marxist journals. But I quote Marx without saying so, without quotation marks, and because people are incapable of recognizing Marx’s texts I am thought to be someone who doesn’t quote Marx. When a physicist writes a work of physics, does he feel it necessary to quote Newton and Einstein? (Foucault, 1980b p. 52).

Furthermore, the Marxist notion of hegemonic ideology and the Foucauldian notion of governmentality need not be seen as opposing views (a false dichotomy), but both useful theorizations for a fuller understanding of neoliberal capitalism (Springer, 2012).

Following Nietzsche, the Foucauldian approach is based in contextualism rather than foundationalism, considering that, “Despite more than two thousand years of attempts by rationalistic philosophers, no one has been able so far to live up to Plato’s injunction that to

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47 This suggests that Foucault was skeptical about a unifying moral theory, leaning, rather, to Rawls’ fact of reasonable pluralism.
avoid relativism our thinking must be rationally and universally grounded” (Flyvbjerg, 1998 p. 220). Contextualism, or situational ethics, is not relativism in that it is based on norms expressed in a desire to challenge “every abuse of power, whoever the author, whoever the victims” (Miller, 1993 p. 316, as cited in Flyvbjerg, 1998 p. 221):

Foucault’s analysis of ‘the rationalities really at work’ begins with the assumption that because no one has yet demonstrated the existence of universals in philosophy and social science, we must operate as if the universals do not exist … Where universals are said to exist, or where people tacitly assume they exist, universals must be questioned (Flyvbjerg, 1998 p. 222).

For Foucault, determining the socially and historically conditioned context is the best basis for action and the way out of relativism and nihilism.

Foucault described his theoretical approach as an essential fight:

This critique and this fight seem essential to me for different reasons: firstly, because political power goes much deeper than one suspects; there are centres and invisible little-known points of support; its true resistance, its true solidity is perhaps where one doesn’t expect it. Probably it’s insufficient to say that behind the governments, behind the apparatus of the State, there is a dominant class; one must locate the point of activity, the places and forms in which its domination is exercised. And because this domination is not simply the expression in political terms of economic exploitation, it is its instrument and, to a large extent, the condition which makes it possible; the suppression of the one is achieved through the exhaustive discernment of the other. Well, if one fails to recognize these points of support of class power, one risks allowing them to continue to exist and to see this class power reconstitute itself even after an apparent revolutionary process (Foucault, in Foucault & Chomsky, 1971).

Foucault chose for himself the academic title of ‘Professor of the History of Systems of Thought’ to eschew the title of philosopher. Although neither trained as a historian nor as methodical as a historian, he saw his work as mostly historical given that, at any point in history, there are substantial constraints on how people are able to think. Every mode of thinking involves implicit rules that materially restrict the range of thought. What often matters is not what people were thinking, but the underlying structures that form the context for their thinking. This is the root of Foucault’s ‘marginalization of the subject’, how individuals operate in a conceptual environment
that determines and limits them in ways of which they cannot be aware (Gutting, 2005 pp. 32-33):

Foucault is not pursuing the project of explaining ideas by external social or economic forces, in the manner of Marxism or other forms of historical materialism. His project is rather to offer an internal account of human thinking, without assuming a privileged status for the conscious content of that thought … the key to this project is language, conceived as a structure independent of those who use it (ibid, pp. 35-36).

A Foucauldian analysis has a destabilizing effect on assumptions and ways of seeing, showing that frameworks underlying one’s concepts and beliefs may not have the inevitability one casually assign it (Gutting, 2005 p. 42). Typical of critical theory, a Foucauldian analysis argues for a central role for reflexivity in research, questioning not just key informants’ perceptions but explanations for those perceptions. A Foucauldian analysis would argue that because the notion of humanitarianism is a social construction, it will vary over cultures and over time. The focus of such a study is not humanitarian action per se (such as the technical evaluation of the delivery of aid), but the entire international humanitarian complex with its profound social, economic, and political effects.

For Foucault, the project involves both archaeology and genealogy. The premise of the archaeological method is that systems of thought and knowledge (epistemes or discursive formations, in Foucault's terminology) are governed by rules, beyond those of grammar and logic, that operate beneath the consciousness of individual subjects and define a system of conceptual possibilities that determines the boundaries of thought in a given domain and period (Gutting, 2005). Archaeology provides a historiography that does not depend on the primacy of the consciousness of individual subjects, and provides comparisons of the different discursive formations of different periods. To understand the causes of transition from one way of thinking to another, genealogical analysis can show how a given system of thought was the result of contingent turns of history rather than the outcome of rationally inevitable trends (ibid).

Acknowledging that we, as researchers, are products of the same systems that we study, Foucault combined his notions of genealogy and archaeology, where genealogy “concentrates on the
forces and relations of power connected to discursive practices” while archaeology “attempts to isolate the level of discursive practices and formulate the rules of production and transformation for these practices” (Davidson, 1986 p. 227, as cited in Davila, 1993 p. 388). This combination of archaeology and genealogy is Foucauldian interpretive analytics, deemed to produce an effective account of history (according to Foucault) showing how the human subject is historically produced in the context of their social environment (Davila, 1993 p. 389).48

Foucault’s project is to question specific claims to ‘cognitive authority’ made by particular disciplines. Such claims are not based solely on reason but on power. Foucault considers disciplines based on power structures to be ‘dubious disciplines’, giving his examples of psychiatry and criminology. What of humanitarianism, given its inevitably hermeneutic and normative concepts? To what extent is contemporary humanitarianism a product of the modern power/knowledge system and governmentality – what Foucault calls the art, developed from medieval pastoral models, of rulers’ care for populations under their control (Gutting, 2005 p. 96)? To what extent is humanitarianism implicated in the hegemonic benevolence of international aid (Rolston, 2011)?

4.7 Foucauldian analysis of humanitarianism

Following the work of Foucault, the aim of this thesis is to render certain taken-for-granted exercises of power intolerable by exposing them to scrutiny. Foucault argued that exercises of power persist by hiding in plain view. What may be considered normal may be in fact intolerable, as ethical issues arising from the Nigerian lead-poisoning outbreak help demonstrate. This thesis included, there is an increasing application of Foucauldian analyses “to engage the predicaments of rule in colonial and postcolonial places” (Sawyer & Gomez, 2012 p. 5).

A Foucauldian analysis focuses on relations between values and social power. Dominant cultural values, particularly those that are considered to be normal, are not based in nature but determine

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48 As Orkin points out, Foucault’s archaeological and genealogical project is itself an ‘actant’ in historical processes and systems. Foucault calls for reflexivity, but seems poorly prepared to consider himself and his work to be an actant in historical and philosophical drama (Orkin, 2010, and personal communication, Aaron Orkin, 6 January 2014).
and are determined by social conditioning – the internalization of social norms based on how social forces exercise control. Values that are considered timeless and absolute are in historical flux relative to who has power and how it is used (Hindess, 1997). For example, nationalism tolerates inequity between nations; individualism devalues collectivity; private property discounts collective stewardship; and entrepreneurship blames the poor for their poverty.

In global health, human rights (values) are often set against capitalist interests (social power). Consider the case of water. In 28 July 2010, the United Nations General Assembly recognized the right to water and sanitation as a human right:

[The resolution] affirms that the human right to safe drinking water and sanitation is derived from the right to an adequate standard of living and inextricably related to the right to the highest attainable standard of physical and mental health, as well as the right to life and human dignity (Human Rights Council Resolution A/HRC/RES/15/9).

Yet despite the resolution, there are 780 million people without access to an improved water source, and more than 3.4 million people die each year from water, sanitation, and hygiene-related causes. Ninety-nine percent of these deaths occur in the developing world.49 Water scarcity is a major obstacle in securing the human right to water and sanitation, but so too is the privatization of state enterprises linked to water services: “Privatization of water resources, promoted as a means to bring business efficiency into water service management, has instead led to reduced access for the poor around the world as prices for these essential services have risen.”50 Despite vocal grass-roots opposition, corporations, international financial institutions and colluding politicians push private sector participation in the provision of water services, pitting human rights proponents against free market profiteers (Barlow, 2008). In addition to the problematic privatization of water services, there is the issue of the commodification of water itself. Under neoliberalism, water is seen as an (increasingly scarce) capitalist commodity. Commodification transforms a public good or public resource – something that is shared – into a

tradable commodity – something that can be sold for profit.\textsuperscript{51} The commodification of water further entrenches divisions between human rights and social power.

Tensions between values and social power exist in other aspects of global health. Since the 2002 outbreak of severe acute respiratory syndrome (SARS), state governments and international health organizations have come to value and invest in epidemic and pandemic alert and response. The WHO passed the International Health Regulations (IHR 2005) “to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade” (italics added by author).\textsuperscript{52} The heightened concern for international traffic and trade speaks of social power within health regulations. The IHR 2005 illustrates both values (around global health) and social power (around guarding international traffic and trade).

This thesis challenges how – despite large global investment in epidemic and pandemic alert and response – the medical response to the Nigerian lead-poisoning outbreak was relegated to a private NGO and the environmental response was relegated to the good will of a small private foreign company. The inherent contradiction (national and international investment in epidemic and pandemic alert with little investment in response to the devastating lead-poisoning outbreak) speaks to how global health surveillance serves the needs of powerful economic interests, whereas clinical care and disaster response do not necessarily (especially when the disease is noncontagious and within an isolated/marginalized/surplus population).

Under global capitalism, private sector trade and industrial interests are increasingly involved in setting global health priorities, typically channeling influence through international organizations such as the UN, the World Trade Organization, the World Bank, the World Economic Forum, and the European Commission (Ollila, 2005). Setting priorities and delegating disaster response


\textsuperscript{52} \url{http://www.who.int/csr/alertresponse/en/} Accessed 20 April 2014.
exemplify global health governmentality. For Foucault, governmentality encompasses the techniques and procedures designed to govern the conduct of individuals and groups at every level of the social body (not just the administrative or political level) (Foucault, 1991). It involves the tools of social power, ways in which to implement neoliberal strategies (Lemke, 2002). In the case of the Nigerian lead-poisoning outbreak, the lack of a sufficient or coordinated response by state actors forced the humanitarian hand. The humanitarian response, in turn, justified minimal state response. The disaster became humanitarianized, whereby the global poor come to expect succor from private foreign humanitarian organizations rather than from their own government. This form of governmentality is presented as a wicked problem in Chapter 10.

Any Foucauldian analysis of humanitarianism needs to acknowledge that Foucault himself played an important role in the founding of MSF, and many of MSF’s founding doctors and journalists drew philosophic inspiration from Foucault’s Birth of the Clinic (Naissance de la Clinique [1963]). Aaron Orkin’s History of Medicine Master’s Thesis on the early history of MSF explores these connections (Orkin, 2010). Orkin shows how Foucault and co-founder of MSF Bernard Kouchner were closely associated as professor-student; political co-conspirators in the 1968 Paris riots and student protests; and as collaborators in the founding and publicity of MSF. Therefore, Foucault is not outside the theory of humanitarianism. These insights are fully explored by Orkin so are not investigated here. And while Orkin concluded that a Foucauldian analysis would not have been appropriate for his examination of the history of MSF (given Foucault’s personal role in the history), a Foucauldian analysis is appropriate here given that Foucault is not a participant in this particular story.

As the world’s largest medical humanitarian aid organization, MSF has come to symbolize contemporary medical humanitarianism. Orkin traced the history of MSF from when it split from the ICRC and became a movement and a new form of medico-humanitarianism, to when it grew into an institution within the dominant global aid system. Orkin found that within MSF leadership there was continual negotiation between medical professionalism and political activism. Tensions were raised between factions, between those who felt strongly about MSF’s “original cry of indignation” against “proprietors of world misery,” and those “who sought to make a living off humanitarianism by remaining silent and managing disasters as an inevitable
and timeless part of the human condition” (Orkin, 2010 p. 36). At times professionalism has dominated, helping to grant MSF legitimacy in international diplomatic circles (Calain, 2012b).

With MSF’s legitimacy came a gradual transformation from movement to institution, made visible through MSF discourse:

The syntactical difference between ‘je suis un médecin sans frontières’ (I am a doctor without borders) and ‘je suis un membre de Médecins sans frontières’ (I am a member of Médecins Sans Frontières) is profound. The former construction appears regularly in MSF press releases and statements until the late 1980s, while the latter construction takes over by the mid-1990s. ‘Je suis un médecin sans frontières’ identifies sans frontiérism as a feature of professional identity, a way of knowing medicine and being a physician. … In publications since 2000, I have not found MSF physicians writing ‘I am a doctor without borders’. The more common contemporary construction is ‘I worked for MSF’ or ‘I volunteered for MSF’. ‘Médecin sans frontières’ has thus transformed from a professional identity to the name of an institution (Orkin, 2010, p. 26).

A clear milestone in MSF’s assimilation into the dominant global aid system occurred in the late 1970s when the UNHCR formally requested MSF’s assistance in providing medical care in refugee camps: “MSF was now needed and its services requested” (ibid, p. 39). While still fiercely guarding its independence, MSF accepted the new role in accordance with the dominant humanitarian paradigm, illustrating what Polman refers to as the “involuntary collaborators” – aid organizations assimilated into the international aid industry (Polman, 2010 p. 160). MSF’s institutional role within global governance reached an apex with invitations to address the UN Security Council (Aaron Orkin, personal communication, 2013).53 MSF’s journey over the decades, including its ethical and existential challenges as an organization, are well documented and scrutinized (for example, see Abu-Sada, 2012; MSF, 2011a; Redfield, 2013).

Foucault’s governmentality offers an explanation of the forces pushing MSF from subversive movement to involuntary collaborator. Governmentality states that modern political power is

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53 For example, MSF spoke to the UN Security Council on Iraq on 9 April 2003 (https://www.doctorswithoutborders.org/publications/article.cfm?id=1336)
exercised not simply by the state, but also by a network of actors, organizations and enterprises that seek to guide the behaviour of individuals and their relation to things. MSF was not just assimilated into the global aid system, but into the collective consciousness of western country populations. Those in the Global North unable to ignore the disasters of the Global South – including disasters inflicted by the global economic system – could pacify their moral angst via two channels: they could volunteer with an aid organization of their choosing, or donate money to an aid organization of their choosing. Both options neutralized moral angst and assimilated an otherwise subversive humanitarianism.

Dunantist humanitarian organizations such as MSF have argued that neutrality and independence situate them outside of the political realm (Barnett & Weiss, 2008). However, Foucault cautions against any illusion of neutrality and independence:

> It seems to me that the real political task in a society such as ours is to criticize the workings of institutions, which appear to be both neutral and independent; to criticize and attack them in such a manner that the political violence which has always exercised itself obscurely through them will be unmasked, so that one can fight against them (Foucault, in Foucault & Chomsky, 1971).

Humanitarianism has become firmly rooted within the political realm, normalizing the humanitarian emergency, growing in biopower.

Biopower is defined as “an explosion of numerous and diverse techniques for achieving the subjugations of bodies and the control of populations” (Foucault, 1980a p. 140). Those affected by disaster/crisis/emergency are to some degree subjugated by humanitarian biopower, particularly when the international humanitarian response forsakes and undermines local capacities to respond. Furthermore, the international humanitarian response may inadvertently subdue forms of protest by seeming to address situations that would otherwise spark revolt and revolution. Charity medicine for the global poor, always inadequate, transforms the oppressed into patients, communities into beneficiaries, and political failings into humanitarian emergencies.

Labeling a crisis a humanitarian emergency removes reference to the material conditions under which it arose. The label fails to account for the precariat – amalgam of precarious and
proletariat (Standing, 2011) – so often the object of the humanitarian response. Orbinski, in his MSF Nobel Prize acceptance speech, declared that “Humanitarianism occurs where the political has failed or is in crisis” (MSF, 1999). However, this thesis questions whether, in the case of the Nigerian lead-poisoning outbreak, the political had in fact failed, or if it had achieved its goal: the humanitarianization, medicalization, and privatization of a public health disaster. Humanitarian responses tend to be uni-causal positivist in approach rather than critical epidemiological, failing to challenge societal determinations of health policies or to contribute towards an alternative public health movement (Breilh, 2008).

4.8 Summary of research philosophy and theoretical approach

This chapter discussed the philosophical theories pertaining to bioethics, public health ethics, global health ethics, and humanitarian ethics. It highlighted the push from the individualistic clinical medical approach in ethics to broader cosmopolitan solidarity approaches to ethics. Having presented these key topics, the chapter moved to theory of qualitative research methodology and critical theory. Foucault’s notions of governmentality and biopower are well suited for examining the conditions under which contemporary humanitarianism has emerged. Critical theory calls for a primary description of the case such as first-hand accounts of events and perceptions, and provides a value-added analysis in the framing of issues within their historical and socio-political context. The application of critical theory is to reveal the powers behind the discourse, the reasons for why humanitarianism is what it is and discussed the way it is discussed. A critical inquiry dissects the subject/object dichotomy in humanitarianism, challenging our classificatory thought distinction between aid worker and beneficiary, and between beneficiary and non-beneficiary. Such an approach questions distinction between populations deemed deserving of a response (inciting classification in our lexicon as the humanitarian emergency) and populations deemed not (thereby remaining nameless and invisible). These issues venture beyond battlefield ethics, calling for a different humanitarian ethics to prevail. The thesis approaches these issues with the case of the lead-poisoning outbreak: a disaster neither war nor natural.
Chapter 5: Research methodology

5.1 Introduction to chapter

While the previous chapter explored the theoretical lens of the thesis, this chapter presents the research methodology: the explanation and justification of the various research procedures. The research carefully adopted methods to best address the research question in ways that are exploratory, descriptive and explanatory (Yin, 1993). To review, this thesis has a central research question with a subset of supporting questions (Chapter 1, Section 1.3). The central research question is: *What were the issues, challenges and frustrations in providing the international humanitarian response, based upon an inquiry in humanitarian ethics?* The subset of supporting questions asks: (i) *What was the context of the Nigerian lead-poisoning outbreak in terms of societal determinants of health and political economy?* and (ii) *How did the international response to the Nigerian lead-poisoning outbreak unfold, and what were the roles of regional, national, and international actors in identifying and addressing the outbreak?* These questions are exploratory (broadly surveying the issues, challenges and frustrations in the humanitarian response) and descriptive (describing the particular issues, context, and events). Sub-question (iii) asks: *How does the international humanitarian response to the Nigerian lead-poisoning outbreak further an understanding of humanitarianism and contemporary issues in humanitarian ethics?* This question is explanatory, calling for the thesis to find meaning at higher levels.

This research was inductive rather than deductive (Trochim, 2001); it used data from the single case of the lead-poisoning outbreak to make an argument about the range and types of problems and issues in contemporary international humanitarian ethics. In presenting the research, this thesis establishes the historical context of Nigeria with special attention to northern Nigeria (Chapter 6). From there, the thesis presents the political economy of artisanal gold mining, with a macro-economic perspective (Chapter 7). Having established context, the thesis then presents an analysis of online news media accounts and organization communiqués (Chapter 8). Then finally, the thesis presents findings from key informant interviews, which provided the most substantial and informative data source on the humanitarian response (Chapter 9). The thesis ends with a higher-order conceptualization of research findings, drawing together history,
political economy, media analysis, and interview findings (Chapter 10). Figure 7 illustrates the four components of the research investigation that specifically target the research question. In the end, key informant interviews contributed the most substantial data to the research.

Figure 7. Four components of the research investigation

This use of multiple sources of data promoted accuracy through triangulation (Stake, 1995; Yin, 2003). The following sections provide description and explanation of the forms of data for each research component, in the order presented above in Figure 7.

5.2 History and political economy

The research methodology took into consideration the influence of historical context on the lead-poisoning outbreak (Ragin & Becker, 1992; Stake, 1995; Yin, 2003) in adopting the social autopsy approach used by Klinenberg (2002). Striving to avoid hindsight bias (the tendency to see past events as predictable), this thesis delved into the contexts unique and specific to the outbreak and the outbreak response. Specifically, it examined the historical context and the political economy of artisanal gold mining.

The historical investigation was necessary to establish settler patterns seen today and the continuing reverberations of the colonial state. An underlying theme to this day is tension between a predominantly Muslim north and a Christian south in a country whose borders were seemingly haphazardly (even recklessly) drawn by colonial hands during indirect rule, or “empire on the cheap” (Naanen, 2012 p. 156). The chapter on the history of Nigeria begins with the early history of Nigeria, with the trans-Saharan trade route, the introduction of Islam, and the transatlantic slave trade. It then proceeds to British colonial rule, nationalist movements and independence. From there, it ventures through the turbulent period of political instability and civil war, fueled by ruthless oil extraction, leading up to the current neoliberal rentier state.
Having established the historical context, the thesis presents a political economy analysis of the artisanal gold mining that resulted in the lead-poisoning outbreak. The macro-economic analysis pieces together the social, political, economic and historical context. It makes connections between these and social policies and government regulations, to the living and working conditions of the affected population. The political economy analysis explores the ascendancy of economic globalization and neoliberalism, and looks at the gold commodity markets in relation to artisanal mining.

The history of Nigeria (Chapter 6) and the political economy analysis (Chapter 7) addressed sub-question (i) by providing background context of the Nigerian lead-poisoning outbreak. The next step, which was addressing sub-question (ii) regarding how the international response to the Nigerian lead-poisoning outbreak unfolded, required primary data collection of media reports, organization communiqués, and key informant interviews. Analysis of the data directly spoke to the central research question regarding the ethical issues, challenges and frustrations in providing the international humanitarian response.

5.3 Primary data collection: news media reports and organization communiqués

This section presents the methodology for collecting and analyzing news media reports and organization communiqués. Chapter 8 presents the findings from the content analysis: a non-intrusive research method for examining a wide range of data over a given period to identify popular discourse and intended meanings (Macnamara, 2005 p. 6). Media content analysis, as a systematic method, was first employed to critically examine propaganda (Lasswell, 1927 as cited in Macnamara, 2005), and has evolved tremendously since then. It has successfully been applied to global health research, e.g. Balasegaram et al. conducted a content analysis of international media coverage pertaining to the neglected diseases of African trypanosomiasis, leishmaniasis, and Chagas disease (Balasegaram, Balasegaram, Malvy, & Millet, 2008). Online media accounts of the lead-poisoning outbreak provided a diverse source of data; online news sources tend to be more thematically varied than traditional print news that undergo stricter editorial procedures due to space and time limitations (Sjøvaag & Stavelin, 2012).
The thesis asked of the news media reports and organization communiqués: how did the international response to the Nigerian lead-poisoning outbreak unfold (sub-question [iii]), and what were the ethical issues, challenges and frustrations in providing the international humanitarian response (the central research question)? In the end, the study collected a comprehensive collection of publicly available news media and organization communiqués that spoke directly of the lead-poisoning outbreak and response. The following section outlines the search strategy for identifying and collecting the relevant news media reports and organization communiqués.

5.3.1 Media and document search strategy

A news media analysis of the outbreak demanded a comprehensive compilation of relevant news articles. To determine the best strategy for collecting these articles, I consulted a librarian at the University of Toronto Libraries. Together, we reviewed media search options and considered meta-search engines such as Factiva©, ProQuest International Newsstand© and World News Connection©. Given that the Nigerian lead-poisoning outbreak was a current and ongoing event, there was no need to search hardcopy media archives (archiving has been making its way onto the Internet over the past several decades). After testing various search engines, I did not locate any additional articles to what I had already located using the Google search engine. Therefore, the librarian and I agreed that the best strategy was to use the Google search engine and to subscribe to Google Alerts. Online news articles were chosen over print media because of accessibility and availability; articles in newsprint are often available online, while the reverse is not true. Furthermore, online news articles are occasionally accompanied by updates with links to further readings.

Once subscribed to Google Alerts, I received automatic emails whenever the Google online search engine found articles pertaining to the lead-poisoning outbreak. To cast a broad net, I queried the terms ‘lead’ and ‘poisoning’ and ‘Nigeria’. The Google search located published

54 https://support.google.com/alerts/answer/175925?page=faq.html&hl=en&ref_topic=28415&rd=1
online news articles but also found blogs and postings from individuals and organizations. This method provided a steady stream of publically available accounts of the lead-poisoning outbreak.

5.3.2 Inclusion and exclusion criteria

To be included in the research study, news articles had to feature the lead-poisoning outbreak or at least refer to it in a contextual sense. By contextual sense, I mean that the outbreak had to be mentioned in relation to topics such as artisanal mining or environmental contamination, or in an opinion piece or editorial. Articles had to be accessible without a paid online subscription beyond that provided by the University of Toronto Library system; this provided access for all but two articles. As well, articles had to have a working URL (uniform resource locator, or web address). On about a dozen occasions, the URL provided by Google Alerts did not link to the article (‘website not found’ error). In most of these cases, I was still able to locate the article using a Google search of the headline in combination with the news agency name.

When larger news outlets release an article, other smaller news outlets pick it up and re-post it, either verbatim or slightly edited. In media circles, this is known as echoing, where a news report fans out from a primary source (personal communication with the Librarian). I included these echoed news articles, because this study is interested in the broad media coverage.

I excluded online sources that mentioned the outbreak casually and in passing, as occasionally occurred in personal blogs. In these cases, the lead-poisoning outbreak would be mentioned in name but with nothing more said. Occasionally, the Google Alerts search would locate articles unrelated to the Nigerian lead-poisoning outbreak. This occurred because the search word ‘lead’ resulted in articles referring to the verb (to lead, as in leadership) rather than the noun (the metal). These articles were excluded.

A note about terminology: in the online world, it is not always clear what is an online news article versus a social media posting versus a blog versus a tweet versus a comment to a posting.

55 http://onesearch.library.utoronto.ca/about-us?source=aboutus
etcetera. For the purpose of this study, an online news article is an online posting that carries news or information about the lead-poisoning outbreak and that provides (at minimum) the name of the publisher and date of publication.

To be included in my collection, international organization documents and communiqués had to feature the lead-poisoning outbreak as an official public statement. International organizations publish their own news articles or blogs from within their websites, usually geared towards donors and news agencies. I considered all postings by the international organizations to be official public statements because such postings would have been vetted by management and communications staff. These postings included organization news, press releases, research articles, and reports. Many of these were available as downloadable pdf’s (portable document format).

As with online news articles, organization communiqués were captured by Google Alerts. Had I not been alerted to such an organization communiqué, I would likely have quickly discovered it through other avenues; many online news outlets re-print press releases and cite original sources. This provided a method of triangulation, assuring that all international organization publications were captured by this study.

5.3.3 Yield of online news articles and organization communiqués

For a 162-week period (4 June 2010 to 15 July 2013), this study collected a total of 274 online news articles. This is a reasonable amount given how a study analyzing news reports of all crises that occurred in a one-year period had obtained a similar number of articles (247) (An & Gower, 2009). In addition to the 274 online news reports, this study collected a total of 63 organization communiqués, such as reports, press releases, and research articles. The approach to the content analysis is presented in Section 5.6. The findings of the media and document content analysis findings are presented in Chapter 8.

5.4 Primary data collection: Key informant interviews

As noted in Chapter 1, I was on site for two months shortly after the onset of the outbreak in 2010. Hence, as an emergency responder, I have a first-hand account of the lead-poisoning
outbreak and humanitarian response, and I formulated my own understanding of events as an insider (a point on reflexivity I pursue in the final chapter). My understanding was informed by directly witnessing the aftermath and working with others to mitigate the crisis. In the line of my work, I had conversations with villagers, parents, village leaders, religious leaders, ministry of health workers, government officials, UN representatives, CDC representatives, TerraGraphics staff, MSF colleagues, and affected children. At that point in time, I was not conducting my doctoral research. I did not conduct formal interviews or take research notes. My need for information at that time related directly to the need for mounting an emergency humanitarian response. While my participation in the emergency response puts me in the unique role of participant and researcher, I was not deliberately or methodically collecting data for this study. Therefore I did not conduct “participant observation”, and relied instead on key informants, many of whom I knew personally from my time in northern Nigeria.

The central research question inquires about the issues, challenges and frustrations in providing the international humanitarian response. This question is aimed at those providing the international humanitarian response, the protagonists in this particular story. A number of international and foreign organizations helped respond to the lead-poisoning outbreak. Some merely attended a few meetings or gathered information, while others devoted years of labour and resources. Therefore this study took a weighted approach to participant conscription: the greater an organization’s involvement, the more likely were its representatives to be recruited to this study.

It would have been interesting to interview representatives from organizations that could have gotten involved (i.e. were qualified and capable) but that chose against it. I contacted a few of these organizations, but was told that they would not feel comfortable discussing a topic about which they knew little to nothing. Therefore, the study population was not extended beyond those directly involved in the international humanitarian response.

Primary data collection of online media and key informant interviews occurred simultaneously (Figure 8). Data analysis was an iterative process, being conducted throughout the process, ending in September 2013 with the first draft of the thesis.
5.4.1 Key informant eligibility criteria and purposive sampling

Key informant eligibility criteria are listed in Box 5.
Box 5: Key informant eligibility criteria

A key informant was one who met all three criteria:

1. Was an expatriate (expat) member of an international organization involved in the international response;

2. Worked on site in an affected village or hospital during the outbreak response, or had a key leadership role at the headquarter level; and

3. Had important decision-making responsibilities.

I justify the eligibility criteria as follows. First, this study opted to interview expats (expatriate or people foreign to Nigeria) because expats have come to represent contemporary international humanitarianism and they are the international face of their organization. These were the individuals who would have been called upon to respond wherever the disaster had occurred. Furthermore, expats are more likely to be subject to the societal, cultural, race and class differences at the root of ethical challenges during an international humanitarian response. Conversely, locally hired employees or volunteers (referred to in the field as ‘national staff’), working in their home environment (or at least their home country; see discussion on ‘inpats’ Section 9.4.4), may be less likely to experience directly the challenges particular to being a representative of an international organization in a foreign country.

On the other hand, national staff (the majority of field workers in humanitarian projects) contribute immeasurably to humanitarian responses. This was certainly the case with the Nigerian lead-poisoning outbreak. Many national staff came from distant parts of Nigeria, called upon to work in a new climate and culture, while others were from the affected areas and surrounding villages. Their unique perspectives and ethical challenges are of great importance and interest. Hence, I made efforts, through my contacts at various organizations, to interview a selection of national staff, but to no avail. There were unique vulnerabilities to consider; national staff are locally employed in a politically and economically precarious environment. Due to logistical and research ethics considerations, I was unable to invite national staff for interviews. However, I hope some of their issues and concerns came across in the key informant interviews.
Similarly, the perspectives of those directly affected (the villagers themselves) and the local responders (e.g. local ministry of health and ministry of environment workers) are of importance and interest. However, given the politically sensitive nature of this study and the illegal nature of the artisanal mining activities, I would not be able to obtain their formal and open participation. Thankfully, many of their accounts have been documented by journalists and organizations such as Human Rights Watch. I captured these accounts in the online media data.

The second eligibility criterion had two parts. The first part was that key informants must have worked on site in an affected village or hospital during the outbreak response. This was to exclude the myriad of essential logistic, administrative and executive personnel that oversee such projects, but who work at the regional or international offices and may not have first-hand experience of the ethical challenges of interest to this study. The second part allowed for key informants who had a key leadership role at the headquarter level. In the end, only two key informants had a key leadership role at the headquarter level but did not have direct field experience.

I made an effort to include participants who had worked during the emergency phase of the humanitarian response. MSF confirmed the outbreak on 29 March 2010, and immediately an emergency response was mounted to address high levels of mortality. The emergency phase lasted approximately 15 weeks, winding down around 15 July 2010. The end of the emergency phase was marked by a rapid decline in in-patient enrolment and the transition to community-based chelation treatment. By this time it was increasingly difficult to convince fathers to admit their children for the 19 to 21 days of in-patient chelation therapy, particularly when the remaining children were largely asymptomatic and seemed otherwise well. The discovery of symptomatic cases had decreased sharply, and post-emergency planning was underway. Much of the remediation of the worst-affected villages of Yargalma and Dareta was complete, and those

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56 This situation created an ethical dilemma. While I was in the villages recruiting children for chelation treatment, well aware that the children had dangerously high blood lead levels, some of the fathers refused to permit the mothers to accompany the children to hospital. Treatment was refused particularly when a child seemed otherwise well. I tried to balance my respect for the father’s right to refusal with the child’s right to treatment. It created some heated moments, and eventually the local imams made an edict requiring the children to be treated.
of us who arrived as humanitarian aid workers at the start of the outbreak were handing over to our longer-term replacements. However, more than twenty months later the crisis persisted, particularly in relation to the town of Bagega (Adamu, 2011). Therefore, I recruited key informants who had worked during the emergency phase and some who had worked after the emergency phase.

The third criterion of ‘had important decision-making responsibilities’ was necessary because confronting ethical issues presupposes a need to make decisions, and humanitarian aid workers are called upon to make difficult decisions on a daily basis. Often, policies and decisions are handed down from ‘above’ (from headquarters), or made collectively during formal and informal staff meetings, with or without support from head offices. Institutional policies serve as guidelines since flexibility and spontaneity are essential characteristics of day to day operations. Organizations delegate a level of decision-making to the judgment and discretion of expat field workers, who are (one would hope) sufficiently informed and advised. In the lead-affected villages in Zamfara State, humanitarian aid workers could not depend on communications equipment such as cellphones or satellite phone for consultation; there was no cellphone coverage and satellite connection was sketchy. For field workers having to make important decisions rapidly, limited communication was an added stressor.

Abiding by the eligibility criteria, I employed purposive expert sampling to recruit the most suitable key informants. Purposive sampling is the intentional selection (rather than probability sampling) of those deemed experts in relation to the topic of study.57 The key informant sampling frame was compiled using potential candidates chosen in collaboration with my Faculty Supervisor and the respective organizations. Those most intimately involved (in scope and time) were given priority during selection.

The goal set out in the research protocol was to interview a total of twenty (20) key informants selected from all organizations involved. The target number of humanitarian aid workers from

each organization was weighted according to involvement, with the organizations most involved having the most field workers selected for key informant interviews. The research ethics and informed consent process are discussed below.

5.5 Research ethics and informed consent process

In tandem with development of the research protocol, a research ethics board (REB) application was submitted to the University of Toronto Health Sciences Research Ethics Board. Approval was received on 11 May 2012. This study followed guidelines for research in humanitarian settings (Black, 2003; Goodhand, 2000; Leaning, 2001; Pringle & Cole, 2009; Zwi et al., 2006). Selected candidates were emailed a Research Information Letter (Appendix 5), the Informed Consent Form (Appendix 6) and a copy of the Research Ethics Board Approval Letter (Appendix 7). Written signed consent was obtained prior to interviews. I reviewed the consent forms with participants, and then together we signed and dated them. I provided participants with their own copies, which included the contact information for the Principle Investigator, Faculty Supervisor, and the University of Toronto Health Sciences Research Ethics Board.

I cautioned participants that participation in this study involved certain risks. Participants were informed that they had the right to withdraw from the study at any time and without explanation or penalty. Any key informant interviewee could withdraw from the study up until the end of human subject participation: approximately September 2013, when interviews and member checking procedures were complete. Participants were advised that interviews were to be audio-recorded and transcribed. All electronic data was kept on a secure server or encrypted. Digital audio recordings will be destroyed after publication. Transcripts will be destroyed after five years from completion of the study. Member checking involved approaching interviewees with summaries of their interview to allow for confirmation and deeper reflection. They were asked, “Does this reflect what we discussed?” and “Do you have any further thoughts, or things you’d like to add?” Interviewees generally agreed with the summary or added additional information and updates.
5.5.1 Anonymity and confidentiality

This study took effort to protect the personal identities of interviewees. Each participant was assigned an identification number and only I (the Principle Investigator), the Faculty Supervisor and the REB could link participant name and ID number. Along with ID number, certain identifying characteristics were kept with the data. Such identifying characteristics included key informant role and nature of the organization. These characteristics were necessary to situate the data in the proper context.

Participants were informed that anonymity could not be guaranteed. A participant’s identity could be deduced given the nature of the participant’s role and her/his experiences and privileged information. In the same way, the anonymity of organization could not be guaranteed, as the findings could make obvious to which organization each participant belonged. For example, those with issues pertaining to medical treatment would likely belong to MSF, those with issues pertaining to environmental remediation would likely belong to TerraGraphics, and those with issues pertaining to community-based surveys would likely belong to CDC (see the note about the naming convention in Section 5.5.4). This is referred to as residual disclosure, when confidential data can be estimated by cross-referencing released information with other accessible information. Given the concern of residual disclosure, I excluded from this study particular issues whose revelation would have been detrimental to an individual, an organization, or a strategic relationship.

Any names that were mentioned during the interviews were changed to protect the identity of the mentioned unless such persons were de facto recognized public figures (e.g., elected political officials). In such cases, the names of the public figures along with their titles were included in the analysis. Furthermore, when interview data implicated an individual in illegal or potentially illegal activity, the name was not included in the analysis.


59 As mentioned, the aim of this study is to investigate societal forces, rather than individuals, at the root of the Nigerian lead poisoning outbreak.
5.5.2 Risks associated with research participation

For those participating in key informant interviews, there was a risk of emotional and psychological stress with the recounting of disturbing or traumatic experiences. Participants were warned of this risk during the informed consent process. If a participant were to have become emotionally distraught during an interview, I would have stopped the interview, offered support and a break, and would not have continued without explicit verbal consent. Interviewees did at times display emotion (particularly when recounting having witnessed lead-poisoned children or the numerous graves). However, the interviews themselves seemed a much needed outlet – a form of catharsis – where interviewees spoke openly, in depth and length, about their issues, challenges and frustrations.

This study asked politically charged and ethically sensitive questions such as *who had benefited* and *who had paid the costs* (Parkland Institute, 2011) when considering the artisanal gold mining that resulted in the lead-poisoning outbreak. This study did not intend to establish guilt or to investigate liability or culpability; nor did it intend to collect evidence for use against individuals involved in the artisanal mining sector. Rather, the intent of this study was to uncover the societal forces (as opposed to individuals) that created the context of the outbreak and its response. However, it was conceivable that the intent of this study could have been misconstrued such that some could have perceived this investigation as threatening. Therefore, this study’s Research Information Letter was and will be publicly available upon request in an effort to prevent any such misunderstanding.

5.5.3 Disclosure: Author as participant

As the author and Principle Investigator, I disclosed to interviewees that I participated in the humanitarian response to the lead-poisoning outbreak during the emergency phase as an epidemiologist with MSF. Many interviewees knew this because I had worked with them or with someone close to them. I also disclosed that I had been to northern Nigeria in 2006 with MSF to investigate and respond to outbreaks of meningitis. During that mission, I analyzed and reported on the national diseases surveillance system and found it sorely lacking (Appendix 2). In keeping with an anti-positivist approach to research, I did not present myself as a neutral researcher. I
was deeply moved by what I witnessed and by what I experienced in northern Nigeria, and the quest to understand this devastating outbreak is partly a personal one.

5.5.4 Conduct and nature of interviews

I conducted all the interviews as the Principal Investigator. Convenient interview times were arranged through Email correspondence. Interviews were semi-structured with open-ended questions (see Interview Guides, Appendix 8) using Skype© (voice over the internet protocol, or VoIP). I made calls from my Skype account to the interviewee’s Skype account or telephone. The interviews were digitally recorded using two methods should one fail: a hand-held digital recording device and VoIP call-recording software (Pamela©).60 Both methods converted the audio into MPEG-1 Audio Layer 3 (.mp3).

The sound quality of the Skype interviews ranged from fair to excellent. Of the twenty-one interviews, five interviews were interrupted by dropped call, requiring me to re-call the interviewee. Because interruptions resulted in more than one audio file per interview, I used the Merge MP3 utility to merge multiple MP3 files into one MP3 file for ease of data analysis.61

Generally, interviewees had enthusiasm for the opportunity to talk about their experiences and opinions. The Interview Guides (Appendix 8) provided a logical structure for interviews. Key questions to all interviewees were:

- How did you first hear about the lead poisoning outbreak, and what were your first thoughts?
- Why did you decide to participate in the response?
- While there, what did you understand about the cause or causes of the outbreak and what are your thoughts now?

60 http://www.pamela.biz/en/
61 http://download.cnet.com/Merge-MP3/3000-2169_4-10410936.html
• What are your thoughts and feelings about the national response / about the international response?

• What were some of the greatest (ethical) issues, challenges or frustrations that you experienced? Tell me about them.

• What do you feel were at the root of each of these (ethical) issues?

• It has been over a year since the start of the outbreak; what are your thoughts about it now?

The mean interview time was 1h 05 minutes with a range of 40 minutes to 1h 35 minutes. Rather than seeming guarded or diplomatic, interviewees readily opened up and shared their thoughts and experiences. Interviews provided interviewees with a forum for venting frustrations and sharing ideas. For four interviewees, the experience of the outbreak was still ongoing through their continued involvement. For others, though their involvement ended some time ago, their memories and feelings were fresh in their minds. Interviews were conducted to the point of saturation. Saturation is the point in data collection when no new or relevant information emerges.62

All electronic data were kept on a secure server and an encrypted password protected drive, in keeping with the University of Toronto’s Data Security Standards for Personally Identifiable and Other Confidential Data in Research.63 Interview recordings were uploaded to the secure password-protected Internet cloud Dropbox64 for storage and back-up, and then downloaded to the Faculty Supervisor’s secure campus office computer. I kept a working copy on a password-protected encrypted USB key, with encryption by FreeOTFE Explorer (v3.50).65 Once interview


63 Available at www.research.utoronto.ca/ethics/pdf/human/nonspecific/datasecurity.pdf

64 http://www.dropbox.com

65 http://www.freeotfe.org/index.html
recordings were securely backed up, they were deleted from the hand-held recording device and VoIP recording software.

In the end, there were twenty-one (21) key informants (Table 2), and everyone approached for an interview agreed to participate in the study: there were no refusals.

Table 2: Key informants (N= 21)

<table>
<thead>
<tr>
<th>Affiliation</th>
<th>Number of interviewees</th>
</tr>
</thead>
<tbody>
<tr>
<td>International humanitarian medical NGO</td>
<td>8</td>
</tr>
<tr>
<td>Foreign private environmental engineering company</td>
<td>4</td>
</tr>
<tr>
<td>Foreign national public health institute</td>
<td>4</td>
</tr>
<tr>
<td>International NGO combatting pollution in poor countries</td>
<td>1</td>
</tr>
<tr>
<td>UN environment organization</td>
<td>1</td>
</tr>
<tr>
<td>UN health organization</td>
<td>1</td>
</tr>
<tr>
<td>International human rights-based NGO</td>
<td>1</td>
</tr>
<tr>
<td>International NGO promoting safe artisanal gold mining</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>21</strong></td>
</tr>
</tbody>
</table>

Twenty-one key informants were sufficient to achieve saturation. A similar qualitative study that explored ethical issues and challenges in returned humanitarian aid workers recruited twenty participants to achieve saturation (Schwartz et al., 2010).

**A note about the naming convention:** Table 2 lists the organizations by description *but not by name*. This is intentional and in keeping with the anonymity described in the Research Information Letter and Consent Form (Appendices 5 and 6). Participants were told that that their name and their organization’s name would not be published, but that the type of their organization and the nature of their work would be published.66 Hence, in keeping with the Consent Form and research protocol requirements, key informant interview data have description rather than name of organization. Conversely, data from news media and organization

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66 The Consent Form cautioned that it could be possible to deduce personal or organization identity based on published findings.
communiqués have actual organization name because that information is publicly available. Therefore in this thesis, if an organization is described but not named, the data derive from a key informant interview. If an organization is referred to by name, the information was publicly available.\(^\text{67}\)

Interview participants were recruited from all the international organizations involved in the response to the lead-poisoning outbreak. There was some fluidity; a few interviewees had worked for more than one of the organizations, transferring from one to the other for operational reasons. In these few instances, interviewees are listed under the organization with which they were most closely involved.

Of the 21 interviewees recruited for this study, 8 were official spokespersons for their organizations. Of the 8 spokespersons, 6 were also field workers. In other words, when I approached organizations for their official spokesperson, all but two organizations directed me to their high-level person at the field level. Therefore, there was less of a distinction between official organization spokesperson and field worker than anticipated in my research protocol. Since these 6 interviewees served as their organization’s spokesperson and also as a field worker, their interviews were like two interviews in one, proving beneficial for this study. Of the two official spokespersons who were not field workers, both were closely involved in the outbreak response at the headquarter level and had deep understanding of the issues; one had been to the Nigerian capital of Abuja to attended high-level meetings.

All interviewees were based in English-speaking countries in the Global North (not all were born in the Global North, but were based there prior to working in Nigeria). Most (17 or 81%) were from USA or Canada. Of the 21 interviewees, 11 were female and 10 were male; an even split between sexes was not intentional, but merely reflective of the ratio of those heading the international response. Interviewees represented the full range of medical, environmental and

\(^{\text{67}}\) I met with a member of the Office of Research Ethics at the University of Toronto (the REB granting research ethics approval) to discuss this concern of residual disclosure and to clarify and affirm this approach.
logistics roles. Of the 21 interviewees, 17 (81%) had some type of professional designation, primarily in the health sciences or engineering.

Of the 21 interviewees, 19 were field workers, having worked ‘in the field’. For 3 of the 19 field workers (16%), their trip to Zamfara was their first time in Africa, and for 4 (21%), it was their second time in Africa. The other 12 (63%) had been to Africa more than twice, often multiple times, primarily for aid work (Figure 9).

Figure 9. Field workers’ experience in Africa (n = 19)

For international humanitarian NGOs like MSF, most projects are in Africa. In 2012, more than 66 percent of MSF’s programs were in Africa, with 25 percent in Asia and the Middle East, and 6 percent in the Americas (MSF, 2013).

5.5.5 Transcription

As the Principal Investigator, I conducted the majority of transcription. From the encrypted USB key, I imported interview files (.mp3) into NVivo 9©, and saved the NVivo 9© project file onto the same encrypted USB key. No language or translation issues were encountered, as all

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68 The notion of ‘in the field’ and ‘on the ground’ speaks to a psychological separation beyond mere geography. This aspect is further explored in Chapter 10 (Discussion).
participants spoke fluent English. At the end of each work day, I uploaded the updated NVivo 9© project file to Dropbox, which was then downloaded to the Faculty Supervisor’s computer. This ensured that if the encrypted USB key failed, there would be secure back-up of both the interview files and the most recent project file.

MSF-Canada, the local section of MSF, became aware of my study and wished to assist. The MSF-Canada Executive Director offered two office volunteers to help transcribe my interviews. A protocol amendment was submitted to the REB to take advantage of transcription assistance provided by these MSF-Canada office volunteers, while still ensuring standards of research ethics, data security and confidentiality. The protocol amendment was submitted on 21 December 2012, and a member of the Health Sciences Research Ethics Board (REB) granted approval on 17 January 2013 (Appendix 7).

The MSF-Canada office volunteers signed an MSF-Canada Confidentiality Agreement. In addition to this agreement, I had the volunteers sign a confidentiality agreement specific to this study (Appendix 9). I had submitted this confidentiality agreement to the Innovations & Partnerships Office at the University of Toronto, but the Contracts Officer decided that there was no need for their office to be involved in the process.

Given the consideration that several of my interviews were of MSF individuals and the transcribing was being done in an MSF office, I only allowed non-MSF interviews (interviews of participants in other organizations) to be done within the MSF-Canada office. The transcription volunteers at MSF-Canada worked directly from my password-protected encrypted USB key. No work was saved or backed-up on an MSF-Canada computer’s hard drive. I remained in close proximity during the volunteer transcription process, and was available to oversee data security. At the end of the work period, the transcription document was saved on the encrypted USB key, closed, and then backed-up to the secure server ‘cloud’ Dropbox. The encrypted USB key remained in my possession. No research data was transferred to an MSF-Canada computer.

Although transcription assistance was of benefit to me, I did not allow any transcription assistance to proceed until I was satisfied that data security standards would be maintained. I undertook efforts to ensure that others in the MSF office could not read transcriptions or
overhear recorded interviews. At the end of the work period and in a private venue, I provided
volunteer transcribers with an opportunity to discuss what they had heard during their
transcribing. This provided an outlet to share thoughts, ideas, and feelings, since the volunteers
were committed to not discussing any aspect of the interviews with anyone other than me.

5.6 Content analysis

Interviews as well as media accounts underwent a content analysis, with analysis of authorship,
authenticity, and meaning: “Who says what to whom in what channel with what effect?”
(Laswell, 1948 p. 117). Content analysis is a research technique for making replicable and valid
inferences from documents to the contexts of their use (Krippendorff, 2004 p. 18). It is
appropriate for examining a particular case because “content analysis is context sensitive and
therefore allows the researcher to process as data texts that are significant, meaningful,
informative, and even representational to others” (ibid, p. 41).

For a methodical approach to the content analysis, I used a six question framework (Box 6).

<table>
<thead>
<tr>
<th>Box 6: Content analysis framework</th>
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<tbody>
<tr>
<td>1. Which data are analyzed?</td>
</tr>
<tr>
<td>2. How are they defined?</td>
</tr>
<tr>
<td>3. What is the population from which they are drawn?</td>
</tr>
<tr>
<td>4. What is the context relative to which the data are analyzed?</td>
</tr>
<tr>
<td>5. What are the boundaries of the analysis?</td>
</tr>
<tr>
<td>6. What is the target of the inferences?</td>
</tr>
</tbody>
</table>

Source: (Krippendorff, 2004)

The study examined types of data over time in line with key developments during the lead-
poisoning outbreak. For example, media reports were plotted on a timeline to highlight the start,
rise, plateau and fall of media coverage. Qualitative content analysis included manifest (visibly
obvious) content as well as latent (underlying meaning) content. The qualitative analysis applied
concepts listed in Box 7.
Interviews provided a wealth of data, culminating in a grand narrative stemming from each protagonist. Rather than presenting each grand narrative (which would be far too voluminous for the thesis), I distilled interview findings into specific categories. In formulating categories, I highlighted the various topics that arose during interview discussions. For a topic to qualify as a category, it had to specific (focusing on a particular content area) and significant (memorable and experience-defining as conveyed by interviewees). Given that interviewees spoke of intense experiences and frustrations, categories were readily identifiable. Many categories spanned across interviews (for example, many interviewees discussed “immediate impressions” and “emotional impact”), but some categories arose from a defining event found within a single interview (such as the story of the shari’a trial).

While all of the interview discussions were compelling, I coded interview transcript excerpts that best exemplified each of the categories. By the end of the interview data analysis, I had identified a total of 56 categories (Section 9.4, Box 8). Because substantiating each of the 56 categories by populating them with interview excerpts was too voluminous for the thesis, I further distilled the categories into themes; many categories “spoke to” an overarching theme. For example, several categories that were medical in nature addressed the theme of “biomedical exigency”. While themes were not mutually exclusive, they effectively captured the nature of multiple categories. In the end, I was able to map the 56 categories onto 14 themes (Section 9.4, Figure 27). While (necessarily) there was a degree of subjectivity in determining themes (for example, some categories could pertain to more than one theme), the purpose of formulating themes was not to make a claim regarding an objective ‘truth’ (a notion eschewed in critical theory), but to provide a venue for presenting the data in a coherent, meaningful and rigorous manner.

In drawing conclusions from the content analysis, it is essential to consider counterfactuals. I followed the following suggestion:

One way to discipline private intuition is to add explicit counterfactual arguments. Conduct a mental experiment. Ask how much difference it would have made to the result if factor C had taken a different value, assuming all else had been the same. Spell out the most plausible chain of reasoning to a conclusion about what would have happened. Increase plausibility by relying on well-established theoretical generalizations if any can be found. Observe other actual cases in which C was different. Bring to bear any other relevant known facts and theories about human behavior. This procedure is analogous to comparing the case with a second observed case; the reference point here is an imagined rather than an observed case. Repeat this procedure with other causal factors, one at a time. Then ask whether it is plausible that any of these changes would have produced a greater effect than others. In some situations nearly all observers may agree that the effects of a change in C would have swamped those of D (Odell, 2001 p. 164).

I present a counterfactual exercise in the final chapter that examines other published perspectives of the international response to the lead-poisoning outbreak.
5.7 Presentation of findings

Klinenberg’s book entitled “Heat Wave: A Social Autopsy of Disaster in Chicago” (2002) is a similar case study method of a public health crisis. His social autopsy delves into a deep explanation of how more than seven hundred people came to perish in a few short days in July 1995. Rather than viewing the disaster as a random occurrence, the author approached his analysis based on two principles: (1) that such an extreme event exposes conditions already in existence although in smaller, more hidden forms; and (2) that much is revealed about social institutions in crises, when they must cope with the unexpected in addition to the routine. These principles are relevant to the lead-poisoning outbreak and provide a framework for situating the research findings.

Klinenberg’s heat wave analysis began with an examination of the decedents: primarily elderly, poor, isolated and alone. It branched from there to a political economy analysis of the city, public services, public relations, cultural communities and the media, their responses and their framing of the disaster. It compared the disaster with similar disasters to examine how and why they are perceived differently. Klinenberg’s analysis challenged the notion that so many lives were lost merely due to extreme weather, when in fact social, political and economic forces contributed to the magnitude and social distribution of deaths. This thesis applied Klinenberg’s “social autopsy” approach in both methodology (political economy analysis, key informant interviews, media and document analysis) and in presentation of findings (narrative accounts). This study’s analysis found that, like the heat wave, deaths from the lead-poisoning outbreak were attributable to the functioning (and malfunctioning) of a complex system of social, political and economic organs.

5.8 Discussion on humanitarian research ethics

The particular research ethics considerations and methods for key informant interviews were presented above (Section 5.5). Here, more broadly, I present a normative argument about the

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special status of humanitarian research ethics and the imperative to consider the humanitarian
principles. The topic is presented here, in the chapter on research methodology, because it guided
this study’s approach to research ethics. Humanitarian research – research within the
humanitarian context – demands heightened levels of research ethics scrutiny. Extreme levels of
vulnerability and insecurity pose tremendous challenges for affected populations and aid workers
before research is even considered. Research can compound and exacerbate ethical and logistical
issues, however essential the research might be. Therefore, the topic of humanitarian research
ethics deserves special mention, and this section provides a discussion based on current
literature.

In humanitarian emergencies, it could be argued that all available resources should go towards
saving lives, full stop. Research could be considered a luxury, out of place given such urgency.
This argument implies that project implementation is determined by trial-and-error:
consideration to what had worked well in the past, and what had not. Given that the lives of tens
of thousands of people may depend on successful approaches and interventions, one might
rightfully ask, is trial-and-error a reasonable method? Failed or ineffectual projects precipitated
the Sphere Project’s Humanitarian Charter and Minimum Standards in Disaster Response
(Banatvala & Zwi, 2000; Brown et al., 2008; Spiegel et al., 2002). However, while minimum
standards are a good starting point, humanitarian aid organizations have a moral duty to strive for
better evidence-informed practices (Banatvala & Zwi, 2000; Brown et al., 2008; Spiegel et al.,
2002).

To convey the scope of emergency needs, there is a role for epidemiology in establishing
contextual factors such as size of affected population, number of orphaned children, levels of
malnutrition, and rates of disease and death, etc. There is a further important role for
epidemiological research in addressing public health questions generated in the field, such as
which thresholds should be used to define the onset of outbreaks for outbreak-prone diseases,
and how well do rapid diagnostic tests perform under field conditions (Brown et al., 2008).
Public health interventions have the potential to prevent more deaths than primary clinical care;
more lives may be saved by access to safe drinking water than by access to cholera treatment,
although both are clearly essential. Those making decisions regarding which projects to
implement and how they should be conducted ought to draw from more than trial-and-error. The need for best practices opens the door to research in disaster settings.

There are a range of ethical guidelines for research in complex emergencies (Black, 2003; Brown et al., 2008; Goodhand, 2000; Leaning, 2001; PLoS Medicine Eds., 2009; Schopper et al., 2009; Zwi et al., 2006). However, before individualized ethical guidelines are considered, certain preconditions warrant consideration for health research in disaster settings: (1) the research is not at the expense of humanitarian action; (2) the research is justified in that it is needs-driven and relevant to the affected populations; and (3) the research does not compromise the humanitarian principles of neutrality, impartiality and independence. In harmony with the Tri-Council ethics statement, and helping to frame humanitarian research ethics guidelines (Black, 2003; Brown et al., 2008; Goodhand, 2000; Leaning, 2001; PLoS Medicine Eds., 2009; Schopper et al., 2009; Zwi et al., 2006), these primary considerations are particular to health research in conditions of crisis and humanitarian response.

5.8.1 Not at the expense of humanitarian action

While it may be argued that the greatest proportion of resources ought to go towards direct assistance, it is reasonable that some resources ought to go towards less central costs such as project evaluation. Project evaluation is important for establishing which measures have had the greatest benefit, but also for providing reports to donors. These are pragmatic justifications for diverting small proportions of funding away from direct assistance, to research and evaluation studies which will inform both current projects (if ongoing) and future ones. However, costly, more intensive or longer term research studies ought to have research funding separate from that for direct humanitarian assistance, so as not to draw from humanitarian resources. Given the concerns about value for money (Leaning, 2001), humanitarian funders expect the majority of their donations to go directly towards saving lives and alleviating suffering, rather than to research.

The challenge for ethics review is in the overlap; researchers need to be imbedded in projects, alongside aid workers, benefiting from their logistical infrastructure such as transportation, communications, food, housing and security, as well as from their human resources. This is
ethically sound to the extent that it is acceptable to the aid workers themselves, those directly involved in delivering humanitarian aid, as it is they who are best positioned to determine if at any point the research becomes unjustly burdensome and at the expense of aid delivery. Research protocols ought to have contingency plans for potential interruptions and cancelations due to insecurity and rapidly changing contexts. Rigid research methods are not suited to crisis situations.

5.8.2 Needs-driven and relevant to the affected population

Research questions ought to derive from the most urgent needs and issues of affected populations, but without losing sight of the underlying political-economic causes. Who are the affected populations? Does the term exclusively refer to those within the sample frame of the study, the particular people who may be present only for a short time? It is reasonable to argue that affected populations refer to displaced populations more generally, similar in regard to issue under study? An affected population in Chechnya may differ from an affected population in Palestine in terms of shelter needs, but not in terms of post-traumatic stress symptoms. Two affected populations in the Democratic Republic of the Congo may be similar in terms of cholera risk, but not in terms of malaria risk given different altitudes. It is a question of external validity, of generalizability.

While research in the humanitarian setting can pose extreme logistical challenges, a refugee camp may prove a convenient place for health research; the population is often static, closely confined, dependent, and with little political oversight. However, given the extreme vulnerability, researchers should consider whether the study could be conducted as validly on a less vulnerable population, given that it would be unethical to impose additional foreseeable and unforeseeable risks given viable alternatives (Leaning, 2001). Even among and between displaced populations there is a spectrum of vulnerability for researchers to consider. Especially vulnerable persons include single women and widows, unaccompanied minors, and those with disabilities (Mfutso-Bengo, Masiye, & Muula, 2008).

Complex emergencies tend to occur in unstable resource-poor countries, compounding underlying poverty and poor nutrition (Burkle, 2006). It may be difficult to establish when health
research pertains to affected populations because of their displacement or because of their poverty. If the research pertains to displacement, then it would be justified in that it would not be valid on non-displaced populations. If the research pertains to poverty alone, then it would not be justified in that the study could involve less vulnerable non-displaced populations. However, certain effects of displacement and poverty are intricately linked, and there is an important role for health research in elucidating these tight relationships.

For research to be needs-driven, how does one determine need? Who sets the priority? Does the intervening NGO? Do researchers or politicians? There is a spectrum where there is easier and quicker consensus on extreme life-saving needs, such as during a cholera epidemic in the emergency phase, versus more complex culturally enmeshed issues, such as addressing sexual violence in the post-emergency phase. Given the predictable nature of the causes of morbidity and mortality, there is an accepted list of public health priorities during the emergency phase (MSF, 1997; Schull & Shanks, 2001). Participatory action research methodology may have a greater role in the post-emergency phase (Checkland & Holwell, 1998; Sletto, 1999).

Clinical trial consent forms alert participants to risks and declare that the results of the study may not benefit the participants directly, but may benefit those similar to them in the future. This may be deemed acceptable under normal circumstances, but what about displaced populations with a baseline of desperation? Given their circumstances, the impositions of research can only be justified by balancing the potential for direct benefit (with little or no harm) (de Torrente, 2004; Pictet, 1979). For example, retrospective analyses of routinely collected data should pose no risk and so the benefits to the actual population studied may permissibly be non-existent. If, however, the research involves an intervention entailing any risk to study participants (such as a treatment, or even an interview about a traumatic experience), then the benefits may be for future populations, but should include benefits for the study population itself. Immediate needs are a primary consideration.

5.8.3 Respecting humanitarian principles

As mentioned, humanitarian action is saving lives and alleviating suffering while ensuring respect for the individual, guided by the core humanitarian principles of neutrality, impartiality
and independence (de Torrente, 2004; Pictet, 1979). Independence of humanitarian aid organizations and researchers is essential for ensuring access to populations in danger, but has come under attack by insidious military encroachment into humanitarian work. This invasion jeopardizes the safety of humanitarian aid workers and the populations they serve (Donini, 2005; Pringle, 2008). The threat against independence has important implications for research ethics in times of war, as research during war may be misused for serving military intelligence (McFate, 2005) or devising strategies for winning hearts and minds (MSF, 2004b).

Beneficiary populations, those on the receiving end of NGO interventions, have their own perceptions of NGO independence. While NGOs may make efforts to introduce themselves to community leaders and to distinguish their humanitarian work from other NGOs and militaries, it is easy to understand how vulnerable populations may remain skeptical and distrusting. This distrust hindered polio vaccination campaigns in northern Nigeria in 2003, when rumours spread that the vaccine was tampered and designed to sterilize girls or spread disease as part of a U.S. plot (BBC News, 2003). Studies may be useful for discerning perceptions among beneficiary populations regarding the independence of the NGO, the appropriateness of proposed interventions, and the acceptance of the community to research. Acceptance to research is an important consideration, as mistrust of the research may lead to mistrust of the intervention.

5.8.4 Témoignage

The medical humanitarian aid organization MSF holds at its core témoignage. Those that explain this word are quick to point out that there is not an adequate English equivalent, that its meaning is more profound than simply ‘to bear witness’ or ‘testimony’:

The word ‘témoignage’ comes from the French verb, ‘temoigner,’ which literally translates as ‘to witness’. Témoignage – or witnessing – is simply the act of being willing to speak out about what we see happening in front of us. In MSF, this means willingness to speak on behalf of the people we assist: to bring abuses and intolerable situations to the public eye (MSF, 2006).

Témoignage is a component of advocacy, a rallying cry for an end to the extreme suffering experienced by civilians and witnessed in solidarity by humanitarian aid workers. Témoignage has credibility over hearsay and opinion, as it derives from direct evidence presented during the
course of humanitarian work. Disturbing narratives emanate from health care clinics, each a part of a larger story, such as from the war in Eastern Congo. As a method of témoignage, MSF helped to share these stories through its website “Condition: Critical” [http://www.condition-critical.org] (MSF, 2009). Research relates to témoignage in that it can strengthen credibility and add depth. Qualitative research, such as this thesis, is applicable in this regard in that it can convey meaning and experiences beyond that provided by quantitative research.

5.8.5 Summary of reflections on humanitarian research ethics

Proposed research studies in humanitarian settings ought to undergo a particularly scrutinizing ethics review customized to its unique context. Reviewers must discern which ethical considerations are essential, and which are merely desirable, so as not to obstruct vital research. Research ethics committees ought to discern between necessary conditions such as informed consent and merely desirable conditions such as signed consent forms (Schopper et al., 2009); otherwise, ethically-sound life-saving research may be impeded by overly stringent criteria. Health research has the potential to improve ways of mitigating the devastating effects of war and displacement on civilians. As Leaning points out, “Sometimes the refugee setting raises special extreme problems that can only be addressed in that setting, and failure to improve our knowledge on how to deal with these problems is in itself unethical” (Leaning, 2001).

Health researchers, research trainees, and ethics reviewers should be encouraged and prepared for the special application of research ethics within complex emergencies. They must clearly understand that such research cannot come at the expense of humanitarian action, must be needs-driven and relevant to the affected populations, and must not compromise the humanitarian principles of neutrality, impartiality, and independence. Such an approach should be incorporated into university courses and into the training of members of research ethics committees who review such proposals within short timelines, with the potential benefits of the research clearly in mind.

5.9 Summary of research methodology

The research methodology was the way and reasoning in investigating the Nigerian lead-poisoning outbreak with a humanitarian ethics lens. The research was a critical examination that
identified issues and challenges surrounding the international humanitarian response as told by the protagonists themselves. The methods were designed to see how the international emergency response to the Nigerian lead-poisoning outbreak unfolded and the roles of the regional, national, and international actors in identifying and addressing the outbreak. Research findings provide insight into the apparent lack of local public health capacity and need for international humanitarianism. The first step established the context of the outbreak in terms of the history of Nigeria and the political economy of artisanal gold mining. The next steps identified the issues, challenges and frustrations encountered during the international humanitarian response, drawing from published reports and key informant interviews. The content analysis applied theory in the interpretation of the data. In the end, the methods proved successful and robust in achieving the research goal.
SECTION D: RESEARCH FINDINGS
Chapter 6 : Oil, war, and corporatocracy: the making of Nigeria

You will say, we live in the [European] mother country, and we disapprove of her excesses. It is true, you are not settlers, but you are no better. For the pioneers belonged to you; you sent them overseas, and it was you they enriched. You warned them that if they shed too much blood you would disown them, or say you did, in something of the same way as any state maintains abroad a mob of agitators, agents provocateurs, and spies whom it disowns when they are caught. You, who are so liberal and so humane, who have such an exaggerated adoration of culture that it verges on affectation, you pretend to forget that you own colonies and that in them men are massacred in your name.

Jean-Paul Sartre, Preface, in “The Wretched of the Earth” Frantz Fanon, Translated by Constance Farrington, Grove Press: NY (pp. 14-15)

6.1 Introduction to the history of Nigeria

The Federal Republic of Nigeria is in West Africa and borders on the Republic of Benin in the west, Chad and Cameroon in the east, and Niger in the north. Its southern coast is on the Gulf of Guinea. Nigeria is the most populous country in Africa with over 140 million people and an approximately equal division in population between the mainly Sunni Muslim north and Christian south (Falola & Heaton, 2008). Nigeria is comprised of 36 states and a Federal Capital Territory with the capital city of Abuja. The country is grouped into six geopolitical zones: North Central, North East, North West, South East, South South, and South West. A majority of Nigerians live rurally, although urbanization is growing at a rapid pace. Nigeria’s largest city is Lagos in the south with a population close to 8 million. Kano is the largest city in northern Nigeria, with a population of approximately 3.8 million (Falola & Heaton, 2008). The borders of Nigeria were established in 1914 by British colonizers. However, the people of what is now known as Nigeria have a long and rich history dating back many centuries.

According to government sources, Nigeria includes 374 identifiable ethnic groups, with the Igbo, Hausa, and Yoruba among the largest (National Population Commission of Nigeria, 2010). The Hausa (about 21 percent of the population) are primarily located in northern savannas. The
Yoruba (about 20 percent of the population) are primarily located in the southwest. The Igbo (about 17 percent of the population) are primarily located in the southeast. Other large ethnic groups include the pastoral Fulani of the northern savannas, the Ijaw of the Niger Delta, and the Kanuri of the Lake Chad region (Falola & Heaton, 2008 p. 4). However, as Human Rights Watch reports, reliable population figures are difficult to come by given that demographics are so highly politicized (Human Rights Watch, 2006). There are over 250 different indigenous languages, with English as the official language since Nigerian independence in 1960.

The Nigerian lead-poisoning outbreak affected Hausa communities in Zamfara State in the North West. Zamfara State is in the savanna and semi-desert area known as the Sahel. It has two seasons: the wet season from May to October, and the dry season from November to March with Harmattan winds blowing south from the Sahara. According to the 2006 census, the population of Zamfara State is 3.28 million (National Population Commission of Nigeria, 2010). Other states in the North West Zone are Jigawa, Kaduna, Kano, Katsina, Kebbi, and Sokoto. Zamfara was part of Sokoto State until October, 1996. Zamfara’s state capital is Gusau. Zamfara State is broken down into 14 Local Government Areas (LGAs): Birnin Magaji, Kaura Namoda, Shinkafi, Zurmi, Bungudu, Gusau, Maru, Tsafe, Anka, Bakura, Bukkuyum, Gummi, Maradun, and Talata Mafara.

Poverty in Nigeria is dire and its effects are blatant: even before the lead-poisoning outbreak, Nigeria had some of the highest mortality rates in the world for infants and child-bearing women (AFP, 2011; UNICEF, 2011).

### 6.2 History of Nigeria

#### 6.2.1 Early history

Archeological evidence shows that human societies have been constantly present in all regions of Nigeria for several thousands of years. Early societies would have been decentralized, focusing on small village or village-group units. By the end of the first millennium CE (Common Era), some societies were developing more centralized state structures, based on kingship, drawing greater resources to urban centres of political, economic and cultural importance (Falola & Heaton, 2008 p. 16). In the Sahel region in the north, the empires of Kanem and Borno became
increasingly powerful from the eleventh century CE, with Hausa states such as Kano, Katsina, Zaria, and Gobir beginning their ascendancy by the fifteenth century (ibid, p. 16). Islam spread in the savanna region during the second millennium CE and contributed greatly to the growth of centralized states. Islam provided a “political cult” (ibid, p. 16) for Kanuri, Bornoan, and Hausa leaders as well as a commercial and scholarly link to the greater Islamic regions. Through the growth of the trans-Saharan trade, by 1500 CE societies in and around modern-day Nigeria had developed sophisticated political, economic and cultural relationships, making the region an integrated economic unit (ibid, p. 17).

Historians Falola and Heaton point out that referring to the period before European colonization of West Africa as pre-colonial is anachronistic:

Over the course of human history, many different groups of people have migrated into and out of the region that is now known as Nigeria. Many societies and states, and even vast empires, have risen and fallen, none of them having had any direct correlation to the Nigerian state that exists today. The boundaries of present-day Nigeria were created by the British colonial administration in the late nineteenth and early twentieth centuries. While political boundaries often coincide with physical boundaries, such as bodies of water or mountain ranges, or are established by mutual agreement between societies over generations, the boundaries adopted to create the modern state of Nigeria never had any geophysical or social significance to the indigenous peoples of the region… Nigeria’s western, northern, and eastern borders are all relatively arbitrary, having been negotiated at drafting tables in Europe rather than through local processes of societal development. The country of Nigeria is thus a conglomeration of hundreds of ethnic groups, many of which straddle these arbitrary borders, which date only from the twentieth century. Therefore, to speak of the timeframe before the establishment of these boundaries as “pre-colonial Nigeria” suggests that the period is significant partly insofar as it relates to the eventual construction of modern Nigeria (Falola & Heaton, 2008 p. 17).

During the Late Stone Age, the move from hunting and gathering to permanent agricultural and livestock-rearing settlements was a starting point for the development of many of the language groups and social identities that make up modern Nigeria (ibid, p. 21). From the eleventh century CE, decentralized states in the area developed into more centralized states, including, by 1500 CE, the Hausa states in the north-central savannas (ibid, p. 22).
6.2.2 The trans-Saharan trade route and Islam

The traditional Hausa origin story traces back to migrants from the east. The origin story has it that Hausa states were created by Bayajidda, the son of a king of Baghdad, who (after a series of adventures) settled in a place called Daura. Bayajidda had a son with the Queen of Daura. This son then had seven legitimate sons and seven illegitimate sons. Each of these established a state: the states of the legitimate sons came to be known as the “Hausa Bakwai” and the states of the illegitimate sons came to be known as the “Hausa Banza” (Falola & Heaton, 2008 p. 28). (The state of Zamfara, the site of the lead-poisoning outbreak, was one of the Hausa Banza). This whole area was referred to as Hausaland.

The Hausa states were linked by a common Hausa language. The Hausa states had a stable state system beginning in the ninth or tenth century CE (Falola & Heaton, 2008 p. 28). Each state retained autonomy, headed by its own sarkin (king) and administration. Agriculture and livestock provided a major source of wealth (ibid, p. 29).

From the fourteenth century, migrants from western Sudan and the nomadic Fulani pastoralists brought Islam and increased trade into the region. The Hausa states grew in power in the fifteenth and sixteenth centuries due to a shift of trans-Saharan trade routes from Mali and Songhay towards the central savanna. The Hausa states expanded around the trans-Saharan trade routes, with cities growing and immigrants arriving from many different regions. The rulers of the Hausa states converted to Islam from the thirteenth to the mid-seventeenth century (Falola & Heaton, 2008 p. 29), primarily as a strategy for consolidating their control over their regions and for improving trading relations between Islamic societies in the Sahara and North Africa (ibid, p. 28).

Islamic scholarship fostered religious, political and economic relationships between the Hausa states and the wider Islamic world:

The connection between trade and Islam is perhaps best exemplified by the wangarawa merchants and Islamic scholars, who spread Islam and commercial activity from the western Sudanic states of Mali and Songhay to the Hausa states of the central savanna from the fourteenth century onwards. As trade spread to the savannas and Sahel, Islam spread with it. And, as Islam developed roots in the
Hausa states and Borno, more trade ensued. Islam provided a way for traders to identify with each other and also established common values and rules upon which trade was conducted. The trans-Saharan trade existed well before the establishment of the Hausa states and Borno and continued to be an important factor in the economies of savanna and Sahelian states until the twentieth century (Falola & Heaton, 2008 pp. 32-33).

The “golden age” of trans-Saharan trade was between the fourteenth and sixteenth centuries (ibid, p. 33), with gold and slaves as the primary traded goods. The trans-Saharan trade route declined with the arrival of Europeans along the coast in southern Nigeria, from the sixteenth century. However, to some extent, the trans-Saharan trade continues to this day (ibid, p. 34).

### 6.2.3 1500 – 1800 and the Trans-Atlantic Slave Trade

The Trans-Atlantic Slave Trade is attributed in part to demand for a large workforce in the New World:

The transatlantic slave trade was responsible for the forced migration of between 12-15 million people from Africa to the Western Hemisphere from the middle of the 15th century to the end of the 19th century. The trafficking of Africans by the major European countries during this period is sometimes referred to by African scholars as the *Maafa* (‘great disaster’ in Swahili). It's now considered a crime against humanity (Understanding Slavery initiative, 2011).

A comprehensive overview of the Trans-Atlantic Slave Trade is beyond the scope of the thesis, but it is important to note its central position within a globalized commercial network dubbed the ‘Triangular Trade’:

The first stage of the Triangular Trade involved taking manufactured goods from Europe to Africa: cloth, spirit, tobacco, beads, cowrie shells, metal goods, and guns. The guns were used to help expand empires and obtain more slaves (until they were finally used against European colonizers). These goods were exchanged for African slaves. The second stage of the Triangular Trade (the middle passage) involved shipping the slaves to the Americas. The third, and final, stage of the Triangular Trade involved the return to Europe with the produce from the slave-labor plantations: cotton, sugar, tobacco, molasses and rum (Boddy-Evans, 2014).
The Portuguese held a monopoly to trade in enslaved Africans up until the early sixteenth century. The British came to dominate by the eighteenth century, until 1807 when the British abolished their slave trade (Klein, 2010).

Nevertheless, there was a notably British involvement in the continuing slave trade. We now know that, despite the British and American anti-slavery patrols and British diplomatic pressure to prevent slave trading in the Atlantic, another 3 million Africans were transported across to the Americas (mainly to Cuba and Brazil) between 1807 and 1860. Increasingly, it was a trade in children, drawn mainly from central Africa. Thereafter the transatlantic trade died out (Understanding Slavery Initiative, 2011).

In the Hausa states of the northern savannas and the Sahel, a form of the slave market had existed for several centuries (Falola & Heaton, 2008 p. 39). The Hausa and Borno states had deep-rooted institutions of slavery and social bondage that were “more benign and integrative than in the Americas” (ibid, p. 40). By the sixteenth century, the main trans-Saharan trade routes were moving east, resulting in conflict between the Hausa and Borno states. War and raids between the two areas resulted in the taking of slaves for eventual sale in the trans-Saharan markets (ibid, p. 39).

Between 1500 and 1800, there were frequent wars between Hausa states. States fought to gain dominance over markets and trade routes, and to capture new slaves. By 1800, hundreds of years of warfare between Hausa states resulted in three particularly powerful states: Kano, Katsina, and Gobir (with Kebbi and Zamfara of relative importance). The slave trade was along the trans-Saharan route until the eighteenth century, when transatlantic trade with the Europeans shifted the route south (ibid, p. 48). Trade between the Hausa and the Europeans was conducted through middlemen, particularly the Yoruba state of Oyo (ibid, p. 48).

6.2.4 1800s

There were large geopolitical and economic changes during the nineteenth century. In the northern savanna zones, the Islamic scholar Usman dan Fodio consolidated the Hausa states under the one government of the new Sokoto Caliphate (Falola & Heaton, 2008 p. 60), one of the
largest states ever established in West Africa (ibid, p. 65). The Sokoto Caliphate became a conglomeration of decentralized provinces called *emirates*. Each emirate was run by a relatively independent *emir*. All emirs claimed allegiance to the caliph (ibid, p. 65). While the Sokoto Caliphate was large, the central authority was tenuous, due to independent-minded emirs and rivalry between Fulani and Hausa ethnic groups. Despite fractures and occasional uprisings, the one political system allowed the Hausa states to develop their agriculture and markets, and to trade freely and safely (ibid, p. 72).

The economic benefits under the Sokoto Caliphate were not shared with much of the peasantry. Slave raiding continued, with large plantations worked by slave labour, and long-standing urban areas had been destroyed during the jihad (Falola & Heaton, 2008 p. 72). Emirs throughout the caliphate enforced *shari’a* law inconsistently and unevenly, and sultans reintroduced unjust tax structures (ibid, p. 73). However, the size of the political and economic system overseen by the Sokoto Caliphate was unprecedented:

By the time Sokoto fell to British colonial forces in 1903 most of the savanna region of what is now northern Nigeria was more culturally united than at any other time in history, and this unity was based heavily on a shared experience of life in an Islamic state (ibid, p. 73).

### 6.2.5 British colonial rule, 1850 – 1903

By the second half of the nineteenth century, British motives for colonizing Nigeria involved:

- British Christian missionaries who wanted the areas converted to anti-slavery, ‘legitimate’ commerce, and a Christian ‘civilization’.
- British trading interests lobbied for intervention to regulate business practices
- British politicians wishing for a stronger presence and sphere of influence given French and German traders and military expeditions.
- British enthusiasm for the “Scramble for Africa” after the Berlin Conference of 1884-5.
- Within this context were Nigerian rulers who allied themselves with British missionaries and political agents in a misguided attempt to demonstrate their power (Falola & Heaton, 2008 p. 86).
Imperial domination in Africa, the “Scramble for Africa,” increased dramatically after the Berlin Conference of 1884-5. The conference determined the rules for how European countries could take-over areas of Africa, such as, “signing treaties of ‘protection’ with indigenous rulers for the creation of ‘protectorates,’ and the ‘effective occupation’ with military forces of any full-fledged colonies” (Falola & Heaton, 2008 p. 92). Starting from Lagos and working inland, the British colonization of Nigeria took over forty years to complete (ibid, p. 93).

The Sokoto Caliphate rejected British imperial advances to the northern savanna, and in 1899, refused to allow the Royal Niger Company or a British office in Sokoto. The Caliph Abdurrahman, a descendant of the first caliph, defiantly opposed the British take-over. In a letter to Sir Frederick Lugard, the British governor appointed for the north, the Caliph wrote:

I do not consent that any one from you should ever dwell with us… I will have nothing ever to do with you. Between us and you there are no dealings except as between Mussulmans and Unbelievers – war (Cunliffe-Jones, 2010 p. 70).

The British sought a military take-over to secure the northern protectorate and the rivers of Niger and Benue, ahead of the French (Falola & Heaton, 2008 p. 105). The caliphate had no standing army, and by March 15, 1903, Sokoto and the Hausa states fell to the British, and became incorporated into the Protectorate of Northern Nigeria. In the aftermath of the violence, emirs were instituted that accepted British colonial rule (ibid, p. 105). Prior emirs that survived chose emigration over British control. While the British had conquered Nigeria, resistance persisted, often met with violent suppression:

Therefore, at the end of the nineteenth century and into the twentieth, the British extended their colonial grasp over Nigeria more as a result of superior military might and the willingness to use violence to achieve their ends than as a result of any other set of factors (Falola & Heaton, 2008 p. 109).

On January 1, 1914, an act of proclamation in London and Lagos made official the new nation of Nigeria:

In the manner of its birth, it was an entirely British creation. Since its founding as two separate territories a decade and a half earlier, a series of British businessmen, adventurers, and politicians had determined the existence, the
borders, and the political structure of Nigeria. Goldie had drawn a line on the map that decided which parts of what states would comprise the country. He did so ignorant of their histories and traditions. Lugard’s wife, Flora Shaw, also a Briton, had created its name, proposing the name Nigeria in her column in The Times of London as a play on the name of the great River Niger. The British had even determined the common language Nigerians would speak: English. And they had decided the way they would be ruled. And in all this, Nigerians themselves had barely been consulted, if at all (Cunliffe-Jones, 2010 p. 73).

Once established, the British colonial administration practiced “indirect rule” which meant channeling its authority through local kings and chiefs (Falola & Heaton, 2008 p. 110). Insubordinate kings and chiefs were quickly replaced with obedient ones.

6.2.6 Colonial society to 1929

The British colonial administration instituted an export economy based on cash crops and raw minerals, and a cash economy based on wage labour and the UK currency. In just a few years, the British transformed the agricultural production and capital accumulation that had evolved over centuries (Falola & Heaton, 2008 p. 111). The British’s objectives were to make the colonial enterprise self-financing and profitable for British and European business (ibid, p. 111). The changes to the economy had large social effects:

Cities grew rapidly as people moved to urban areas looking for jobs in the colonial service or in commercial firms. Traditional age and gender roles shifted as people reacted to the new labor requirements of the colonial economy. A new class of European-educated, literate, English-speaking Nigerian Christians emerged in southern Nigeria, keen on holding the colonial regime responsible for its actions and demanding a greater role for Nigerians in their own governance (Falola & Heaton, 2008 p. 111).

By the late 1920s, anti-colonial resistance had grown.

In the Protectorate of Northern Nigeria, colonial officials explicitly forbade colonial government expenditure on social services such as health care, public works and education (unlike in the
south). In the north, such social services were considered an unnecessary colonial expenditure. These policies created disparity between north and south.\(^{70}\)

The British economic strategy in Nigeria was to promote exports. This involved diverting agriculture from subsistence crops such as cassava, yam, and millet, to export crops such as groundnuts and cotton in the north, and cocoa and palm oil in the south. It also involved stepping up the mining of tin and coal, and to a lesser extent, gold, silver, lead and diamonds (Falola & Heaton, 2008 p. 119). Railway systems were built to facilitate exports, linking northern areas to ports in the south. By 1939, just seven European companies controlled more than two-thirds of all of Nigeria’s export trade, keeping profits low for the Nigerian producers and high for the European corporations (ibid, p. 121). Large European-owned mining operations monopolized mineral extraction:

Several mining firms, such as Ropp Tin and the Naraguta Company, were extracting tin from the Jos Plateau by the first decade of the twentieth century, each making over 100 percent profits by 1914. European firms took their profits back to Europe, enriching shareholders at the expense of exploited Nigerian labor. Because so much of the wealth of Nigeria was being extracted for European profits, very few Nigerians earned enough to invest in local development projects of their own. … Nigerians became producers for and workers in an extractive economy that did little for the long-term development of their country (Falola & Heaton, 2008 p. 121).

6.2.7 Nationalist movements and independence, 1929 – 1960

From the late 1920s to the Second World War, Nigerians suffered greatly from the collapse of the colonial export economy and long economic depression (Falola & Heaton, 2008 p. 141).\(^{71}\) By the end of the Second World War, and after years of struggle for independence, Nigeria’s

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\(^{70}\) By contrast, in Lagos in the south, by 1898 the colonial government had established a Medical Department employing European and African doctors, a police service, and a Public Works Department that maintained public buildings, roads, electric lighting, telegraphs, piers, and public transit, among other things (from Nicholson, *The Administration of Nigeria*, pp. 54-5, as cited in Falola & Heaton, 2008 p. 116).

\(^{71}\) During this time of popular suffering, European firms continued to make large profits from Nigerian exports by using unfair business practices (Falola & Heaton, 2008 p. 142).
north and south had diverged further. The north did not have the European-educated class that existed in the south, and their religious difference became more polarized. Northern Nigerians feared that a unified and independent Nigeria would marginalize the north further. Therefore, northern activists supported an independent Nigeria with strong regional powers over a central authority. By the early 1950s, Nigeria was solidifying into three distinct zones: the Yoruba-dominated west; the Igbo-dominated east, and the Hausa/Fulani-dominated north (ibid, p. 152). The large discovery of petroleum in the Niger delta in 1958 further fueled these socio-political fault lines (ibid, p. 157).

Anticolonial struggles grew in size and scope Following World War II. European powers preferred to abandon colonies rather than face armed resistance, and hurriedly prepared their colonies for eventual self-government. In Nigeria in 1954, the British enacted the Lyttleton Constitution, setting the stage for independence, and the colony became the autonomous Federation of Nigeria. Then, on October 1, 1960, Nigeria became a sovereign state in the British Commonwealth (Gordon, 2003, p. 97). However, the economy remained dependent on agricultural exports and controlled by European firms (Falola & Heaton, 2008, p. 156).

6.3 Instability, civil war, and petroleum

From 1960 to 1966 in the period immediately following independence, the federal government system became increasingly dysfunctional. The main political parties from each region fought for control, as those in control over the federal government had control over the distribution of government resources. This allowed the dominant party to enrich itself and its supporters, and to deny its opponents (Falola & Heaton, 2008 p. 165). Years of political wrangling ended with the military coup of 1966, the mass murder of government leaders, the start of the Ironsi regime, and the Nigerian Civil War of 1967-70. Also known as the Biafran War, it took the lives of between one and three million people, mostly in the Eastern Region and many through starvation (ibid, p.
As Peter Cunliffe-Jones, the grandson of Nigeria's last colonial governor Hugo Marshall wrote:

As World War II ended, my grandfather’s generation built the new nations – unsteady, unstable – on false foundations and then left them to collapse. The crisis in Nigeria at independence was the fight for power between the regions. It was a crisis of Britain’s making. The constitution they agreed on failed the country and led to a bloody civil war. … And those who paid the price were the Nigerians themselves. These days, when a house falls apart months or years after it is handed over, the builder and the architect are blamed, not the new owners or tenants. The quick collapse of Nigeria into civil war and misrule was the fault of the British. Was this also the reason for the state of Nigeria today? (Cunliffe-Jones, 2010 pp. 116-117).

Petroleum came to dominate the Nigerian economy, and the agricultural sector weakened. Nigeria became more dependent on food imports, and inflation spiked. While a small group of elite politicians and entrepreneurs have become exceptionally wealthy from the oil economy, the majority of Nigerians remain condemned to dire poverty:

Rather than contributing to the overall development of Nigeria and to improved living conditions for Nigerian citizens, however, this wealth was distributed unequally, benefiting primarily those people who had access to state power… Three different regimes, two military and one civilian, oversaw the growth of the oil economy in the period between 1970 and 1983, but all three mismanaged government funds and contributed to the development of a kleptocracy that continues to plague Nigeria today (Falola & Heaton, 2008 p. 181).

Following the Biafran War of 1967-70, the Nigerian government had its Second Republic. It ended with General Buhari’s military coup on December 31, 1983. Less than two years later, on August 27, 1985, Major General Babangida’s regime overthrew the Buhari’s regime, holding power from 1985 to 1993. Unlike his predecessors, Babangida was a free-market liberal (Cunliffe-Jones, 2010 p. 108).

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72 It was during the Biafran War that a group of French doctors broke away from the Red Cross in order to speak out against the apparent genocide. These doctors and journalists went on to found the *Médecins Sans Frontières* (MSF) movement in Paris in 1971.
During the oil-boom years of the mid-1970s, incomes grew in Nigeria, but primarily for the new oil elite. Much of the state income was squandered. When oil prices crashed in the 1980s, the Nigerian economy collapsed with them, and what meager public services existed quickly disintegrated (ibid, p. 106). Babangida sold off state firms, relaxed regulations, and liberalized import controls. In response to Nigeria’s debts, he dealt with the International Monetary Fund (IMF) and its Structural Adjustment Program (SAP) (ibid, p. 217). With popular backing, Babangida refused the terms of the IMF loans in favour of his own austerity measures. In June 1986, Nigeria instituted its own SAP and debt rescheduling to be monitored by the World Bank. These efforts delayed the majority of load repayment until 1991 and later.

The effects of the austerity measures were devastating to most Nigerians, and made worse by the SAP demands for a deregulated economy. Government subsidies for basic necessities, such as fuel, were removed. What little social services that existed were hard hit:

Nigerian health services and education facilities declined, as these institutions were unable to afford regular maintenance or basic supplies. More and more people, unimpressed by the quality of these social services and unable to afford them in any case, increasingly took their children out of government schools and stopped attending government clinics, preferring instead to have traditional medical practitioners treat their physical and spiritual ailments. At the same time that the quality of social services deteriorated, the prices for them rose, making people even less likely to seek these services (Falola & Heaton, 2008 pp. 219-220).

SAP measures caused massive inflation, currency devaluation, and scarcity of basic goods and public services. The social upheaval caused by economic crisis exacerbated religious and ethnic tensions within Nigeria. Christian and Muslim groups have clashed regularly since the 1980s, particularly in northern Nigeria, culminating in violent riots (ibid, p. 222). The “brain drain” became more of an issue. By 1993, there were an estimated 21,000 Nigerian medical doctors practicing in the United States alone, and by the year 2000, between 25 and 50 percent of all Nigerians with university educations lived outside the country (Kapur and McHale, 2005, as
cited in Falola & Heaton, 2008 p. 223). While the various military dictators expressed concern for the Nigerian economy publicly, their private dealings confirmed the kleptocracy.\(^7\)

There was a return to civilian rule in 1999 with the Fourth Republic and the election of Obasanjo. During his presidency from 1999 to 2007, the economy grew, allowing the government to pay off much of its foreign debt (Falola & Heaton, 2008 p. 236). The country's debts dated back to the early 1980s, and had ballooned to more than $35 billion due to penalties and late fees during the 1990s (BBC News, 2006b). In 2006 and with approval from the IMF, the Nigerian government paid $18 billion in debt to the Paris Club of Creditors and $2.15 billion to the London Club of Creditors. According to Emeka Chiakwelu, a founder and Principal Policy Strategist at the Africa Political & Economic Strategic Center (AFRIPOL), these payments represent one of the largest transfers of wealth by a third world nation to first world nations:

> For a country with enormous internal economic problems; with 70% of the population mired in penury poverty with increasingly educational and health challenges to repatriate such a wealth to the west is not a prudent decision. Without doubt, Nigeria was compelled to do so by those nations that supposedly are the partners in fighting poverty in Africa… The billions of dollars that Nigeria paid was larger than the donations the rich nations will be providing to poor countries in a period of ten years. The money paid to the rich nations of Paris Club and London Club of Creditors would have found its best use in Africa, if not in Nigeria (Chiakwelu, 2010).

In a letter to British Chancellor Gordon Brown, Archbishop Desmond Tutu asked Britain to return some of the billions of dollars that the UK received from Nigeria, accusing Britain of “meanness of spirit” (AllAfrica.com, 2006).

Health services have not recovered from the cuts in the 1980s and 1990s to its already meager budgets, contributing to the ‘brain drain’ and low life expectancy (Falola & Heaton, 2008 p. 238). Public desperation has fuelled the rise of medical doctor impersonators and their fictitious

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\(^7\) General Abacha ruled from 1993-8. After his death in 1998, it was discovered that Abacha and his family embezzled approximately $3 billion into bank accounts around the world (Falola & Heaton, 2008 p. 234).
remedies (ibid, p. 240). The majority of poor Nigerians saw little to no improvement in living standards while Obasanjo was in power, although the wealthy elite saw continued benefit; wealthy districts grew in urban areas as a manifestation of government and business corruption (ibid, p. 237).

Political corruption is fed by oil, extending well beyond the Niger delta. According to Cunliffe-Jones, the corruption has spread throughout Nigeria, affecting politics in every town and at every level. Oil money is what elections are fought for, inundating the capital and the 36 states of the north and south. “And it seeps down into the level Nigerians consider the most corrupt of all: the 774 local governments spread right across the nation” (Cunliffe-Jones, 2010 p. 135). In Nigeria, more than $450 billion in oil money flowed into Nigerian government accounts between 1970 and 2004. A financial audit found that $380 billion has either been stolen or wasted by Nigerian governments (BBC News, 2006c).

In 1999 in the northern state of Zamfara (site of the lead-poisoning outbreak), Ahmed Sani was elected governor on the promise of restoring shari’a law. Soon after, eleven other northern states restored shari’a law. The change resulted in violent Christian-Muslim clashes throughout the country (Cunliffe-Jones, 2010 p. 112). The motivation for shari’a law was not a desire to form an Islamic state, but a desire to see an end to misrule and corruption. According to Governor Sani:

> There was very high demand by the religious north of Nigeria for judicial change… I reintroduced Shari’a law, whilst making sure that Christians were not marginalized by it… You will not see any beheadings or amputations, but you will see that both Muslims and Christians are happier because Shari’a law has enhanced security and stability in Zamfara State (Our World, 2007a p. 8).

Despite the Governor’s assurances, in the years since there has been popular disillusionment (Cunliffe-Jones, 2010 p. 169). For example, in 2010, a civilian group called for the investigation

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74 Such fraud schemes are referred to as “419” after the penal code under which they are prosecuted. Popular schemes involve selling other people’s houses while the owners are away, and the ubiquitous email scams that solicit ‘fees’ in the promise of releasing large funds (Falola & Heaton, 2008 p. 240).
of the former Governor of Zamfara for allegations of corruption and the mismanagement of public funds (Jimoh, 2009).

In 2001, another radical change occurred. The Nigerian government lifted the ban on mobile phones that had been imposed by the military. Mobile phones are essential for communication given that land-line infrastructure is non-existent. Within weeks, more than 1 million Nigerians had purchased mobile phones. Today, there are about 90 million using mobile phones (Associated Press, 2011). In a recent Gallup poll among adults age 15 years and older, 17 percent of Nigerians own a mobile phone and have accessed the Internet in the past 12 months, highest for those with higher education and urban living (GALLUP, 2011).

### 6.4 Focusing on northern Nigeria

Poverty is worse in northern Nigeria than in the rest of the country and highest for those living rurally. All northern states have poverty levels greater than 60%, with averages of 80% in the North West and North East (Ibrahim, 2008b). And while poverty declined in most of Nigeria between 1996 and 2004, it increased in parts of the north (UNDP, 2009). Maternal and child health, while amongst the worst in the world in Nigeria, is critically dire in northern Nigeria (Doctor, Bairagi, Findley, Helleringer, & Dahiru, 2011). In northwest Nigeria, 43 percent of the children under the age of five are underweight, compared to 17 to 19 percent in the south (UNDP, 2009). Polio and measles have significantly diminished in the south but persist with high morbidity and mortality in the north, posing a threat to neighbouring countries (IFRC, 2009). Such excruciating poverty leads to high numbers of children and adults flocking from villages to cities in search of a better life, and the ubiquitous Almajirai, or street children, begging for survival (Aluaigba, 2009).

While the northern economy is dependent on agriculture, there are needs for improvements beyond this sector alone to address the chronic state of poverty and inequality. As the Governor

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75 For these statistics, material poverty is defined as an income of less than one dollar (N129) per day, or less than N3,870 per month. The legislated national minimum wage is N5,500 per month. Therefore, based on the 2006 Census, more than 52 million people in the North live below the poverty line (Bello, 2008).
of Niger State succinctly remarked, “Agriculture is a veritable vehicle for the development of northern Nigeria while development goes beyond purchase of tractors and fertilizer as there is more to the politics and economics of it” (Ibrahim, 2008a).

The Niger River flows through Kebbi State just south of Zamfara State on its way south to the Gulf of Guinea. It is the third longest river in Africa, running 730 miles through Nigeria. The Niger River provides a route for communication and commerce. The Sokoto River is a large tributary of the Niger River in northwestern Nigeria, beginning in Katsina State and then flowing north-west by Gusau in Zamfara State. The Gusau Dam holds a reservoir on the Sokoto River, providing a water source for Gusau and surrounding areas. In September 2006, the dam collapsed, killing 40 people and destroying 500 homes. Emergency assistance was provided by the Red Cross (BBC News, 2006a). Then in August 2010, heavy rains overwhelmed the Goronyo Dam on the nearby Rima River, resulting in widespread flooding of villages near the town of Goronyo. Emergency assistance was provided by MSF (MSF, 2010b). On a related note, in January 2010, a civilian group called for the investigation of the former Governor of Zamfara State for allegations of corruption and the mismanagement of public funds, including an N1 billion loan for Gusau dam repairs (Jimoh, 2009).

Zamfara is Nigeria’s largest producer of food crops including guinea corn, millet, maize, beans, and rice, as well as cash crops such as cotton, peanuts and soybean. However, attention is turning to the investment in mining of solid minerals. Zamfara is believed to have the largest gold deposits in Nigeria; the government is hoping to attract a total of $1 billion of investment into mineral exploration and mining (Our World, 2007b).
6.5 Summary of the historical account of Nigeria

“Poverty in Nigeria has assumed the moral character of war, and this is what you see reflected in much of the ethnic violence in this country.”

The Hausa of northern Nigeria have historical continuity with pre-invasion and pre-colonial societies that developed on their territories. British rule in sub-Saharan Africa began at the end of the nineteenth century. To encourage social stability, the British colonial administration worked to preserve peasant proprietorship, tribal attachment to ancestral lands and territories: “Tribalism – rechristened ‘ethnicity’ – and attachment to ancestral lands and customs continue to be dominant features of Nigerian politics and society” (Naanen, 2012 p. 157). Currently there are social tensions in Nigeria surrounding notions of North versus South, and Muslim versus Christian (Human Rights Watch, 2006). Poverty and inequality fuel sectarian violence, regional tensions (Egwu, 2011), and claims over the nation’s natural resources, such as Niger Delta’s oil (Obi, 2011).

76 Human Rights Watch interview with the secretary general of Nigeria’s Catholic Secretariat Father George Ehusani, Lagos, November 7, 2005 (Human Rights Watch, 2006 p. 2).
Chapter 7: Political economy analysis of artisanal gold mining

“The philosophers have only interpreted the world, in various ways; the point is to change it.”
Karl Marx, Theses on Feuerbach

7.1 Introduction to political economy analysis

Having presented the context of the Nigerian lead-poisoning outbreak in terms of a historical account of Nigeria, the thesis now turns to the political economy analysis of the artisanal gold mining that was at the heart of the outbreak. Political economy is an approach for understanding the broader political and economic structures that influence health and disease distribution (Doyal, 1979; Krieger, 2008). The political economy approach focuses on how the market and economics, political ideology, and other forces are integrally related and affect public health policy (Raphael, 2006). The social determinants of health are social and economic conditions that provide context and cause for high disease prevalence (Cromley & McLafferty, 2002; CSDH, 2008). Looking beyond the social determinants of health to include the broader political and economic (societal) determinants of health (Kawachi, Kennedy, & Wilkinson, 1999; Raphael, 2003), political economy examines interactions among the local, regional, and global levels, including the historical context from which the determinants evolved (Navarro, 2002). It further explores the interactions of race and class as they affect the allocation of power and privilege (Minkler, 1994; Navarro, 2002). A consideration in the political economy approach is vulnerability or powerlessness of a population (Collinson, 2003), analyzed as a political and economic process. The political economy approach takes into account the proximate biomedical and behavioural aspects but adds the broader political, economic, and social context (Birn et al., 2009). Hence, this thesis examines the societal forces, or the societal determinants of health, in the Nigerian lead-poisoning outbreak, using a political economy approach.

The political economy approach to public health ties in with political ecology. Political ecology is a theoretical framework that is useful for focusing on the interaction between political interests, social institutions and human-environment interaction (Keil, Bell, Penz, & Fawcett, 1998; Mayer, 1996). Stemming from political economy and cultural ecology, political ecology has been defined as a critical approach to understanding relationships between society and the
natural world (Keil et al., 1998; Mayer, 1996). However, some argue that it is preferable not to define political ecology, that all legitimate forms “will have some family resemblances but need not share a common core” (Keil et al., 1998). The framework has roots in Harold Innis of the University of Toronto, who built the academic pillars for political ecology from his scholarly work in political economics and environmental studies, linking culture and nature, space and time (Keil et al., 1998). The political ecology of disease provides a holistic explanation regarding multiple levels of causal factors (Krieger, 2001; Krieger, 2006), and steers away from misleading notions of *proximal* and *distal* risk factors (Krieger, 2008).

### 7.2 Macro-economic analysis

“The main challenge for bioethics today is the impact of neoliberal market ideology worldwide.”

(ten Have, 2013 p. 608)

The *macro*-economic systems (e.g., political and economic) behind the poverty and high gold prices are the *cause* of the *cause* of the *cause* of the epidemic (Birn et al., 2009; Birn, 2009) as illustrated in Figure 10. While it is beyond the scope of this chapter to explore each aspect of the social, political, economic, and historical context, I wish to highlight their importance to draw attention to poverty, inequality, and neoliberal globalization.
7.2.1 Globalization and neoliberalism

Globalization was a powerful force behind the epidemic. Placing national macro-economics within a global political-economic context explains how the surge in the price of gold was a
result of the most recent global financial crisis: “Western investors’ new interest in gold has coincided with the rich world’s deepest period of economic turmoil since the 1930s. … As long as the world economy remains uncertain and investors fear inflation and sovereign default, gold will keep its allure” (The Economist, 2010a). The rise in the price of gold is a global phenomenon as gold trades as a hard commodity on the global market. The fact that the demand for gold in London and Delhi was felt in northern Nigeria is a testament and defining feature of globalization, an increasingly powerful societal determinant of health (Labonté & Schrecker, 2007b).

According to Joseph Stiglitz (2003), the Nobel Laureate in Economics, globalization is “neither good nor bad” (ibid, p. 20). Rather, it is “the closer integration of the countries and peoples of the world which has been brought about by the enormous reduction of costs of transportation and communication, and the breaking down of artificial barriers to the flows of goods, services, capital, knowledge, and (to a lesser extent) people across borders” (ibid, p. 9). Stiglitz argues that, in its current form, globalization is not working for many of the world’s poor: poverty is soaring, household incomes are plummeting for many, and disparities in wealth are growing. However, the problem is not with globalization per se, but with the international economic institutions both private financial corporations and more public institutions such as the IMF, World Bank and WTO, that systematically favour the interests of the more advanced industrialized countries over those of the developing world (Stiglitz, 2003). This critique of globalization sheds light on the Nigerian lead-poisoning outbreak by explaining the influence of international financial institutions on the allocation of resources such as for public health, disease surveillance and healthcare.

To understand the influence of international financial institutions, it is necessary to understand the economic theory driving their policies. In the age of economic globalization, it is the theory of neoliberalism:

Neoliberalism is a theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets and free trade. The role of the state is to create and preserve the institutional framework appropriate to such practices … It must …
set up those military, defence, police, and legal structures and functions required to secure private property rights and to guarantee, by force if need be, the proper functioning of markets. Furthermore, if markets do not exist (in areas such as land, water, education, health care, social security, or environmental pollution) then they must be created, by state action if necessary. But beyond these tasks the state should not venture (Harvey, 2005 p. 2).

The main tenets of neoliberalism are: the rule of the market; cutting public expenditure for social services; deregulation; privatization; and eliminating the concept of the ‘Public Good’ in favour of the notions of free functioning of global, national and regional markets. Therefore it is not surprising that neoliberalism may be considered an ideology of modern capitalism, one in which the marketplace is valued in and of itself, a guide for all human activity and substitution for all previously existing ethical beliefs (Treanor, 2010).

Neoliberalism has its roots in the capitalist crisis of the early 1970s. This crisis inspired the corporate elite to revive economic (rather than political) liberalism, accounting for the neo (new) in neoliberalism (Martinez & García, 2000). While a comprehensive account of the economic history is beyond the scope of this thesis, it is worth mentioning important milestones. Economic liberalism was the dominant economic theory in industrialized countries throughout the 1800s and early 1900s, ending with the Great Depression of the 1930s. Following the Great Depression and two World Wars, Keynesian economic theory (Keynesianism) became dominant, embraced for its rational call for (among other things) governments to promote full employment and price stability (Blinder, 2008).

Then, due to a combination of factors such as the severance of the dollar-gold linkage in 1971 and the shift to floating exchange rates in 1973 (Harvey, 2005), there was an economic downturn and the crisis of capital accumulation of the 1970s. This resulted in high levels of unemployment and an inflationary wage-price spiral known as stagflation. Stagflation was countered by the Volcker shock, when the U.S. Federal Reserve chairman Paul Volcker sharply increased interest rates from 1979-1983.

While effective in countering stagflation, the result was the catastrophic debt crisis of the 1980s. After decades of development modernism and being enticed to borrow heavily, poor countries
suddenly found themselves with huge and unmanageable debts. Nigeria’s debt soared from US$9 billion to 29 billion (Klein, 2007). This provided an opportunity for ideologically driven economists, such as Milton Friedman and the ‘Chicago Boys’, to orchestrate the Washington Consensus and CIA-supported repression against popular movements, a requirement for implementation of austerity measures (Harvey, 2005). Neoliberal repressive economic measures imposed by powerful international financial institutions, including structural adjustment policies of the IMF, ensured that wealthy bankers and corporate lenders continued to receive their debt payments while social programs and essential public services were gutted (Ellwood, 2001).

Neoliberal policies often run counter to the aims of public health. The loss of health-care protections and the increasing imposition of multiple-layer user fees add to the financial burdens of the poor and the sick (Harvey, 2005). For example, the role of the IMF and neoliberal ideology in undermining global efforts to combat HIV/AIDS is well documented (Rowden, 2009). In terms of the lead-poisoning outbreak, the northern Nigerian affected population was and remains at risk, for responding to their desperate plight through artisanal mining:

For those left or cast outside the [dominant] market system – a vast reservoir of apparently disposable people bereft of social protections and supportive social structures – there is little to be expected from neoliberalization except poverty, hunger, disease, and despair. Their only hope is somehow to scramble aboard the market system either as petty commodity producers, as informal vendors, as petty predators to beg, steal, or violently secure some crumbs from the rich man’s table. … This is the Malthusian world blamed on its victims (Harvey, 2005 p. 185).

Polanyi asserts that “It is a dangerous delusion to think of the global economy as some sort of ‘natural’ system with a logic of its own: it is, and always has been, the outcome of a complex interplay of economic and political relations” (Kozul-Wright & Rayment, 2004; Polanyi, 1944). Neoliberalism has become the dominating paradigm in economic thought and globalization. Neoliberal globalization is the emergence of a global marketplace that tends to favour good business and investment climates for capitalist endeavours rather than collective rights, environmental protection and population health (Harvey, 2005; Labonté & Schrecker, 2007a).

The lead-poisoning outbreak occurred in a time of global financial crisis and the deepest recession of the post-war period. Through a complicated global economic network, investors
rapidly invested in gold, thereby creating demand and raising gold prices globally. As part of globalization, the financial crisis created economic shockwaves around the world, pushing national governments to prioritize economic recovery over public health programs (Beaglehole & Bonita, 1998; Klein, 2007). International financial institutions shared the same priorities; “The mantra of the World Bank initiatives, ‘improve the economy and everything else will follow,’ included health, not as a right, but a ‘responsibility’ that those benefiting from a strong economy would buy” (Burkle, 2010 p. 195). Yet this period saw an overall net reduction in expenditures for public health, healthcare, education, and development.

7.2.2 The neoliberal rentier state

This thesis positions Nigeria in the Global South in terms of Nigeria’s standing in the world economy. According to Omeje (2008), the Global South comprises the predominantly poor countries of Africa, Caribbean-Pacific, Latin America and Asia. Omeje notes that other terms used in place of Global South, such as Third World, transitional societies, developing countries, less developed countries, and underdeveloped countries, may be viewed as derogatory or pejorative. Global South provides a means of contrast in relation to the Global North, emphasizing political economy more so than geography.

Nigeria may be considered a rentier state, a term used in international political economy to describe a state’s dependence on extractive resources. A rentier state is financially dependent on the rents, taxes and royalties paid by transnational corporations, as well as on the profits derived from state equity in investments in these same corporations. Rents are exports earned or income derived from ‘a gift of nature’. They are considered external to the economy because the rents are not derived from the productive sectors of the domestic economy, but hinge on international capital (Omeje, 2008). There are vestiges of colonialism in rentier states. Colonial state structures were designed to facilitate the exploitation of mineral and agricultural resources in order to propagate capitalist production and industrialization in the Global North. Even in pre-
colonial times, European powers exploited the Global South for gold, ivory, tobacco, sugar, salt and pepper, and especially slaves. Colonialism formalized this exploitation by way of state structures:

To consign a greater part of the global South to dependencies for extraction of vital natural resources during colonial rule, Western imperial powers supplanted the autonomy and sovereignty of the peoples, communities and states they colonized and instituted a regime of impunity conducive to unaccountable exploitation and primitive accumulation. Forced labour, compulsory cash crop production and delegation of sovereign power to transnational trading companies and individuals were all part of the regime of impunity widespread in the colonies (Omeje, 2008 p. 2).

Colonialism was enabled by, and in turn strengthened, the conflation of corporate power and state power. The corporatization of public law served the interest of capitalist accumulation at the expense of already marginalized social groups. Sub-Saharan Africa was particularly ill-affected by exploitation and underdevelopment due to the “unprecedented scale and devastating consequences of trans-Atlantic slave trade” (Omeje, 2008 p. 3).

Nigeria can be considered a petro-state given the profound dependence on oil extraction in the Niger Delta. The relationship between oil extraction, transnational corporations, state structure, and political violence in Nigeria is well researched (Ukiwo, 2008; Watts, 2008; Zalik, 2008). Researchers note that the petro-state structure is well suited for neoliberalism (Adejumobi, 2011). Proponents of rentier state and petro-state theory subsume the presence of a state, arguing that its structure is malformed. This is in contrast to another branch of Africanist scholars who argue that one cannot presuppose states in Africa, but quasi-states, “at best political caricatures, which mimic the notion of a state but do not approximate it” (Adejumobi, 2011 p. 6). Supporters of quasi-state theory note that defining characteristics of a state are mostly absent in many countries in Africa:

Often, a center of political authority does not exist or is not easily identifiable; there is no monopoly of the instruments of violence by the so-called state as violence is democratized; the territory is largely contested; a common identity that defines statehood is yet to be forged and; the legitimacy of the state is mostly in doubt and violently challenged (Adejumobi, 2011 p. 6).
For an understanding of the Nigerian state, it is important to look to its historiography, with three major phases: (1) the colonial conquest state system; (2) the immediate post-colonial welfare state; and (3) the current neoliberal state. The second phase (the post-colonial welfare state) consisted of economic nationalism, indigenization, and social welfare with investments in education, health, water provision, and rural development, along with infrastructure for roads and power provision (Adejumobi, 2011). Then, since the mid-1980s, the third phase of the current neoliberal state has introduced a system of politics and economics influenced by *fend for yourself* market principles. Adejumobi attributes the radical change to “the profligacy of the political leadership, and the burgeoning global economic crisis from the 1980s” (ibid, p. 8). Imposed fiscal austerity, structural adjustment programs (SAPs), privatization, exchange rate deregulation and other macro-economic reforms subverted the role of the state into that of a “night watchman, providing public security and the enabling environment for private capital accumulation to thrive, unhindered” (ibid, p. 8).

Its neoliberal state structure supports its extractive economy:

> The neo-liberal state privileges capital accumulation over and above the welfare of the people, as the most important and ultimate goal is for oil and petro-dollar to flow unhindered no matter what the social cost may be. … The gains of neo-liberal reforms are disproportionately distributed and highly skewed against majority of the people. A neo-liberal state is ideologically anti-social and anti-welfare, which by its very essence is conflict based (Adejumobi, 2011 p. 14).

Nigeria’s extractive economy is a political economy based on the extraction and export of oil and solid minerals. Over 90 percent of Nigeria’s external revenues are derived from crude oil exports (Orogun, 2010). Paradoxically, extractive economies correlate with poverty, inequality and violent conflict, earning the label of *paradox of plenty or resource curse* (Auty, 1993; Orogun, 2010). In Nigeria’s Niger Delta, oil extraction represents one of the most intractable sources of political destabilization, profoundly threatening national security and economic development (Orogun, 2010). According to Orogun,

> Economic exploitation of the region’s vast crude oil reserves by multinationals and government authorities is juxtaposed with the specter of environmental devastation, excruciating poverty, and recurrent rule of impunity. National elite
contestations concerning the legalities of resource control, internecine squabbles over revenue allocation formulas and derivation principles have been compounded by incessant disruptions of crude oil pipelines, necessitating drastic reduction in the country’s petroleum output and revenues derived from the global economy. Due to the multi-layered dimensions of the effects of crude oil, guns, profits, and geo-territorial instability, the protracted problems of the Niger Delta thus, provides us with pertinent analytical and contextual frameworks for the study of the dynamics, volatility and transparency issues in global extractive industries (Orogun, 2010 p. 459).

The case of the Niger Delta lends credence to the resource curse paradigm, yet only partially. As is the case with the lead-poisoning outbreak in northern Nigeria, there are much more complicated root causes of the factors that create its condition:

In a profound sense, therefore, studies of resource curse, the Dutch Disease, the Petro-State-Complex, Oil bunkering, Militias’ Insurgency, Ethnic Separatism, Fiscal Federalism, and the enabling effects of Multi-National Corporations in Host-Communities, as well as stakeholders pursuit of sustainable economic development in the Niger Delta region, must encompass a multi-layered approach to the diagnosis and analysis of the complex interplay of State power, local–regional political dynamics, and ethnic strife. Brutal contestations for resources, historical revisionisms of proprietorship rights, and convulsive communal environmental calamities should be studied beyond the conventional primacy of economic determinism and rational choice models (Orogun, 2010 p. 460).

Nigeria returned to democracy in 1999, ending the military rule that existed since 1966. To understand the degree that democracy in Nigeria may affect change and lead to improvements in social conditions, it is necessary to discern between political and economic democracy:

If we have democracy in political life but not in economic life and if the weight of economic power grows relative to political power, then the citizens might have reason to question how democratic their society is and whether political democracy is really of much relevance. … The absence of economic democracy strikes back and undermines political democracy (Ringen, 2007 p. 48, as cited in Adejumobi, 2011 p. 2).
Adejumobi notes that liberal democracy is premised on free market ideology. Democracy in Nigeria stems from the interest of capital to secure a political system that protects private property while preserving a façade of political legitimacy:

Human relationships are increasingly monetized and depersonalized, society and its welfare largely disconnected from the state, human alienation and desocialization gain ascendance, citizenship becomes hollow and the economic organization of society titled substantially in the interest of capital and the propertied class. The logic of a neo-liberal free market society is ‘fend for thyself’ (Adejumobi, 2011 p. 2).

The hegemony of corporations in Nigeria underscores the popularized notion of corporatocracy, an economic and political system controlled by corporations or corporate interests (DeLuca, 2011).

The Global South is not a homogenous group. Each country, and in the case of Nigeria, each region, is historically and structurally unique. External factors such as the forces of international financial markets, the global financial crisis of 2008, and the corresponding recession have varying impacts.

Nigeria is classified as a lower-middle-income country by the World Bank, so one might expect to see poverty and an underfunded health system (World Bank, 2011). However, Nigeria has experienced an average annual growth in real GDP of 7 percent (2003-08) (The Economist, 2010b). The country is a member of the Organization of the Petroleum Exporting Countries (OPEC) and its oil exports are at an all-time high (Reuters, 2011). Nigeria is the largest oil producer in Africa and the eleventh largest producer of crude oil in the world. The petroleum industry constitutes approximately 80 percent of national revenues (Wallis, 2010). Much of this inflow is deposited in the federal Excess Crude Account. Also known as the National Sovereign Wealth Fund, this government account was established in 2004 to de-link public expenditures from oil revenue volatility. Oil revenues above a set benchmark price are deposited into the account, with the objective of protecting planned budgets against shortfalls due to volatile oil prices and improving macroeconomic stability (SWF Institute, 2008; Usman, 2007).
Toward the end of 2008, about $30 billion sat in Nigeria’s Excess Crude Account. By early 2011, the fund had trickled down to about $300 million, with $15 billion spent in 2010 alone (Nossiter, 2011). Financial analysts and government-watch groups argue that “When oil prices are high, money flows into the account, and it becomes an irresistible, unaccounted-for jackpot, especially for the largely autonomous governors of Nigeria’s 36 states” (Nossiter, 2011). Approximately $22 billion remains unaccounted for, withdrawn by state governments with inadequate checks or balances (Wallis, 2010).

In the context of such available wealth to national and state governments, its allocation elsewhere reflects different priorities and political will rather than simply inadequate finances. Decision makers are actively underfunding both the determinants of health (education, housing, livelihoods) and the health system to such an extent that an average of approximately 2,300 under-five year olds and 145 women of childbearing age die each day, making Nigeria the second largest contributor to the under-five and maternal mortality rate in the world (UNICEF, 2011). As an example of other national expenditures, Nigeria participates in UN peacekeeping missions. Currently, Nigeria is one of the largest troop contributing nations in the UN, with close to five thousand troops deployed around the world as of April 30, 2011 representing close to 6 percent of troops in the UN Peacekeeping Operations (United Nations, 2011).

7.2.3 Artisanal mining and gold

This story came to be about lead rather than gold. Gold was on people’s minds although lead dust covered their clothes and hands. The lead contamination was the unintended consequence of artisanal gold mining. Artisanal mining is basic small-scale extraction and processing mining methods, usually by hand or rudimentary methods, to acquire minerals and metals. It may be

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78 Patel (2009) challenges the conventional notion of ‘a lack of political will’ arguing that it misrepresents the nature of the problem. While the will of the public is to defend the public good (e.g., accessible health care, education, clean water and sanitation, protecting the environment), the will of government representatives is often to serve corporate and self-interests. Therefore political will is subverted rather than lacking (p. 118).

79 In this thesis, the term *artisanal mining* connotes *artisanal and small-scale mining (ASM)*, as these terms are often used interchangeably (Hilson & Garforth, 2012).
considered the most rudimentary branch of the mining sector and is often informal and illegal. Globally, tens of million men, women, and children from over 50 developing countries are directly engaged in the artisanal mining sector, and an estimated 100 million more are indirectly dependent on the sector for their livelihood (Darby & Lempa, 2007). Artisanal mining employs at least 10 million people directly in sub-Saharan Africa, and the sector is expanding rapidly and chaotically alongside large-scale mining operations (Hilson & Garforth, 2012).

Explanations for the rapid growth in artisanal mining are more complex than simple ‘get rich quick’ narratives:

There is a much larger contingent of rural inhabitants whose livelihoods are strongly linked to subsistence farming. In many areas of rural sub-Saharan Africa, a number of ‘farm families’, unable to derive sufficient incomes from agricultural production alone, have ‘branched out’ into [artisanal and small-scale mining]. This diversification has been unpredictable, and quite often, governments in the region have a poor understanding of the drivers fuelling it (Hilson & Garforth, 2012).

In 1995, the World Bank convened an international roundtable to address artisanal mining. Prior to the conference, artisanal mining was viewed primarily as an entrepreneurial activity that provided a ‘get rich quick’ opportunity (Hilson & Garforth, 2012). The conference found that the sustainable development of artisanal mining is constrained by three factors: lack of appropriate legal, regulatory, and institutional framework to support and monitor the activity; inefficient methods and equipment; and environmental, health, and safety problems arising from the practice of haphazard mining (Barry, 1996). The conference concluded that artisanal mining is driven by poverty and that it attracts those with few alternatives for earning income.

To identify drivers behind artisanal mining, Hilson and Garforth (2012) undertook research in two rural localities in West Africa: Komana West in Southwest Mali, and East Akim District in Southeast Ghana. In both settlements, income from artisanal gold mining was vital for tens of

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80 The selective approach taken by the World Bank fails to consider the role of corporate power, corporate sponsored violence, and corporate collusion in purchasing artisanally mined commodities.
thousands of farm families. Hilson and Garforth found that *agricultural poverty*, the hardship stemming from an over-dependency on farm outputs for survival, is due to two main factors: the declining viability of small-holder plots, and the problem of seasonality. The declining viability of small-holder plots relates to changes in the global commodity markets over the past 30 years; tens of thousands of its rural inhabitants are engaging in both farming and non-farm activities such as artisanal mining for their livelihoods because the ability to generate income is limited in a liberalized market. Seasonality poses a serious problem to most African small-holders where growing seasons are short and household income is tied to one harvest. Extended dry seasons are forcing families to turn to non-farming activities such as artisanal mining for subsistence. These forces are driving hundreds of thousands of rural African families to turn to artisanal mining in order to supplement meager incomes (Hilson, 2003; Hilson & Garforth, 2012).

Declining viability of small-holder plots has a clear dynamic. Like any capital investment, it suffers declining rates of profit; therefore, under capitalism, there is a tendency toward expansive agriculture. Prices of staple crops have been in protracted decline (with the exception of 2008). Even if plots are not mined of nutrients, small-holder farmers are stuck in a state of making smaller returns for labour every year, thus needing to till more land or work on someone else's plot for wages to make up the difference. This downward spiral is exacerbated by increasing expenses of privatized health care, school fees and lastly, division of plots for inheritance (Moorsom, 2011). Additional adversities include land-grabbing (Akram-Lodhi, 2012), corporate control of the food chain (for example, the Alliance for a Green Revolution in Africa [AGRA] of the Bill and Melinda Gates Foundation) (Thompson, 2012), and mounting household debt (Hilson, 2012). However, neoliberal ideology values an unfettered marketplace over government managed welfare provision. The right-wing ideology suggests that rural farmers’ poverty and desperation will fuel ingenuity for personal gain, thereby lifting the economy; welfare would eliminate incentives and create a culture of dependence. This position was recently revived in Dambisa Moyo's book entitled “Dead Aid” (2009). The African historian Toby Moorsom debunked Moyo’s tired assertion, likening the neoliberal argument to the zombies of development economics (Moorsom, 2010).
Artisanal miners tend to use toxic materials to separate metals from ore and silt. In artisanal gold mining, the most common separation process is mercury amalgamation:

The mercury amalgamation process commonly used in artisanal gold mining mixes elemental mercury with silt or ore dust that contain tiny pieces of gold. When the mercury is added to the silt, the mercury sticks to the gold, forming a solid mercury-gold amalgam. This amalgam is then removed from the remaining silt by washing with water (the amalgam is heavier than the silt). The separated amalgam is then heated, which vaporizes the mercury, leaving behind the gold. The heating process is often conducted inside homes, as the gold is valuable and processors want security and secrecy. As the mercury is vaporized, the miners and anyone else in the vicinity, including children, are at risk of inhaling mercury (Blacksmith Institute, 2011b p. 18).

The toxins from these mining activities can also contaminate water and soil, posing health risks for communities near and far, but also to the global population. About one third of the global annual release of mercury into the environment is due to artisanal gold mining.

In March 2001, the World Bank launched the Communities and Small Scale Mining initiative (CASM). The CASM initiative was launched “in response to an urgent plea persistently made at every international meeting on small-scale mining, for improved coordination between the various institutions working in this sector and for better integrated, multi-disciplinary solutions to the complex social and environmental challenges facing small-scale mining communities” (World Bank, 2008). The CASM reaffirms that artisanal mining is largely a poverty-driven activity in some of the world’s poorest regions. The CASM aims to formalize artisanal mining for the protection of these workers. However, formalizing artisanal mining through government and multilateral institutional control bares certain risks, such as marginalizing or denying a community’s right to ownership of its own subsoil resources and jeopardizing just settlement of land claims (Moody, 2007 p. 90).

Artisanal gold mining is widespread and growing as the price of gold soars. The price has more than tripled in recent years, going from US$444 per ounce in 2005 to US$1669 per ounce in
The Gold Survey is prepared annually by Thomson Reuters GFMS, a large research company focusing on the precious metals markets (Reuters, 2012). The Gold Survey reports on gold prices, supply, demand and outlook. In 2011, global mine production had increased by 2.8 percent, or 78 tonnes; a third year of growth and a second successive all-time high. The largest growth was seen in Africa, of 51 tonnes, in spite of a decline in the region’s largest producer, South Africa, of five tonnes. Measured in value terms, world investment hit an all-time-high of roughly $81 billion in 2011. The Gold Survey attributes the strong gold investment to the persistence of ultra-low interest rates in the developed world, a worsening sovereign debt crisis, rising longer-term inflation fears and, in key emerging markets, negative real interest rates coupled with limited investment alternatives to gold (Thomson Reuters GFMS, 2012). “High gold prices continue to add support to the development of new projects and mine expansions, by providing sufficient returns on capital investment” (ibid, p. 42). The Gold Survey anticipates that investment in gold investment will continue in the years to come given the following factors: the slowdown in world GDP growth; the Eurozone debt crisis will continue; short-term interest rates in the developed world will remain at ultra-low levels; inflation expectations are raised by central banks’ monetary easing and debt monetization; and negative real interest rates for savers continue to be the norm in key emerging market countries, China and India in particular (Thomson Reuters GFMS, 2012 p. 45).

The price of gold affects more than global finances; large-scale gold mining is one of the most environmentally destructive forms of mining. It results in extensive environmental cyanide contamination and is the leading cause of man-made mercury pollution. Small-scale gold mining currently contributes to one third of the mercury released into the environment, a problem that is growing with rising gold prices (Biello, 2011). Given the gold commodity’s notorious reputation, there is a movement for fair trade gold. Fairtrade International is providing a venue for fair trade gold, with higher prices for strengthened miners’ organizations, improved

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working conditions, freedom of association and collective bargaining, and the responsible use of chemicals.\textsuperscript{83} Already there is promise from a fair trade gold project in north Tanzania.\textsuperscript{84}

### 7.3 Summary of political economy analysis

This chapter has shown how the market and economics, political ideology, and other forces are integrally related to public health policy and the societal determinants of health. These forces provided context and cause for the Nigerian lead-poisoning outbreak. The macro-economic analysis drew connections between the global, the national, the community, and the household in the lead up to the lead-poisoning outbreak. For the lead poisoned villages of northern Nigeria, income from subsistence farming, in the face of low prices for produce but increasing prices for inputs, was synonymous with poverty. Given the paucity of social welfare provision, the costs for life’s necessities further reduced meagre incomes. People are paying out of pocket for essential services such as health care and education, despite (and often due to) their poverty (Amaghionyeodiwe, 2009). Hence they are primed to take on artisanal mining and processing activities. This chapter and the preceding chapter (Chapters 6 and 7) provide a foundation of context on which to situate findings from the primary data: the media and document analysis, and the key informant interviews.


Chapter 8: Media and document content analysis

[The media will present a picture of the world which defends and inculcates the economic, social, and political agendas of the privileged groups that dominate the domestic economy, and who therefore also largely control the government. According to this “Propaganda Model,” the media serve their societal purpose by things like the way they select topics, distribute their concerns, frame issues, filter information, focus their analyses, through emphasis, tone, and a whole range of other techniques like that.]

Noam Chomsky

8.1 Introduction to chapter

The purpose of the media and document content analysis was to address the central research question regarding the ethical issues, challenges and frustration in the humanitarian response to the lead-poisoning outbreak. The media and document content analysis was also to clarify how the international response to the Nigerian lead-poisoning outbreak unfolded, and to determine the roles of regional, national, and international actors (and interactions among them) in identifying and addressing the outbreak. Data acquisition resulted in a comprehensive collection of relevant news media and organization communiqués. The data illustrate how the lead-poisoning outbreak was portrayed in the media and how it was publicized by the various international organizations involved. The study found themes and narratives emerging at key stages of the outbreak response, shedding light into ethical issues surrounding the outbreak’s humanitarian response.

Rather than using a deductive approach classifying data according to predetermined categories such as media frames, I used an inductive approach to the content analysis: decisions on categories and which data go into which categories were made through an iterative interpretation of the data with an emphasis on reflection, discussion and refinement (Dey, 1993; Elo & Kyngas,

Chronology of events proved an important way to conceptually organize the data. The content analysis of online news media and organization communiqués generated new insights while striving for replicable and valid inferences in the lead-poisoning case.

For a 147-week period (4 June 2010 to 31 March 2013), this study collected a total of 244 online news articles. The date of 31 March 2013 was the initial cut-off period for media/document data collection, and a content analysis of these 244 online news articles is presented below. However, after the cut-off period, I encountered a flurry of online postings pertaining to the remediation of the town of Bagega. Hence, a postscript (Section 8.7) presents an additional 30 online news articles in this regard. Therefore, for a 162-week period (4 June 2010 to 15 July 2013), this study collected a total of 274 online news articles and 63 organization communiqués such as reports, press releases, research articles and public documents. I conducted the content analysis of the online news coverage in tandem with that of the organization communiqués.

The inductive approach to the content analysis allowed me to see quite clearly that there were distinct phases of online coverage of the outbreak. I immediately began to plot the number of articles over time and noticed patterns – specifically, I noticed spikes in online news coverage coinciding with organization communiqués. In other words, when a pressing issue arose in the international humanitarian response, organizations posted press releases and the like, that in turn resulted in a flurry of online news reports. Many of the mainstream online news reports published organizations’ press releases verbatim. Then smaller online venues copied or editorialized from the mainstream sources. This pattern allowed me to identify distinct phases of the outbreak response, and these phases helped me organize the content analysis. Hence, this chapter mirrors my content analysis process, first by plotting and analyzing the various phases, and then by organizing the data into the following categories: (Spike 1) discovery and first accounts; (Spike 2) UN and MSF press releases; (Spike 3) the international conference; and (Spike 4) the remediation of Bagega.

8.2 Plotting online coverage

Rather than a steady stream or a climax followed by a denouement, there were what seemed like random spikes in media coverage. There was the expected initial spike in June 2010 just after the
story of the outbreak was picked up by international media. But then there were notable spikes in October 2010 and May 2012 (Figure 11).

Figure 11. Number of online news articles by month (N=244)

I was interested to know where the online news articles originated in order to compare regional versus international coverage. With the information that was available, I examined two broad categories of online news articles: those from Nigeria (or somewhere in Africa; the precise origin of online news article was not always explicit); and those from elsewhere, further afield internationally (primarily Europe and North America, but as far away as Australia and China). A descriptive analysis showed that of the 244 articles, there was about an even split: 103 news articles (42 percent) were regional from Nigeria/Africa, and 141 news articles (58 percent) were from further afield internationally (Figure 12).
As mentioned, there was local print, radio and television news coverage not captured by this study. By focusing exclusively on online news coverage, there is risk of bias towards larger news providers with ability to publish online content. However, many (42 percent) of the reports of the lead-poisoning outbreak came from news providers in or close to Nigeria, which supports the assertion that the internet plays an important role in Nigerian political and social life.

Figures 11 and 12 above illustrate how the number of online news articles varied over time. While there was an average of seven (7) news articles per month, the range was zero (0) to thirty-three (33) articles per month. A spike in news coverage was expected immediately after the discovery of the outbreak, which was the case with 33 news articles in June 2010. However, what explains the spike of twenty (20) articles in October 2010 and twenty-five (25) articles in May 2012? For these explanations, I conducted an in-tandem content analysis of international organization publications.

Figure 13 zooms in to illustrate the number of online news articles by week in 2010, the first year of the lead-poisoning outbreak. Despite increasing awareness about the severity of the outbreak.

http://www.reuters.com/article/2011/06/15/ozatp-westfrica-internet-idAFJOE75E0H920110615
situation, the number of online news article steadily fell after a peak of 16 articles in week 23 (7-13 June 2010), following the discovery of the outbreak.

Figure 13. Number of online news articles by week in 2010 (n=91)

Between 24 June and 20 September 2010 (weeks 26 to 37), there was an average of just 1.5 online news articles per week. Perhaps surprisingly, there was no corresponding rise in the number of online news articles following the online publication of the CDC’s Morbidity and Mortality Weekly Report (MMWR) of 16 July 2010 (week 28). The MMWR article described the outbreak and presented the results of CDC’s house-to-house surveys in Yargalma and Dareta. The CDC found astonishingly high blood lead levels in all children under five years old: 97 percent of children had levels above the threshold for initiating chelation therapy ($\geq 45$ mcg/dl), with blood lead concentrations ranging from 33 to 445 mcg/dl. I was surprised that the MMWR article was not followed by an increase in media coverage, but it may have been too technical or academic in nature for a popular audience.

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87 MMWR 59(27), 16 July 2010, p. 846.
Figure 14 illustrates the number of news articles by week with corresponding international organization publications. The next spike in news coverage coincided with the UN News Centre report of the outbreak on 21 September 2010 (week 38).

The UN News Report on 21 September 2010 carried the headline “UN probes outbreak of lead poisoning in northern Nigeria”.88 The article reported that a five-member team of environmental emergency specialists from the UN had arrived to sample soil and water, and that the UN Office for the Coordination of Humanitarian Affairs (OCHA) allocated $2 million from the Central Emergency Response Fund (CERF). The article heralded the work of WHO and Unicef in stating that they were working with local health authorities and NGOs to treat victims of the outbreak. Neither MSF nor TerraGraphics were mentioned by name in the article. The story was picked up by the likes of BBC and Bloomberg BusinessWeek with headlines, “UN investigates Nigeria lead poisoning deaths”89 and “UN sends crisis team to Nigeria after lead deaths”, respectively.90

89 http://www.bbc.co.uk/news/world-africa-11386665
Some of my colleagues in the field expressed to me their feeling of frustration when other organizations inflate their role or take credit for the work of other organizations (personal communication). This issue was also mentioned in my key informant interviews.

As Figure 14 illustrates, at week 40 – two weeks after the UN report – there was a large spike in the number of online news articles. This is the largest spike since the initial spike when the story of the outbreak first broke. The spike at week 40 coincided with MSF’s Press Release on 6 October 2010 which ran the headline, “Lead poisoning continues to affect hundreds of children in northwestern Nigeria”. In the Press Release, MSF again raised the issue of environmental remediation:

Remediation of the villages … is a lengthy process, and was stopped for the month of August due to the rainy season. Remediation is being done by an environmental clean-up agency “Terragraphics”. With the identification of two more contaminated villages, this seems to indicate that the lead contamination of villages in Zamfara may be a much broader problem than originally estimated.

This was the first official public statement indicating that all was not well with the international response. Rather than international organizations swooping in and resolving the crisis, the situation was becoming more complex. The extent of lead contamination was demanding coordinated efforts and resources well beyond the scope of the organizations involved. Now MSF had sounded the alarm and the story was picked up by Agence France-Presse (AFP), Associated Press (AP), the New York Times, Radio France Internationale, Reuters, and numerous regional news media.

An AFP article of 6 October 2010 – the same day as the MSF press release – illustrated a deeper news analysis spawned by the MSF press release. The AFP article quoted MSF project

90 http://www.businessweek.com/ap/financialnews/D9ICB4OO0.htm
MSF’s Muhammad Ahmad said that the problem may be much larger than originally thought: “Initially, we were talking of 18,000 affected people in seven villages ... but now no one can tell you how many villages there are to decontaminate.” vonLindern raised the economic factor related to artisanal mining: “It sometimes takes us two weeks to convince the communities to open up because they are scared we are going to stop them from processing ore that fetches them money.”

The economic aspect was reiterated by Bagega villager Alka Lawalli: “We fear the government will ban our mining business if we disclose the high mortality and illnesses among our children which will throw us into more economic misery because we rely on gold mining for our livelihood”. MSF recognized the potential for a knee-jerk ban on artisanal mining and spoke out against it. In an inter-MSF magazine, the Head of Mission spoke of the dangers of enforcing a ban on artisanal mining:

The criminalization of artisanal mining would in all probability simple create a clandestine industry. … The community might very well hide both deaths and illness, fearing that bringing children for treatment would result in their arrest or the suppression of their livelihood (Gayton, 2013 p. 21).

The AFP article of 6 October 2010 considered the socio-economic driving forces behind the artisanal gold mining:

For the poverty-stricken locals, gold mining is more lucrative than farming, which is suffering from dwindling crop yields, short and delayed rainy seasons and desert encroachment. A gram of gold which takes barely two hours to extract fetches 3,500 naira (23 dollars), more than half the value of a 50-kilogram (110-pound) bag of millet which takes four months to cultivate, according to local miners. For more than 20 years, farmers in the mineral-rich northern part of Zamfara State have illicitly mined gold using rudimentary techniques. They bring home the ore and their wives crush it with hammers before flushing it with water to remove the sand and retain the gold. The residue discarded haphazardly in the

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92 [http://www.google.com/hostednews/afp/article/ALeqM5joYb06RVEcZrBye3fOrSF3PhQlnw](http://www.google.com/hostednews/afp/article/ALeqM5joYb06RVEcZrBye3fOrSF3PhQlnw)
open exposes children to inhalation or ingestion of contaminants. Things went wrong from March this year [2010] when the villagers hit ores with extremely high lead concentrations.

The dwindling crop yields, short and delayed rainy seasons and desert encroachment mentioned in the article were issues of global climate change, but that aspect was largely unexplored.

Interestingly, the AFP article stated that the Nigerian government chief epidemiologist, Henry Akpan, had disputed the death toll and argued that the outbreak was under control. While socio-economic forces had a role in causing the outbreak, there were likely socio-political interests in downplaying its severity.  

Following the spike in online news articles coinciding with MSF’s press release on 6 October 2010, there was a one-and-a-half year dry spell with sparse news coverage. During the next year and a half (from 26 October 2010 to 9 May 2012), there were a total of 76 online news articles, averaging about one article per week. Then suddenly, on 11 May 2012, there were eleven articles in a single day, with a peak of 18 articles for week 19 in 2012 (Figure 15).

Figure 15. A spike in online news reports coinciding with MSF Press Release, 2012

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93 During my investigation of meningitis outbreaks in northern Nigeria in 2006, I too felt political pressure to downplay the outbreak severity – particularly when it was close to market day.
This spike of 18 online news articles in week 19 of 2012 is the largest spike since the start of the outbreak. Why was there suddenly so much media interest in an outbreak that started over two years ago? The answer lies with the international conference and the dawning of a social network campaign, explored later in this chapter.

### 8.3 Determining spikes of online coverage

By examining online news article publication over time, this study identified six distinct phases. Table 3 presents each of the six phases, along with dates, duration, and number of articles. The six phases were a way to understand the peaks and valleys of online media coverage.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Dates</th>
<th>Duration</th>
<th>Number of Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Discovery</td>
<td>4 June 2010 to 23 June 2010</td>
<td>20 days</td>
<td>34 articles (11.9 per week)</td>
</tr>
<tr>
<td>2. Baseline</td>
<td>24 June 2010 to 20 Sept. 2010</td>
<td>89 days (2 mos. 28 days)</td>
<td>19 articles (1.5 per week)</td>
</tr>
<tr>
<td>3. Press Releases</td>
<td>21 Sept. 2010 to 25 Oct. 2010</td>
<td>35 days (1 mo. 5 days)</td>
<td>33 articles (6.6 per week)</td>
</tr>
<tr>
<td>4. Baseline</td>
<td>26 Oct. 2010 to 9 May 2012</td>
<td>562 days (1 yr. 6 mos. 14 days)</td>
<td>76 articles (1.0 per week)</td>
</tr>
<tr>
<td>5. Conference</td>
<td>10 May 2012 to 28 May 2012</td>
<td>19 days</td>
<td>23 articles (8.5 per week)</td>
</tr>
<tr>
<td>6. Baseline</td>
<td>29 May 2012 to 31 March 2013</td>
<td>307 days (10 mos. 2 days)</td>
<td>59 articles (1.4 per week)</td>
</tr>
</tbody>
</table>

By plotting the average number of online news articles per week for each of the six phases, I saw that each phase was clearly apparent and resulting in three prominent spikes (Figure 16). Each of the three spikes in online news coverage coincided with key events: (1) the initial discovery of the outbreak by the media; (2) the UN press releases; and (3) the international conference.\(^94\)

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\(^94\) The fourth spike, that of the remediation of Bagega, comes in a postscript as it occurred after the initial content analysis.
I then graphed these spikes onto the timeline to illustrate the chronological sequence over the two-year ten-month reporting period (Figure 17).

Figure 17’s visual representation of the spikes in media coverage demonstrates that media coverage was neither constant nor random, but influenced by factors integral to the outbreak.
response. This chapter proceeds to analyze the online coverage in relation to each of the three spikes.

### 8.4 Spike 1: Discovery and first accounts

(4 June 2010 to 23 June 2010)

When MSF invited me in May 2010 to assist in the response to the outbreak, they instructed me not to speak to the media or discuss details with those outside my immediate circle. Information of the outbreak was sketchy, and key stakeholders wanted to keep a handle on the public message. MSF wanted to get a clearer picture of the situation before issuing a public statement.\(^95\)

Despite the request for secrecy, the story quickly broke. By May 2010, there was a steady stream of local, national and international reporters. I was interviewed numerous times. I followed MSF’s media communications protocol: discuss only what you know first-hand and then refer reporters to the project coordinator. I learned that managing media relations is a science with profound ramifications for diplomacy, strategy, fundraising, branding, and public health messaging (Silver, 2003).

A typical narrative of the origin story (the discovery of the outbreak) reads as follows, taken from an MSF publication:

> In 2010, an MSF surveillance team in Zamfara State, northern Nigeria, noted excessive deaths in ≤5 year olds following an unknown illness in a village with an anecdotal recent increase in artisanal small-scale gold mining and dry processing. Children were presenting unconscious with intractable seizures that were unresponsive to treatments for common endemic diseases such as malaria and meningitis. From March until 17 May 2010, 223 patients presented with these symptoms with a mortality of 43%. … Seven villages, five in Anka and two in Bukkuyum Local Government Authority, were identified as grossly lead

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\(^{95}\) Discretion early on was warranted. One of the key informants of this study had initially been told that it was a mercury-poisoning outbreak (presented in the next chapter). Had that information gotten into the press, it would have added to the confusion.
contaminated, putting an estimated 3000 children ≤5 years at risk of lead poisoning. … Many children had [blood lead] levels never previously recorded (Thurtle, 2011).

MSF had officially confirmed the lead-poisoning outbreak in March 2010. The first online news report that I found came from BBC News on 4 June 2010, with the headline “Nigeria – lead poisoning kills 100 children in north”:

More than 100 children have died of lead poisoning in Nigeria in recent weeks, health officials say. The number has been rising since March, when residents started digging illegally for gold in areas with high concentrations of lead. … Health authorities have set up two camps in the area to treat people who are suffering symptoms of lead poisoning. The deaths were discovered during the country's annual immunisation programme, when officials realised there were virtually no children in several remote villages in the northern state, says the BBC's Abdullai Kaura Abubakar in Kaduna. Villagers said the children had died of malaria and it was only when a team from international aid agency Medecins Sans Frontiers took blood tests from local people that the high concentrations of lead were discovered…

This report shows that BBC had a correspondent in Kaduna, a city close to the site of the Zamfara State outbreak. Already, a legend was forming about the discovery of the outbreak. One might question why it required “officials” to discover that “there were virtually no children in several remote villages”. It was unlikely that parents and health workers were silent at the time. As will be seen, villagers knew it was an illness other than malaria, but apart from the local emir, their voices were largely ignored.

News of the outbreak broke to reporters soon after the outbreak was said to have been discovered by MSF in March 2010. There were eighteen (18) online news articles between June 4 and June 13, 2010 (weeks 22 and 23). Then, at the start of week 24 on 14 June 2010, MSF was the first international organization to make an online public statement (Figure 18).

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The first organization communiqué was an MSF news blog on the MSF-USA website with the headline, “MSF Helps Treat Children with Lead Poisoning”. The article opened with a brief description of the situation:

In northwestern Nigeria, MSF and the Nigerian health authorities have started treating 50 children who are sick with lead poisoning. The poisoning, caused by local mining practices, has been confirmed in two villages. Four other villages are also suspected of being contaminated, with as many as 10,000 people affected.

The 14 June 2010 MSF news blog quoted Lauren Cooney, Emergency Coordinator for MSF in Nigeria, who spoke of the urgency of the situation:

This is an unprecedented and tragic situation—in one village, 30 percent of the children under five have died in the past year. A continued, coordinated, large-scale emergency response is needed to ensure that the contaminated villages are cleaned up, that the most vulnerable receive urgent treatment, and that effective health education messages are passed on to prevent recontamination of living areas.

97 http://www.doctorswithoutborders.org/news/article.cfm?id=4514&cat=field-news
The MSF news blog went on to state that by early June 2010, fifty children had been admitted for treatment, and another fifteen to twenty children were expected to be admitted every other day. The children were from the village of Yargalma and they were being treated in the MSF hospital in the town of Bukkuyum. The article mentioned MSF’s intent of setting up a second field hospital close to the other affected village. The other affected village was Dareta, and the MSF hospital was situated in the town of Anka.

Two days later, on 16 June 2010, MSF-UK posted an interview with Lauren Cooney discussing the lead poisoning in Nigeria. 98 Cooney described the first moments of what has become the standard narrative of the outbreak discovery:

We heard about an unusual number of deaths and a strange illness in a remote village in the northwest of Nigeria some weeks ago and went to investigate the situation with a Ministry of Health team. The village reported that several children had died in the last 2 to 3 months. When the team investigated further, they found 39 fresh graves in the village and the community reported that all of those deaths were children less than 5 years old. In the community, there were very sick children, with fevers, convulsions and they were incredibly unwell.

I obtained an MSF online field journal dated 31 January 2011 written by Dallas-based nurse Kaci Hickox. 99 In March 2010, Hickox was MSF’s emergency medical team leader of the surveillance teams. In the MSF online field journal, Hickox gave a first-hand account of her first encounter with the lead-poisoning outbreak. One of her surveillance teams had heard that in a village of only 2,000 people in Zamfara State, more than 40 children had died in the past three months. The team investigated the next day. Hickox recounted:

From Gusau, Zamfara’s capital, it took three hours to reach the village of Yargalma. At the small concrete building that served as the local health dispensary, they found six children suffering from high fevers and seizures under the care of two overwhelmed community health workers. … The toll the sickness had already taken was made clear when the team visited the local cemetery. “I


99 [http://www.doctorswithoutborders.org/article/field-journal-nigeria](http://www.doctorswithoutborders.org/article/field-journal-nigeria)
was standing in front of 39 fresh child graves,” Anja [MSF nurse] told me. I immediately notified my supervisor, Hamza, the emergency coordinator for Nigeria, who notified our team in Amsterdam. We checked in with our logistical base in Zamfara to figure out how many drugs we had in stock and what we would need to get a 24-hour clinic running right away.

An MSF team was quickly assembled to treat the children with the mysterious illness:

I [Hickox] went to Yargalma with Frank Peters, a logistician from Colorado, and several nurses and doctors. … In Yargalma, we started treating the children in the village dispensary. The building had no electricity, no running water, no advanced medical equipment, but we managed to transform it into a kind of intensive care unit. For the first few days, the children were on the floor. Then people from the village brought mats for us to use as makeshift beds. We used candles and oil-burning lamps for light. I focused on medical care while Frank hired a cleaner, disinfected the facility, found more mats, and made sure we had clean water, a hand washing facility, and food.

According to Hickox, Frank Peters, the logistician, investigated further:

We knew that gold mining took place in the village, but Frank was the one who started asking questions. He saw women breaking stones, their babies on their backs. He was shown machines used to grind down rocks, sending fine dust far and wide. He realized that a heavy metal such as lead, arsenic, or mercury was probably getting released as well.

In a June 2013 MSF publication, an MSF doctor rather than the logistician was credited with linking artisanal mining activities to the illness:

Initially at a loss to explain the illness, one of our doctors had the presence of mind to notice that villagers were smashing and grinding rocks as part of an artisanal gold mining operation. Suspecting heavy metal poisoning, the team took blood samples and sent them to a laboratory in Europe [italics added by author for emphasis].

100 Ins & Outs: MSF OCA Staff Magazine, June 2013, p. 18.
Blood samples sent to the lab in Europe confirmed lead poisoning. It is worth noting that credit for linking artisanal mining to the outbreak went to a doctor rather than the logistician, an issue explored in Chapter 9.

The 16 June 2010 MSF-UK post asked Cooney about the scale of the problem and elevated blood lead levels in children. Cooney replied:

A Centre for Disease Control (US CDC) team has come to work with us and the Ministry of Health. There’s some screening in one of the villages. All of the children that were tested registered over 65 mcg/dl and that’s actually the highest that machine would read. We’ve since done some other confirmation testing that shows results between 100 and 400 mcg/dl for these children. … So basically, so far everyone who has been tested really needs treatment. So it’s an extremely urgent situation.

This was astonishing news, given that toxicology textbooks pegged a fatal blood lead level at between 100 and 150 mcg/dl. Quickly the discourse transformed from medical emergency with an implied medical solution, to an environmental emergency demanding a coordinated multi-pronged response.

In the MSF article, Cooney was the first to mention the importance of environmental remediation:

So the only solution is that this contamination is cleaned up. International environmental actors are working on that now with the appropriate government authorities and obviously the communities themselves. It really needs to happen quite quickly but it’s not easy – that means removing all the contaminated soil from these areas and then eventually replacing it with clean soil… As one of the experts in lead poisoning said, if you have to put all your resources somewhere, put 80% into cleanup and prevention of recontamination and 20% into treatment because that cleanup and stopping people from being contaminated is the only way to ensure that people get better and to ensure that no more people get sick or die.
The outbreak came to be known as “the worst lead poisoning epidemic in modern history”\textsuperscript{101}, an expression commonly used by many over the coming years.

Online news articles that first reported on the outbreak tended to focus on the number of children that had died, the effects of acute lead poisoning on children, and the source of the contamination. To convey the seriousness of the situation, the term ‘unprecedented’ was often used to describe the outbreak. A New York Times article quoted Antonio Neri, a physician and epidemiologist with CDC's healthy homes and lead poisoning prevention branch; “I've never seen anything like this before. It's largely unheard of to have children die from lead poisoning in modern times.”\textsuperscript{102}

The following shows an inclination to assign blame. BBC reported, “Zamfara State had recently employed a Chinese company to mine gold in the area… But villagers had also attempted to capitalize by digging for the precious metal themselves – an illegal activity in Nigeria.”\textsuperscript{103} A Nigerian Tribune article stated that a communiqué from the Zamfara State chapter of the Nigeria Medical Association blamed the state government for a careless and appalling attitude towards illegal mining.\textsuperscript{104}

Some reporters made a connection between the grinding poverty and high gold prices in what seems to me like an attempt to provide some background context:

\begin{quote}
Its thatched mud houses, dirty children in tattered clothes, cow dung-littered dusty streets and the freshly-ridged crop fields surrounding it make Yargalma a typically poor agrarian village. But for two decades most villagers have turned to illegal gold mining which has better returns than the traditional farming. … It
\end{quote}

\textsuperscript{101} http://www.hrw.org/news/2012/02/07/nigeria-child-lead-poisoning-crisis
\textsuperscript{102} http://online.wsj.com/article/SB10001424052748703513604575310981924499148.html
\textsuperscript{103} http://www.bbc.co.uk/news/10241647
\textsuperscript{104} http://www.tribune.com.ng/index.php/component/content/article/7165-lead-poisoning-nma-blames-zamfara-govt
only takes a few hours’ work to get a gram of gold while it takes a whole rainy season (three months) to grow a bag of millet.\footnote{http://www.google.com/hostednews/afp/article/ALeqM5gFv9g1eoBhQnS3VyiE6WiTebGmBQ}

An article in the Washington Times noted that the existence of gold deposits in the area had been long known, but it wasn't until gold prices soared in recent years that villagers began “heading into the bush to search for it”. The reporter may not have understood artisanal mining, but it understood the economics: “Soon the poor villagers could sell gold for more than $23 a gram in an area of the country where most people live on less than $1 a day”. The article quoted Haruna Musa, a 70-year-old elder in Yargalma; “There is no other business one can do to make that much money.”\footnote{http://www.washingtontimes.com/news/2010/jun/16/search-for-gold-in-nigeria-costly/?page=all}

These reports – connecting the grinding poverty and high gold prices – support this thesis’ political economy analysis (Chapter 7). The same societal forces that make traditional farming no longer viable are the same forces that drive up the price of gold and underfund local public health. I was pleased to see these reporters making the connection, and wished for more of a critique of the neoliberal political economy and policies at the root of the problem.

An early reaction in the media was an opinion piece entitled, “When wealth is death” by Kadaria Ahmed, who is originally from Zamfara:\footnote{http://234next.com/csp/cms/sites/Next/Opinion/5583124-184/story.csp}

In my home state of Zamfara, hundreds of people have died in the last few months from lead poisoning. Mostly children of villagers who eke out a marginal living in one of the poorest states in Nigeria, their homes are ironically situated in and around areas rich with gold deposits. So to try and ameliorate the grinding poverty in their lives, these people have been illegally mining the gold beneath their feet. Apparently, state and federal officials and even some traditional rulers who benefit by buying the gold cheaply from the villagers have encouraged their activities. Unknown to these villagers, this gold lies in layers of the earth interspersed with pockets of lead – a toxic substance.
The Emir of Zamfara, Alhaji Attahiru Muhammad, spoke to reporters, blaming poverty as the cause of the illegality of mining. He said that it was becoming increasingly difficult for the people in the rural communities to survive due to abject poverty, and “May I therefore appeal to all persons in position of leadership to urgently ponder on this and make deliberate efforts to address this phenomenon”.

In addition to the number of children dead and the factors behind the outbreak, media attention focused on an insufficient government’s response. One report stated that “Last week, the spokesman for the local government denied to journalists that any lead poisoning had occurred at all.” CNN reported that “The local government, apart from handing out red election hats for an upcoming vote, is almost nowhere to be seen.”

Controversy over environmental remediation caught journalists’ attention. The government had announced to journalists that it would spend $1.6 million for the cleanup effort. However, “local farmers who had been offered jobs to scrape away contaminated dirt were idle Thursday morning [10 June 2010], saying the state government balked at paying them.” Another news report stated that:

The true hindrance to the cleanup, however, may be the corrupt government itself. Even though they have promised to invest $1.6 million to aid the cleanup effort, laborers who had been hired to scrape away the lead-filled dirt were refusing to work because the government had not paid them. The government official who visited the town did not make any effort to rectify the matter, although he did hand out baseball caps as part of his re-election effort.

Several media reports made reference to the red election baseball caps.

108 http://www.apaphoto.net/spip.php?article126842
109 http://www.bbc.co.uk/news/10254110
Only one article made mention of a promise of compensation. According to an article by Afrique Avenir, the Zamfara State government promised to compensate families of children who succumbed to lead poisoning. Apparently, the acting state governor Alhaji Muhktar Anka made the promise on 11 June 2010 during a “sympathy visit” to Dareta. He was reported to have said that the state government was deeply touched by the calamity, and “We will make a comprehensive list of all people affected by the recent lead poisoning disaster, with a view to providing their families succor in form of compensation, to enable them to carry on with normal life”.\(^{113}\) I am not aware that this promise was kept, and nor was it mentioned by any key informants.

Expats brought media coverage home. Idaho’s Lewiston Morning Tribune interviewed local Ian von Lindern, president of TerraGraphics:\(^{114}\)

Ian von Lindern has seen firsthand the unintended cost of the global economy's lust for natural resources. From Bunker Hill in northern Idaho to Senegal, his Moscow-based environmental engineering firm has helped clean up the mess left behind by mining and other industrial operations. Their poisons have sickened and killed thousands of people, both told and untold. But his latest endeavor took even him by surprise. “Nigeria really eclipses all these others,” said von Lindern.

This article provided an insightful quote from von Lindern:

He stopped short of calling investment in gold immoral. But he personally chooses not to put any of his money into the precious metal, citing the human and environmental toll taken to extract it from the Earth. “I think it's terribly unfortunate that that's the way the world economy works,” he said. “The damage is just horrendous.”

While the diamond market has the Kimberly Process to reduce the flow of ‘blood’ diamonds, there is no equivalent for the gold market.\(^{115}\)


8.5  Spike 2: UN and MSF press releases

(21 September 2010 to 25 October 2010)

On 21 September 2010, the UN News Centre announced its five-member team of environmental emergency specialists which would spend a few weeks sampling soil and drinking water, and making recommendations. Perhaps it was not newsworthy in itself, but the press release went on to say that OCHA allocated $2 million from the Central Emergency Response Fund (CERF), and that WHO and UNICEF were working with local health authorities and NGOs to treat victims of the outbreak.\footnote{http://www.kimberleyprocess.com/}

During this period, the Wall Street Journal published an article entitled, “Training Experts to Find and Fight Epidemics”. The article provided a showcase for a CDC program that trained epidemiologists in Nigeria: \footnote{http://www.un.org/apps/news/story.asp?NewsID=36020#.UXW6jcpvB0Y}

A veterinarian from northern Nigeria, Dr. Haladu is training to become an epidemiologist—a disease detective who probes the source of outbreaks and determines how widespread they are. He is in an on-the-job program partly funded by the U.S. Centers for Disease Control and Prevention and modeled on the Epidemic Intelligence Service, the CDC’s two-year program whose officers helped to eradicate smallpox, identify HIV/AIDS, and pinpoint a deadly strain of E. coli.

The article stated that under international law, countries are now required to report certain outbreaks or public-health events and to upgrade their disease surveillance and response capabilities. This was referring to the WHO (2005) International Health Regulations; under Article 21(a) of the WHO Constitution, the World Health Assembly has the authority to adopt

\footnote{http://online.wsj.com/article/SB10001424052748703399404575505860975293090.html}
regulations designed to prevent the international spread of disease – clearly the focus is on communicable diseases.\textsuperscript{118} According to the article, the Nigerian federal Ministry of Health dispatched trainee Dr. Haladu to investigate the lead-poisoning outbreak. At the time of the article, the epidemiologists had moved on to a cholera outbreak in the area, an epidemic that killed more than 1,000 people. The cholera outbreak was discussed in key informant interviews (in the following chapter).

Eben Harrell was an environmental journalist at Time Magazine. In a report on the lead-poisoning outbreak, he made some important insights regarding environmental justice:\textsuperscript{119}

Medical historians and epidemiologists have long known an embarrassing secret about medicine: despite all its high-tech gadgetry, modern medicine has played only a very small role in extending life expectancy over the last hundred and fifty years. Environmental health—sanitation, detoxification of living and working environments, access to healthy food—has had the greatest impact, by far. This is what poverty campaigners refer to when they speak of “environmental justice.” Is it fair that the bulk of the world’s wealthy populations now live in clean, safe environments, while many of the world’s poor are exposed to unclean environments, often the result of toxins from the global economy’s dirty industries?

Harrell made an important distinction between gold prospecting and conservationism. He cited public health as a reason to oppose resource extraction.\textsuperscript{120} The Nigerian lead-poisoning outbreak provided stark illustration:

Last month, I wrote about how economic instability has sent gold prices soaring, setting up a battle between prospectors and conservationists. I was referring, of course, to developed countries. As the sad case of Zamfara’s lead poisoning shows, for too many people, protecting the local environment is more than just safeguarding beautiful scenery, or a habitat for local owls. Nor is it contained to

\textsuperscript{118} http://www.who.int/ihr/en/


\textsuperscript{120} http://science.time.com/2010/08/13/gold-prospectors-versus-conservationists/
altitudinous concerns about carbon concentrations in the atmosphere. For too many people, environmentalism is about the soil and water around them, and it’s a question of life and death.

The outbreak also provided a venue for showcasing commercial products. At this point in time, United Business Media publicized an article entitled,” LeadCare® II Blood-Lead Testing System is Critical Tool in the International Response to the Nigerian Lead Poisoning Crisis”:

As part of the international response to the lead-poisoning crisis linked to small-scale gold-mining activities in this northwestern region of Nigeria, a medical crisis team is deploying Magellan's three-minute LeadCare II blood-lead test in the triage, assessment, and clinical follow-up of thousands of villagers who have been exposed to extremely high levels of lead in the soil and water. … “The FDA approved the LeadCare II system … four years ago this month,” said Magellan President and Chief Executive Officer Hiroshi Uchida, Ph.D. “It's very gratifying to see that when results really matter, LeadCare II is the system of choice among international health experts. The CDC reports that the system is exceeding expectations, even under the extraordinarily difficult and contaminated conditions on the ground in Zamfara.”

The article quoted Meredith Block, Executive Director of Blacksmith Institute: “The LeadCare systems have been invaluable tools for Blacksmith”. Here we see two companies, Magellan and United Business Media, using the lead-poisoning outbreak to market a product and using the CDC as a marketing tool.

An American condor population has an odd characteristic in common with the lead-poisoned population in Zamfara State. According to the United Business Media article, both populations had blood lead levels exceeding 65 mcg/dl that the LeadCare II machine could only measure as “high”. To determine the actual result, dilution protocols were established:

In order to determine the actual quantitative blood-lead level for each patient, Magellan proposed employing a dilution method that scientists originally

developed for a program to test the California condor population, which has also been suffering from extremely high blood-lead levels.

The rainy season and reluctance of villagers to disclose lead contamination were mentioned as challenges for remediation efforts.\textsuperscript{122}

Heavy rains have further delayed clean-up efforts. TerraGraphics prioritized seven villages – Abare, Sunke, Dareta, Tungar Daji, Duza, Yargalma, Tungar Guru – to be decontaminated from June 2010, but has only worked in Dareta and Yargalma because rain made the others inaccessible.

With the rainy season, roads became impassible and soil turned to mud. Remediation ground to a halt, and acutely sick children were not easily transported to hospital.

Another challenge encountered by international responders was traditional beliefs. A Reuters article quoted MSF coordinator El Shafi’i Muhammad Ahmad as saying, “Communities deny such deaths or attribute them to spirits and other beliefs”. The article recalled that Zamfara was one of three Nigerian states to suspend a polio vaccination campaign in 2003 because some Muslim leaders feared the oral vaccine was a Western plot to spread AIDS and cause infertility.\textsuperscript{123}

Apparently, even gold mining companies suffered consequences from the lead-poisoning outbreak. One business news source described the outbreak, and added that Randgold Resources Ltd is one of the publically traded companies with a focused on West and Central Africa: “Randgold Resources seems to be affected by this tragedy. As of today, Randgold Resources is trading down from yesterday's close of 87.17, and now at 84.69 which is 2.62% lower than yesterday's close”.\textsuperscript{124}

\textsuperscript{122} \texttt{http://www.irinnews.org/Report/90653/NIGERIA-Communities-resistance-hampers-lead-cleanup}

\textsuperscript{123} \texttt{http://af.reuters.com/articlePrint?articleId=AFLDE69J11M20101020}

\textsuperscript{124} \texttt{http://www.benzinga.com/print/721465}
8.5.1 The Green Star Award

On 18 May 2011, MSF, TerraGraphics and Blacksmith Institute were awarded the UN Green Star Award. The Green Star Award, organized by OCHA, Green Cross International, and UNEP, recognizes “those who have made remarkable efforts to prevent, prepare for, and respond to environmental disasters around the world”. The announcement of the award acknowledged MSF’s efforts in responding to the lead-poisoning outbreak:

The Dutch arm of the international humanitarian NGO Médecins Sans Frontières, Arsen zonder Grenzen (or MSF-Holland) is also the recipient of a Green Star Awards in the Organization category, for its ongoing contributions to environmental emergency response efforts through its humanitarian mandate. Its work in delivering life-saving medical care in crisis-affected regions of the world has been of tremendous value in environmental emergency situations. In 2010, MSF-Holland, together with the local health authorities in northwestern Nigeria, provided invaluable health services to the local population, treating some 1,151 children affected by widespread lead poisoning in the northern Nigeria state of Zamfara. As part of its ongoing preventative work, MSF-Holland also developed a wide-reaching and successful information and advocacy campaign in the affected region. The objectives of the campaign were to inform the local population of the dangers of lead poisoning through gold extraction and of the treatment programme offered by the organization.

For MSF, the Green Star Award was an opportunity to advocate for greater assistance in responding to the lead-poisoning outbreak. MSF posted news of the award on its website, quoting Emergency Manager Lauren Cooney who had accepted the award on behalf of MSF; “MSF welcomes the Green Star Award. It offers an opportunity to continue highlighting this environmental health crisis. MSF again calls for more assistance with the vital, ongoing response

125 http://www.gcint.org/green-star-awards
126 http://www.gcint.org/green-star-awards-2011-laureates
to lead poisoning in northern Nigeria. There are limits to what we can do as an emergency aid organization".  

In Chapter 1, I stated that this thesis questions humanitarianism not for its saving of lives and alleviating of suffering, but for its triumphalism, the illusion of moral victory and neutrality in the face of global health injustice (Raich, 2002). In the case of the lead-poisoning outbreak, the Green Star Award exemplified triumphalism by celebrating the humanitarian response. Announcements of the Green Star Award did not result in a corresponding spike in online news coverage. I found it featured in only two online news articles.  

Other articles published during this period included an online mining magazine report bout the lead-poisoning outbreak and the “illegal gold mining”. It quoted Human Rights Watch researcher Jane Cohen who had recently visited the area. Cohen said that the situation was worse than anticipated; large numbers of children are exposed to high lead contamination. Many online news reports cited Human Rights Watch and Cohen’s visit to affected villages. For example, Cohen was mentioned in a Voice of America article entitled, “Lead Poisoning Rampant Among Nigerian Children Rights Group Says".  

An article about the outbreak in Earth Magazine is unique in that it went beyond simply reporting the story to examining the geology behind the crisis. The article bi-line is “Geology, economics and culture culminate in a perfect storm with deadly results”. According to the article, the CDC asked geochemists at the United States Geological Survey to analyze environmental

129 http://www.miningreview.com/node/20142  
samples. They determined that the veins of ore are close to the surface, making them accessible to artisanal miners. The veins “arise in a series of shear zones in Late Proterozoic-Early Phanerozoic schist and gneiss”. The abundance of lead was considered unusual for the type of deposit. The crux of the problem was explained:

That over the millennia prior to mining, the ores were partially oxidized by weathering, which converted the lead sulfide into a secondary lead mineral assemblage high in lead carbonate and lead oxide. Unlike lead sulfide, lead carbonate is especially problematic because it can quickly dissolve in human stomach acid.

The geochemical analysis helped explain the human toll.

Online news reports expressed concern for the long-term future. Under the subheading “Lost Generation”, an IRIN article quoted Ivan Gayton, head of mission for MSF in Nigeria:132

“Every month that goes by more children are being damaged.” Even when lives are saved, “the neurological damage is huge. There is potential for a lost generation of children of northern Nigerians whose health and IQs will suffer,” he told IRIN, adding: “For the most part, we're holding a finger in the dike.”

Given the nature of the emergency response, little had been said up to this point about the long-term prognosis.

8.6 Spike 3: The international conference

(10 May 2012 to 31 March 2013)

Just over two years into the lead-poisoning outbreak, with emergency funds drained and financing for remediation lacking, MSF spearheaded an international conference in Abuja, the capital of Nigeria. The conference, called The International Conference on Lead Poisoning with

Special Focus on Zamfara, was held by the Nigeria Center for Disease Control (NCDC)/Federal Ministry of Health (FMoH) and MSF.\(^{133}\)

Originally, the conference was to be held in early January 2012, but political unrest delayed the conference at great financial expense to conference organizers. The political unrest of January 2012 stemmed from the federal government abruptly ending fuel subsidies, resulting in a sharp rise in oil prices; the price of food and transportation effectively doubled. On 9 January 2012, tens of thousands of Nigerians demonstrated in the streets in a general strike. On 16 January 2012, one week later, the government relented.\(^{134}\) During this time of unrest, flights were halted and expats went into lock-down. The conference was rescheduled for 9-10 May 2012.

In its May 2012 briefing paper entitled “Lead Poisoning Crisis in Zamfara State northern Nigeria”, MSF spelled out what it called the necessary three-pillar response to affectively address the lead-poisoning outbreak:\(^{135}\)

1. Medical care including chelation therapy and health education
2. Environmental remediation
3. Safer mining practices

The MSF briefing paper served as a preamble to the conference and called attention to the urgent need for environmental remediation in the town of Bagega (estimated population, 8,000). Until Bagega was remediated, MSF could not provide chelation treatment “where an estimated 1,500 children are exposed to lead poisoning”. Furthermore, MSF asserted that “neither MSF nor the Nigerian authorities possess sufficient expertise to manage the crisis without assistance and advice”, and called for the input of external safe mining experts.

\(^{133}\) [https://abujaleadconference.amsterdam.msf.org/default.htm](https://abujaleadconference.amsterdam.msf.org/default.htm)


Around this time, Human Rights Watch became involved. Human Rights Watch had posted its first news blog about the outbreak on 2 December 2010. But on 6 May 2012, just a few days before the international conference, it posted an advocacy piece entitled, “Nigeria: Show commitment on child lead poisoning”. The Human Rights Watch article echoed MSF’s call for more high-level government action towards the outbreak. The quote from Human Rights Watch deputy program director Babatunde Olugboji specifically referred to the upcoming international conference:

The Nigerian government needs to act now to help thousands of children in Zamfara exposed to lead who are at risk of death or long-term disability. The government should come to the conference ready to commit to concrete steps and a specific timeline to ensure that the rights of these children to health and to life are protected.

This suggests that international organizers feared laissez-faire participation from the federal contingent, which proved to be the case, as shown in interview findings (next chapter).

The two-day conference proceeded as scheduled. Invited delegates included: Zamfara State ministers; the Emir of Anka; Nigerian government representatives including from the federal ministries of health and environment and mining; humanitarian actors; scientists; and health, environmental and mining experts.

Despite the disappointment that key federal decision-makers did not attend, delegates devised an Action Plan which was publicized and posted online by MSF. The Action Plan stated:

On 9 & 10 May, 2012 the Nigeria Centre for Disease Control/Federal Ministry of Health and Médecins Sans Frontières (MSF) held, in Abuja, Nigeria - an International Conference on Lead Poisoning with a special focus on the Zamfara crisis. The purpose of the international conference was to bring together leading medical, environmental and mining experts, together with government policy
makers and traditional leadership to share lessons learned and best practice and develop a plan for immediate action to be taken.

According to the Action Plan, delegates unanimously agreed that, “resolving the Zamfara lead poisoning disaster most critically requires: leadership and action from the government, the involvement and engagement of affected communities, and expert advice and support from the international community in a three-tiered response which includes:

- Environmental remediation;
- Establishment of safer mining and processing methods; and,
- An integrated medical intervention including health promotion.”

The final three points were essentially the same as those listed in the MSF Briefing Paper previously mentioned. However, the Action Plan was unequivocal in calling for immediate action to address the crisis. Arguably, the most politically-loaded step was the first on the list: “Urgent funding approved and released immediately”. The Action Plan elaborated:

Most urgently the federal government should make a political commitment to address this crisis by ensuring funds are made available immediately and spent appropriately. The federal Ministry of the Environment approved Tripartite Proposal Funding of 850 million Naira (US$5.4m) for environmental remediation and safer mining initiatives in Zamfara State, agreed in December 2011, should be released without further delay.

For MSF, its conference and press releases amounted to “an unusually pointed media campaign” but at a cost for the organization. According to the MSF Head of Mission, the media campaign and behind-the-scenes activism came at a cost; “The effort of advocacy was an enormous drain on the mission, compromising our ability to manage our other life-saving medical activities” (Gayton, 2013 p. 20).

The third spike in news coverage immediately follows the international conference on 9-10 May 2012. In line with documents publicized by international organizations, online news coverage reported on the international conference and the growing controversy over lack of government financing. The headlines at this point in time came down hard on the Nigerian federal government (Table 4).
Table 4: Online news article headlines immediately following the international conference in May 2012

<table>
<thead>
<tr>
<th>Source</th>
<th>Headline</th>
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<tbody>
<tr>
<td>BBC</td>
<td>Nigeria lead poisoning: MSF urges government to do more</td>
</tr>
<tr>
<td>AllAfrica.com</td>
<td>The Time for Talking Is Over, Now Is the Time for Action</td>
</tr>
<tr>
<td>Chicago Tribune</td>
<td>MSF decries inaction on Nigeria lead poisoning</td>
</tr>
<tr>
<td>Euronews</td>
<td>MSF urges Nigeria to act over deadly lead poisoning</td>
</tr>
<tr>
<td>French Tribune</td>
<td>Nigerian Government’s Lazy Attitude towards Gold Mining Case</td>
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<tr>
<td>Int’l Business Times</td>
<td>Lead Poisoning Epidemic Largely Ignored By Government: MSF</td>
</tr>
<tr>
<td>IPPF</td>
<td>Conference agrees on measures to end lead poisoning crisis in Nigeria</td>
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<tr>
<td>News Australia</td>
<td>Deadly lead poisoning continues in Nigeria</td>
</tr>
<tr>
<td>Reuters</td>
<td>MSF decries inaction on Nigeria lead poisoning</td>
</tr>
<tr>
<td>Shanghai Daily</td>
<td>MSF urges Nigeria to move against lead poisoning disaster</td>
</tr>
<tr>
<td>Times South Africa</td>
<td>1,500 children in Nigerian village suffer lead-poisoning</td>
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<tr>
<td>Aljazeera</td>
<td>Aid group slams Nigeria for lead poisoning</td>
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<tr>
<td>Voice of America</td>
<td>Nigerian ‘Gold Rush’ Poisoning Children</td>
</tr>
<tr>
<td>TopNews New Zealand</td>
<td>Stop Gold Mining At Zamfara, Says MSF</td>
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The last headline from TopNews New Zealand (“Stop Gold Mining At Zamfara, Says MSF”) is notable for its errors. The headline itself is incorrect, as MSF had not advocated for ceasing artisanal gold mining. Not only would the activity be impossible to stop, but any such efforts would drive it underground. Furthermore, MSF did not have the mandate to make such a demand. The same online news article went on to say that, “It has been revealed that 40,000 children got killed in Zamfara”,138 a ridiculously high number considering that official estimates at that time were of 400 children killed.

The call for the release of federal funding became an enduring theme from the time of the international conference until the funds were eventually released on 28 January 2013. The call for the releasing of funds sparked the remarkable social network advocacy campaign ‘Follow The Money’ and #SaveBagega.139

138 [http://topnews.net.nz/content/222602-stop-gold-mining-zamfara-says-msf](http://topnews.net.nz/content/222602-stop-gold-mining-zamfara-says-msf)
139 [http://www.followthemoneyng.org](http://www.followthemoneyng.org)
8.6.1 Social network advocacy campaign

Environmental remediation of Bagega was at a standstill while organizations waited for the release of federal government funding. The introduction to the Human Rights Watch multimedia photojournalism feature “A heavy price” stated that little to no funding had been provided by the Nigerian government or international donors. Human Rights Watch promoted the social network campaign demanding that the federal government release the funds. On 6 December 2012, Human Rights Watch posted its article “Ask Nigeria’s President What Happened to $4 Million”. The social network campaign asked supporters to comment on the president’s Facebook page and to sign its online petition at followthemoneyng.org.140

The social network campaign ‘Follow The Money’ of Nigeria became a strong advocacy force. Co-creators Hamzat Lawal and Oludotun Babayemi started the grass-roots movement in September 2012. The campaign employed Facebook (https://www.facebook.com/followthemoneyng?fref=ts), Twitter (#SaveBagega), its own website (http://www.followthemoneyng.org/), and an online petition (Figure 19).

140 http://www.hrw.org/news/2012/12/06/ask-nigeria-s-president-what-happened-4-million
The campaign was supported or endorsed by many international organizations involved in the outbreak response. For example, its December 2012 publication stated that the campaign was endorsed by MSF in September 2012, and I had seen MSF re-tweet its Twitter posts (#SaveBagega).

Human Rights Watch promoted the campaign from within its own website. A ‘Follow The Money’ publication (2012) stated:  

On December 6, 2012, the team, in collaboration with Human Rights Watch, launched a Social Media Campaign urging people to post comments to President Goodluck Jonathan’s official Facebook page, asking him why he has broken his promise to release funding for the cleanup of lead contaminated areas in Zamfara State. If you want to join the campaign, please visit https://www.facebook.com/jonathangoodluck and comment on his last status update with the following message: “President Jonathan, why won’t you release

141 www.followthemoneyng.org/savebagega1.pdf
the money you promised in May to clean up poisonous lead in Zamfara? Children are dying and your government’s failure to act is putting more children at risk”.

According to the online blog entitled, “Social Media and Creative Technologies: A Recipe to #SaveBagega”:

In October 2012, when the Follow The Money Team were developing their website, little did they know that the hash tag #SaveBagega was going to reach a staggering 600,000 people from over 100 countries, consequently, putting more pressure on the government of Nigeria to attend to the urgent need of this ailing community.

The Nigerian federal government eventually released the funds on 28 January 2013. It is difficult to measure the contribution of such grass-root civil society movements in forcing political change. If ‘Follow The Money’ had not taken up the cause, perhaps the funds would not have been released. If MSF had not issued a call for the release of funds, then perhaps ‘Follow The Money’ would not have come into being. Alternatively, if MSF and other international organizations had been silent, then perhaps grass-root organizations such as ‘Follow The Money’ would have achieved even greater gains.

Regardless of the speculations, it is important to note that the social media advocacy campaign did not argue for the government to act alone. Instead, it acknowledged the importance of international organizations, and the social media campaign itself worked closely with international organizations. A posting on its website stated:

The Follow the Money (FTM) team, a not-for-profit group that has been advocating for the release of funds to remediate Bagega since October 2012 enjoins all stakeholders to keep up with the momentum at which remediation has started.142

The campaign was more interested in helping with the lead-poisoning outbreak than furthering a political position.

142 http://bailiffafrica.org/remediation-of-lead-poisoned-bagega-community-begins-after-2-years/
8.6.2 Federal funds released (finally)

The Nigerian federal government eventually released the funds on 28 January 2013, and on 11 February 2013, the remediation of Bagega began (Gayton, 2013). The money was from the Ecological Funds to be distributed among the Ministry of Environment, Ministry of Health, and the Ministry of Mines and Steel Development. The expats from TerraGraphics were back on the job.

News of the funding made it into the press: 143

Federal Government yesterday released N158.3m intervention fund for lead poisoning operations in Zamfara State. A statement by spokesman of the Ministry of Mines and Steel Development, Mr. Stephen Kilebi said the ministry will continue the implementation of its programme for safer mining operations. The fund will be used for the installation of wet milling machines and provision of water bore holes at mineral processing sites; introduction and installation of three Igoli processing machines for gold extraction.

The release of the funds came with tremendous relief to international organizations, but too late for many children:

In October [2012], VOA [Voice of America] visited the village. No one was cleaning anything and health workers were beside themselves with grief. Children were still dying. But now Doctors Without Borders mission head Ivan Gayton says the clean-up has finally begun and health workers are preparing to screen up to 1,500 children. “Oh, it’s just an incredible relief,” he said.” We’ve been hammering away at this for a year. There were actually times that I lost hope. There were times that I didn’t think this would get done. That we’d have to just eventually walk away.” 144

In measured diplomatic tone, MSF commended the Nigerian federal government for releasing the funds. On 14 February 2013, MSF issues a press release entitle, “Lead-poisoning remediation

143 http://allafrica.com/stories/201302220656.html
144 http://www.voanews.com/content/nigerian-pledge-to-clean-up-poisoned-village-comes-too-late-for-some/1603515.html
finally begins”, stating, “MSF was pleased to hear the news that funds to remediate Bagega village in northern Nigeria have finally been released and work has begun in the village”.  

The MSF press release was picked up by local media:  

The statement read “MSF is encouraged to hear that the funds have finally been released after such a long delay and we congratulate all those who worked hard to make this happen. However, medical treatment could only begin after remediation is complete” and added that the release of the funds only took them a step closer to treating the patients as there was still much work to be done.

After advocating for the release of the funds, Human Rights Watch researcher Jane Cohen also came forward to commend the Nigerian federal government. In a statement from Cohen, “President Jonathan's decision to release the clean-up funds could be life-saving for countless children.”

At the time of writing, the funds had been released and the remediation work was underway. News of the lead-poisoning outbreak had spread around the world, even generating its own Wikipedia site, “Zamfara State lead poisoning epidemic”. After the abrupt spike in mid-March 2012, online media coverage dropped off again. In the ten-month period from 29 May 2012 to time of writing (31 March 2013), there were 59 online news articles, an average of just 1.4 articles per week.

### 8.7 Spike 4: The remediation of Bagega (a postscript)

By 15 July 2013, I obtained an additional 30 online news articles, bringing the grand total of online news articles to 274. My analysis of the online news articles in the final two-and-a-half
month period found a fourth spike in news coverage pertaining to the remediation of Bagega. This fourth spike had a peak of 21 articles in April 2013 (Figure 20).

Figure 20. Spike in news articles with the remediation of Bagega

On 15 April 2013, the Toronto Star ran a multi-page feature of the lead-poisoning outbreak. The report provided first-hand accounts from those directly affected:

Ibrahim Abubakar, 22, came close to realizing his dream when he and some other miners discovered 330 grams of gold in just a few days, earning more than $9,300 to be split among eight families. It is a huge amount of money in a region where 70 per cent of the population lives on less than $2 a day. “Life was good then,” he says of the time two years ago. “We even managed to buy a pickup.” Then his 20-month-old son Abdelmajid developed a high fever and started having convulsions. The next morning, he was dead. 149

The same story reported how children that survived were often left with brain damage:

Sitting in the courtyard of her house in nearby Abare, 25-year-old Asuya Surajo is cooking cassava. On her lap is 4-year-old Naimaatu, wearing a black and blue dress. She is blind in her right eye and her limbs are lifeless. There is a thread of saliva coming out of her mouth. “She got paralyzed in just one night, when she was 18 months old,” says Asuya, who has lost six children because of miscarriages and early deaths.

The story featured interviews with MSF expats who (at that time) were frustrated awaiting government funding for Bagega.

This Toronto Star article provides another example of researcher as participant. Prior to the release of the article, I gave a Toronto Star reporter an hour-long interview about the lead-poisoning outbreak. Although I was not mentioned in the article by name, I could see where my interview had provided important input.

On 23 April 2013, MSF issued a public statement saying that because environmental remediation in Bagega was finally underway, the organization was finally able to provide chelation therapy to the lead-poisoned children of Bagega:

MSF has finally been able to start medical treatment for children suffering from lead poisoning in the village of Bagega in Nigeria. … Until today, however, the medical humanitarian organization has been unable to start treatment in Bagega because it had not been remediated. … MSF is very happy to have finally – after three years – begun medical treatment in Bagega.150

The story was picked up by Agence France-Presse and carried by regional news sources such as The Guardian Nigeria151, This Day Live152, and AllAfrica153.

152 http://www.thisdaylive.com/articles/lead-poisoning-zamfara-appreciates-n900-million-grant-from-fg/145958/
A local reporter spoke with Simba Tirima, an expat with TerraGraphics International Foundation (the newly created charitable arm of the private engineering company TerraGraphics). Tirima felt that the remediation of Bagega could be accomplished in about two months’ time (by July 2013):

“We have been here in Bagega since 2010 and have been working with the federal and state ministry of environment to rid the community of contamination. It is our hope that the community will remain clean; we're confident in the ability of the state government to continue advocacy on the issue," Tirima said.154

Federal funding for the remediation of Bagega was channeled through the Ministries of Mines and Steel Development, Environment and Health, earning the federal government a degree of praise.155 The remediation was not just celebrated because Bagega could finally be decontaminated, but also because the endeavor had created jobs; with the headline “Zamfara Lead Poison Creates 360 Jobs”, the article stated that new jobs ranged from unskilled laborers to crew managers and capacity building for environment ministry staff.156

During this fourth spike in online news coverage, there were two key organization publications, both disseminating scientific findings from field research. The first publication was a research article entitled, “Linking geological and health sciences to assess childhood lead poisoning from artisanal gold mining in Nigeria” (Plumlee et al., 2013). The article had 21 authors with affiliations from the US Geological Survey, CDC, TerraGraphics, and the University of Idaho:

At CDC’s request, the U.S. Geological Survey (USGS) has collaborated with CDC and TG [TerraGraphics] to carry out an interdisciplinary earth and health science analysis of the samples, with a focus primarily on those collected in Dareta and Yargalma. The purpose of this study is to summarize results and implications of these analyses (ibid, p. 745).

154 http://allafrica.com/stories/201304290593.html
156 http://allafrica.com/stories/201304301078.html
Shockingly, analyses of sweep samples from homes in Dareta and Yargalma found extreme lead contamination of up to 185,000 ppm, over four-hundred times higher than the US EPA residential screening level of 400 ppm (ibid, p. 745). The study attributed the outbreak to the lead in the gold ore and the use of grinding machines:

Our results document that ore deposit geology and mechanized ore grinding were fundamental causes of this unusual lead-poisoning outbreak linked to artisanal gold mining (ibid, p. 747).

The article raised the alarm for the other segments of the population beyond just children under five:

Although acute lead poisoning of young children has been the most immediate and severe consequence, older children, adult workers, pregnant women and their unborn children, and breastfeeding infants are also at risk (ibid, p. 750).

The article took the important step of mentioning global health implications:

Price increases in gold and other metals have caused artisanal mining to burgeon globally, increasing the potential for lead-poisoning outbreaks beyond Nigeria (ibid, p. 750).

The article did not go so far as to link the spike in the price of gold and other metals to globalization and the global financial crisis, but it clarified the causal chains and pathways by which so many people became so severely lead poisoned. For the authors, an important achievement of the study was the collaborative effort:

This study underscores the value of collaborative interdisciplinary studies involving health, geological, and engineering scientists. This scientific input will aid development of evidence-based policies on artisanal resource extraction that greatly reduce environmental contamination and adverse health impacts (ibid, p. 750).

The second scientific dissemination of field research was at the MSF Scientific Day conference in London on 10 May 2013. The one-day conference was live-streamed on the internet, showcasing scientific research carried out in MSF programs. The Nigerian lead-poisoning outbreak was featured in a presentation entitled, “Acute severe lead-poisoning outbreak in
Zamfara, northern Nigeria: neurological features, blood lead levels and description of 3,120 courses of chelation with dimercaptosuccinic acid (DMSA) in children ≤ 5 years. The presentation was given by Jane Greig and the study authors were Natalie Thurtle, Jane Greig, Paul Dargan, Lauren Cooney, and Cono Ariti. The study found blood lead levels of 80 mcg/dl and higher strongly associated with abnormal neurological features, and determined that DMSA was a safe and effective oral chelator for the children in the MSF treatment program.

Finally (for this study), online news articles from early July 2013 spoke of the Nigerian National Human Rights Commission (NHRC) beginning an investigation into possible human rights violations surrounding artisanal gold mining in Zamfara and the resulting lead-poisoning outbreak. The NHRC sent a representative to visit Zamfara State mining sites in order “to assess the level of human rights violations caused by mining activities”. The increasing attention to the crisis suggests that the problem is not ending, especially considering how the price of gold remains high. In the ominous words of the MSF Head of Mission, “The artisanal gold mining is not about to stop; in fact in all likelihood it is barely getting started” (Gayton, 2013 p. 21).

8.8 A look at the headlines

A qualitative analysis of online news articles found that headlines most often made reference to Nigeria/Nigerian/Zamfara lead poisoning, followed by reference to children and gold mining/miners (Figure 21). Reference to death (deadly, deaths, die, kills) figured prominently, followed by nouns such as outbreak, crisis, disaster, epidemic, pollution, and contamination, and adjectives such as worse, massive, and unprecedented. The numbers refer to the number of children dead or poisoned, as well as the four million dollars promised by the Nigerian president for remediation. There were also traces of the responders: government, aid agency, CDC, MSF, and UN.

157 http://www.msf.org.uk/msf-scientific-day-2013-agenda
158 http://allafrica.com/stories/201307051048.html
Had I included local print media in my media analysis, the word cloud in Figure 21 may have been different; International media is apt to refer to the outbreak as the Nigerian lead-poisoning outbreak, whereas local media may be more apt to refer to it more specifically as the Zamfara State lead-poisoning outbreak. Therefore, this word cloud reflects the Google Alerts search terms (lead + poisoning + Nigeria).

8.9 A look at the images

Most articles did not have accompanying images. However, in those that did, I found images portraying technical aspects of the international response. The result was that local villagers in the images seem passive while the white foreigners seem busy responding the crisis. Figure 22 illustrates this juxtaposition with four images from the same article.
Figure 22. Images from an online news articles (Source: AFP, 6 October 2010)

http://www.google.com/hostednews/afp/article/ALeqM5joYb06RVEcZrBye3fOrSF3PhQJnw
Village men were often portrayed as actively mining without personal protection (Figure 23).

Figure 23. Image of men artisanal mining

http://www.bbc.co.uk/news/world-africa-22131829
Finally, images focused on lead-poisoned children receiving medical treatment (Figure 24).

Figure 24. Child receiving medical treatment

Relating to the use of images, interview data revealed troubling issues about photographers intruding in the hospitals and photographing patients without permission or consent (presented in the following chapter). Justifiably, there is a growing attention to the ethics of humanitarian photography (Calain, 2012a).

8.10 Strengths and limitations of media and document content analysis

Strengths of the media and document content analysis may be evaluated according to validity, generalizability, and replicability (Macnamara, 2005). Validity of content analysis is achieved by adhering to the research objectives and carefully selecting the sample of media content to be analyzed. This media and document content analysis is valid in that it has helped to determine

how the lead-poisoning outbreak unfolded and to critically examine the international response. Furthermore, validity was achieved by collecting not just a sample of online news media and organization publications, but close to all online news media and organization publications. By analyzing the comprehensive collection, this thesis uncovers how the response to the lead-poisoning outbreak unfolded, the roles of the various actors, and the particular issues and challenges that were faced in the course of the outbreak response.

Generalizability in content analysis refers to the extent to which the research findings can be taken as a measure of the total mass media message pool, largely determined by the degree to which the selection is representative and sufficiently large (Macnamara, 2005). This study has certain limitations in regard to generalizability: it does not include a sample of local print, radio and television media coverage, and it captures English language articles only; there are likely online news articles in Hausa (the language of that part of Nigeria) and perhaps other languages, but this study’s search strategy would not have captured them. However, this study has a vast collection of English language online sources captured by a broad search strategy.

Replicability is the measure of ability for other researchers to replicate the research to confirm or challenge the results determined by full disclosure of information on methodology and procedures (Macnamara, 2005). This content analysis is replicable given that the search strategy and inclusion and exclusion criteria are explicit. Quantitative aspects of the content analysis (e.g., plotting the number of articles over time) may be more easily replicated than qualitative aspects, which is acceptable within the qualitative research paradigm (Barbour, 2001); “It is largely impossible to escape the subjective experience, even for the most experienced of researchers” (Bashir, Afzal, & Azeem, 2008 p. 35).

Having identified spikes in media coverage following events such as press releases and the international conference, I employed words like ‘coincide’ and ‘correlate’ rather than ‘cause’. I do not claim causation because this particular methodology does not test the hypothesis that certain events such as press releases caused spikes in media coverage. To investigate causation, this study would need to interview news editors and journalists about their rationales and influences, an undertaking beyond the scope of this study.
8.11 Summary of media and document analysis

The findings from the media and document content analysis not only inform of how the media behaved, but also of their influences. Such findings are significant given the important role that the media play in crises:

People seek information about the crisis and evaluate the cause of the event and the organizational responsibility for the crisis based on media coverage of the crisis. Therefore, it is important to look at how the media frame a crisis event, the cause of the crisis, and the actor responsible for it because those frames influence the public’s perception and impressions of the organization (An & Gower, 2009).

Previous studies identified common ways that the media frame crises in news articles (Neuman, Just, & Crigler, 1992). The conflict frame emphasizes conflict and disagreement among individuals, groups, or organizations. The economic frame reports the crisis in terms of economic consequences on individuals, groups, organizations, or countries. The morality frame puts the crisis in the context of morals, social prescriptions, and religious tenets (Neuman et al., 1992). The human impact frame puts a human face or an emotional angle to the crisis (Semetko & Valkenburg, 2000), influencing the emotional response and urging readers to assign blame and responsibility (Cho & Gower, 2006). Attribution of responsibility frame was most commonly found in serious newspaper reports (Semetko & Valkenburg, 2000). The level of responsibility frame focuses on certain individuals or situates the crisis in a general context at the organizational, societal or governmental level (Iyengar, 1991, as cited in An & Gower, 2009).

With a final grand total of 274 online news articles and 63 organization documents, this study identified patterns and associations in public accounts of the lead-poisoning outbreak. Beyond the initial discovery of the outbreak (Spike 1), online news coverage coincided with important communiqués from international organizations (Spikes 2 and 3). Spike 3 was particularly important for launching pressure on the Nigerian federal government to release funding for the remediation of Bagega, an effort that spawned the creation of the social media campaign ‘Follow The Money’. Spike 4 (the postscript) occurred with the commencement of the remediation of Bagega and the treatment of its children (Figure 25).
The typology of the lead-poisoning outbreak (the classifications based on type or category) set the stage for the international response. How the media have framed a crisis has been found to strongly influence the corresponding response (An & Gower, 2009). In the case of the Nigerian lead-poisoning outbreak, after the initial discovery of the outbreak, the typology of the crisis was shaped by the international responders. Mass media was a vehicle for advocacy, ultimately pushing the Nigerian government into action. International organizations were able to set the outbreak response discourse given their privileged status and proximity to the crisis. Proximity was particularly valuable because the site of the outbreak was remote, rural, and resource-poor.

The media and document analysis showed that organizations' advocacy was amplified by the news media, culminating in the eventual release of Nigerian federal government funding for the remediation of Bagega. The news media provided a public forum for the private organizations to expose the crisis and indirectly promote their own work and fundraising, a pattern found among other humanitarian responses (Polman, 2010).
Chapter 9: Interview data content analysis

9.1 Introduction to chapter

Interviewing the twenty-one key informants provided the thesis with documented first-hand narratives. The interviews directly responded to the central research question of issues, challenges and frustrations in the international humanitarian response. I analyzed the data according to content area, categories and themes. The chapter begins with overall impressions of the key informant interviews, and then delves into the content analysis. Each theme is discussed in as much detail as possible within the scope of this chapter.

Interviewees represented the full range of medical, environmental and logistical roles, with more interviewees from organizations that were more involved, and fewer interviewees from organizations that were less involved, at the field level. The selection of the 21 interviewees from the study population proved adequate given that interviewees were recommending others already chosen. Interview data collection achieved saturation given that interviews were uncovering issues and challenges of the same themes, and new themes were not brought forth in later interviews. Triangulation was apparent in the way the same key issues were discussed but from several unique perspectives. Perspectives varied, but there were no blatant contradictions. Many of the themes arising from the interview data also arose from the media and document data (Chapter 8).

This chapter presents findings carefully so as to not inadvertently reveal interviewee identities. Descriptive data of interviewees are aggregated. I chose not to disclose interviewee country of origin; because it was an international response with expatriates (expats) coming from across the world, country of origin linked closely with identity. Instead, interviewees are described more broadly, such as having a North American or a European origin.

A reminder about the naming convention in keeping with the anonymity described in the consent form and research protocol: if an organization is described but not named, the data derives from a key informant interview. If an organization is referred to by name, the information was publicly available as with the media and document analysis.
9.2 Overall impressions of key informant interviews

The key informant interviews were more successful than I had anticipated. In writing the research protocol, I emphasized the media and document analysis for fear that key informant interviews would be refused, guarded or shortcoming. Instead, the interviews were rich with discussion and critical reflection, showing more openness than I could have imagined. My personal involvement as a field worker-turned-researcher proved an asset in several ways. Interviewees mentioned that after coming home, they had felt reluctant to discuss their experiences. Friends and families lacked understanding, sometimes naively asking, “How was Nigeria?” as if the expat had been on holiday. When sharing their experiences with friends and family, interviewees said that the friends and family members would seem indifferent or confused:

You don't even know what to explain. Like, do you explain the abject poverty? Do you explain the gold? Do you explain what you did? Do you explain the long hours? People would say, ‘how was your trip?’ And you'd be like, ‘I don't even know what to tell you’. [Interviewee 11]

Because I had worked in the field, interviewees seemed comfortable discussing deeper thoughts, issues and challenges:

It's overwhelming. I mean, you've been there. … That was definitely the most difficult and challenging situation that I've ever been in. [Interviewee 5]

My feeling is that interviewees told me things that they would not have told a non-field worker because having been in the field gave me a degree of credibility. The credibility likely contributed to depth of discussion. And because I was familiar with technical aspects of the outbreak response, more energy could be directed to delving deeply into issues and challenges:

What I wind up talking about with most people is the hard-core technical aspects of what's needed, which doesn't seem to have been the thrust of any of your questions. If you're interested in a rundown on that I can certainly give you a bit of one. But it appears as though the thrust of your project is really about the humanitarian dimension, which is actually kind of refreshing to talk about for once, rather than just harping on the technical points. [Interviewee 7]
During the first few interviews, I found that interviewees stalled at the word ‘ethical’ when I asked about ethical issues. My impression was that the word ‘ethical’ was perceived to be loaded, its meaning ethereal. Therefore, I dropped the term ‘ethical’, and instead inquired about issues and challenges in the general sense. I recognized that I would apply the ‘ethics’ lens in the analysis.

Likewise, some interviewees were unsure or uncomfortable having to explain their understanding of ‘humanitarian’. Beyond the fact that the response to the outbreak was a humanitarian response, interviewees were unfamiliar with its precise meaning or how it might apply technically. It reminded me that some of the organizations responding to the outbreak were not humanitarian organizations in the traditional sense and their expats would be less familiar with humanitarian jargon. An alternate explanation is that because I am researching humanitarianism, interviewees might have feared that their definition would not be correct in an academic sense.

Many interviewees were most comfortable discussing technical aspects of their area of expertise. For example, those with medical backgrounds were comfortable discussing biomedical aspects of lead exposure, but less comfortable discussing socioeconomic factors. When I asked one medical interviewee about socioeconomic factors, he seemed to brush off the question:

That is outside of what we were there to do. … We didn't do a socioeconomic [analysis] … I mean obviously a lot of those discussions took place. But strictly in terms of what we were there to do, that was beyond the scope. [Interviewee 9]

Despite it being “beyond the scope” of the medical mandate, the interviewee conceded that “a lot of those discussions took place”. I feel that the key informant interviews succeeded in revealing the manifest and latent content of “those discussions”.

In conducting the interviews, I intentionally allowed more flexibility after the first few, having learned that less structure resulted in more discussion and reflection. For example, interviewees would go in different directions ‘out of the gate’ at the start of interviews, showing a desire to speak about their most pressing issues. Rather than dictate structure and the order of questions, I used my nursing skills of therapeutic listener in interviewing and counseling patients (McCabe &
Timmins, 2006). For example, when I found that an interviewee dropped hints about a particular topic (say by approaching it but not dealing with it directly) I inquired about that topic to delve into its deeper meaning. Throughout interviews, the interview guide remained beneficial in ensuring that interviews covered all questions and topics.

9.3 Content area

A content area deals with a specific topic, shedding light on a specific explicit area of content identified with little interpretation. In the key informant interviews, phase of the outbreak response emerged as a broad content area: Phase 1, the emergency phase; Phase 2, the remediation of five more villages; and Phase 3, the eventual remediation of Bagega (Table 5).

Table 5: Content area: Phases of the outbreak response

<table>
<thead>
<tr>
<th>Phase</th>
<th>Date range (approximate)</th>
<th>Description</th>
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<tbody>
<tr>
<td>Phase 1:</td>
<td></td>
<td></td>
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<tr>
<td>Emergency Phase</td>
<td>March to July 2010</td>
<td>From the time of discovery to the completion of remediation in the first two villages (Yargalma and Dareta). Ends with the start of the rainy season.</td>
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<td>(when this author was in Nigeria)</td>
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<tr>
<td>Phase 2:</td>
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<tr>
<td>Five more villages</td>
<td>September 2010 to March 2011</td>
<td>Remediation and out-patient chelation treatment in five villages (Abare, Sunke, Tungar Daji, Duza, Tungar Guru).</td>
</tr>
<tr>
<td>(Delay)</td>
<td>April 2011 to January 2013 (includes the International Conference in Abuja on 9-10 May 2012)</td>
<td>Environmental remediation of Bagega is at a standstill while awaiting the release of federal funds. Height of advocacy campaigns.</td>
</tr>
<tr>
<td>Phase 3:</td>
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Phase 1, the emergency phase, includes the time that the international medical NGO first detected the outbreak in March 2010, the international preliminary assessment in May, and the June-July remediation of the first two villages (Yargalma and Dareta). Phase 1 came to an end with a sharp drop in child mortality and the start of the rainy season when bush roads became impassible. Phase 2 commenced after the rainy season with the remediation of five more
villages. At the request of the international medical NGO, the expat remediation team returned to conduct a remedial risk assessment in June/July 2011.

Between Phases 2 and 3, response efforts were on hold due to a lack of funding for the remediation of the town of Bagega. During this time, there were targeted advocacy campaigns and the international conference in Abuja.

Of the 21 interviewees: 8 (38%) were primarily involved in Phase 1, and 9 (43%) were primarily involved in Phase 2. Four (19%) were equally involved in all three phases of the response (and were still involved at the time of writing) (Figure 26).

Figure 26. Number of interviewees involved by phase of response

Of the 12 interviewees who were involved in Phase 1, I had worked in the field with 8 of them. All other interviewees were secondary contacts recommended to me by primary contacts.

162 I would have worked with several more had I not been sidelined by a gastrointestinal illness for a week during the emergency phase in May 2010. Humorously (in retrospect), I was the MSF expat doctor’s first patient on her arrival in Nigeria.
The content areas were apparent from the interview data. Large portions of interviews fell into a content area which contained a cluster of categories and themes. For example, discussions of the emergency phase had categories and themes of urgency and intense feelings. When the discussion moved to Phase 2, it was like switching gears, and the phase had categories and themes of disarray and exhaustion. Phase 3 was switching gears again, to uncertainty and frustration.

9.4 Categories and themes

The content analysis of the interview data identified 56 distinct categories (Box 8). Categories are groups of content that share a commonality; they are a descriptive level of content, ideally internally homogenous and externally heterogeneous, exhaustive and mutually exclusive (Graneheim & Lundman, 2004). Box 8 lists the categories in the general order in which they emerged during key informant interviews. The order of the categories somewhat map onto the chronology of events (refer to the timeline of key events, Figure 1, Section 1.2.1).
Box 8: Categories from content analysis, ordered roughly by chronology

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<table>
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<tbody>
<tr>
<td>1.</td>
<td>Initial events at the time of discovery</td>
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<td>2.</td>
<td>The medical NGO reacts</td>
</tr>
<tr>
<td>3.</td>
<td>Spreading the word and sounding the alarm</td>
</tr>
<tr>
<td>4.</td>
<td>Expats descend on Zamfara state</td>
</tr>
<tr>
<td>5.</td>
<td>Arrival on site and immediate impressions</td>
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Through the content analysis, I processed the 56 categories into 14 themes (Figure 27). Themes represent threads of underlying meaning through condensed categories, on an interpretative level, and are not necessarily mutually exclusive (there is some degree of overlap) (Graneheim & Lundman, 2004).
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An analytic synopsis of each of the 14 categories follows below. The analysis incorporated relevant contextual factors drawn from earlier chapters (the historical account of Nigeria, the political economy analysis, and the media/document analyses).

9.4.1 Deprivation, negligence, and public health failures

The government’s ineptitude and laissez-faire approach to disease outbreak surveillance effectively delegated the responsibility to MSF. Because MSF conducted active case finding and responded to emergencies, it seemed like MSF was the de facto public health system. This was not an informal arrangement, but a formalized one:

We have an agreement with the Nigerian ministry of health to do emergency response in four states in the northwest which includes Zamfara. So in fact we had teams working in that state responding to an ongoing measles and meningitis outbreak. And those teams were made aware of the situation in Zamfara, specifically in Yargalma village. [Interviewee 18]

An MSF field article provided a first-hand account of when the MSF nurse first saw the outbreak in Yargalma in March 2010. According to the article, the nurse had expected to encounter meningitis or measles. She said that her MSF logistician colleague made the link between childhood illness and artisanal mining, which raised a small discrepancy. An MSF article published later, in June 2013, credited an (unnamed) MSF doctor with linking the childhood illness to artisanal mining.

Arguably it is less important whether it was an MSF logistician or an MSF doctor that made the link; what is important is that the credit for the discovery went to MSF, an international humanitarian organization.

163 [http://www.doctorswithoutborders.org/publications/alert/article.cfm?id=5013&cat=alert-article]
164 Ins & Outs: MSF OCA Staff Magazine, June 2013, p. 18.
Crediting MSF with the discovery suggests that the local villagers did not have “the presence of mind” to link the illness to artisanal mining. However, one interviewee offered a different version:

The locals themselves had realized that [dust from the grinding machines] was probably the problem, and they had taken those machines out. When we got there, the machines were about a quarter of a mile away from the villages. [Interviewee 19]

The discourse crediting MSF for discovering the outbreak rather than the affected population indicates an unspoken understanding; it did not matter if the affected population had discovered the outbreak. It only mattered that MSF discovered the outbreak because MSF was there, ready and able to provide medical care – and not just for this particular outbreak, but for the many others over many years, and perhaps for many years to come. Therefore, the discursive formation or origin story of the discovery of the outbreak heralds the international humanitarian medical NGO and not local actors simply because the medical NGO had the resources and capacity to respond and convey the information to high-level contacts and the media:

I think that the bigger point is that if we hadn't been there, then the surveillance system, the lack of a strong public health system or health system at all, would probably have meant that that situation just continued with no response to it at all, independent of whether the response would be good or bad or inadequate, but just no response. [Interviewee 18]

All of the three organizations that won the 2011 Green Star Award had participated in the international response to the lead-poisoning outbreak –“real-life heroes from around the world”,165:

Well it's kind of humbling [to win the Green Star Award], to tell you the truth, because we're not in this business. I mean, we started out just to see if we could develop ways to help governments do this stuff. But we were always an engineering firm – we're not a humanitarian organization, although we have humanitarian instincts. Our goals are to make the world a better place for folks.

165 http://www.gcint.org/green-star-awards
So, it was good to be recognized for what we did, although it was not something that we were seeking, not an area that we were working in. [Interviewee 19]

Although rhetorical, had the local ministry of health responded with sufficient human and material resources, one doubts whether the local ministry of health would have received such accolades and international recognition. The tendency to value international private organizations over local forms of democratic organizations has been coined NGO-ism (Mojumdar, 2006) and “the West’s soft instrument for hegemonic policies” (Mahmoud, 2010).

Despite ‘lessons learned’ from calamitous outbreaks such as SARS, it is troubling to know that there are large populations – for example, over three million people in Zamfara State alone – without an adequate outbreak alert system. As Interviewee 3 said about the communication channels that alerted her to the outbreak, “When the outbreak occurred, the [medical NGO] doctors got ahold of [a colleague], and he told them to call me. But that's basically it. Not a system, huh?” And as Interviewee 13 stated, “It would seem like in the public health radar system it's not yet really making the blip that it ought to be making.” This is because there is not a global health emergency alarm system in the way that one might like to suppose.

Some may consider the US Centers for Disease Control and Prevention (CDC) to be an eminent emergency public health responder, and no doubt it has some of the most qualified and resourced employees and consultants. However, while it has some international focus, the CDC is first and foremost a US federal agency – not only must it be formally invited by foreign governments to provide assistance, its mandate is to protect American citizens. The CDC’s participation in Nigeria may seem charitable, but technically its primary concern was not the affected population of Zamfara.

The CDC’s role in the response to the lead-poisoning outbreak was to provide expert opinion and to conduct an initial assessment and multiple surveys – information gathering. As Interviewee

166 Despite the growing threat of lead poisoning globally, emergency assistance from the CDC in the future is unlikely. The CDC's lead poisoning and prevention programs budget was recently slashed from $29 million to $2 million: a shocking 93% reduction. http://parenting.blogs.nytimes.com/2012/03/07/drastic-cuts-to-lead-poisoning-and-prevention-funds/
6 pointed out, the focus on surveillance during the emergency phase was not particularly helpful given how the crisis was blatant and what was needed was emergency medical treatment and remediation:

   So if you go around and check all the lead levels of all the kids in Zamfara and they're all high, what are you going to do about it? [Interviewee 6]

Some may consider the UN health organization to be an emergency public health responder. However, this role may be more myth than reality. Multiple interviewees criticized the UN health organization for its meager contribution to the lead-poisoning outbreak response:

   It is one thing not to care, but it's another thing to make it look like you are doing something, when in fact you are not. And this, I have no problem naming [the UN health organization]. In the beginning of the outbreak … they donated that one-time donation of medical equipment. And up until now you will see reports … and international publications that state that [the UN health organization] is assisting in medical treatment. Well, they are not. [Interviewee 1]

Like the CDC, the UN health organization must formally be invited by federal governments. Interviewee 14 felt that the UN health organization’s hands were tied because of the chaotic Nigerian election period. The UN health organization also faced a major security threat after the UN headquarters in Nigeria was targeted by a suicide bomber on 26 August 2011. And according to Interviewees 14 and 16, the UN health organization was focusing its efforts on its priority: the polio eradication campaign. “A lot of resources were dedicated to [eradicating polio] at the expense of other issues” (Interviewee 14).

Disturbingly, the UN health organization was undergoing its own financial challenges:

   Historically, there has been an [emergency event] fund. Our department … does not have any funds for emergency work, actually. But some funds were loaned

from another project in order to pay for the mission to go over to Zamfara. … So in fact we had very little in the way of internal recourses that we could use. [Interviewee 16]

The medical NGO went so far as to formally petition the UN health organization to ramp up its level of involvement. While some may consider the UN health agency to be a global emergency public health responder, in reality it is more of a nominal normative organization, one that formulates guidelines and policy:

I think there is a lack of clarity about what our role actually is in emergencies, and whether our role is more of a coordinating role or a boots-on-the-ground role. So there's a bit of mixed messaging within the organization. … I mean, we're primarily a normative organization. [Interviewee 16]

Neither the CDC nor the UN health organization was permitted to be involved in advocacy per se. However, they were allowed to provide (more benignly) information and suggestions. This left the responsibility for advocacy to the private international NGO sector. As Interviewee 16 said, “[The UN health agency] has to work within certain constraints that I think NGOs don't necessarily feel”.

Had the outbreak been of an infectious nature posing a threat to the Global North, the response would no doubt have been different. This ethical consideration was raised in the case study publication (Pringle & Cole, 2013).

A key finding of this thesis is the delegation of public health responsibility from local governments to private international organizations. A similar finding is the delegation of advocacy from intergovernmental organizations to private international non-governmental organizations.

9.4.2 Catastrophization and crisis-driven decision-making

For expats arriving on site at the start of the outbreak, the situation was disturbing. Many interviewees commented on their emotional distress of witnessing children who were sick and dying:
I think the thing that stands out for me is seeing children who are completely—they are not paralyzed but they are flaccid, they have no muscle tone throughout most of their body, and they are actively seizing, usually on one side of their body. And walking into the clinic in Yargalma, you'd probably see six or seven of them. … [It was] astonishing to see the degree and severity of the symptoms that they had. [Interviewee 5]

The poor state of healthcare facilities added to the distress:

The clinic was unlike any clinic I've ever seen. So it was very resource poor, it was a cinderblock building basically. There were women and children in the clinic on mats; there were no beds. There were IVs kind of hanging from the wall. I came from a highly modern western pediatric facility where I had most of my experience and training, so it was a big difference. Seeing the children was very sad. [Interviewee 11]

The interviewees’ distress highlights two crises both separate and related: the lead-poisoning outbreak and the impoverished healthcare system. Had there been a properly functioning healthcare system, the lead-poisoned children may have received proper treatment and there would not have been the same degree of issues, challenges and frustrations. However, under current conditions, even without the lead-poisoning outbreak, the impoverished healthcare system persists, a fact of life for the millions of people living in northern Nigeria and in much of the Global South.

The expats’ reaction to the underlying state of healthcare in the affected villages illustrates what the philosopher Adi Ophir calls ‘catastrophization’:

Catastrophization in this sense is a way to describe a state of affairs so as to make what has been a ‘tolerable’ or ‘normal’ situation seem too dangerous or intolerable, to arise moral and political reactions, and to mobilize assistance. The described process which has been naturalized or normalized before now appears as either exceptional or as bearing potentially exceptional consequences (Ophir, 2010 p. 64).

In the discourse of catastrophization there is a threshold to separate the state of disaster from baseline conditions. Ophir considers the threshold to be imaginary:
An imaginary threshold that separates a state of disaster or the happening of catastrophe from protracted disastrous conditions is invoked. It might have already been crossed with or without notice, it may be declared as imminent and too close, but in any case, by the very fact that it has been stated the imaginary threshold is an appeal for an exceptional response (Ophir, 2010 p. 64).

In the case of the Nigeria lead-poisoning outbreak, the ‘imaginary threshold’ was the child mortality rate. A technical definition of a humanitarian emergency is an under-five mortality rate of $\geq 2/10,000/\text{day}$; in Yargalma, rough calculations showed an under-five mortality rate of $40/10,000/\text{day}$:

Now of course I know the figures are distorted by the fact that it was only a village of a thousand, but still, that was later held up with a survey showing thirty to forty percent of children under five dying in less than a year [Ed. note: more than 400 children had died]. So there was a clear, massive, and ongoing mortality in this under-five age group. [Interviewee 18]

Ophir points out that crucial information is missing from a technical epidemiological threshold:

This typology of discursive catastrophization is indifferent to either the viciousness or the sources of destruction; it is rather attentive to its advance, pace, accumulation, and fluctuation, and more concretely to the moment when the threshold of catastrophe is crossed. Discursive catastrophization offers a perspective on human evils from which atrocities, wars, massive dislocations, plagues or earthquakes seem equally relevant, and the justifications for the actions or failure to act that have brought them about almost equally irrelevant, for what is crucial is to understand the way these different sources affect and exacerbate each other and how they may be subdued (Ophir, 2010 p. 65).

Given that the epidemiological threshold was crossed, there was a moral imperative to act:

Well I think at that time, early or mid to late 2010, the key issues were really definitional ones. We had defined that this was a crisis, an epidemic of sorts. And we had defined that due to the fact that we had mass mortality on levels that were extremely high, that are rarely seen even in our line of work, we had to react, we had to act to combat and attempt to end that mass mortality. That was clear. That was unambiguous. [Interviewee 14]
It may be surprising that what Ophir calls the ‘imaginary threshold’ (in this case, the U5MR) could create a moral imperative. Unrelated to the degree of suffering, one death below the threshold and the moral imperative seems to evaporate. Ophir explains the ambiguity:

The threshold is ambiguous on at least three accounts: first, because it is not clear where exactly the line should be drawn – even the choice of a unit of measurement (a State or a region) for determining some possible standards is questionable. Second, the threshold is ambiguous because the line may be crossed at any given moment due to accumulation or acceleration. Third, it is ambiguous because it is never certain whether identifying, determining, or declaring the threshold is a matter of recognizing a fact or of fulfilling a duty (Ophir, 2010 p. 72).

There is a practical reason for establishing an emergency threshold (however ambiguous) that pertains to governmentality:

This ambiguity is structural, and it inheres the efforts of operationalization. … To operationalize means to determine what one should monitor, count, and take into account, in order to frame the question of the threshold and make possible an informed decision over the threshold, which is nothing but the governmental form of the sovereign decision over the exception. But this governmental decision also deconstructs the very structure of sovereignty, its coherency and monopolistic claims, because it is a decision given to or taken by a variety of governmental and non-governmental agents (i.e., non-governmental agents like humanitarian experts and activist that are still involved in governmentality) (Ophir, 2010 p. 73).

Setting of the emergency threshold is, in Foucault’s terms, the administrative medicine of biopower – the life-or-death bureaucracy. As the Executive Director of the World Food Program put it:

Occasionally, I have thought the worst place for a hungry child to live in Africa today is a country that is at peace with its neighbours and relatively stable. Funding levels rise with the incidence of violence and media interest (cited in Polman, 2010 p. 144).

It is important to acknowledge that the lead-poisoning outbreak was designated a crisis not only for its high mortality rate. Had the children been dying of disparate diseases – for example, a few children dying of heavy metal poisoning while others were dying of malaria, cholera, or
malnutrition – then epidemiologic convention would not have declared a particular outbreak and help may not have come:

Establishing the fact that a catastrophe is actually taking place, or that it did or is about to take place is precisely what is at stake in discursive catastrophization. In other words, discursive catastrophization is a formation of discourse in which the occurrence of catastrophe is always problematized. Part of this problematization is concerned with the occurrence itself – must there be an event, clearly distinguished in time and space, in order for catastrophe to take place? (Ophir, 2010 p. 68).

One study interviewee considered this aspect when news of the situation first broke. A physician with the public health institute’s lead branch had been in disbelief and felt it necessary to rule out other causes of death:

So the first thing that went through my head is, are these kids really dying from lead poisoning? Because it was really unheard of at the time that children would perish from lead poisoning. … I wasn't entirely convinced that lead poisoning was the exact answer to that why children were dying. So my first thoughts were to try to confirm the diagnosis. … At the time we had heard a little bit about artisanal gold mining but we wanted to also get a better handle on what the other possible contaminants were in the area, as well as the infectious disease problems in the area. [Interviewee 5]

Ophir notes that crisis situations are complicated and embedded in various governmental mechanisms; “Discursive catastrophization often structures the discourse of governmentality and imposes its focal point of attention” (ibid, p. 65). While the international organizations governed the response ‘in the field’, there was deference to the higher authority of the Nigerian government. For example, the medical NGO sought official government permission to send blood samples to an accredited lab in Europe for analysis. Another example was how the medical NGO requested that the government invite a particular foreign national health organization to assist with the response:

We wrote a short report to the government and requested and recommended that they invite other actors. And we specifically said the [foreign national public health institute] should come and assist with this. And then based on our recommendations the government asked other actors in. [Interviewee 18]
Life-and-death decisions had to be made with little time and information:

We were having to make some very fast decisions based on very little information and very little experience ourselves – none really – in responding to this type of outbreak. …. But we didn’t have the luxury, I would say, of time. [Interviewee 18]

The acuity of the crisis was the high mortality rate and the fact that “they are virtually living on top of the contamination” [Interviewee 13]

The medical NGO was dealing with crises within crises. It was already dealing with measles and meningitis, and then with a cholera outbreak [Interviewee 18]. There was little provision from the state government or the federal government to deal with cholera [Interviewee 6].

In the early days, responders entertained the idea of moving whole communities into IDP (internally displaced peoples) camps to facilitate the clean-up process, but the idea was quickly ruled-out. The medical NGO would have been prepared to assist, but only if the move was voluntary:

No, we would not move populations. That is not our responsibility – forgetting all the dramas and politics – that is not our responsibility. That is more with the government and the community. If populations were moved and it was voluntary, maybe then we would look at if we needed to support with water and sanitation or something else outside of wherever they were moved to. [18]

Images of displaced populations resulting from this disaster would have closed the conceptual gap between war and economy-generated environmental disasters.

For one interviewee, the sheer loss of life was disturbing, although it was not on the scale of other disasters:

Just the sheer loss of life! Even though you can argue that actual numbers are relatively small – it’s not, you know, the Rwanda genocide or the Goma cholera after the genocide in terms of scale – but as I said, if you go into communities and they've lost thirty or forty percent of their children in such a short period of time, you can't even imagine what that must be like for people. [Interviewee 18]
For interviewees, it was not the numbers alone that had it warranting the humanitarian response, but being there, seeing it, and making the personal connection.

9.4.3 Community and cultural acceptance

Having descended on the remote rural communities, the expats were warmly received but with a great deal of curiosity; “I mean we gathered huge crowds!” [Interviewee 10]:

People would follow us around and sometimes people would pinch you to make sure that you're real. [Interviewee 5]

The crowds were mostly of children, anxious to see a white foreigner in their village.

One interviewee considered the international response to be paternalistic in the start but out of necessity; “because we were trying to save lives, and there wasn't a lot of time and energy for communicating with the parents about what lead poisoning was” [Interviewee 6]. “There was no way we weren't going to come across as rich white people, no matter what we did.” [15]

None of the expats and few of the national staff spoke Hausa, making communicating with patients and families difficult. “I think [national staff] probably had it harder than I did, because no one expected me to be able to speak [Hausa]” [Interviewee 8]:

You can use a translator, but you don't know exactly what they are telling other people, you don't know how accurate it is. And in work like this, clear language is very important and to understand each other is absolutely necessary. [Interviewee 20]

In addition to the language barrier, there were cultural barriers with concepts surrounding health:

It is a difficult concept for people who have a different cultural basis for thinking about health and well-being, and trying to link the causality of lead poisoning and why the children were dying was really difficult. [Interviewee 6]

You have a high degree of illiteracy and very low knowledge of anything scientific. … A low dosage of a toxic pollutant – very difficult to convince them that this is the problem. [Interviewee 12]
The CDC spearheaded a house-to-house survey to assess blood lead levels in children and to take environmental samples. The house-to-house survey was supported by local officials and residents, and children were readily brought forward for chelation therapy. No doubt desperation fostered local acceptance of the survey:

People understood that their kids were dying. And death by lead poisoning is a horrible, horrible thing to see. It must be awful to experience it, but it's really awful to watch. So, people were eager to have the test and to get into treatment. [Interviewee 3]

A week to ten days into its mission, the international assessment team encountered a game-changing security event. Explained below, the interviewees involved attributed the incident to miscommunication. It was during a survey teams’ final day of surveying Dareta:

There were a series of miscommunications. Our laboratory staff, which came from the state ministry, didn't show up one day. And so we had called them … and they said ‘we're not coming because people are going to attack you’. …Yes, we thought someone may be harming us. And you know … we were threatening people's livelihoods. … They were subsistence farmers, so they used to farm and just barely get by. And then someone turned them onto mining. And now they mine, and they have left farming. And so that's their livelihood. So threatening that is very dangerous in some ways. … So yes, we were evacuated from the village. [Interviewee 11]

The supposed security threat contradicted the warm reception that the international team received in the villages, making it hard to believe:

I think part of me felt so warmly received in the villages, that I was really having a hard time believing that someone would hurt us. But at the same time, I knew where I was. [Interviewee 11]

The sudden evacuation left local villagers confused and disappointed:

So we left the village, and the village elder and some men were coming after us. They didn't understand why we so abruptly left. And it caused a lot of cultural local problems. So we had had all this local good will in the village, and we were, you know, working there and helping in some ways, and then we just up and left, because our security was threatened. So it was scary. Ugh, now it's kinda gross.
Towards the end, you know, you just want to finish surveying, and get everything covered, and then the whole melodrama ensued. [Interviewee 11]

The team leader from the public health institute recounted the story. They were in the village preparing to continue the house-to-house survey. They were waiting for their counterparts in the ministry of health. The ministry of health staff often arrived a bit later, but on this particular day they did not show up:

So my staff called them, the state ministry of health, and was told that the state ministry of health was not showing up because there was some sort of planned attack on our team being in the village [Interviewee 5]

When asked if the survey team should evacuate from the village, the coordinator with the ministry of health answered ‘yes’:

I try to be very careful with the security of my staff, and so I immediately pulled my entire team out of the village. … We had to take any threats seriously at that point, so we pulled out and stayed at our hotel. Our work there was almost done anyway with the door-to-door survey in Dareta, and I had to report all this back to the embassy, and the state department, and the [foreign national] government folk. [Interviewee 5]

Later, in an effort to clarify what had occurred, members of the public health institute discussed the event with the ministry of health:

The state ministry of health indicated that there was miscommunication, that actually the communication should have been that the minister of health for the region, or I think it was the epidemiologist for the state, was out investigating reports of some sort of type of attack on teams. And that wasn't well communicated to [the person that told us to evacuate]. [Interviewee 5]

Those involved in the international response had varied backgrounds; the physician team leader had drawn on his previous work experience in deciding to evacuate:

I had experience of being in stressful situations before, especially security-wise. I grew up as a professional firefighter, and had to work on forest fires for a number of years. And so I felt like I acted appropriately with the information I had and have no regrets about pulling my team out when I did. [Interviewee 5]
According to interviewees, some local villagers felt hurt that the expats had left so quickly, but response efforts proceeded once the miscommunication was resolved. The primary fall-out was a schism within the group of expats; the contingent from the private engineering company split from the foreign national public health institute and chose to work directly with Zamfara state officials in an effort to get emergency remediation underway more quickly.

There had already been some tension within the international team. The international team was organized by the foreign national public health institute, but some team members were from other organizations with different mandates:

I argued vociferously that this mission should turn to emergency response. Under [the public health institute’s] protocols, they were in there only to do an assessment, and we were part of the [institute] team for doing the assessment. And they have pretty strict bureaucratic procedures as to what they’re allowed to do in terms of their mission. So their mission, and we were part of their mission, was to assess the situation and make recommendations. But it was pretty clear that there was a need for the next level, which is called emergency response, which [the institute] was not prepared to do. [Interviewee 19]

Those with the environmental engineering company began to distance themselves from the assessment team in order to spear-head the emergency response:

Officially, [the public health institute] was not prepared to amend its mission to work on emergency response. So we began to work informally with the Zamfara State government, to look at what could be done to respond to the situation. And of course with [the medical NGO] – you guys were probably in emergency response the whole time there. And we were even clear at that point that there needed to be either remediation, so that these kids would return to clean homes, or the kids would have to be removed and taken out of the villages to be treated and then put into foster care. [Interviewee 19]

The environmental remediation company benefited from having experience in remediating lead contamination in Senegal:

It was fortuitous that we had addressed those very same issues in Senegal. And in fact, it was hectic at that time because we were actually doing the clean-up in Senegal. And [the environmental remediation company] had crews working in
Senegal doing the clean-up, and [my colleague] and I were supposed to go there and finish that project. But we had seen many of the same issues there and particularly this foster care issue. And in these Muslim communities that just wouldn’t work. So when you’re in a situation like that, if you’re going to treat, you have to do remediation first. … So we began to coordinate with [stakeholders] as to what could be done in terms of remediation. [Interviewee 19]

The security incident and subsequent lock-down provided the impetus to separate. For the head of the environmental engineering company, the lock-down was unacceptable given the dire need for an emergency response:

As soon as the [foreign government] embassy got word of [the security threat], they put a lock-down on [the public health institute] personnel. … And they couldn’t go to the villages any more. … So it was a really difficult situation in that we were trying to deal with this urgency but [the public health institute] was not allowed to go to the villages. And we as part of [the institute’s] entourage were bound by those same rules. So we had to kind of effectively resign from [the institute’s] mission, and then put ourselves in the position of being assistants to the state government in going forward with working on remediation. [Interviewee 19]

The decision was bold and resulted in controversy:

That actually ended up with us in a bit of a controversy. We were persona non grata to [the public health institute] for a while, for doing that. No problems with the staff – everybody at the staff level in Zamfara was on the same page. But as you went up [the institute’s] bureaucracy, it caused more and more heartburn, and probably at the embassy as well, because we were then divorced from the official [foreign government] mission and then were engaged in activities that were regarded as unsafe by the embassy’s security. So we were out there in no-man’s-land for a couple weeks until all of that got ironed out. [Interviewee 19]

While formally separating from the foreign national public health institute’s mission, there was already a degree of separation:

We were never paid by [the public health institute] at all. We were there on a voluntary complimentary basis. And at that time we were working with the [not-for-profit institute addressing pollution], and we had funding to respond to Senegal. So we were kind of pirating that Senegal funding to do what we needed
to do in Nigeria. We didn’t really get any material support from [the public health institute]. [Interviewee 19]

When asked to clarify his relationship with the public health institute:

We went as part of the [public health institute’s] mission. But we were not [foreign] government employees. We were … volunteers that were part of their mission with special expertise. So we operated with them, we had an agreement in which we would operate under their security arrangements. We paid our own expenses up until that point. … So we were really just sort of an appendage to [the public health institute] at that point, and we had our own equipment and our own funding and our own capacity to do what we needed to do. [Interviewee 19]

So Interviewee 19 pulled himself and his team out of the public health institute contingent and became a *persona non grata* with the foreign national public health institute. He spent the next several years overseeing remediation efforts in their various stages. His work was so all-encompassing that he devised a not-for-profit arm of his private engineering company in order to continue to provide life-saving (but not-for-profit) remediation assistance.

### 9.4.4 Gender inequality and the status of women

An important theme in the interview data was the status of women. Interviewees felt that local women were “denied decision-making and power” by male-dominated cultural norms (Interviewee 10). Local women were confined to their homes and not permitted to speak with strange men. These rules reflect the status of women in affected communities.

Gender inequality became a risk factor for lead contamination. Husbands wanted their wives to help with the artisanal mining, and because women were confined to homes, the ore was brought to them (Interviewee 19). Throughout the world, women participate in artisanal gold mining directly and indirectly. In resource-poor settings, the low-cost labour of men as miners is sustained and subsidized by unpaid female labour; in the household, on farms and at markets (Robinson, 1998, as cited in Moody, 2007 p. 80).

Interviewees (particularly female interviewees) stated feeling distressed at seeing how local women were treated:
You know, in terms of the lives of women there, I have to say just about every
day I said to myself, there but for the grace of god go I. It was really hard seeing
women living in those conditions. I mean, everybody has a hard life there, but the
life of women is especially difficult. … There were a whole lot of other things
that we sort of had to put blinders on to. And I had really never worked in a place
like that, where I felt like I couldn't allow myself to emotionally respond to
certain things that I was seeing, because it would inhibit my ability to do the job
that I was there to do. [Interviewee 15]

Women expats respected certain local custom but did not adhere to others. For example, women
expats took on leadership roles that required them to speak to men, to give direction to men, and
even to pay men, which would have been unheard of in traditional conservative society
(Interviewee 15).

In the response to the lead-poisoning outbreak, women expats and women villagers developed
emotional connections. Unlike their male counterparts, women expats were able to enter homes
and speak with local women. While it prevented a logistical challenge for male remediation
workers, it gave women expats profound experiences not shared by their male counterparts.
Many women Interviewees expressed feeling honoured to have had access to local people’s homes:

I felt very fortunate or honoured that I could go into every household, and that I
could hear their stories. [Interviewee 11]

One woman interviewee said that she gained a lot of experience speaking with local women,
developing “connections and relationships with them” (Interviewee 15).

A member of the environmental engineering company found her first experience of talking with
women in the first home she entered in May 2010 disturbing, given the information that she
learned:

It was just women who were allowed to go in at that time. So I believe it was just
me and two other women from [the public health institute]. We were the only
women on the team. And obviously we had translators as well who were female
who worked for the local government. We started asking a ton of questions. But I
remember – it was incredibly difficult to listen to women talk about their children
who had had these pretty horrific symptoms. There were homes that we went to that had all of the young children die. [Interviewee 10]

Survey teams needed consent from the men but information from the women, which created a unique challenge. Male workers asked local men for permission to enter their homes in order to collect information. Then Female workers went into the homes to speak with the local women. Initially, the local men were asked about the state of the children, but the local men could not provide as accurate information as the local women (Interviewee 11).

Women expats had rich experiences in working with Nigerian professional women. The Nigerian professional women could be considered inpats; the merging of expat and national staff, these Nigerian working women came from other parts of Nigeria to assist with the outbreak response. These women had their own unique challenges working in the affected communities:

We only had a couple of women [staff] who were with the state government, and I think probably they ended up with the toughest time of it, being away from home. And a lot of times I think they were called into question by certain locals or members of the community, as to why they were women who were alone – it’s very unheard of to not be with your family, to not be with somebody who's keeping an eye out for you. [Interviewee 10]

Women expats were aware of local customs and tried to make an effort to respect them. For example, despite the heat, women expats kept their heads covered while in the villages:

We tried to be respectful and not look in ways that would make people even more uncomfortable, given the circumstances. So we always wore something on our heads. Sometimes it was as simple as a baseball cap. But we tried to keep our heads covered, we tried to keep our necks and shoulders covered, so no sleeveless anything, even though it was a hundred and ten degrees. [Interviewee 15]

In the hospital, the medical NGO had to take extraordinary efforts to maintain the privacy of its child patients and accompanying mothers because they attracted a steady stream of gawkers, politicos, journalists and photographers. Life in the hospital compound became communal. A consequence of women spending weeks together at the hospital, and not having to perform many daily chores, was the opportunity to congregate and socialize. Some husbands felt threatened by this, and at one point there was a demonstration of men protesting against women leaving their
villages to attend the hospital [Interviewee 5]. These tensions dissolved with the roll-out of community-based chelation treatment.

**Story of the shari’a trial:** A significant finding related to the status of women is the story of the shari’a trial. An interviewee with the environmental engineering company relayed her story about a profound experience she had in the course of her remediation work. She and two women from the local government were testing for lead in soil using an XRF machine in a home that had not yet been remediated. They had sought permission from the women of the home to do the testing and interviews; the women agreed and were welcoming and friendly. Then while the team was at work in the home, a young man entered. He was in his mid-twenties, likely one of the husbands (families live in units where sons tend to stay with their parents and bring their wives into family compounds). The interviewee did not understand what was being said in Hausa, but she could see that there was tension between him and the local government woman, Nafisa, who was doing the testing. Then, when Nafisa bent over to test the soil, the young man grabbed at the XRF. He clearly wanted Nafisa to stop, and she stood up and started yelling. The interviewee had never seen a woman in Zamfara be so direct and so angry towards a man. Nafisa was clearly angry, yelling and waving her arms, so the interviewee directed her and her other colleague out of the home. The three stepped outside. Nafisa was still visibly upset, and explained to the interviewee that the young man had touched her when he grabbed for the XRF. Physical contact is forbidden, and Nafisa’s husband would be angry: she was upset at being touched and worried about her husband’s response.

Many married women are not permitted to work outside of the home, and an incident like this could jeopardize her husband’s permission. At this time – by request of the local emir – there were police stationed in the village. Nafisa approached the police and the village head, demanding that the young man be arrested and tried for his violation of shari’a law.

On this day, the interviewee was the only expat in the village, because all of her colleagues had gone to Gusau for a meeting. She felt isolated and vulnerable, not knowing what to do. The

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168 Not her real name.
police went to the young man's house, but – knowing that he was in trouble – he had fled. The chief called a meeting with Nafisa, the father of young man, several village leaders, the Imam, and the interviewee. The police were in the room. It was a tense atmosphere where “the police wanted to do their job and maybe were on a bit of a power trip and felt like if they didn't do anything, then somebody wasn't respecting their authority or their job” [Interviewee 10]. Nafisa was still angry. The interviewee was afraid that a punishment would be meted out: she knew little about shari’a at the time and was afraid that the repercussions for the young man would be severe. She was also concerned that their life-saving work in the community would be jeopardized. However, she also wanted to respect local law.

At the meeting, they sat down in a circle and everyone was given a chance to speak, including Nafisa, the woman who had been touched. The interviewee was asked to say something but was unsure of what to say for fear of saying something inappropriate. However, she discussed how the women were doing an important job, that without them there would be no remediation, and that the police were doing a job and without them they wouldn't feel as safe, and that everybody was doing an important job. The interviewee said that she could forgive the infraction, but it was Nafisa’s decision, not hers. As time went on, everyone had said their peace and was feeling better. Nafisa felt validated because the group had listened to her and had taken her complaint seriously:

Nobody could call her honour into question, because she clearly demonstrated that she was not OK with what happened. And the whole situation just seemed to diffuse after that. You know, everybody just seemed to say ‘OK we're going to let it go’. And the father of the guy issued a formal apology to everybody there, the remediation team… I think they apologized for touching the XRF because it wasn't their property. ... It was just a very interesting cultural experience and situation. And yah, very memorable. [Interviewee 10]

Many things had gone wrong that day, and by the end of it, the interviewee was utterly exhausted:

I remember at the end of the day I was just exhausted. And I remember actually sitting down for dinner and somebody, it might have been you [which it was],
asked me how my day was. And I said ‘oh, it was interesting, it was interesting’, because I didn’t even know where to begin. [Interviewee 10]

The experience left a profound impression.

### 9.4.5 Security concerns and incidents

Security guards were hired locally to guard staff compounds, and some guards were fired for sleeping at night [Interviewee 21]. Integrating into the community and winning acceptance from the community was an important indirect security measure [Interviewee 21]. The forced evacuation of the international assessment team was later determined to have been unnecessary, and it left local villagers feeling hurt.

Interviewees cited atrocious road conditions as a security concern and major stressor in the course of their work. Vehicles hired to transport expats were in an equally poor state. There were frequent military roadblocks on remote stretches of roads, where soldiers would inspect IDs and cargo. Vehicles from the foreign national public health institute were exempt from stopping, but other organizations had to stop to show identification.

While armed checkpoints were intimidating, they did prove a security measure. Once when passing an armed checkpoint, I was sleeping in the back of the vehicle, suffering from a bout of GI upset. As the driver was being waved through, one of the soldiers spotted me lying in the backseat. He hollered, and the soldiers stormed the car, guns pointed: they mistook me for a kidnap victim. After some tense explaining, we were allowed to proceed. My drive was sure to wake me prior to the next checkpoints.

There was a troubling history of violent armed robberies along remote rural roads in Zamfara State. A medical NGO vehicle was robbed on the way to one of the villages. Thankfully, when the thieves learned that they were robbing the medical NGO, they apologized and returned the items [Interviewee 7]. The incident was not just a powerful indication of the highway dangers, but the profound sense of gratitude and acceptance within the greater population.

Managing payroll was a tremendous undertaking with serious security implications. The local police department offered to provide armed escort of the payroll, but the offer was refused
because the private remediation company chose to operate under the medical NGO’s rules of not having weapons.

One interviewee recalled a situation where some officials tried to coax him into taking a share of money for remediation without having done the work. He was deeply disturbed by the situation and was concerned for his safety in declining the offer.

There is growing concern about Boko Haram terrorist attacks and the effect that they may have on providing international assistance in the future.

9.4.6 Employment and national staff issues

Key informant interviews revealed employment issues pertaining to both expats and national staff. There were grievances regarding differential living conditions and clinical practices. Wider reaching challenges included culture shock, harsh living conditions, psychological stress, and concern for occupational exposure to lead.

According to Interviewee 7, expat fieldwork is usually different from that portrayed in popular media. Naïve expats had to come to terms with what they thought they would be doing, and what they actually did: expats “who fly across the world thinking that they’re going to spend every day individually saving babies” had to temper their expectations [Interviewee 7]. In addition to hiring expats, the international organizations hired local staff. Cognizant of a shortage of qualified healthcare workers, the medical NGO ensured that it was not poaching healthcare workers from the local ministry of health (which did not pay as well or as consistently) [Interviewee 18]. The local staff were not a homogenous group. There were those hired from the immediate vicinity, familiar with local language and customs, but then there were ‘inpats’, Nigerians from other parts of Nigeria, less familiar with the language, customs and traditional rural culture. Inpats, not unlike the expats, struggled with culture shock [Interviewee 7].

Later into the project, as the size of its workforce grew, the medical NGO moved its national (Nigerian) staff into newly rented homes and kept the expats at the main office-compound. This change created tensions. National staff resented having to endure harsher living conditions than their expat colleagues [Interviewee 21].
For those working in the affected communities, especially those undertaking environmental remediation, occupational exposure to lead dust was a major concern. The medical NGO took on the task of monitoring workers’ blood lead levels, establishing a baseline at the beginning and then checking periodically throughout. No incidents of lead poisoning among workers were mentioned in key informant interviews or media reports.

The expat doctor struggled with her role as supervisor of the national staff doctors. She said it was like “herding cats” as some would leave part way through their shifts to rest [Interviewee 18]. There were also challenges with different clinical approaches among the various doctors. According to the interviewee supervising the national staff doctors:

They tended to be... I won't say uncaring, because that's not the right word, but they tended to be less careful, I think, in terms of working out care. And they tended to be just a bit more casual. [Interviewee 8]

This made the interviewee reluctant to delegate, a criticism that came up during her staff evaluation, which she felt was unfair; she seldom delegated out her concern for patients.

For another expat doctor with the medical NGO, supervising national staff was a stressful aspect of her work:

My relationship [with the national staff] was the most complicated part of my time there. Initially it was very good, and I worked very closely with them. I think more and more as I got tired and burnt-out towards the end, I became frustrated, because Nigerian culture is very confrontational, and there was constant confrontation and complaining about conditions and things like that. And there … was some confusion over contracts and extra pay and things. [Interviewee 6]

The interviewee recounted how the national staff even staged a small strike, refusing to continue working until their demands were met. It took the interviewee a great deal of diplomacy to keep the project running. Then the cholera outbreak added to workload and psychological stress for both expats and national staff: “It was very difficult for the national staff to see mortality on that scale” [Interviewee 6]. (The cholera outbreak occurred from June to December 2011.)
9.4.7 Clinical response and issues of exigency

Medical research on mass acute lead poisoning was not well established. According to the spokesperson for the medical NGO, “[we were] trying to define the problem as we were in the midst of combatting it” (Interviewee 14). MSF established itself in the hospitals in Bukkuyum and Anka in order to provide lead-poisoned children with chelation therapy. The somewhat empty hospital provided MSF with wards that were dilapidated and in need of extensive renovation, including water, sanitation and electricity (Interviewee 21). For MSF, this challenge was typical of its projects. Not only does MSF provide life-saving treatment, it first sets up everything that is required, from staff residences to hospital wards. MSF’s capable logisticians establish systems for electricity and running water, and oversee everything from security guards to meals and laundry.

Interviewees had to remind themselves that this was not a war-torn or natural-disaster ravaged area. The local health clinics and hospitals were underutilized and dilapidated as a consequence of social policy. While the economic argument was frequently evoked to explain artisanal gold mining, it was also evoked to explain the paucity of local healthcare provision:

The healthcare structures … weren't just bad as a result of conflict or natural disaster. They were poor to begin with. And poor prevention leads to acute consequences. And so in that sense, the nonexistent or token existence of healthcare structures, the poverty and the lack of opportunity, are I think common factors in many of the places where [the medical NGO] is working. And these are factors that multiply the consequences of disaster or emergency. [Interviewee 14]

For the Expert Group, the normal response to such a crisis would be to administer intravenous chelation (EDTA) rather than oral succimer (DMSA) [Interviewee 2]. However, although a stronger chelating agent, EDTA had a narrow therapeutic window and would have required close cardiac and renal-function monitoring [Interviewee 8]. Succimer was considered a safe and widely used chelating agent, but there was little clinical experience with using it for very high blood lead concentrations [Interviewee 2]. Succimer also required renal-function monitoring, which initially was not possible. It presented the medical NGO doctor with an ethical dilemma. The doctor opted to administer the succimer anyway:
Given that their lead levels were so high, I felt that withholding the succimer until we could get a decent measure of renal function was not appropriate. I thought you put them at more risk by doing that, than just forging ahead and giving it and just assuming that renal function can cope. Which I may well be criticized for by someone, I don't know. All I know is that no one died from renal failure, and I'm sure some children would have died if I had withheld the succimer because we couldn't check their renal function. [Interviewee 8]

The justification shows *ex post facto* moral reasoning.

Consensus about the medical response was difficult to achieve given the particular circumstances. This led to “loops of circular thinking” [Interviewee 14]:

[Those in the medical NGO] would see the need for taking the course of action, but then they’d see the consequences of that action as being unacceptable. But then that led them back to the fact that, well, we still have to take that action. [Interviewee 14]

Succimer was expensive and urgently needed. There was a delay in getting the chelation drug to the remote hospital, but ultimately and thankfully the delay in procurement did not equate with a delay in treatment [Interviewee 8].

The succimer capsules had to be broken open and divvied into pediatric doses. It tasted terrible, and had to be administered with honey. Providing oral treatment to children with neurological deficits posed a challenge [Interviewee 8]. Thankfully, the benefits of treatment were quickly apparent, which encouraged community acceptance and uptake. Had the treatment worked poorly or accompanied by adverse events, community acceptance would have been jeopardized.

Testing blood lead levels after chelation therapy only shows part of the clinical picture. After chelation therapy, lead that was stored in bone leaches back into the blood, re-elevating blood lead levels. Once blood lead levels are re-elevated, further chelation therapy is required. This continues for several cycles, requiring large amounts of the chelation drug. The medical NGO put up a large amount of money over a period of time to purchase sufficient drug stocks.
The medical NGO also provided a large number of personnel. The medical NGO made a concerted effort not to poach qualified employees from the local ministry of health. Applicants were not accepted on their word, but had to present a letter from a ministry of health official:

We would not take from the ministry of health. And what we normally ask is that they have to have a letter … from their state health director that shows that they're not actively employed with their ministry of health at that time. … People had to show that they weren't working for the ministry of health before we would employ them, because we're quite careful about that. [Interviewee 18]

The influx of national and expatriate staff resulted in tensions regarding standards in living and working conditions:

There was a lot of griping about [living and working conditions], continually, from a few certain individuals. We had to let a few people go. We released them because they were just too difficult to handle and upsetting the rest of the team. [Interviewee 21]

For the national staff, you know, a lot of them are from other areas and we're asking them to come work in really remote rural areas –they're from Abuja or Lagos, and we want them to come live in Anka! [Laughter] That's not always a fun thing for them, to suddenly be in a small conservative rural setting, where they're not necessarily culturally all that welcome. So we put out a certain amount of energy trying to help them out with that, as well. [Interviewee 7]

Cohorts of (relatively) privileged foreign-national volunteers and national financially-insecure staff members living and working together in a crisis situation create tensions, many of which are well documented (see for example, Shevchenko & Fox, 2008).

Despite the overwhelming demand, the field hospital could only admit up to ten children per day. The expat in Yargalma was forced to make difficult decisions. Symptomatic children were given priority, even though there were outwardly asymptomatic children with dangerously high blood lead levels:

A lot of [the children with dangerously high blood lead levels] are still running around playing, and knowing that I had to just choose ten every day to admit into the program. So it’s not a very easy situation to be in. And when I handed that
part of the role over to some of the team, I know they continued to find that very difficult. … Knowing that the children are still walking around with those blood lead levels makes it extremely difficult. [Interviewee 18]

This author faced this particular challenge, and can attest to the difficulty in making what sometimes seemed like arbitrary life-and-death decisions. Thankfully, the medical treatment of children was effective and there were few if any adverse events. Had the chelation therapy been met with mixed results, community acceptance may have declined.

There was an ethical dilemma regarding the treatment of pregnant women with concern for the developing fetus. There was no information on the safety of the chelation drug for pregnant women with high blood lead levels, and the Expert Group could not make a recommendation. Despite these women’s need for treatment, the Expert Group and MSF chose not to treat them. A primary consideration was that if they had been treated, and if there had been adverse events, the whole treatment program (and the security of the staff) would have been jeopardized (Interviewee 8). However, the medical NGO offered treatment to breast-feeding mothers given the concern that high blood lead levels would equate with lead in breast milk passed on to newborns. The breast-feeding mothers were happy to receive free treatment.

Treatment was offered to children under five because of the high mortality rate. Occasionally, some older siblings of children under five were also treated. Adults were also severely affected. One interviewee cited anecdotal evidence about infertility, stillbirths, and erectile dysfunction [Interviewee 1], justifying concerns about longer-term consequences.

### 9.4.8 Environmental remediation

Treating children who are still ingesting lead is futile. Chelated children must return to a clean home environment, otherwise the treatment is for naught or worse: it could be detrimental. From the beginning, the head of the environmental engineering company tasked with orchestrating the environmental remediation, insisted on government participation in the process. As a consultant on the international assessment team, his initial role was to investigate, write a report, and make some recommendations. However, he saw the situation as urgent and unprecedented, and
children were still dying. So he went further, drawing up a plan and budget to remediate the villages of Yargalma and Dareta.

We [the expats] of course had no money at all to do the remediation. … So we had to be really blunt with the state government that ‘you need to act now, you know you need to act now, and there is no outside funds coming to support remediation, from anywhere in the world. You’re going to have to provide it’. [Interviewee 19]

He brought in others from his company and coordinated closely with the medical NGO [Interviewee 10]. Initially, the State government paid for the remediation and the expats were impressed:

They paid for everything. It's quite remarkable, actually. We were there as advisors, we had nothing to do with money or the funding. We were working closely with [the medical NGO] on targeting homes where there were kids who had gone for treatment, so we could get those homes remediated. [Interviewee 10]

However, very soon the stream of funding reduced to a trickle:

Towards the end of the project [Phase 1], after the international press and the national press interest had waned, it became a little bit more difficult to get the funds to flow. It seemed like [the state government] lost interest and the money was starting to go elsewhere, which became very frustrating towards the end of the project. I know we talked to you about that when we were living in Bukkuyum. So at the end, trying to finish the project was another story. There was plenty of money to get it started, but by the time early July [2010] rolled around, we were definitely struggling to keep the project rolling, and keep it funded. [Interviewee 10]

Near the completion of phase 1, money from the state dried up and expats pooled their personal money to see the job to completion.

Phase 2 of remediation was funded by UN organizations. There was no system in place for the UN health organization to give money directly to the private engineering company in a timely manner, which posed a problem. And with Phase 2, there was an underestimation of the degree of contamination resulting in insufficient funds to finish the remediation. Given that UN agencies
had already provided funding, they would not provide more. It put the private environmental engineering company in a difficult position – because it was a for-profit company, it was supposed to act in the interests of its shareholders, not donating labour, supplies and money [Interviewee 20]. Having run out of money, expats had to contingency plan an evacuation before the project was complete. Because they had made promises and were a major employer, they anticipated civil unrest due to their sudden departure. In the end, the international medical NGO agreed to pay for remediation [Interviewee 19] but acknowledged that it was well outside of its mandate [Interviewee 7].

Local staff were commended for their competence and hard work with the environmental remediation [Interviewee 19]. However, there was an ethical question about paying people to clean their own contamination, but the practice was deemed justified [Interviewee 10]. Locating landfills proved challenging and controversial. A foreign audit team was sent in to assess and was never completely satisfied [Interviewee 12].

Interviewees were disappointed that it was not possible to remove all lead contamination:

> It was a bit frustrating to not be able to get to all of the contamination, knowing that you were leaving some behind. [Interviewee 12]

Frustration over residual lead contamination also fell under the theme of post-mission reflections, presented later.

Funding for environmental remediation was a constant challenge. Many international organizations put forward their own money for the remediation:

> In the [Phase 2] clean-up, we were actually paying people in the government to do the work. They were given relief from their job, and their regular salaries went somewhere else. And right now [while waiting to remediate Bagega] there's just a brinkmanship going on across the whole government structure. They are still hopeful that somebody else will come in and fund [Bagega remediation]. And then they'll be able to use that money that's allocated for this clean-up for something else. [Interviewee 19]
As time went on, the international organizations demanded more financial contribution from the Nigerian government. The Nigerian government promised funding for remediating the village of Bagega, but release of the funding was painfully slow, sparking the advocacy campaign.

### 9.4.9 Exposures and notions of causation

Once chelation therapy and environmental remediation was underway, there was more time to reflect on causation – people or events that caused the outbreak. An interviewee mentioned that he had heard some victim-blaming, people attributing blame to the artisanal miners [Interviewee 7]. Interviewees said that friends and associates who were not too familiar with the outbreak assumed that a large mining company was responsible, which was not the case. There was no obvious villain, and it was even unclear who owned the mines or orchestrated the mining [Interviewee 4].

Some interviewees, when discussing their thoughts on causation, made a connection to the absolute poverty:

> Gold, in the end, was the driving force. Or poverty, lack of resources, lack of opportunity, lack of education, all the things, poverty and the social determinants, that was also behind this outbreak, really behind this outbreak. [Interviewee 11]

> I think one of the difficulties in responding to this emergency is really that there are more fundamental issues of poverty, lack of employment, lack of nutrition, that surprisingly make this situation seem small. And I constantly struggle with, how do you provide appropriate leadership to a country that really is having difficulty providing its own, in regards to improving those situations irrespective of lead poisoning? [Interviewee 5]

Before the expats arrived, the connection had been made between the sickness and the artisanal mining:

> The locals themselves had realized that [dust from the grinding machines] was probably the problem, and they had taken those machines out. … So actually the biggest reduction in mortality probably came from the emir’s action a month before we got there. [Interviewee 19]
Having arrived on site, a few interviewees did not feel welcomed in the villages because “our presence was equated with the prohibition of mining activities” [Interviewee 20] and “What we were doing could have been easily seen as a threat to their income” [Interviewee 9]. None of the interviewees discussed a desire to enforce a ban on artisanal mining, recognizing that any attempt to ban the practice would simply drive it underground. However, because it was technically illegal, the police did come one day to “make a show of it” [Interviewee 5]:

The enforcement of mining was really a non-issue in the region. … One day we came out of the field and we noticed a larger military force in the compound where we were. … It turned out that the federal government had come in and – I don't know how exactly it went down – they were working to try to enforce the ban on illegal mining by shutting down the mining activities that were outside of homes. It was more just something for show, because they came and went, and there wasn't any military presence in the village afterwards, nor was there any cessation of operations. So I think it just sort of was a transient thing, and nothing really came of it. [Interviewee 5]

The international medical NGO and the foreign private engineering company considered ways to build what they called the third pillar, safer artisanal gold mining practices. However, they soon found themselves reaching beyond their mandate, and the initiative was abandoned [Interviewee 19]. One consideration was to organize artisanal miners, but that would have been problematic:

One of the things that we learned … was there were efforts to try to create [artisanal mining worker] cooperatives, so that they would be self-organized and self-regulated and could work together and train each other and learn practices together – which on the face of it sounds like a good manageable way to do it. But one of the concerns was, if they created any kind of entity as a mining association, the first thing that would happen would be the government would tax them and try to get some of the proceeds. So there was also resistance to doing that. [Interviewee 15]

Safer mining practices could result in artisanal miners having to relinquish some control:

It might be that they have a choice between making money with the rocks they find beneath their feet and being contaminated, or working for somebody else, be they Chinese or Australian or South African or Nigerian, working for someone
else for wages – and they'll probably be low wages – and doing so safely. Well that's kind of a crap choice: poverty or contamination. [Interviewee 7]

There was concern about recontamination:

[There is] a family that is actually still processing within their compound, and the expats are watching these kids slowly die, knowing that it is preventable, begging the families to stop, knowing that the family is just – they’re not evil, they're not stupid – they just don't have a whole lot of other options in their lives. And that really, really disturbs the expats. [Interviewee 7]

Children would take food to sell at the dabas (the artisanal mining sites away from villages). The leftover food would likely be contaminated, and would be brought home for the family to eat (Interviewee 10).

9.4.10 Exit strategies and long-term prognosis

The medical NGO struggled with how to establish discharge criteria for its patients and exit criteria for the organization. Given the dire long-term prognosis at both the individual and population level:

How can you declare a patient cured of lead poisoning, when you know that that lead will remain in their system for twenty years, and possibly at levels that are defined by the WHO as being levels of concern? [Interviewee 14]

The medical NGO never claimed to be providing a comprehensive medical solution or a political economy-based solution to the crisis. It emphasized that its response was an emergency response, one intended to save the lives of the most vulnerable (children under five) up until there was a drop in mortality and other actors could take over. The scope of the need remains significant:

There is a multitude of other health problems that can be expected within a community, long-term chronic health problems that can be expected, due to this level of lead exposure that this had. But for sure, we as [a medical NGO] can't do anything. We chose the most vulnerable group; we chose the group that had all the mortality and the risk of the most serious morbidities. And that's where our focus was. [Interviewee 18]
The affected communities themselves may not entirely appreciate the long-term outlook:

Of course the lead doesn't poison people immediately; it takes several months of exposure for it to build up in the blood and to cause its effect. The worst non-fatal effect of lead poisoning is the impact on the mental development of children. So it severely impacts neurological development and their overall cognitive capacity. But they can't see that in a young child. They will not really realize the impact of that until the child becomes basically a teenager and they discover that the child is very slow, mentally incapacitated. And there will be thousands of such children in that region. [Interviewee 12]

The international response to the outbreak could be viewed as an emergency stop-gap measure. Interviewees identified longer-term concerns and the dire need for follow-up. Artisanal gold mining is likely to continue, and there are impediments to imposing safer mining practices. The effects of poverty and lack of public health resources will be compounded, and children will continue to suffer:

There are thousands and thousands of children who have really serious sequelae from this. I mean, there are kids that are blind. There are kids with spastic paralysis. There is no public health infrastructure, there is very little in the way of regular education, and probably nothing in the way of special education in this area. … In terms of some kind of tertiary interventions or remedial stuff with these kids, I don't see it happening. [Interviewee 3]

Interviewees also expressed concern for other segments of the population, such as women of child-bearing age.

When I asked an interviewee with the foreign public health institute about the institute’s exit strategy, the interviewee said that its work in the lead-poisoning outbreak was clearly at an end:

Well, I think we've already exited [laughter]. What you are thinking of as an exit strategy doesn't include working until the money runs out, right? [Interviewee 3]

The public health institute had invested heavily in its house-to-house survey, but facing a budget shortfall, the interviewee conceded that it could not do more. This sort of exit strategy – working until the money runs out – may have been adequate for the public health institute, but it would
not have been adequate for the medical NGO that had patients in its care, or the environmental company that had committed to remediation.

One interviewee pointed out that child health in this part of the world has long been neglected, and this disaster is unlikely to generate lasting change:

This sounds a bit brutal, but if there hadn't had been the lead poisoning, if these communities had stayed as subsistence farmers, what kinds of lives would the children have had and what kinds of futures would they have had? They may have been very limited anyway [Interviewee 16].

What will be the long-term consequence of reduced IQ at the population level? No one is certain. However, given trends in ruthless resource extraction, environmental emergencies are likely to be more common, “and Zamfara will be the first of many” [Interviewee 14].

### 9.4.11 Advocacy and the use of media

The media and document analysis (Chapter 8) identified patterns and associations in publicized accounts of the lead-poisoning outbreak. Beyond the initial spike in news coverage with the discovery of the outbreak, media coverage coincided with important communiqués from international organizations. The media and social media campaigns played an advocacy role, helping to pressure the Nigerian federal government into releasing the funds for the remediation of Bagega:

Great concern existed among the Nigerian officialdom – the great fear of bad press. [Interviewee 14]

According to Interviewee 7, it was unusual for the medical NGO to organize an international conference such as the one held in Abuja. And despite its effort, key Nigerian officials failed to attend [Interviewee 7]. Immediately following the conference, the organizers of the conference drafted the Tripartite Proposal, aimed at committing the federal government to certain duties in the outbreak response – duties that were considered quite feasible [Interviewee 14]. One interviewee felt conflicted about insisting on government funding for the lead-poisoning outbreak given the overwhelming need in improving maternal-child health more broadly [Interviewee 18].
The funds promised by the Nigerian federal government for the remediation of Bagega were eventually released. One interviewee explained a possible motivation for withholding the funding:

A big part of the hold-up … is that these governments often do have the budgets to do this work, but if they can induce an outside agency or NGO or [a UN organization] or whoever to come in and do the work, then those funds that they've allocated to do it become available for other activities – something you call a kleptocracy – [the funds] disappear [Interviewee 19].

According to one interviewee, when people are dying needless preventable deaths, the international community should provide assistance: “But historically, and in reality, when does the international community get involved? When they have a vested interest” [Interviewee 1].

Many interviewees felt that there was an inadequate response from UN organizations. An interviewee from a UN organization said her small chemical response team was already stretched thin and struggling with high demands and funding challenges [Interviewee 16]. Furthermore, UN organizations are not permitted to be involved in advocacy – that is something that can be taken up by independent NGOs [Interviewee 16].

In terms of advocacy, the medical NGO carefully considered the location of its main base in Nigeria. Situated in northern Nigeria, it would be closer to its operations. Situated in the capital Abuja, it would be closer to federal officials and government bureaucrats. The NGO chose to situate in northern Nigeria, but over the course of the lead-poisoning outbreak, it struggled to connect with key officials in Abuja [Interviewee 14].

A human rights approach was not strongly adopted by the international organizations spearheading the outbreak response. Instead, the approach was patient diplomacy, which was thought to be less confrontational and better suited to the political climate. When the interviewee from the human rights-based organization went to Zamfara to conduct an assessment, members of the other organizations intentionally kept a distance. This made travel and accommodations particularly challenging for the interviewee, as she could not rely on the other organizations for material and logistical support. The interviewee respected the wish of the other organizations and made a concerted effort to not interact with them while in the field [Interviewee 4].
Research and scientific findings contributed towards the ethical imperative for advocacy. While scientific findings may not seem as emotionally moving as personal accounts of the outbreak, publicizing and presenting objective scientific data was deemed necessary and supportive of advocacy overall.

9.4.12 Notions of humanitarianism

For many interviewees, a typical humanitarian crisis is one stemming from war and political violence, with corresponding population displacement, shortages of food, water and shelter, and outbreaks of communicable diseases such as cholera and measles. For the international medical NGO, this was its first humanitarian response to an environmental disaster of this type. An interviewee compared it to the Aral Sea disaster, but stated that the Aral Sea disaster had less of a direct cause and effect, and less specific symptoms; “So yes, at this level and in this way – with a very direct cause link and response to one clear toxin – in this case, then this is certainly a significant experience for [the medical NGO]” [Interviewee 18]. When asked if the medical NGO had ever deployed a similar advocacy campaign, an interviewee cited examples of advocating for improved access to vital drugs for its patients, and advocating for undocumented migrants [Interviewee 7]. For the interviewee, humanitarian response meant more than just providing medical treatment [Interviewee 1].

The private environmental engineering company struggled with being a for-profit company providing a not-for-profit intervention. The head of the company refused to walk away from his commitment to environmental remediation, and over the course of the response to the lead-poisoning outbreak, he formed a not-for-profit entity. The not-for-profit arm of the company provided a way for him and his team to continue the work, unconstrained by the rules surrounding a private for-profit company [Interviewee 19].

Inter-governmental organizations work directly with national governments and are not permitted to engage in advocacy. Interviewee 16, a member of an inter-governmental organization, felt that because inter-governmental organizations are not permitted to advocate, independent NGOs are needed in this regard. Controversy with the number of child deaths in the outbreak exemplified the need for independent NGOs:
There was one issue that came up about the numbers of deaths in children. [The medical NGO] had a figure, but we could only quote the official figure, which was a lot smaller. So there is definitely space for [independent NGOs], for sure. [Interviewee 16]

9.4.13 Research ethics and the Trovan controversy comparison

“The primary ethic at play was the medical imperative.” [Interviewee 14]

Research and research ethics figured prominently as an ethical contention. Interviewees drew distinctions between pure or academic research (which would require ethics review approval) and operational, programmatic or epidemiologic research (which would not require ethics review approval). The distinction, perhaps clear in principle, was less clear in practice.

Interviewees that collected data were conscious of the likelihood of the data being used in future research:

We had an admission sheet, which was another thing I had to get ready, because I knew that there would be people wanting to look at the statistics, who would want to look at how this thing presented medically, how many children get severe lead poisoning in this day and age. Not all that many. And for these kinds of reasons I thought there would be people who would want to see the clinical correlation between blood lead levels and clinical signs and symptoms. And they'd want a decent examination and a recording of a decent examination done on admission. Which is what I tried to put together: an admission protocol. [Interviewee 8]

Because the medical NGO provided a clinical response to the outbreak, it came to acquire a large repository of unique data on acute lead poisoning. The opportunity for research was tremendous:

We have a massive database, which you [this author] were involved with at the start, and it has continued to grow and be developed and adapted to the situation. So we have the biggest cohorts of information on this number of children with lead poisoning, but also this number of children treated this number of courses of
DMSA, of the succimer, for example. So all of this is being analyzed and looked at. [Interviewee 18] 169

The information was used by a working group to evaluate the treatment protocol, which would later be used in other lead-poisoning outbreaks elsewhere in the world. The remediation company has a rich database of environmental data, and is working together with the medical NGO to study links between the environmental and health data [Interviewee 18].

Interviewees from the medical NGO felt that their data collection had operational purpose, and therefore they did not consider it research:

None of what we've done was done as research, if you know what I mean. It's operational research in a sense. It's not a clinical trial or anything like that. The choices are made based on known knowledge and experience that we get as we go along, and then that experience plus all the data and information that we have is being analyzed and collated as research. ... All the data that we have collected has been collected for individual patient care. It wasn't collected as research. [Interviewee 18]

The data was considered programmatic, collected in the course of the project. Interviewees that discussed this issue felt that research using the aggregated data would be ethical – even though there was no a priori REB approval – because the findings would inform future lead-poisoning outbreaks (a consequentialist approach to research ethics):

I think writing up programmatic data, which is essentially what [we] are doing, is very important in this particular context, especially because it's the biggest lead-poisoning outbreak ever recorded. So if you look at the data on DMSA and lead encephalopathy, you're looking at five or ten patients or a sample size of maximum forty people over ten years, these kinds of numbers. And we've got two thousand, three thousand kids, and so many more courses of DMSA, with relatively well-kept data. I mean, it's not perfect, obviously, given the context, but the data is reasonable and some conclusions can be drawn from it that are extremely important for any future lead-poisoning outbreak – especially in a

169 As mentioned, results from this study have since been published; I am cited in the acknowledgements (Greig et al., 2014).
developing country. ... And I think that is perfectly ethical within this context. [Interviewee 6]

Interviewees discussing this issue felt that the medical NGO’s research was ethically sound because it was retrospective and documentary, in line with the ethics of emergency medicine:

I don't have a great deal of concern, ethically speaking, about the research that [the medical NGO] itself was party to, because all the data that we've produced, and the couple of papers that we're working on, are retrospective and they look at the work that we had done, in retrospect. So it is documentary more than pioneering in that sense. Yes, some of the things we did were pioneering, but they were pioneering in a humanitarian medical way. And they were done in line with the ethics of medicine and the ethics of emergency medicine. They were not done with the intent of research, or of producing research. [Interviewee 14]

Ethical importance was placed on intent: the intent was to provide humanitarian medicine, and not to conduct research.

Immediately, the field research of the medical NGO was considered valuable:

The consequence [of our research] is that we now have, and will have in the coming years, a better understanding of lead poisoning writ large, and of ways and means to treat lead poisoning, especially in remote resource-poor environments. [Interviewee 14]

An interviewee from the medical NGO recognized that informed consent of patients posed a particular research ethics challenge:

The danger comes – and I think it's not unique to Zamfara, but to all research in very resource-poor environments – in issues of content and of intent. It's very difficult to explain to patients how their data will be used. And I think the suspicion of patients, as we know the stories from Nigeria, can also be there. Well, you know, you're taking our blood, why are you taking our blood? And the famous vaccine controversy of the 1990s in Nigeria where mullahs claimed that the vaccines were sterilization drugs from the United States. So these issues have to be carefully navigated. [Interviewee 14]

The medical NGO took steps to address these concerns:
All of our patients and their caregivers were consented to the best of our ability at the time. And obviously, consenting is something that we [in the medical NGO] have some experience in. And so we do it to the best of the organization's ability. And the intent in gaining that consent is to improve the outcomes and improve the welfare of those patients and patients who will come after them. So I think that that, from the [medical NGO] side, I don't have concerns about the ethics of our actions, or the papers to come out. … It would be quite easy to point the finger and say well, people are making careers out of this data, and benefiting from it. Well, maybe we are, but it doesn't make it illegitimate, that the response was undertaken primarily as a medical response, primarily as an emergency response, and research ethics were applied as fully as possible. But the primary ethic at play was the medical imperative. [Interviewee 14]

I asked some interviewees about who owns the data. In response to this question, a clinical toxicologist stated that the data belong to the individual patient or individual from whom that data are collected. Yet at the same time, the organization that collects and uses the data has a legitimate claim:

In terms of ownership of the data, I suppose ultimately the owner of data is the individual patient or the individual from whom that data is collected, the person who had the blood test done or the person who had the data collected from them from a questionnaire or whatever it might be. I think it is important that there is appropriate consent taken to be sure that that data is subsequently used in an appropriate way, from a research perspective, and that data is then appropriately anonymized. From a clinical point of view, the group that has been overseeing both the data collection and the data dissemination has been [the international medical NGO], and I think that has been appropriate because they have been the group that has been also involved with delivering the clinical care. [Interviewee 2]

According to this reasoning, individual patients own the data because it is from them that the data derives. However, the medical NGO has a legitimate moral claim to the data when there is appropriate patient consent, the NGO is overseeing the data collection and dissemination, the data are used in an appropriate way, and the data are anonymized. Clearly, trust is an important moral consideration, as individual patients would have little awareness or recourse were a foreign NGO to misappropriate the data.
The foreign national public health institute collected a tremendous amount of data in community-based surveys. During the emergency phase, the foreign national public health institute tested the blood of all children below the age of five in Yargalma and Dareta. Then, following the emergency phase in November of 2010, the foreign national public health institute surveyed more than seventy villages, asking parents to bring forward just the sick children to have their blood lead level tested. Later, the foreign national public health institute survey teams randomly selected seven children from each village for testing [Interviewee 3].

The foreign national public health institute has published research papers on the findings of its surveys. The first two surveys did not undergo research ethics review in Nigeria. However, an ethics review was conducted internally, within the organization. Because the surveys were epidemiologic investigations (public health practice or an “epi-aid”) rather than research, interviewees did not consider it necessary to obtain ethics approval in Nigeria. For the final survey, a population-based survey and not a “rescue mission”, the protocol was reviewed both internally and by a Nigerian research ethics board [Interviewee 3].

When asked who owns the data, the team leader from the national public health institute responded:

That’s a good question. I think, in the end, the data is at the Nigerian federal ministry of health, and I think that in the end they own the data. That being said, we work in concert with them and have a copy of that data set at their allowance. And so we end up working on the data through the Nigerian allowance to do that. [Interviewee 5]

Interviewees were satisfied with the research papers emanating from their interventions:

I think [the research publishing] worked out well, in my opinion. It seems like a majority of the papers that needed to be published are being published with all the stakeholders involved, including the Nigerian government, [the medical NGO, the UN health organization and the public health institute]. … The thing that facilitated that was that we discussed early on what the outcome products would be as far as journal articles or data results publications. And the Nigerian federal ministry of health was very explicit that they would be involved in all decisions that went forward from that data. [Interviewee 5]
One interviewee from the medical NGO had concerns about research undertaken by the foreign national public health institute:

Data is being collected for [the medical NGO] program; it's not being collected for research. I think it gets a lot more complicated once you start thinking about collecting data for research, and that's why I think some of the stuff that [the foreign national public health institute] is doing is a little bit borderline – because they are collecting data to report it, rather than for a clear benefit for the people. And the consent process that they're using is not particularly robust and culturally and linguistically appropriate. So I think it's complicated. And I think there's a possibility for populations like this to ... have problems with their own government and for their medical data to be exploited. So it's a bit of a quagmire. I mean, I'm comfortable with what we're doing, as I say, because it is just programmatic data and the community is aware, and it's really anonymized etcetera. But it certainly caused quite some issues with the team, and they had a lot of questions about it. And it was good, because it really made us think about what we were doing. [Interviewee 6]

Research publication can play an important role in advocacy:

On the global scale, partly the reason I'm a strong advocate for the research is that you need to show that these kinds of things are happening. People need to be aware of toxicology becoming a bigger problem, and environmental contamination becoming a bigger problem, as the world dumps its waste all over the place, and as developing countries become industrialized. And I think that research contributes to that, and that [the medical NGO’s] presence in Zamfara contributes to that global awareness, and it's pretty important. [Interviewee 6]

This quotation is particularly salient in light of the media and document analysis findings of a large correlation between organization publications and news media coverage.

**The Trovan controversy and the off-label use of succimer**

Although no interviewees mentioned the Trovan controversy, it is relevant and worth examining under this theme of research ethics. In some ways, MSF’s off-label use of succimer was similar

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170 With thanks to Ross Upshur for suggesting this comparison.
to Pfizer’s experimental use of Trovan. However, in some morally significant ways, the two were also quite different. Succimer was considered a safe and widely used chelating agent, but at the start of the Nigerian lead-poisoning outbreak there was little clinical experience of using it for very high blood lead concentrations (Interviewee 2). On 10 March 2010, coincidentally at the start of the Nigerian lead-poisoning outbreak, the WHO published a report entitled, “Review of Succimer for treatment of lead poisoning”.\(^{171}\)

According to the report, succimer is a safe and effective oral treatment for lead poisoning:

> The advantages of succimer are that it is effective by oral administration because it is soluble in water, it is well-tolerated, has relatively low toxicity and can be given at the same time as iron supplements to treat iron deficiency anaemia. It does not cause significant increase in urinary excretion of essential minerals unlike the other widely used lead chelating agent, sodium calcium EDTA (Volans et al., 2010 p. 4).

The report notes that Succimer was approved by US Food and Drug Administration in 1991 for the treatment of lead poisoning in children with blood concentrations above 45 mcg/dl. The report also notes that all current guidelines recommend treatment with succimer for children with blood lead concentrations between 45 mcg/dl and 69 mcg/dl if they are protected from continuing exposure to lead and have no signs of encephalopathy (ibid, p. 8). However, when MSF began treating children with succimer for acute lead poisoning, average blood lead levels were upwards of 150 mcg/dl and many children had signs of acute encephalopathy (nausea, vomiting, lead colic, paralysis etc.). In ideal circumstances, the first line of treatment would have been sodium calcium EDTA (an issue explored in Section 9.4.7).

MSF representatives were correct in saying that in drafting the treatment protocol, they were in uncharted territory. The WHO report on succimer states:

> We found no guidelines designed for use in countries with limited access to the full range of chelating agents, limited facilities for hospital inpatient treatment,

limited capability for measuring blood lead concentrations, or limited ability to protect children from continuing exposure (ibid, p. 8).

The WHO report notes that succimer is most convenient for use in rural areas of developing countries because it is can be given orally, does not necessitate hospital admission and has a good adverse effect profile. It also notes that succimer was used successfully for treating acute high blood lead levels in Peru and Senegal (ibid, p. 9). MSF took all these points into consideration when it chose succimer over other chelating agents.

In its decision to use succimer, MSF collaborated with an international team of experts and the Nigerian ministry of health, and obtained official permission from the Nigerian government to import and use succimer in the emergency situation. However, it seems that MSF did not consult its own independent Ethics Review Board regarding the off-label use of succimer (personal communication with member of the MSF Ethics Review Board, 2013). According to Unni Karunakara, former International President of MSF (2010-2013), the independent MSF Ethics Review Board was created to ensure that there is ethical oversight available for issues that could arise from providing care and conducting research (Karunakara, 2013). Should MSF have consulted its own ethics review board regarding the off-label use of succimer?

In 1996, there was an outbreak of meningitis affecting thousands of children in Kano State, northern Nigeria. At the height of the outbreak, the US pharmaceutical company Pfizer conducted an experimental trial of the antibiotic Trovan. According to a BBC News article, Pfizer insisted that its trial of Trovan was conducted in accordance with Nigerian regulations; verbal consent was obtained from the parents of the children, and the trial was sound from medical, scientific, regulatory and ethical standpoints (Murray, 2007). However, the same article states that a Nigerian expert medical panel concluded that the experiment was an illegal trial of an unregistered drug, and a clear case of exploitation of the vulnerable. Kano state officials said that more than 50 children died in the experiment, and that many others developed mental and physical deformities. Pfizer saw it differently, saying that the children had died from meningitis, not from the drug. In fact, because only 11 of the 200 children in the drug trial had died, Pfizer purported a survival rate of 94 percent, 4 percent higher than the non-Trovan control group.
Pfizer’s argument did not silence its critics. In the BBC News article, an angry father of an affected child felt betrayed and made large accusations:

The American doctors took advantage of our illiteracy and cheated us and our children. We thought they were helping us. We did not suspect that our children were being used for an experiment. They have cheated us and our children. All I can say is that God will judge them according to their evil deeds. Where there is a crime, there must be punishment. In addition to the compensation, they should be killed like the children they have killed.

According to a BBC News update, in 2009 Pfizer paid US$175,000 to each of four families as financial compensation in an out-of-court settlement (BBC News, 2011b). The scandal had a rippling effect and was cited as a reason for the failure of polio vaccination campaigns in northern Nigeria, where local religious leaders accused the campaigns as a western plot to sterilize Muslim women.

In an interesting plot twist, during the scandal, Pfizer tried to implicate MSF. Pfizer said that MSF had also used Trovan in the Kano hospital during the same epidemic. It turns out that MSF and Pfizer were working in different sections of the same hospital during the outbreak, but MSF did not work with Pfizer and did not administer Trovan. Pfizer retracted its claim and issued an apology (Pflumm, 2011). MSF welcomed the apology (MSF, 2011b).

Obviously, there are important differences between Pfizer’s experimental use of Trovan and MSF’s off-label use of succimer. However, there are also important overlaps. While MSF felt justified in using succimer (e.g., MSF had support from the Expert Group and official government permission, as well as approval from the various levels of the ministry of health), perhaps Pfizer felt similarly confident and justified. An important consideration is that if MSF’s succimer treatment went badly – or even if it had not been such a success – then perhaps MSF would have found itself facing similar accusations as Pfizer. Thankfully this was not the case. Succimer proved safe and effective. Had MSF consulted its own ethics review board regarding the off-label use of succimer, this potential risk may have been anticipated and mitigated.

There is another important difference between Pfizer’s experimental use of Trovan and MSF’s off-label use of succimer, which has to do with intent. MSF’s primary intent was case
management of the affected population and to assist the local ministry of health. MSF’s intent was not to profit materially or benefit shareholders. Had MSF not responded to the outbreak, the Expert Group and the Nigerian ministry of health would still have decided upon the off-label use of succimer. The same cannot be said of the experimental use of Trovan.¹⁷²

In the end, the experience with succimer was a positive one:

Our conclusion is that treatment with DMSA [succimer] tablets is safe and effective at reducing lead levels, including in patients with very high blood lead levels, which had not previously been shown (Greig, 2013 p. 35).

The Trovan-succimer comparison demonstrates how humanitarian ethics advances along historical and political continuums. Ethical issues are not random but patterned by dominant forms of power. The shortcoming of the biomedical approach to analyzing the Nigerian lead-poisoning outbreak is bias towards technical and behavioural components, leaving hegemonic forces unseen and un-named. Medicalized humanitarianism becomes a form of biopower. To expose humanitarian biopower requires a critical consideration of ethics, not as isolated issues, but patterned by societal forces and rooted in history.

9.4.14 Post-mission reflections and psychological trauma

Contributing to interviewee stress were long working hours, extreme heat, poor living conditions, and unappetizing food. The toll of the crisis weighed on all those involved. When asked if she saw any sick children in the course of her work, one interviewee replied, “I haven't been talking about that so I don't cry” [Interviewee 11]:

Children were dying on a daily basis and we saw them die, and there was nothing, really nothing, we could do about it. There was nothing we could do about it. We felt so helpless. … I'm an environmental scientist, I'm not a doctor. But they saw us coming and thought hey, look! Doctors are here to save our children! And so

¹⁷² Over the years, MSF has had a tumultuous relationship with Pfizer. MSF commended Pfizer for donating the anti-fungal drug Diflucan (fluconazole) to AIDS patients in South Africa (2000), but was critical of Pfizer for the slow roll-out and high expense of its pneumococcal conjugate vaccine for GAVI’s advance market commitment (http://www.msfaccess.org/common-tags/pfizer Accessed 28 Dec 2013).
some of them handed us their children, some of whom died in our arms, and there was nothing you could do. It was awful. [Interviewee 20]

Many interviewees were able to speak to and get to know affected families. Mothers shared tragic stories:

> It was incredibly difficult to listen to women talk about their children who had had these pretty horrific symptoms. There were homes that we went to that had all of the young children die. Basically all the children who were about five years and younger had passed away in the past few month, with these really violent symptoms [such] as seizures and being sick for a long time. And so I remember sitting and talking to the first household and hearing this first story come out, and then it kind of became the same story in every home after that, which was very difficult. [Interviewee 10]

Counseling after returning home was warranted and helpful:

> Seeing kids who have died, or who are very, very sick and there's nothing you can do, is like one of the hardest things that people ever experience [Interviewee 11]

Upon returning home, one is no longer directly involved and loses the thread of the story. Some spoke of reintegration problems or ‘reverse culture-shock’:

> It's more difficult returning than actually going there, because going somewhere is easy. Coming back, that’s a lot more difficult, because nothing is the same as when you left. That's because your perception has changed. [Interviewee 21]

### 9.5 Summation of the key informant interview content analysis

The preceding sections of this chapter addressed the central research question in presenting 14 themes of issues, challenges and frustrations of ethical import. To summarize the most salient findings, interviewees felt great personal satisfaction and privilege in providing direct medical and remediation assistance to the affected population. They endured physical and emotional stress while working under adverse conditions. There was pervasive frustration with the Nigerian government’s lack of commitment to the response, particularly from the federal level. Funding was a constant stress and challenge. Funding fell short within organizations (e.g., when the
foreign public health institute had its lead prevention programming budget slashed) and between organizations (e.g., when the environmental remediation company was unable to transfer funds through the local government to pay its employees). Funding was also an issue when promised but not delivered, as when the Nigerian federal government withheld funding for the remediation of Bagega. The Bagega funding crisis sparked an advocacy campaign – including an online campaign – but some intergovernmental organizations were not able to participate as they were forbidden to advocate.

Discourse on the themes varied according to interviewee roles and organizational mandates. The urgent needs seemed clear and were described as the “three pillars” of the response: (1) chelation therapy, (2) environmental remediation, and (3) safer artisanal mining practices. The first two pillars were the focus of the international humanitarian response, while the third pillar was deemed beyond the mandate of the organizations and had yet to be sufficiently implemented. And while the urgent needs were clear, they existed within a complex social, economic, historical and political context that imposed additional challenges. Interviewees identified tensions surrounding state obligation to its citizens, poverty-driven resource extraction, the medicalization of issues of social justice, and insufficiencies with the international humanitarian enterprise.

The following quotations from interviewees succinctly capture key ethical considerations. The first describes how the humanitarian response to the outbreak was desperately needed:

I think that the bigger point is that if we hadn't been there, then the surveillance system, the lack of a strong public health system or health system at all, would probably have meant that that situation just continued with no response to it at all, independent of whether the response would be good or bad or inadequate, but just no response. [Interviewee 18]

The ethical significance here is that the humanitarian response was likely the only response, and charity medicine was better than no medicine for the poor of Zamfara. International organizations brought with them a wealth of resources and access to world leaders in lead poisoning and environmental remediation. A local government response – however unlikely – would have had less to offer.
The second quotation questions the ethical relevance of comparing disasters as a way of measuring need:

Just the sheer loss of life [in the lead-poisoning outbreak]! Even though you can argue that actual numbers are relatively small – it’s not, you know, the Rwanda genocide or the Goma cholera after the genocide in terms of scale – but as I said, if you go into communities and they've lost thirty or forty percent of their children in such a short period of time, you can't even imagine what that must be like for people. [Interviewee 18]

The third quotation relates to the first, but draws attention to humanitarianism’s inherent inadequacy:

There's a multitude … of long-term chronic health problems that can be expected, due to the level of lead exposure that this had. But for sure, we as [a humanitarian organization] can't do anything. We chose [to treat] the most vulnerable group, we chose the group that had all the mortality and the risk of the most serious morbidities. And that's where our focus was. [Interviewee 18]

Therefore, although the humanitarian response to the lead-poisoning outbreak elicits triumphalism (as with the Green Star Award), it should also elicit despair, given that a proper, needed response is unlikely to materialize under current arrangements of power.

Hunt’s qualitative study of ethical issues experienced by expatriate humanitarian healthcare professionals found that five key themes emerged from interviews: (1) tension between respecting local customs and values, and acting in ways that are consistent with one’s core moral convictions; (2) barriers to the provision of adequate care; (3) divergent understandings and experiences of health and illness; (4) questions of identity as a professional, humanitarian and moral person; and (5) issues of trust and distrust (M. R. Hunt, 2008). Hunt’s study focused more on clinical issues in a variety of contexts, but the five themes emerged in this study as well. The greatest commonality was (2) barriers to the provision of adequate care. The environmental remediation of lead contamination as a pre-condition for chelation therapy was a tremendous hurdle, and so many of the issues and challenges uncovered by this study related back to this issue.
SECTION E: DISCUSSION
Chapter 10 : The humanitarian complex as charity medicine for the global poor: Higher order conceptualization of research findings

“The exercise of labour power, labour, is the worker’s own life-activity, the manifestation of his own life. And this life-activity he sells to another person in order to secure the necessary means of subsistence. Thus, his life-activity is for him only a means to enable him to exist. He works in order to live. He does not even reckon labour as part of his life, it is rather a sacrifice of his life. It is a commodity which he has made over to another.” (Marx, 1952 p. 20, as cited in McNally, 2002 p. 65.)

“The bad news is that 400-500 children died here.” (vonLindern, 2011)

10.1 Introduction to chapter

This chapter, the final chapter of the thesis, revisits the research goal of problematizing contemporary humanitarianism. The Chapter brings together key findings from all aspects of the investigation: the historical account of Nigeria (Chapter 6); the political economy analysis of artisanal mining (Chapter 7); the media and document analysis (Chapter 8); and findings from the key informant interviews (Chapter 9). This final chapter interprets research findings in articulating a response to sub-question (iii) of how the international humanitarian response to the Nigerian lead-poisoning outbreak furthers an understanding of humanitarianism and contemporary issues in humanitarian ethics. The chapter carries the discussion forward to notions of an activist humanitarianism, one that speaks out against neoliberal capitalism in much the same way that it now speaks out against gross human rights violations in conflict settings. Then in keeping with the qualitative research paradigm, the chapter presents counterfactual arguments, strengths and limitations of the research, and areas for further investigation. The thesis ends with a note on reflexivity.
10.2 Bringing together research findings for a comprehensive analysis

The need for critical inquiry is to reveal the powers behind the discourse, the reasons for why humanitarianism is what it is and discussed the way it is discussed. In key informant interviews, I spoke with twenty-one protagonists: those charged with spearheading the international response. The key informant interview content analysis identified three distinct phases of the international humanitarian response (Chapter 9, Table 5):

- Phase 1: Emergency phase, March 2010 to July, 2010;
- Phase 2: Remediation of five more villages, September 2010 to March 2011; and
- Phase 3: Remediation of Bagega, January 2013 to July 2013. 173

The phases are indicated in the timeline of key events (Chapter 1, Figure 1). The phases were felt in the nature of the issues, challenges and frustrations of the humanitarian response.

An analysis of the key informant interviews revealed 56 categories of issues, challenges and frustrations (Section 9.4, Box 8). The content analysis mapped the 56 categories onto 14 themes (Section 9.4, Figure 27), and Chapter 9 presented research findings pertaining to each theme.

From a broad overview, key informant interviewees showed a nuanced difference in perception between coping with the context and coping within the context. Coping with the context was the cognitive space wherein organizations made a strategic connection with the outbreak. Alerted to the situation, they catastrophized it (as per Ophir, 2010) in light of organization mandates and abilities to respond. This involved perceiving an emergency, launching an intervention, rallying experts, and petitioning funds. While coping with the context had its challenges, coping within the context proved far more challenging. Coping within the context was about being in the field, the space both geographic and psychological where one navigates the social, cultural, economic, and political terrain as an organization member and also as a human being more generally.

Each of the 14 themes of issues, challenges and frustrations were more pronounced at certain periods of the humanitarian response. Below, I place the themes within corresponding periods of the response:

- **Arriving and coping with the context**
  - (1) Neglect, negligence, and public health failures
  - (2) Catastrophization and crisis-driven decision making

- **Emergency responding**
  - (3) Biomedical response and issues of exigency
  - (4) Environmental remediation

- **Coping with the response within the context**
  - (5) Community and cultural acceptance
  - (6) Gender inequality and the status of women
  - (7) Security concerns and incidents

- **Struggling within organization roles and perceptions**
  - (8) Employment and national staff issues
  - (9) Exposures and notions of causation
  - (10) Advocacy and the media
  - (11) Notions of humanitarianism
  - (12) Research and research ethics

- **Reflecting upon residual effects**
  - (13) Exit strategies and long-term prognosis
  - (14) Post-mission reflections and psychological trauma

Ethical issues (issues warranting ethical consideration and rooted in ethical quandary) did not rise and fall independently. They ebbed and flowed, intersected and compounded (Figure 28).
The findings tell us that, because ethical issues do not exist in isolation, they should not be considered in isolation. Examining humanitarian ethics at the micro-level privileges an individualistic ethic and fails to implicate broader societal forces inherent in the problem. A broader view raises bigger ethical questions, such as why it was left to private foreign organizations to respond to the lead-poisoning outbreak when state governments are responsible for the health of their citizens. This thesis adopted such a view in situating the case in its historical, political and economic context.

Foucault cautioned against seeing things as individual events apart from history and structures:

If each event has a discrete beginning and end, it does not exist on its own, it can only exist in relation to other events and to other levels of events. An event when it begins, is already part of a history and a social and cultural structure. It both perpetuates and marks a break or difference – no matter how small – from those structures. It is both the Same and the Other (Foucault in O'Farrell, 2012).

The Foucauldian approach argues that the lead-poisoning outbreak of northern Nigeria was not a discrete event existing in isolation. As Chapter 6 (the historical account of Nigeria) and Chapter
7 (the political economy of gold mining) demonstrated, the lead-poisoning outbreak was situated within a regional, national and international history and set of economic, social and political structures.

As with the lead-poisoning outbreak, the response to the outbreak should not be seen as a discrete event in isolation. It certainly was not a foregone conclusion:

The crisis caravan moves off whenever and wherever it sees fit, scattering aid like confetti. In some countries, the donor darlings, it buckets down, while others, the donor orphans, have to make do with the odd snippet. Or with nothing, because donors – like aid organizations – are free to ignore a crisis. Doing nothing is in fact more the rule than the exception (Polman, 2010 p. 144).

The story would have read quite differently had MSF not agreed to provide chelation therapy and TerraGraphics had not agreed to spearhead environmental remediation. MSF’s leaders in northern Nigeria likely looked back on the organization’s birth in southern Nigeria during the Biafran War (Section 2.2), and reflected on how much the organization had transformed – from a defiant ragtag movement to a large professional organization with an annual operating budget of over US$1billion.

The thesis is unique in that it investigated a disaster caused by a rising commodity price. Many studies examine economic hardship resulting from falling commodity prices, such as the World Bank’s Voices of the Poor study, the Structural Adjustment Participatory Review International Network report, and the works by Lund in South Africa (Labonté & Schrecker, 2007a), though this is not universal.¹⁷⁴ Neoliberal policies contribute to commodity price volatility (ul Haque, 2004), and Nigeria epitomizes the neoliberal state:

A neoliberal state is one with a state apparatus whose fundamental mission [is] to facilitate conditions for profitable capital accumulation on the part of both domestic and foreign capital. … The freedoms it embodies reflect the interests of

¹⁷⁴ In relation to the effects of rising and falling commodity prices on human health, there are questions regarding the effects of economic growth/recession on morbidity and mortality rates. For example, see Suhrcke, M. and Stuckler, D. (2012). Will the recession be bad for our health? It depends. Social Science & Medicine, 74: 647-653.
private property owners, businesses, multinational corporations, and financial capital (Harvey, 2005).

As shown in Chapter 6 (the history of Nigeria), Nigeria underwent a tumultuous history from its early history to the transatlantic slave trade, British colonial rule, independence and war, to current conditions as a neoliberal petro-rentier state. Arbitrary and colonially-defined national borders challenged the plausibility of Nigeria as a fully functional nation-state. Current arrangements of power and governance stem from historical and economic conditions shaped by international institutions such as multinational corporations focused on resource extraction, and international financial institutions focused on loan repayment and Structural Adjustment Programs (SAPs):

To consign a greater part of the global South to dependencies for extraction of vital natural resources during colonial rule, Western imperial powers supplanted the autonomy and sovereignty of the peoples, communities and states they colonized and instituted a regime of impunity conducive to unaccountable exploitation and primitive accumulation. Forced labour, compulsory cash crop production and delegation of sovereign power to transnational trading companies and individuals were all part of the regime of impunity widespread in the colonies (Omeje, 2008 p. 2).

The political economy analysis (Chapter 7) presented the social construction of poverty and the subsistence economy in northern Nigeria – societal determinants of health in the lead-poisoning outbreak. The macro-economic analysis elucidated the global context created by globalization, neoliberalism, and gold commodity markets. At the global level, deregulation of global financial markets resulted in the global financial crisis and the corresponding spike in gold prices (McNally, 2010), with the Global South already ravaged by austerity measures (Harvey, 2005; Navarro, 2002; Stiglitz, 2003):

There is a subsistence economy. Most of the people don't earn more than a dollar or two a day. This region is often hit by drought and it is not unheard of that people experience malnutrition here. ... They have very large families for example, and all of these kids compete for very little that's available. They have one planting season, and when there is crop failure, really it is disastrous, because they completely depend on what they harvest to feed them – not even to supplement their income. So it is quite resource poor. Accessibility in terms of
roads is very poor. In fact, during the rainy season, some of the villages are completely cut off from communication. And it seems to me that these villages have been neglected by the responsible parties, by the governments. And so yes, it's quite dire. [Interviewee 20]

Polanyi asserted that “It is a dangerous delusion to think of the global economy as some sort of ‘natural’ system with a logic of its own: it is, and always has been, the outcome of a complex interplay of economic and political relations” (Kozul-Wright & Rayment, 2004; Polanyi, 1944). The complex interplay of economic and political relations resulted in the global financial crisis and the spike in gold prices:

[The spike in artisanal mining] is because of the price of gold. These are very marginal primitive processes. Six or seven years ago, they couldn't make any money doing it. But now, because the price of gold is up towards ten times what it was, that makes marginal operations profitable. This problem will disappear when the price of gold goes back down. And this is a problem all over the world. The price of metal, since about 2006, has been so high, that that brings in a lot of marginal operations. Not only in gold. You've seen the things about recovering metals from e-waste that goes on in some countries. All of that is happening because somebody can make some money. [Interviewee 19]

Inequality was apparent; poverty in the affected areas was in sharp contrast with the relative wealth in other parts of Nigeria:

It was my first time [in Nigeria]. … I think the overwhelming impressions that anyone has when first arriving in Nigeria, especially if they transit through Lagos, is just the overwhelming size of the country and the number of people that are there. And that was certainly my first impression. One is also struck with the affluence of Abuja, the capital city, and then the relative poverty of the north. I think those are strong first impressions that one would have – the poverty, and the quite desert-like, quite arid and harsh environment of the north. [Interviewee 14]

Given the dire poverty and the prospect of gold in locally mined stone, artisanal gold mining was well reasoned:

These guys are taking out miniscule amounts of gold from these rocks, really, if you look at the way they're working. But it's worth it, because of course before, most of them had no cash income. [Interviewee 18]
As stated in Chapter 1, this study did not question whether humanitarianism is good or bad, right or wrong. It sought answers beyond unhelpful polemics in questioning the danger of neoliberal forces shaping the contours of humanitarianism:

My point is not that everything is bad, but that everything is dangerous, which is not exactly the same as bad. If everything is dangerous, then we always have something to do. … I think that the ethico-political choice we have to make every day is to determine which is the main danger (Foucault, 1997 p. 256).

The danger to global health is grinding poverty, deficient public health, and laissez-faire outbreak response – and a charity medicine for the global poor that supports the status quo and impedes transformative change. The problematizing of humanitarianism is not to attack it in order to replace it, but to expose the political violence exercising itself obscurely through it (Foucault, in Foucault & Chomsky, 1971). The issue at the heart of this thesis is humanitarianism’s role in the reproduction of hegemony, how humanitarianism is implicated in the ideological sustainability of global neoliberal capitalism. Ultimately, the target of the critique is a global socioeconomic and political system that tolerates baseline suffering and then delineates meager humanitarian zones of compassion: charity medicine for the global poor.

10.3 Humanitarianism as charity medicine for the global poor

The notion of humanitarianism as charity medicine for the global poor can be traced back in the history of public health. Foucault himself examined the history of public health as a regime of practice. His interest was historically informed public health discourse. As a caveat, it is important to note that Foucault was neither trained as a historian nor considered a professional historian. However, his ideas have greatly influenced the field of history, and there are similar critical accounts of his history of public health that cite close associations with colonialism, nationalism and eugenics (for example, see Bashford, 2004). So while there may be legitimate
criticism of Foucault’s historical account of public health which is presented below, his interpretations provide useful metaphors for conceptualizing contemporary humanitarianism. 175

Foucault traced the birth of the modern notion of public health to the linking of medicine and sanitation in the West in the eighteenth century, when medicine became a social practice (Foucault, 1994a p. 136). According to his account, radical changes in socio-economic conditions – rather than medical treatment – had led to a sharp reduction in scourges such as the plague and tuberculosis. Foucault credited these improvements to the “economy of health”, which was “the integration and improvement of health, health services, and health consumption in the economic development of privileged societies” (Foucault, 1994a p. 135).

Although capitalism favours privatization, ironically under capitalism medicine transformed from a private enterprise into a collective enterprise. Industrial productivity required a (sufficiently) healthy workforce, too big a responsibility to be left to a patchwork of varyingly qualified private healers. So in the interests of capital and managed by government, medicine became a collective enterprise, one that managed the human body for its labour power:

For capitalist society, it was biopolitics, the biological, the somatic, the corporal, that mattered more than anything else. The body is a biopolitical reality; medicine is a biopolitical strategy (Foucault, 1994a).

Society came to revere the doctor, not for the doctor’s skills in curing, but for its elevated status in public health:

The doctor becomes the great adviser and expert, if not in the art of governing at least in that of observing, correcting, and improving the social ‘body’ and maintaining it in a permanent state of health. And it is the doctor’s function as hygienist rather than his prestige as a therapist that assures him this politically privileged position in the eighteenth century, prior to his accumulation of economic and social privileges in the nineteenth century (Foucault, 1994b p. 100).

Medicine had turned its gaze upon the working poor, and in so doing, medicalized social conditions.

The natural environment, like the human body, was assimilated under capitalism. Previously, there had been popular movements to protect the environment in the public interest. As Foucault argued, the notion of salubrity linked human health to the environment in France shortly before the French Revolution. Salubrity and insalubrity had emerged as a politic and science of public health:

Salubrity did not mean the same thing as health; rather, it referred to the state of the environment and those factors of it which made the improvement of health possible. Salubrity was the material and social basis capable of ensuring the best possible health for individuals. In connection with this, the concept of public health [hygiène publique] appeared, as a technique for controlling and modifying those elements of the environment which might promote health or, on the contrary, harm it (Foucault, 1994a p. 150).

However, as progressive as the notion may now seem, capitalism trumped salubrity: nature was private property, and private property was the golden rule of capitalism. Within new capitalist enclosures, natural resources were exploited for wealth and power, and to feed the industrial revolution.

Foucault traced the birth of public health through stages of state medicine, urban medicine, and then labour force medicine:

Poor people’s medicine, labor force or worker’s medicine, was not the first but the last objective of social medicine. First the state, then the city, and finally poor people and workers were the object of medicalization (Foucault, 1994a p. 151).

Public health as a new institution was not to eliminate poverty but to control it and thereby silence dissent. The poor were (and remain) necessary for capitalism:

Urban activity depended on the poor. A city’s poor people accomplished a certain number of tasks: they delivered the mail, collected the garbage, picked up old furniture, used clothing, redistributed or resold scrap materials, and so on. … The poor formed part of the urban system; like the sewers or pipes, they performed an indisputable function (Foucault, 1994a p. 152).
The capitalists needed their poor, but the poor posed certain risks. Industrialization was pushing the working poor into unemployment and destitution, and the great social unrest in England (1780–1840) and the French Revolution (1789–1799) showed that the poor could rise up and revolt (Archer, 2000). Sickness became deviance, and outbreaks such as cholera were blamed on the proletariat. Urban space was segregated into areas of rich and poor. Public health officials were initially complicit in channeling the poor into ghettos (Foucault, 1994a).

Since the poor were benefiting from labour force medicine, it was considered justified and necessary to subject them to medical control (Foucault, 1994a). There arose two superimposed and coexisting forms of medical control: (1) a charity medicine for the poor; and (2) an administrative medicine overseeing population-level issues such as vaccinations and epidemics. The wealthy were left to enjoy their private medicine (Foucault, 1994a pp. 155-156). Through medical control, the wealthy classes and their government representatives ensured a minimum standard of health necessary for existence. This was not out of compassion, but to suppress revolt and keep the poor fit for work. Public health with its two forms of medical control supported the capitalist agenda, doing its best to protect the wealthy from epidemics and unrest.¹⁷⁶

Under colonialism and extended under neoliberal globalization, what were poor sections of the city have come to be poor sections of the world, and poor sections of lower- and middle-income countries. The global elite need their global poor, with corresponding high unemployment and low wages. As in days of old, the global poor are allotted charity medicine and administrative medicine, increasingly and enthusiastically served by private international NGOs. In this era of neoliberalism and public health austerity, humanitarianism may quash the seeds of revolt as it quashes outbreaks of disease.

10.4 Shaping the contours of humanitarianism

Humanitarian responses to situations of deprivation and outbreaks such as the Nigerian lead-poisoning outbreak are less the Dunant tradition of humanitarianism and more akin to charity

¹⁷⁶ Foucault says less about the popular revolt and counter-movements that arose during this time, such as the Revolutions of 1848 when poor and working classes rose up to fight for improved public health conditions.
medicine for the global poor with a modicum of administrative medicine. Nigeria, the quintessential neoliberal rentier state, failed to allocate sufficient resources to essential public health services for its population, such as outbreak surveillance and response capabilities. Viewed as commodities under neoliberalism, public health services were essentially contracted out to MSF, a private foreign NGO. This transitioning of essential public health services from government to NGO, the *NGO-ization* of global public health, is an example of neoliberal hegemony: capitalist power exercising itself obscurely through the supposedly neutral and independent international humanitarian enterprise.

According to interviewees, little was expected of the Nigerian state by its citizens. Instead, poisoned villagers looked to international organizations for help. Governmental and intergovernmental organizations looked to private non-governmental organizations, while private non-governmental organizations lobbied the state for action. Much time and energy went towards negotiating roles and formalizing commitments (Figure 29). Financing was a constant consideration and main area of negotiation. As Interviewee 19 said, “these governments often do have the budgets to do this work, but if they can induce an outside agency or NGO or [a UN organization] or whoever to come in and do the work, then those funds that they've allocated to do it become available for other activities – something you call a kleptocracy – [the funds] disappear”. The state stalled in the hopes of receiving a foreign-funded rescue package, while many of the international organizations struggled under their own budget austerity. Targeted advocacy campaigns expected little from the formal national bodies of Labour, Environment and Health, and Ministry of Health, for preventive interventions or healthcare.

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State governments have a duty to assure conditions for people to be healthy, an inherent responsibility to advance their populations' health and well-being (Gostin, 2008). Interviewees expressed concern that private international organizations inadvertently absolve states of these obligations when leading the charge in public health emergencies. International NGOs certainly embellish their role in responding to disasters around the world, particularly to attract donors. Consider for example, MSF’s public fundraising campaign “The world is our emergency
The perception that NGOs are a global healthcare force fosters the illusion that sufficient donations to NGOs will translate into sufficient healthcare globally. This is simply not the case and according to Duffield, it greatly overstates the role of humanitarianism in the “borderlands” (Duffield, 2001).

Ethical consideration of public health disasters ought to take into account the neoliberal ideology that creates conditions for disasters and then dictates solutions within the “charitable-industrial complex” (Buffett, 2013). Under neoliberalism, humanitarian organizations compete for donations on the open market, forced to overstate their own importance in the ruthless pursuit of private donations, while governmental and intergovernmental health institutions are locked in a downward spiral of underfunding and undercutting. The effect is destabilizing for global health, but the tragic consequences of neoliberalism get hidden in the triumphalism of the humanitarian response. A similarly destabilizing period occurred in the 1980s when, after decades of development modernism and enticements to borrow heavily for publicly financed projects, the ‘Volcker Shock’ left poor countries in the Global South with huge and unmanageable debts (Section 7.2.1). The manufactured crisis ushered in the neoliberal era with its policies imposed globally through the World Bank and the International Monetary Fund. Where developmentalism fell out of favour, a new humanitarianism came into being. ‘Humanitarian emergency’ came simply to mean that which elicits a charitable aid organization's response.

Ideologically, the neoliberal marketplace favours private charitable health organizations – the third sector – over democratically accountable governmental and intergovernmental health organizations, since it can mean reduced tax spending and smaller government. Private humanitarian organizations can prove more efficient under competitive market conditions by relying on donations, volunteers and temporary workers. Hence contemporary humanitarian discourse is less about social justice and solidarity, and more about ideological views of competitive efficiency and professionalization.179

178 Dispatches: MSF Canada Magazine, 13(2) 2010 p. 16. Also discussed in Redfield, 2013.
179 Consider for example the Sphere Project’s Humanitarian Charter and Minimum Standards in Disaster Response (2011) as well as numerous certificates and diplomas in humanitarian assistance.
Thankfully, some humanitarian actors do not accept the situation quietly. Organizations like MSF see advocacy as part of the humanitarian mandate (Redfield, 2013). However, to what degree does humanitarian advocacy set low targets in the hopes of small victories, versus higher targets that would demand structural change? Small victories may satisfy humanitarian aid workers and achieve aid agency goals. In the case of the lead-poisoning outbreak, advocacy efforts eventually achieved small gains, such as the release of government funding for the remediation of Bagega. However, low targets leave fatally-flawed systems unchallenged, such as the underlying paucity of public health infrastructure, absolute poverty, and unchecked outbreaks of meningitis, measles and cholera, and even polio.  

If this were a case study of an expert medical response to a medical emergency in a challenging clinical setting, then the response would be deemed a short-term success. However, the pre-lead-poisoning outbreak baseline was one of the highest maternal-child mortality rates in the world. Nigeria is the second largest contributor to the under-five and maternal mortality globally (UNICEF, 2011), and the lead-poisoning outbreak was just one of many dire public health problems in the country. A pointed ethical concern is that when humanitarian responses come to an end, expats return home and pre-existing conditions persist (Polman, 2010). Pre-existing conditions include not just the material conditions, but the social and economic policies that tolerate high mortality and suffering.

As the case of the Nigerian lead-poisoning outbreak demonstrated, neglected spikes in mortality compel a humanitarian response. Once the humanitarian response is in place, social and economic policies are left unchallenged – even reinforced. This critical analysis puts humanitarianism inside a wicked problem; a problem that is intractable and barely manageable, while managing the problem feeds into it (Rittel & Webber, 1973) (Figure 30).

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180 Sadly, as a postscript, I can now add the 2014 Ebola virus outbreak of West Africa.
In Figure 30, the *Wicked Problem*, societal determinants of health are the culmination of neoliberal social and economic policies. At the global level, laissez-faire financial market deregulation caused the global financial crisis of 2008, which in turn caused a spike in the price of gold, which then caused a spike in unprotected artisanal gold mining. At the national level, a brutal history of colonization, dictatorship and corporatocracy, along with neoliberal austerity and Structural Adjustment Programs, precluded welfare provision and cut farm subsidies. This made traditional farming unviable, driving villagers into unprotected artisanal gold mining. Also at the global level, austerity, deregulation and privatization meant that the social determinants of health were temporarily a lower priority to financial bailouts. At the national level in Nigeria, frequent disease outbreaks continued unchecked by underfunded local ministries of health. Private international NGOs flourish under these conditions, responding to outbreaks such as the Nigerian lead-poisoning outbreak. The humanitarian response to the lead-poisoning outbreak
was high profile, creating the illusion that the problem was adequately solved. The illusion legitimized existing social and economic policies – after all, everything worked ‘well’ for some – thereby feeding back positively into the neoliberal agenda. Neoliberal policies were left uncontested, humanitarianism was left to flourish and expand, and the wicked problem became further entrenched.

Figure 30 draws from Springer’s neoliberalism as discourse (Springer, 2012). In formulating his “circuitous understanding of neoliberalism” (ibid, p. 138), Springer describes how

different systems of thought are combined into one coherent ideology, which becomes ‘commonsense’ allowing governance at a distance to operate. In turn, the circle is closed – and thrown back on itself – by individual subjects who reconstitute hegemony through the coalescence of circumstances of their everyday lives (ibid, p. 139).

Figure 30 illustrates how humanitarianism is implicated in the ideological sustainability of global neoliberal capitalism: how humanitarianism came to be a historically situated philanthropic mode of power. This mode of power provides a formulated response to problems of human suffering and to crises of humanity (Radice, 2009):

Humanitarianism has replaced the imperialist and ideological discourses to become a substitute for politics and justice. The palliative ideology, the morality of urgency, the ambulance politics are supported by a morally indolent constituency that loves cheering its humanitarian heroes and sanctifying the victims… Contemporary humanitarianism is a shelter value, a minimalist morality not based in a categorical imperative but in emotions over circumstances (Raich, 2002 p. 4).

There is another paradox in humanitarianism with regard to its raison d'être: saving lives. If a humanitarian emergency is defined by a doubling of the baseline mortality rate, as is generally the case, then the goal of humanitarianism is to reduce the number of deaths back to the pre-crisis baseline, when by definition it was not a humanitarian emergency. Therefore, those who initially died activated the humanitarian response but cannot benefit from it. This is important because it illustrates an inherent contradiction. Humanitarianism is in response to those initial deaths, but preventing those initial deaths, such as by averting war, instituting food security, raising the standard of living, improving disease surveillance, or implementing safer mining
practices, is not considered within the humanitarianism sphere. Rather, a medicalized humanitarianism sees narrow interpretations of causation, casting problems as technical, with technical fixes: a cholera outbreak is caused by *vibrio cholera*, a measles outbreak is caused by low vaccination rates, and a lead-poisoning outbreak is caused by unsafe artisanal gold mining.

Such tensions are a source of angst amongst seasoned aid workers who, despite best efforts and intentions, do not feel part of a lasting solution. I have heard colleagues liken humanitarian assistance to putting a band-aid on a tumour. Jordi Raich, former Director of External Relations of MSF and co-founder of Architects Without Borders, argues that a band-aid humanitarianism is not just inadequate, but inherently unethical:

> What I am saying is that saving lives may not be the most important goal, that saving them without solving the problem is ethically reprehensible and inhuman. I am against the generalized humanitarian triumphalism and against the reductionism of the humanitarian lenses. I oppose this false, immoral and complacent picture of ‘job done’ when lives are saved (Raich, 2002 p. 24-25).

This thesis’ findings suggest that humanitarianism requires a re-envisioning, a severing from the perpetuation of global health inequality and suffering. Because humanitarianism under neoliberalism – charity medicine for the global poor – is not transformative, there is an ethical basis for an activist humanitarianism. An activist humanitarianism can draw upon decades of humanitarian and human rights experience in its call for a social consciousness in healthcare work to confront macro-social situations of suffering and radical asymmetries (Birn & Brown, 2013).

Epistemologically and strategically, there is space for an activist humanitarianism between humanitarianism and humanism. Humanism is the secular, ethical, rational, and democratic approach to furthering a human rights and development agenda. Amnesty International and Human Rights Watch are examples of humanist NGOs. Humanism is brazenly political and legal in its effort to improve lives, while humanitarianism is carefully non-political and neutral in its

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effort to save lives (Raich, 2002). The difference may be more strategic than philosophical, as this study found with the case of the Nigerian lead-poisoning outbreak; MSF felt it could achieve more through collaboration and closed-door negotiation with the Nigerian government than through confrontation. However, when collaboration and negotiation proved ineffectual, MSF issued communiqués to the media to further its case, resulting – quite effectively as the media analysis found – in spikes of media attention.

Raich calls the linking of humanitarian and humanist (human rights-based) aspirations problematic to incompatible:

> The problem lies in the schizophrenic attempt to combine the uncombinable: the two different and often intrinsically antagonistic moralities, practices and goals that underlie the humanist and the humanitarian doctrines (Raich, 2002 p. 6).

However, Raich’s argument focuses on a Dunantist humanitarianism seeking to humanize war and protect war victims, not the humanitarianism that responds to disasters of poverty and public health neglect, such as the lead-poisoning outbreak.

To illustrate the conceptual linking of humanitarianism and humanism, I adapt two approaches that were used to express relationships between health and human rights (Mpinga, London, & Chastonay, 2011). With the bridged relationship, humanitarianism is independent from but strategically aligned with humanism (Figure 31a). The two are conceptually distinct with independent philosophies and visions, but they build bridges and strategic alliances to achieve common goals. With the interface relationship, humanitarianism and humanism overlap and blend (Figure 31b). An activist humanitarianism exists in the interface, neither purely humanitarian nor purely humanist, sharing both vision and goal.
MSF provides examples of bridged relationships with humanism. MSF maintains its neutrality and independence (i.e. it is carefully apolitical) while tackling macro-social health issues more associated with human rights. Examples are MSF’s Access to Essential Medicines campaign,\footnote{\url{http://www.msfaccess.org} Accessed 10 January 2014.} Drugs for Neglected Diseases initiative,\footnote{\url{http://www.dndi.org/} Accessed 10 January 2014.} treatments for HIV/AIDS and drug-resistant TB,\footnote{\url{http://www.msfaccess.org} Accessed 10 January 2014.}
and healthcare for prison inmates, asylum seekers and undocumented migrants. In effect, MSF is defiantly responding to the adverse effects of the global neoliberal capitalist experiment. The organization shows that humanitarianism can be in solidarity with other social movements, treating ‘injuries to one’ as if they were ‘injuries to all,’ and resisting them in common as matters of shared priority, rather than as the concern only of those under attack.

Mainstream or Dunantist humanitarians may criticize activist humanitarianism for mission creep or non-neutrality in order to delegitimize it. However, so long as an activist humanitarianism provides measured and targeted responses to crises in global health – through direct witnessing, qualitative and epidemiologic evidence, and critical analysis – an activist humanitarianism can provide a framework for international solidarity against global capitalist hegemony, outing neoliberalism as the threat to global health that it has proven to be.

10.5 Counterfactuals

Researchers at MSF recently published a case discussion in the journal Public Health Ethics entitled, “Ethical dilemmas in population-level treatment of lead poisoning in Zamfara State, Nigeria” (Wurr & Cooney, 2013). The case discussion stated that there is “very little historical precedent for population-level lead chelation on this scale and in this resource-poor setting”. The authors identified two key ethical issues: (1) treatment in the face of ongoing exposure, and (2) withdrawals from the program.

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The first ethical issue was also uncovered by this study – key informant interviewees spoke of the futility and danger of providing chelation therapy to children living in a lead-contaminated environment. In the recent MSF article, Wurr & Cooney pondered:

Should implementation of safe mining practices be a condition of chelation therapy implementation in any given at-risk village? And is resumption of unsafe mining in a previously remediated village reason enough to consider suspension of treatment if health promotion and local lobbying fails to stop it? Shall we not be denying children life-saving treatment when many families have adhered to agreed upon safe mining practices (ibid, 2013)?

To a large extent, the questions raise substantive rather than normative issues: so long as there is exposure to lead contamination, chelation therapy is known to be futile and even dangerous. However, for MSF operational decision-makers, the dilemma is likely in the grey zone: at what point should chelation therapy be pulled from the community? Its chelation treatment program would likely continue if only one or two households were to resume unsafe mining; but what if there were five or ten? Rather than arbitrarily determining a cut-off threshold, the problem could be addressed by expressing the concern, involving stakeholders, and working with community leaders and local officials to mitigate the problem.

The second ethical issue was that of withdrawal from the program:

We are now 2 years in to the lead chelation program… Some families have opted to discontinue treatment and follow up, citing concerns about long-term medication use, frequent blood draws (pain, health effects) and the impact on the home economy [with interruptions to livelihoods, etc.]… How do we balance our obligation to treat children for chronic lead poisoning (with or without their parents’ endorsement) against the ethical obligation to patient (or in this case family) autonomy (ibid, 2013)?

Wurr & Cooney draw attention to traditional family structures in the affected communities, stating that “most decisions are made by men often without consultation with mothers of the children”. This suggests that the patriarchal family structure undermines the rights of mothers to make decisions about their children and the rights of children to receive necessary treatment. The
authors frame the issue within their own obligations of treating the children and respecting autonomy.

For this ethical issue, MSF might ask itself: ‘If we had come upon the state of affairs as it is now, would we have initiated a chelation treatment program?’ Given that the under-five mortality rate had dropped from 40 percent at the start of the outbreak to 2.5 percent at the time of writing, it is unlikely that MSF would have gotten involved because the situation would not have met the definition of a humanitarian emergency. Therefore, the ethical issue now is one of abandonment: MSF leaving its patients without the necessary follow-up medical care that MSF had initiated.

As with the previous ethical issue, there are substantive considerations. If families (i.e. fathers) decide that their children are not to receive further treatment, then there is little recourse for MSF. Once blood lead levels creep up and acute toxicity manifests itself, then perhaps the same fathers that had refused MSF’s care will come seeking it. But other than by reducing the burden of chelation therapy (e.g., by reducing the number of blood draws) and strengthening public awareness, much of the issue is beyond MSF’s control.

As the field epidemiologist for MSF during the emergency phase, I encountered fathers who would not allow their lead poisoned (yet asymptomatic) children to come to the MSF hospital for treatment. Most fathers that refused care did not provide me with an explanation. When my colleagues and I raised our concern with local officials, the officials had the local emir make a decree ordering parents to obey our wishes and send their children to the MSF hospital. There was immediate compliance. Although my colleagues and I were relieved that the children would receive life-saving treatment, we were concerned about coercion. When we expressed our concern to our close associates in the village, we were met with laughter. According to their account, the emir’s order did not coerce or violate autonomy; it merely provided authorization and legitimacy in making the group’s decision. That was during the emergency phase. The ethical issue that Wurr & Cooney raise is two years into the program, well beyond the initial urgency. If MSF were to get community leaders to pressure fathers into agreeing to treatment, there could be acts of resentment directed against aid workers.

Since I began the thesis, I have had an opportunity to publish certain aspects of it. I co-authored an article on research ethics during humanitarian emergencies (Pringle & Cole, 2009) and a
chapter on the role of the societal determinants of health in the Nigerian lead-poisoning outbreak (Pringle & Cole, 2012). I also co-authored a synopsis of the lead-poisoning outbreak as a case study in public health ethics (Pringle & Cole, 2013). The Editors invited Colin Soskolne to respond to ethical questions posed by the case study. Soskolne is a distinguished epidemiologist with a focus on occupational and environmental health, and has published extensively on ethics in epidemiology (see for example Coughlin et al., 2000; Soskolne, 1991; Soskolne & Bertollini, 1996; Soskolne & Sieswerda, 1998).

In responding to the case study of the lead-poisoning outbreak, Soskolne focused on the link between the legality of artisanal mining and occupational safety. He highlighted the need for artisanal mining approval processes and compliance monitoring, and implicated the government for not enforcing its own laws:

The fact that a group of people was poor enough that its members broke the law in order to engage in artisanal gold mining warrants some attention as an upstream determinant of behaviours (i.e., the law) resulting in grave harms. Indeed, the collision between poverty and economic opportunity in an unregulated and unenforceable social environment is one that has, in this case, resulted in an epidemic of environmentally preventable toxic exposures (Soskolne, in Pringle & Cole, 2013 p. 181).

Given that the grinding machines were churning out deadly lead dust, Soskolne attributed responsibility to those who provided the machines without proper safety measures. He questioned why the government had not confiscated the grinding machines, similar to how John Snow removed the Broad Street pump handle to control a cholera outbreak in Britain in the 1850s:

The upstream source of exposure is the responsibility of those who provided access to the rock grinding machinery without providing adequate training and/or protection. … Ultimately then, the capacity for enforcement and for ensuring the separation from harmful activities and exposures to dusts ought to have been sorted out ahead of time between the people providing the rock grinding machines and the government that made artisanal mining illegal. Bringing machinery into an uneducated and untrained population is surely either a
thoughtless or a deliberate act of fomenting harms to serve only money-making interests (ibid, p. 182).

Soskolne acknowledged that “money-making interests” were likely wielding power, controlling and profiting from the gold generated by villagers. Still, he felt that if artisanal mining laws had been enforced, then “case law would then exist to prevent future such harms in the region/country by providing clear disincentives for such exploitation” (ibid, p. 185).

For the international humanitarian organization responding to the outbreak, Soskolne assigned it responsibilities beyond its primary mandate, that of negotiating with the government and investing in local capacity:

Even before entering the region to help, some understanding should have been in place to hand control back to the local authorities/community, by then being adequately trained in the issues at hand. In this way, the government’s role would be better defined for points of intervention to investigate, monitor, provide health services, train people and the like (ibid, p. 184).

Soskolne recognized that the humanitarian organization had assumed what ought to have been government responsibilities for public health:

Humanitarian assistance provided by INGOs [international non-governmental organizations] must be balanced against the desire to see governments act to protect public health. By offering such assistance, INGOs, in practice, could be inadvertently complicit in perpetuating the absence of such core services in government. Thus, INGOs may serve to perpetuate a laissez-faire attitude of government to defer to international agencies when it ought instead to have at least some capacity to address local emergencies (ibid, p. 183).

Soskolne’s response to the case study raised many important issues, but this study took the ethics analysis in a different direction. For unlike this author, Soskolne did not benefit from first-hand experience from having assisted in the outbreak response or from having poured over hundreds of media reports and hours of key informant interview data. Below, I respond to his points in light of this study’s findings.

In regards to legality, this study found that any law prohibiting artisanal mining would have been logistically unenforceable:
They weren't really able to logistically police it anyway. They could say it was illegal, but they weren't really going to go out into the villages at three o'clock in the morning and catch somebody mining. It was too hard to get out there, and they didn't have the manpower to do it. So we didn't think that the ban was a particularly effective approach. It made the federal government look good, because they could say ‘oh look, we've done something, we have banned this dangerous activity’. But the practicalities of it are kind of nonsensical. [Interviewee 15]

Furthermore, organizations spoke out against banning artisanal mining with concern for public health:

[Making artisanal mining illegal] leads to the idea of criminalization, which from a health perspective would be a total disaster. Calling it illegal mining and criminalizing it would cause it to go underground. It would go into a clandestine industry. People would be doing it in their homes, in the night. They would be afraid to bring their children for medical treatment for fear of being caught as an illegal miner. So criminalization, as far as we are concerned as a health organization, is a catastrophically bad idea. [Interviewee 7]

Soskolne felt that the government should have removed the grinding machines similar to how John Snow removed the Broad Street pump handle during the cholera epidemic. However, contrary to legend, the removal of the pump handle was mostly symbolic; cholera cases were already in a steep decline and new cases still occurred long after the handle was removed. In fact, the removal of the pump handle may have had more to do with exerting local parish authority than halting the epidemic (Johnson, 2006). Similarly, removing the grinding machines in Zamfara would have been an exercise in power but would not have addressed the driving forces of abject poverty and high gold prices – artisanal mining would have continued through other methods. A harm-reduction approach would work better than an outright ban, as a harm-reduction approach would mitigate the adverse health effects of artisanal mining rather than drive it underground.

Soskolne raised the specter of influence from “money-making interests” but said nothing more of it, likely because journalist investigations have uncovered little in this regard. However, the question still stands: who were the money-making interests and what role did they have in
creating, perpetuating and profiting from the situation? Why only focus on village-level money-making interests, when national and global money-making interests are similarly implicated? What about laissez-faire economic policies, predatory capitalists, and the global financial crisis? Why are the lines drawn where they are drawn in such a public health investigation?

Finally, Soskolne argued that international humanitarian organization should do more to press governments and to strengthen local capacity: but on what grounds? The argument may commit a logical fallacy: that because humanitarian organizations are providing life-saving assistance, they too should be lobbying the government and strengthening local capacity. However, is it not enough that humanitarian aid workers provide life-saving assistance at great personal risk? Are they also obliged to accept additional responsibilities? If I were to rush to assist someone injured in a motor vehicle accident, am I also required to teach first aid to those around me and instruct government agencies on road safety? Clearly, it would be desirable if international humanitarian organizations pushed governments and strengthened local capacity, but a stronger ethical argument needs to be made. MSF has a strong advocacy component as part of its mandate and does much to strengthen local capacity in the line of its work, but the same cannot be said (or expected) of many NGOs. What is needed is for humanitarian actors to step outside the wicked problem of charity medicine for the global poor.

10.6 Contribution of the thesis

This thesis provided a critical account of the humanitarian response to the 2010 Nigerian lead-poisoning outbreak. It showed how new manifestations of global health crises stem from societal determinants of health relating to poverty, globalization, neoliberal economic policies and resource extraction. The ever-rising demand for precious minerals – and fossil fuels – means that ruthless resource extraction will increasingly lead to unchecked disasters, particularly in the Global South, which I termed economy-generated environmental disasters (Pringle, 2012).

This thesis challenged humanitarianism’s assimilation under global capitalism by arguing that it is akin to charity medicine for the global poor. It articulated how NGOs may be perceived as Trojan horses for neoliberalism (Wallace, 2004); when international humanitarian aid organizations ‘come to the rescue’, they validate private foreign involvement, absolve
governments of inherent responsibilities, medicalize social injustices, and undermine local forms of resilience. The thesis argued the necessity of investigating the social, political and economic forces at the root of public health disasters given that poverty, inequality and neoliberal policies pose threats to public health globally – a fact overlooked in the exigency of humanitarian response.

Academically, this thesis adds to the emergent literatures of humanitarian ethics. Practically, the findings of this study may help underscore the importance of strong civil society and public engagement in building and maintaining public health capacity. A critical analysis of power was central to Foucault’s work as it was to this study:

This critique and this fight seem essential to me for different reasons: firstly, because political power goes much deeper than one suspects; there are centers and invisible little-known points of support; its true resistance, its true solidity is perhaps where one doesn’t expect it (Foucault, in Foucault & Chomsky, 1971).

The thesis revealed the biopower exercised through contemporary humanitarianism’s charity medicine for the global poor and administrative medicine managing disease outbreaks. It showed that the medicalization of the lead-poisoning outbreak confined the discourse to toxicological and behavioural causes, leaving societal determinants of health less emphasized. Medicalization of the outbreak was in keeping with conversations I have had with medical humanitarians, clinicians in particular, who put primacy in the doctor-patient interaction, calling it the sharp edge of the scalpel in humanitarian work. In this view, a successful humanitarian response is one that has a medical doctor administering to patients. The view hints of western medical imperialism and discounts local notions of resilience and wellbeing. To counter such views, the thesis proposed an activist humanitarianism founded in solidarity and social justice.

10.7 Strengths and limitations

Tracy suggests eight “big tent” criteria for assessing excellence in qualitative research (Tracy, 2010). Tracy’s model aims for universality by side-stepping particular evaluative criteria for qualitative research means (methods and practices) and ends. A recent validation study found
Tracy’s model theoretically flexible and useful (Gordon & Patterson, 2013). I applied Tracy’s model of eight universal criteria to this study:

1. **Worthy topic**: The topic of the lead-poisoning outbreak was timely, relevant and significant. The investigation in humanitarian ethics was worthy given humanitarianism’s ascendency in international affairs and high-profile role in global health. The research addressed a real ‘in the field’ problem: a need for a deeper understanding of the ethical dimensions of the disaster and its international response.

2. **Rich rigor**: The study applied critical theory which was well suited to the research question. The study obtained primary data directly linked to the topic (key informant interviews and documents and media) while also including background and context (an historical account of Nigeria and a political economy analysis).

3. **Sincerity**: I self-reflect throughout the thesis, discussing the implications of my involvement as both humanitarian aid worker and researcher. I was transparent in presenting the research methods and challenges, such as my decision to use critical theory, and the decision not to publicize interviewee country of origin. The thesis has been a personal journey, helping me make sense of my own experiences in humanitarian aid work.

4. **Credibility**: Interviewees were ideal interview candidates: appropriate and well qualified to address the research question. They provided thick description of the case with concrete detail. There was triangulation through the use of multiple and diverse data sources such as online media and organization communiqués.

5. **Resonance**: The thesis draws reader attention through evocative accounts of the lead-poisoning outbreak. It provides rich description of the issues, challenges and frustrations of the outbreak response. The concluding chapter speaks of significance of the research findings for shaping the contours of contemporary humanitarianism.

6. **Significant contribution**: The thesis provides significant contribution theoretically for its unique application of critical theory in humanitarian ethics. It provided a practical
usefulness for examination of the relevant literature and its insights into the lead-poisoning outbreak. My analysis of contemporary humanitarianism – charity medicine for the global poor – will inspire ideas, discussion, and research.

7. Ethical: As Primary Investigator, I was transparent in presenting the research ethics and informed consent process. I informed research participants of the nature of the study and disclosed my role as humanitarian aid worker-turned-researcher. I took efforts to ensure sound ethical practice, and met with the Office of Research ethics to discuss my concern regarding residual disclosure. I submitted an REB amendment to ensure data security during assistance with interview transcriptions. I deliberated on important considerations in humanitarian research ethics (Section 5.8).

8. Meaningful coherence: The thesis achieved its intended purpose of problematizing humanitarianism in the case of the Nigerian lead-poisoning outbreak by applying a humanitarian ethics lens. The thesis connected the literature, context and primary data sources in addressing the research question and meeting the research goal.

My involvement as an expat field worker was felt in the key informant interviews. This would have been a limitation if key informants said what they thought I wanted them to say. To reduce the chance of interviewer bias, I had open-ended interview questions and I encouraged deep discussion over short verbal responses. One positive aspect to my involvement as an expat field worker is that because I shared camaraderie with several of the key informants, there was a higher level of trust and a deeper level of discussion.

The use of Foucault had some limitations. Foucault’s notion of governmentality is similar in ways to the Gramscian notion of hegemony, and a better theoretical approach to future research may be humanitarianism’s role in the reproduction of hegemony. Further, the Gramscian notion of the organic crisis may have been better suited to frame the critique since the lead-poisoning outbreak of northern Nigeria can be seen as a morbid symptom of the global organic crisis (Gill, 2010). Finally, while Foucault considered his work historical, he was neither a trained nor methodical historian. His historical accounts, which I have used, are open to criticism. However,
his accounts still serve as powerful metaphors of the formulation of public health and humanitarian discourse.

A limitation of the study was that I was not able to interview national staff key informants. I did not recruit national responders due to constraints involving heightened vulnerability. As mentioned in Section 5.4.1, national staff are locally employed in a politically and economically precarious environment. Residual disclosure could have dire consequences if, for example, national staff key informants were found to have (or were even suspected of having) criticized the government or employer. To illustrate this hazard: an (unnamed) international organization’s criticism of the Nigerian government was quoted in the press. Following the press publication, some of the organization’s members in Nigeria were intimidated by what were figured to be government agents (personal communication, 2011). Therefore, the thesis could not include directly the voices of national staff responders, and their input was sorely missed.

10.8 Areas for future research

Some of the issues uncovered in this study suggest avenues for future research. Below I focus on three: the application of new technologies; the application of humanitarian ethics tools; and the long-term follow-up of lead-affected children.

**Application of new medical and logistical technologies**

At the time of the lead-poisoning outbreak, villages were without street names and home addresses. To facilitate the drawing of maps and the numbering of residential compounds, satellite photos were obtained from a foreign national government agency:

> The National Geospatial Intelligence Agency, when they do satellite passes – and god knows why they do what they do – but they cover a pretty broad swath of area. [Interviewee 13]

The sharing of information between military and quasi-military organizations and aid organizations is problematic in terms of neutrality and independence (as the Interviewee 13 said, “god knows why they do what they do”) but did not arise as a major ethical issue in key informant interviews.
It is interesting to note that geographic information systems (GIS) are increasingly employed in disaster response. GIS are computer-based systems for integrating and analyzing geographic data, spatial data referenced to the earth’s surface (Cromley & McLafferty, 2002). Perhaps a precursor was in 1931; floods devastated China, and some tourists used their plane to identify the location of cut-off populations, coming up with the first ‘broad sky-survey’ (Fink, 2007). A more recent example is Google Earth providing satellite images of destroyed villages in Darfur and paths of destruction from tsunamis.188 Nowadays, there are several nonprofit organizations specializing in providing crisis-related mapping and geographic data to aid workers (Meier, 2009). The Satellite Sentinel Project uses satellite imagery and geospatial analysis to monitor the border between Sudan and South Sudan “to assess the human security situation, identify potential threats to civilians, and detect, deter and document war crimes and crimes against humanity.”189

The International Network of Crisis Mappers is a community of experts involved in humanitarian crises, technology, crowd-sourcing, and crisis mapping:

Crisis Mappers leverage mobile & web-based applications, participatory maps & crowdsourced event data, aerial & satellite imagery, geospatial platforms, advanced visualization, live simulation, and computational & statistical models to power effective early warning for rapid response to complex humanitarian emergencies.190

The novel application of new technology in humanitarian settings is considered a “megatrend” in the future of humanitarian action by the ICRC (Ferris, 2011), but will introduce salient ethical issues worth researching. Like GIS, telemedicine promises exciting – yet ethically problematic – benefits in the field.

The application of humanitarian ethics tools

Increased academic interest in humanitarian ethics has resulted in the proposal of ‘ethics tools’. The Humanitarian Healthcare Ethics Network (HumEthNet) is a multidisciplinary network for exchanging ideas and fostering collaboration for ethical practice in humanitarian healthcare. Members of the network created the Humanitarian Healthcare Ethics Analysis Tool (HHEAT), designed to assist humanitarian healthcare workers in ethically challenging situations. The HHEAT provides a validated framework of questions for identifying, elucidating, resolving and evaluating ethical issues and decisions:

The goal of these questions is to encourage a deliberative process where appropriate persons are included in the discussion, relevant contextual features are accounted for, the influence of values and power is considered, and the application potential of different ethics resources is evaluated (Hunt, 2011 p. 617).

The six guiding questions are as follows:

1. Identify/clarify ethical issue: What is at stake and for whom?
2. Gather information: What do we need to know to assess the issue?
3. Review ethical issue: Does information gathered lead us to reformulate the issue?
4. Explore ethics resources: What can help us make a decision?
5. Evaluate and select the best option: What options are possible and which is the “best” under the circumstances?
6. Implementation and follow-up: What can we learn from this situation and what supports are needed?

193 A compact version of the HHEAT is available at: http://humanitarianhealthethics.net/media/files/HHEAT%20cards%20revised.pdf
Rather than “a recipe for resolving ethics issues”, the tool looks to “promote and guide reflection, discussion and ethical action” (ibid, p. 617). The HHEAT could be applied to macro-ethical issues such as questioning complicity in the humanitarian enterprise, but it may be better geared towards ethical issues encountered in the line of humanitarian healthcare work. Evaluating such a tool in a variety of contexts and situations offers opportunities for future research.\footnote{In the interest of full disclosure, I am a recent addition to the HumEthNet team, invited as a Postdoctoral Fellow.}

**Long-term follow-up of lead-affected children**

A crucial area of future research is the longer-term follow-up of the lead poisoned children of northern Nigeria:

There are thousands and thousands of children who have really serious sequelae from this. I mean, there are kids that are blind. There are kids with spastic paralysis. There is no public health infrastructure, there is very little in the way of regular education, and probably nothing in the way of special education in this area. … In terms of some kind of tertiary interventions or remedial stuff with these kids, I don't see it happening. [Interviewee 3]

There remains an entire generation of lead-exposed and desperately poor families in northern Nigeria. There is little in way of material or specialized support for children left with physical and/or intellectual disabilities. Interviewees shared this concern and one hopes that proper needs assessments will be done, programs will be developed and evaluated, and ongoing structures will be put in place to provide these children with the care that they require. Qualitative and community-based participatory research methodologies would be well suited to this line of inquiry.

### 10.9 Closing words

“The master’s tools will never dismantle the master’s house.” Audre Lorde

In conducting the research, I interviewed twenty-one key informants from all international organizations involved in the humanitarian response. I also analyzed a comprehensive collection
of online news reports and organization communiqués. I positioned the analysis of the data on reviews of the literature and an examination of context – the history of Nigeria and the political economy of artisanal gold mining. The thesis culminated in a social autopsy of the Nigerian lead-poisoning outbreak and the international response seen with a humanitarian ethics lens.

The thesis found that the 2010 lead-poisoning outbreak of northern Nigeria was an environmental public health disaster exemplifying the intersection of global inequality, material poverty, economic globalization, and resource extraction. Under the humanitarian ethics lens it found issues, challenges and frustrations that spoke to the limitations and failings of humanitarianism as charity medicine for the global poor. The thesis proffered operational and theoretical insights for stakeholders in global health, and for staff and leaders in the international humanitarian movement.

Interviewees reported feelings of personal satisfaction in providing direct medical and environmental assistance. However, working under adverse conditions, they were also frustrated by the government’s lack of commitment towards the overall wellbeing of its population, and with the ineffectual response from particular intergovernmental organizations. Lack of funding was a ubiquitous issue. Discussion themes varied according to participant roles and organization mandates, but overall, interviewees found that while the urgent needs seemed clear, challenges arose within the complex social, economic, and political context. Participants identified tensions surrounding state obligation to its citizens, poverty-driven resource extraction, the medicalization of social injustices, and limitations of the international humanitarian enterprise.

While the lead in the stone was a product of nature, the societal determinants of health were not. As governments and global financial institutions exacerbate poverty and abandon the poor, international humanitarian organizations are stepping in to fill the void. The result is the humanitarianization of disaster and the NGO-ization of global health. Humanitarianism is assimilated under global capitalism and its NGOs are multiplying forces for neoliberalism: cleaning up its messes; overriding public systems; legitimizing private foreign interference; medicalizing social injustices; and suppressing the seeds of change.
International humanitarian organizations can expect to respond to increasingly dire economy-generated environmental disasters. As shown in Chapter 3, there are a growing number of lead-poisoning crises throughout China and the rest of the world. As commodity prices continue to climb, the precariat are driven to capitalize on whatever opportunities at hand (be they artisanal gold mining or lead-acid battery recycling) within contexts of lax environmental laws, unenforced occupational health regulations, and a paucity of public health infrastructure. Currently, artisanal gold mining is causing widespread mercury contamination throughout Indonesia as other environmental disasters unfold around the world. The Blacksmith Institute and Green Cross Switzerland determined that currently the worst polluted areas are in Ghana, Ukraine, Indonesia, Russia, Bangladesh, Zambia, Argentina, and Nigeria (the Niger River Delta). In these places alone, more than 200 million people – mostly children – are at risk from a range of pollution sources and contaminants such as hexavalent chromium from tanneries and heavy metals from smelting operations.

What Barnett calls the age of liberal humanitarianism (2011) is marked by conservative-compassionate charity medicine for the global poor and administrative medicine for populations in extremis. Alongside humanitarianism’s philanthropic mode of power lurks another front of the neoliberal assault:

While the victims of disaster are neglected and marginalized, the corporations, with support from the World Bank and the IMF, take advantage of the shock to force in privatization, deregulation, and cuts to social spending. They use the guise of disaster response to scoop up publicly owned land and institutions at fire-sale prices. The process is done undemocratically, as the populace is disoriented and unable to protect its interests (Klein, 2007).

In the wake of the neoliberal assault, will western humanitarian NGOs embrace an activist humanitarianism in solidarity with popular health movements? Or will the top-heavy

bureaucratic humanitarian complex collapse as grass-root forces of local resistance mobilize more culturally-relevant forms of resiliency? Or, alternately, will the neoliberal agenda reach its logical conclusion and displace charitable aid organizations with for-profit private contractors?

Like Foucault, my outlook is existentialistic rather than deterministic; I do not presume a natural evolution of humanitarianism. We have seen humanitarian organizations acquiesce as obedient force multipliers for US military invasions (Section 2.4), but we have also seen defiant and unapologetic aspects of an activist humanitarianism: consider for example MSF providing healthcare for asylum seekers and undocumented migrants. If we accept Peter Singer’s argument that “the value of the life of an innocent human being does not vary according to nationality” (Singer, 2004 p. 4), and given that there are increasingly dire threats to global health (Benatar & Brock, 2011), then we can see that humanitarianism is an unfinished project. By refusing to be assimilated in the neoliberal assault on global health, a new activist humanitarianism can join the ranks of “globalization from below” (Falk, 1997).

I end with a note on reflexivity. As an MSF field worker during the Nigerian lead-poisoning outbreak, I had the privilege of working alongside members of the various international organizations, national and expat. We spent many nights together in utter exhaustion and unbearable heat, discussing the challenges, frustrations and rewards of the work. While I was only there for two months at the start of the outbreak, my experience was intense and it left me with lasting impressions. I have true admiration for my colleagues – many of whom participated in this study – and the life-saving assistance they provided to affected villagers. I have been an actor in this thesis as student, researcher, aid worker, and witness. I am subject to my own moral sentiments and moral experiences that shape the contours of my understandings. The thesis grew from my concern for the lead-affected children that I came to know and adore. I see their faces behind this study. I regret that for them, this is not enough.
Epilogue

To date, 734 children have been reported to have died in the lead-poisoning outbreak.\(^{197}\) An estimated 16,000 people, including more than 3,000 children under five, were exposed to lead (TerraGraphics, 2011), and more than 2,500 children with blood lead levels \( \geq 45 \) mcg/dl were treated by MSF with chelation therapy. Mortality dropped from 43% in 2010 to 3.2% in 2013.\(^{198}\) On 5 July 2013, after five and a half months, the environmental remediation of the town of Bagega was finally completed. It involved the clean-up of close to 450 compounds and four hectares of land, overseen by the Nigerian Ministry of Environment and the TerraGraphics Foundation.\(^{199}\) A recently published survey conducted in June/July 2012 found significantly lower blood lead levels in young children and few children in need of chelation therapy (Bashir, Umar-Tsafe, Getso et al., 2014).\(^{200}\)

However, the study also examined the ore processing practices of the mothers,

> an important factor because ore processing inside the family compound is a female role in this population. Because mothers also are responsible for child care, ore processing among mothers is a risk factor for young children who eat, sleep, and play within the compound (ibid, p. 325).

Mothers of 17.6% of the surveyed children were involved in ore processing activities, and 4.3% of mothers processed ore using dust-generating techniques within the family compound. Therefore, the call for safer mining practices is as relevant as ever, and artisanal gold mining is sure to continue in a context of poverty, unviable traditional farming, and high gold prices.


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Appendices

Appendix 1: Map of Nigeria with highlight of the affected area in Zamfara State


Appendix 3: Range of blood lead levels exhibiting various symptoms in children

Appendix 4: Lead-poisoning outbreaks in China (2011)

Appendix 5: Research Information Letter

Appendix 6: Informed Consent Form

Appendix 7: Research Ethics Board Approval Letter

Appendix 8: Interview Guides

Appendix 9: Volunteer Confidentiality Agreement
Glossary

**Almajirai:** a child beggar (see Aluaigba, 2009)

**Apparatus (dispositif):** Foucault generally uses this term to indicate the various institutional, physical and administrative mechanisms and knowledge structures, which enhance and maintain the exercise of power within the social body. The original French term dispositif is rendered variously as 'dispositif', 'apparatus' and 'deployment' in English translations of Foucault's work. (http://www.michel-foucault.com/concepts/index.html)

**Artisanal mining** is a mining activity in which a person labours at extracting certain minerals with a minimal amount of capital and fixed installations, primarily by rudimentary means such as by crushing, grinding and washing. Artisanal mining is often informal in that it commonly operates illegally and without contributing to the tax base (Darby, 2007).

**Biopower:** Foucault argues that biopower is a technology which appeared in the late eighteenth century for managing populations. It incorporates certain aspects of disciplinary power. *If* disciplinary power is about training the actions of bodies, biopower is about managing the births, deaths, reproduction and illnesses of a population. (http://www.michel-foucault.com/concepts/index.html)

**Commodity chain analysis** is a technique to identify power relations, governance structures and exchange relationships within commercial networks, from primary production through to consumption, and from the local up to the international level (Collinson, 2003 p. 2).

**Daba:** an artisanal mining processing site typically situated on the outskirts of villages.

**Discursive Formation:** Discursive formation pertains to *discourse*, a rather slippery notion in Foucault's work but at the most basic level he uses the term to refer to the material verbal traces left by history. He also uses it to describe 'a certain "way of speaking"'. *Discursive practice* is a term referring to a historically and culturally specific set of rules for organizing and producing different forms of knowledge. It is not a matter of external determinations being imposed on people's thought, rather it is a matter of rules which, a bit like the grammar of a language, allow certain statements to be made. (http://www.michel-foucault.com/concepts/index.html)

**Environmental emergency:** a sudden onset disaster or accident resulting from natural, technological or human-induced factors, or a combination of these, that cause or threaten to cause severe environmental damage as well as loss of human lives and property (United Nations Environment Program [UNEP]).

**Episteme:** This term, which Foucault introduces in his book The Order of Things, refers to the orderly 'unconscious' structures underlying the production of scientific knowledge in a particular time and place. It is the 'epistemological field' which forms the conditions of possibility for
knowledge in a given time and place. It has often been compared to T.S Kuhn's notion of paradigm. (http://www.michel-foucault.com/concepts/index.html)

**Ethical Challenge** is a situation in which the ethically preferred response is unclear, or is clear but cannot be enacted. An ethical challenge creates a moral dilemma, a situation in which each possible course of action breaches some otherwise binding moral principle (Blackburn, 2005, *as cited in* Schwartz et al., 2010). Thus, the right thing to do is also wrong in some important way (ibid, p. 46).

**Expatriate** (*expat*): a foreign worker expatriated to work in another country, in contrast to national staff.

**Governmentality**: The concept of how modern political power is exercised not simply (although importantly) by the state, but also by a network of actors, organizations, and enterprises that seek to guide the behavior of individuals and their relations to things (Sawyer & Gomez, 2012, Transnational governmentality and resource extraction).

**Global health** may be seen as the broadest form of public health, with aims to decrease the worldwide burden of disease, with priority given to those risk factors and diseases that make the greatest contribution to this burden. Resources are to be directed to maximize the potential health effects (Stuckler & McKee, 2008).

**Globalization** is “the closer integration of the countries and peoples of the world which has been brought about by the enormous reduction of costs of transportation and communication, and the breaking down of artificial barriers to the flows of goods, services, capital, knowledge, and (to a lesser extent) people across borders” (Stiglitz, 2003 p. 9).


**Historical materialism**: Also known as the materialist conception of history formulated by Marx and Engels, it is the view of the course of history which seeks the ultimate cause and the great moving power of all important historical events in the economic development of society, in the changes in the modes of production and exchange, in the consequent division of society into distinct classes, and in the struggle of these classes against one another (Engels, F. 1892. Socialism: Utopian and Scientific. *As quoted in* Bottomore, Harris, Kiernan, & Miliband, 1991 p. 234).

**Humanitarian action** may be synonymous with ‘humanitarian aid’ but suggest a more active rather than passive approach. Humanitarian action is saving lives and alleviating suffering while ensuring respect for the individual, guided by the core humanitarian principles of neutrality,
impartiality and independence. Humanitarian action implies an element of solidarity with beneficiaries and témoignage (de Torrente, 2004; Pictet, 1979).

**Humanitarian aid** is assistance designed to save lives, alleviate suffering and maintain and protect human dignity during and in the aftermath of emergencies. Humanitarian aid includes: disaster prevention and preparedness; the provision of shelter, food, water and sanitation, health services and other items of assistance for the benefit of affected people and to facilitate the return to normal lives and livelihoods; measures to promote and protect the safety, welfare and dignity of civilians and those no longer taking part in hostilities and rehabilitation, reconstruction and transition assistance while the emergency situation persists. Activities to protect the security of persons or property through the use or display of force are excluded (OECD, 2011).

**Livelihoods analysis** is a technique to analyze the capabilities, assets (stores, resources, claims and access) and activities required for a means of living. A livelihood is considered sustainable when it can cope with and recover from stress and shocks, maintain or enhance capabilities and assets and provide sustained opportunities for the next generation (Collinson, 2003 p. 2).

**NGO** (*non-governmental organization*): a private organization that pursues activities to relieve suffering, promote the interests of the poor, protect the environment, provide basic social services, or undertake community development” (World Bank, Operational Directive 14.70). In terms of public service delivery, NGOs are part of a much broader spectrum of non-profit/voluntary organizations that are usually classified ad the Third Sector (in the UK, Italy), the Social Economy (in France, Spain), and the voluntary sector (in the US).


**Political economy** is an approach for understanding the broader political and economic structures that influence health and disease distribution (L. Doyal, 1979; N. Krieger, 2008). The political economy approach focuses on how the market and economics, political ideology, and other forces are integrally related and affecting public health policy (Raphael, 2006). Looking beyond the social determinants of health to include the broader political and economic (*societal*) determinants of health, political economy examines interactions among the local, regional, and global levels, including the historical context from which they evolved (Navarro, 2002). The political economy approach takes into account the proximate biomedical and behavioural aspects in addition to the larger political, economic, and social context (Birn *et al.*, 2009). Political economy is highly interdisciplinary, drawing on economics, history, business, anthropology, sociology and political science to uncover material and conceptual linkages among aspects of our society (Parkland Institute, 2011).

**Power**: Foucault argues that (1) power is not a thing but a relation, (2) power is not simply repressive but it is productive, (3) power is not simply a property of the State or exclusively localized in government and the State. Rather, power is exercised throughout the social body,
operating at the most micro levels of social relations. Power is omnipresent at every level of the social body. The modern State consists of the convergence of a very particular set of techniques, rationalities and practices designed to govern or guide people's conduct as individual members of a population and also to organize them as a political and civil collective. Mechanisms of power produce different types of knowledge which collate information on people's activities and existence. The knowledge gathered in this way further reinforces exercises of power.

**Problematization:** Foucault explains that he is more interested in writing a history of problems rather than a history of solutions or in writing the comprehensive history of a period or an institution. He describes the history of thought as 'the analysis of the way an unproblematic field of experience or set of practices which were accepted without question... becomes a problem, raises discussion and debate, incites new reactions, and induces a crisis in the previously silent behaviour, habits, practices and, institutions'.
(Source: http://www.michelfoucault.com/concepts/index.html)

**Public health** is collective action for sustained population-wide health improvement (Beaglehole, Bonita, Horton, Adams, & McKee, 2004 p. 2084). Public health is an organized activity of society to promote, protect, improve, and, when necessary, restore the health of individuals, specified groups, or the entire population. It is a combination of sciences, skills, and values that function through collective societal activities and involve programs, services, and institutions aimed at protecting and improving the health of all the people. The term “public health” can describe a concept, a social institution, a set of scientific and professional disciplines and technologies, and a form of practice. It encompasses a wide range of services, institutions, professional groups, trades, and unskilled occupations. It is a way of thinking, a set of disciplines, an institution of society, and a manner of practice.

**Public health emergency** is a crisis that adversely impacts the public health system and its protective infrastructure that includes water, sanitation, shelter, food, and health (Altevogt, Pope, Hill, & Shine, 2008 p. 13, as cited in F. M. Burkle, 2010).

**Remediation** (environmental remediation or remedial action) in terms of lead contamination means that the contaminated site has been fully characterized, all environmental exposure pathways are identified and quantified, a risk assessment has been performed, appropriate clean-up limits established, and a feasibility study has been conducted to assess the most efficient means and protocols to implement the remedy. In relation to the Zamfara lead-poisoning outbreak, remediation may be more appropriately deemed the emergency removal of contamination (Blacksmith Institute, 2011a p. 9).

**Témoignage** (witnessing) is the act of humanitarian aid workers speaking out about what they have seen in the line of their work. It is a willingness to speak on behalf of the populations in
danger, to bring abuses and intolerable situations to the public eye. It is a component of advocacy, a rallying cry for an end to the extreme suffering experienced by civilians and witnessed in solidarity by humanitarian workers (MSF, 2006).
Copyright Acknowledgements

Section 5.8 of this thesis is adapted from this author’s previously published article: Pringle, John D. & Cole, Donald C. (2009). Health research in complex emergencies: A humanitarian imperative. *Journal of Academic Ethics, 7*(1): 115-123. Copyright permission is shown below.
Appendix 1: Map of Nigeria and the affected area in Zamfara State

Red outline = Zamfara State

Red shading = Approximate area affected, includes villages of Yargalma and Dareta (not labeled).

(Source: Nations Online Project with additions by author)

Appendix 3: Range of blood lead levels exhibiting various symptoms in children

Appendix 4: Numerous lead poisoning incidents in China

Research Information Letter

[Date]

Dear [name of potential interviewee],

My name is John Pringle. I am leading a research study at the University of Toronto that is examining the Nigerian lead poisoning outbreak. The study is entitled, “The Nigerian lead poisoning outbreak and the international humanitarian response: A case study in global health ethics.” You have received this letter because you are invited to participate in this study. You are invited to participate because of your involvement in the response to the lead poisoning outbreak. Before agreeing to take part in this study, it is important that you understand the study and how you may be involved.

What is the study about?

This study seeks to examine issues surrounding the Nigerian lead poisoning outbreak and international response. The outbreak has been devastating; hundreds of children have died and many more are still at risk. Lab-confirmed in March 2010, it has been described as unprecedented and the worst such outbreak in modern human history. The purpose of this study is to examine how the outbreak unfolded and the unique issues and challenges encountered by those involved in the international response. This study will use a combination of qualitative and quantitative research methods to present a case study of issues surrounding the lead poisoning outbreak. This study will conduct key informant interviews as well as document and media reviews.

How will I be involved in this study?

We are inviting you to be interviewed for this study. We are interviewing two groups of people:

(1) Representatives of the international organizations involved in the response; and

(2) Field workers who worked on the ground during the response.

We plan on interviewing approximately 20-25 people in total.

If you choose to participate in this study, you will be interviewed by me, the Principle Investigator. I was also involved in helping during the lead poisoning outbreak, working as an epidemiologist with Médecins Sans Frontières (MSF). I will interview you in person, over the phone, or over the internet (such as with Skype). The interview may take between one and two hours.
Organization representatives: You will be asked about the reasoning and processes that your organization underwent in deciding if and how to be involved in the outbreak response. As a representative of your organization, you will be asked about the particular issues and challenges that arose during the outbreak response and what is planned for the future. You will also be asked about budgets and expenditures so we can understand the magnitude of the response.

Field workers: You will be asked about how you came to be involved, what were your personal experiences and challenges, what you learned about the outbreak, and how you imagine its future. How you were compensated financially will be asked because we want to understand how compensation works (we will compare but not publish individual salaries).

If you decide to participate, you may choose not to answer any interview questions.

Later, after our interview, I will provide you with a summary of what we discussed. I will ask you if the summary correctly reflects what we talked about, if you have any further thoughts, and if there is anything you’d like to clarify or add. This is known as “member-checking.”

What happens after my interview?

I will digitally record our interviews so that they can be re-reviewed and transcribed (written down word-for-word). Interviews will audio-recorded, but not video-recorded. During the study, the recordings and transcripts will be kept under lock and key and password protected on our computers. Only researchers involved with this study will hear the recordings or read the whole transcripts. Once the study is published, the recordings will be destroyed. Five years later, the transcripts will be destroyed.

What are the risks?

By participating in this study, there may be certain risks to you as explained below:

- **Psychological/emotional risks**: There is the risk of emotional and psychological stress with the recounting of experiences that you may have found disturbing or traumatic. If you were to feel emotionally distraught during an interview, then the interview would be stopped, and the interview would only reconvene with your verbal consent and at your convenience.

- **Social risks**: All the information that we collect about you will be kept confidential. We will not make public anything that will identify you unless required by law.
During data collection and analysis, we will use an ID number instead of your real name. Only the Principle Investigator, Faculty Supervisor and Research Ethics Board (REB) would be able to link your ID number with your real name. If the results of the study are published, your name will not be used and your identity will not be released or published without your specific consent to the disclosure. However, despite our efforts, **anonymity cannot be guaranteed**. For proper analysis, we will have to document the type of organization that you were with, your role within that organization, and the type of work that you did. **Therefore, there is a chance that someone could figure out your identity or the identity of your organization based on our published information.**

- **Legal risks:** This study will ask politically charged and sensitive questions about the lead poisoning outbreak. This study does not intend to establish guilt or investigate liability or culpability; nor does it intend to collect evidence for use against individuals involved in the artisanal mining sector. Rather, this study aims to uncover issues surrounding the outbreak and international response and consider them from an ethics perspective. However, given the sensitive nature of the topic, some people could misinterpret the reason for this study and consider it threatening. To reduce this risk, this study's Information Letter will be made publicly available and further efforts will be taken to prevent any such misunderstandings.

**What are the benefits?**

There will unlikely be direct benefit to you for participating in this study. You will not be paid or compensated for your participation. There may be indirect benefit to the international public health and humanitarian aid community because the results of this study may be used to inform policy and operational planning. There may be indirect benefit to the scholarly community as this study proposes novel research into the Nigerian lead poisoning outbreak that is still unfolding.

**Do I have to do this?**

Your participation in this study is voluntary. It is your choice whether or not to participate. If you decide not to participate in this study, there is no consequence to you. If you do decide to participate, you may decline to answer any interview questions. If you decide to participate but change your mind later, you may do so without explanation or penalty. You may withdraw from the study up until the end of human subject participation, which is...
approximately December 2012, when interviews and member checking procedures are complete.

**What next?**

If you agree to participate, please inform me. You will be asked to initial this Information Letter to show that you have read it, and to sign the Informed Consent Form. Then I will contact you to arrange an interview time.

**What if I have questions?**

If you have any questions, I would be happy to address them. My phone number is 613-547-3172 and my Email address is john.pringle@utoronto.ca. If you leave a message, I will return your call or Email within 48 hours.

Thank you for your consideration in helping us with this research study.

Yours truly,

[Signature]

John Pringle, RN MSc PhD(c)
Dalla Lana School of Public Health
Division of Global Health
Joint Centre for Bioethics
University of Toronto
Ph. 613-547-3172
Email john.pringle@utoronto.ca
Informed Consent Signature Form

By signing this Consent Form:

- I agree that I have read and initialed the Research Information Letter (attached).
- I agree to participate in this study entitled “The Nigerian lead poisoning outbreak and the international humanitarian response: A case study in global health ethics.”
- I agree to be interviewed at a time to be arranged by myself and the Principle Investigator.
- I agree that my participation is voluntary and that I may withdraw at any time.
- I understand that I may decline to answer any questions during the interview.
- I understand that my interview will be audio-recorded for reviewing and transcribing, that the digital recording will be destroyed upon publication of the study, and that the transcription will be destroyed five years from the completion of the study.
- I understand that my participation will have no direct benefit for me and that I will not be paid or compensated for my participation.
- I understand that my participation may have certain risks as described in the Research Information Letter.
- I understand that the results of this study will likely be published, and that my name will not appear in any of the publications.
- I understand that I may receive a summary of the research results if I so choose.
- I understand that I can contact the Principle Investigator if I have any questions about this study:

  John Pringle  
  Email: john.pringle@utoronto.ca  
  Phone: 613-547-3172

- I understand that I can contact the Office of Research Ethics if I have any questions about my rights as a participant:

  Office of Research Ethics  
  Email: ethics.review@utoronto.ca  
  Phone: 416-946-3273

- I am to be given a copy of the Research Information Letter and this signed Informed Consent Form.

(Signatures on next page...)  
Participant’s Initials: ________
Informed Consent Signature Form

The Nigerian lead poisoning outbreak and the international humanitarian response: A case study in global health ethics

Signatures:

Participant's name: ________________________________

Participant's signature: ______________________________

Date and location: ________________________________

Researcher's name: ________________________________

Researcher's signature: ______________________________

Date and location: ________________________________
Dear Dr. Cole and Mr. John Pringle,

Re: Your research protocol entitled, "The Nigerian lead poisoning outbreak and the international humanitarian response: A case study in global health ethics"

We are writing to advise you that the Health Sciences Research Ethics Board (REB) has granted approval to the above-named research protocol under the REB’s delegated review process. Your protocol has been approved for a period of **one year** and ongoing research under this protocol must be renewed prior to the expiry date.

Any changes to the approved protocol or consent materials must be reviewed and approved through the amendment process prior to its implementation. Any adverse or unanticipated events in the research should be reported to the Office of Research Ethics as soon as possible.

Please ensure that you submit an Annual Renewal Form or a Study Completion Report 15 to 30 days prior to the expiry date of your current ethics approval. Note that annual renewals for studies cannot be accepted more than 30 days prior to the date of expiry.

If your research is funded by a third party, please contact the assigned Research Funding Officer in Research Services to ensure that your funds are released.

Best wishes for the successful completion of your research.

Yours sincerely,

Judith Friedland, Ph.D.
REB Chair

Daniel Gyewu
REB Manager
Appendix 8: Interview Guides

Interview guide for organization representatives

Permission will be sought to interview representatives of organizations that responded (or that chose not to respond) to the Nigerian lead poisoning outbreak. This line of questioning will help establish the case study and provide ethical perspectives from the organization level, which then may be compared and contrasted with those of their field workers.

<table>
<thead>
<tr>
<th>Interview question</th>
<th>Probes (concepts, issues)</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.) How did your organization come to learn about the Nigerian lead poisoning outbreak?</td>
<td>Rumours, surveillance, communication channels, informal vs. formal links</td>
<td>Establishes beginning of case study</td>
</tr>
<tr>
<td>2.) Was your organization formally or informally invited to respond, and by whom?</td>
<td>Activation of international emergency response channels</td>
<td>To understand international channels of public health communication</td>
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<tr>
<td>3.) What was the process that your organization underwent in deciding if and how to respond to the lead poisoning outbreak?</td>
<td>Mandate, definition of public health emergency, organizational structure</td>
<td>To understand the formal process</td>
</tr>
<tr>
<td>4.) What factors were taken into account, or what reasoning was used, in the decision?</td>
<td>Prioritizing, political and operational strategy, financing, visibility, availability of human resources.</td>
<td>To identify the many political and economic factors are taken into account rather than need alone.</td>
</tr>
<tr>
<td>5.) What were initial concerns?</td>
<td>Motivations, lack of national response, operational strategy, history of involvement, complexity of issue,</td>
<td>To identify ethical issues.</td>
</tr>
<tr>
<td>Question</td>
<td>Perception/Response</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
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<tr>
<td>6.) How does your organization perceive its response in the emergency</td>
<td>Organizational goals, imposed limitations</td>
<td></td>
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<td>phase and up until now?</td>
<td>Critical reflection of self and external pressures.</td>
<td></td>
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<tr>
<td>7.) How does your organization perceive the response from other</td>
<td>Gaps and duplication of efforts, organizational roles</td>
<td></td>
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<tr>
<td>organizations in the emergency phase and up until now?</td>
<td>Addresses the paradox of coordination alongside competition (for resources, visibility, funding, HR etc.)</td>
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<tr>
<td>8.) How does your organization perceive the overall response to date?</td>
<td>What has changed? Were the organizational objectives the right ones?</td>
<td></td>
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<td></td>
<td>From the specific to general response for deeper reflection.</td>
<td></td>
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<tr>
<td>9.) How does your organization perceive the future of this situation?</td>
<td>Long-term health effects, ongoing poverty and inequality, systemic problems remain or addressed?</td>
<td></td>
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<td></td>
<td>Future trend: gradual improvements, worse-before-better or gradual worsening.</td>
<td></td>
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<tr>
<td>10.) How is the Nigerian lead poisoning outbreak different from other</td>
<td>Is this outbreak exceptional or part of a wider pattern? Where does it fit along the continuum?</td>
<td></td>
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<tr>
<td>humanitarian emergencies?</td>
<td>Comparing and contrasts, puts outbreak into context.</td>
<td></td>
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<tr>
<td>11.) What actions does your organization think are necessary to</td>
<td>Advocacy, harm reduction, awareness campaign, coalition structures</td>
<td></td>
</tr>
<tr>
<td>properly address this crisis?</td>
<td>Proposed solutions speak to what the organization considers the underlying problems</td>
<td></td>
</tr>
<tr>
<td>12.) Who does your organization see as ultimately responsible for</td>
<td>Governmental levels (village, LGA, state, national) and governmental</td>
<td></td>
</tr>
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<td></td>
<td>To address the co-optation of national responsibilities, political priorities.</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Response</td>
<td>Purpose</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>addressing this crisis?</td>
<td>departments (health care, environmental, mining), allocation of resources.</td>
<td>To address the likelihood that the contextual factors will not have changed and the threat remains.</td>
</tr>
<tr>
<td>13.) What is your organization’s long-term plan or exit strategy?</td>
<td>Contrast best- and worst-case scenarios, conditions for withdrawal, allocation of resources, coordinated strategies, advocating for unmet needs, depends on upcoming disasters?</td>
<td></td>
</tr>
<tr>
<td>14.) What budgets and expenditures have you made, and what is anticipated for the future?</td>
<td>Financial commitments Allocations of budgets and financial resources reflects priorities</td>
<td></td>
</tr>
<tr>
<td>15.) What ethical issues did your organization encounter, and what principles or approaches were used to address them?</td>
<td>Conflicting and contentious issues To identify ethical issues that may be analyzed from a global health ethics perspective</td>
<td></td>
</tr>
<tr>
<td>16.) How does your organization understand the term “humanitarian” in international humanitarian response?</td>
<td>Humanitarian action vs. political or development aid To discern the meaning of humanitarian in international humanitarianism</td>
<td></td>
</tr>
<tr>
<td>17.) Is there anything else that you would like to add or discuss?</td>
<td>(No probes)</td>
<td>Ensures that the interviewee has “had their say” in discussing any or all issues important to them.</td>
</tr>
</tbody>
</table>
**Interview guide for field workers**

Participants will be asked of their understanding of the outbreak and the particular challenges, successes and failures that they experienced in providing the response. They will be asked to describe situations that they personally found notable, including what happened, who was involved, how they responded, and what was taken into consideration in responding (Schwartz et al., 2010).

<table>
<thead>
<tr>
<th>Interview question</th>
<th>Probes (concepts, issues)</th>
<th>Rationale</th>
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</thead>
<tbody>
<tr>
<td>1.) How did you first hear about the lead poisoning outbreak, and what were your first thoughts?</td>
<td>Personal vs. institutional understanding.</td>
<td>Situates the interviewee at the beginning as a memory trigger device.</td>
</tr>
<tr>
<td>2.) Why did you decide to participate in the response?</td>
<td>Motivations: professional, personal, economic, academic</td>
<td>Compare and contrast with institutional motivations</td>
</tr>
<tr>
<td>3.) What was your role within your organization?</td>
<td>Hierarchy, responsibilities</td>
<td>Context of interview data (e.g., healthcare vs. environmental)</td>
</tr>
<tr>
<td>4.) How do you describe your day-to-day activities?</td>
<td>Actual vs. expected</td>
<td>Context of what interviewee would have encountered</td>
</tr>
<tr>
<td>5.) How do you describe your living and working conditions?</td>
<td>Hardships, contrasts expat/national staff, villagers</td>
<td>Issues of dissatisfaction, inequality, workplace health</td>
</tr>
<tr>
<td>6.) What was your financial compensation?</td>
<td>Financial motivations</td>
<td>Considers material aspects, allows for comparisons of compensations.</td>
</tr>
<tr>
<td>Question</td>
<td>Context</td>
<td>Outcome</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>7.) How do you feel about the living and working conditions of those in the affected villages?</td>
<td>Notions of poverty, inequality, gender roles and discrimination, child education</td>
<td>Context of affected population</td>
</tr>
<tr>
<td>8.) While there, what did you understand about the cause or causes of the outbreak, and what do you think now?</td>
<td>Push for deeper responses other than just lead dust contamination.</td>
<td>Establishes societal forces</td>
</tr>
<tr>
<td>9.) What are your thoughts and feelings about the national response?</td>
<td>Tangible (providing services) vs. managerial (organizing meetings)</td>
<td>To trigger thinking about governmental responsibilities and public health neglect</td>
</tr>
<tr>
<td>10.) What are your thoughts and feelings about the international response?</td>
<td>Response time, appropriateness of actions, communication and liaisons with villages</td>
<td>To trigger thinking about the need for and nature of international public health organizations</td>
</tr>
<tr>
<td>11.) What were some of your greatest challenges?</td>
<td>Physical, mental, professional, health etc.</td>
<td>Brings to the case study extreme events</td>
</tr>
<tr>
<td>12.) What were some ethical issues or challenges that you experienced in the field?</td>
<td>Directly or indirectly,</td>
<td>Brings to the case study extreme events</td>
</tr>
<tr>
<td>13.) How did you (and/or others) respond to this/these challenge(s)</td>
<td>Practically, emotionally, etc. What was the outcome</td>
<td>Provides deeper description</td>
</tr>
<tr>
<td>14.) What do you feel were at the root of each of these ethical issues?</td>
<td>Looking beyond the immediate issue</td>
<td>Provides deeper reflection</td>
</tr>
<tr>
<td>Question</td>
<td>Thought Area</td>
<td>Response Type</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>-------------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>15.) How did your mission end and how do you feel about leaving?</td>
<td>Thoughts for fellow field workers, affected children and their families</td>
<td>Open-ended to uncover issues perhaps as of yet not discussed</td>
</tr>
<tr>
<td>16.) How do you think this outbreak could have been averted?</td>
<td>Or better mitigated</td>
<td>Open-ended to uncover root causes perhaps as of yet not discussed</td>
</tr>
<tr>
<td>17.) What actions do you think are necessary to properly address this crisis?</td>
<td>Advocacy, harm reduction, awareness campaign, coalition structures</td>
<td>Proposed solutions speak to what are considered the underlying problems</td>
</tr>
<tr>
<td>18.) It has been over a year since the start of the outbreak; what are your thoughts about it now?</td>
<td>Consider: causes, course of events, future, prognosis for affected children</td>
<td>Deeper and broader reflection</td>
</tr>
<tr>
<td>19.) Is there anything else that you would like to add or discuss?</td>
<td>(No probes)</td>
<td>Ensures that the interviewee has “had their say” in discussing any or all issues important to them.</td>
</tr>
</tbody>
</table>
Confidentiality Agreement

This confidentiality agreement pertains to the study, “The Nigerian lead-poisoning outbreak and the international humanitarian response: A case study in global health ethics” (U of T Protocol Reference # 27408).

The purpose of this confidentiality agreement is to ensure that interview transcription occurs while maintaining standards of research ethics, data security, and confidentiality.

Interview transcribers will adhere to their signed MSF-Canada Confidentiality Agreement. In addition, interview transcribers will follow the standards set forth by “Data Security Standards for Personally Identifiable and Other Confidential Data in Research” set forth by the Office of Research Ethics, University of Toronto.

Specifically:

- Transcription work will be done from an encrypted USB key.
- Transcription work will be saved on the encrypted USB key.
- No work will be saved or backed-up on any computer’s hard drive.
- The encrypted USB key will remain in the possession of the Principal Investigator.
- Efforts will be undertaken to ensure that those outside the study cannot read transcriptions or overhear recorded interviews.
- At the end of the work period and in a private venue, there will be an opportunity to discuss the interviews and to share thoughts, ideas, and feelings.
- Interview transcribers recognize that the interviews they hear are privileged data, and interview transcribers are committed to not discussing any aspect of the interviews with anyone outside of the research team.

Contact Information:

Principal Investigator: John Pringle 613-547-3172 john.pringle@utoronto.ca
Faculty Supervisor: Donald Cole 416-978-7909 donald.coyle@utoronto.ca
Office of Research Ethics: U of T 416-946-3273 ethics.review@utoronto.ca

Signatures:

Interview Transcriber: ____________________________  Signature: ____________________________
Principal Investigator: John Pringle  ____________________________  Signature: ____________________________

Date: ____________________________________________