# Overview of Regional Integrated Multi-hazard Early Warning System and its services in South Asia
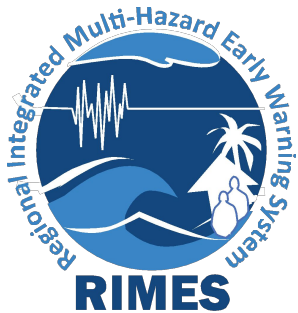
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# RIMES

**R**egional
48 Member and Collaborating States in Asia, Africa, and the Pacific

**M**ulti-Hazard
Earthquake, tsunami, and hydro-meteorological hazards

**I**ntegrated
links science with applications and information providers and users

**E**arly Warning
with mandate to provide early warning services for enhanced preparedness for, responses to, and mitigation of natural hazards
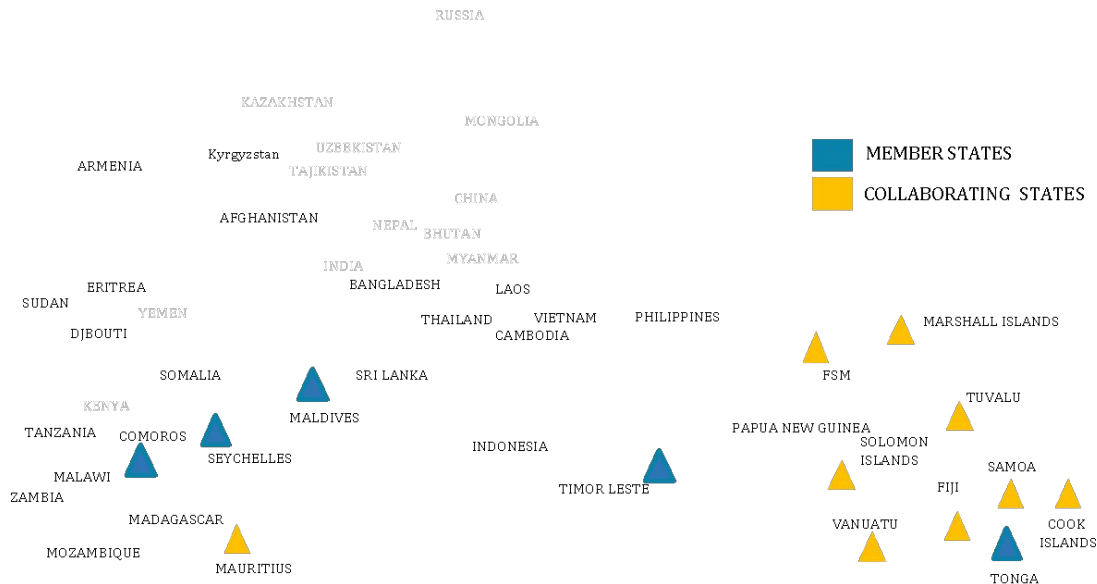
**S**ystem
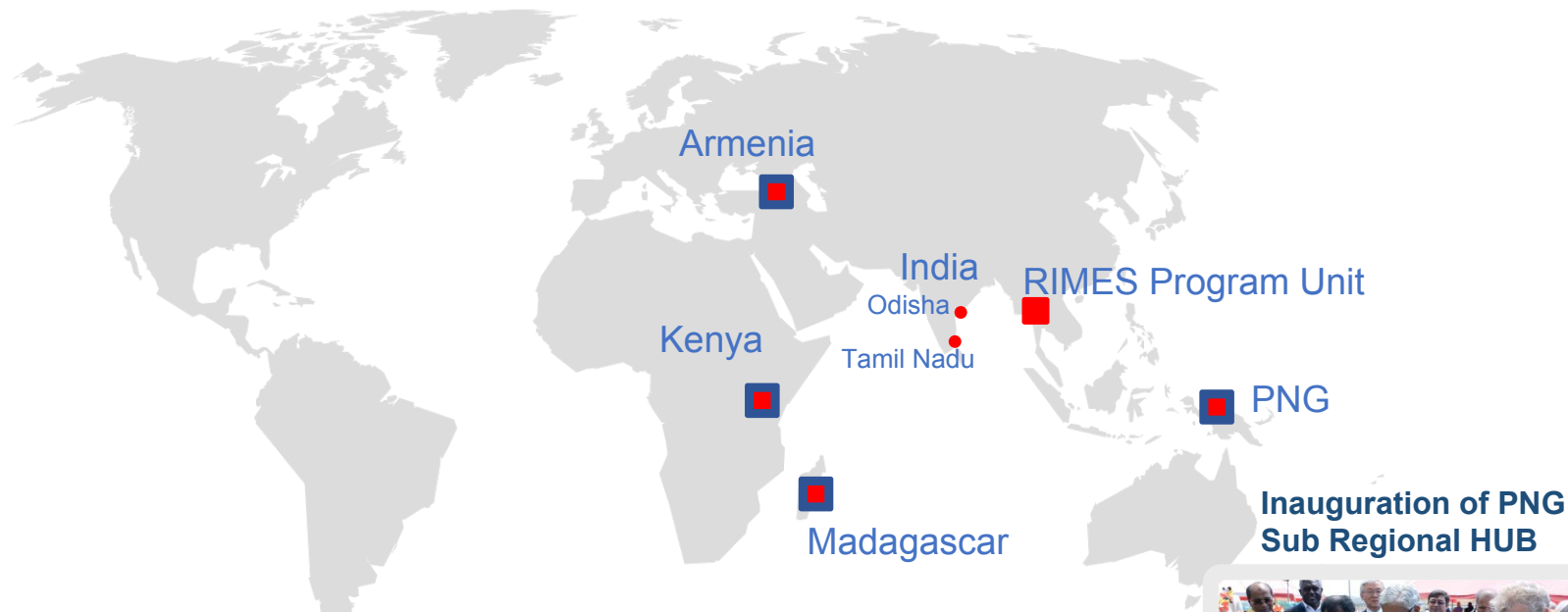consists of regional technical support unit, connected to national and local systems.

# RIMES

❖ Established on 30 April 2009

❖ Registered with the UN under Article 102 of the UN Charter

❖ Intergovernmental, owned and managed by its Member States

- **21 member states, 27 collaborating countries**

- **India as RIMES Council Chair**

- **Maldives as Secretariat**

# Regional Services



Armenia

India
Odisha
Tamil Nadu

RIMES Program Unit

Kenya

PNG

Madagascar

**Inauguration of PNG Sub Regional HUB**



**Papua New Guinea, Armenia and Kenya** – Sub-regional hub
**Sri Lanka** - Thematic hub for plantation sector
**Madagascar** - Center of Excellence for Climate Applications (CoECA)

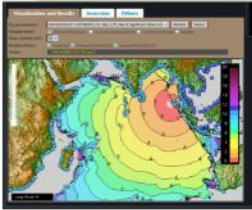**India – Tamil Nadu and Odisha** - Onsite Support for Disaster Management Agency
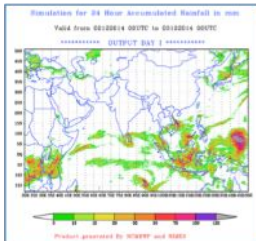
# Portfolio of Services



**Observation and monitoring**
- Establishment and maintenance of seismic, tide level, weather and water level observatories



**24 X 7 operational support**
- Earthquake monitoring, tsunami forecasting, extreme weather forecasting, flood forecasting



**Weather and Climate**
- Seamless integration of climate forecast at various time scales 3days, 10 days, Monthly, Seasonal, Decade to Centuries.

# Portfolio of Services

## Sector Specific Tools
- Decision Support System for translating forecast into potential impacts

| SESAME | CRISH | SMART | OSFAS |
|---|---|---|---|
| • MYANMAR<br>• INDIA<br>• SRILANKA<br>• BANGLADESH<br>• BHUTAN<br>• CAMBODIA | • INDIA | • INDIA<br>• MYANMAR<br>• PNG | • SEYCHELLES<br>• MALDIVES<br>• SRILANKA |

| FloCAST | CDAAS |
|---|---|
| • BANGLADESH<br>• MYANMAR<br>• SRI LANKA<br>• NEPAL<br>• BHUTAN | • PAKISTAN<br>• MYANMAR<br>• SRI LANKA<br>• MALDIVES<br>• MADAGASCAR |

# Portfolio of Services



**Forecast provider-user forums**
- Regional Climate Outlook Forum, National Climate Outlook Forum



**Capacity building**
- Secondment scientists, Farmers Agriculture Risk Management School
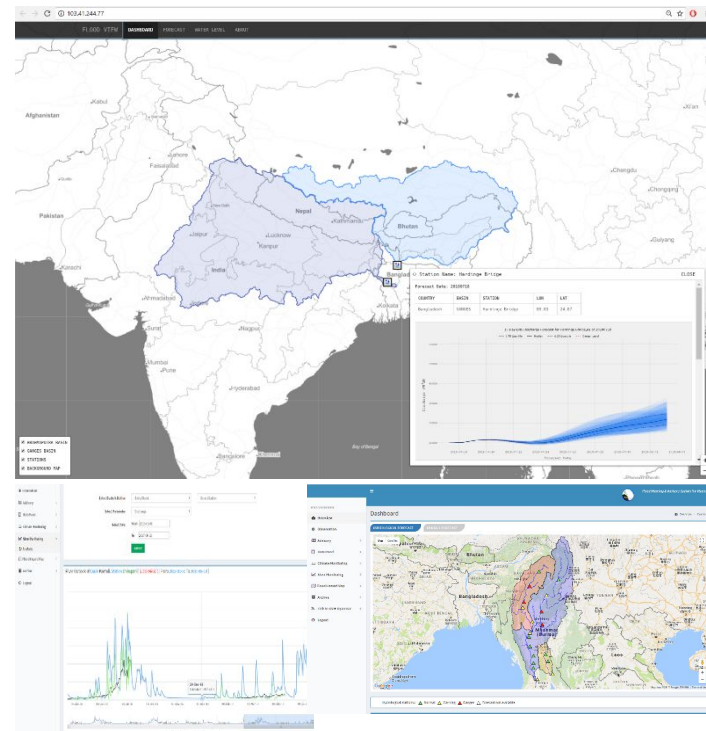
# Sustainable Institutional Mechanism

Building sustainable institutional mechanisms

Global

National

Subnational

NGOs

End users

# Flood Forecasting in South Asia

RIMES supports its participating countries to develop and enhance:

- Medium range (1-15 days) flood forecast
- Flash Flood Guidance System
- Long range (1-3 month) hydrological outlook

# Flood EWS in South Asia

- **Bangladesh** – 15 days flood forecast, flash flood forecast, seasonal flow outlook
- **Bhutan** – 72 hours flood forecast
- **India** – 72 hours flood forecast for Mahanadi basin, Odisha
- **Myanmar** – 72 hours flood forecast
- **Nepal** – 72 hours flood forecast
- **Sri Lanka** – 72 hours flood forecast, reservoir management tool

# TNSMART – DSS Operational in Tamil Nadu

**One-Stop System with 11 modules encompassing all elements of Disaster Management Cycle**

## Preparedness

- Database
- Thresholds
- Hazard Forecast
- Impact Forecast
- Advisory
- Risk communication

## Response

- Emergency call Registry
- Response planning
- Response Tracking

## Recovery and Mitigation
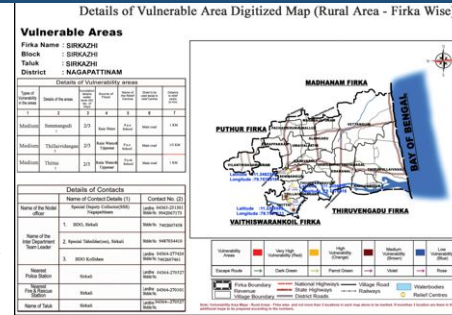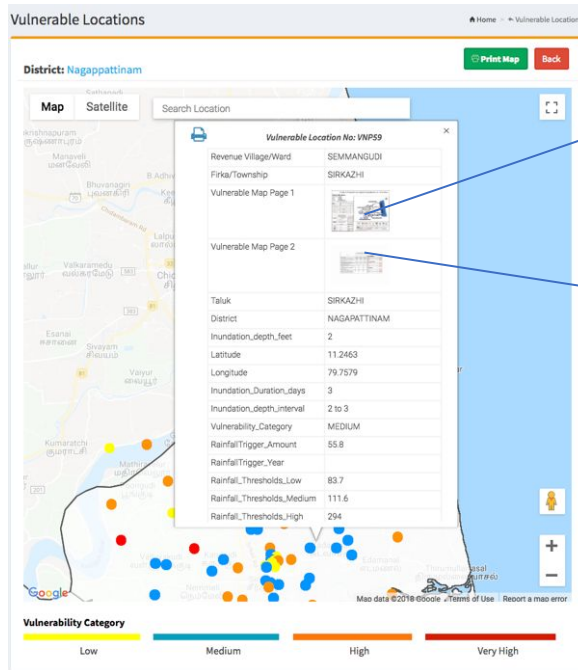
- Tracking Risk Reduction
- Performance Audit

# Highlight of TNSMART
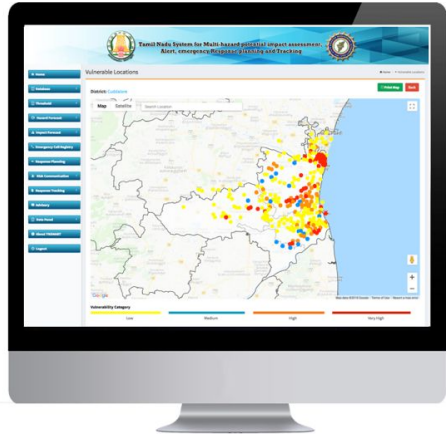


- Digital transformation, integrated platform, mobility of the system by making use of cutting edge technologies

- One-stop database for understanding past, monitoring present and predicting future

- Translating generic forecast to actionable early warning information

- Communicating location specific and user-specific forecast-based risk to more than 2,00,000 users.

- Forecast based response planning for minimizing the losses

- Tracking DRR activities and guiding policy decisions

# Understanding Risk



- **Details of**
  - **Relief Centers**
  - **Evacuation route**
  - **Phone numbers of nodal officers**
  - **Phone numbers of first responders**
- **Source of flooding**
- **Past history of vulnerability**

# Forecasting Risk using dynamic data

**TNSMART uses 3 parameters to predict flood level in vulnerable areas.**

- rainfall forecast
- rainfall received during Northeast Monsoon season,
- Water level in the reservoir and tanks



4 fold class
Flood Vulnerability

Very High >5'
High  3-5'
Medium 2-3'
Low  <2'
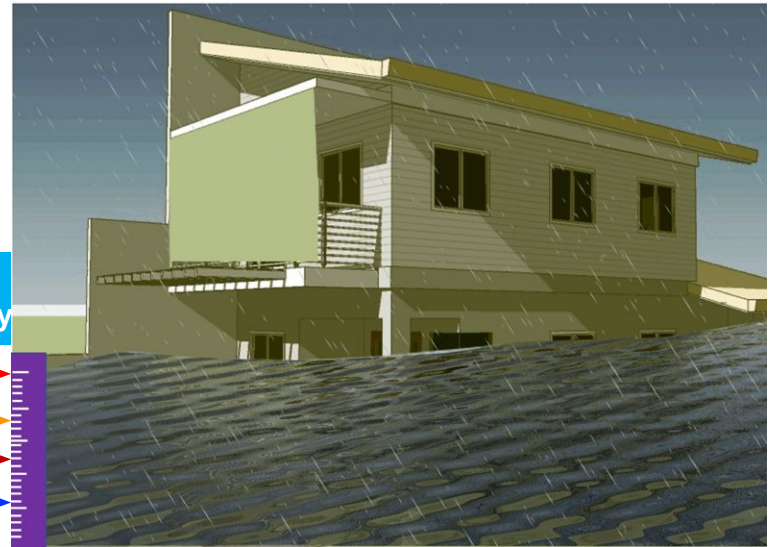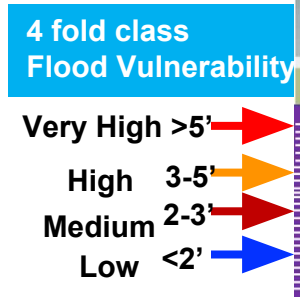
# Communicating Risk

**Risk communication** - **Communicate risk through email, SMS, App message with alarm, social media and website**
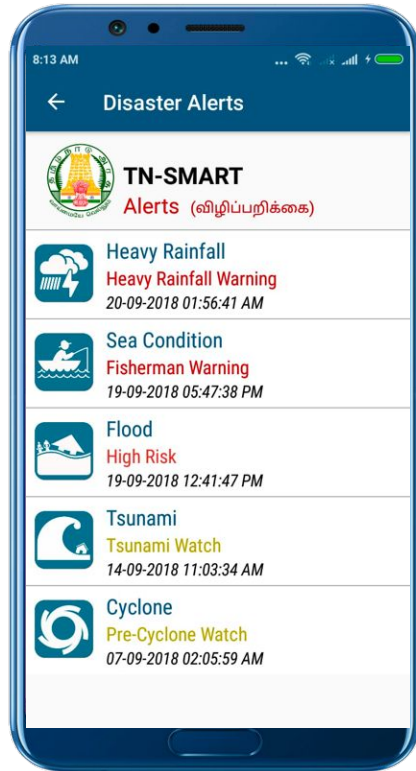


- 200,274 registered users of TNSMART App

| Public | 128772 |
|---|---:|
| First Responders | 11762 |
| Interdepartmental Team | 26771 |
| Nodal Officers | 2716 |
| Administrator State | 1417 |
| Administrator District | 4390 |
| Administrator Division | 1521 |
| Administrator Taluk | 5051 |
| Administrator Firka | 1853 |
| Administrator Village | 15087 |
| Media | 934 |
|  | **200274** |

# Distress Call/Message Registry and Tracking
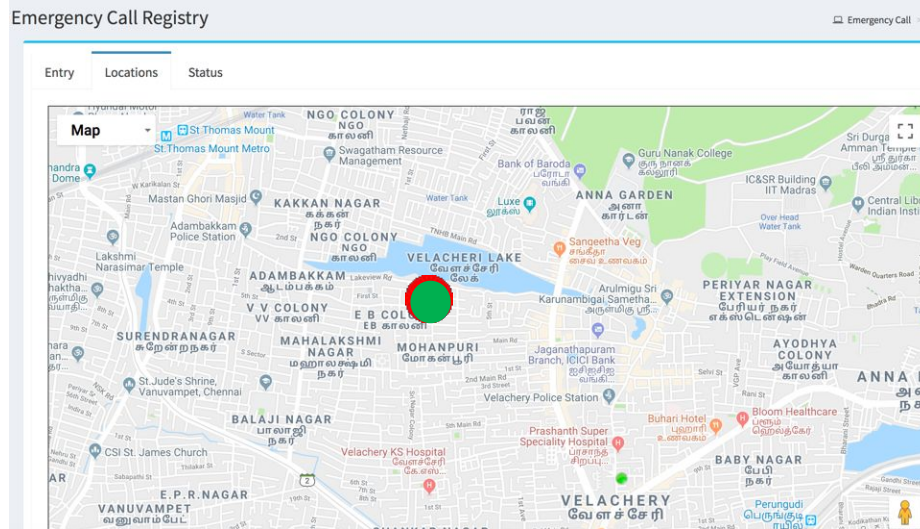


**Distress call/message registered**

**Information forwarded to concerned officer for necessary action**

**Action taken**

**RIMES On-site Office Support** → Policy Makers / Operational Users (Disaster Managers) / Community (End users)

**Guiding DRR investments & Development planning**

**Minimize losses and build resilience**