

# Main Research Goals

1. Identify and quantify health risks posed by GEC, now and in the reasonably foreseeable (scenario) future:
  - a. Develop methods of modelling/understanding tradeoffs between economic development, environmental change and human health.
  - b. Take account of the roles of culture, social institutions and technology choices in modulating health risks, affecting vulnerability and influencing policy responses.
2. Describe spatial (geographic, intra/inter-population) and temporal differences in health risks, to better understand vulnerabilities and priorities for interventions.
3. Develop adaptation strategies for reducing health risks, assess their cost-effectiveness, and communicate results (especially to decision-makers).
4. Foster research training programs, to boost networked international research capacity in GEC and Human Health.



Photo by Franck Pavel

## ESSP

Earth System Science Partnership (ESSP) is a partnership of the four global environmental change research programmes: an international programme of biodiversity science (DIVERSITAS), the International Geosphere-Biosphere Programme (IGBP), the International Human Dimensions Programme on Global Environmental Change (IHDP), and the World Climate Research Programme (WCRP). It brings together researchers from diverse fields, and from across the globe, to undertake an integrated study of the Earth System, the ways that it is changing, and the implications for global and regional sustainability.

## What is GECHH Project?

Global Environmental Change and Human Health is the fourth joint project within the Earth System Science Partnership (ESSP). It is being developed as a logical complement to the three ongoing ESSP Projects. Those three projects address the global carbon cycle (Global Carbon Project, GCP), the global water system (Global Water System Project, GWSP), and Global Environmental Change and Food Systems (GECAFS). Changes in each of those three systems influence, via diverse pathways, human well-being and health.

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Global Environmental  
Change and

# Human Health



# GECHH



Photo by Nandu Chitnis

# Why are Global Environmental Changes and Human Health related?

Human Health is a topic which enables opportunities for trans-disciplinary research, bridging the natural and the social sciences. It is widely, often intuitively, understood that human societies and the wellbeing and health of their populations depend on the flow of materials, services and cultural enrichment from the natural world. In the face of global environmental change (GEC), this is a pre-condition for successful policy oriented research. Nevertheless, to date there has been little formal description and study of the relationships between GEC and human health, and of the ways in which social institutions and processes modulate those relationships. The need has now been recognized within the Earth System Science Partnership for a joint project to increase, strengthen, and then support and coordinate the international research network in relation to this topic.



CDC trap capturing vectors of (re)emergent and neglected infectious diseases (Leishmaniasis and Bartonellosis).  
Photo by Manuel Cesario



An illiterate mother providing finger-print authorization for (re)emergent infectious disease blood-screening in her household.  
Photo by Manuel Cesario

## Research Priority Targets

1. Atmospheric composition changes and their health impacts
  - a. Climate change and health
  - b. Stratospheric ozone depletion and health
2. Land Use/Land Cover changes and human health issues
  - a. Ecosystem functions and services
  - b. Traditional, pharmaceutical and industrial uses of biodiversity resources
3. Infectious disease and Global Environmental Changes
  - a. Land use/land cover change and vector/rodent-borne infectious diseases
  - b. Changes in human-animal relationships and emergence/spread of zoonoses
  - c. Food-related, water-related and other infectious diseases
4. Food-producing systems and health
5. Urbanisation and health
  - a. Extreme climate events, thermal stress and air pollution
  - b. Urban sprawl and exposure to vector-borne diseases
  - c. Water quality and disease outbreaks
  - d. Population mobility
  - e. Crowding, concentration and the diffusion of disease
6. Vulnerability, social representation and resilience building
  - a. Vulnerability
  - b. Social representation and resilience building

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Photo by Daniel Bachhuber

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