

# Developing International Hubs for Global Environmental and Occupational Health GEOHealth

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Fogarty International Center, NIH



# GEOHealth

## Background and Rationale



WHO / Madeline Decker

UNEP / Still pictures

Laurent Weyl / ARGOS

# GEOHealth

## Background and Rationale

### LMIC EOH Challenges

- High exposure levels
- Lack of risk assessment activities
- Variation in laws, regulations and enforcement
- Limited interventions



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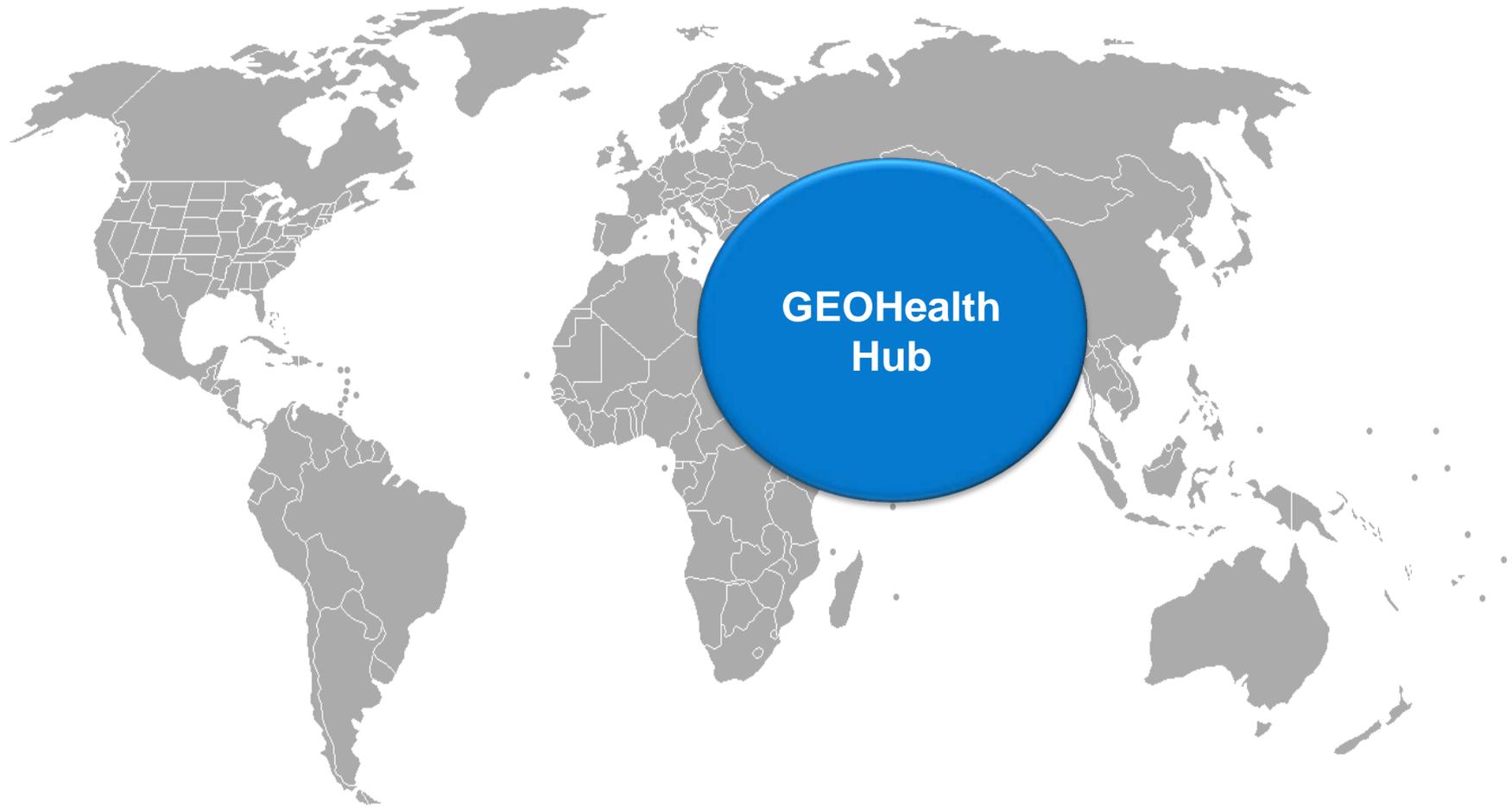
### Changing nature of health sciences

- Data-rich
- Team science
- Enhanced administrative and technological capabilities
- Sustainable hubs



# GEOHealth

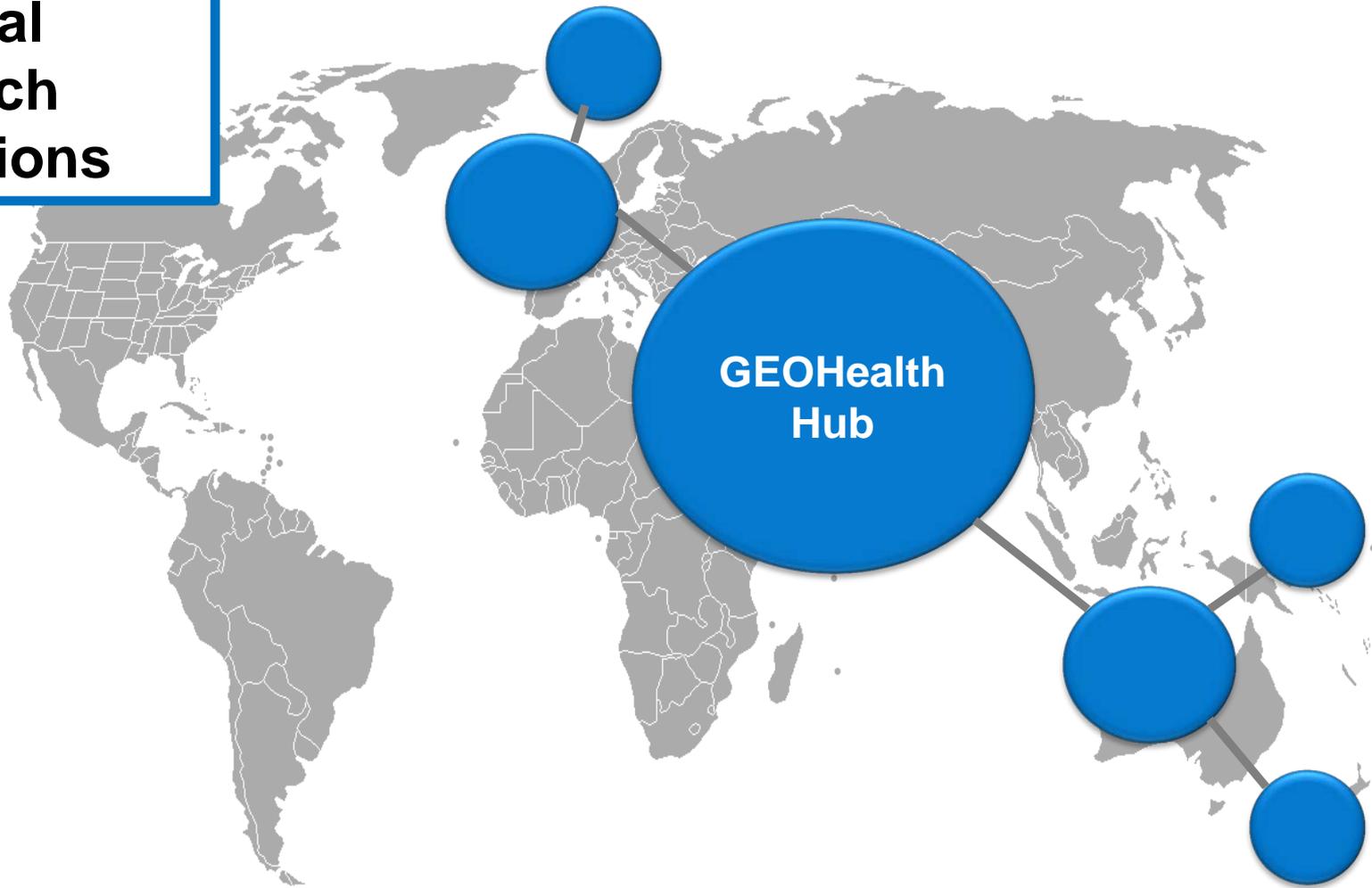
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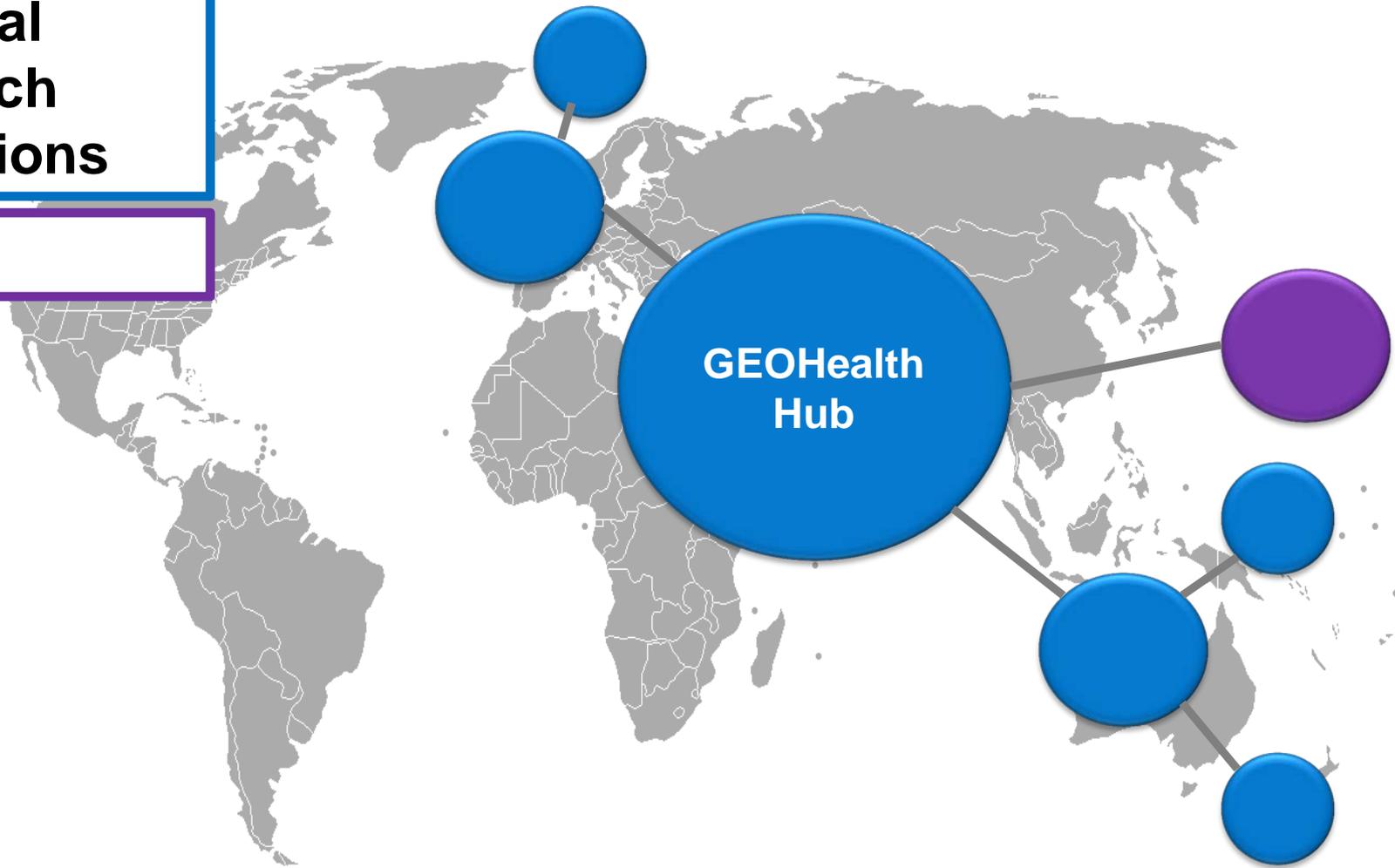


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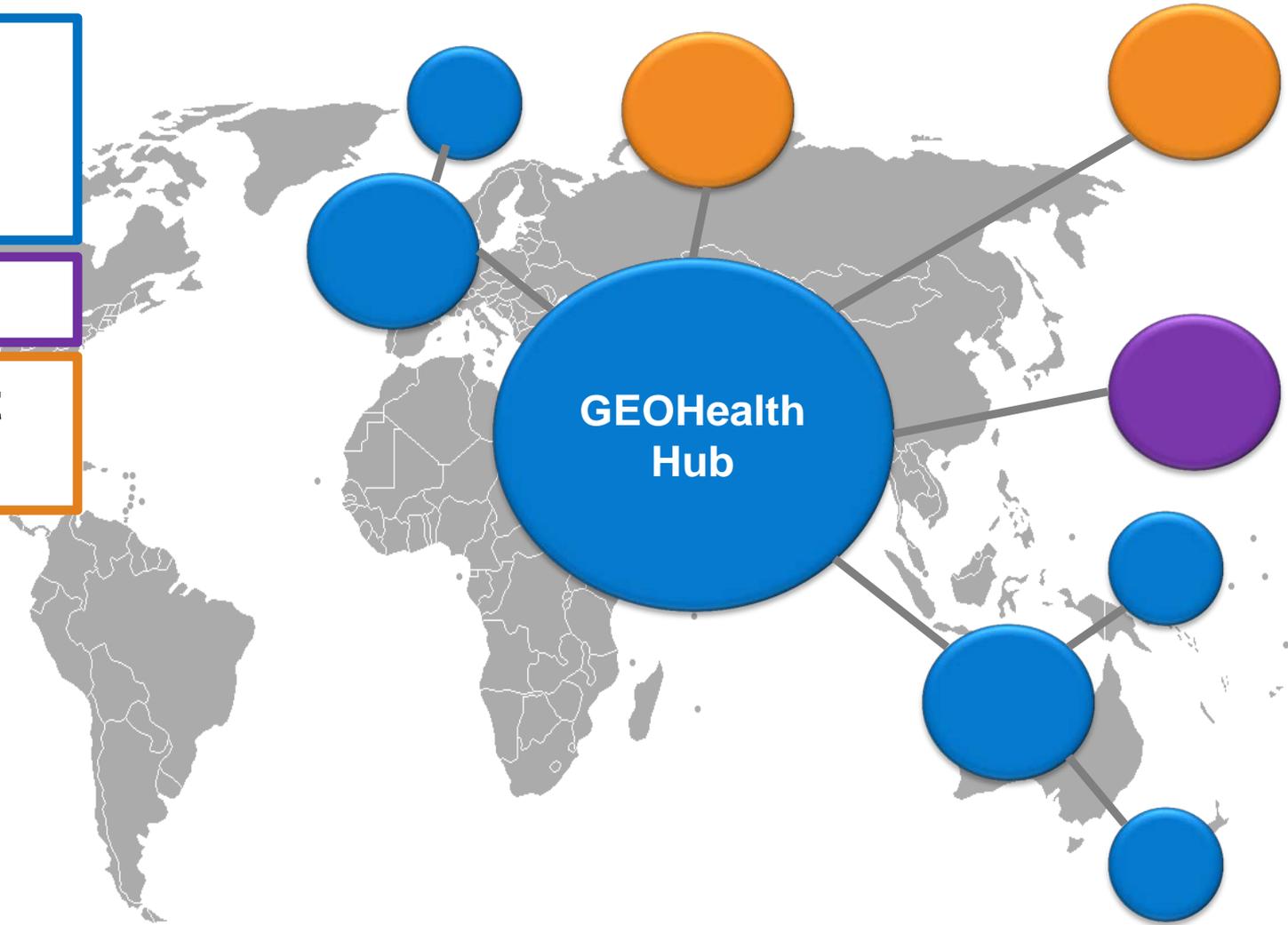
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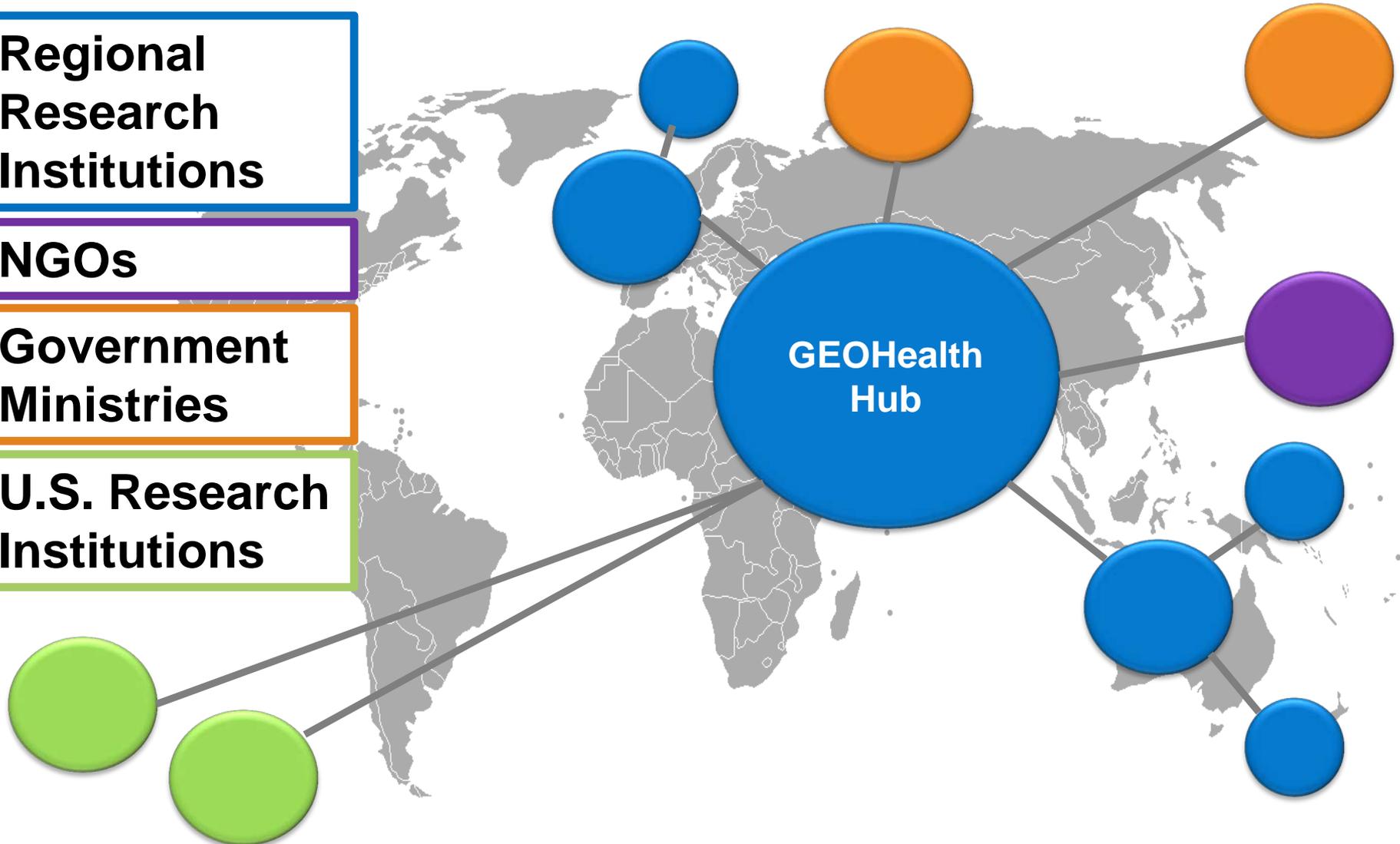
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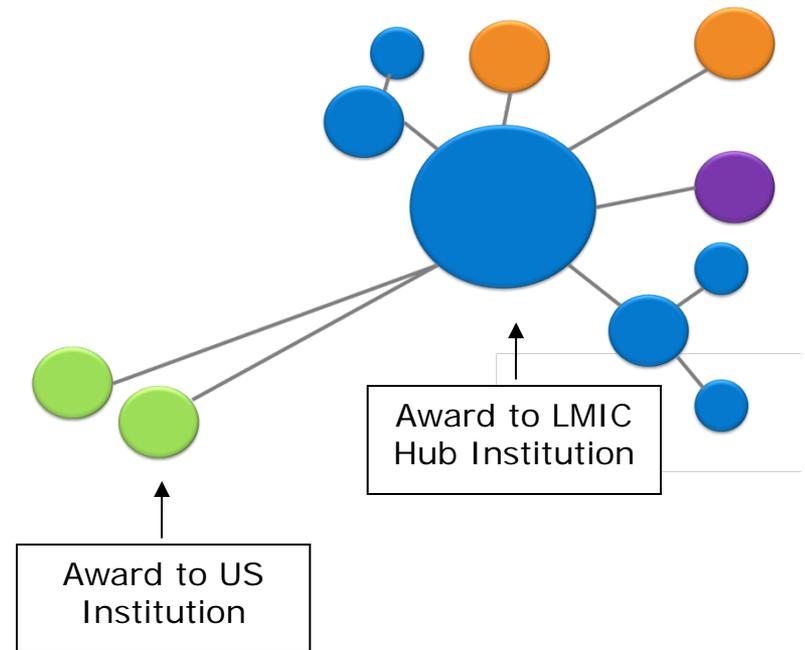


# GEOHealth

## Phase I: Planning Grants

The initial phase of the GEOHealth program consists of paired planning awards (R24)

- Plan research, research training, data management, and curriculum development activities that address and inform priority national and regional environmental and occupational health policy issues.
- Foster planning for multidisciplinary GEOHealth Hubs, based in LMICs, that will lead collaborative research and training.
- Knowledge synthesis



# GEOHealth

## Phase I: Planning Grants

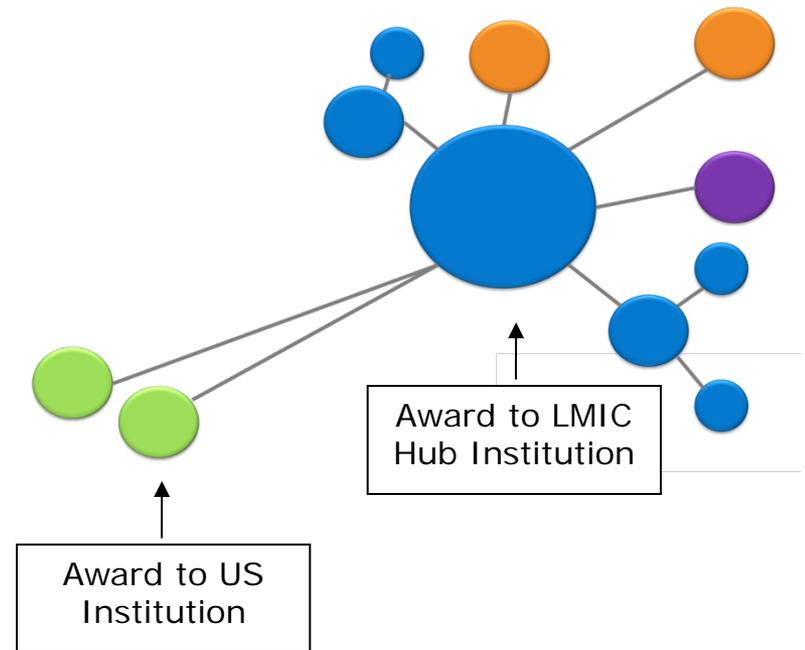
Address priority needs and build on preexisting strengths

### Core sciences

Epidemiology	Biostatistics
Genetics	Environmental Science
Industrial Hygiene	Toxicology
Systems science	Behavioral science
Implementation science	

### Subject areas (up to three)

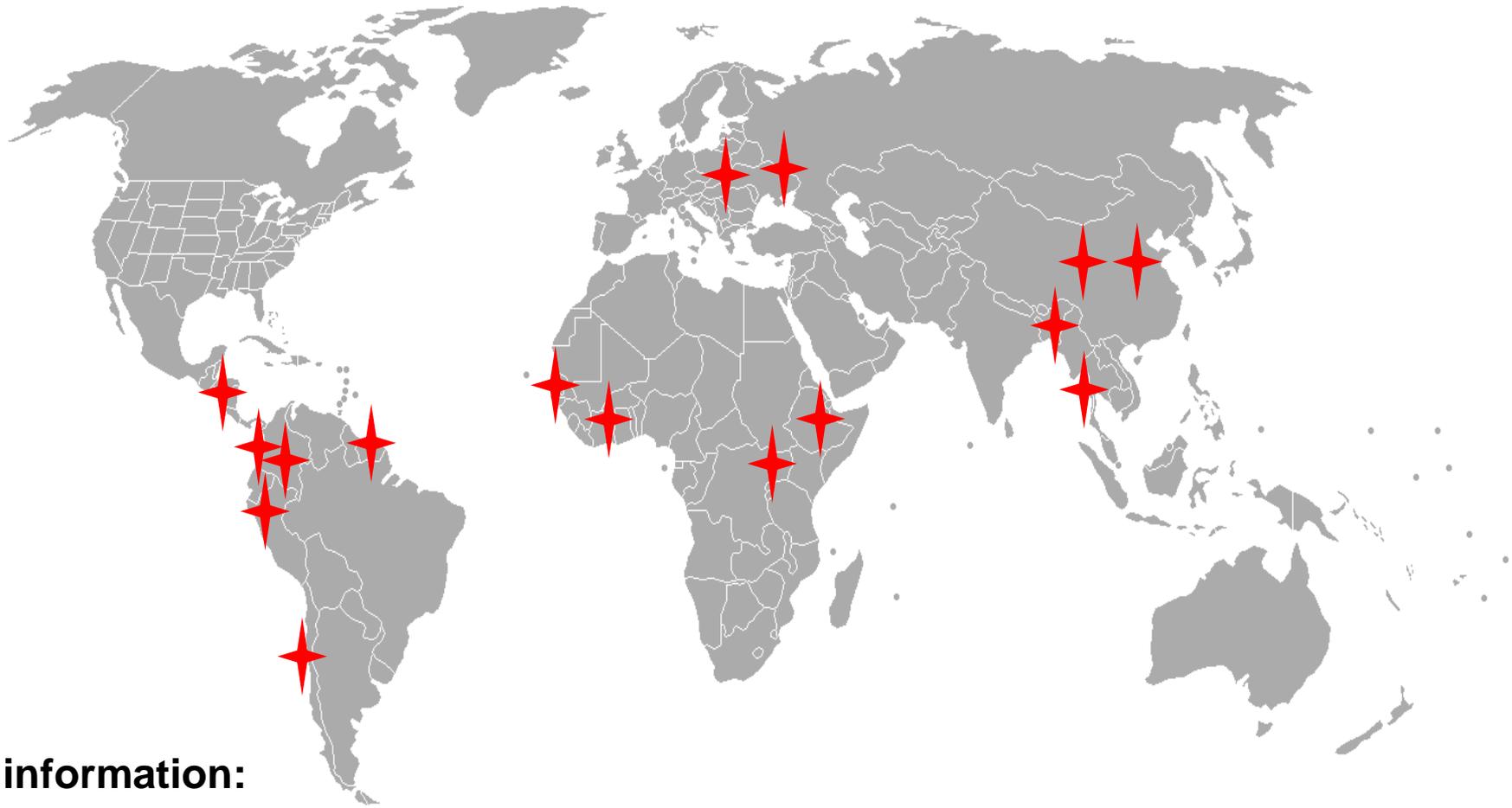
- Air quality (indoor and outdoor)
- Water quality
- Workplace safety
- Occupational health
- Climate change
- Agricultural health



# GEOHealth

## Phase I: Planning Grants

**16 Paired 2-year Planning Grants**



**More information:**

<http://www.fic.nih.gov/programs/Pages/environmental-occupational.aspx>

# GEOHealth

## Phase I: Planning Grants

### 16 Paired 2-year Planning Grants

GEOHealth Planning Grants with Significant Climate Change and Health Focus:

Colombia  
Chile  
The Gambia  
Ethiopia  
Bangladesh  
China



**More information:**

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# GEOHealth Colombia

Industrial University of Santander – UW Madison



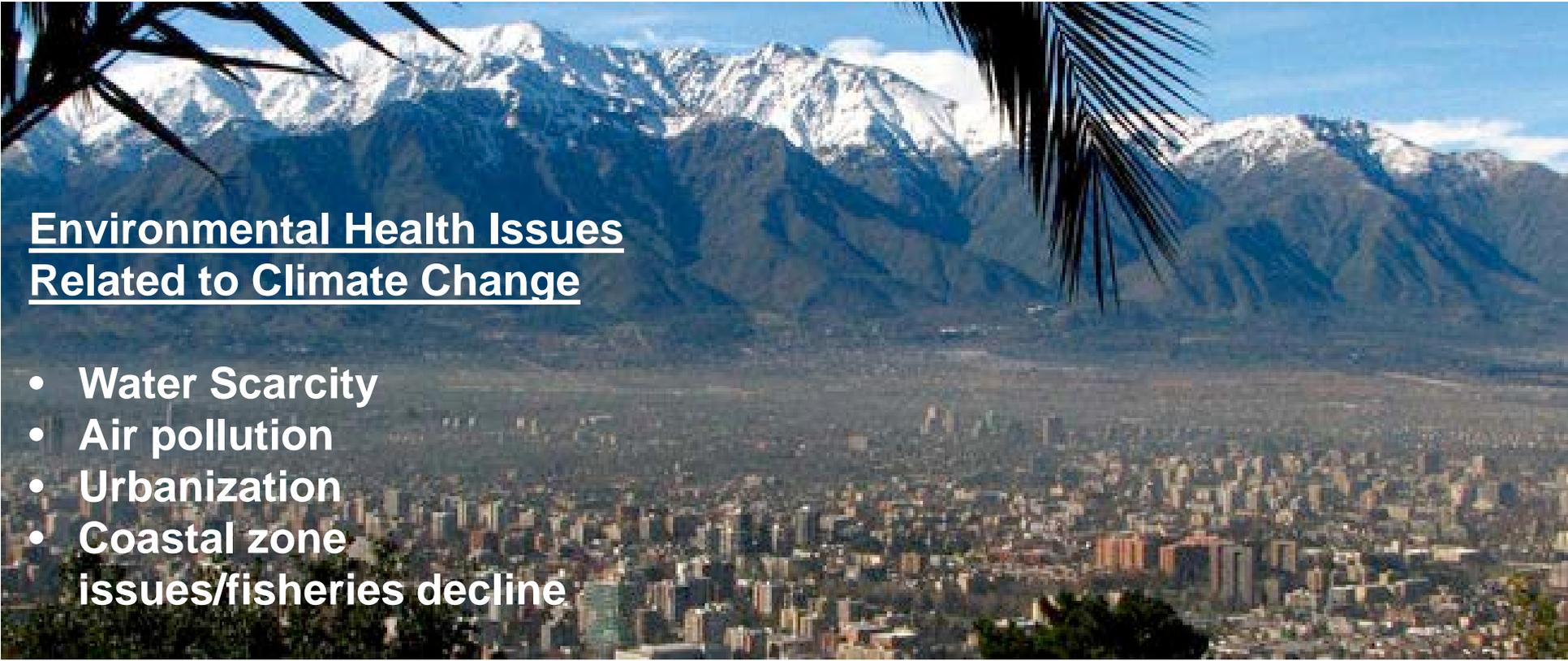
## Disciplines:

- Health: Environmental & Occupational Medicine, Epidemiology & Biostatistics, Toxicology
- Environmental Sciences: Civil & Environmental Engineering, Climatology & Atmospheric Sciences, Hydrology, Urban Planning
- Systems Science: GIS, Modeling

Institutional Partners: CDMB (Regional Environmental Authority), Ministry of Environment

# Chile GEOHealth Hub

Univ. of Chile – Emory Univ. & UGA

An aerial photograph of a city, likely Santiago, Chile, with a dense urban landscape of buildings and roads. In the background, a range of large, rugged mountains is partially covered in snow under a clear blue sky. Palm fronds are visible in the foreground, framing the scene.

## Environmental Health Issues Related to Climate Change

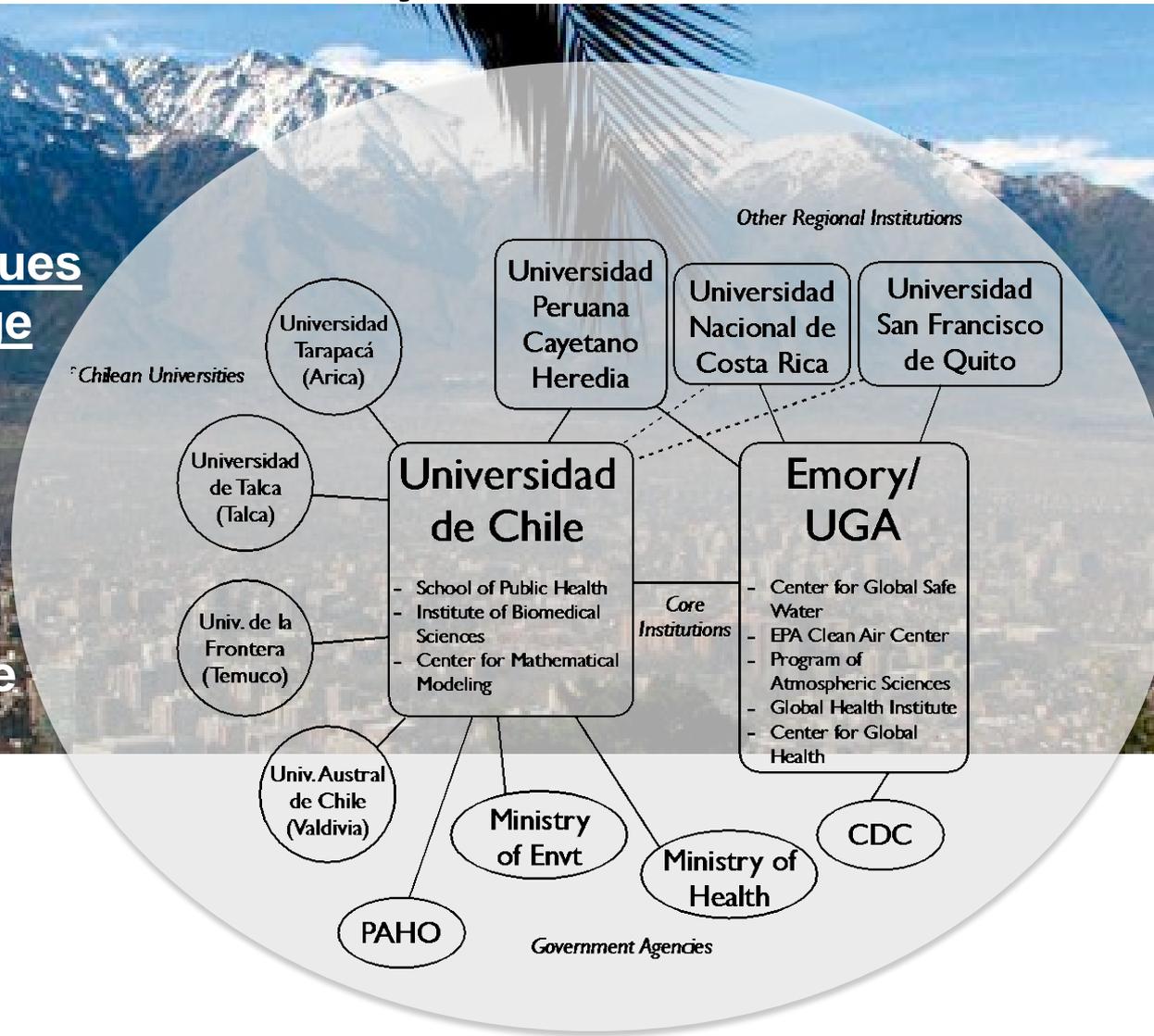
- Water Scarcity
- Air pollution
- Urbanization
- Coastal zone  
issues/fisheries decline

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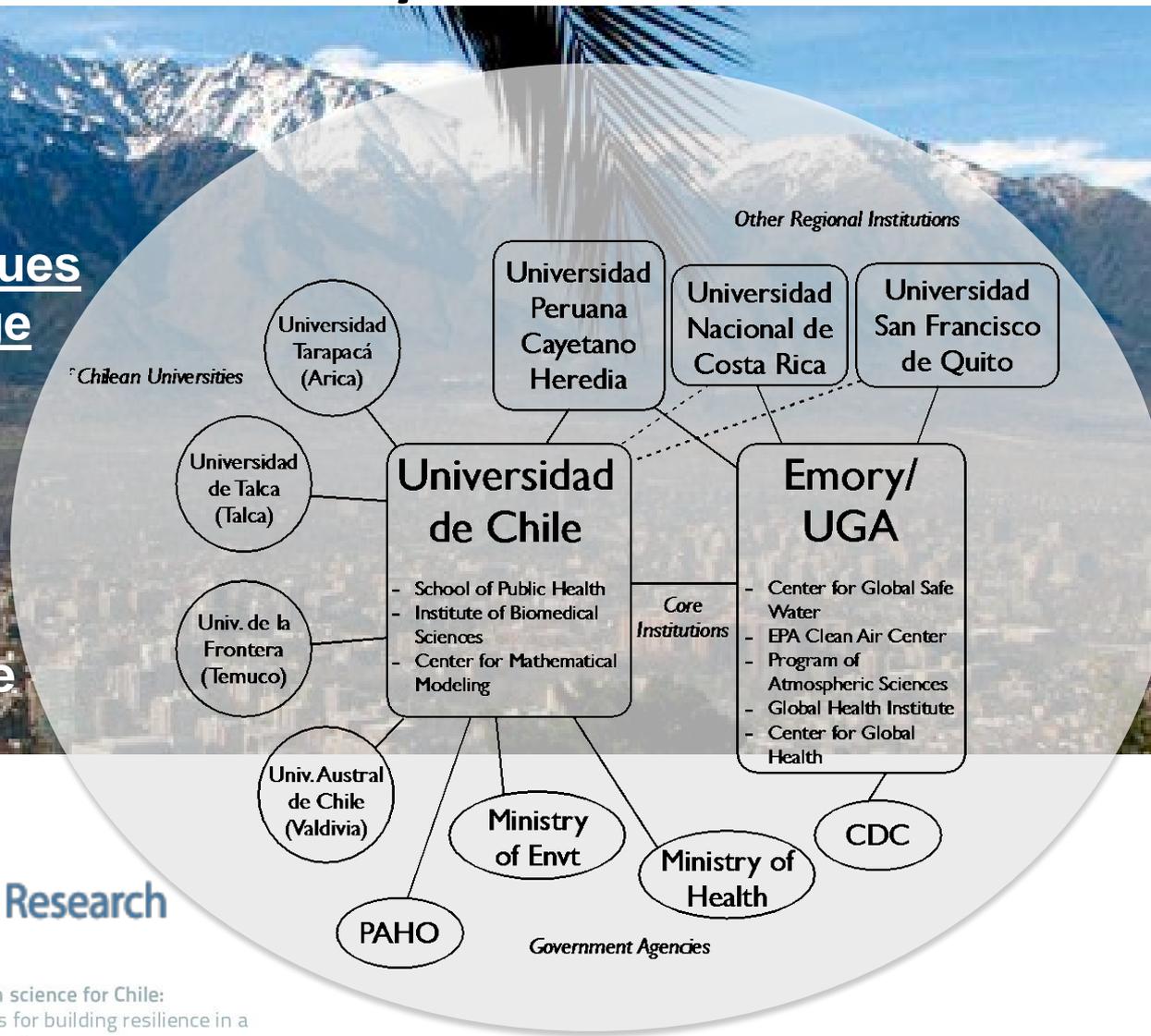


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**(CR)<sup>2</sup>**

Center for Climate and Resilience Research



Earth system science for Chile:  
a sound basis for building resilience in a  
changing climate.

# GEOHealth Hub for East Africa

Addis Ababa Univ. – USC

## *Climate Change and Health*

### Assessment areas in GEOHealth

#### Planning Grant

- Green house gases emissions profile (carbon foot prints)
- Climate change and variability
- Country level efforts on mitigation/ adaptation
- Health Impact (vector borne diseases, diarrhea, ARI)
- Food Security and malnutrition
- Extreme weather events (flooding, wild fire, heat stress)



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### Key Governmental partners

- Ministry of Health
- Environmental Protection Authority (Ethiopia)
- Ministry of Water and Energy
- National Meteorological Agency
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### Key non-governmental partners

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- Ethiopia Malaria Prediction Study (EMAPS)

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### Research Centers

- Horn of Africa Research and Environmental Center/Network (HOAREC-N)
- Institute of Development Studies

# Bangladesh GEOHealth Hub

## ICDDR,B - Univ. of Chicago

### *Climate Change Related Health Issues*

#### Flood and acute weather-calamities

Injury/trauma, GI/respiratory infection, mental health, nutritional illnesses, etc.

#### Temperature change

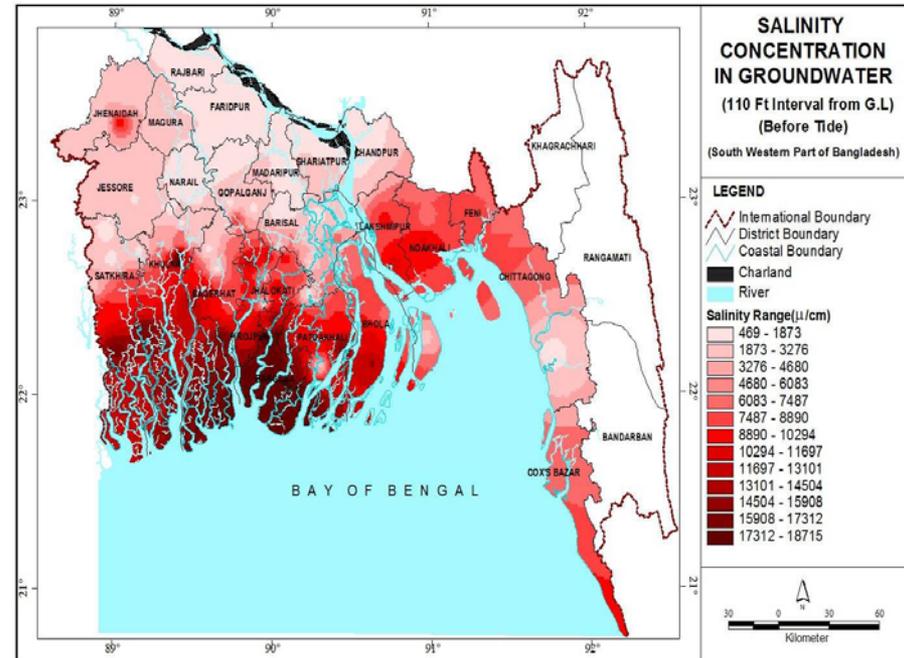
Heart/lung disease, emerging infections, metabolic disease, mental illnesses, etc.

#### Water salinity and arsenic contamination

Hypertension, adverse pregnancy outcomes, cancer, CVD, lung/neurological illness, etc.

#### Smog, precipitation, air pollution

Lung disease, heart disease, cancer, etc.



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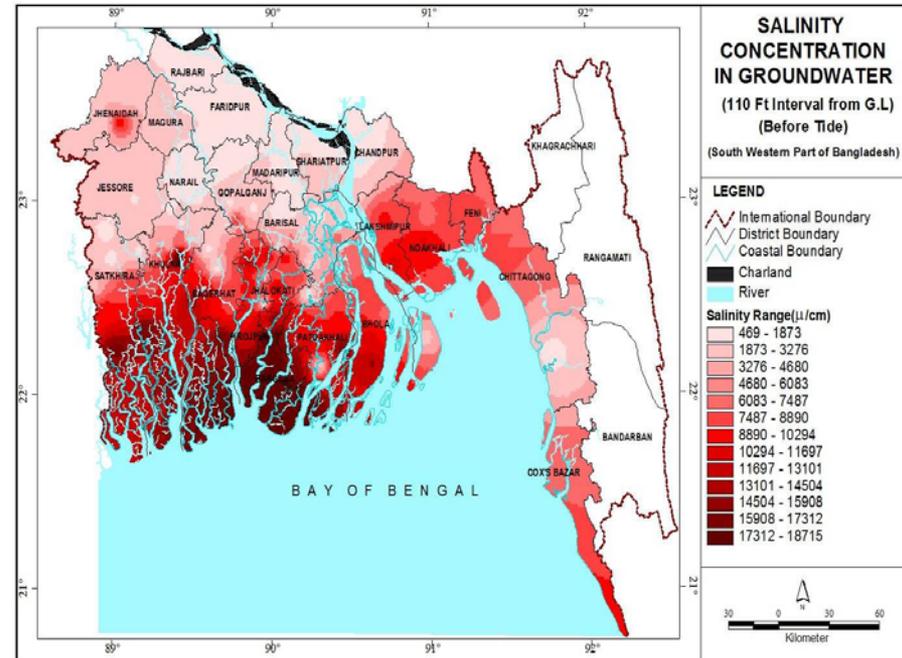
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## **GEOHealth Hub Aims**

In-depth analysis of the extent and impact of climate change on health  
Identify specific barriers and develop a work plan to overcome them  
Framework for research and training activities, evaluation and policy support

# **China GEOHealth Hub**

**Shanghai CDC – California Dept. of Public Health**

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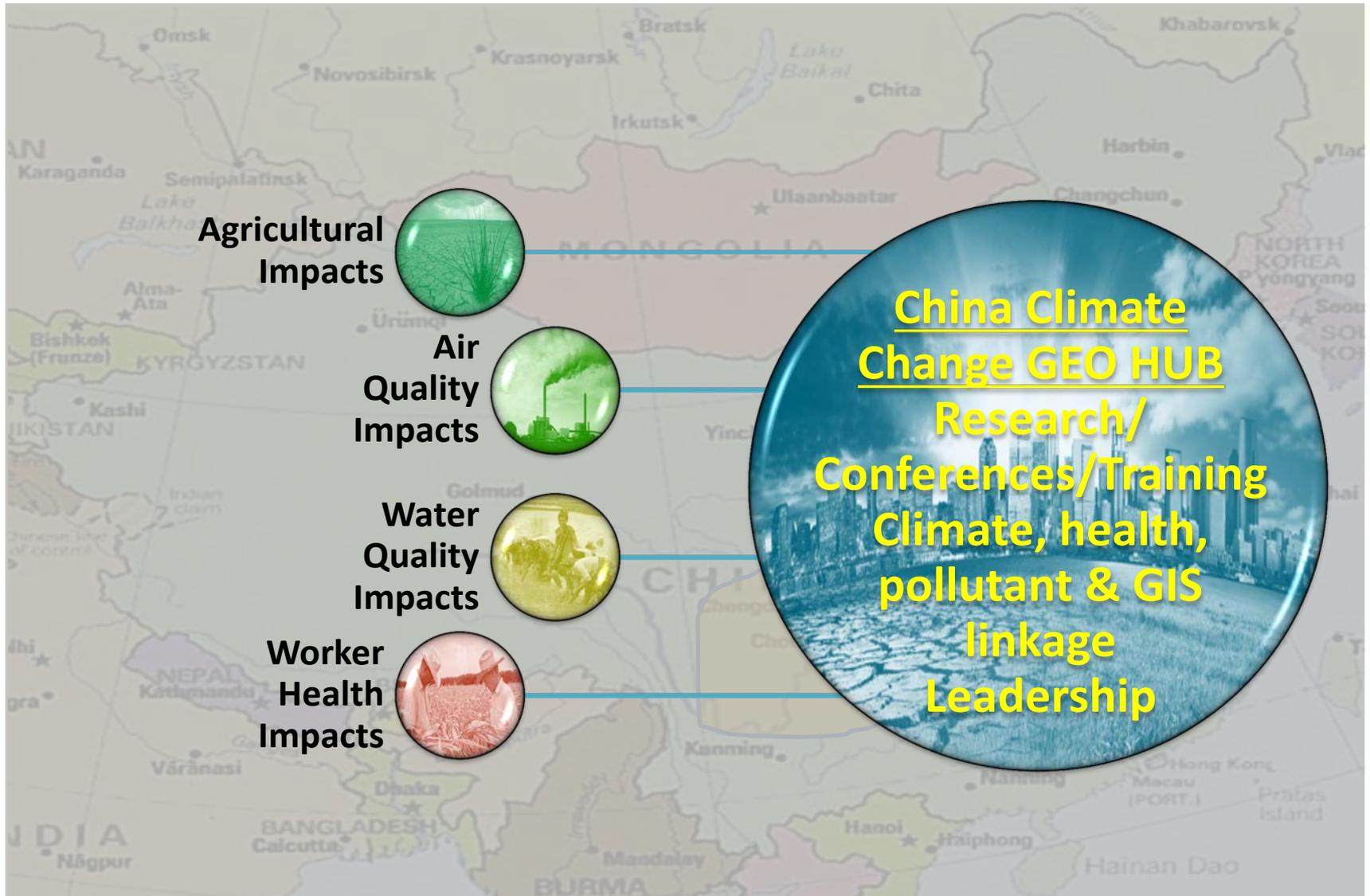
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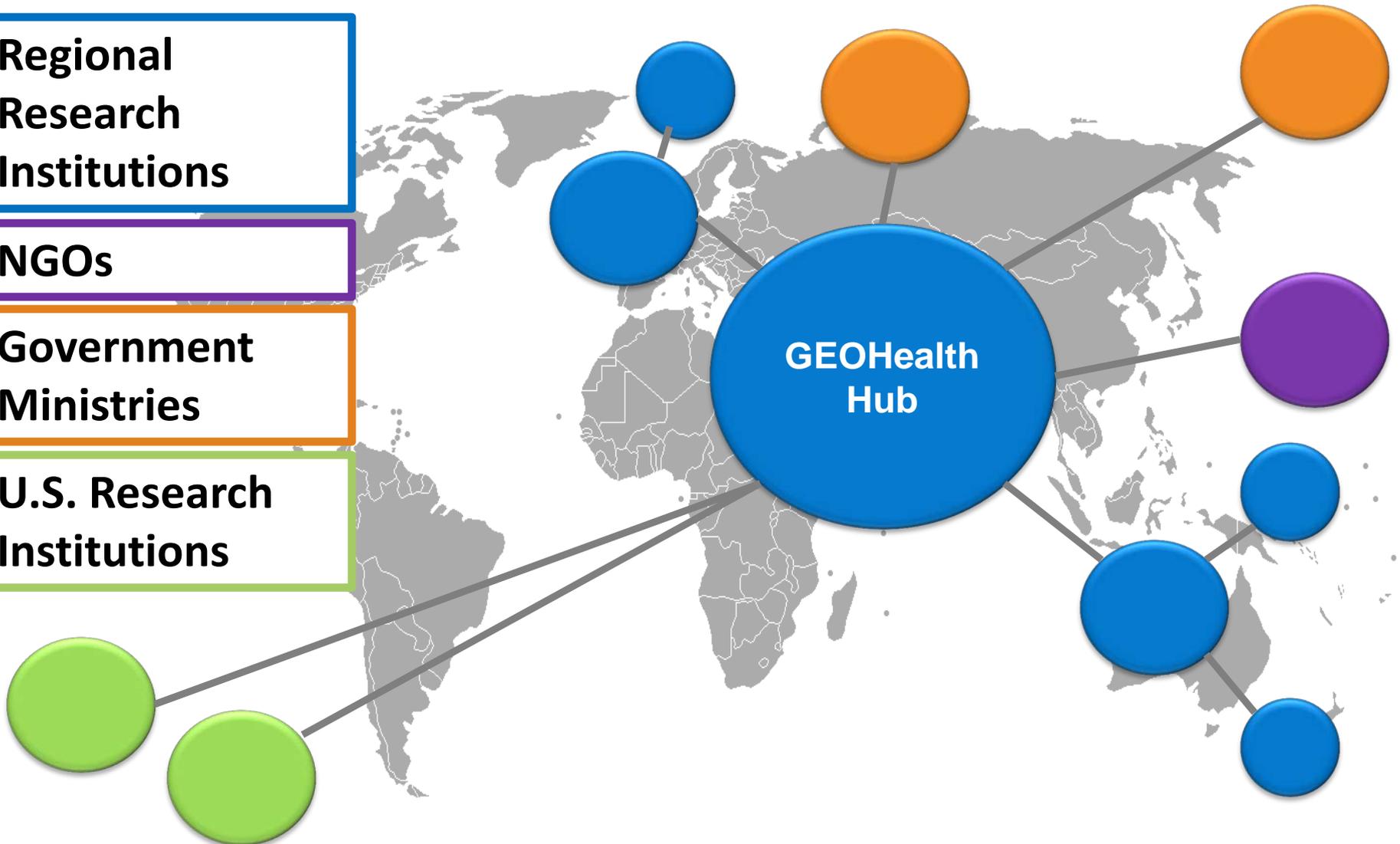
Phase II: Scaling up to full GEOHealth Hubs

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# GEOHealth

## Acknowledgements

### **GEOHealth Bangladesh**

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Dr. Jonathan Patz, University of Wisconsin  
Dr. Laura Rodriguez, Universidad Industrial de Santander

### **GEOHealth West Africa**

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Dr. Rex Kuye, University of The Gambia

### **GEOHealth China**

Dr. Rick Kreutzer, Sequoia Foundation  
Dr. Fan Wu, Shanghai Municipal CDC

### **GEOHealth East Africa**

Dr. Jonathan Samet, University of Southern California  
Dr. Abera Kumie, Addis Ababa University

### **GEOHealth Chile**

Dr. Nelson Steenland, Emory University  
Dr. Paulina Pino, University of Chile



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## Thank you

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