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## PREDICT 2

November 2014



### Proposed Focus Countries

Individual country coverage will be decided and agreed upon in conjunction with USAID/W

*EPT-2 will build on the lessons and knowledge from its predecessors and bring heightened focus to those “places and practices” that enable not just “spill-over” of new microbial threats, but potentiate its “amplification and spread”, and invest in the One Health policies and capacities needed for their prevention and control.*

### EPT 1 Successes

Advances in diagnostics, genomics, and informatics under EPT 1 allowed for investing in capacity to collect genetic and epidemiologic data and resulted in the most comprehensive zoonotic virus surveillance project in the world, unprecedented in scope and productivity for identifying and predicting pathogen emergence. With its focus on detection and discovery of viruses at the wildlife-human interface, PREDICT has made significant contributions to: strengthening surveillance and laboratory capacities for monitoring wildlife and people in contact with animals for novel and known viral agents that may pose a significant public health threat; characterizing human and ecological drivers of disease spill-over from animals to people; and strengthening and optimizing models for forecasting disease emergence.

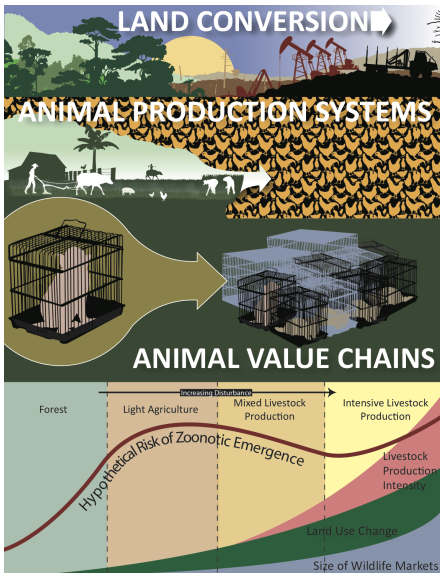
### EPT 2

EPT2 is focused on mitigating the impact of novel “high consequence pathogens” that originate in animals with a goal of enabling early detection of new disease threats, effectively controlling those threats, enhancing national-level preparedness in advance of outbreaks, and ultimately reducing the risk of these diseases emerging by minimizing human behaviors and practices that trigger the “spill over and spread” of new pathogens. EPT2 consists of a suite of One Health Investments, PREDICT 2, One Health Workforce, and the Preparedness & Response, that contribute to each of these goals and are complemented by strategic investments in key partners including the U.S. Centers for Disease Control, U.N. Food and Agriculture Organization, and the World Health Organization.

### Project Goals and Objectives

Building on the pathogen surveillance, viral discovery, and global health capacity strengthening efforts conducted in more than 20 countries during EPT 1, PREDICT 2 is continuing efforts to shift the prevention and surveillance paradigm towards identification and mitigation of viral spillover and amplification risk by: identifying and better characterizing pathogens of known epidemic and unknown pandemic potential; recognizing animal reservoirs and amplification hosts of human-infectious viruses; and efficiently targeting intervention action at human behaviors which amplify disease transmission at critical animal-animal and animal-human interfaces in hotspots of viral evolution, spillover, amplification, and spread.

To achieve these objectives, PREDICT 2 is working with EPT and other partners to operationalize effective One Health platforms that increase knowledge and strengthen functional technological capacities in local, national, and regional contexts for surveillance system design, field sampling, laboratory techniques, behavioral risk characterization, information management, public data dissemination, and data analytics and forecasting.



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## Key Activities

Under EPT2, PREDICT 2 is focusing efforts on the highest risk locations and interfaces, where animals and people share changing landscapes, and diseases of unknown origin continue to take a significant toll. Using an epizonal approach, PREDICT is targeting surveillance activities at three major pandemic risk pathways that drive viral emergence: land conversion for commercialization, intensification of animal production systems, and animal value chains. (See figure)

Going forward at targeted locations, PREDICT 2's surveillance approach will intensify in scope by investigating biological and human behavioral risk factors, as well as the effects of population growth, land-use change, and other drivers for disease emergence and spread. By standardizing and integrating longitudinal biological, ecological, and behavioral surveillance efforts, PREDICT 2 aims to characterize the whole geographic, ecological, and sociological space, from pre-spillover conditions that drive viral evolution, through transmission of zoonoses, to circumstances of pathogen amplification and spread. To achieve these goals, PREDICT 2 will characterize risk and sample people, livestock, and wildlife in concert at high-risk interfaces along the disease emergence pathways mentioned above. Primary activities:

- Conducting standardized, longitudinal surveillance of human and animal populations to identify biological and ecological drivers and host-pathogen dynamics at high-risk interfaces within three critical pathways of disease emergence and spread
- Understanding behavioral mechanisms of human-animal contact within high-risk pathways for disease emergence and spread AND identifying potential control points, strategies, and interventions for pilot testing and policy promotion
- Developing an evidence base to promote policies in support of cross-sectoral collaborations and actively engaging partners through data sharing, capacity building, surveillance, and outbreak response activities to demonstrate the value of the One Health approach
- Enhancing capacity for surveillance; diagnostics; and improved data collection, synthesis, storage, and sharing platforms to strengthen global surveillance and outbreak response and intelligence systems

PREDICT 2 will improve the understanding of the dynamics of zoonotic virus spillover, evolution, amplification, and spread in order to forecast risk and inform prevention and control measures, facilitating and optimizing policies and practices that reduce disease transmission risk through sound, science-based interventions.

## PARTNERS

**Consortium Partners:** UC Davis, EcoHealth Alliance, Metabiota, Smithsonian Institution, Wildlife Conservation Society

**Global Partners:** EPT One Health Workforce, EPT Preparedness & Response, FAO, CDC, WHO, DTRA, Columbia University, HealthMap, UC San Francisco

**Implementing Partners (in addition to consortium):** Center for Molecular Dynamics Nepal, Chulalongkorn University, East China Normal University, Institut National de Recherche Biomedical, Institut Pertanian Bogor, Institut Pasteur du Cambodge, ICCDR-B, Mountain Gorilla Veterinary Project Inc., Sokoine University of Agriculture

**Host country and regional partners:** Ministries of Agriculture, Health, Livestock, Wildlife, and associated Departments; USAID missions; and relevant host country laboratories, universities, and research institutes (e.g. Institut Pasteur, Wuhan Institute of Virology, local CDCs, etc)