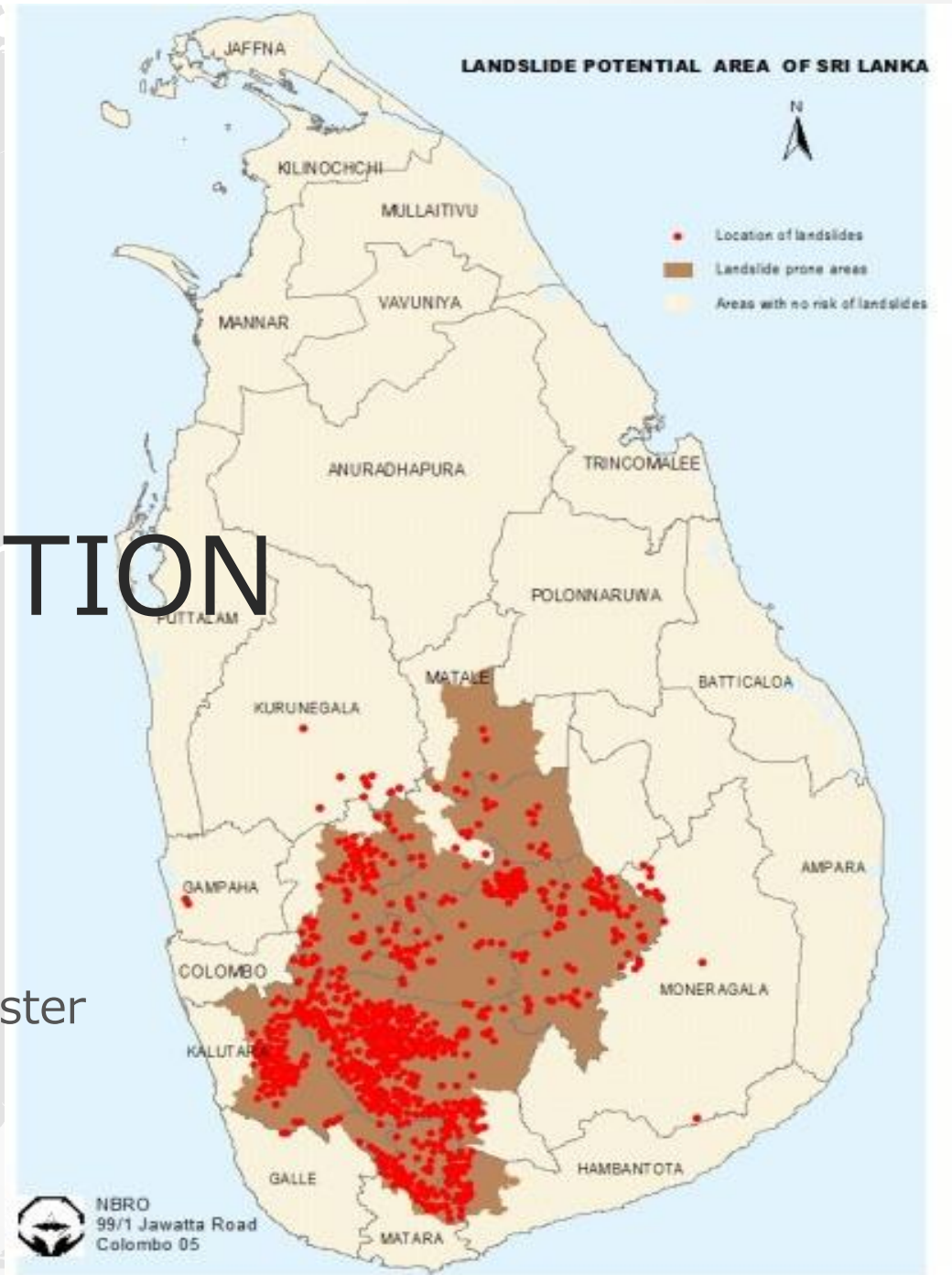


# LANDSLIDE RISK REDUCTION IN SRI LANKA

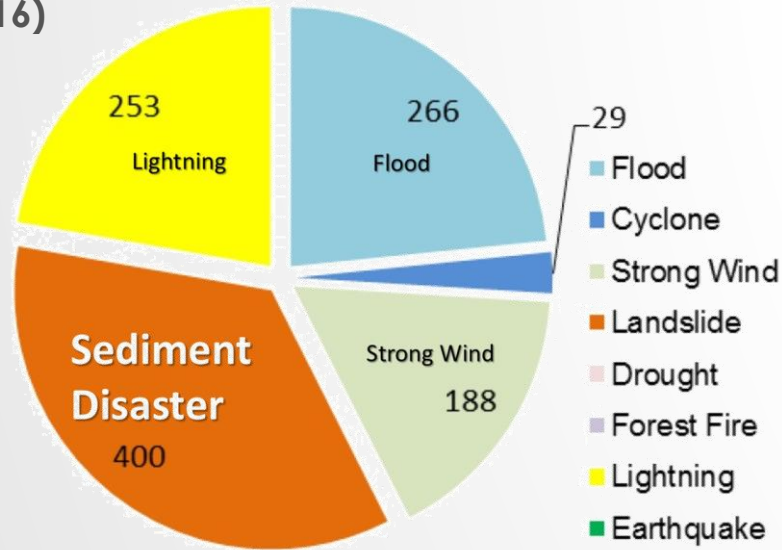
Eng.(Dr.) Asiri Karunawardena  
Director General

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

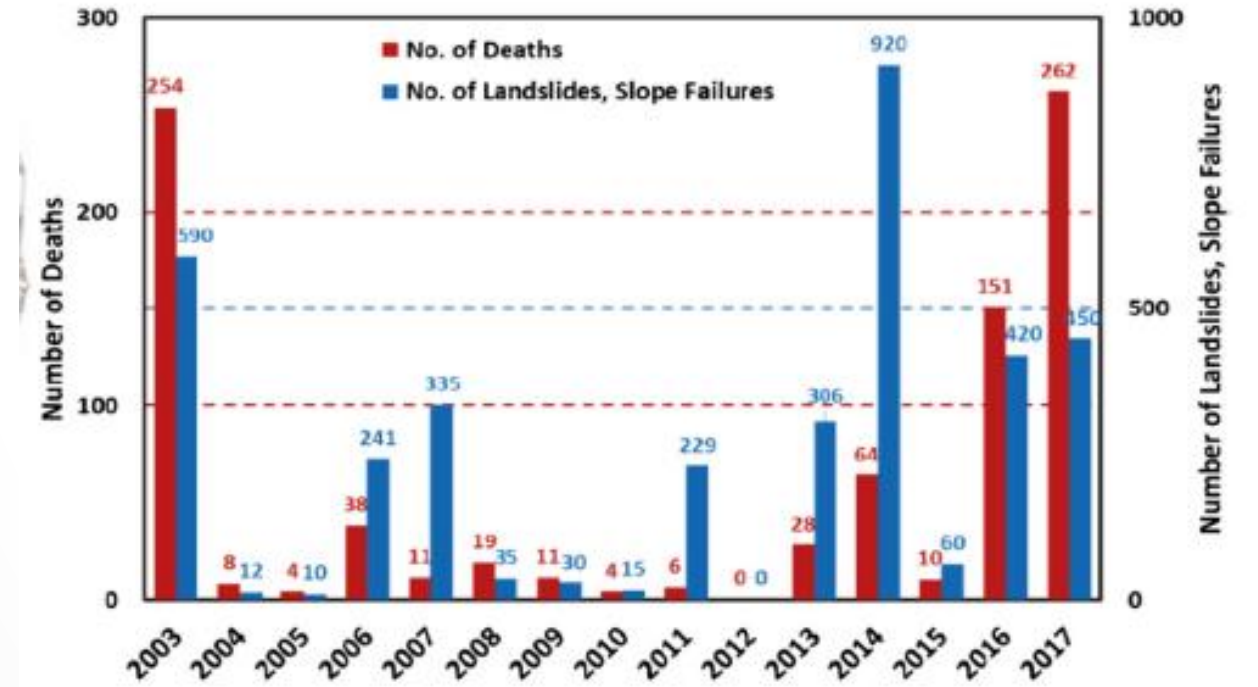


# LANDSLIDE SITUATION IN THE COUNTRY

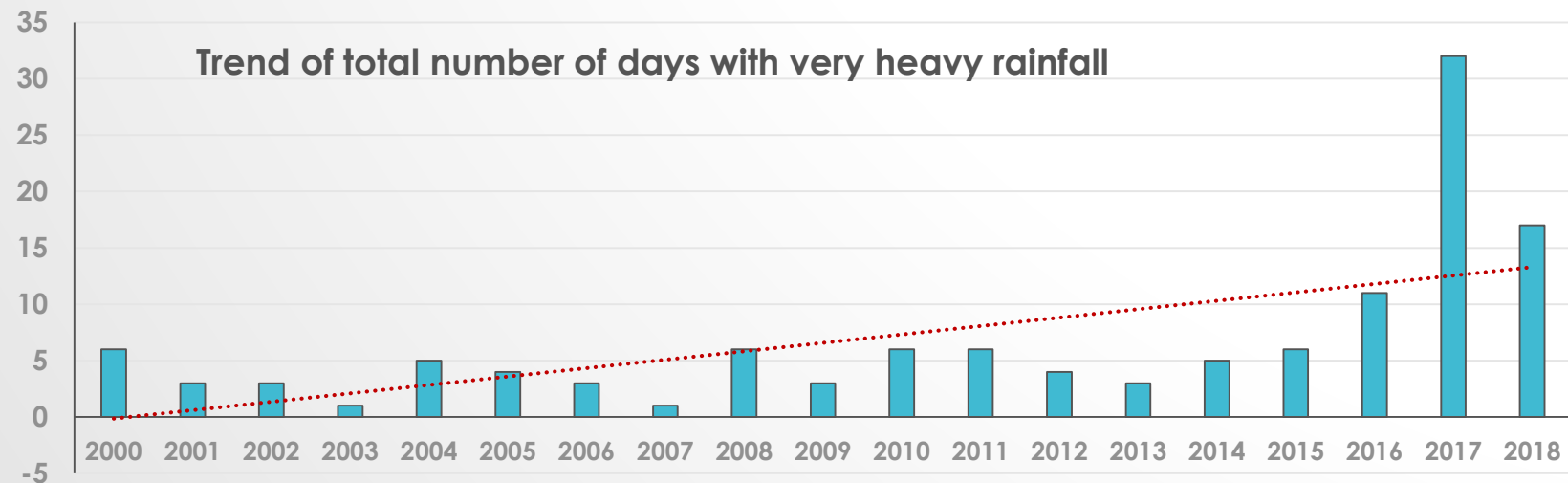
Deaths & Missing by Natural Disasters in 10 years  
(2007-2016)



The most victims are from Sediment Disasters

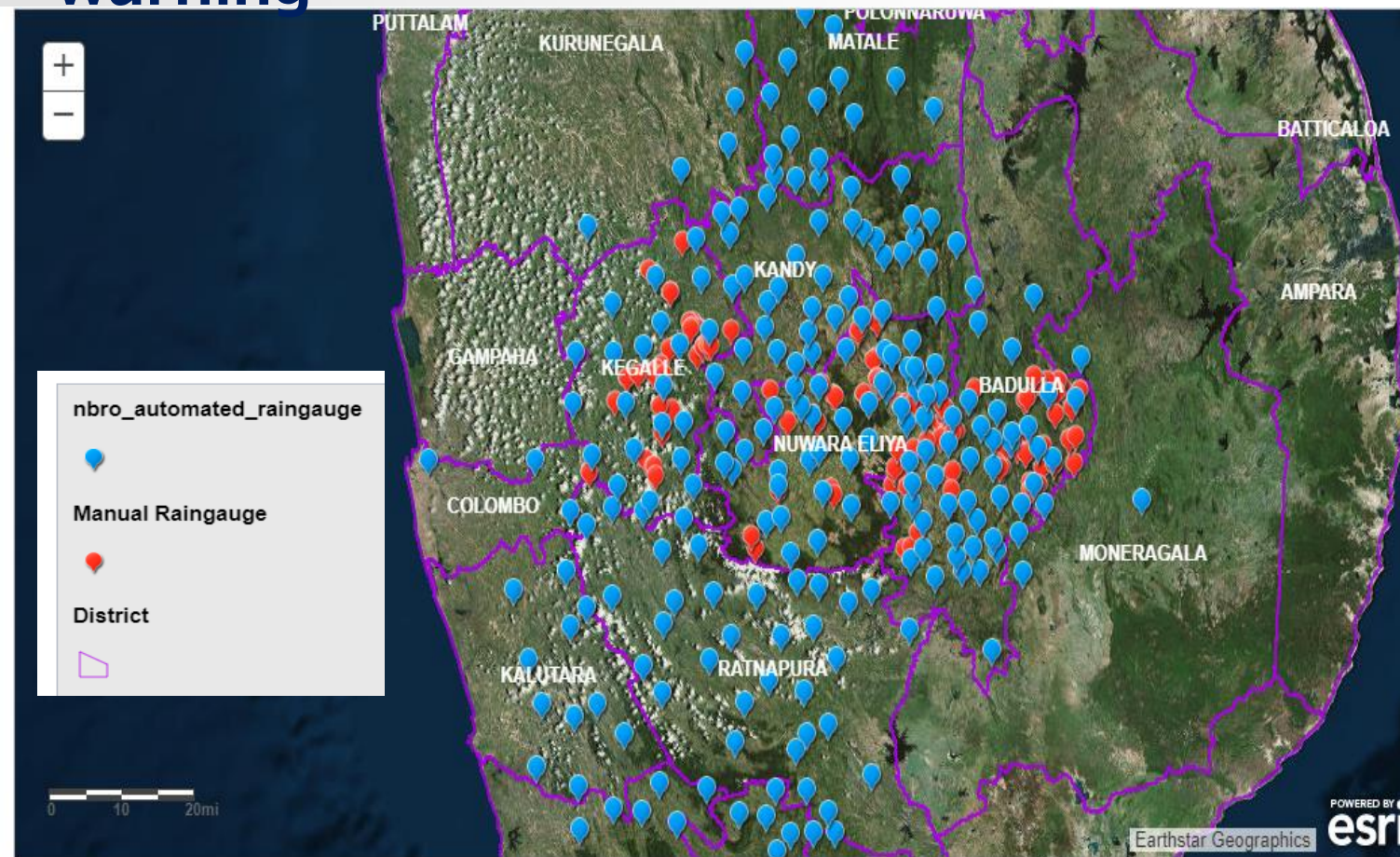


Number of lives lost due to landslides/slope failures : 2000-2017

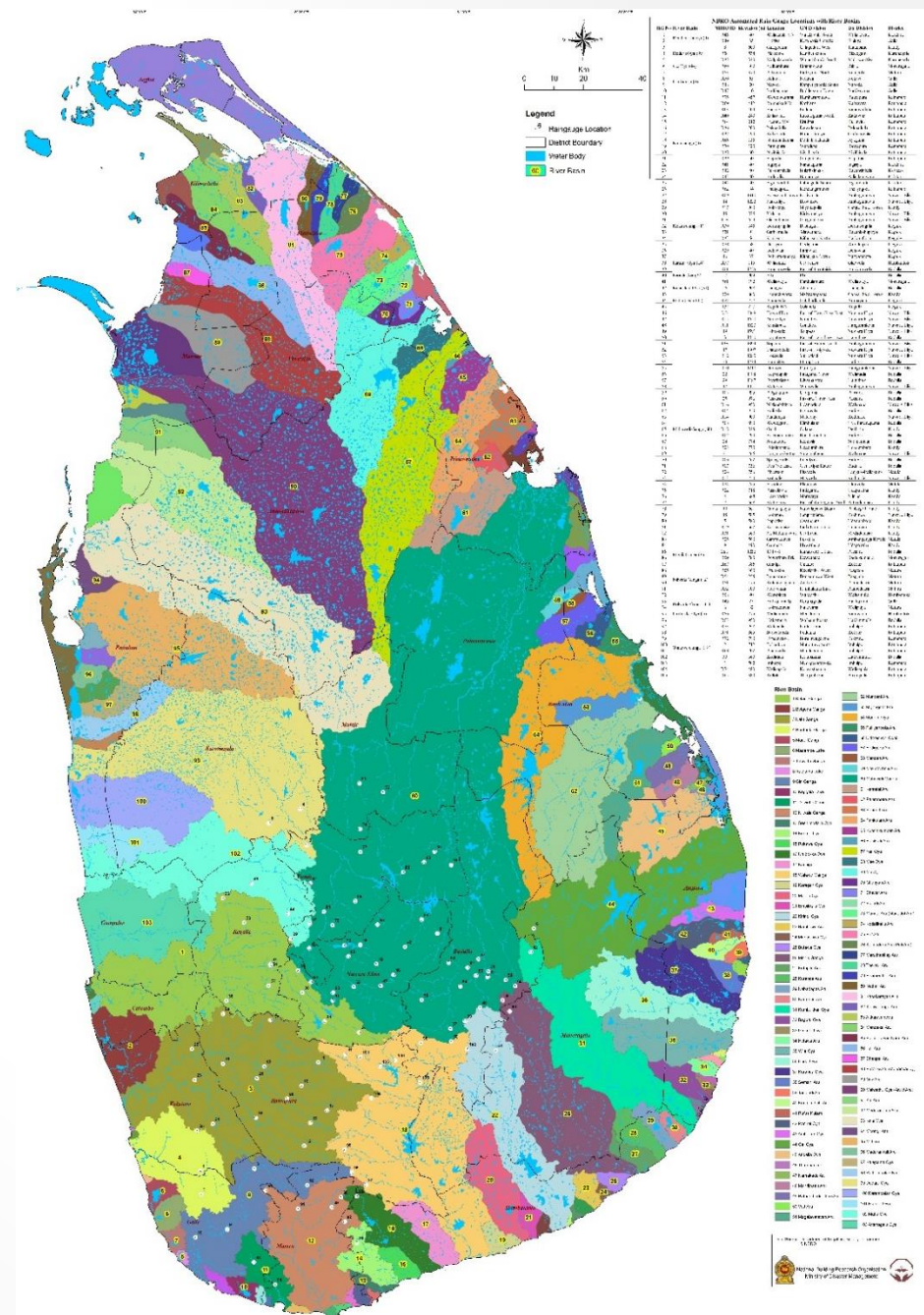




# Rain gauge Network for landslide early warning



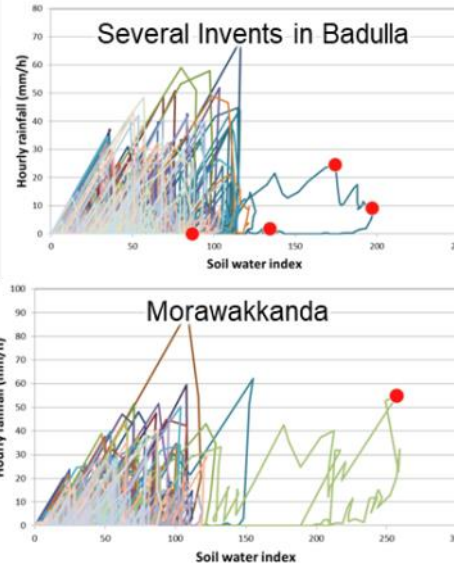
About 250 Nos of Automated Rain gauges have been installed in catchment area





# Landslide Early Warning

## Improvement of Warning Criterial (Rainfall Threshold)

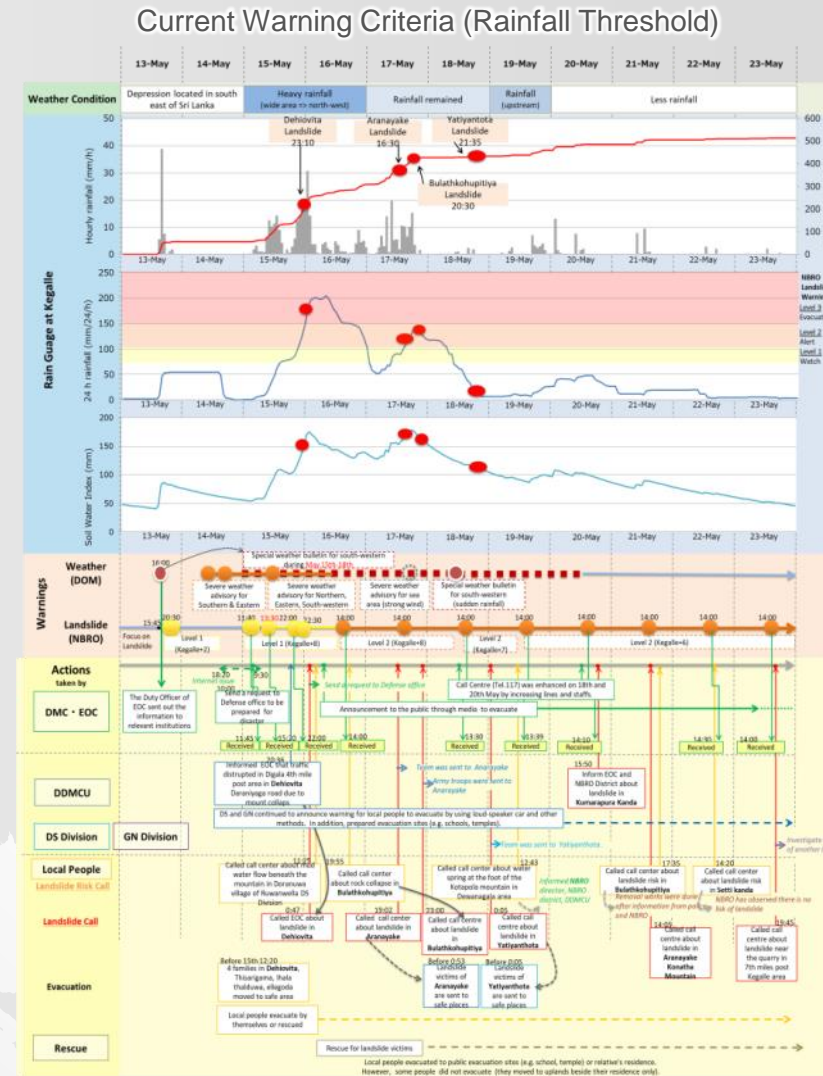


Analysis of rainfall and disaster occurrence

## Effective Early Warning Dissemination

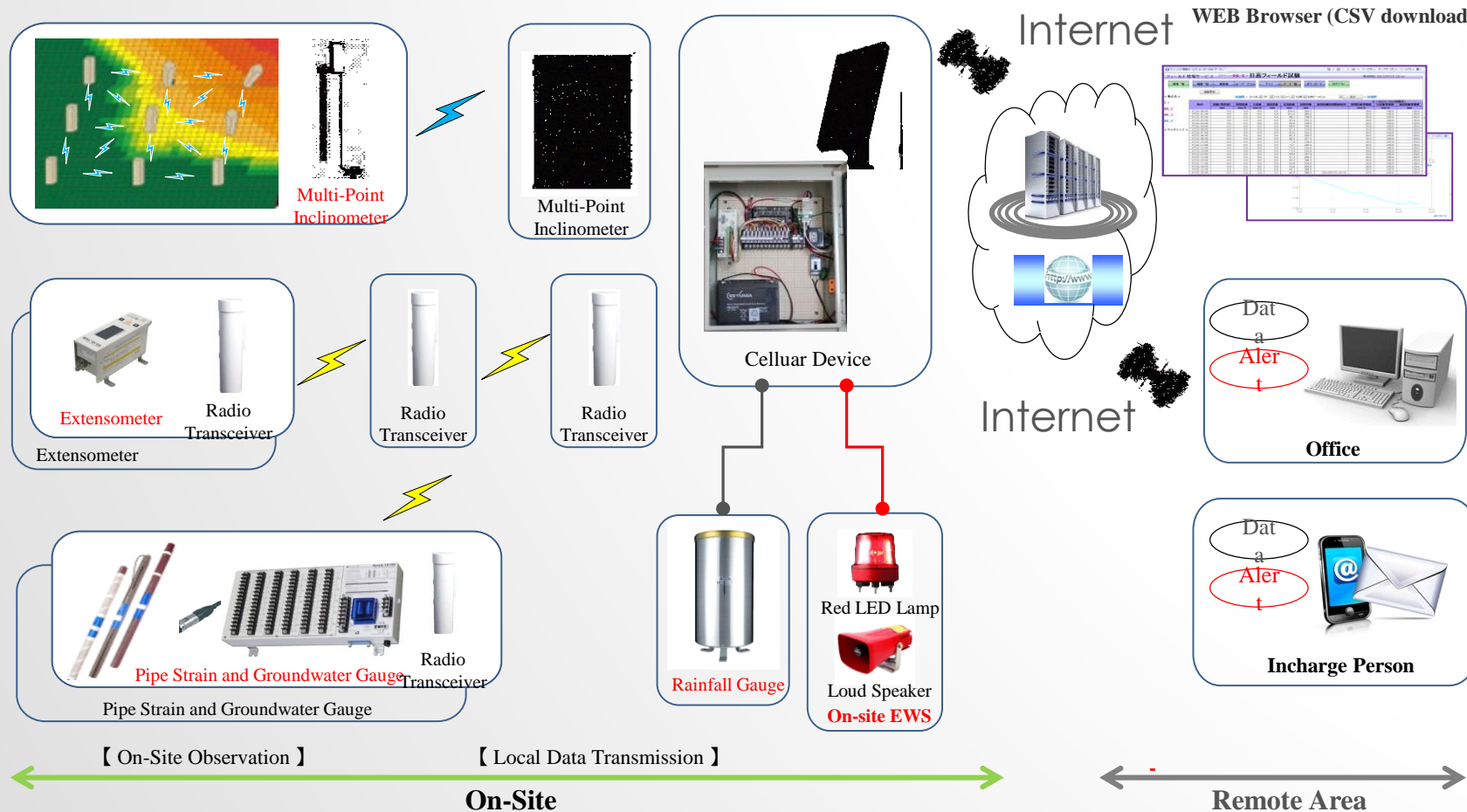


Alert	75 mm/day
Warning	100 mm/day
Evacuation / Off-limit	75 mm/hour or 150 mm/day



# 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



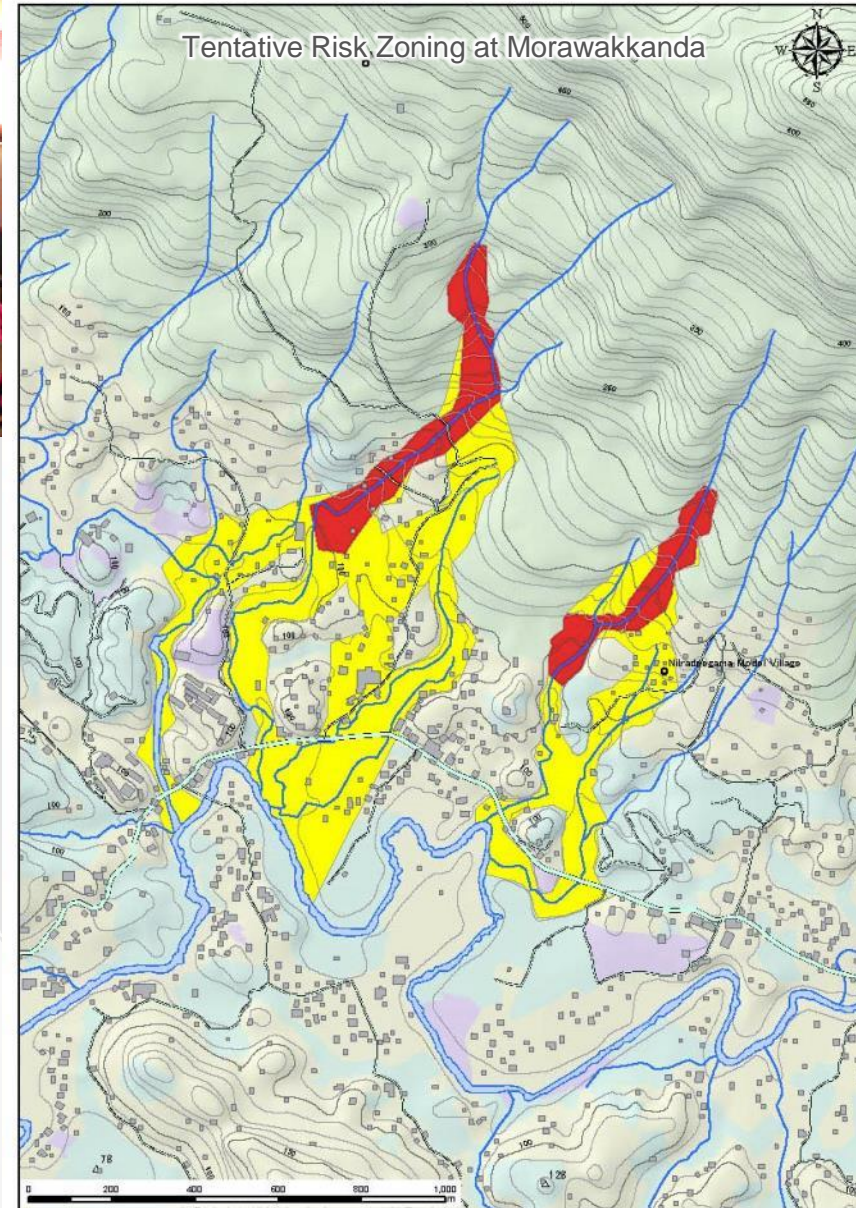
# Preparing of Manual for Land Use Regulation / Development Standards



Meeting with Kotapola PS

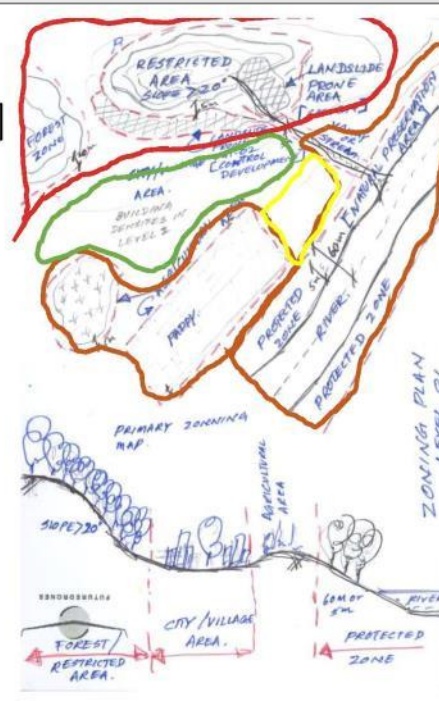


Meeting with Bulathkohupitya PS



## 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**