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.

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MANAGING PANDEMIC DISEASE THREATS
in the International Extraction Industry

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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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