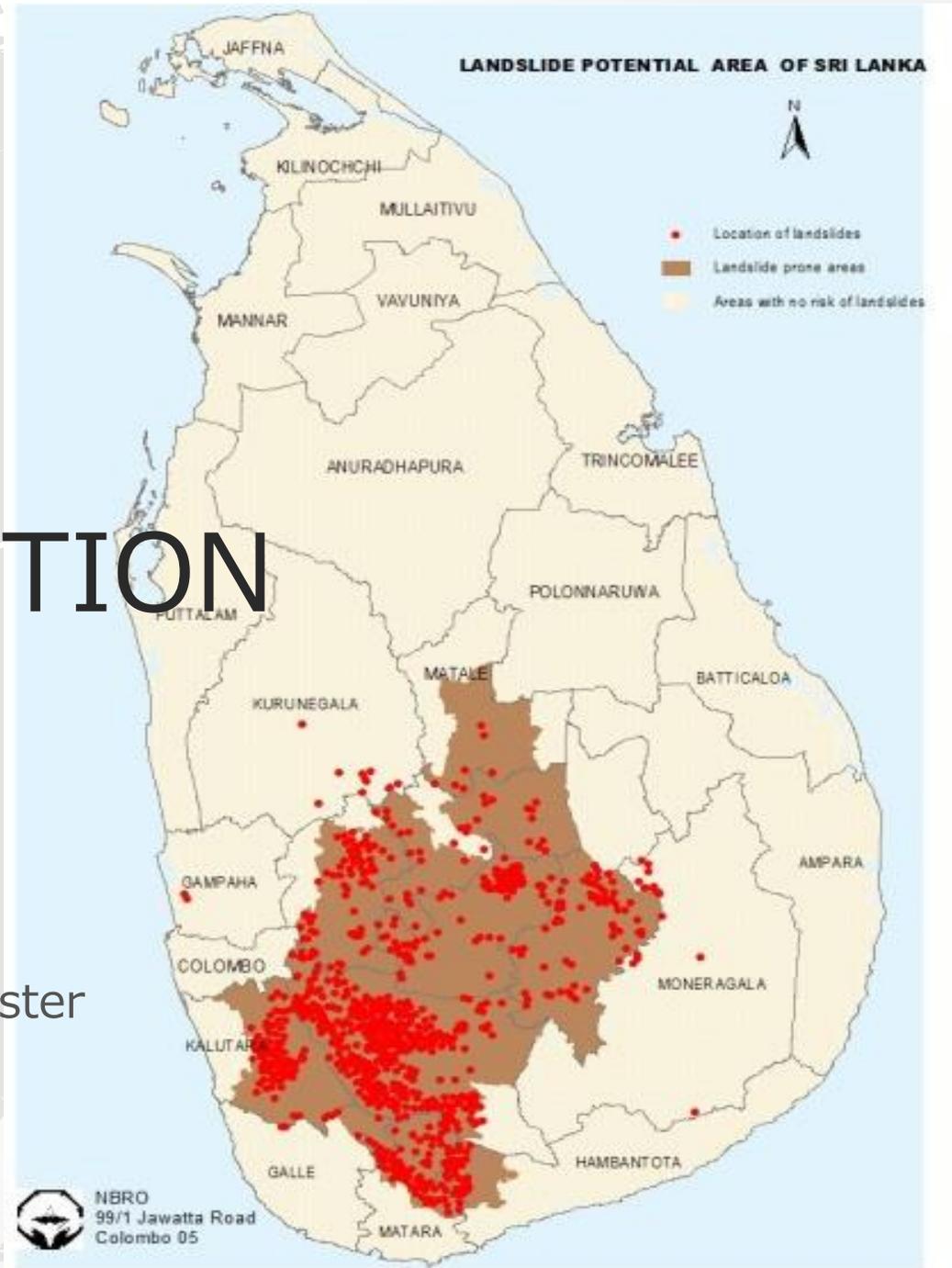


LANDSLIDE RISK REDUCTION IN SRI LANKA

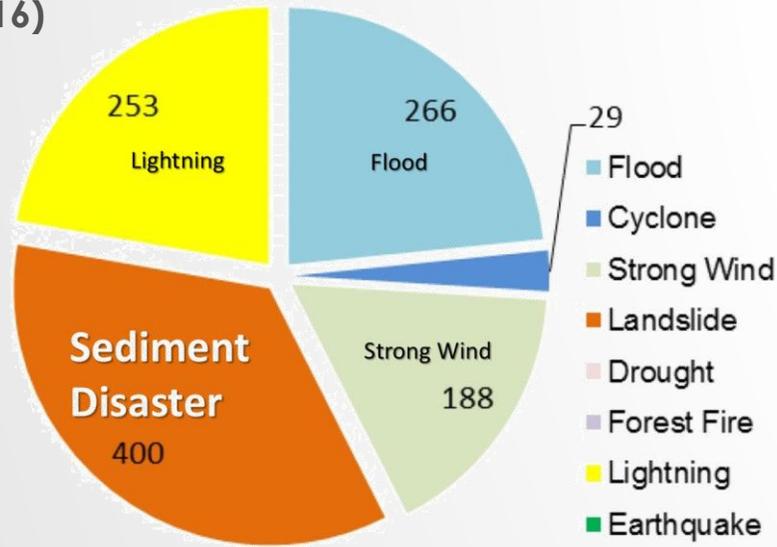
Eng.(Dr.) Asiri Karunawardena
Director General

National Building Research Organization- Ministry of Disaster
Management, Sri Lanka

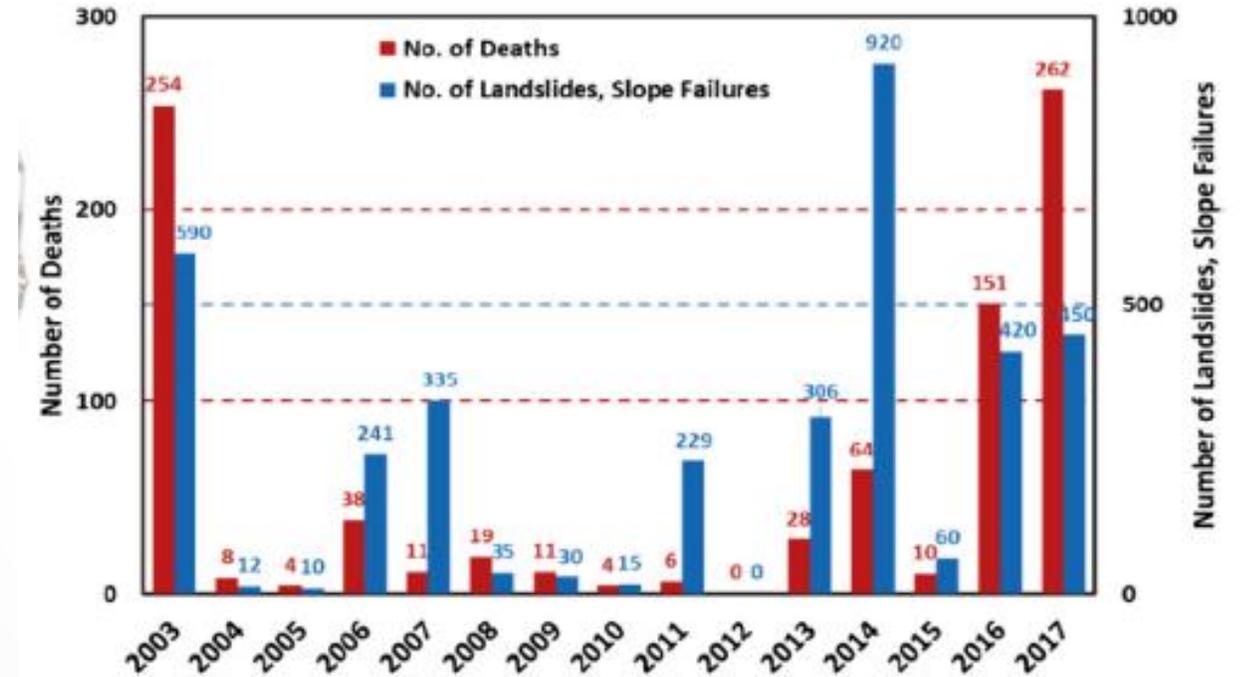


LANDSLIDE SITUATION IN THE COUNTRY

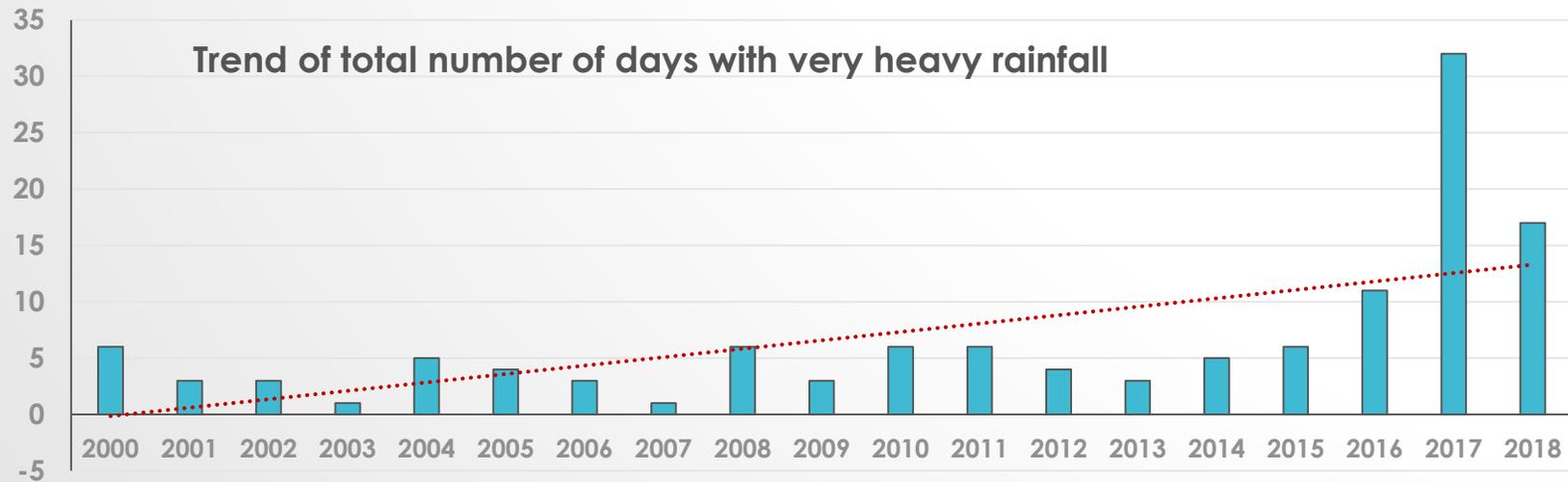
Deaths & Missing by Natural Disasters in 10 years (2007-2016)



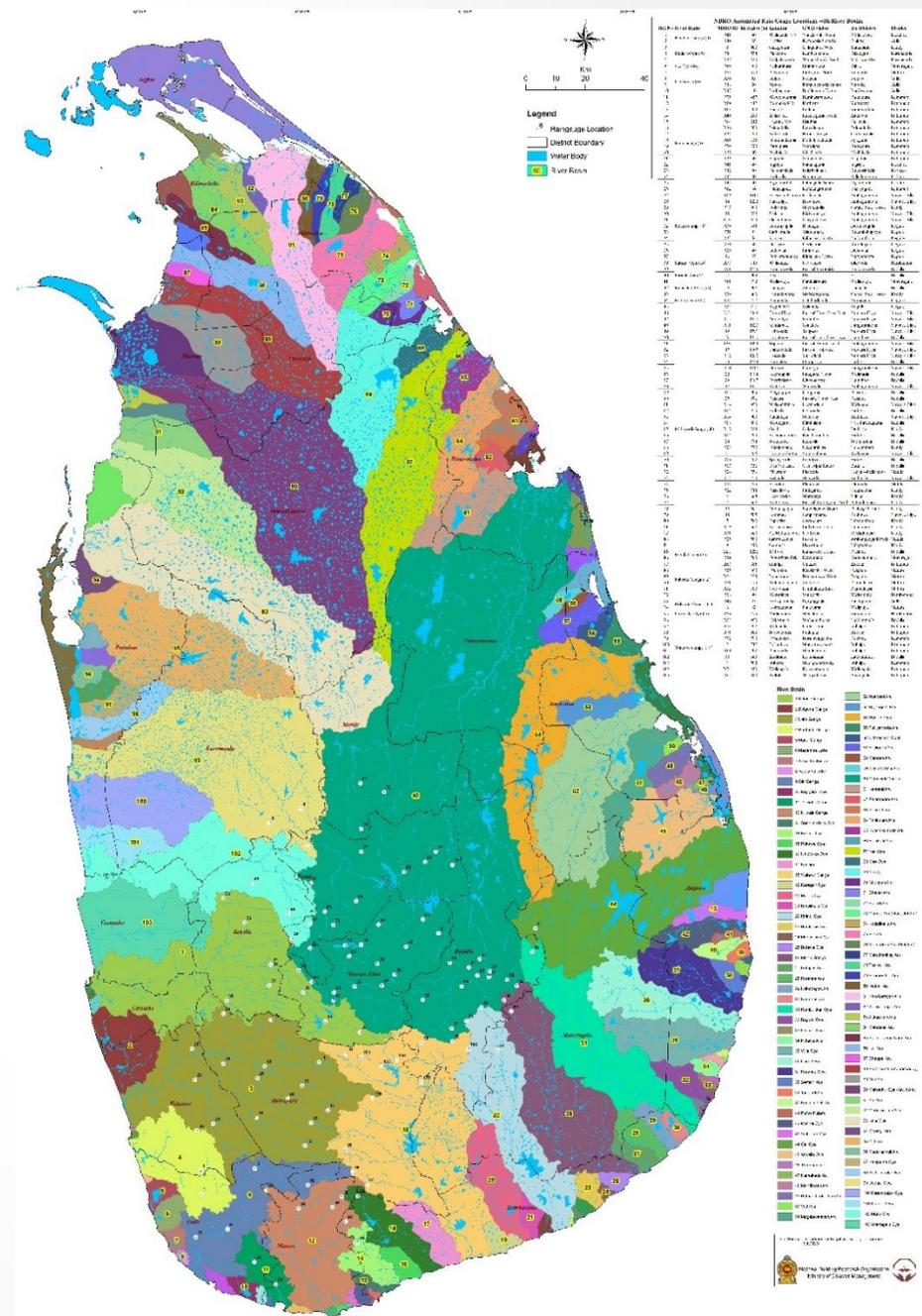
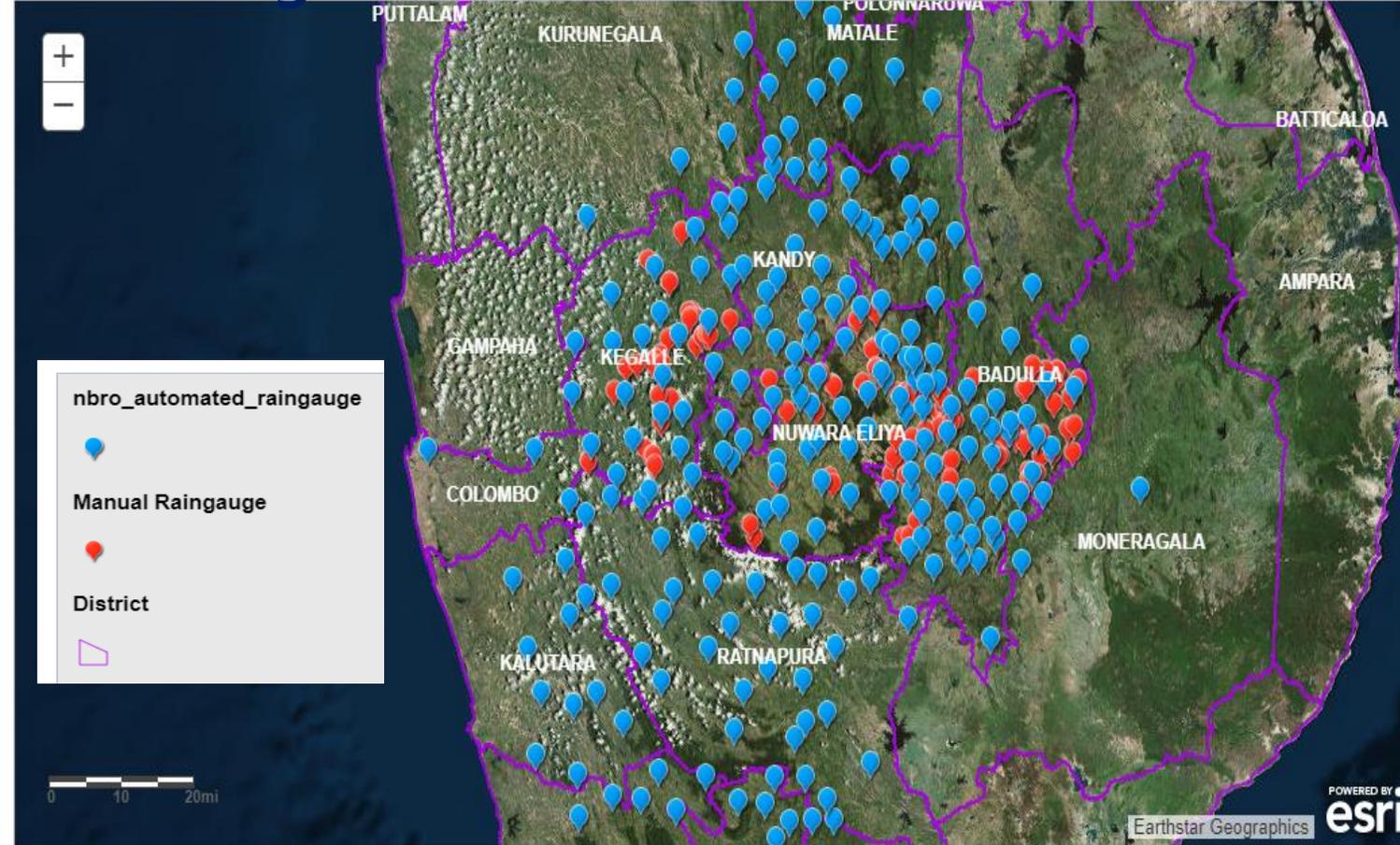
The most victims are from Sediment Disasters



Number of lives lost due to landslides/slope failures : 2000-2017



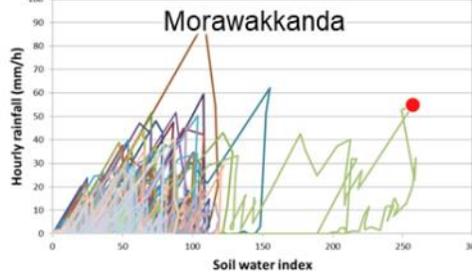
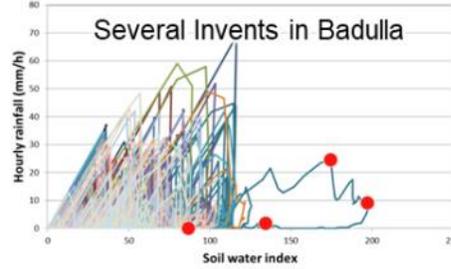
Rain gauge Network for landslide early warning



About 250 Nos of Automated Rain gauges have been installed in catchment area

Landslide Early Warning

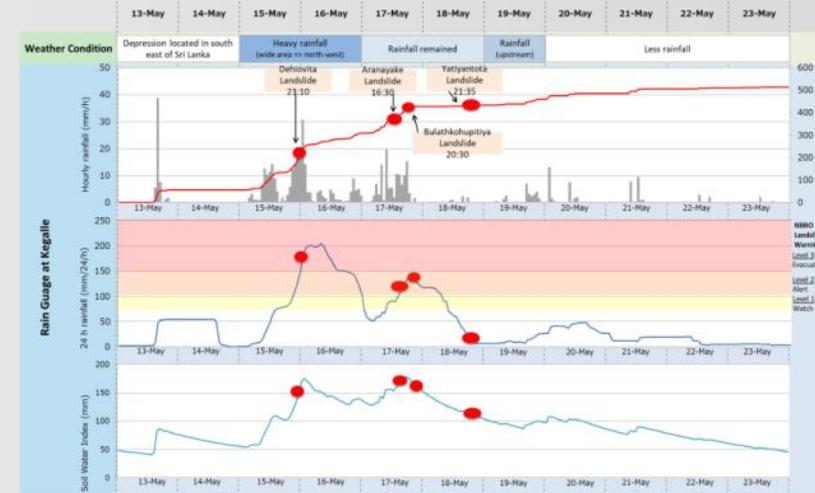
Improvement of Warning Criterial (Rainfall Threshold)



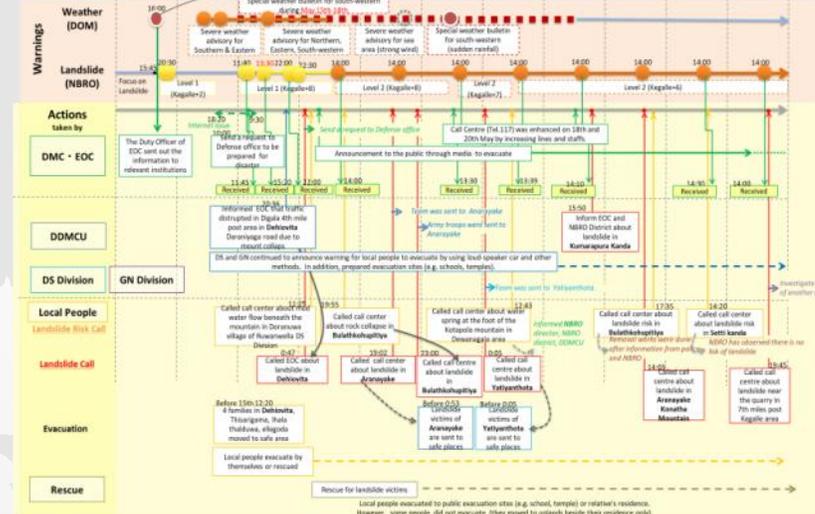
Analysis of rainfall and disaster occurrence

Alert	75 mm/day
Warning	100 mm/day
Evacuation / Off-limit	75 mm/hour or 150 mm/day

Current Warning Criteria (Rainfall Threshold)

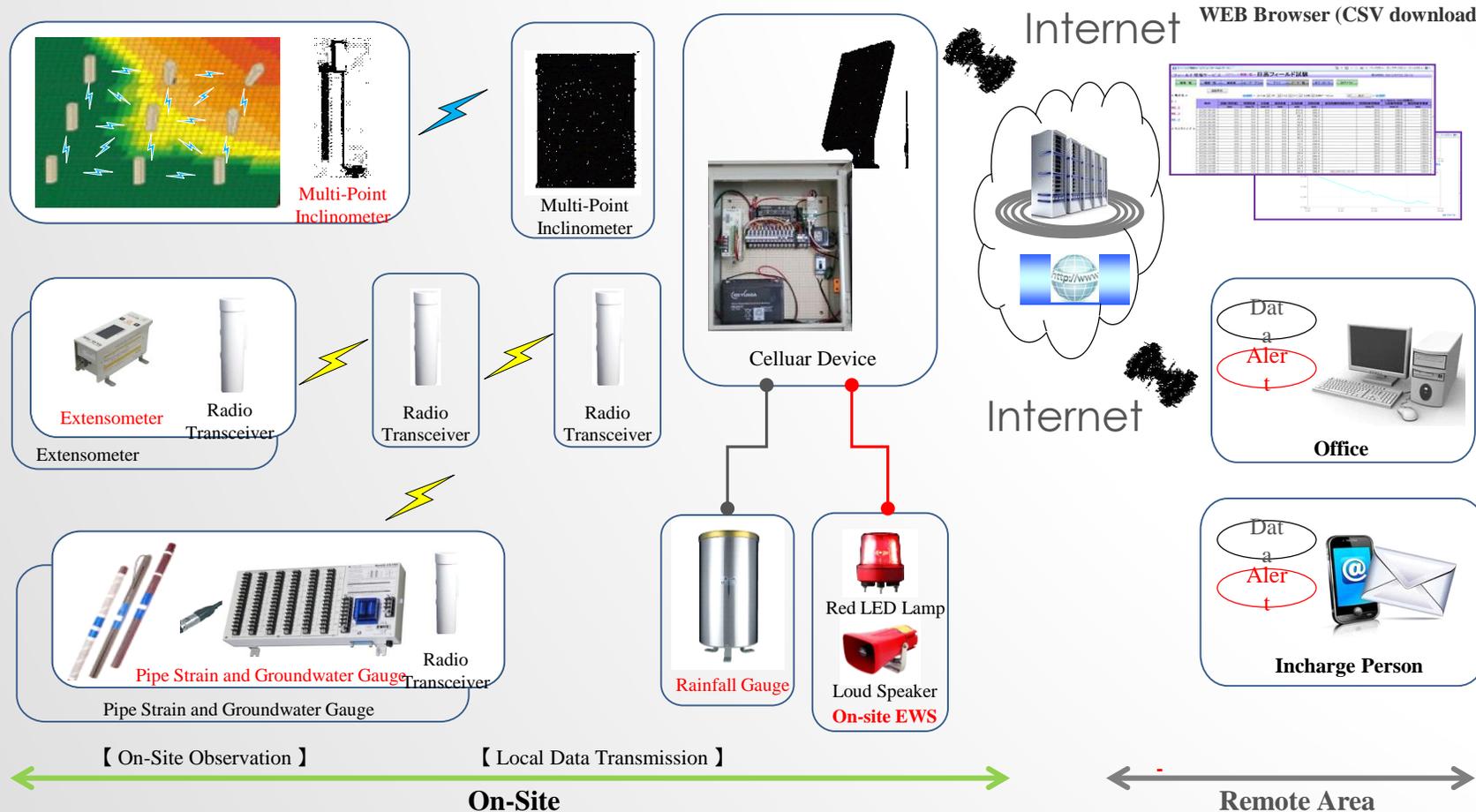


Effective Early Warning Dissemination



Improvement of landslide early warning system – site specific warning

- Development of the Landslide Remote Monitoring System (LRMS) - this is able to transmit on-site monitoring data using a radio communication network.
- Confirmation of landslide deformation based on several monitoring data such as extensometer, rainfall gauge and other instruments.
- determination of the reference value of appropriate landslide early warning in Sri Lanka



Landslide remote monitoring system

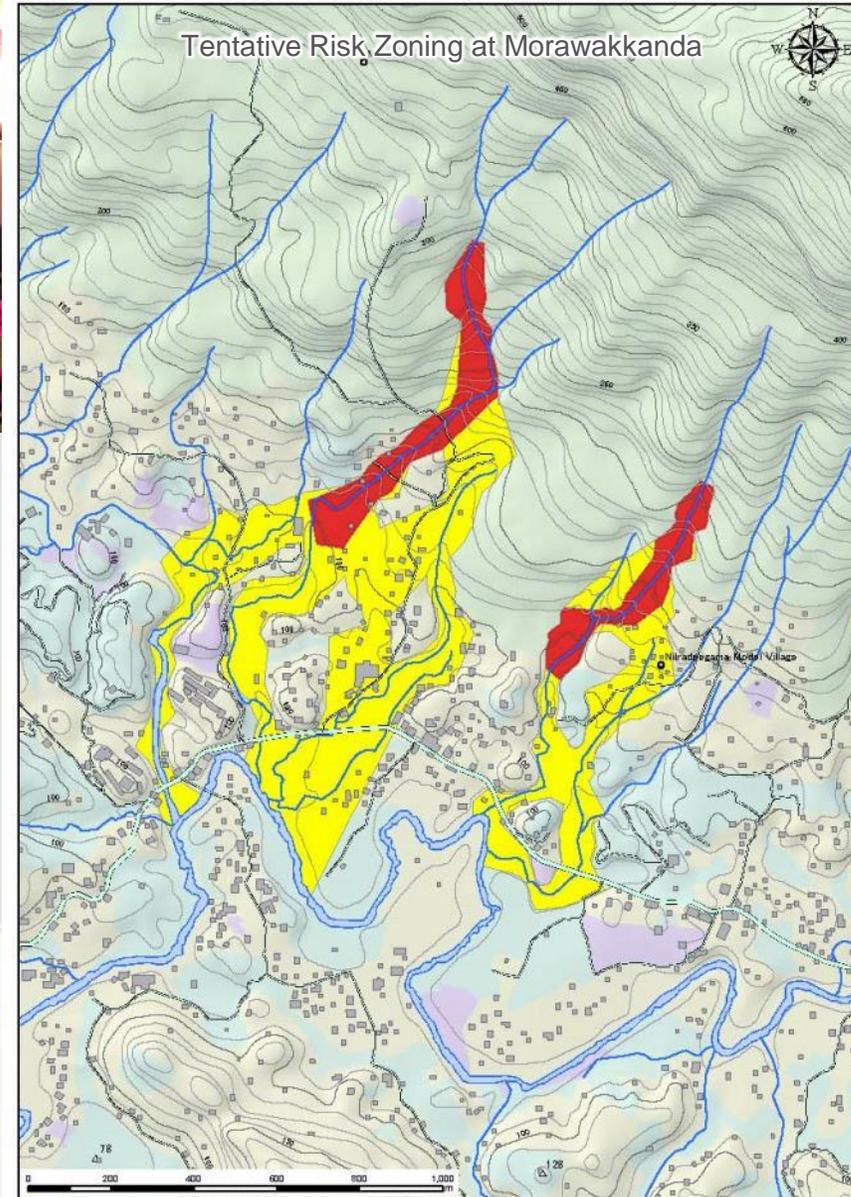
Preparating of Manual for Land Use Regulation / Development Standards



Meeting with Kotapola PS



Meeting with Bulathkohupitya PS





Zoning Guide Plan [Draft]

- **Restricted Zone**
 - Slope >20 Deg.
 - Landslide prone (Cate. 4)
 - Forest zone
- **Protected Zone**
 - Landslide Prone (Cate. 3)
 - Areas near to environmental sensitive areas; 60 m from river center or 5m from river bank
 - Agricultural zones
 - Valley & Stream (5m from the stream bank or Valley ...?)
- **Warning Zone**
 - Landslide Prone (Cate. 2)
 - Flood prone (Warning zone)
- **Development Zone**
 - City/ Village Zone
 - Landslide prone (Cate. 1)

PROPOSAL OF CAPACITY DEVELOPMENT/FUTURE WORK

- Development of Real Time Risk Map for Landslide Disaster (by considering the rain fall, infiltration , soil water characteristic of soil, soil properties and geology)
Saturation of soil in the catchment area will be estimated using Hydrological model → Possibility of using Rainfall- Runoff- Inundation(RRI) model develop by ICHARM will be investigated

STRATEGIC WAY FOR GLOBAL AGENDA

- Sendai Framework for Disaster Risk Reduction 2015-2030
“Priority 1: Understanding disaster risk” through risk assessment and early warning of Landslides
- Contribution to Sustainable Development Goals (SDGs)
Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable.
Goal 13. Take urgent action to combat climate change and its impacts.

Towards a safer Sri Lanka: road map for disaster risk management