

DIVERSITAS - BESTNet –AgTrans Workshop  
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## **Analyzing the Role of Agricultural Transformation and Invasive Species in Disease Emergence**

Global Institute of Sustainability  
Arizona State University  
Tempe, USA

28-30<sup>th</sup> May 2008

**Aim:** The aim of this workshop is to bring together a group of interdisciplinary researchers from four fields - infectious disease ecology, invasive species biology, agricultural science and environmental economics – to obtain a better understanding of the role of agricultural transformation in the emergence of infectious diseases.

**Rationale:** Infectious diseases are considered a key threat to human, livestock and wildlife health and conservation. Pathogens play a major role in ecosystems, and in human socioeconomic systems, yet we are only just beginning to grasp the complexity underlying their dynamics. The field of infectious disease ecology has grown rapidly in the past few years, but there has so far been relatively little interaction with other critical disciplines. Invasive species biologists have incorporated an understanding of market structures in modeling the risks and impacts of invasive species. But in general, the relationship between intensification of livestock farming, the domestication of new species and the emergence of novel infectious diseases is an under-researched topic.

**Format:** The meeting is jointly sponsored by the BESTNet Research Coordination Network, the DIVERSITAS ecoHEALTH Cross-cutting Network, the DIVERSITAS ecoSERVICES Core Project and AgTrans (an ASU research project on agricultural transformations). Attendees include both leaders in their fields, and a number of postgraduate students and postdoctoral fellows, who will receive research training in the topic via the workshop. We will conduct a moderated workshop, with invited lectures from each discipline including some from fellows, coupled with brainstorming sessions on a number of issues including:

1. What are the infectious disease risks associated with the shift from bushmeat hunting to commercial livestock production in the Tropics, and how do these risks affect the economic returns to this form of agricultural transformation? An example of these risks is the emergence of SARS via farmed civets, and efforts to culture wild species for conservation purposes.

2. How does the closer integration of world agricultural markets affect the risks of pandemics, and can we apply invasive species risk assessment approaches to pandemic preparedness? Invasive species modelers assess the risk of species introduction to new systems partly as a function of patterns of world trade. What lessons can be learned from this for issues such as emergence of influenza and other pathogens at local, national and international scales?
  
3. What is the economic impact of emergent diseases at the level of individual populations or ecosystems? We will exploit examples where there is enough data to develop a valid approach

**Products:** The results of the brainstorming sessions will be written up after the meeting in the form of manuscripts for publication. Further meetings will be planned through DIVERSITAS and the Consortium for Conservation Medicine to develop these ideas further. It is hoped that members of this group will be able to meet up at these follow up meetings.