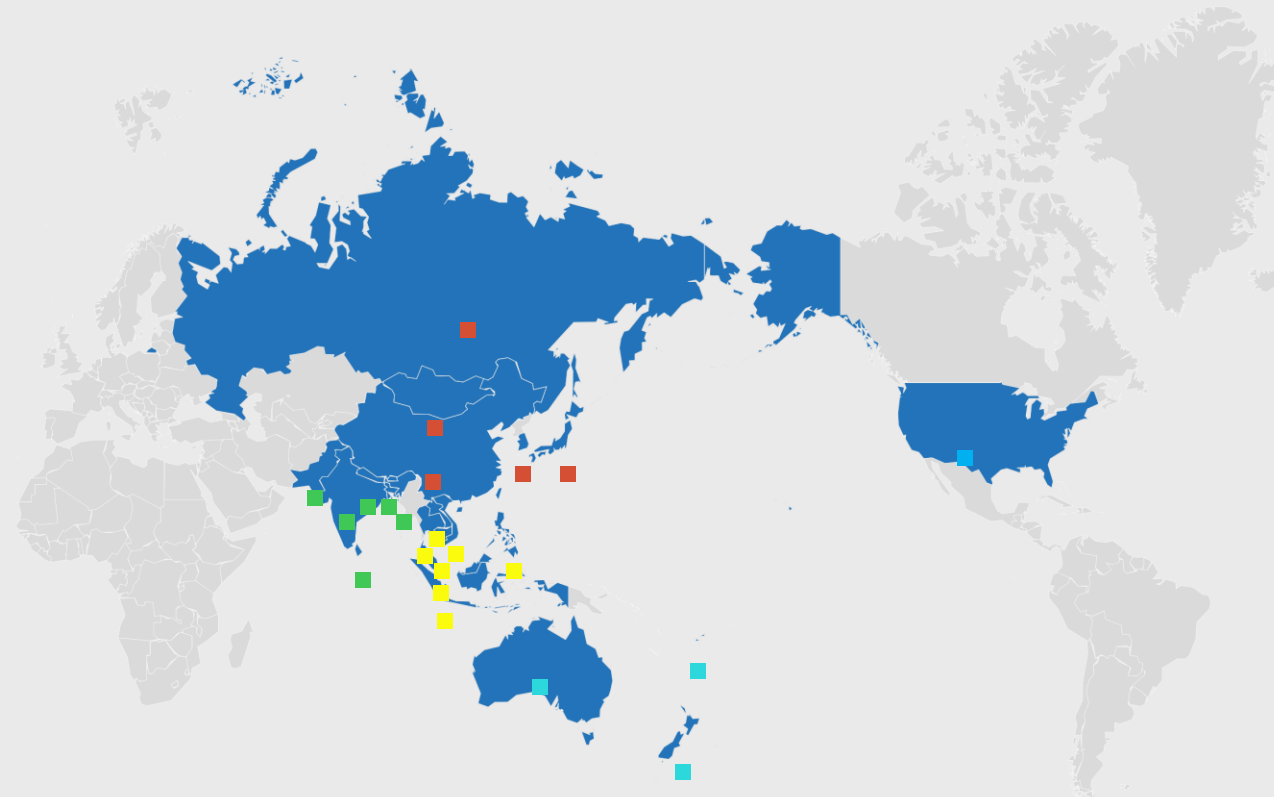


### Member countries

- 22 member countries
- + approved countries

Over twenty years  
of policy-relevant  
global change  
research and  
sustainability in the  
Asia-Pacific region



❖ Individuals and organizations in **Maldives, Myanmar, Pacific Island States and Singapore** are able to participate in all APN programme activities and are considered to be from an APN approved country under the programme membership participation criterion.

- Bangladesh
- Bhutan
- India
- Nepal
- Pakistan
- Sri Lanka
- Cambodia
- Indonesia
- Lao PDR
- Malaysia
- Philippines
- Thailand
- Viet Nam
- China
- Japan
- Mongolia
- Republic of Korea
- Russian Federation
- Australia
- Fiji
- New Zealand
- United States of America

## FACT & FIGURES

Over **\$28,000,000** disbursed as project grants

›Funded **412** projects since 1996

Over **60%** of all projects are led by developing country researchers/practitioners

APN research projects directly engaged over **2600** people (2010-2015)

More than **180** peer-review publications, over **640** tangible output (2010-2015)

APN capacity building projects directly engaged more than **4000** people (2010-2015)



Regional collaborative research



Scientific capacity development



Science-policy linkages



Proposal development training for early-career scientists



Subregional science-policy activities



Local international symposiums – young scientist awards

**Goal & vision:**  
addressing challenges on regional global change, sustainability

## Main activities

## Interaction between GEOSS and APN

**Until 2013, APN financially supported 10 projects (773,193 USD) related to GEOSS. Seven projects were directly related to the Asian Water Cycle Initiative**

1. GEOSS/Asian water Cycle Initiative/Water Cycle Integrator (GEOSS/AWCI/WCI)
2. River Management System Development in Asia based on Data Integration and Analysis System (DIAS) under the GEOSS
3. Climate Change Impact Assessment on the Asia-Pacific Water Resources under AWCI/GEOSS"
4. "Flood Risk Management Demonstration Project (phase 1) under the Asian Water Cycle Initiative for the Global Earth Observation System of Systems (FRM/AWCI/GEOSS)"
5. International Integrated Water Data Access and Transfer in Asia (IIWaDATA) Project
6. Impact of Climate Change on Glacier Melting and Water Cycle Variability in Asian River Basins
7. Demonstration Study on Advancing Global Change Research Approaches Based on Inter-Agency Collaboration and Data Infrastructure of GENESI and GeoBrain
8. Drought Monitoring System Development by Integrating In-Situ Data, Satellite Data and Numerical Model Output
9. The Global Earth Observation System of Systems Asian Water Cycle Initiative Observation Convergence and Data Integration (GEOSS/AWCI/OCDI)
10. The Capacity Building for Drought Monitoring and Studying in Monsoon Asia Under the Framework of Asian Water Cycle Initiative (AWCI)

## GEOSS and APN

### New CRRP & CAPaBLE Projects (July 2017) related to GEOSS Societal Benefit Areas

#### Relevant GEOSS area – Disaster Resilience

1. Enhancing Climate Risk Resilience through Human Security Development and Capacity Development in the Province of Aurora, Philippines

#### Relevant GEOSS area – Public Health Surveillance

1. Improving Health Outcomes in Pacific Island Countries through Better Urban Governance for Climate Change Adaptation

#### Relevant GEOSS area – Water Resource Management

1. Improving skills for promoting sustainable watershed management practices in South Asia

#### Relevant to GEOSS area - Infrastructure and Transportation Management

1. Understanding the Opportunities and Challenges of Compliance to Building Codes for Disaster Resilience in South Asia - The Cases of Bangladesh and Nepal

#### Relevant GEOSS area – Sustainable Urban Development

1. Tracking Influences of Asian Urban GHG Emissions for Sustainability Policies: Identifying Low Carbon Pathways to Meet the Paris Agreement

#### Relevant GEOSS area – Biodiversity & Ecosystem Sustainability

1. Sustainable Mangrove Rehabilitation for Global and Local Benefits
2. Effective Models for Payment Mechanisms for Forest Ecosystem Services in Papua New Guinea, Philippines and Thailand
3. Urban Biodiversity and Human Well-Being in Asia's Megacities

## GEOSS and APN

## Ongoing CRRP & CAPaBLE Projects

### Relevant GEOSS area – Disaster Resilience

1. Risk and Resilience in the Pacific: Influence of Peripherality on Exposure and Responses to Global Change (<http://www.apn-gcr.org/resources/items/show/2049>)
2. SEACLID/CORDEX Southeast Asia Phase 2: High-resolution analysis of climate extremes over key areas in Southeast Asia (<http://www.apn-gcr.org/resources/items/show/2048>)
3. Rapid mapping technique for disaster observation and environmental change data acquisition (<http://www.apn-gcr.org/resources/items/show/2045>)

### Relevant GEOSS area – Public Health Surveillance

1. Assessing the health effects of extreme temperatures and the development of adaptation strategies to climate change in the Asia-Pacific region (<http://www.apn-gcr.org/resources/items/show/2056>)

### Relevant GEOSS area – Water Resource Management

1. Anthropogenic perturbations to carbon export and greenhouse gas evasion from Asian river systems (<http://www.apn-gcr.org/resources/items/show/2047>)
2. Development of new water supply strategies in two watersheds of India and Sri Lanka in the context of climate change, rapid urbanization and population growth: a vulnerability assessment approach (<http://www.apn-gcr.org/resources/items/show/2052>)
3. Adapting groundwater of Asian cities to climate change: bridging the science and policy interface (<http://www.apn-gcr.org/resources/items/show/2042>)

## GEOSS and APN

## Ongoing CRRP & CAPaBLE Projects

### Relevant GEOSS area – Food Security & Sustainable Agriculture

1. Managing organic amendments to reduce greenhouse gas emissions and supplement fertiliser nitrogen inputs in tropical Indian and Sri Lankan agricultural soils (<http://www.apn-gcr.org/resources/items/show/2051>)
2. Identification of the best agricultural management practices with better greenhouse gas benefits in salinity affected areas of South Asia (<http://www.apn-gcr.org/resources/items/show/2055>)
3. Water-Energy-Food nexus perspective: Path making for Sustainable Development Goals (SDGs) to country actions in Asia (<http://www.apn-gcr.org/resources/items/show/2054>)
4. Mainstreaming weather and climate information application for agro-ecosystem resilience in a changing climate (<http://www.apn-gcr.org/resources/items/show/2043>)
5. Capacity Development of Agrarian Research-Policy-Technology Personnel in Sri Lanka on ‘Global Change and Sustainability’ (<http://www.apn-gcr.org/resources/items/show/2041>)

### Relevant GEOSS area – Sustainable Urban Development

1. Appropriate Solid Waste Management Towards Flood Risk Reduction Through Recovery of Drainage Function of Tropical Asian Urban Cities (<http://www.apn-gcr.org/resources/items/show/2053>)
2. Enhancing perception and capacity for national and provincial leaders and practitioners on GHG emission inventory to support the implementation of NAMAs and development of low-carbon cities in Vietnam (<http://www.apn-gcr.org/resources/items/show/2039>)

### Relevant GEOSS area – Biodiversity & Ecosystem Sustainability

1. Assessing land use functions for sustainable land management in Asia countries (<http://www.apn-gcr.org/resources/items/show/2050>)
2. Ecosystem Based Adaptation approach for Sustainable Management and Governance of Coastal Ecosystems (ENGAGE ) (<http://www.apn-gcr.org/resources/items/show/2044>)

More projects information: <http://www.apn-gcr.org/resources/>

## GEOSS and APN

### Potential Collaborative Activities

#### 2017 Calls for Proposals for Funding from August/September 2018

Funding support for research and capacity building activities through the annual calls for proposals programme and framework: Collaborative Regional Research Programme, CRRP and Capacity Building Programme, CAPaBLE

#### 2018 Workshop in Southeast Asia

Technology Needs Assessment on Climate Change Mitigation and Adaptation in SEA: Experience Sharing and Technological Transfer

#### Networking and Sharing Information

APN's metadata system has freely available reports and data on all of its activities at <http://www.apn-gcr.org/resources/>

#### Linking with other global change research and sustainability organizations

Linking with partner research programmes and facilitating regional collaboration (AWCI is a current good example)



## Typical APN ongoing project link with GEOSS activity

- Title: **Utilizing geospatial technology to assess health vulnerability to climate change for rural population in Vietnam and Philippines**
- Award: 2 years (10/2015-10/2017)
- Partners:
  - **Việt Nam:**
    - Dr. Pham Thi Thanh Nga, Mr. Nguyen Tien Cong, VNSC
    - Dr. Vu Trong Duoc, Institute of Hygiene and Epidemiology
  - **Philippines:**
    - Dr. Maria Ruth B. Pineda-Cortel, University of Santo Tomas
    - Mr. Joseph Quilang Basconcillo, Philippine Atmospheric Geophysical and Astronomical Services Administration
  - **Japan:**
    - Prof. Kenji Nakamura, Department of Economics on Sustainability, Dokkyo University
- **Extended Partner:** Dr. Alexis Drogoul & Mr. Damien Philippon, IRD (France) in Hanoi



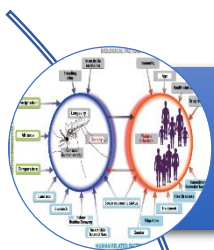
## OBJECTIVE

To improve the knowledge of vector-borne diseases and their vulnerability to climate variability for rural population in Vietnam and Philippines by using advanced geospatial technology.

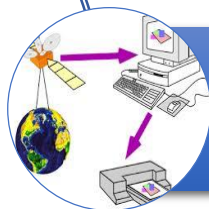
Project activities

- Develop a geospatial database of diseases (malaria & dengue)
- Data analysis on spatial and temporal trends of diseases, and correlations with climate variables
- Health vulnerability mapping
- WebGIS for decision-support on climate related diseases

# Project results



A geospatial database of climate change related diseases



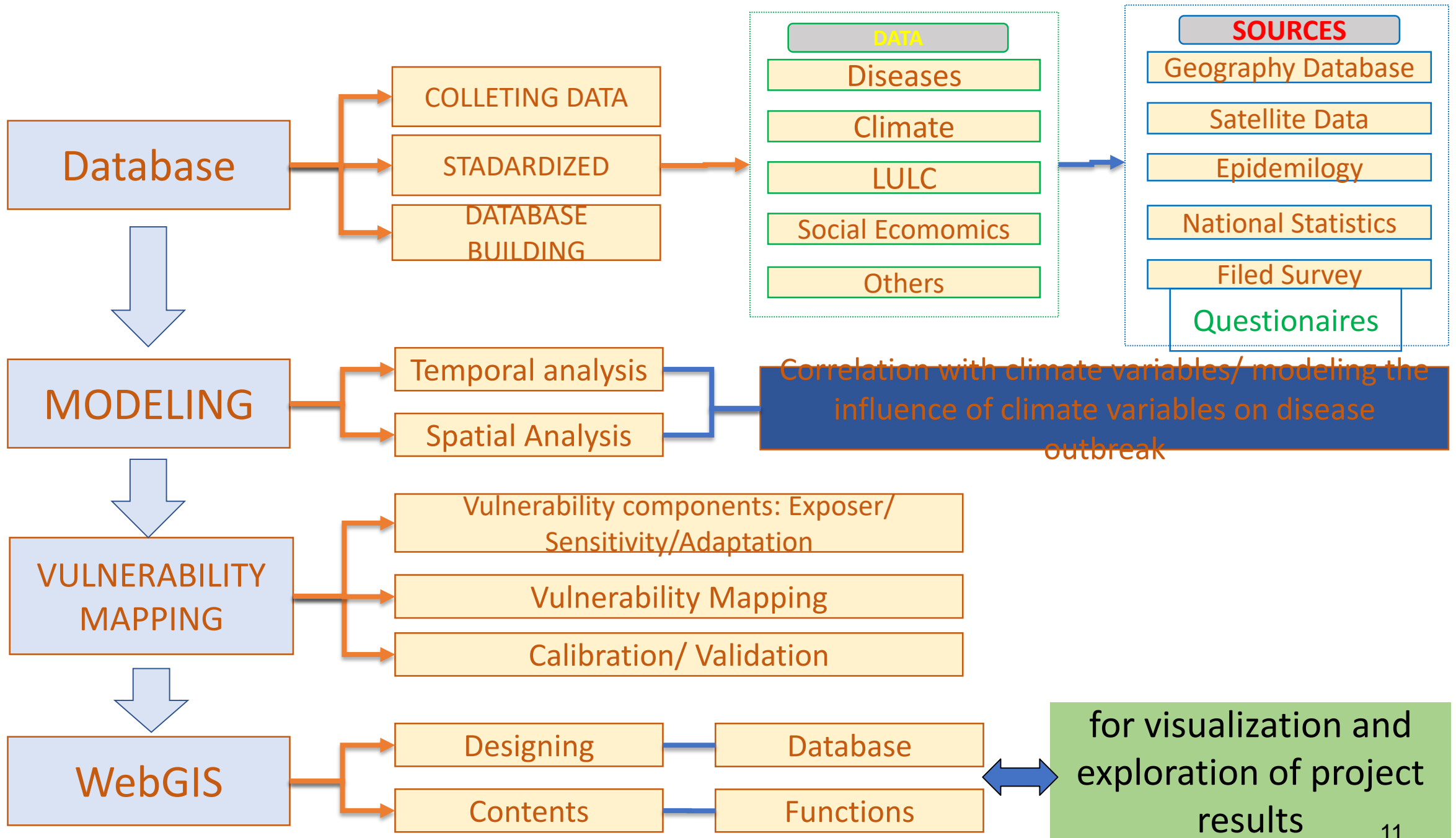
Modeling of climate related disease: Outbreak prediction



Mapping vulnerability of disease



WebGIS for visualization and exploration of project results





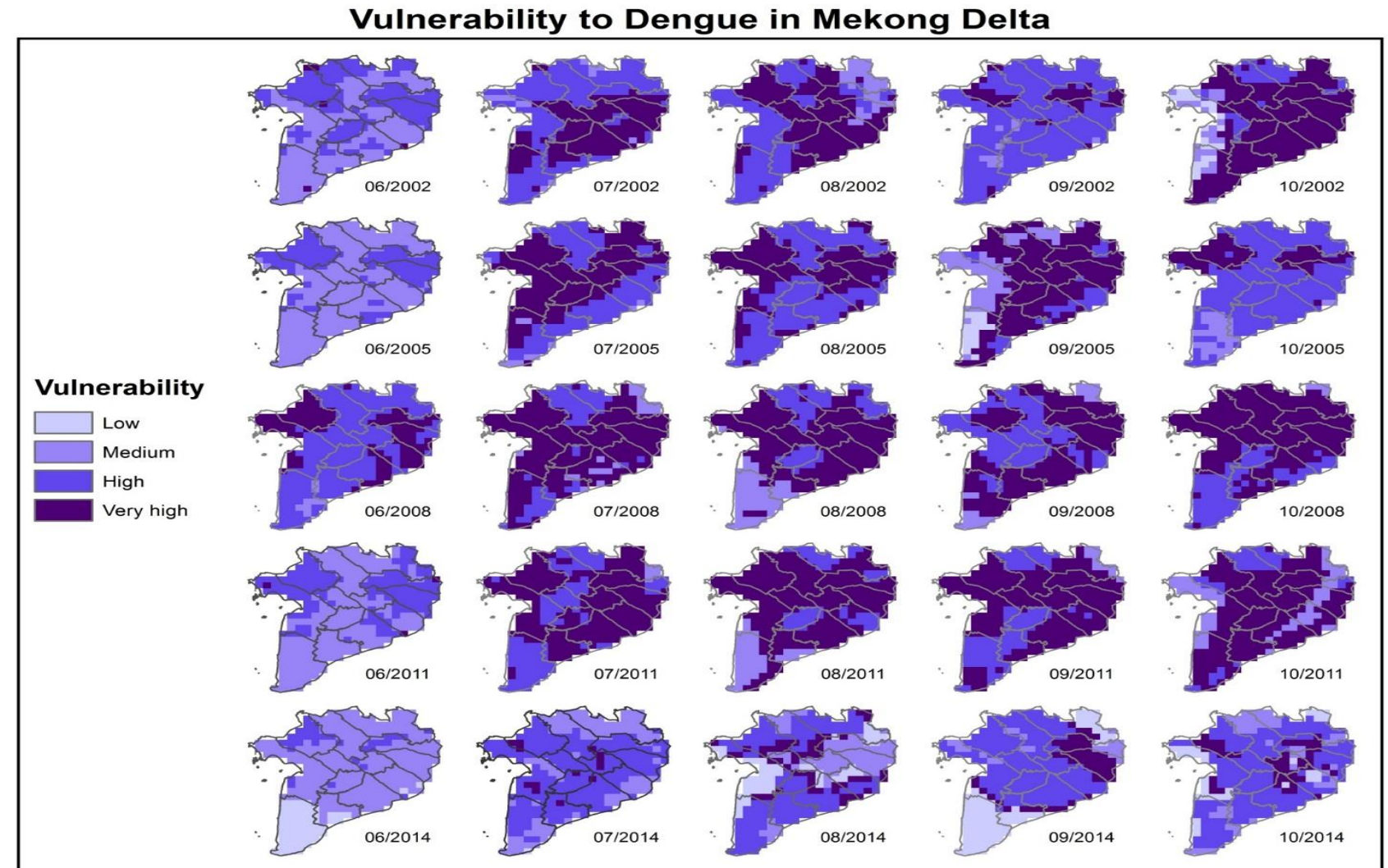
# Results

The map series illustrate spatial-temporal dynamic patterns of vulnerability to dengue in the region. From 2002 to 2012, vulnerability value increases and get a peak in 2008 when high and very high values are observed at all provinces.

➤ Temporal:  
Except in 2014, high vulnerability dominates over the delta.

In 2008, high and very high vulnerability are observed at all provinces.

➤ Spatial:  
Although river is not breeding site for dengue mosquitoes, provinces adjacent to rivers have vulnerability at high or very high level.



## Call for proposals-

- CRRP & CAPaBLE
- Open Sep–Nov 2017
- Subregion-specific themes

### › **South Asia**

- Policy-relevant research on implementation of Nationally Determined Contributions
- Extreme events related to monsoon and climate change

### › **Southeast Asia**

- Disaster risk reduction and resilience to climate change
- Community resilience to climate change impacts in vulnerable areas
- Energy, ecosystems in a changing climate, low carbon society
- Water, agricultural productivity, nutrient management

### › **Temperate East Asia**

- Climate change impacts on the global supply chain
- Climate change and human security (water-food-energy nexus)
- Water treatment technology transfer in the context of Paris Agreement
- Extreme events related to monsoon and climate change





Thank you!



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