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# Extractive Industries Infectious Disease Risk Assessment and Management Update Report

## For submission to FHI360

**October 2014**

Centre on Global Health Security
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Emerging Pandemic Threats Program
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| | |
|---|---|
| **Project Name** | *The IDRAM Initiative* |
| **Report compiled by** | *Osman Dar & Francesca Viliani* |
| **Reporting period** | *6th June 2014 – 6th October 2014* |

## Section One: Executive Summary

Major activities during this period include:

- USAID Toolkit field testing in Congo (June 2014) – see Appendix A for full report
- Congo Desktop exercise (August 2014) - see Appendix B for full report
- Australia Down Under Desktop exercise (September 2014) – see Appendix B for full report
- Australia Down Under Conference engagement and participation – see Appendix C for full report
- Qualitative study interim analysis – see Appendix D for full report

### USAID Toolkit field testing in Congo

The USAID toolkit was presented and tested at 5 mines in the Katanga Region of the DRC: Tenke Fungurume Mining, Dikulushi and Pweto, Kipoi and Kinsevere. Appendix A provides a detailed report on these activities.

Minor modifications to the toolkit were recommended. These are outlined in a more detailed report available separately from ISOS and Louise Flynn. Further feedback from this process suggested:

**a.** Mining companies already implement quite well through their internal management processes the majority of the measures outlined in the toolkit.

**b.** A need exists for a risk assessment toolkit for emerging infectious diseases (EIDs) to cater for exploratory mining operations.

**c.** A process or strategy is required for interacting with the external environment (health authorities/ local government etc) when dealing with outbreaks and when implementing EID mitigation measures.

### Desktop exercises in DRC and Australia

Kulinda Afya 1 and Kulinda Afya 2 were scenario-based simulation exercises run in Congo and at the Africa Down Under conference respectively.

Recommendations from Kulinda Afya 1 run in the Congo with mining companies and local authorities included:

- A working group should be established to consider approaches to a joint response in the event of an outbreak.
- Relationships should be developed with community leaders, such as the media, religious leaders, schools and primary care providers (e.g. health clinics) so that they are able to help disseminate information to the local community.
- A joint outbreak risk assessment detailing the impact on local communities and mining facilities should be conducted and resource gaps identified.
- A communications “toolkit” should be developed to allow for the rapid

dissemination of advice to the public and those responding to the outbreak.

- A medical risk assessment and response plan should incorporate the requirement to communicate with the public and a methodology for carrying screening on large numbers of human and animal samples.
- Mining companies should develop outbreak plans.
- An outbreak risk assessment should be conducted allowing communities and companies to be better prepared for an outbreak and identify potential shortfalls in capabilities and resources.
- Inter-sectoral collaboration in the event of an outbreak should be developed.
- Animal health and public health professionals should work more closely so that the animal health experts can inform their counterparts about potential issues.

Recommendations from Kulinda Afya-2 run at the ADU conference with senior mining executives and other conference participants included:

- Mining companies, and the organisations they are working with should broaden the focus of existing health education programmes – or consider creating health education programmes where none exists – in the local community to include the threat presented by disease outbreaks and the prevention of zoonotic disease outbreaks.
- Mining companies work with local authorities, NGOs and other organisations should implement disease surveillance programmes to the benefit of their own response arrangements.
- Mining companies should include an outbreak management plan in their suite of business continuity plans.
- Existing cross-sectoral working groups should be mapped and their activities recorded so that they can be emulated or recreated in preparation for future outbreaks.
- Mining companies could develop relationships with the regional and national health authorities in the countries in which they are operating to allow them to access health resources.
- Mining companies could develop a stockpile of personal protective equipment (PPE) which they could share between themselves and the local community as required.

**ADU conference IDRAM-related activity**

IDRAM-related events played a prominent role at the ADU conference with a well-attended plenary presentation on Ebola and emerging infections, a Chatham House lunchtime panel discussion, the running of the Kulinda Afya-2 outbreak simulation exercise, and numerous television and radio presentations. Complete details of the activities undertaken are presented in Appendix C.

**Qualitative study interim analysis**

Twenty key informant interviews have taken place with employees from 4 mining companies in Katanga, DRC. Preliminary results suggest:

**a.** Mining companies seem to have good internal systems in place for disease control and prevention but can't control outbreaks by themselves or conditions in surrounding communities.

**b.** Mining companies need to work in close partnership with external stakeholders including communities, regional and national health authorities in order to provide a meaningful reduction in the risks presented by EIDs.
**c.** Disease control and prevention, including of EIDs, benefits the mining company and the community.
**d.** For companies applying international standards, the adoption of additional measures for specific control of EIDs and prevention do not appear to be a significant hurdle, given the current outbreak of Ebola in West Africa, a set of guidelines specific to the identification, treatment and prevention of EIDs would be welcomed.

## Section Two: Activities and Progress

### USAID Toolkit field testing in Congo

This phase of the project has been successfully completed. Based on recommendations from the field testing and input from the qualitative study, the intention will now be to update and modify the toolkit accordingly.

### The desktop exercises and ADU plenary presentation

The final report of the desktop exercises is attached in Appendix 2. All material related to the development and the content of the exercises themselves will be provided to FHI360 and USAID for future use. The exercise will be re-run at the INDABA mining conference in February 2015 and at the Chatham House extractive and Oil & Gas EID roundtable being planned for in March 2015.

A copy of David Heymann's presentation at the ADU conference has been separately provided to FHI360 and USAID.

### Qualitative study

The interview and transcription stage of the qualitative study is complete and results are currently being collated and analysed. It is anticipated that the final study report will be ready by mid-November and a research paper ready for submission for peer-reviewed publication by the end of November 2014.

### Preparatory work for IDRAM phase II

Planning for the second phase of the IDRAM project has been underway for several weeks and potential institutional partnerships are being explored to assess the feasibility of proposed activities. An initial plan submitted to FHI360 and USAID has received positive feedback and this is now being developed into a fully costed proposal. Francesca Viliani (ISOS) and Osman Dar/Claire Parry (Chatham House) are preparing this full proposal for discussion/consideration by all the institutional partners. The proposal will be submitted by

the 10th of October 2014.

## Section Three: Institutional & Project Partner Issues

- Chatham House will bring in a Public Health Specialist Registrar and hire a dedicated project manager to support IDRAM II activities which look set to expand in this second phase (October 2014 – June 2015).
- Francesca Viliani will be seconded from ISOS to Chatham House to work on IDRAM II from October 2014 through to July 2015.
- Chatham House will set up a new contract with USAID/FHI360 and set up sub-contracts with all other institutional partners including but not limited to Medical ISOS/Public Health England/ LSHTM/AAMIG as necessary for phase II activities. This is intended to streamline future project funding/management arrangements between all the partner institutions.
- A meeting between all partner institutions will be arranged before the year's end to discuss and ratify all new proposed activities for IDRAM II.

## Section Four: Outputs and Deliverables

Pending deliverables include a fully budgeted proposal for IDRAM phase II and a final report on the qualitative study. These will be submitted to FHI360/USAID on October 10th 2014 and November 15th 2014 respectively.

## Section Eight: Risks, Issues and Challenges

- The current Ebola outbreak in West Africa has overwhelmed capacity of some of the institutional partners to prioritise IDRAM activities – these have variously included Chatham House/ Medical ISOS and Public Health England. The obvious risk of delays to the achievement of project milestones are being addressed by expanding the dedicated IDRAM team to include a Public Health Specialist Registrar and a project manager based in London. A more integrated approach to the collaboration will be achieved through the secondment of Francesca Viliani (ISOS) to Chatham House and the recruitment of a Public Health Specialist Registrar from PHE (this latter role is a subsidised position at no cost) to Chatham House for the duration of IDRAM phase II.

APPENDIX A

# IDRAM
# Field testing Mission

June 2014

**Louise Flynn, Paul Mawaw, Francesca Viliani**

## Summary

A mission in Katanga, DRC was organized as part of the IDRAM project in order to:

- To assess and validate the draft tools (Planning Tool and Audit Tool) developed to assist industry to identify vulnerabilities in their operation that may create opportunities for transmitting and spreading zoonotic infectious diseases;
- To support the organization of the remaining IDRAM activities.

The mission, which took place between 15 and 28 June 2014, was conducted by Francesca Viliani (Project Director); Dr. Paul Mawaw (Senior Doctor of International SOS, DRC and Project Field Manager); Louise Flynn (Ecology and Environment specialist and author of the tools).

The mission was very successful, as outlined by the following achievements:

- The tools were presented and tested at 5 mines in the Katanga Region of the DRC, Tenke Fungurume Mining, Dikulushi and Pweto, Kipoi and Kinsevere;
- The team interacted with the relevant staff at these sites to identify entry points for these companies to integrate these tools into their existing systems and simultaneously evaluated the feasibility; strengths and weaknesses of the current tools with respect to these facilities;
- The input from these visits will be used to revise the tools so they can be shared more widely;
- Arrangements for the qualitative survey and the one day exercise in Lubumbashi in August were also made.

## Introduction

The Democratic Republic of Congo (DRC) is a biodiverse region where extractive industry personnel and the general population have the potential to come into contact with wildlife. USAID's Emerging Pandemic Threats (EPT) program is working with mining companies operating in DRC to test tools to identify potential vulnerabilities within their operations, and to provide potential mitigating strategies to address those vulnerabilities. Specifically, the Katanga Province of the DRC has many important mining operations that follow the International Finance Corporation (IFC) Sustainability Framework. This makes the province and its lead industry an ideal location to evaluate these tools.

The extractive industry, while familiar with endemic infectious diseases (e.g. malaria, TB, HIV/AIDS) and influenza pandemic risks, has been largely unaware of emerging infectious diseases (EIDs) as an operational threat, and therefore unaware that the risk can be mitigated through standard risk analysis and management approaches. The EPT Program's Extractive Industry Working Group developed a draft set of analysis tools that allow companies to identify potential areas of vulnerability to zoonotic disease transmission within their operations.

EPT's RESPOND and PREVENT programs are working with Chatham House, International SOS, and Public Health England to evaluate and promote these tools. Titled the Infectious Disease Risk Assessment and Mitigation (IDRAM) Initiative, the program was launched by Chatham House and the Australia-Africa Mining Industry Group at the 2013 Mining Indaba Conference. In April 2014, Intl.SOS identified and organized meetings with four mining companies in the Katanga Province and also informed the provincial authorities and other stakeholders about IDRAM and organized a field visit in June 2014 to discuss the analysis tools developed by USAID. This report summarizes the field visit, the outcomes, and the next steps.

### Field Work

In order to test the planning and audit tools, a field team consisting of Louise Flynn (Ecology and Environment), Francesca Viliani (International SOS), and Dr. Paul Mawaw (International SOS) visited five mining sites in the Katanga Province of the DRC. The following table summarizes the dates and locations of the site visits:

| Dates of site visit | Location | Mine |
|---|---|---|
| June 18-19 | 60 kms from Pweto | Kapulo Mine – Anvil Mining Inc SARL– an operation of Mawson West |
| June 19-21 | 60 kms from Kilwa | Dikulushi Mine -Anvil Mining Inc SARL– an operation |

| | | |
|---|---|---|
| | | of Mawson West |
| June 22-24 | Fungurume | Tenke Fungurume Mining (TFM) – an operation of Freeport MacMoRan |
| June 24 | 75 kms northwest of Lubumbashi | Kipoi Mine – SEK – an operation of Tiger Resources |
| June 25 | Lubumbashi | Kinsevere – An operation of MMG |

The field test of USAID planning and audit tools (http://preventproject.org) aimed to evaluate the usability and practicality of the tools, not to evaluate the facilities.

During each site visit, the field team met with members of the mine's health, safety, and environment (HSE); camp and canteen management; social development; medical; and exploration divisions. Each individual or group was briefed about the project and then interviewed about operations at the facility. The mine personnel were asked to review the portions of the audit checklist that was relevant to their line of work and to review the corresponding mitigation measures to determine if any items were impractical, infeasible, or missing.

In general, participants found that large part of the checklist was relevant. With respect to mitigation measures, most of the facilities were already implementing some or most of the mitigation measures, but they also identified measures that were not practical given the size or remoteness of their concessions. Due to the nature of the response to topics, the results are summarized in three topic areas below.

**Nuisance Animals/ Bushmeat/ Biodiversity**

Till date, none of the facilities had problems with nuisance animals. All fumigate their facilities weekly to control for mosquitoes and vermin. All facilities are located in areas that are relatively devoid of wildlife. This is due to the fact that most wildlife has been hunted. Habitat is present to support wildlife in areas surrounding the mines or their facilities. Some wildlife is present in all concessions, and snakes are the wildlife of greatest concern within the concession. Insectivorous bats have been seen in some of the concessions. Rodents are present in almost all the concessions along with moles and mongoose. However, rodents are not a problem at any of the facilities.

All the mines have "no hunting" policies which is enforced on-site and within the facility; however, the mines have no way to enforce the no hunting policy within the

concession. In general, the mine and the associated facilities have a small footprint within the entire concession which could be occupied by multiple cities and villages. Although all of the facilities control access and check vehicles, they do not check for the presence of bushmeat because this has not been an issue to date.

Since there are not nuisance animals, pests, or wildlife in the area, many of the mitigation measures were not applicable to the mines visited. However, each had a biodiversity management program. Given that there was so little native wildlife, the biodiversity programs focused on maintaining the appropriate flora biodiversity.

**On-site Infrastructure**

All mining companies had housing for their expatriate staff, their senior Congolese staff, and for some junior level Congolese staff. Most Congolese staff who reside in the proximity of the mining sites were bussed in daily. Housing met international standards. Vermin has not been a problem at any location, but all housing is fumigated weekly. Feral dogs were a problem at one facility.

In general, food is provided to all residential staff. Some locations fed the local Congolese staff lunch and others did not. In general, food and dry goods are procured from South Africa, Lubumbashi, and Zambia. All canteens used HAACP-like protocols.

On-site potable water was pumped from boreholes, stored in tanks, and distributed throughout the camps after being treated with chlorine. All facilities regularly tested their water supply. All sites checked regularly for the presence of stagnant water.

Each site used septic systems. Some had leach fields, others pumped their septic tanks regularly. All had on-site waste pits. Each was managed slightly differently. All had waste bins throughout their sites that were emptied regularly.

**Worker and Community Health**

Each mining company addressed worker health differently. One generality was that all expatriate workers were vaccinated. It was not possible to determine the vaccination status of the national workforce. All mining sites provide site medical care that can address emergency care and stabilization. Whilst the extent of general medical care varied from site to site, all facilities could test and treat malaria.

Community health programs also varied in terms of their nature and breadth. But, in general, all sites provided some form of refurbishment of the local hospital and logistical support, such as fuel. Community health programs also included health promotion campaigns.

Migration varies from site to site. Regardless of the site, the community physical and social infrastructure was insufficient for the residents prior to migration associated with the presence of the facility and no matter what the companies support, the demand is growing faster than their ability to supplement the existing systems. Access to clean water is a problem for many communities in Katanga Province. All mining sites promptly responded to this year cholera outbreak and supported the health zone authorities with their own response.

### Conclusions and Recommendations about the Tools

The mining companies are implementing most of the applicable mitigation measures, but not necessarily to international standards. Standards reflect their corporate standard operating procedures which reflect either Australian, South African, or American standards, but local standards have been applied where it is not feasible to meet higher standards such as for landfills.

An overall comment was that mitigation measures that required some type of policing of the entire concession were not feasible. Managers at two mines recommended that the questions about food safety should be more specific and should address poultry, dairy, and eggs. One HSE professional pointed out the biodiversity mitigation measures primarily address the buffer zone areas and not the greater concession areas where greater biodiversity would exist. Other HSE professionals identified multiple biodiversity preservation measures that could not be implemented either because of safety reasons or feasibility, such as using hand tools instead of power tools or steam washing vehicles. With respect to the mitigation measures for community health, the mines pointed out that measures under the purview of the government could not be implemented.

Few of the people interviewed had been involved in developing the Environmental and Social Impact Assessment. Some said that they had considered many environmental and social issues, but had not necessarily examined the issue of bushmeat. A few people said that they would consider some issues identified in the Planning Tool during their next impact assessment, but another person said that he would prefer to examine the issues outside of the impact assessment process because it was too restrictive.

### People Interviewed

| **MAWSON WEST – Anvil Mining Inc. SARL – Kapulo Project** | |
|---|---|
| **Personnel** | **Role** |
| John Berry | General Manager |
| Seraphin Mutompo | Health, Safety, and Environment (HSE) Supervisor |

| | |
|---|---|
| Rojenne Rodriguez | Paramedic |
| Momat Muloko | HSE officer |
| Pascal Semba | Nurse |
| Laura Klingberg | Exploration Geology |
| Matt Mattyson | Logistics |
| Wotjiech Zukowski | Exploration Geology |
| Pierre | Geology support |
| Rob | Camp Manager |

| **MAWSON WEST – Anvil Mining Inc. SARL –Dikulushi Project** | |
|---|---|
| **Personnel** | **Role** |
| Peter Johnston | General Manager |
| Asocaran Chetty | Engineering Manager |
| Dominick Kabunda | Social Officer |
| Lucien Musuku | Security Superintendent |
| Clint Baker | Underground Manager |
| Tomislao Felezorsky | Project Exploration Geologist |
| Gary Barbham | Group Exec –Geology |
| Daryl Van Niekerk | HSE AND TRA |
| Antony Rollinson | Chef/Camp Manager |
| Jules Mulongo | Social Supervisor |
| Ann Shaw | Service Manager |
| Guy Sangi | Liaison Officer – Exploration |
| Alyce Brownlie | Exploration Geologist |

| **Freeport MacMoRan Inc– Tenke Fungurume Mining** | |
|---|---|
| **Personnel Interviewed** | **Role** |
| Wahid Bertew | TFM Facilities Manager |
| Shane Tintinger | SODEXO Kitchen Manager |
| David Clayton | TFM Community Development Manager |
| Gustave Kabamba | TFM Deputy Director Community Development |
| Julie Kitoto | TFM Community Liaison Officer Manager |
| Edouard Swana | Intl.SOS – Public Health Advisor |
| Michel Brodeur | Intl.SOS – Medical Doctor |
| Chuck Rose | TFM HSE Manager |
| Glenn Wyman | TFM Safety Manager |
| Godwill Mnambo | Intl.SOS Vector Control Officer |
| Isak Hattingh | Intl.SOS Vector Control Manager |
| Robert North | TFM Manager Long-Range Resource Modeling |

| **Tiger Resources – Kipoi Project Operated by SEK** | |
|---|---|
| **Personnel Interviewed** | **Role** |
| David Matanda | SEK HSE |

| | |
|---|---|
| Pauline Volga | SEK Social Development |
| Igor Senga | SEK Old Camp Manager |
| Cathy Faila | HSE for SODEXO at New Camp |
| Reverly Kilembo | SEK Camp Manager |
| Dodo Miseki | SEL Exploration |
| David Balaz | Intl.SOS - SEK |
| Trevor Franzoi | Intl.SOS - Greenstone |

| **MMG – Kinsevere Project** | |
|---|---|
| **Personnel Interviewed** | **Role** |
| Jenny Cox | Camp, Canteen, Transportation Management |
| Fred Lumbayi | Camp and Canteen management |
| Maxime Batrade | Exploration |
| Hervellogo | Exploration |
| Hugues Munung | Environment |
| Deo Mwamba | Social Development |
| Alan Tatton | HSE Manager |
| Philippe Fipola | Medical Director |
| Johnny Masonga | HSE Supervisor |
| Lyse Hamisi | OHH |
| Dennis Govender | Intl.SOS Paramedic |
| Dr. Patrick Olemba | Medical Doctor |
| Dr. Musasa Gilbert | Social – Community Development |

## Appendix B

# Exercise Kulinda Afya

## Desk Top Exercises

## 11 August 2014

## 4&5 September 2014

# Infectious Disease Risk Assessment and Management (IDRAM) Partners

**Public Health England**
(www.gov.uk/government/phe) exists to protect and improve the UK's health and wellbeing, and reduce health inequalities. It does this through advocacy, partnerships, world-class science, knowledge and intelligence, and the delivery of specialist public health services. PHE is an operationally autonomous executive agency of the Department of Health.

**International SOS** (www.internationalsos.com) is the world's leading medical and travel security risk services company. It cares for clients across the globe, from more than 700 locations in 89 countries. International SOS's expertise is unique: more than 11,000 employees are led by 1,200 doctors and 200 security specialists. Teams work night and day to protect its members. International SOS has pioneered a range of preventative programmes and offer an unparalleled response to emergencies. It is passionate about helping clients put 'Duty of Care' into practice. With International SOS multinational corporate clients, governments and NGOs can mitigate risks for their people working remotely or overseas.

**Chatham House** ( www.chathamhouse.org) is home to the Royal Institute of International Affairs, a world-leading source of independent analysis, informed debate and influential ideas. Founded in 1920 and is based in St James' Square, London. The Chatham House Rule, famous around the world for facilitating free speech and confidentiality at meetings, originated there. The Chatham House Centre on Global Health Security webpage can be found at: www.chathamhouse.org/research/topics/global-health

**USAID** (www.usaid.gov) is the lead U.S. Government agency that works to end extreme global poverty and enable resilient, democratic societies to realize their potential. Through its emerging pandemic threats programme, USAID has been the primary funder of the IDRAM Initiative from its beginning in 2012.

**FHI 360** (www.fhi360.org) is a non-profit human development organization dedicated to improving lives in lasting ways. Its work is grounded in research and science, strengthened by partnerships and focuses on building the capacity of individuals, communities and countries to succeed. FHI 360 has co-developed the risk assessment toolkits that have underpinned the IDRAM Initiative.

**Ecology & Environment** (www.ene.com) is a global network of professionals and industry leaders in 85 engineering and scientific disciplines working together to develop and deliver solutions that promote environmental sustainability. Ecology and Environment co-developed the risk assessment toolkits that have underpinned the IDRAM initiative.

**The Australia-Africa Mining Industry Group** (www.aamig.com) Founded in May 2011 "AAMIG" represents Australian and Australian-based exploration, mining, service and supply companies active in Africa. AAMIG aims to support member companies and enhance their Social Licence to

Operate, with a key focus on stakeholder engagement, sustainable community development, human rights and governance. AAMIG is committed to supporting a “Team Australia” approach in regard to Australia’s engagement with Africa, which includes building meaningful relationships between the mining industry and governments, not-for-profits and academia.

# The Emerging Pandemic Threats Program and the IDRAM Initiative

Three-quarters of new human infectious diseases are believed to have emerged from animal reservoirs. Environmental and social changes that affect how people, pets, livestock and wildlife interact can create conditions that threaten human populations with diseases such as avian influenza, viral haemorrhagic fevers (Ebola and Marburg) and SARS. Disease outbreaks can lead to pandemics, with potential significant local, regional and global economic, security and development impacts.

Activities around extractive industry operations in disease hotspots frequently bring humans and animals into closer contact. This can potentially modify virus transmission patterns at the human–animal interface.

## The Emerging Pandemic Threats Program

The speed with which these diseases can emerge and spread presents serious public health, economic, and development concerns. It also underscores the need for the development of comprehensive disease detection and response capacities, particularly in geographic areas where disease threats are likely to emerge. Recognizing this need, the U.S. Agency for International Development (USAID) has launched an Emerging Pandemic Threats (EPT) program that seeks to aggressively pre-empt or combat diseases that could spark future pandemics.

The EPT program emphasizes early identification of and response to dangerous pathogens in animals before they can become significant threats to human health. Using a risk-based approach, the EPT program builds on USAID's successes in disease surveillance, training, and outbreak response to focus on geographic areas where these threats are most likely to emerge. These efforts are critical to the sustainability of long-term pandemic prevention and preparedness. The EPT program draws on expertise from across the animal- and human-health sectors to build regional, national, and local capacities for early disease detection, laboratory-based disease diagnosis, rapid disease response and containment, and risk reduction. These efforts target a limited number of geographic areas, known as "hot spots," where new disease threats have emerged in the past. The EPT program focuses on "hot spots" in the Congo Basin of East and Central Africa, the Mekong region and other "hot spots" in Southeast Asia, the Amazon region of South America, and the Gangetic Plain of South Asia.

## The Infectious Disease Risk Assessment and Management (IDRAM) initiative

Chatham House is facilitating interaction between the extractive industry (oil and gas, mining, timber) and international development and finance institutions, national government stakeholders and science leaders to address this important and complex challenge. Sectors and constituencies that do not often come together are encouraged to identify a sense of common purpose and incentives for meaningful dialogue.

The initiative facilitates a collegial, open and transparent environment and platform where key organizations and constituencies can work productively towards common understanding of and solutions to a complex global challenge.

Key stakeholders are involved to build consensus and common frameworks and tools around the risk management of infectious diseases associated with extractive industry activities. This will lead to a policy discussion and framework for addressing and mitigating these risks at a global level.

# Executive summary

Exercise Kulinda Afya (Swahili for ‘Protect our health’) comprises two exercises. A pilot exercise called Kulinda Afya I was run in Lubumbashi, Democratic Republic of Congo on the 11 August 2014. Kulinda Afya II was run at the Africa Down Under Conference in Perth, Australia on the 4 and 5 September 2014.

Exercise Kulinda Afya is an element of the infectious disease risk assessment and management (IDRAM) initiative which is part of USAID’s Emerging Pandemic Threats programme.

The exercises were designed by Public Health England’s Emergency Response Department assisted by colleagues from USAID, Ecology and Environment, FHI360, International SOS and Chatham House.

The aim of the Kulinda Afya Exercises was to raise awareness of the risks presented by an infectious zoonotic disease outbreak among representatives of the extractive industries and examine ways of avoiding or mitigating that risk. They are part of a suite of information designed to help organisations plan to counter the threat posed by emerging infectious diseases.

Twenty-eight people attended the exercise representing: the provincial health authorities in Katanga, the University of Lubumbashi, Freeport-McMoRan Copper & Gold (TenkeFungurume Mine), Tiger Resources (Kipoi Mine), MMG (Kinsevere Mine) and Mawson West (Dikulushi Mine).

Thirty-eight people representing mining companies, government and NGOs attended the two workshops at the Africa Down Under Conference.

The main findings of the exercises were that the response to an infectious disease outbreak would be enhanced by:

- Increased cross working and coordination between health representatives at a regional level, the extractive industries and the provincial representatives of non-governmental organisations.
- Increased engagement and health education between the extractive industries and the communities around the mining sites, with particular emphasis on the mitigation of risks posed by zoonotic diseases.
- Sharing of resources such as equipment to assist in the isolation and quarantining of patients including the proper Personal Protective Equipment and access to laboratory testing of samples between the extractive industries and the provincial health authorities.

# 1. Introduction

This report describes the design, delivery and findings of Exercise Kulinda Afya I and II which were run in Lubumbashi, Democratic Republic of Congo (DRC) on the 11 August 2014 and at the Africa Down Under Conference in Perth, Australia on the 4 and 5 September 2014.

The exercise was designed by Public Health England's Emergency Response Department as part of the infectious disease risk assessment and management (IDRAM) initiative headed by the Royal Institute for International Affairs at Chatham House. IDRAM is part of USAID's Emerging Pandemic Threats Program.

USAID, Environment and Ecology, FHI360, International SOS, Chatham House and Public Health England contributed to the development and delivery of Exercise Kulinda Afya. A summary of the findings from both exercises is at **Appendix A**.

# 2. Aim and objectives

## 2.1 Aim

The overall aim for the project was: "to raise awareness of the issue of zoonotic diseases among the extractive industries".

For each of the exercises the aim was modified to suit the needs of the particular audience. For Exercise Kulinda Afya I the aim was: To raise awareness of how to coordinate the response to an infectious zoonotic disease outbreak amongst senior field staff of the extractive industries and local government and health officials in Katanga province.

For Exercise Kulinda Afya II the aim was: to raise awareness among the mining industry of the implications of a major zoonotic disease outbreak and how to coordinate a response.

## 2.2 Objectives

a) To raise awareness of emerging infectious diseases of zoonotic origin
b) To encourage interaction between the companies and local officials in a health response
c) To gather feedback about the Exercise

# 3. Scenario

The scenario for Exercise Kulinda Afya was based on an outbreak of Viral Haemorrhagic Fever, Marburg Virus in the southernmost province of a fictional central African state: the Democratic African Republic.

Marburg virus is the causative agent of Marburg haemorrhagic fever, a disease with a case fatality ratio of up to 88%. Marburg and Ebola viruses are the two members of the *Filoviridae* family (filovirus). Though caused by different viruses, the two diseases are clinically similar. Both diseases are rare and have the capacity to cause dramatic outbreaks with high fatality rates.Case fatality rates in Marburg haemorrhagic fever outbreaks have ranged from 24% to 88%.Fruit bats of the Pteropodidae family, are considered to be natural hosts of Marburg virus which is transmitted to people from fruit bats and spreads among humans through human-to-human transmission. No specific antiviral treatment or vaccine is currently available.[1]

The disease affected the workers of Copper Mine 1 and residents of Kata City, the provincial capital which abuts the mine. Initially the cause of the illness could not be determined, it was then confirmed as Marburg virus. The government had imposed a travel ban meaning that staff could not be evacuated from the country. In all 80 people were infected of whom 30 died.

# 4. Exercise format

4.1 Both exercises were discussion-based and followed the same format. However, because they ran for a different amount of time and were aimed at different audiences the format for each exercise differed. This is described in Sections 6 and 7 of the report.

4.2 In both Ex Kulinda Afya I and II the participants were divided into groups and presented with the scenario and a set of questions designed to encourage and guide discussion. A member of the exercise team acted as a facilitator for each of the groups. They helped guide the discussion and provided subject matter expertise if required. During the exercises the groups reported the results of their discussions in plenary sessions. A list of the participants is at **Appendix B**.

[1] World Health Organization : Marburg Haemorrhagic Fever Fact Sheet – November 2012 - http://www.who.int/mediacentre/factsheets/fs_marburg/en/ accessed on 15 September 2014

# 5. Exercise evaluation

## 5.1 Data capture.

5.1.1 The same evaluation methodology was used for both exercises. Information for the exercise evaluation in this report is drawn from the following sources.

a) Participant feedback provided during the exercise plenary sessions. The feedback from the groups has been summarised and is contained in Appendix A.
b) Participant feedback provided in writing at the end of the exercise. In the feedback they were asked to record one recommendation about the manner in which to deal with an outbreak of an infectious disease. Some provided more than one recommendation.
c) Facilitators' notes.

5.1.2 A summary of the recommendations is in a table at Appendix A.

# 6. Exercise Kulinda Afya I

## 6.1 Kulinda Afya I: Exercise Format

6.1.1 Exercise Kulinda Afya I was a one day table-top exercise based on an outbreak scenario. The scenario was divided into four sessions, each describing a different stage of the outbreak. Participants were asked to consider a series of questions along with each piece of new information. The discussions were guided by a facilitator from among the exercise staff.

a) Session one described the outbreak of an unknown illness which was affecting eight mine workers and 15 locals. Participants were asked to consider their initial response to a limited outbreak of an unknown disease.

b) Session two described how the number of patients had increased. Participants discussed how their response to the outbreak might now change in light of these developments. They were also asked to consider whether they had adequate resources to cope with an outbreak which required the isolation of patients.

c) In session three the disease was confirmed as Marburg virus. Participants were asked to consider how their strategy, particularly their communication with the public, might change following the confirmation that the disease was Marburg Fever.

d) In session four participants were asked to consider how they might develop their existing arrangements to respond to a future outbreak.

6.1.2 Three plenary sessions were held during the exercise to allow the groups to share their conclusions with each other. For the first two plenary sessions the groups were asked to share what they considered to be the most important factors in developing their outbreak response. In the final plenary session the groups were asked to consider what the key factors in mitigating the risks posed by future outbreaks.

6.1.3 The exercise was conducted in French and English. Translation from French to English was provided by International SOS staff assisting with the exercise. In each group there was a person who could speak both French and English who could translate if required.

6.1.4 The exercise started at 9am with a briefing on the programme for the day and the aim and objectives for the exercise. There were plenary sessions after session one, sessions two and three and session four. The programme was altered to allow for a 10 minute briefing about Marburg virus.

## 6.2 Kulinda Afya I: Participant Groups

6.2.1 The exercise was attended by participants from the provincial health authorities, provincial animal health authorities, the School of Public Health at the University of Lubumbashi, International SOS, Freeport-McMoRan Copper & Gold (TenkeFungurume Mine), Tiger Resources (Kipoi Mine), MMG (Kinsevere Mine) and Mawson West (Dikulushi Mine). The local representatives of the World Health Organization (WHO) and United Nations Children's Fund (UNICEF) were invited but were unable to attend.

6.2.2 Participants were divided into four groups based on the location of their work places. Each group contained representatives from a mining company and human and animal health experts. A facilitator from the exercise staff was allocated to each table for the exercise. A list of the exercise participants is at **Appendix C**.

## 6.3 Kulinda Afya I: Evaluation

6.3.1 The groups reported that the medical system in Katanga province and the DRC had in place arrangements that would enable the authorities to respond to an outbreak such as that described in the exercise scenario. However, the existing health system suffered from a paucity of resources and capacity.

6.3.2 The groups also reported that the procedures in place in the mining facilities represented at the exercise would have been adequate to guard against and deal with the risks presented by the scenario. There was also agreement that the systems for providing health information and education to the employees of the mining facilities were in place. However, the relationship between the mining facilities and the local community may benefit from development as would the relationship between the mining facilities and the regional health authorities.

## 6.4 Kulinda Afya I: Feedback from Session One

**6.4.1 The response to an outbreak would benefit from enhanced inter-sectoral collaboration.**

a) In response to the scenario in the first session, two of the groups spoke about the need to develop a multi-discipline response committee or team to deal with the outbreak. This committee should include not only the local authorities, health and animal health representatives, but also representatives of mining companies, locally based NGOs and community representatives. This committee would facilitate the investigation and definition of cases, the collection of samples from humans and animals and education of the community.

| Recommendation: a working group should be established to consider approaches to a joint response in the event of an outbreak. |
|---|

**6.4.2 There is benefit in providing health education and information to the local community as well as mine employees.**

a) All of the groups reported that there was benefit to developing engagement with the local community. Whilst mine employees are educated about the risk of outbreak the communities in which the majority of the employees live may not be as well informed. Protecting the health of these communities will also reduce the risk of exposing employees to infectious diseases in the event of an outbreak. Having access to information from the community would also assist the authorities in assessing the resources required to tackle the outbreak.

Recommendation: relations should be developed with community leaders such as: the media, religious leaders, schools and primary care providers such as health clinics so that they are able to help disseminate information to the local community.

## 6.5 Kulinda Afya I: Feedback from Session Two

### 6.5.1 Conducting an outbreak risk assessment would assist with the development of an integrated response

a) One of the groups reported that the financial and resource implications of an outbreak such as that described in the exercise scenario needed to be properly scoped. This would ensure that a response could be adequately resourced, or that the gaps that existed in the provision of equipment (for the isolation of patients and for the correct personal protective equipment for example) could be addressed. All the groups reported that there were currently insufficient resources to cope with the requirement to isolate large numbers of patients. One group highlighted the lack of transport and logistic resources.

Recommendation: that a joint outbreak risk assessment detailing the impact on local communities and mining facilities be conducted and resource gaps identified.

### 6.5.2 A communications toolkit containing prepared messages would assist with the rapid dissemination of accurate information

a) All the groups reported that there was a need for accurate information to be disseminated to the public. This would form an integral role in preventing the further spread of the disease. This would form part of the education of the public.

Recommendation: That a communications “toolkit” be developed to allow for the rapid dissemination of advice to the public and responders.

## 6.6 Kulinda Afya I: Feedback from Session Three

6.6.1 In session three the groups reiterated the requirement for an inter-sectoral response committee and the need to educate the community about the risks posed by the outbreak and how to protect themselves.

6.6.2 One of the groups highlighted the need to establish a methodology for screening people who thought they might be at risk. In this scenario this would have been those who may have come into contact with bats.

Recommendation: a medical risk assessment and response plan should incorporate the requirement to communicate with the public and a methodology for carrying screening on large numbers of human and animal samples.

## 6.7 Kulinda Afya I: Feedback from Session Four

In the final session of the exercise the groups were asked to report key changes they would implement in order to develop the existing arrangements to a zoonotic disease outbreak.

Recommendation that mining companies should develop outbreak plans

Recommendation: that an outbreak risk assessment should be conducted allowing communities and companies to be better prepared for an outbreak and identify potential shortfalls in capabilities and resources.

Recommendation: that inter-sectoral collaboration in the event of an outbreak should be developed.

Recommendation: that animal health and public health professionals should work more closely so that the animal health experts could inform their counterparts about potential issues

## 6.8 Kulinda Afya I: Written feedback from the participants

6.8.1 In their written feedback the participants were asked to list the main learning and key issues identified during their participation in the exercise. Table 1 summarises the issues highlighted by the participants.

**Table 1: Summary of written feedback from participants**

| | **Main learning / Key issue** | **Number of participants who highlighted this out 25** |
|---|---|---|
| **Ser** | **(a)** | **(b)** |
| 1 | The development of an inter-sectoral outbreak response methodology or plan | 13 |
| 2 | The importance of educating the community around mining sites about health risks | 8 |
| 3 | Assessing and/or preparing adequate resources in mining companies and communities to respond to an outbreak | 6 |

| | | |
|---|---|---|
| 4 | Improved information flow between mining companies and the community | 5 |
| 5 | Improved information flow between mining companies and the provincial and national authorities | 4 |
| 6 | The conduct of an outbreak risk assessment | 4 |

# 7. Exercise Kulinda Afya II

## 7.1 Kulinda Afya II: Exercise Format

7.1.1 Exercise Kulinda Afya II was run twice at the Africa Down Under Conference on the 4 and 5 September 2014. The exercise lasted 90 minutes. It was divided into two sessions.

a) The first session described the outbreak of Marburg Fever and asked participants to consider how they would respond to it. Questions concentrated on existing health response arrangements and how mining companies might work with government institutions and fellow companies to improve the quality of this response.

b) Before the second session participants were briefed on the feedback from the exercise conducted in the Democratic Republic of Congo. They were then asked to discuss ways in which the current response mechanisms could be developed.

## 7.2 Kulinda Afya II: Participant Groups

4.6.1 Participants were drawn from the Africa Down Under delegates. Over the two days 38 people attended the exercise. They represented mining companies, government offices, universities, Non-Governmental Organisations and consultancies. A list of the participants and the organisations they represented is at **Appendix B**.

## 7.3 Kulinda Afya II: Evaluation

7.3.1The lessons identified from Ex Kulinda Afya II broadly reflected the themes that were reported as areas for development from the pilot exercise. There was agreement that mining companies had arrangements in place to mitigate the risks and effects of some illnesses in the areas in which they operate. However these arrangements tended to be narrowly focused on the

risks to mining sites and staff. The group discussions suggested that current arrangements could be enhanced by improved cross-sector cooperation particularly in the areas of:

7.3.2 The development and extension of health education and information to the communities around mining sites.

a) Feedback from the pilot exercise suggested that protecting the health of communities surrounding mining sites would, by extension, contribute to protecting the health of mining staff. It was acknowledged that in many cases education programmes already existed which concentrated on protecting mining staff predominantly from malaria and HIV AIDS. One of the groups suggested extending existing health education programmes for the community to include the risks presented by zoonotic diseases. Developing links with the health authorities and NGOs working locally could provide useful outreach tool to contribute to any education or healthcare programmes.

b) Developing existing relationships with the local public health and animal health experts could mitigate the risk of a disease outbreak affecting mine workers and their communities. This could be achieved by developing enhanced disease surveillance and intelligence gathering to include information about zoonotic diseases.

c) Participants stressed the importance to collaborate and involve directly the communities in the development of any initiative that involve them, being an education activity or the outbreak response plan. Communities might have already ideas or system that function and are culturally relevant and acceptable.

Recommendation: Mining companies and the organisations they are working with should broaden the focus of existing health education programmes - or consider creating health education programmes where none exists - in the local community to include the threat presented by disease outbreaks and the prevention of zoonotic disease outbreaks.

Recommendation. That mining companies work with communities, local authorities, NGOs and other organisations to implement disease surveillance programmes to the benefit of their own response arrangements.

**7.3.3 The development of response plans within mining companies to include planning for and responding to a disease outbreak.**

a) Participants reported that they had plans for responding to emergencies but that for the most part these plans did not include the response to a disease outbreak. Plans that existed

around the risk of a disease outbreak concentrated on exiting the disease area rather than considering the response in a business continuity context. This has proven wrong in the current situation in West Africa for some companies. Exit strategies did not include in the overall assessment soft assets, such as trust and relationships but with both communities and governments. Furthermore companies realized that those outbreaks plans need to be "living documents" in order to be effective decisions making/aiding tools. For example some companies had pandemic plans, which needed to be adapted to be relevant in this different situation.

Recommendation: That mining companies include an outbreak management plan in their suite of business continuity plans.

### 7.3.4 The development and extension of cross-sectoral working.

a) On both days the groups discussed how organisations from different sectors could work together to improve the response to an outbreak. The groups reported that there were areas in which governments and the mining sector were already collaborating. The following examples were given: In Ghana the Chamber of Mines has set up a cross-government working group which includes participation from the mining companies in response to the current Ebola outbreak. Other delegates reported that there is an Ebola Working Group active in West Africa. Role of national governments and international bodies need to be better understood, and companies were not clear on who was responsible for what or who should be the leading agency in such situation. The outbreak in West Africa ceased to be a health emergency and became a full scale social and security emergency with consequences far beyond those of the disease itself and these instances were not considered in anybody preparedness plan. The role of embassies should also be better considered as they might issue recommendations and directives for their national citizens and can provide different form of support in country.

Recommendation: Existing cross-sectoral working groups should be mapped and their activities recorded so that they can be emulated or recreated in preparation for future outbreaks.

### 7.3.5 Pooling and sharing of resources.

a) The organisations attending the exercise did not have adequate medical facilities to cope with the level of care needed in the exercise scenario. They lacked: the requisite numbers of medical staff trained to deal with the scenario, laboratory facilities to test samples and proper personal protective equipment (PPE). It is possible that these resources could be available

through the government in the countries in which companies are operating. Mining companies would be able to work together and with local government by providing a stockpile of equipment such as PPE and materiel necessary for isolating patients.

Recommendation: Mining companies could develop relationships with the regional and national health authorities in the countries in which they are operating to allow them to access health resources.

Recommendation: Mining companies could develop a stockpile of PPE which they could share between themselves and the local community as required.

## 7.4 Kulinda Afya II: Written feedback from the participants

7.4.1 Twenty-three participants provided written feedback at the end of the exercise. They were asked to list the main learning and key issues identified during their participation in the exercise. Table 2 summarises the issues highlighted by the participants.

**Table 2: Kulinda Afya II - Summary of written feedback from participants**

| | **Main learning / Key issue** | **Number of participants who highlighted this out 23** |
|---|---|---|
| **Ser** | **(a)** | **(b)** |
| 1 | Improved planning for an outbreak in collaboration with government, health authorities, NGOs and the local community | 14 |
| 2 | The development of an outbreak management plan which is part of the business continuity plans of the organisation | 11 |
| 3 | Working with the local community through stakeholder engagement and health education to include them in the outbreak planning | 7 |
| 4 | Develop plans to share resources between mining companies, government, communities and other organisations | 4 |
| 5 | Develop communications with stakeholders | 2 |
| 6 | Build an awareness of the risk presented by zoonotic diseases | 1 |

# 8. Development of the exercise

8.1 All the participants who completed feedback on the exercise. 100% “agreed” or “strongly agreed” that the exercise had “achieved its stated aim”.

8.2 The participants highlighted the following areas in which the Exercise Kulinda Afya I could be developed.

a) The introductory material could have been sent to participants in advance to give them more time to properly assess the scenario.
b) More time was needed to fully address the issues raised by the exercise scenario.

8.3 The participants highlighted the following ways in which Exercise Kulinda Afya II could be developed.

a) Provide a case study highlighting how similar outbreaks had been dealt with.
b) Allow more time for the exercise.
c) Ensure that there is more participation from government representatives.

# 9. Summary

9.1 The aim and objectives of Exercise Kulinda Afyawere achieved. Representatives from public health and animal health worked alongside colleagues from mining companies, academia, NGOs and government representatives to consider some of the issues posed by an outbreak of zoonotic disease. The feedback was largely consistent between Exercise Kulinda Afya I run in August in the Democratic Republic of Congo and Exercise Kulinda Afya II run in Perth in September.

9.2 During their discussions the participants suggested a number of ways in which they felt the response to an outbreak could be developed:

a) They emphasised the need for increased collaboration between the companies, communities and provincial health authorities in responding to an outbreak.

b) They reported that more emphasis should be put on developing the relationship between the mining companies and surrounding communities when considering an outbreak response and noted that developing health education and communication with communities may contribute to protecting the health of mine employees.

c) Participants also acknowledged that there is a shortage of resources for dealing with a zoonotic disease outbreak and suggested how they could better share the resources currently available.

# Appendix A– Table of Recommendations

| serial | Kulinda Afya I - Recommendations |
|---|---|
| 1 | A working group should be established to consider approaches to a joint response in the event of an outbreak. |
| 2 | That relations be developed with community leaders such as: the media, religious leaders, schools and primary care providers such as health clinics so that they are able to help disseminate information to the local community. |
| 3 | That a joint outbreak risk assessment detailing the impact on local communities and mining facilities be conducted and resource gaps identified. |
| 4 | That a communications “toolkit” be developed to allow for the rapid dissemination of advice to the public and responders. |
| 5 | A medical risk assessment and response plan should incorporate the requirement to communicate with the public and a methodology for carrying screening on large numbers of human and animal samples. |
| 6 | That mining companies should develop outbreak plans. |
| 7 | That an outbreak risk assessment should be conducted allowing communities and companies to be better prepared for an outbreak and identify potential shortfalls in capabilities and resources. |
| 8 | That inter-sectoral collaboration in the event of an outbreak should be developed. |
| 9 | That animal health and public health professionals should work more closely so that the animal health experts could inform their counterparts about potential issues |

| serial | Kulinda Afya II - Recommendations |
|---|---|
| 1 | Mining companies, and the organisations they are working with should broaden the focus of existing health education programmes - or consider creating health education programmes where none exists - in the local community to include the threat presented by disease outbreaks and the prevention of zoonotic disease outbreaks. |
| 2 | That mining companies work with local authorities, NGOs and other organisations to implement disease surveillance programmes to the benefit of their own response arrangements |
| 3 | That mining companies include an outbreak management plan in their suite of business continuity plans |
| 4 | Existing cross-sectoral working groups should be mapped and their activities recorded so that they can be emulated or recreated in preparation for future outbreaks |
| 5 | Mining companies could develop relationships with the regional and national health authorities in the countries in which they are operating to allow them to access health resources. |
| 6 | Mining companies could develop a stockpile of PPE which they could share between themselves and the local community as required |

# Appendix B– ExerciseParticipants

## Kulinda Afya I - Participants

| | Organisation | First Name | Last Name | Role |
|---|---|---|---|---|
| | (a) | (b) | (c) | (d) |
| | **Group A** | | | |
| 1 | Provincial Ministry of Health | ProfKabyla | Ilunga | Medical Advisor |
| 2 | University of Lubumbashi | Prof Francoise | MalongaKaj | Head of the School of Public Health |
| 3 | Provincial Ministry of Agriculture and Fisheries | Dr | Kakudji | Head of veterinary services |
| 4 | Kapolowe Medical Zone | Dr Thierry | Mwandwe | Health Zone Doctor |
| 5 | Kapolowe veterinary services | Kaozi | Baruani | Inspector of veterinary services |
| 6 | Tiger Congo | Pauline | Voga | Social manager |
| | **Group B** | | | |
| 7 | Provincial Ministry of Health | Evariste | Tshal | Veterinary Consultant |
| 8 | University of Lubumbashi | Henry | Mundongo | Researcher School of Public Health |
| 9 | Provincial Ministry for conservation and the environment | Dieudonné | KalwaKalo | Provincial Coordinator |
| 10 | Kipushi Medical Zone | Dr.Delille | Lumbala | Kipushi Medical Zone Doctor |
| 11 | Kipushi Veterinary Services | Dr. Yves liwena | Mahingu | Inspector of Veterinary Services |
| 12 | MMG Kinsevere | Alan | Tatton | HSEC Manager |
| 13 | MMG Kinsevere | Dr. Philippe | Filipa | Medical Doctor |
| | **Group C** | | | |
| 14 | Provincial Medical Inspector | Dr. Pascal | Geri Madragule | Epidemiologist |
| 15 | Pweto Medical Zone | Dr.Kikunda | Ghuislain | Health Zone Doctor |
| 16 | Pweto Veterinary Services | Dr.Nkungwa | KaliliKapambwe | Inspector of Veterinary Services |
| 17 | Kilwa Medical Zone | Dr.Lwabola | Numbi Jean | Health Zone Doctor |
| 18 | Kilwa Veterinary Services | Kapita | Leya | Inspector of Veterinary Services |
| 19 | Kundelungu National Park | Jean | Mululwa | Wildlife conservation |

| | Organisation | First Name | Last Name | Role |
|---|---|---|---|---|
| 20 | Anvil Mining Congo | Ann | Shaw | Service Manager |
| 21 | Anvil Mining Congo | Dr. | Okoko | Medical Doctor |
| 22 | Anvil Mining Congo | Paul | Mapan | Financial Manager |
| | **Group D** | | | |
| 23 | Provincial medical Inspectorate | Dr.Ilunga | Ngoy | Head of Emergencies |
| 24 | Fungurume Medical Zone | Dr. Nathan | Kanabwingi | Medical Zone Doctor |
| 25 | Fungurume Veterinary Services | Katumbwe | Mwange | Veterinary Services Inspector |
| 26 | Upemba National Park | Jean | Kabogo | Conservationist |
| 27 | TenkeFungurume Mining | Charles | Rose | Manager Environment Health and Safety |
| 28 | TenkeFungurume Mining | Dr.Edouard | Swana | Public Health Advisor |

# Kulinda Afya II - Participants

| | Organisation | First Name | Last Name | Role |
|---|---|---|---|---|
| | (a) | (b) | (c) | (d) |
| | **4 September 2014** | | | |
| 1 | AAMIG | Bill | Turner | Chairman |
| 2 | Australian High Commission - Ghana | Joanna | Adamson | High Commissioner - Ghana |
| 3 | CSA Global Pty Ltd | Stan | Wholley | Director of Operations |
| 4 | Curtin University | Linda | Selvey | Director Epidemiology & Biostatistics |
| 5 | DRC Eiti | Jean-Jacques | Kayembe | Technical Expert |
| 6 | Earth Systems | Mirey | Lopez | Senior Environmental Scientist |
| 7 | ECOWAS | Kolawole | Sofola | Principle Programme Officer |
| 8 | Golden Phoenix Resources Ltd | Maree | Laffan | CEO & Managing Director |
| 9 | IM4DC | Richard | Slattery | Deputy Director, Operations |
| 10 | INHEMACO | Albert | de Frey | CEO |
| 11 | International SOS | Andrew | Ebringer | Medical Director |
| 12 | International SOS | Simon | White | Consultant |
| 13 | International SOS | Roger | Cook | Regional Security Director |
| 14 | Jane Goodall Institute Australia | Natalie | Houghton | CEO |
| 15 | Mawson West Ltd | Natasha | King | HR Manager |
| 16 | MMG Ltd | Andrew | Patterson | Chief Consultant International Relations |
| 17 | MonuRent Holdings Ltd | Tim | Callaghan | Managing Director - Nigeria |
| 18 | MonuRent Holdings Ltd | Dan | Hoppe | Chief Operating Officer |
| 19 | Newcrest Mining Ltd | Brad | Sampson | General Manager West Africa |
| 20 | TenkeFungurume | Francine | Kitobo | Government Relations Coordinator |
| 21 | Tiger Resources Ltd | Charles | Carron Brown | Chief Operating Officer |
| 22 | University of Sydney | Kathryn | Currow | Adjunct Associate Professor |
| 23 | University of Sydney - Children's Hospital Westmead | Dr Robert | Tynan | Development Manager - Paediatrics & Child Health, |
| 24 | University of Western Australia | Leanne | Bicknell | Risk Management Officer |
| 25 | WA Department of Health | Dr Andy | Robertson | Deputy Chief Health Officer |

| | Organisation | First Name | Last Name | Role |
|---|---|---|---|---|
| 26 | WA Health | Dr Paul | Armstrong | Director - Communicable Diseases Centre |
| | **5 September 2014** | | | |
| 27 | AAMIG | Annie | Halsted | Program Manager |
| 28 | International SOS | Beth | King | Program Manager |
| 29 | Gryphon Minerals Ltd | Candice | Donnelly | Compliance Officer & Company Secretary |
| 30 | RSC Mining & Mineral Exploration | Craig | Wright | Chief Operating Officer |
| 31 | Murdoch University | David | Doepel | Chair - Africa Research Group |
| 32 | Polyglot | Gerald | Bot | Director |
| 33 | Tawana Resources Ltd | Len | Kolff | Managing Director |
| 34 | Mawson West Ltd | Natasha | King | HR Manager |
| 35 | SIPA Resources Ltd | Pegi | De Angelis | Board Member - Native Title Liaison & Drafting/GIS Support |
| 36 | AngloGold Ashanti | Rex | Brommecker | SVP Exploration |
| 37 | DSD | Terence | Wong | Senior Business Development Officer Europe, Middle East & Africa |
| 38 | Azumah Resources Ltd | Vitus | Ngaanuma | WA Gold Project |
| 40 | Australian Embassy in Zimbabwe | Matthew | Neuhaus | Embassador |
| | | | | |
| | | | | |
| | | | | |

# Acknowledgements


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| Mark Salter | Consultant in Public Health | Public Health England |
| Osman Dar | Locum Consultant Public Health | Public Health England |
| Andrew Black | Exercise Manager | Public Health England |

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| | | |
|---|---|---|
| Bill Turner | Chairman | Australia-Africa Mining Industry Group |
| Bill Repard | Executive Chairman | Paydirt Media Pty. Ltd. |
| Prof. David L. Heymann CBE | Head of the Centre of Global Health Security | Chatham House |

# Disclaimer

The exercise scenario is entirely fictitious and is intended for training and exercise purposes only. The exercise report is provided by Public Health England and is subject to 

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Appendix C

# IDRAM
# Africa Down Under Conference

September 2014

**Francesca Viliani, Louise Flynn, Osman Dar, David Heymann, Andrew Black**

## Summary

A delegation of IDRAM members participated at the Africa Down Under conference in Perth (3-5 September 2014). Several activities carried out during the conference, and mainly:

- Plenary presentation by Prof. Heymann
- Chatham House luncheon on Emerging Infectious Diseases
- IDRAM workshops

The conference, which took place between **3 and 5 September 2014**, was attended by: **Francesca Viliani** (International SOS); **Louise Flynn** (Ecology and Environment), **Osman Dar** and **David Heymann** (Public Health England and Chatham House), **Andrew Black** (Public Health England)

The conference was very successful:

- The Plenary presentation focused on Ebola outbreaks (past and present); was very informative and very well received by all conference participants. The Chatham House Luncheon was actively attended by over 80 participants and saw the involvement of the Australian Government highest representative present at the conference.
- The team ran two exercises “Protect Our Health” with an attendance of around 70 participants from different sectors.
- The presence of experts on emerging infectious diseases at the conference, the variety of activities organized coupled with the current Ebola outbreak in West Africa generated high interest among the media.

The conference was a success both for the IDRAM initiative in raising the profile of emerging infectious diseases in the mining sector, and for providing timely advice to mining companies operating in hotspot regions. The success of the conference is attributable to several reasons, including the challenges posed by the current Ebola outbreak to mining operations. But other important lessons learned are:

- Intense preparatory work with the conference organizers to develop the best set of events possible for the event itself: a high visibility presentation, a luncheon and then more interactive workshops;
- The presence of a dynamic team with diverse competences to address the different requests;
- Ongoing cooperation within the team to change and adapt the format and content of the events planned;
- The active involvement of conference participants in the events.

## Report

The Africa Down Under Conference is an important event gathering together Australian and African mining private sector and interested governments and it has been running for several years. This conference is attended by around 2.000 participants and it was considered an important target for presenting the IDRAM progress toward the end of phase 1 and to generate further interest within the mining sector about emerging infectious diseases.

The IDARM team was actively supported in organizing all conference`s events by Australia-Africa Mining Industry Group ("AAMIG") and Pay Dirt (the conference organizers).

### Plenary Presentation

Professor Heymann introduced the audience to key facts regarding past and present outbreaks of Viral haemorrhagic Fevers (FHV), paying special attention to the current outbreak in West Africa. The presentation then concluded with a summary and the main findings of IDRAM Initiative work carried out in the Katanga Province of the DRC (Congo).

### Chatham House Luncheon

The session was moderated by Paydirt editor, Dominic Piper and the Panel included David Heymann; Adam McCarthy (First Assistant Secretary Africa Branch- DFAT, the most senior Australian Government spokesperson on Africa); Bill Turner (AAMIG chair), and Francesca Viliani.

The panellists introduced the IDRAM initiative and the challenges posed by the current Ebola situation in West Africa. The debate was then opened up to the public for discussion. These are some of the questions addressed during the discussion:

- How concerned should resource companies in Africa be about the potential of an emerging infectious disease such as Ebola to negatively impact one of their operations?
- What will the IDRAM Initiative field work currently being undertaken in the Katanga Province of the DRC achieve in terms of risk mitigation, what form will it take, and does it include on-going support or is it a one-off event?
- Is the extent to which the current Ebola outbreak has spread in West Africa a result of lack of capacity of local authorities (lack of systems and processes, lack of appropriate protective equipment) and are places such as DRC, where there have been 6 outbreaks since 1976 much better prepared and safer?
- Is Ebola the only zoonotic disease we should be worried about? What about malaria and less-well-known zoonotic (transmission from animal to human) diseases such as Marburg and Rift Valley fever?
- What about the more common bacterial diseases such as cholera, meningitis and typhoid? Where do they fit into zoonotic disease programs such as the IDRAM Initiative?
- How concerned should family members be about their breadwinners heading off to the tropical and sub-tropical parts of Africa to earn a living?

- What do you feel are the health-risk "Duty of Care" responsibilities of directors and officers of companies, when sending employees on assignment to Africa?

## The exercise Kulinda Afya II – "Protect our health"

This exercise was a revised version of the one day exercise conducted in Lubumbashi on the 11 August. The activity is designed to help participants consider how the resources industry operating in Africa can better meet its duty of care to employees and the communities in which they operate by helping them plan how best to counter the challenge of new and emerging infectious diseases. The exercise also assist companies to identify how well prepared they are to respond to any health emergencies and how they could better collaborate among themselves and with the hosting government.

Around forty people attended the two workshops in Perth and main findings of the exercises were that the response to an infectious disease outbreak would be enhanced by:

- Increased cross working and coordination between health representatives at a regional level, the extractive industries and the provincial representatives of non-governmental organizations.
- Increased engagement and health education between the extractive industries and the communities around the mining sites, with particular emphasis on the mitigation of risks posed by zoonotic diseases.
- Sharing of resources such as equipment to assist in the isolation and quarantining of patients including the proper Personal Protective Equipment and access to laboratory testing of samples between the extractive industries and the provincial health authorities.

## Media

- Ebola dominates Africa conference, By Sarah-Jane Tasker (The Australian) Available at: http://www.theaustralian.com.au/business/ebola-dominates-africa-conference/story-e6frg8zx-1227044286331
- Ebola and Mining: The need for action, By Ben Hagemann (Australian Mining). Available at http://www.miningaustralia.com.au/features/ebola-and-mining-the-need-for-action
- WA miners in West Africa prepare workforce for escalation of Ebola virus, By Louise Merrillees (ABC). Available at: https://au.news.yahoo.com/a/24791528/wa-miners-in-west-africa-prepare-workforce-for-escalation-of-ebola-virus/ & http://mobile.abc.net.au/news/2014-08-23/wa-miners-prepare-for-ebola-virus/5687038?pfm=sm&section=business & http://www.medaxs.com.au/mdxgridfeed/post/2/130508 http://autimes.com.au/business/wa-miners-in-west-africa-prepare-for-ebola-escalation/
- Australians boost Ebola backing to protect African interests. Available at: http://www.ohscareer.com.au/news/australians-boost-ebola-backing-to-protect-african-interests

- Mining firms urged to help fight deadly Ebola outbreak, By Esmarie Swanepoel (miningweekly) Available at: http://www.miningweekly.com/article/mining-firms-urged-to-help-fight-deadly-ebola-outbreak-2014-09-04
- Ebola 'can't sustain itself', infectious disease expert Dr David Heymann tells Africa DownUnder mining conference in Perth, *By* Sarah Motherwell (PerthNow). Available at: http://www.perthnow.com.au/business/companies/ebola-cant-sustain-itself-infectious-disease-expert-dr-david-heymann-tells-africa-downunder-mining-conference-in-perth/story-fnkjk9ku-1227047462095?nk=54d484b622d6ca56a4951f076250e5b3
- Interviews realized by David Heymann during ADU:
    - Sarah-Jane Tasker - The Australian national newspaper
    - Jim Regan - Thomson Reuters
    - Kathryn Diss - ABC TV News and Current Affairs
    - Julie-Anne Sprague - Australian Financial Review and AFR Investor Sunday (Channel Nine)
    - Ross Greenwood - 2UE national business program – Sydney
    - Tracey Holmes - ABC Sydney – World At Large
    - Erica Vowles - National RN Drive program
    - Talkshow - 6PR Perth

## Conclusions

The conference was a success both for the IDRAM initiative in raising the profile of emerging infectious diseases in the mining sector, and for providing timely advice to mining companies operating in hotspot regions. The success of the conference is attributable to several reasons, including the challenges posed by the current Ebola outbreak to mining operations. But other important lessons learned are:

- Intense preparatory work with the conference organizers to develop the best set of events possible for the event itself: a high visibility presentation, a luncheon and then more interactive workshops;
- The presence of a dynamic team with diverse competences to address the different requests;
- Ongoing cooperation within the team to change and adapt the format and content of the events planned;
- The active involvement of conference participants in the events.

The team will use the experience gained in preparing the attendance to this conference to replicate the experience at other events.

# Appendix D

**Interim Progress Report: A qualitative study to gain a better understanding of the acceptability and perceived usefulness of Emerging Infectious Disease vulnerability assessment and mitigation management to the extractive industry.**


**Principal Investigators (PI):** Rosemary Peter

**Co Investigators:** Francesca Viliani, Emmeline Buckley, Sophie Mathewson, Henri Mundongo Tshamba, Ana Llamas, David Walwyn


## 1. Study overview:

The purpose of the study is to explore perceptions of and attitudes toward introducing specific vulnerability assessment and mitigation management to the extractive industry in order to reduce vulnerability to Emerging Infectious Diseases. This qualitative study is being conducted in Katanga province of DRC, which is situated in a global EID "hotspot", where numerous mining companies operate.

## 2. Data collection: methods and progress

Semi-structured interviews have been used to collect data. This method allowed for flexibility and exploration of unexpected findings or emerging issues but also allowed for a focus on key research objectives.

Potential study participants were selected through purposive sampling following a visit by a member of the research team to the participating mines in DRC. Snowball sampling was also used, whereby individual participants suggested other relevant contacts for the study.

Individuals were contacted in advance by the principal investigator. Each interview was scheduled after the participants had been contacted in advance and provided with a consent form to read. Once the participants had read the consent form and agreed to it, a specific time was scheduled and the interviewee was contacted by the principal investigator or one of three co-investigators. Interviews lasted between 30 minutes to one hour and were recorded, with the exception of two individuals who agreed to be questioned but declined to be recorded. In this case the interviewer wrote the answers down.

The first round of interviews was considered as a pilot exercise, and as an opportunity to identify any problems with the interview guides, or with logistical aspects. No major issues or concerns were raised by any of the interviewers and consequently no significant changes were made to the interview guide. Initial thoughts and broad comparisons on the early themes emerging from data collected were also shared.

The interview topic guides are provided at the end of the report.

In this particular study, requests for Interviews were sent to 37 people. At first we encountered difficulties with recruitment. We countered this by sending email reminders, and also by requesting colleagues from the project visiting Katanga Province to promote the study during their work with the four participating companies. Ultimately, 20 responses were received back. The sample includes participants working in all 4 mines and in different professional roles (further details will be provided in the final report). We are continuing to recruit for study participants as we begin analysis, in order to bring our numbers closer to the original target of 32.

# 3. Data Management and Analysis

All interviews were carried out in English. With the permission of respondents, interviews were digitally recorded (in the absence of permission to record, the interviewer took detailed notes that were used to develop a transcript of the interview) and subsequently transcribed verbatim and entered into a qualitative data analysis software package (Atlas-TI). Each electronic transcript was assigned a unique ID number to assist with data management and tracking and was stored on a password-protected computer at the principal investigator's office. All potentially identifying information (proper names of people, places, institutions, etc.) was redacted from transcripts.

All members of the research team will participate in data analysis, using the interview guides (see Appendix C) and their domains for the first wave of "broad brush" coding, followed by finer coding based on themes and sub-themes that emerge from the data as discussed and agreed by the research team. Each co-investigator will develop a coding scheme; the coding scheme will then be discussed together and agreed upon between all the investigators. The coding scheme will then be applied to the whole dataset.

In addition to categorizing codes, the analysis will seek to identify relationships between each code (e.g. what kinds of respondents are more likely to support or not support EID interventions). Deviant cases (disconfirming cases) will also be analysed, which is a common strategy in qualitative research to maximise the rigour of analysis.

The background data collected by the Research Associate will be used to contextualise the interview data collected in order to provide investigators with insights into the physical, social and regulatory environment the mine staff are acting in. This will provide further context to support/ underpin the analysis of the interview data.

The outcome of the analysis, when complete, will be presented to both the mine management in the DRC and to interested parties at Chatham House. Chatham House has been chosen as it is a forum for policy discussion and will be the setting for a future roundtable discussion on the role the extractive industry can play in EID risk mitigation and surveillance more broadly. Results will also be presented at mining industry conferences and events as part of a broader strategy to encourage the extractive industry to engage more fully in mitigating the risk to human health of EIDs. The research team also intends to publish the data in peer-reviewed journals.

# 4. Challenges and limitations

## 4.1 Challenges

The study's progress was initially held up due to extensive revisions of the protocol, following a change in study methodology away from a KAP (Knowledge, Attitudes and

Practices) approach, towards a qualitative methodology. However, it was agreed that a qualitative methodology was better suited to the research aims. The study team was able to consult an expert on qualitative methodologies from the London School of Hygiene and Tropical Medicine when working on the protocol.

Further delays were caused by members of the research team and study participants being unavailable, due to summer vacations or work travel. Delays were also caused by some members of the study team being required to spend time working on the Ebola outbreak which caused interviews to be postponed.

In addition, as detailed above, recruitment was challenging and reminders had to be sent to encourage participation in the study. This delayed the start of the interview process.

### 4.2 Study limitations

In the course of the study process we have become aware of several limitations.

Firstly, Katanga Province has many mining companies, a number of which follow the International Finance Corporation (IFC) Sustainability Framework and support the achievement of the Millennium Development Goals (MDGs). Through their membership in the International Council on Mining and Metals (ICMM) they have a demonstrated commitment to health capacity building and existing work in Health Impact Assessment (HIA), baseline health surveys, and community programs tackling infectious diseases like TB, HIV/AIDS and malaria. Company managers and staff from these mines are likely to be better informed and more amenable to implementing EIDs interventions than other extractive companies. This must be borne in mind when analysing data and, consequently, findings from this study can not necessarily be extrapolated to the wider extractive industry. However, this provides a unique opportunity to explore how awareness could be raised amongst other mining companies and identify feasible strategies to implement EIDs interventions.

Secondly, data has been collected through one-off telephone interviews which could have reduced the researcher's opportunities to establish a rapport with the participant and thus the quality of the data collected. To address this issue, the researcher started with neutral questions such as those about the nature of the participant's job, before moving on to more sensitive questions. In this way, it was hoped that participants would become more comfortable with the interviewer and the interview, thus feel comfortable to disclose more relevant information.

## 5. Results

Please note that the transcribed interviews are currently undergoing preliminary coding with a team discussion on this scheduled for Friday 19th September. Once the final coding is done the results will be analysed.

## 6. Preliminary findings

The next section provides a brief summary of the study main findings so far. We start by exploring the reasons why mining companies invest in health; we then describe the main barriers and facilitators that influence the implementation of measures for control and prevention of EIDs. Finally, we explore the potential role mining companies could play in diseases outbreaks. Based on these findings, we provide some preliminary conclusions.

Please note that these are only preliminary findings; further analysis of the dataset will provide a richer analysis of the topic which will be used to confirm or disconfirm our initial findings and conclusions.

## 6.1 What motivates mining companies to invest in health?

### 6.1.1 The" bottom line"

*A healthy workforce is a productive workforce:*

For participants it was evident that investing in health, water, correct nutrition and sanitation, benefited the company because staff were less likely to take sick leave, which had an impact on productivity in terms of man days lost to illness and costs to evacuate sick staff

*Impact of disease outbreak on mining companies:* Loss of productivity, slowing or closure of operations, fall in share prices, evacuation of staff.

### 6.1.2 Corporate social responsibility:

For participants, investing in health was seen as part of their corporate social responsibility; it was the *"right thing to do".* Participants reported that shareholders valued it and that fulfilling their corporate social responsibility ensured the sustainability of their operations in the long term.

In addition to this, shareholders now expect companies to practice corporate social responsibility.

## 6.2 Main barriers to introducing new measures for EIDs control and prevention.

### 6.2.1 Cost

New measures would be considered if cost-effective.

Increasing demand for services from the community despite significant allocation of resources.

Participants reported that mining companies invest considerable resources in community development. Participants felt that mining companies are already doing more than they are required by current laws and regulations. They provide health services such as HIV/AIDS, TB, malaria control and prevention, safe water as well as training in sanitation, prevention of sexual diseases.

However, in a context where government services are deficient or non-existent the demands of the community far outstrip what the mining companies offer.

### 6.2.2 Weak health systems in host countries

Even those companies that have strong internal systems in place to ensure good conditions in camp, there are limits to what they can achieve in EIDs control and prevention. Participants reported that the context in which they work limited their ability to respond to an outbreak. For example; if health staff at the mine suspects a potential case of Ebola, it would take 2 weeks minimum to get results back from the lab due to insufficient labs and poor transport.

#### 6.2.3 Poor governance in host countries

Participants stated that in host countries laws and regulations relevant to EIDs control and prevention in mines are less comprehensive than international standards. The studied companies apply whichever regulations are more stringent (often international standards and own company policies).

At the same time, poor governance and corruption in host countries limit the extent to which other companies are forced to comply with required laws and regulations.

### 6.2.4 Main facilitators to introducing new measures for EIDs control and prevention

#### 6.3.1 Commitment to the application of international standards

This ensures good practices in mining sites/camp to prevent and control diseases.

#### 6.3.2 Strong management structures and systems

The companies in this particular survey enforced compliance with company's policies. For example, consumption of bush meat, a risk factor for EIDs, is not allowed in camp and sufficient protein is provided by catering company. Workers who do not comply are sanctioned by managers; this may include a warning or even dismissal.

## 6.4 Potential role of mining companies in EIDs control and prevention

#### 6.4.1 Disease surveillance in the community and camp site

**Links with community through workers, health professionals and community/social managers.**

Companies already have links with surrounding communities through the workers they employ and community/social managers. Further, health professionals working in the mines have regular contact with local health units. Thus, mining companies are well placed to find and follow-up potential cases.

Surveillance systems are in place at their own health facilities.

### 6.4.2 Community engagement

Information, education and communication (IEC). Very important in disease outbreaks (e.g. Ebola).
Mining companies already carry out a wide range of activities in the communities and there appears to be a degree of trust between them. During an outbreak, mining companies could conduct health promotion and training activities in communities the lack of this type of intervention is perceived to be one of the major problems in the current Ebola outbreak in West Africa.

Some respondents depict villagers as “ignorant/uneducated” people that need education. These respondents did not discuss the constraints/belief systems that may lead people to adopt risky behaviors, e.g. poverty and eating bush meat.
A top down approach to health promotion that simply tells people what to do rather than explains the reasons why they should not adopt certain behaviors is unlikely to be the most effective way of changing behavior.

Enhancing the mining companies’ role in IEC/health promotion would require further training to encourage less of a top-down and more community-based approach.

### 6.4.3 Provision of resources

Mining companies could provide training on EIDs prevention and control. For example during a recent cholera outbreak, mining companies provided safe water as well as the basic infrastructure to treat affected patients in some communities.

## 7. Conclusions (Preliminary)

**a.** Mining companies seem to have good internal systems in place for disease control and prevention but can’t control outbreaks by themselves or conditions in surrounding communities.
b. Mining companies need to work in close partnership with external stakeholders including communities, regional and national health authorities in order to provide a meaningful reduction in the risks presented by EIDs
c. Disease control and prevention, including the EIDs benefits the mining company and the community.
d. For companies applying international standards, the adoption of additional measures for specific control of EIDs and prevention do not appear to be significant hurdle, given the current outbreak of Ebola in West Africa, a set of guidelines specific to the identification, treatment and prevention of EIDs would be welcomed.

## 8. References

1. Global Trends in Emerging Infectious Diseases, Jones, et al., 2008, *Nature*, 451:990-994.

2. Roll Back Malaria: Business Investing in Malaria Control: Economic returns and a Healthy Workforce for Africa. Progress and Impact Series Number 26. May 2011

3. Outbreak of Marburg Hemorrhagic Fever Among Miners in Kamwenge and Ibanda Districts, Uganda, 2007 Jennifer Adjemian, Eileen C. Farnon, et al *J Infect Dis.* Nov 1, 2011; 204(Suppl 3): S796–S799. doi: 10.1093/infdis/jir312

4. Discovery of a Leptospirosis Cluster Amidst a Pneumonic Plague Outbreak in a Miners' Camp in the Democratic Republic of the Congo Eric Bertherat, Melissa J. Mueller, Jean-Christophe Shako, and Mathieu Picardeau Int J Environ Res Public Health. Feb 2014; 11(2): 1824–1833.

5. Should I Get Screened for Sleeping Sickness? A Qualitative Study in Kasai Province, Democratic Republic of Congo Alain Mpanya, David Hendrickx, Mimy Vuna, Albert Kanyinda, Crispin Lumbala, Valery Tshilombo, Patrick Mitashi, Oscar Luboya, Victor Kande, Marleen Boelaert, Peirre Lefevre and Pascal Lutumba PLoS Negl Trop Dis. Jan 2012; 6(1): e1467. Published online Jan 17, 2012. doi: 10.1371/journal.pntd.0001467

6. Proposed supplemental Guidance to the IFC's Introduction to Health Impact Assessments Emerging Pandemic Threats Program USAID June 2012

## Appendices

A. Protocol

B. Consent form

C. Interview guide for HQ staff and on-site staff

## APPENDIX A: STUDY PROTOCOL

**Title:** A qualitative study to gain a better understanding of the acceptability and perceived usefulness of Emerging Infectious Disease vulnerability assessment and mitigation management to the extractive industry.

### Study #: 621790-1

| | |
|---|---|
| **Funded by**: | USAID |
| **Study Sponsor:** | PREVENT Project |
| **FHI 360 Project Leaders:** | Renuka Bery |
| **Study Site:** | (Phone interviews with staff at) four mining sites in Katanga province, DRC and international headquarters of the mining companies |
| **Date:** | 11/06/14 |
| **Version Number:** | 1.0 |
| **Principal Investigators (PI):** | Rosemary Peter |
| **Co Investigators:** | Francesca Viliani, Emmeline Buckley, Sophie Mathewson, Matthew Dixon, Henri Mundongo Tshamba, Ana Llamas |

## Study Summary

| | |
|---|---|
| **Title:** | A qualitative study to gain a better understanding of the acceptability and perceived usefulness of Emerging Infectious Disease vulnerability assessment and mitigation management to the extractive industry. |
| **Design**: | This is a qualitative assessment using in-depth interviews |
| **Population:** | 32 adult men and women (18 years of age or more) who are mining company executives, managers, and professional staff |
| **Study Duration:** | Approximately seven months from IRB approval to final report. |
| **Primary Objective:** | The aim of this study is to gain a better understanding of the acceptability and perceived usefulness of Emerging Infectious Disease vulnerability assessment and mitigation management to the extractive industry. |
| **Study Sites:** | The study will involve phone interviews of staff and independent contractors working at four mines in Katanga Province, DRC and at international company headquarters. |

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## 5.0 Timeline & Responsibilities

## 6.0 References

## 7.0 Appendices

**A. Script of email explaining the study and requesting signed consent form**

**B. Consent form**

**C. Interview guide**

**D. Topic guide for Research Associate**

**E. Investigator CVs**

**Acronyms**

| | |
|---|---|
| AAMIG | Australia-Africa Mining Industry Group |
| DRC | Democratic Republic of Congo |
| EID | Emerging infectious diseases |
| HIA | Health impact assessment |
| LSHTM | London School of Hygiene and Tropical Medicine |
| PHE | Public Health England |
| USAID | United States Agency for International Development |

# 1.0 Introduction

## 1.1 Background and Rationale

Although economic development, public health interventions, and medical interventions in the 20th century have reduced the overall burden of infectious diseases worldwide, ongoing population growth and development in previously uninhabited areas are resulting in increased human exposure to new and re-emerging infectious diseases. Outbreaks of infectious disease therefore remain a public health challenge and significant global threat.

New diseases can emerge from growing population pressure on untouched ecosystems, as nearly three quarters of emerging infectious diseases (EIDs) have originated from wild animals (zoonotic diseases) (Jones *et al,* 2008). Industrial development, such as the establishment of new mines, brings about changes in local environmental, social and economic conditions. The ways in which people and their pets and livestock interact with wildlife can favour the spread of diseases such as avian influenza, viral haemorrhagic fevers (Ebola, Lassa and Marburg), Rabies and SARS.

These outbreaks represent both local (epidemic) and, in some instances, global (pandemic) public health threats with the potentially serious social and economic consequences. Drivers of EIDs, including re-emergence of diseases previously under control include:

- Human exploration and encroachment into previously uninhabited areas
- Increased movement of wildlife and livestock
- Increased movement of humans caused by population growth, war, famine
- Increased proximity of wildlife to humans and livestock
- Changes in temperature and ecosystems as a result of Global Climate Change

The majority of EID outbreak events occur in specific, identified “hot spots” throughout the world, many in areas that are mineral rich and thus attract extractive industry activities. Figure 1 (Jones 2008) illustrates all EID events since 1940 that have resulted from zoonotic pathogens. The Congo basin is a global EID hotspot marked in red; it includes the Democratic Republic of Congo (DRC), which is rich in mineral resources and hosts many mining operations.

Approximately 2% of all EID events since 1940 have occurred among workers of natural resource industry and their local communities (Jones 2008). In recent years Marburg Haemorrhagic fever in Ibanda District, Uganda, was linked to exposure to bats and their secretions/excretions (Adjemian *et al 2007*), and possibly followed by person-to-person transmission within a Kamwenge District mine (Adjemian *et al 2007*). In DRC, a leptospirosis cluster was linked to a pneumonic plague outbreak in a Miners camp (Bertherat *et al 2014*). The DRC has also experienced monkey pox outbreaks and Human Animal Trypanosomosis is also prevalent with an average of 50 new cases recorded annually in the Kinshasa region (Mpanye *et al 2012*).

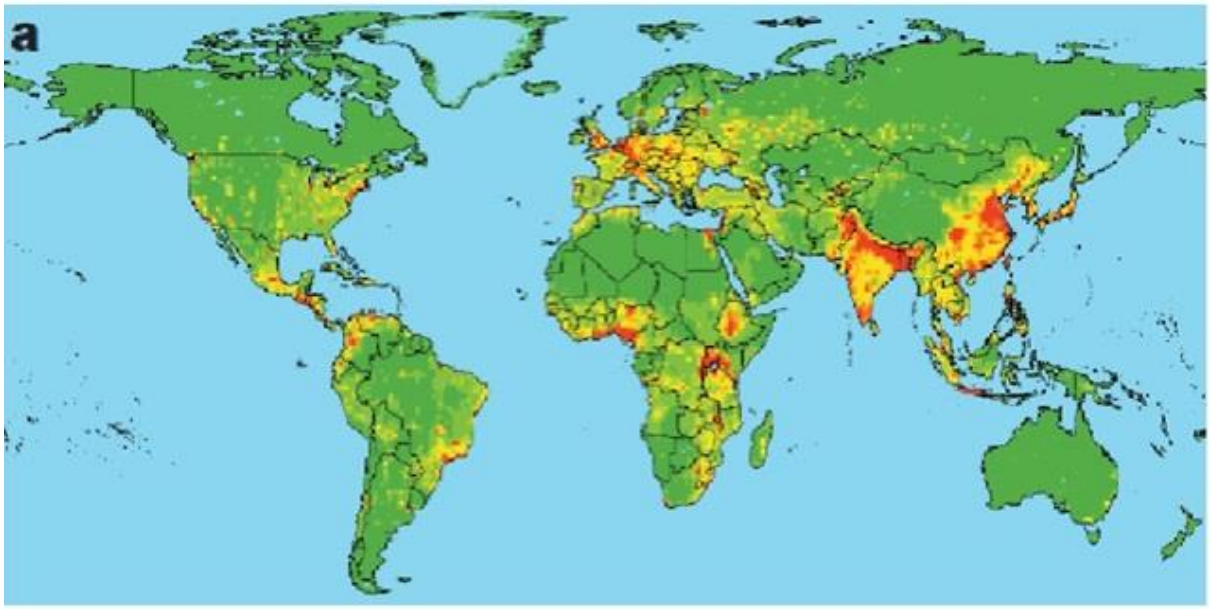


**Figure 1: Global Hotspots for Emerging Infectious disease (from Jones et al 2008)**

Extractive industries, particularly those working in previously unexplored area in the tropics, are often aware of local health risks and thus collaborate with local health services. Many industries commission health impact assessments (HIA) prior to commencing or expanding projects in order to safeguard the health of their workforce (both local and expatriate) and that of local communities. In addition to this, companies have worked with local non-governmental organisations, the United Nations and other agencies to develop best practices for preventing and mitigating locally prevalent diseases. For example, several joint programmes in Katanga Province, DRC, have addressed the control of endemic malaria over the past 5 years, responded to emergencies such as outbreaks of cholera and measles, and conducted investigations of suspected cases of viral haemorrhagic fevers (Merton *et al.* 2013). In addition to the benefits for the extractive industries at a local level (epidemic) these mines could effectively be acting as sentinel sites and perform a watching brief in terms of any new pandemic threats.

It is unclear whether extractive industry executives and staff have adequately considered the risks and consequences associated with EIDs and more generally communicable diseases. Disease outbreaks can result in morbidity and production losses. For example, in Zambia direct benefits resulting from the introduction of an effective malaria control and prevention instigated by three companies included the following: annual malaria cases decreased by 94%, annual malaria-related work days lost decreased by 94%, malaria-related spending at company clinics decreased by 76%. For these companies, investing in malaria prevention and control for workers and their dependents was cost-effective, resulted in increasing their bottom line, producing an estimated rate of return of 28% under very conservative assumptions (Roll Back Malaria, 2011). Major financial losses can also be caused by:

- quarantine measures (with or without isolation) that can require costly decontamination and also cause major production losses
- evacuation of ill employees
- disruption to operations

USAID and its partner projects have developed tools to help extractive industries identify potential exposure points for EID transmission and available mitigation strategies. These include an EID specific component to supplement the existing the Health Impact Assessment process, and an Audit Tool, which are being field tested at different mine sites in DRC. This study aims to assess the acceptability and perceived usefulness of EID vulnerability assessment and mitigation management practices to the extractive industry.

## 1.2 Research Aims and Objectives

Aim:

To gain a better understanding of the acceptability and perceived usefulness of Emerging Infectious Disease vulnerability assessment and mitigation management to the extractive industry.

Specific objectives:

1. To study stakeholders' understanding of and attitudes towards EIDs;
2. To explore current practices related to EIDs; and
3. To assess/analyse the acceptability of assessment and mitigation management interventions by exploring stakeholders' views on barriers and facilitators to implementing interventions.

# 2.0 Study Design

## 2.1 Research Approach

We will conduct a qualitative assessment in Katanga province of DRC, which is situated in a global EID “hotspot” in a region with numerous mining companies. Qualitative methods are best suited to examining people’s perceptions of and attitudes toward new topics, as well as for understanding how local contexts can influence experiences of policy implementation.

This study will build on an existing partnership between mining companies, USAID, Chatham House, International SOS and other agencies (AAMIG, FHI360, Ecology and Environment, LSHTM, PHE, University of Lubumbashi, Provincial Health Department). The assessment proposed here is formative research that will provide evidence on the acceptability and feasibility of introducing specific HIA procedures to reduce vulnerability to EID within the extractive industry, with potential relevance to other settings.

## 2.2 Site Selection and Sampling

The study will be conducted in four mining companies (Mawson West, Tiger Congo, MMG and TFM) that are actively involved in the ongoing initiative: *Partnership to Pilot EID Vulnerability Reduction Tools and Scope Health Incident Planning in DRC Operations*. All four companies are located in Katanga Province; they vary in terms of their operational size, management structure, and geographical remoteness, thus allowing for a diversity of experiences to be examined.

Prior to data collection, a Research Associate will document the local context from publicly available sources and if necessary, through key informant discussions with public officials. These officials will only be providing information on the context, not their personal views. They will not be study participants. Topics covered will include demographic and geographic data about the mines and surrounding areas, information about health issues and health service provision in Katanga and in the mining sites, information about legal and regulatory frameworks at the mines in question and the local areas (specific information in Appendix D).

Each company has already been approached and asked to detail its management structure. Based on this prior information we will purposively sample managers in headquarters and staff on-site. Staff on-site will include managers, company workers, independent contractors such as those involved in environmental management, food safety and security, housing and infrastructure management, and health care services (see table 1).

**Inclusion and exclusion criteria:**

Staff who work for one of the four mines mentioned above either at headquarters (management) or on site at the mine (management, camp management) and those providing health and medical services including independent contractors) will be included.

Staff not meeting these criteria will not be included in the study.

| Table 1: Study sample | | | |
|---|---|---|---|
| **Professional Group** | **Department /Roles** | | **Relevant Areas of Responsibility** |
| **Headquarters Management (n= 8)** | CEO/COO<br>Managing/ General Director<br>Country Representative | | • Policy formulation/adoption<br>• Standard/regulation setting<br>• Resource allocation<br>• International collaboration |
| **On Site Mine (n= 24)** | **Management** | Environment, Health, and Safety<br>Community Liaison<br>Corporate Responsibility<br>Logistics<br>Human Resources<br>Facilities/Infrastructure Manager | • Policy implementation<br>• Infrastructural maintenance<br>• Upholding regulations<br>• Establishing operational norms<br>• Maintaining living conditions<br>• Induction policies and procedures<br>• Waste and Water Management<br>• Biodiversity Maintenance<br>• Conducting audits & assessments<br>• Community Health |
| | **Camp Management, Health & Medical Services (including independent contractors)** | Food services/ Canteen manager<br>Housing management<br>Emergency medical personnel or Clinic Directors or Doctors/ Nurses<br>Waste Management<br>Camp/Housing manager | • Food safety and security<br>• Safety enforcement<br>• Worker health/Treating workforce<br>• Responding to outbreaks<br>• Community health<br>• Health Induction |
| Total sample: n= 32 | | | |

Given current knowledge of the mine company structures, we expect to recruit 2 individuals from company Headquarters (n= 8) and 6 staff members from each company site (n=24) Thus 32 individuals in total will be interviewed. We expect that all of those we interview will have at least 10 years of education.

## 2.3 Data Collection

We will use semi-structured interviews to collect data. This method will allow for flexibility and exploration of unexpected findings or emerging issues while maintaining a focus on meeting the key

research objectives. Interviews will be conducted by the principal investigator and co-investigators by phone and are expected to last between 45-60 minutes each. Participants will be contacted in advance, during a visit to the sites by a member of the research team, and given a brief description of the research. A specific time for the interview will be scheduled, and each mining company will provide a private space for staff to use during the interviews. However, participants will be able to hold the interview in a different location to ensure privacy, if preferred. Where possible, participants who initially agree to participate but later drop out will be replaced by someone else with similar characteristics.

The interview topic guides are provided at the end of this protocol.

## 2.4 Data Management and Analysis

All interviews will be carried out in English. With the permission of respondents, interviews will be digitally recorded (in the absence of permission to record, the interviewer will take detailed notes that will be used to develop a transcript of the interview) and the recordings will be subsequently transcribed verbatim and entered into a qualitative data analysis software package (most likely Atlas-TI). Each electronic transcript will be assigned a unique ID number to assist with data management and tracking and will be stored on a password-protected computer at the Principal Investigator's office. All potentially identifying information (proper names of people, places, institutions, etc.) will be redacted from transcripts. However, participant identifiers will be linked with transcript ID's so that permission can be obtained from participants to use quotes when anonymity cannot be guaranteed (see the section on confidentiality below). This linking information will be password-protected and stored separately from any study data.

All members of the research team will participate in data analysis, using the interview guides (see Appendix C) and their domains for the first wave of "broad brush" coding, followed by finer coding based on themes and sub-themes that emerge from the data as discussed and agreed by the research team. Each co-investigator will develop a coding scheme; the coding scheme will then be discussed together and agreed upon between all the investigators. The coding scheme will then be applied to the whole dataset.

In addition to categorizing codes, the analysis will seek to identify relationships between each code (e.g. what kinds of respondents are more likely to support or not support EID interventions). Deviant cases (disconfirming cases) will also be analysed, which is a common strategy in qualitative research to maximise the rigour of analysis.

The background data collected by the Research Associate will be used to contextualise the interview data collected in order to provide investigators with insights into the physical, social and regulatory environment the mine staff are acting in. This will provide further depth to the analysis of the interview data.

The outcome of the analysis will be presented to both the mine management in the DRC and to interested parties at Chatham house. Chatham House has been chosen as it is a forum for policy discussion and will be the setting for a future roundtable discussion on the role the extractive industry can play in EID risk mitigation and surveillance more broadly. Results will also be presented at mining industry conferences and events as part of a broader strategy to encourage the extractive industry to engage more fully in mitigating the risk to human health

of EIDs. The research team also intends to publish the data in peer-reviewed journals.

## 3.0 Ethical Issues

The study will not include any invasive procedures, medical treatments or collect sensitive or personal

information, nor will data be collected from local community members. The ethical risks of the study, therefore, are fairly low, although not insignificant.

## 3.1 Anonymity & Confidentiality

The biggest risk of the study is the potential that interviewed participants will be identified by their roles or the information they provide that could disclose their specific mining company (and by implication, make it possible to identify them as individuals). To avoid identification of participants we will group them in such a way as to disguise their identity, for example, by referring to them as 'on-site staff', rather than 'site nurse'. We will also edit details from any quotes used that may reveal participant identity. Any proper names, geographical locations, and identifying information (such as the respondent's job title mentioned in an interview) will be removed from the transcripts. If identification would be inevitable, a quote will not be used). The raw data (recorded interviews) will be stored in password protected files and deleted from all computers except that of the PI (with adequate back-up) and only the anonymised transcripts will be made available to the full research team and used for data archiving purposes.

## 3.2 Risks & Benefits

Risks of participating in this study include:

- Possibility that (particularly negative) information provided in interviews may be recognised by higher levels of company management with repercussions for individuals or staff
- Exacerbation of internal company disagreements or local political conflicts through interview probing around sensitive issues e.g. related to living conditions in mines, community relations, or management of previous outbreaks of illness/disease
- Time commitment for participating adds undue stress to overworked staff members juggling multiple responsibilities
- Pressure by higher levels of management to participate in the study even if the individual might otherwise not wish to do so

We will take measures to reduce these risks by ensuring each participant undergoes informed consent procedures prior to each interview, which will emphasise the voluntary nature of the interview and the right of respondents to decline to answer any question and to terminate the interview at any time without giving any explanation. As mentioned previously, quotes from transcripts used in the report will be anonymised (identifiable information removed). When the quote is such that anonymity cannot be guaranteed we will check with the participant. If the participant does not give permission the quote would not be used.

Finally, significant efforts have been made to work with each company leadership so that they are sensitised to the purpose of the research and agree to its principles of transparency, shared learning and constructive engagement, and thus are less likely to perceive any findings as targeted and critical.

Benefits to the individuals participating include:

- Ability to influence the content and implementation of EID interventions in extractive industries.
- Satisfaction in making a personal contribution to industry-wide health and safety improvement measures
- Opportunity to voice opinions on company strategy in a forum of shared lesson learning, with the potential to influence local policy and practice.
- The potential future reduction of EID outbreaks in their camp which could affect them personally.

## 3.3 Informed Consent

All study participants who are selected for interviews will undergo a process of informed consent. Information will be provided about the study in advance of the telephone interview being scheduled. Time will be allocated at the start of each interview for participants to ask questions. Contact details of the study team will be shared with respondents in case they may have additional questions at a later stage. Respondents will also be reminded at the start of the interview that their participation is entirely voluntary. Participants will not receive compensation for participation.

The consent forms to be used are attached to this protocol; verbal consent can be given at the start of the phone interview. Verbal informed consent will be digitally recorded at the beginning of the interview. Before the start of the interview, participants will be given the opportunity to ask questions about the study. Respondents will also be asked to provide consent to have the interview digitally recorded, although if they choose to refuse recording but consent to an interview, detailed notes will be taken instead. The possibility that specific excerpts from the interview may be used in reports and papers will be explained as part of the consent process, and the process of anonymisation will also be clearly described.

This study protocol will be reviewed and approved by FHI 360's Protection of Human Subjects Committee and by the Ethics board at Lubumbashi University (DRC). All investigators have completed the NIH Protection of Human Research Participants Training.

## 3.4 Study Monitoring

The Principal Investigator will be responsible for study monitoring: overseeing timelines, recruitment targets, ensuring and monitoring adherence to the protocol and promptly reporting any protocol violations to the FHI 360 project leader, data collection and analysis procedures, data security, and data quality assurance. To assure data quality the interview guides will be piloted and reviewed for data quality. In qualitative research, data collection and analysis are a simultaneous and iterative process; this will allow for continuous data quality checking.

## 4.0 Study Limitations

Katanga Province has many mining companies, a number of which follow the International Finance Corporation (IFC) Sustainability Framework and support the achievement of the Millennium Development Goals (MDGs). Through their membership in the International Council on Mining and Metals (ICMM) they have a demonstrated commitment to health capacity building and existing work in HIA, baseline health surveys, and community programs tackling infectious diseases like TB, HIV/AIDS and malaria. Company managers are likely to be better informed and more amenable to implementing EIDs interventions than other extractive companies. This makes the province and its lead industry an ideal pilot project environment. Thus, whilst these companies may be an exception within extractive industry it provides a unique opportunity to explore how awareness could be raised amongst this group and strategies to implement EIDs interventions. Data will be collected through one-off telephone interviews which may reduce the researcher opportunities to establish rapport with the participant and thus the quality of the data collected. To address this issue, the researcher will start with non-threatening questions such as about the nature of the participant's job, before moving on to more sensitive questions. In this way, it is hoped that participants will become more comfortable with the interviewer and the interview.

## 5.0 Timeline

| Activity | 2014 | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | A | M | J | J | A | S | O | N |
| Sensitisation in the field | | | | | | | | |
| Preparation of protocol and tools | | | | | | | | |
| Ethical Approval | | | | | | | | |
| Introduction & discussion of the study with selected mining company staff | | | | | | | | |
| Fieldwork | | | | | | | | |
| Transcription & Translation | | | | | | | | |
| Data Analysis | | | | | | | | |
| Draft Report Writing | | | | | | | | |
| Local Dissemination | | | | | | | | |
| Finalisation of Report | | | | | | | | |
| Preparation of publications | | | | | | | | |

## 6.0 References


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4. Discovery of a Leptospirosis Cluster Amidst a Pneumonic Plague Outbreak in a Miners' Camp in the Democratic Republic of the Congo Eric Bertherat, Melissa J. Mueller, Jean-Christophe Shako, and Mathieu Picardeau Int J Environ Res Public Health. Feb 2014; 11(2): 1824–1833.
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6. Proposed supplemental Guidance to the IFC's Introduction to Health Impact Assessments Emerging Pandemic Threats Program USAID June 2012

## APPENDIX B: CONSENT FORM

**Study Title:** A qualitative study to gain a better understanding of the acceptability and perceived usefulness of Emerging Infectious Disease vulnerability assessment and mitigation management to the extractive industry.

**Principal Investigator:** R J Peter

**Co-Investigators:** Emmeline Buckley, Ana Llamas, Sophie Mathewson,

**Research Associate:** Henri Mundongo Tshamba

**Contact Phone: +27836311555**

**What you should know about this research study:**

- This information and consent form allows you to read about the purpose, risks and benefits of this research study. You may decide whether to participate.
- Please review this form carefully. Ask any questions before you make a decision to participate. You can contact the study director before the study begins. Or you can ask questions before the discussion starts.
- You may choose to participate or not. It is not a part of your work requirement. You can stop answering questions at any time. There will no consequences for stopping the interview.
- We would like your permission to digitally record the interview. The responses will be transcribed by the study team. If you do not give permission to be recorded, we can take notes and still include you in the study.
- To reduce the chance that any quote used in the report will be identifiable we will group participants' responses and will remove any identifiable features from quotations. If any information cannot be anonymous, we will ask your permission to use the quote in a report. If you do not agree, we will not include the quote in a report.

**PURPOSE:**

Emerging infectious diseases are a global public health priority. Disease transmission is often linked to development in areas such as mining sites. Certain regions are more likely to have outbreaks. Identifying risks, taking action to prevent disease, and planning responses to lessen the impact could help mining companies.

This study explores the attitudes, practices, and experiences related to preventing and reducing emerging infectious diseases among mining companies. We aim to speak with 32 staff and contractors from four mining companies. The companies support this study. They have given permission for us to interview staff.

The team includes scientists from research institutions in the Great Britain. USAID funds this study. The findings will be shared with all companies involved in the study. Notes from the conversation with you will remain secure and confidential and will not be shared with your company.

**PROCEDURES AND DURATION:**

We hope that this study will help mining companies, public health specialists and industry improve disease prevention practices and reduce emerging infectious diseases. This interview will help us learn about mining companies' current practices and experiences around infectious diseases. You are free to choose whether you want to participate or not. A trained social scientist will talk with you by phone. The conversation will take 45-60 minutes. Please select a good time for the interview in advance. Please send a phone number for your interview. The interview can take place outside your place of work. Alternatively, your company has agreed to give participants a private space and phone line. You do not have to answer all questions. You can end the interview at any time. We will ask you to talk about emerging infectious diseases and their risks. We will also ask you to talk about current and future work practices, including how to deal with infectious disease risks.

**RISKS AND DISCOMFORTS:**

Some topics mentioned could be controversial. Your opinions may not be aligned to your company's. All information you give will be confidential. You will not be identified by name or specific job title in any reports, papers, etc.

**BENEFITS AND/OR COMPENSATION:**

You will not receive any direct benefit for participating. You will not be paid for your time. The study results will help us understand how to support mining companies to prevent and lessen the impact of emerging infectious diseases. The findings could improve work safety and rules within mining companies over time.

**CONFIDENTIALITY:**

All information you give will be stored using a study number, in password protected computer files. The file linking that information to you will be password protected and it will be kept separately. No one will be able to identify your responses. No one will be able to access specific information about you except for the research team. No one will be able to detect your responses.

We would like your permission to audio record the interview to ensure your responses are accurate. The interviewer will also take notes. If you do not give permission to be recorded, we can take notes and still include you in the study. Any individual information (such as your name or the name of your company or colleagues) will be removed when the audio files are typed into documents. All information received will be confidential. The only people who will hear the recording or see the notes are people working directly on this study. Information given to the funders (USAID) will not have

information that can be linked to you. In reports and papers about this research, we may use some of what you say to show different experiences. Your name, job title and company or other details that may identify you will not be mentioned.

**VOLUNTARY PARTICIPATION:**

Your participation in this study is voluntary. It is not a work requirement. If you do not take part, it will not affect your future contacts with local services, your company, or the study. You are free to end the interview at any time without any drawbacks.

**Please ask questions on any aspect of this study that is unclear to you. You can contact the PI (Dr Rose Peter) by email or phone: +27118831389 email: rose.peter@arysta.com**

**You may take as much time as necessary to decide whether to participate.**

**AUTHORIZATION**

YOU ARE MAKING A DECISION WHETHER OR NOT TO TAKE PART IN THIS STUDY. YOUR VERBAL AGREEMENT SHOWS YOU HAVE READ THIS DOCUMENT, HAVE HAD YOUR QUESTIONS ANSWERED, AND HAVE DECIDED TO TAKE PART.

- I have read the information sheet concerning this study and I understand what will be required.
- I understand that at any time I can stop answering questions without giving a reason and without penalty.

I agree to take part in an interview YES/NO

I agree for my interview to be recorded YES/NO

I agree that what I say may be included in reports and papers as unnamed quotes. I understand that where privacy cannot be guaranteed, I can refuse permission for a quote to be used.

YES/NO

I confirm that verbal consent to the above was provided.

Signature of investigator: _____

**YOU WILL BE GIVEN A COPY OF THIS CONSENT FORM TO KEEP**

## APPENDIX C: INTERVIEW GUIDE

| **Topic guide for HQ and on-site staff** | | |
|---|---|---|
| **Specific dimensions/topics** | Questions | Suggested probes |
| **Introduction/background** | 1. Please describe the nature of your role in your company and your main responsibilities and duties.<br>2. How long have you worked in this company? How long have you worked in the mining industry? | - How many countries or sites do you manage?<br>- Is the company centralised or is decision making devolved to the sites? |
| **Health in the industry** | 3. Please can you describe the main health issues you feel are most relevant to the mining industry today, and how these affect your company? | - What have been the consequences? Give examples. |
| **Risk and vulnerability** | 4. Can you describe any past experiences of disease outbreaks or illnesses in your mines in Katanga Province or other mining sites where you have worked? | - What happened?<br>- What kinds of situations make these diseases more or less likely?<br>- How serious are these diseases for the company and local communities? Please give examples of their impacts. |
| | 5. Can you describe any ways you have heard of (or been personally involved in) for | - Are there any measures that can be taken at the mine itself to avoid |

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| | preventing diseases that come from animals. | outbreaks? |
| | 6. Are any of these approaches used in your mines, in Katanga and elsewhere?<br>a. Why or why not? | Are there any issues around:<br>- Costs<br>- Logistics<br>- Skills<br>- Manpower<br>- Equipment |
| | 7. Have you seen the Audit Checklist for an Operating Facility for emerging infectious diseases or the Planning Tool? | |
| | 8. We're exploring the feasibility of introducing guidelines to manage emerging infectious diseases (e.g. Ebola, Lassa fever). I will go through some of the main recommendations and I would like you to discuss how feasible it would be to implement at your facility. | |
| | 9. What do you think about introducing measures to limit contact with rodents, bats, primates etc? | *Ask about current practices and barriers and facilitators*:<br>- Adapting physical space of project facilities to limit contact between animals and humans<br>- Maintaining buffer space between facilities and undeveloped areas.<br>- Modifying crop planting practices (including fruit trees).<br>- Developing plans for nuisance animal control |
| | 10. Please describe the | *Ask about current practices* |

| | | |
|---|---|---|
| | accommodation provided for mine workers. | *and barriers and facilitators*:<br>- Facilities are in good repair, clean, and built with adequate material.<br>- Access to safe water and good management of waste materials.<br>- Overcrowding in bedrooms avoided (1 bed per worker) |
| | 11. Can you tell me about health services in camp for workers? | *Ask about current practices and barriers and facilitators*:<br>- Healthcare facilities<br>- Preventive measures: immunizations, disease surveillance.<br>- Outbreak response plan.<br>- Health promotion/education for workers |
| | 12. What do you think about hunting and consumption of bushmeat? | *Ask about current practices and barriers and facilitators*:<br>- Measures to stop hunting and transport of bushmeat.<br>- Providing workers adequate sources of protein. |
| | 13. How feasible would it be to introduce measures to preserve biodiversity /wildlife such as minimizing road and corridor construction? | *Ask about current practices and barriers and facilitators*:<br>- Adapting road and corridor construction.<br>- Maintaining wildlife corridors between forest patches. |
| | 14. What would make it likely for your company | - Are any changes needed to the |

| | | |
|---|---|---|
| | to implement changes to working practices in the issues we just discussed? | actual tools or processes?<br>- Are the logistics at the site adequate for the assessment? |
| | 15. How does this sort of approach fit with your company's current priorities? | - What is the overall attitude of your company to increasing health protection measures, specifically assessments like these? |
| | 16. What kinds of people in the extractive industry would support wide use of the kinds of measures we have discussed and what kinds of people might oppose it? | - What might be their reasons for supporting or opposing this approach? |
| | 17. How would you feel about recommendations about how to manage Emerging Infectious Diseases becoming part of broader requirements? | - Would making them part of industry standards increase their uptake? How? |