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MANAGING PANDEMIC DISEASE THREATS

in the International Extraction Industry

BACKGROUND

Over the past several decades, nearly three-quarters of emerging infectious diseases have emerged from animal reservoirs – zoonotic diseases. Environmental and social changes that affect how people, pets, livestock, and wildlife interact can create conditions that favor the emergence infectious diseases such as Lassa fever, Marburg fever, Ebola and SARS. Potential disease outbreaks present a significant public health threat, and economic, security and development concerns at a global level.

Of particular concern is the surge in extractive industry operations –namely mining, petroleum and logging operations– into previously remote wildlife areas worldwide. By cutting down forest areas, building roads or rail lines, establishing temporary and permanent labor camps, and encouraging migration into previously uninhabited areas, the activities of the extractive industries fragment wildlife habitats and can unintentionally increase the interaction between wildlife and humans and therefore the risk of disease transmission. Areas abundant in wildlife with massive reserves of natural resources, and under intensifying population pressures –such as the larger Congo Basin, South-East Asia, India's Gangetic plain, the Amazon Basin and the island of New Guinea– are now emerging as hotspots for infectious disease outbreaks.

While there is a growing concern that the activities associated with extractive industries could lead to increased incidence of disease outbreaks among workers and communities, these risks can be easily minimized by ensuring worksites and settlements follow simple measures to reduce exposure risk. Companies should already be familiar with such precautionary measures to address other public health threats facing the extractive industry and associated settlements in new areas, including water-borne diseases, or infectious diseases caused by poor sanitation and food hygiene.

MODERATOR

Steven PHILLIPS

Senior Fellow

Chatham House
(Royal Institute of
International Affairs)
United Kingdom

OBJECTIVES

Contribute to better understanding of:

- The risks of zoonotic disease emergence as an unintended consequence of extractive industry operations and facilitate discussion around potential mitigation measures. Examine the roles and responsibilities of the public and private sectors, particularly those of the extractive and international finance industries, and opportunities for partnerships
- A framework for global response, including policy, technical guidance, implementation planning and support

SPEAKERS

William Karesh, Executive Vice President for Health, EcoHealth Alliance, USA

PANELISTS

- **Frank Fox**, Global Manager Occupational Health, Anglo American Plc., South Africa
- **Marta Cabrera**, Medical Director, Fomenta Salud, Chile

Obtained her MD Degree from the University of Chile in 1988. Went through the Occupational and Environmental Residency Program and got her Masters degree in Community Medicine, both at Mount Sinai School of Medicine from the University of New York. Worked for 15 years with ExxonMobil Corporation managing the Occupational Health Programs in the mining, lubricants, chemicals, oil refineries and fuel distribution businesses in 11 countries in the Latin America region.

She actively participated in the corporate Clinical Center of Excellence leading several of its committees. Since 2010, Dr. Cabrera is a senior partner and executive director of FomentaSalud, an occupational health consulting company that provides services to the main mining companies operating in Chile as well as other in the energy and construction industry. In addition, Dr. Cabrera is a certified Medical Review Officer and a consultant for International SOS, the Chilean Ministry of Labor and for one of the most prestigious private health centers in the country (Clínica Alemana).

Marta is a proud and happy mother of 3 college students and resides in Santiago, Chile.

MARTA CABRERA

Medical Director

Fomenta Salud
Chile

After qualifying at the University of Rhodesia he worked in the government health services in rural hospitals for 4 years before moving to Botswana where he spent 13 years in clinical practice on a copper-nickel mine. Tropical infectious diseases were a common part of the daily workload, ranging from malaria and typhoid to leprosy, rabies and STDs. In the early 1980's HIV became a common infection in Botswana and a disease management programme was set up.

While in Botswana he developed an interest in occupational and environmental medicine and qualified in occupational health at the University of the Witwatersrand in 1985 followed by a specialist qualification in occupational medicine from the Faculty of Occupational Medicine at the Royal College of Physicians in London.

During the time in the nickel industry he served as vice-chairman of the scientific advisory committee of the Nickel Producers Environmental Research Association (NiPERA).

In 1995 he moved to South Africa taking up a position with an international Forest products company and worked in forestry, sawmilling (setting up the health services for these businesses and the HIV/AIDS management programmes) and the paper industry eventually becoming the Group Medical Consultant with exposure to occupational health care at operations in Europe, Eastern Europe, Russia and the UK.

He currently heads up occupational health for Anglo American plc, a global mining company with its main operations in Brazil, Chile, South Africa and Australia.

FRANK FOX

Global Manager

Occupational Health
Anglo American Plc.
South Africa

He is the Chairman of the Health and Safety task force of the International Commission on Metals and Mining (ICMM) where, with his background in rural health care and occupational medicine he has been instrumental in the production of a number of best practice guidelines, on various subjects (notably Health Impact Assessment) for the membership of ICMM.

He is National Secretary of the South African Society of Occupational Medicine (SASOM) and has served as an examiner for the College of Public Health Medicine (Division of Occupational Medicine) of South Africa and the Faculty of Occupational Medicine of the Royal College of Physicians in the UK.

Dr. William Karesh is the Executive Vice President for Health and Policy for EcoHealth Alliance. He serves as the President of the World Organisation for Animal Health (OIE) Working Group on Wildlife Diseases and also chairs the International Union for the Conservation of Nature (IUCN) Species Survival Commission's Wildlife Health Specialist Group, a network of hundreds of wildlife and health experts around the world. Currently, Dr. Karesh is the Technical Director for the USAID Emerging Pandemic Threats PREDICT program, a $75 million effort focused on predicting and preventing pandemic diseases.

Dr. Karesh has pioneered initiatives focusing attention and resources on solving problems created by the interactions among wildlife, people, and their animals and created the "One World – One Health" initiative linking public health, agriculture and environmental health agencies and organizations around the world. International programs under his direction have covered terrain from Argentina to Zambia and include efforts in the Congo Basin to reduce the impact of diseases such as Ebola, measles, and tuberculosis on humans and endangered species such as gorillas and chimpanzees, to global surveillance systems for emerging diseases. In addition to his work in the private sector, Dr. Karesh has also worked for the USDA, DOD, DOI and the Food and Agriculture Organization of the U.N. Dr. Karesh is internationally recognized as an authority on the subject of animal and human health linkages and wildlife. He has published over one hundred and fifty scientific papers and numerous book chapters, and written for journals such as Foreign Affairs.

WILLIAM KARESH

Executive Vice President
for Health

EcoHealth Alliance
USA

Senior Fellow at Chatham House and Project Manager for the IDRAM initiative (Extractive Industries Infectious Diseases Risk Assessment and Management), a global policy-level discussion among the extraction industry, international development and finance institutions, national government stakeholders and science leaders addressing the risks and management of infectious disease outbreaks in global transmission hot zones. Dr. Phillips was formerly Medical Director for Global Projects at Exxon Mobil Corporation. His career there included managing the $110 million ExxonMobil Malaria Initiative.

He has worked closely with governments, NGOs, foundations, UN agencies, multilateral, and faith-based organizations, and the private sector in fostering public-private partnerships as a development platform to address urgent global health priorities. He has served two terms as private sector representative on the Board and Executive Committee of the Roll Back Malaria partnership in Geneva.

He currently serves on the boards of malaria NO MORE™, the World Economic Forum's Global Health Advisory Board, and as an advisor to the United Nations Special Envoy for Millenium Development Goals (MDGs), as well as the Global Health Programs of Harvard's Massachusetts General Hospital and the University of California at San Francisco.

STEVEN PHILLIPS

Senior Fellow

Chatham House
(Royal Institute of
International Affairs)
United Kingdom

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William KARESH, Kris MURRAY, Elizabeth LOH, Carlos ZAMBRANA-TORRELIO, Sarah ELWOOD, Catherine MACHALABA, and Peter DASZAK,

ABSTRACT:

Infectious diseases are a significant public health issue and a demonstrated threat to biodiversity and ecosystem health. Over 60% of new emerging infectious diseases originate in animals (termed "zoonotic"); of these, over 70% come from wildlife [1]. Additionally, the economic costs for mitigation and eradication of infectious disease outbreaks and pandemics can be enormous. This is alarming as the risk of novel disease emergence is on the rise globally, and increasing contact between humans, domestic animals and wildlife resulting from changes in land-use practices is a significant contributor to novel disease emergence and outbreaks.

Natural resource extraction (e.g., oil/gas, mining, timber extraction/logging) and augmentation (e.g., plantation) industries are at the forefront of land-use changes in many regions, particularly in high risk areas in developing, tropical countries (known as disease emergence "hotspots"). Activities associated with the natural resources industries have been implicated in novel disease emergence events and outbreaks in the past. For example, a protracted outbreak of Marburg hemorrhagic fever occurred in DRC between 1988 and 2000 [2], resulting from gold mining and exposure to cave-dwelling bats [3]; 154 cases were recorded, with an 83% mortality rate [4]. In 1995 an Ebola outbreak occurred in Mékouka and other gold-mining camps in Gabon; a total of 52 cases were confirmed with 31 deaths among cases (60% mortality rate) Furthermore, deforestation associated with logging [5,6] and oil extraction [7] has led to increased risk for Malaria and Yellow Fever transmission.

Disease emergence events and outbreaks can have wide-ranging local impacts as demonstrated by Marburg and Ebola, as well as regional and potentially global impacts. In example, HIV is thought to have originated from non-human primates, spilling over into humans that engaged in hunting, butchering or consuming wild animals. Roadways both increase the opportunities for humans to enter relatively pristine forests as well as their capacity to leave and come into contact with others [8], and in addition to the increased forest accessibility, the influx of forest workers for logging and other activities increases the demand for Bushmeat, thus increasing the potential for spread of HIV [8]. HIV has become a persistent threat with significant negative global impacts on human health, survival and livelihoods.

There are potentially significant mutual benefits to the natural resources industries and to public health agencies in actively addressing risk assessment and mitigation strategies for disease emergence and outbreaks. These encompass production, profitability and social or environmental responsibility as well as liability for health outcomes. Both proactive and participatory disease risk assessment and 'best-practice' and 'beyond compliance' management can help reduce health risks. Health impact assessment (HIA) is used to assess the potential health impacts of a project on worker and nearby populations, and to recommend mitigation measures. HIA includes risk assessment, which is often used to qualitatively or quantitatively rank the potential risks.

Given the commonalities that exist among industries, there are several potential health risks relating to infectious diseases that are shared between most industries including:

- Vector-borne diseases (malaria, schistosomiasis, dengue, onchocerciasis, lymphatic filariasis, yellow fever, etc.)
- Respiratory and housing issues- respiratory effects from housing, overcrowding, housing inflation
- Soil- and Waterborne diseases
- Food- and Nutrition
- Hunting practices and bushmeat

Thus, there can be wide-ranging benefit across the industries to develop best practices for risk prevention and control that promote the health of the workers and communities affected by extractive industries. Although HIA guidelines developed by the International Finance Corporation (IFC), International Council of Mining and Minerals (ICMM) and IPIECA, the global oil and gas industry association for environmental and social issues, include veterinary and zoonotic diseases, they emphasize vector-borne diseases and diseases of livestock and domestic animals. USAID's EIWG Working Group has developed a Planning Tool that provides steps to incorporate emerging infectious diseases of zoonotic origin, including those of wildlife origin, into HIA. These include developing measures for risk prevention and management that reduce likelihood of exposure to potential health hazards, strengthening of systems for monitoring and responding to disease-related risks, and engagement of local health officials in risk control.

Industry action, in coordination with technical and evidence-based guidance, is urgently needed to address these issues to reduce the risk of disease emergence through extractive industry practices.

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