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Emergency Action Plan (EAP) for the Centers for Disease Control and Prevention (CDC)- Kenya, Kibera Facility

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Degree to be awarded: Master of Public Health

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Emergency Action Plan (EAP) for the Centers for Disease Control and Prevention (CDC)- Kenya, Kibera Facility

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Abstract

Emergency Action Plan (EAP) for the Centers for Disease Control and Prevention (CDC)- Kenya, Kibera Facility

By Ashley H. Tate

The Centers for Disease Control and Prevention (CDC) has offices around the world, working with local partners and ministries of health to strengthen health capacity globally. These CDC facilities are susceptible to the same hazards as the countries in which they are built.

An emergency is an unforeseen event that threatens human life, livelihood, property and/or the environment, for which an urgent response is required. Preparing for emergencies helps to reduce the catastrophic effects of such events. A major element of emergency preparedness is maintaining an up-to-date emergency action plan (EAP). The focus of this Special Studies Project (SSP) was to develop an EAP for the CDC satellite facility located in Kibera, the largest urban informal settlement in Nairobi, Kenya.

As the CDC facility is prone to the same hazards as the remaining settlement, the researcher conducting the SSP reviewed the hazards and preparedness capabilities of the site. The EAP is grouped by the different programs housed in the CDC facility in Kibera, then further divided into preparedness and response phases. In-depth interviews were employed to develop a comprehensive list of activities and standard operating procedures (SOPs) to guide the preparedness efforts and the response activities. SOPs are instructions detailing all the necessary steps to conduct the preparedness and response activies. SOPs are uniform so that they can be replicated by any person acting in the position under whom the responsibility falls. Information within the SOPs includes actions, contact information, forms and documents, instructions for equipment use, and any other necessary details to carry out the described action.

Recommendations were made to the Emergency Coordinator (EC) at CDC-Kenya to strengthen the preparedness and response efforts of the facility in Kibera. Recommendations included instructions to replace and repair fire extinguishers and developing maps and floor plans for easy evacuation.

This document explains, summarizes and provides examples of the contents of the EAP for the CDC-Kibera facility. The complete plan could not be provided because it contains sensitive information that cannot be published.

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List of Acronyms

CCO	Coordinating Center and Office
CDC	Centers for Disease Control and Prevention
CFK	Carolina for Kibera
CoAg	Cooperative Agreement
EAP	Emergency Action Plan
EC	Emergency Coordinator
FELTP	Field Epidemiology and Laboratory Training Program
GAP	Global AIDS Program
GDD	Global Disease Detection
HHS	US Department of Health and Human Services
IEIP	International Emerging Infections Program
IEPT	International Emergency Preparedness Team
KEMRI	Kenya Medical Research Institute
NGO	Nongovernmental Organization
SOP	Standard Operating Procedure
SSP	Special Studies Project

Chapter 1: Introduction

The Centers for Disease Control and Prevention (CDC) works with national and global partners to "create expertise, information, and tools that people and communities need to protect their health…through health promotion, prevention of disease, injury and disability, and preparedness for new health threats."[1] One particular area of focus is emergency preparedness and response, in which CDC develops and implements prevention and response strategies to protect the lives and wellbeing of people in natural and man-made emergencies.

CDC is a component of the United States Department of Health and Human Services (HHS) that operates both domestically and internationally. CDC staff is stationed overseas and is deployed to countries around the world to assist in fulfilling the mission of CDC. While living and working in these host countries, CDC staff members and the CDC facilities need to be able to react appropriately to emergencies. Most efforts to ensure emergency preparedness include the development of a detailed emergency action plan (EAP). The EAP is a document that serves to organize and guide employee actions during an array of disasters and emergency situations. It contains all of the pertinent information to execute these actions. CDC does not currently have comprehensive EAPs for all of its 5 work locations in Nairobi, Kenya. The Kibera site, a satellite site of CDC-Kenya, was one site that did not have an EAP. The purpose of this special studies project (SSP) was to develop an EAP for the Kibera site and to assist the site with strengthening its emergency preparedness capabilities.

Chapter 2: Background

Emergencies pose a risk to human health, livelihood, property and environment and require immediate response. All emergency situations are of public health importance because of their capability to cause the loss of life and livelihood. Natural disasters are increasing in frequency and complexity, and are affecting more and more people worldwide.[2] Manmade emergencies, such as transportation accidents, technological disasters, civil strife, and war are prevalent around the world. Interventions in all of these types of emergency situations have traditionally focused on response and recovery. In the early 1980s, the United States government turned its attention to emergency preparedness.[3] Preparing for emergencies has great potential to save lives and prevent injury by increasing the response capacity.[4]

The CDC has offices in over 50 countries around the world, including Kenya. The CDC-Kenya offices work closely with partners such as the Ministry of Health and nongovernmental organizations (NGOs) to monitor disease outbreaks and to respond to the epidemics and to other emergencies in the country. The most common emergency situations Kenya faces are fire, flood, drought, vehicular accidents, communicable and infectious diseases, and civil unrest, along with the occasional landslide and terrorist attack.[5] In 2010, the International Emergency Preparedness Team (IEPT) from CDC Headquarters conducted a gap analysis of the CDC-Kenya sites in Nairobi to determine the sites' preparedness for all emergencies. The team noted the absence of an emergency action plan in many of the CDC-Nairobi work locations that defines all emergency preparedness and response activities to be carried out by CDC staff working in country.

The Setting

The CDC offices in Nairobi are strategically co-located with the Kenya Medical Research Institute (KEMRI). Both CDC and KEMRI strive to improve human health and the quality of life through research and capacity strengthening. Their collaboration and co-location provides a good opportunity to strengthen the mission of both organizations.

Seven CDC global health programs are housed in the central CDC office in Nairobi. These include: 1) the Global AIDS Program (GAP), 2) the International Emerging Infections Program (IEIP), 3) Refugee Health, 4) the Field Epidemiology and Laboratory Training Program (FELTP), 5) Global Disease Detection (GDD), 6) the International Emergency Preparedness Program (IEPT), and 7) the Influenza program. These programs play an important role in fulfilling the CDC mission of promoting health in Kenya and throughout the region.

In Nairobi, there exist five CDC facilities. An integral component of the CDC offices in Kenya is the satellite facility in Kibera. Kibera is a densely populated, urban, informal settlement in Nairobi, Kenya. Though previous estimates ranged from 700,000 to one million residents, the 2009 Kenya Population and Housing Census Results revealed the actual population of the informal settlement to be 170,070 residents. All of the residents live within a 2.38km^2 (1.48mi^2) area which is severely overcrowded by its many occupants. [6]

The dwellings in Kibera are small (roughly 10 x10ft), single-room shacks built using mud, wood, or iron sheets, with roofs also constructed of rusted, corrugated metal sheets and earthen floors.[7] The structures often house five or more residents, and the solitary room serves as the kitchen, living room, bedroom, bathroom, and dining area,

leading to unhygienic conditions atop the substandard housing situation. There are no sanitary services, roads, electricity, publicly available fire extinguishers, or running water in the slum. Water is obtained from water points and waste is dumped into common drains or directly outside the homes, contributing to the flowing channels of human waste and rainwater innervating the settlement. There are no sanitation controls within the community. Residents have managed to obtain illegal electricity. Wires are sometimes buried under a thin layer of soil or are exposed. There are safety concerns both from the electrical wires and from metal pieces protruding from the foot paths. Figures 1-5 include photographs taken by the researcher while familiarizing herself with the site and determining the emergency preparedness capabilities within the informal settlement.

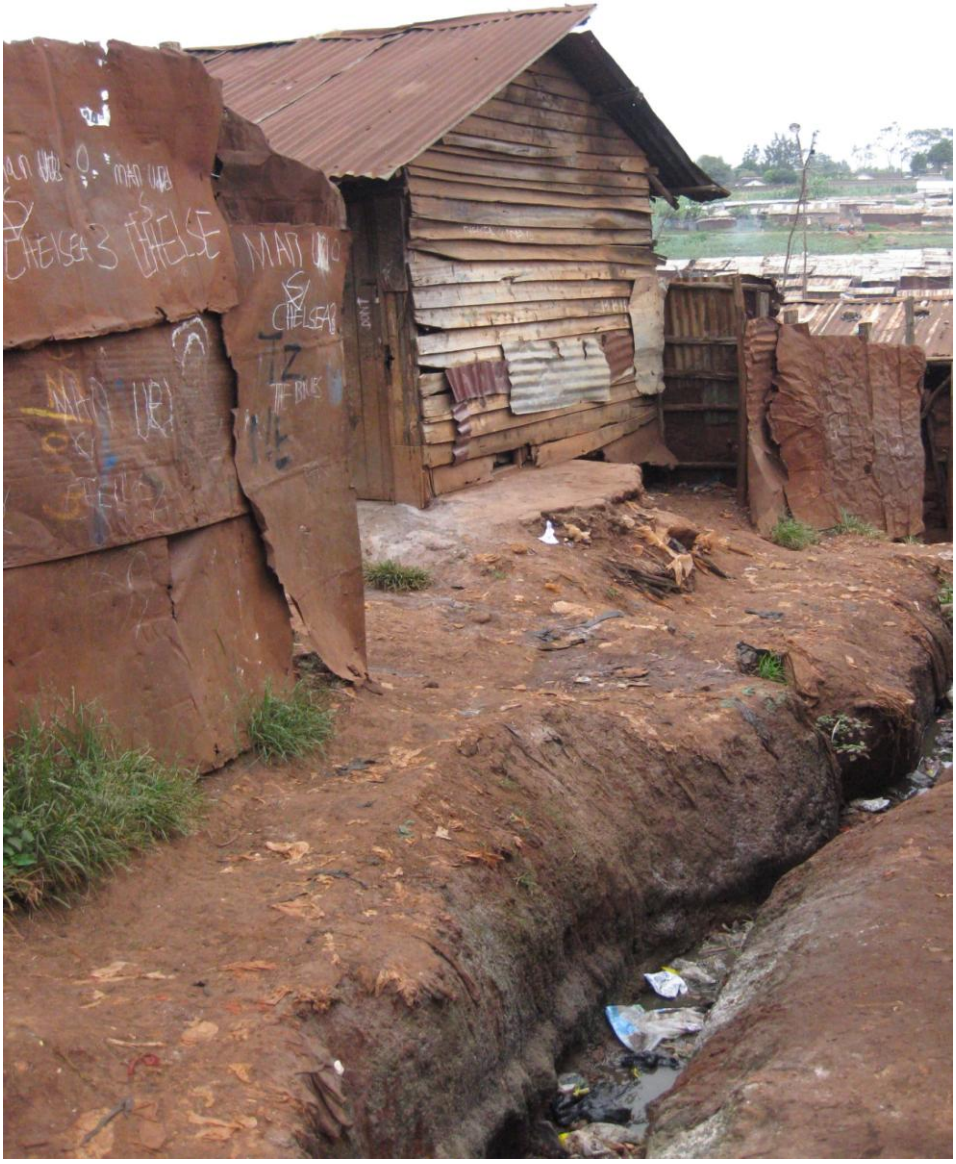
Figure 1: View of Kibera rooftops from the CDC facility

Figure 2: The width of the footpaths is often no more than that of one person, and pieces of metal are protruding from the structures

Figure 3: Example of construction materials and conditions of homes

Figure 4: As there are no public sanitation services in Kibera, the trash is discarded throughout the community

Figure 5: View of homes and a channel of flowing waste and water



As Kibera is so densely populated, has unsanitary living conditions and poor ventilation, the potential for communicable disease spread is high. The living conditions exacerbate the effects of other hazards. These conditions make the setting ideal for the CDC- Kenya offices to conduct surveillance activities and carry out other projects and programs to improve the health and wellbeing of the inhabitants.

The Clinic

The CDC collaborates with partners such as KEMRI and with NGOs and other organizations in Nairobi. One NGO in particular, Carolina for Kibera (CFK) has been working in Kibera since 2001, striving to alleviate poverty and mobilize local leaders within the settlement to make a positive change.[8] The organization helped local residents in Kibera to establish a clinic within the heart of the settlement. The CDC satellite offices in Kibera are housed within this large clinic, also known as the Tabitha Medical Clinic. Together, CDC and CFK staff works to promote both the mission of both organizations. This clinic, constructed of concrete, solar panels, a rainwater catchment system, and other stable building materials, is a large, physically stable facility in which CDC staff work in Kibera (Figure 6). The clinic receives over 40,000 out-patient visits every year, offering a comprehensive laboratory, x-ray services, a stocked pharmacy, HIV/AIDS testing and counseling, and a reproductive health clinic along with a staff of clinicians.[8]

Figure 6: The Carolina for Kibera clinic (also known as the Tabitha Medical Clinic), is the facility in Kibera in which CDC staff work

Kibera is conveniently located outside of the CDC central offices in Nairobi and is a target community for (and is in desperate need of) the CDC to carry out its global mission. CDC-Kenya supports a population-based surveillance program in Kibera, run by IEIP, which characterizes the burden and etiologies of diseases in the slum. Kibera houses some of the most vulnerable populations, making the settlement an ideal location for IEIP activities. Kibera is a good place for the GAP program to study the transmission of and intervene with the HIV/AIDS epidemic, as well. The estimated prevalence of HIV infection within the settlement is roughly 12%, which is more than double that national average.[9]

Hazards Specific to the CDC facility in Kibera

Kibera as a community is susceptible to specific hazards. The clinic, therefore, is also vulnerable to those same hazards. The most probable hazard Kibera faces is fire. The structures within the community are extremely close together and are constructed of highly flammable materials. Cooking within Kibera is done using kerosene, charcoal or firewood inside or outside the home.[7] Open cooking fires, along with the potentially dangerous illicit electricity connections, pose the risk of fire, which can then spread rampantly throughout the settlement. The settlement lacks basic necessities such as readily available water running to the homes and facilities and adequate fire extinguishers. The CDC offices in the clinic, although equipped with these basics such as piped, running water, are in the heart of Kibera where there are no paved roads and very little space to walk between blocks of structures. Fire brigades are unable to reach that site, so special attention must be paid to training the staff in fire prevention preparedness and fire response.

Civil unrest is another apparent threat in Kibera. Ethnic and political tensions have traditionally run high, as all of Kenya's almost forty tribes are represented in Kibera. Accusations of rigged elections after the 2007 presidential elections led to explosive violence in many sites across the country, including Kibera. President Kibaki, representing the Party of National Unity, won the election over Raila Odinga of the Orange Democratic Movement on December 30, 2007. Kibera was Odinga's stronghold, and when Kibaki took the election, violence immediately ensued and was particularly intense within Kibera.[10] Riots erupted, with beating, looting, revenge killing, rape of women and girls, forced circumcision of boys, and to a lesser extent, setting fire to shops

and businesses. The violence continued long after the elections, resulting in the deaths of several and the displacement of thousands from Kibera[11].

As one of the CDC-Kenya facilities is housed in Kibera, this facility is susceptible to the above-mentioned hazards affecting the slum. Another form of violence specific to the clinic with CDC staff is that of community confrontation. The social networks stemming from residing in Kibera are quite strong. Studies have shown that community members in urban slums in Kenya often extend support, both monetary and emotional, to one another when facing serious problems.[12] If a child dies at the clinic, the community may band together, blame the doctors or other CDC staff at the facility and riots could potentially erupt. All of these above threats are addressed in the Emergency Action Plan (EAP) for the CDC offices in the clinic in Kibera to strengthen the emergency preparedness and response capabilities.

Emergency Action Plan

An emergency action plan (EAP) is a tool used to prepare for and respond to emergencies and disasters, both natural and man-made. The plan is a living document, one that is continually edited and updated as needed. Action plans, as the name indicates, are proactive instruments that provide this guidance.[13] An EAP specifies exactly what actions to take, by whom, all contact information and related forms, and any other details necessary to carry out the required actions to reduce the negative effects of an emergency.

An EAP contains detailed standard operating procedures (SOPs). SOPs are documented instructions that detail all the steps and necessary activities to complete a procedure. The steps provide uniformity so that all of those completing the task should

achieve the same end result.

This Special Studies Project (SSP) is a complete EAP detailing the actions to be executed during both the preparedness and emergency phases within the CDC facility in Kibera. The plan was developed with input and expertise from the CDC and NGO staff working in the community, drawing from unique perspectives and past experiences to construct the most effective SOPs.

Chapter 3: Project Content

A. Methods

The development of the EAP was spearheaded and compiled by the researcher, with input and collaboration from partners and under the mentorship of the IEPT Lead. In February 2011, the IEPT Lead traveled to Nairobi, Kenya, to conduct an emergency preparedness gap analysis of the CDC facilities. The analysis utilized a questionnaire examining planning, infrastructure and equipment, training, communications, logistics and coordination. Each question was scored on a scale of 0 to 5. The total score was used as a baseline for the emergency preparedness of CDC facilities. The gap analysis highlighted the areas upon which the preparedness could be improved. Having a complete EAP was one of these areas requiring improvement.

Plan Development

The plan was developed in seven steps. The first step involved conducting background research on the hazards that have affected and are affecting Kenya, as well as the vulnerabilities and capabilities of the CDC site in Kibera. This was accomplished through a systematic literature review, an in-depth look at the gap analysis and previous IEPT trip reports, and a review of the Government of Kenya's National Disaster Management Policy.

The second step was developing a template. The plan template was developed at CDC in Atlanta, according to HHS and CDC guidelines. With input from the IEPT, the different programs/units within the CDC-Kenya office in Kibera were listed within the body of the plan. Each program/unit was then further divided into the 'Emergency

Preparedness Phase' and 'Emergency Response Phase' and left blank until completion in country. The beginning sections of the plan, including the executive summary, situation and mission statement were then written by the researcher. The revised template was reviewed and approved by the IEPT Lead at CDC in Atlanta and by the Emergency Coordinator (EC) in Kenya (via email).

Once in country, the third step included evaluation the emergency preparedness capabilities within the Kibera site. This informal evaluation included a walk-through of the site, understanding the layout of the facility and noting the resources available at the site. The evaluation was subjective, with no standard form or checklist like the prior gap analysis. This step was for the researcher in country to become familiar with the site first-hand. Contemplating a variety of emergency scenarios and assessing the site's ability to respond to those emergencies identified (or reaffirmed) gaps in the site's emergency preparedness. The available resources included fire extinguishers, water hoses, security measures including armed guards, motion detectors and panic buttons, motor vehicles, generators and backup generators, call-down trees (a telephone procedure to notify staff of an emergency), logs of employee daily locations, and personal protective equipment.

With the assistance of the EC, the fourth step included identifying interviewees for the different programs within the Kibera site of CDC-Kenya. In total, approximately 30 individuals were interviewed from the central CDC office in Nairobi, the CDC facility in Kibera, and from partner organizations. These persons were chosen based on in-depth knowledge of that program/unit and the feasibility of meeting with them within the eight-week SSP timeframe (based on their schedules). For example, it was more practical to interview the Laboratory Lead than it was a laboratory technician, for the Lead knows

more of the logistics and requirements to maintain and/or secure laboratory operations during an emergency. But, on the contrary, it was more practical to interview the Deputy Director than to interview the CDC-Kenya Country Director, as the country director was traveling during the majority of the plan development and the Deputy Director was very knowledgeable about the emergency preparedness and response capacity of the CDC facility in Kibera.

In the fifth step, a list of tasks was compiled for each program/unit (for example, fire marshals are not a program of CDC but have a section within the plan and therefore are considered a unit) with input from the EC, listing what actions he may have expected or are usual actions taken during emergencies. This list was then used to guide informal interviews (a total of 3 or more interviews) with the above-mentioned interviewees. The interviewee edited, added to, and removed activities from the initial list based on expert knowledge and past experiences in Kibera. The interviewee then divided the activities into preparedness and emergency response categories. After the interviews the task lists were edited (while in Kenya) based on the interviewees' feedback. A draft of each list was then emailed to the person interviewed for confirmation and finalization.

Once the tasks were finalized (amended based on last feedback), second interviews were scheduled to develop the standard operating procedures (SOPs) corresponding to each task. In this sixth step, the interviewees were asked to elaborate on every task. This included persons (position title, such as Deputy Director, as personnel changes) responsible for completing each task, contact information of persons/departments/outside agencies, and details on the specific actions to take to complete that task. Contact information was and is always included in an EAP.

The SOPs and the information within them were organized in a clear, concise and chronological order in the seventh step. For the third interview with the same interviewees as above, each SOP was discussed in detail with the interviewee ensuring full correctness. If any additional documents or forms were required as a part of an SOP, the interviewee was asked to provide that document(s). All additional documents were compiled in the attachments section of the plan.

The plan, complete with all information and edits, was formatted appropriately to CDC guidelines. The document was then sent to the IEPT Lead, the IEIP Project Manager, and the EC in country, as well as to upper management at CDC-Kenya for feedback. Any comments or questions from these reviewers were addressed through additional follow-up interviews with the appropriate personnel. Final editing and formatting of the document was completed after the researcher's return to Atlanta. The final EAP was then sent to the CDC-Kenya Country Director for his signature as the concluding step in plan development.

B. Results

The completed EAP is 65 pages in length, consisting of five major sections:

1. *Executive Summary*
2. *Situation:*

The situation is the second section of the plan and outlines the premise of the plan itself. The situation section is further divided into four sub-sections. The first is the purpose, which is a brief two-sentence justification for the plan; "the purpose of this plan is to detail the Kibera site of CDC-Kenya's preparedness and response activities for internal and external emergencies. It does NOT include the evacuation of US staff from the country."

The second sub-section comprises background information on CDC-Kenya and Kibera, including the layout of the community and key CDC-Kenya partners in Nairobi. The major threats are then outlined in the third sub-section, namely fire, civil unrest (particularly from political and/or ethnic violence), and community confrontation. Epidemics within the informal settlement are also a concern, as overcrowding and living conditions foster the spread of disease.

The fourth sub-section within the situation is a list of critical assumptions under which the plan should be successfully executed. This list is as follows:

1) During an internal emergency, KEMRI cooperative agreement (CoAg) staff is likely to be the first to be on-site to respond to the emergency

2) In larger emergencies, CDC staff in Kibera will coordinate its activities with the activities of the main office in Nairobi, and if necessary, of the Embassy to protect the staff that comes under the chief of mission
3) Kibera needs to maintain communication during emergencies with the CDC office in Nairobi and with CDC Headquarters in Atlanta
4) CDC staff in Kibera, a site of the CDC-Nairobi office, is co-located with KEMRI and should coordinate preparedness and response activities with them whenever possible
5) CDC staff in Kibera, along with partners such as CFK, is responsible for the safety and security of its office staff, including locally employed staff
6) Emergency response activities are effective if they are coordinated across the different programs
7) In as small-scale disaster, the IEIP Lead is in charge of the office response
8) In large scale disasters, CFK administration will be in charge of the response in the clinic
9) The laboratory in Kibera does not store select agents

For successful execution of the plan, the previous nine assumptions should be correct. The sixth critical assumption, for example, states that response activities are to be coordinated across programs. If the different programs and partners do not coordinate accordingly, there will be duplication of efforts and potential confusion, which will hinder a steady, effective response.

While the plan itself was developed to cover the CDC facility and personnel, it is important to note that this plan applies to all persons in the facility, including locally

employed staff. This is stated in critical assumption number five. Ethically, all preparedness and response activities must apply to all staff, including temporary duty assignees, volunteers, or any others in the office.

Although CDC staff do work in the clinic in Kibera, the partnering organization, CFK, has more personnel stationed in the clinic than does CDC, including administration. Therefore, the CFK administration will manage the response in large scale disasters rather than relying on CDC (assumption eight).

Assumption nine is a generic statement regarding the laboratory within Kibera. Only reagents necessary to the laboratory tasks are used and stored in the lab. Some chemicals are not to be stored in the lab in Kibera for safety concerns, and an effective emergency response assumes this is always the case. For instance, storing particular volatile chemicals may exacerbate fire. As these reagents are not stored in the lab, this should not be a contributing issue.

3. Mission Statement:

The mission statement explains the purpose and context of CDC-Kenya, and particularly the rationale for these satellite CDC offices within Kibera:

> "The mission of the CDC-Kenya program supports CDC's mission to collaborate to create the expertise, information, and tools that people and communities need to protect their health – through health promotion, prevention of disease, injury and disability, and preparedness for new health threats.
>
> In Kibera, specifically, the mission of CDC is to gather information on the health concerns in the community, inform policy, and prevent the spread of communicable diseases."[14]

4. *Execution:*

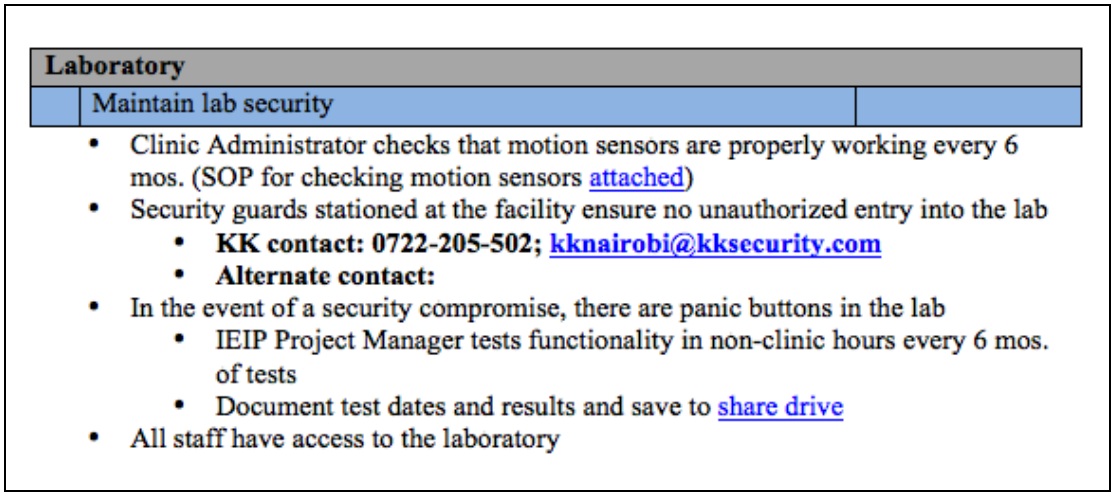
This section is the body of the plan, containing the activities and the SOPs that guide the actions of emergency preparedness and response for the CDC facility in Kibera. The execution is the most important section, comprising 15 pages of the plan. The programs/units comprising the CDC facility in Kibera include 1) the common activities for all programs and staff, 2) laboratory, 3) CCO (administration), 4) IEPT, 5) fire marshals, and 6) core team-leadership.

The first portion of the execution section is a listing of emergency preparedness activities and the activities to be conducted during the emergency response phase. As the plan is maintained electronically, each task is hyperlinked to the corresponding SOP, which explains in detail the procedure for executing the activity. The second portion of this section, therefore, contains the SOPs. The activities are grouped by the programs/units of CDC-Kenya in Kibera so that those responsible can easily identify the activities for which they are responsible.

Page 9 of the plan, for example, contains the activity list for the laboratory staff:

LABORATORY	
Preparedness	
	Handle samples during extended power loss
	Maintain lab security
	Test the clinic water supply routinely for coliforms
Response	
	Maintain freezer contents without electricity
	Respond to contaminated water supply if potable water is required

A member of the laboratory team can follow the hyperlink or the activity of interest, such as “Maintain lab security.” The link will automatically open the standard operating procedure explaining how to maintain laboratory security for emergency preparedness:



Laboratory		
	Maintain lab security	

- Clinic Administrator checks that motion sensors are properly working every 6 mos. (SOP for checking motion sensors attached)
- Security guards stationed at the facility ensure no unauthorized entry into the lab
  - **KK contact: 0722-205-502; kknairobi@kksecurity.com**
  - **Alternate contact:**
- In the event of a security compromise, there are panic buttons in the lab
  - IEIP Project Manager tests functionality in non-clinic hours every 6 mos. of tests
  - Document test dates and results and save to share drive
- All staff have access to the laboratory

All contact information, including alternate phone numbers in case the primary contact is out of office, is included in the SOPs. All contact information, including email addresses and telephone numbers, are bolded within the SOP and are also attached at the end of the document. If documents are saved to the network share drive for others to access, the link to that drive is included in the plan. If forms or other documents are mentioned in the SOP, those documents are included in the attachments section and are hyperlinked to the SOP in the same manner.

Ideally, the EC also maintains a hard copy of the plan in the event of a power loss.

5. *Attachments:*

Lastly, the attachments include all additional lists, documents, forms and maps accompanying the plan. Included in this section are the acronyms list, all contact information for personnel and external service providers, evacuation routes and

facility/community maps, the call-down tree, and all other documents referenced within the body of the EAP.

Programs/Units Responsibilities

The execution section of the plan lists the activities of all programs/units in the flowing order: all programs, laboratory, CCO (administration), IEPT, fire marshal, and core team-leadership. Described below are brief summaries of each program/unit's scope of activities.

Common Activities for all CDC programs

All employees working in the CDC facility in Kibera are expected to participate in community building. As staff will interact with the residents of the informal settlement on a daily basis, it is essential that all staff is familiar with the neighbors, the arrangement of the settlement and ideally is aware of the tensions and alliances within the community. Relationship building is necessary in times of emergencies, as CDC staff can rely on those relationships for assistance in escape or with help preventing the spread of fire. The plan suggests this can be accomplished through community walkthroughs and simple conversation with the community members.

All employees are also required to complete a staff skills survey regarding language abilities, experience with disabilities, knowledge of community resources and other applicable skills. It is beneficial for the EC to document and be aware of the resources among the staff that may help strengthen the emergency preparedness of the facility.

Laboratory

The responsibilities of the laboratory primarily concern sample handling of those specimens stored in the laboratory in Kibera. In the event of power loss during an array of emergencies, the EAP details the steps to be taken to maintain viability of specimens. This includes transferring specimens to other CDC laboratories, and the process for initiating and completing transportation. All forms, contact information and steps to make these transfers are outlined in the plan.

Another major activity of the laboratory unit is to test and maintain the water quality of the piped water to the clinic. SOPs for testing for and responding to coliform bacteria in the water system, bacteria indicative of fecal contamination, are addressed and the corresponding forms attached.

Laboratory personnel are also responsible for ensure lab security by regularly testing the functionality of motion sensors and panic buttons.

CCO (Administration)

The Coordinating Center and Office (CCO) is the administrative unit. CCO provides administrative support to all activities in the emergency preparedness and response phases. Activities include procuring personal protective equipment (PPE), requesting additional security when necessary, and maintaining staff location lists so that all personnel are accounted for before and after emergencies.

IEPT (Emergency Coordinator)

The EC has the most extensive list of activities in the plan. As the position title implies, the EC coordinates all activities pertaining to emergency preparedness and response, and coordinates these activities with other local public health partners.

These activities include identifying facility evacuation routes and safe havens outside of the CDC facility, and maintaining emergency response supplies. The EC also maintains contact lists of staff and local service providers, updates and maintains the newly developed EAP, and conducts trainings and exercises to prepare the staff for potential emergency situations. Trainings include fire drills, different evacuation scenarios, use of fire extinguishers, and CPR, among others. The EC must remain informed of the security and surveillance threats regarding all hazards relevant to the CDC satellite offices in the clinic in Kibera.

In the response phase, the EC directs the response and is accountable for preparing situation reports and incident reports to present to CDC leadership.

Fire Marshal

The fire marshals, as the title implies, respond to fires and to other emergencies. The marshals also assist the EC with drills, evacuations, and staff location updates before and after emergencies. Another critical role that the fire marshals undertake is the prevention of fire spread if a fire breaks out in or around the CDC facility. This is accomplished by knocking down neighboring structures and accessing the water supply by breaking into the pipes. The SOPs for these activities describe in great detail how to successfully accomplish these activities using available resources in the slum, including assistance from the community members.

Core Team—Leadership

The Leadership unit of CDC in Kibera liaises and coordinates emergency response and emergency efforts with partners, including CDC/KEMRI. Leadership will

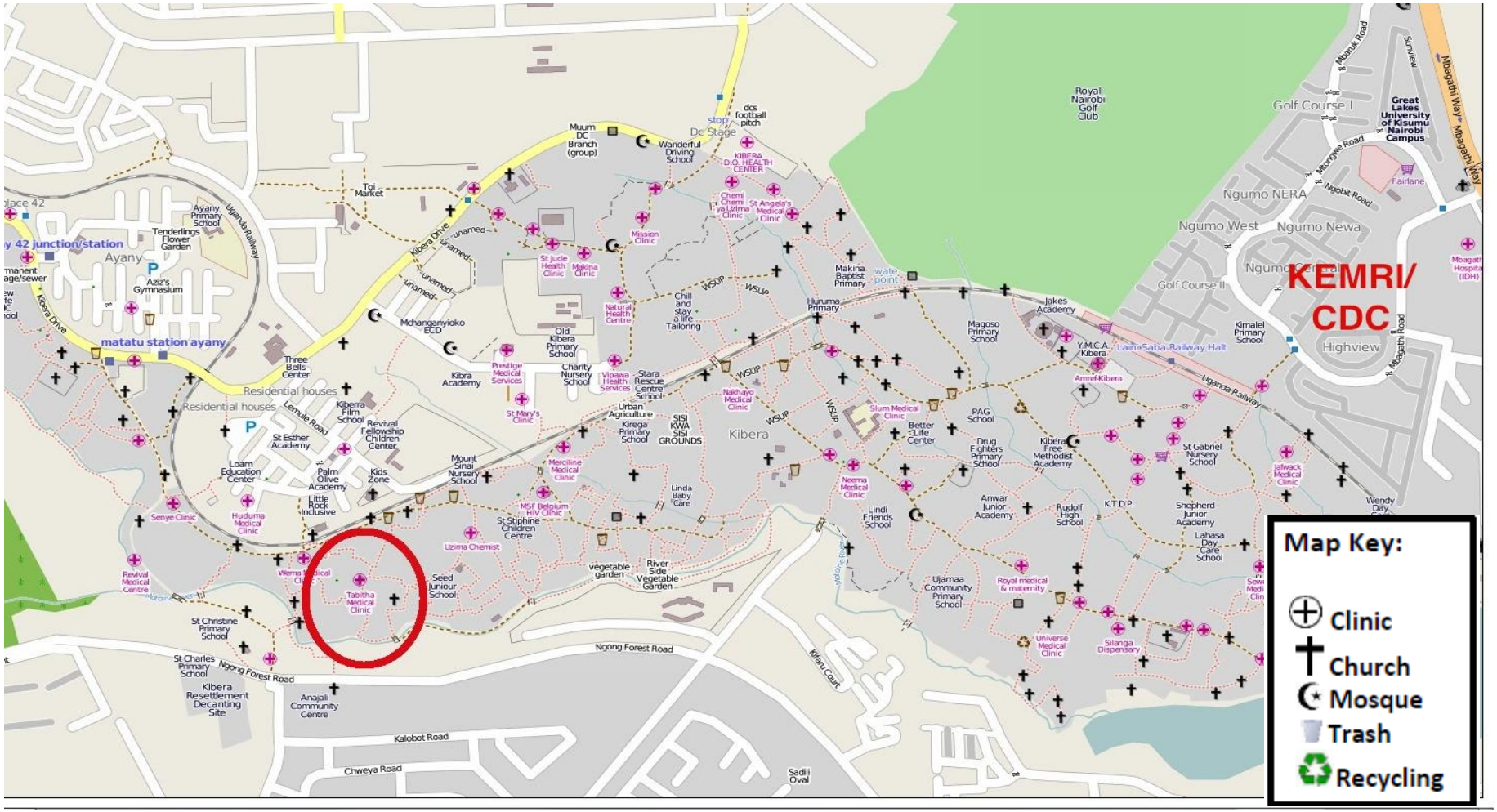
also make high level decisions for the CDC facility in Kibera, such as evacuating and shutting down the office**.**

External Deliverables Arising from Plan Development

While developing the plan, the researcher established and organized folders on the network share drive. A central location for all SOPs, maps, forms and documents will simplify procedures during an emergency and will also maintain organization for day-to-day operations.

Also created were maps of evacuation routes, schematics of office seating charts, maps of the facility and also maps of the clinic's location within Kibera. Figure 7 presents an example of one map (publicly available) displaying the location of the clinic, circled in red, in relation to the CDC/KEMRI main offices in Nairobi outside of Kibera.

Figure 7: Map of Kibera with the aforementioned clinic circled and the main CDC offices located indicated in red[15]



Chapter 4: Discussion and Recommendations

A. Discussion

Challenges

In this document, emergency preparedness refers to the capacity of CDC staff within Kibera to protect their own lives and wellbeing in an emergency. The EAP is an essential first step in preparedness strengthening for the CDC facility in Kibera. The plan is applicable to fires, technical disasters, civil unrest and a plethora of other emergency situations. Through the progression of the plan, deficiencies in preparedness came to light and were addressed by the researcher in country (and further discussed below in the Recommendations).

Many challenges exist in developing an emergency action plan. This is especially true in low-resource communities like Kibera. Forcing employees to consider a range of emergencies and how they would react is difficult, especially for those unfamiliar with certain situations. Also, convincing participants that plan development is necessary can be a challenge. Some believe planning for events that may or may not happen is a waste of time and resources. The consequences of managing an emergency situation without a plan will ultimately be far more devastating and costly.

Developing documents such as this EAP is very labor intensive. Most organizations do not have the staff, funding, or capacity to invest in planning. Resources aside, some organizations simply do not have interest in emergency preparedness planning.

With plan development in foreign nations and/or communities, language barriers can be problematic. Fortunately in this case, the researcher and those CDC and NGO staff interviewed were fluent in English. Still, even without the language barrier, communication and mutual understanding is sometimes difficult, and can be hampered by subtle cultural differences related to emergency concepts.

As with developing the plan, there are challenges to maintaining a plan such as the EAP for the CDC facility in Kibera. Plans are living documents, continually updated as threats and response capacity change. Exercises and drills must be practiced and repeated regularly to ensure the successful execution of the plan during an emergency. These trainings and drills take time, which some employees and persons are less willing to forfeit. New hires should be trained in emergency preparedness and should familiarize themselves with the relevant portions of the EAP, though this is often overlooked. Equipment and emergency response capacity are also essential for a successful response. Finances are required to maintain and improve equipment such as fire extinguishers and emergency vehicles. All components of preparedness are equally important and are all accompanied by unique challenges.

Execution

Undoubtedly the most important aspect of the EAP is its proper execution. Because the activities and SOPs are divided among appropriate units within the organization, it is necessary that each unit be familiar only with its relevant activities. The activities within the plan are hyperlinked to the SOPs for ease of execution. The site in Kibera is small in terms of personnel (approximately 50 employees). It would be useful for the individual programs/units to photocopy the relevant sections (activity lists and

SOPs) and hang those sections on the wall where they can easily be accessed during an emergency. For example, the regular offices within the clinic do not need the laboratory SOPs, as those procedures are not applicable. It should not be assumed that CDC staff and partners are going to read the entire plan. In reality, most will not peruse the plan until it is necessary. It should also be noted that having a written plan does not ensure preparedness; if the plan is not properly executed or is not regularly practiced, it will be of little benefit.[16] For this reason, emphasizing the relevant sections of the plan to each program/unit within Kibera is the most effective method to ensure the EAP is properly utilized.

Activities and SOPs

Tables of activities and their corresponding SOPs were organized within the plan in the following order: all programs, laboratory, CCO (administration), IEPT, fire marshal, and core team-leadership. This organization was intuitive and made the most sense to staff for quick retrieval of information.

Common Activities for all CDC programs

The CDC satellite site covered under this EAP is nestled within Kibera and for that reason a major component of emergency preparedness addressed community relationship building. Due to past experiences, CDC and CFK staff is aware that building these relationships has a direct impact on emergency response. During the post-election violence of 2007-2008, the CDC office in Kibera utilized the community connections to safely evacuate the informal settlement, where ethnic and political tensions have traditionally run high. Due to the relationships developed between the CFK and CDC teams in Kibera and the community members, CDC and CFK personnel were able to

safely evacuate the slum. The Kibera community members collectively formed a corridor, allowing staff and patients of the clinic to avoid immediate danger. Elsewhere in the informal settlement, reports of neighbors from differing tribes hid and escorted their neighbors out of Kibera and even tried to protect the homes and belongings of the displaced families.[10] Research has proven that community members in informal settlements, including Kibera, extend support to one another and rely on one another, despite the extreme poverty and dire circumstances.[13] The more staff members familiar with the community (and vice-versa), the stronger security becomes during certain events, like civil unrest. Had previous relationships not been established, safe evacuation from Kibera would have been significantly more difficult during the post-election violence. As a result of these past experiences, the EAP contains an activity and tasks for all staff and programs to be involved with actively seeking support and identifying partners in the community on whom CDC can rely for information, communication and even assistance in transporting people out of the facility, if necessary.

Another threat dependent on community engagement is that of fire, Kibera's most likely hazard. In discussing fire hazards in the settlement, CFK employees stated that the community usually takes initiative to knock down neighboring structures, including homes, to prevent the spread of fire. As described above, the layout of the shantytown is such that the structures are extremely close to one another. The distance between two homes is often no wider than the size of one person (Figure 2), so a fire would easily spread and would rapidly do so due to the highly flammable construction materials. An activity within the EAP, listed under the Fire Marshal unit, is to prevent fire from spreading in Kibera by knocking down neighboring structures. The SOP for this activity

specifies that demolition can be done with hands, stones, sticks, or any other available resources. This particular SOP was developed based on past actions taken by community members for the overall benefit of the settlement. Past studies and recent experiences demonstrate that the community members will provide assistance by any means possible to friends, family and other community members while assessing their own needs and benefits. This assistance comes in the form of fundraising for those whose homes have been destroyed by fire, and also the above-mentioned knocking down of neighboring shacks to prevent the fire from spreading to others in the community.[12] Another component of preventing fire spread addressed in the EAP is to access the Kibera water supply. Shallow pipes exist throughout the informal settlement running water to the clinic and to various water points through the community. Again, the pipes are cracked with any available resources at the time of a fire, such as stones or tools, to access the water in the pipes. The decision to access water this way must be thought about carefully, considering the devastating (and far-reaching) effects a fire can have on the community. As with the demolition, accessing the water by destruction of the pipes is practical and is derived from past experiences. Activities and SOPs like this are very specific to the facility in Kibera and cannot be applied to other buildings or sites.

In Kenya, upon employment, all staff completes a CDC staff skills survey that solicits information regarding language abilities, experience with disabilities, knowledge of community resources and other applicable skills. The relevance of this information to emergency planning was recognized and this information was added to the EAP. The survey is included in the plan as an attachment, and an SOP in the preparedness phase

details instructions for completing this assessment (including where to locate the document).

Laboratory

In the event of a power loss due to a variety of emergency situations, the specimens are transferred to the laboratory at the central office in Nairobi, or to the backup laboratory in Kisumu, Kenya. The central office is on the outskirts of Kibera, and is therefore the first location to receive the samples from the Kibera laboratory for safe storage. If the emergency situation affects that central office as well as the facility in Kibera, the laboratory specimens are transferred to Kisumu. Several forms must be completed to initiate this transfer of samples from one laboratory to another, such as the Specimen Transfer Form. Required information on this form includes sample ID, study, sample type, date moved, moved from, moved to, and specimen position in the new freezer (rack, box and position locations), as well as who moved the samples, when, and any additional comments. The transportation office, whose contact information is provided within this section of the plan, arranges the transportation of samples between the laboratories. Included in the attachments are several mobile telephone numbers of staff in the transportation office so that someone can be contacted in the event that the transportation office is not operational. For reasons like this, it is essential the contact list is continually updated.

As the clinic is the only facility affiliated with CDC within Kibera that is connected to a water source, it is imperative that the source not be contaminated with coliform bacteria, bacteria indicative of fecal contamination and other potential pathogens. This activity and corresponding SOP provide all relevant information on

testing water supplies, include forms to be completed and location of their storage, and directions on how to flush the tanks and purify the water supply, if necessary.

There is an additional activity concerning maintaining laboratory security in an array of hazards. Within this SOP is the procedure for checking the functionality of motion sensors, the contact information for backup external security, and the use and locations of panic buttons throughout the laboratory in the event of a security compromise.

CCO (Administration)

CCO provides administrative support to all activities in the emergency preparedness and response phases. Activities conducted by CCO and the logistical support are critical in ensuring a streamlined, effective response.

IEPT (Emergency Coordinator)

The EC has the most extensive list of activities, as this person is responsible for coordinating all activities pertaining to emergency preparedness and response. The activities include management of contact lists, maps, documentation and emergency response supplies. Allowing for one person to be responsible for the organization and oversight of all of this information and these materials ensures the information is always current, which in turn leads to more effective responses.

In the response phase, the EC directs the response for the same reasons as s/he does the preparedness phase; s/he has the greatest wealth of knowledge and resources on the subject. As the EC is directing the response, s/he has the most awareness of the situation and therefore is responsible for preparing situation reports and incident reports to present to CDC leadership.

Fire Marshal

Currently eight fire marshals are designated within the Kibera site. When faced with an emergency, the marshals take initiative to evacuate the facility and ensure the safety of those working in the CDC facility. These marshals are trained in CPR and emergency first aid, and maintain lists of staff, staff sitting positions and even logs of who is in the office daily so that all staff can be accounted for after an evacuation.

Another activity for which the fire marshals are responsible is preventing the spread of fires, also addressed in community relationship building above. The tasks within the SOP for this activity are unique to Kibera in the method of execution. Due to the design of the informal settlement, fires rapidly spread throughout the community. For this reason, burning of shops and businesses was minimal during the post-election violence of 2007-2008, for the risk of burning down one's own home is high in such a settlement.[10] The fire marshals will demolish the nearest structures to prevent the spread of fire. The SOPs for this are detailed in the plan, and include procedures for demolition and communication between the facility and with residents and neighbors. Also detailed is the procedure for accessing the water supply to attempt to squelch the flames.

Core Team- Leadership

The Core Team, or Leadership, liaises with partners and with the central office in Nairobi and makes leadership decisions. One high-level leadership decision is that of evacuating and/or shutting down the offices, depending on the circumstances. Though this program/unit is not the most hands-on, it certainly does oversee and play an important role in the preparedness and response activities.

Confidentiality Considerations

The full EAP for the CDC site in Kibera is stored at the CDC facility in Kibera and at the main office in Nairobi, as well as at the CDC Headquarters in Atlanta, Georgia. Due to the sensitive nature of the plan, the document itself cannot be published or made public (i.e. the actual plan cannot be stored at Emory University). The comprehensive plan includes facility floor plans, personal contact information, and laboratory layout and storage locations of different materials. In the wrong hands, the document could potentially be used to threaten public health security. As mentioned above, it is recommended that sections of the plan be hung on the laboratory walls. Because only those with special access can enter the laboratory, hanging copies of the lab section on the walls within the laboratory is not a security compromise.

The EAP for Kibera is one of the first completed plans for the CDC staff and facilities abroad. As CDC has offices in over 50 countries, there is a need for more specific plan development pertaining to all hazards of each site. The CDC facilities are not the only ones that necessitate these plans; major offices to small NGOs would benefit greatly from developing and practicing the SOPs. Organizations working at the community level need to prepare for all-hazards in collaboration with the community because, as is the case with Kibera, the community plays a vital role in assisting with response.

B. Recommendations

Not only is the EAP valuable for streamlining a response by identifying roles/responsibilities and lines of communication, it is also beneficial in recognizing current gaps in emergency preparedness. In creating this emergency action plan, gaps in preparedness were identified. Recommendations to strengthen the emergency preparedness of the CDC-Kibera facility were provided to CDC and immediate partners. For example, it was known that the structures within the slum lack some basic resources, such as direct access to water. Therefore, the clinic has a sufficient number of fire extinguishers strategically placed throughout the building. However, upon inspection it was noted that most of the extinguishers were expired or nonfunctional. This error may have potentially gone unnoticed until an actual fire, in which case replacement and repair would come too late. In conjunction with EAP development, the researcher contacted a variety of vendors while in country to procure new extinguishers.

Other recommendations and subsequent actions implemented during the process included, as mentioned above, establishing appropriate folders on the network share drive containing all SOPs, maps, and forms. The aforementioned maps were developed concurrently with the EAP. The clinic in Kibera had a previously drafted a floor plan, but no other maps existed. Among those developed to aid in emergency preparedness include maps of evacuation routes, schematics of office seating charts, maps of the facility and also a map of Kibera denoting the location of Tabitha Medical Clinic within the settlement (Figure 7). This map is inserted within the body of the plan, in the attachments and now is also saved to the network share drive. To assist in the ease of reading the

maps and floor plans and for more rapid evacuation, signs (i.e. ‘West Wing’ and ‘East Wing’) were placed throughout the facility, as were copies of the maps, floor plans, evacuation routes, and seating charts.

Another recommendation that arose from plan development was one concerning water points in and around the CDC facility. A physician helping to create the activity list expressed the need for water points in and around the clinic. The clinic is the only CDC-associated facility in the settlement connected to a water source. The researcher and partners investigated the feasibility of setting up water points in other locations within Kibera. The vendors, procurement, associated costs, and other technicalities were passed along to upper management, who will make a decision based on practicability and available resources.

Having a backup EC in the CDC facility in Kibera would be very beneficial in the event that the main EC is out of the office or is unavailable. This backup would be familiar with the EAP in its entirety and would possess a hard copy, as well.

While some steps to improve emergency preparedness and response within the CDC facility in Kibera are simple, such as hanging maps of the evacuation routes, other measures are far more difficult to achieve. The EAP brought to light some recommendations that would ideally be implemented, such as increasing the number of water points, but may not come to fruition in the near future. Unfortunately, some of the recommendations come with a financial restriction (i.e. water points) while others are delayed while upper management settles financing and procurement (i.e. refilling and repairing fire extinguishers). While lack of financial resources may weaken the EAP, ultimately the CDC has or plans to implement as many of the recommendations as is

achievable. The extra measures explained above, along with the EAP, will undoubtedly strengthen the preparedness of the CDC facility within Kibera in Nairobi, Kenya.

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