InterMet 6: Warning, Response & Recovery

Multi-hazard Early Warning System Initiatives in Indonesia

Dyah Rusmiasih, Head of Monitoring and Warning Section, Indonesia National Disaster Management Authority (BNPB)

Multi Hazard Early Warning Systems (MHEWS) Initiatives in Indonesia

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National Disaster Management Authority of Indonesia (BNPB)

Background

Population 237.641.326
(Population census, 2010)

127 Volcanoes
13.466 Islands
99.093 km Coastline

Rank 61 among the 191 most disaster prone countries in the world

Indonesia is located in **a disaster prone area** due to its geographical, geological, and demographic conditions

The percentage of population threatened by hazard:

- 96% Extreme climate
- 89% Drought
- 40% Flood
- 34% Earthquake

Disasters in Indonesia (The Law 24/2007 about Disaster Management, Chapter I: General Requirements, section 1)

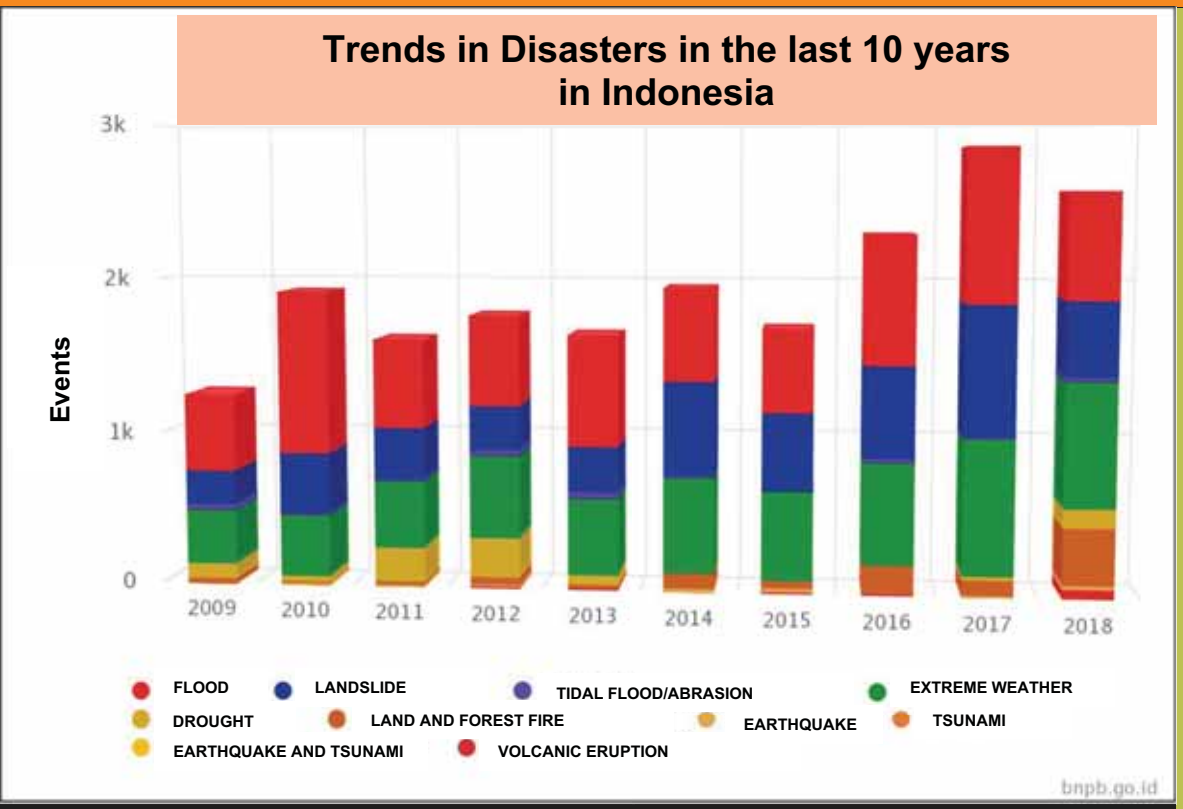
- **Natural Disasters**
  (1) earthquake, (2) tsunami, (3) volcano eruption, (4) flood, (5) drought, (6) extreme weather, (7) landslide/land movement

- **Un-Natural Disasters**
  (8) technology failure, (9) land and forest fire, (10) epidemics, (11) disease

- **Social Disasters**
  (12) social conflict among groups or communities
  (13) terrorism

"predictions are not useful, however, unless they are translated into a warning and action plan the public can understand and unless the information reaches the public in a timely manner" **(Glantz, 2003)**

Key Issues



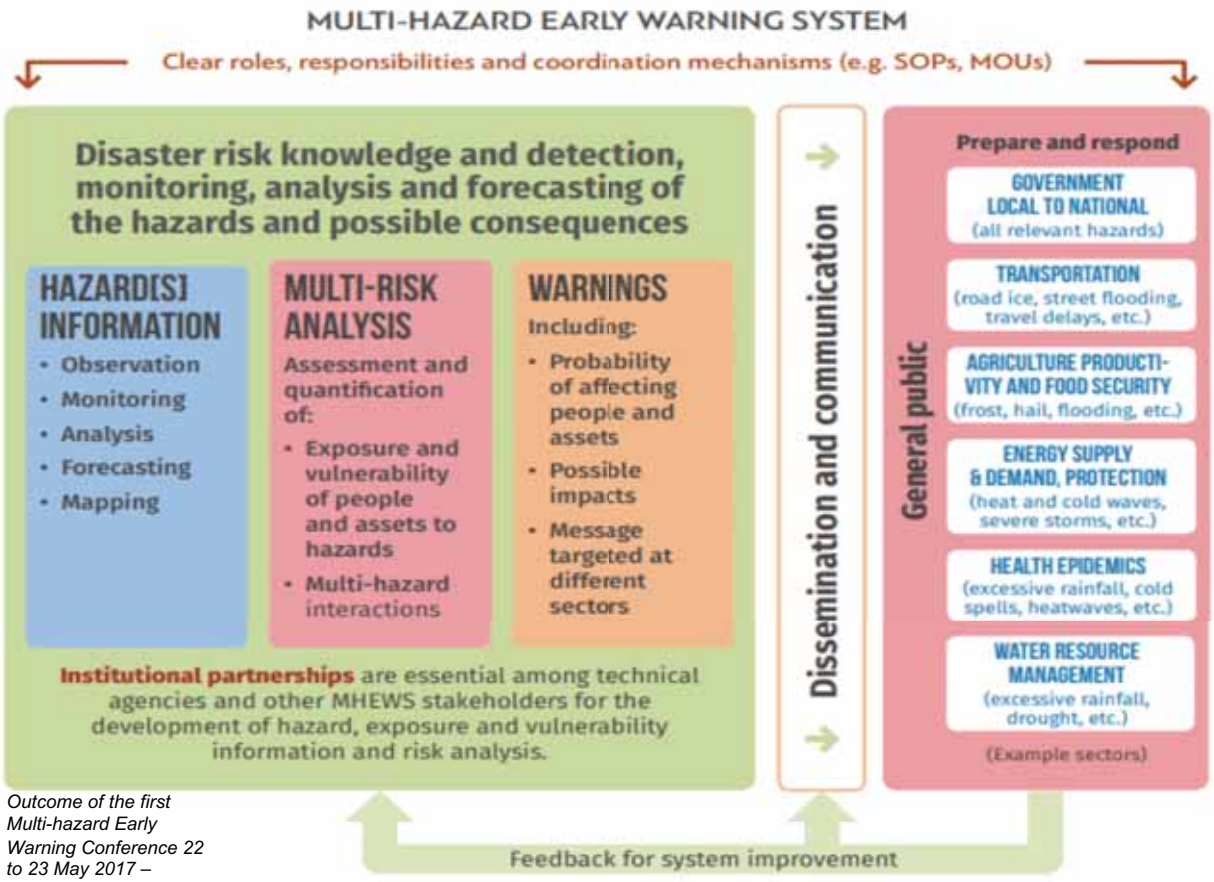
MHEWS is one of the KEY COMPONENT to increase disaster resilience of communities

- The number of natural disasters has been increasing during the last 10 years.
- 2572 disasters occurred in 2018
  - 4,814 died
  - 21,083 injured
  - 10,333,309 affected and displacement
  - 322,864 houses damaged
- Disasters cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, and environmental damage.

The Challenges

1) Integrated and inclusive early warning platform not yet available.
2) Coordination between 26 Ministries/Agencies involved in disaster management has not yet fully synergized.
3) Hazard data is spread in various Ministries/Agencies.
4) Early warning systems have not yet reached all disaster-prone area.
5) The mechanism of current EWS is not optimal yet.
6) Lack of public awareness of disaster risk.

Schematic of a multi-hazard early warning systems



Outcome of the first Multi-hazard Early Warning Conference 22 to 23 May 2017 – Cancún, Mexico

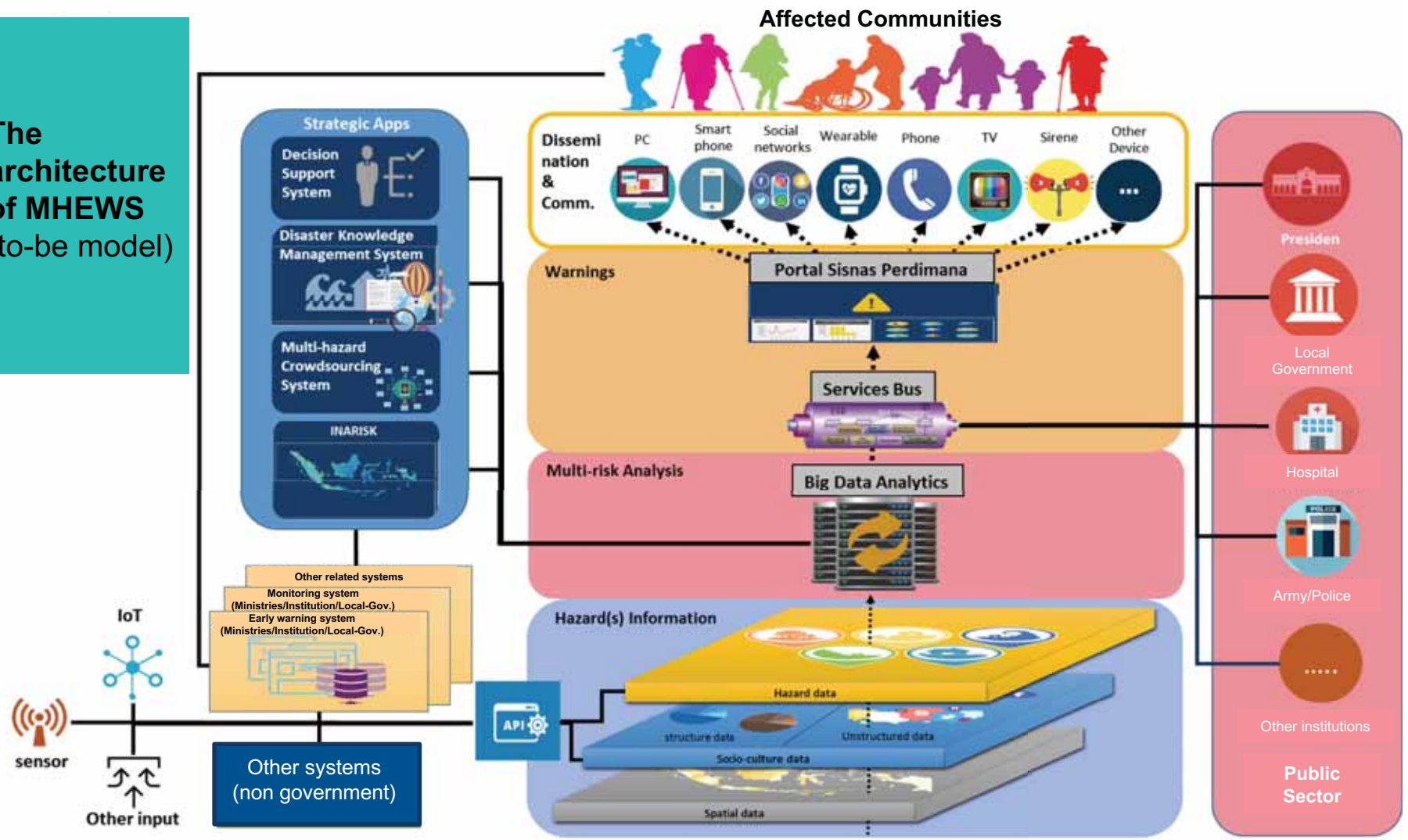
End-to-end, people-centered multi-hazard early warning systems

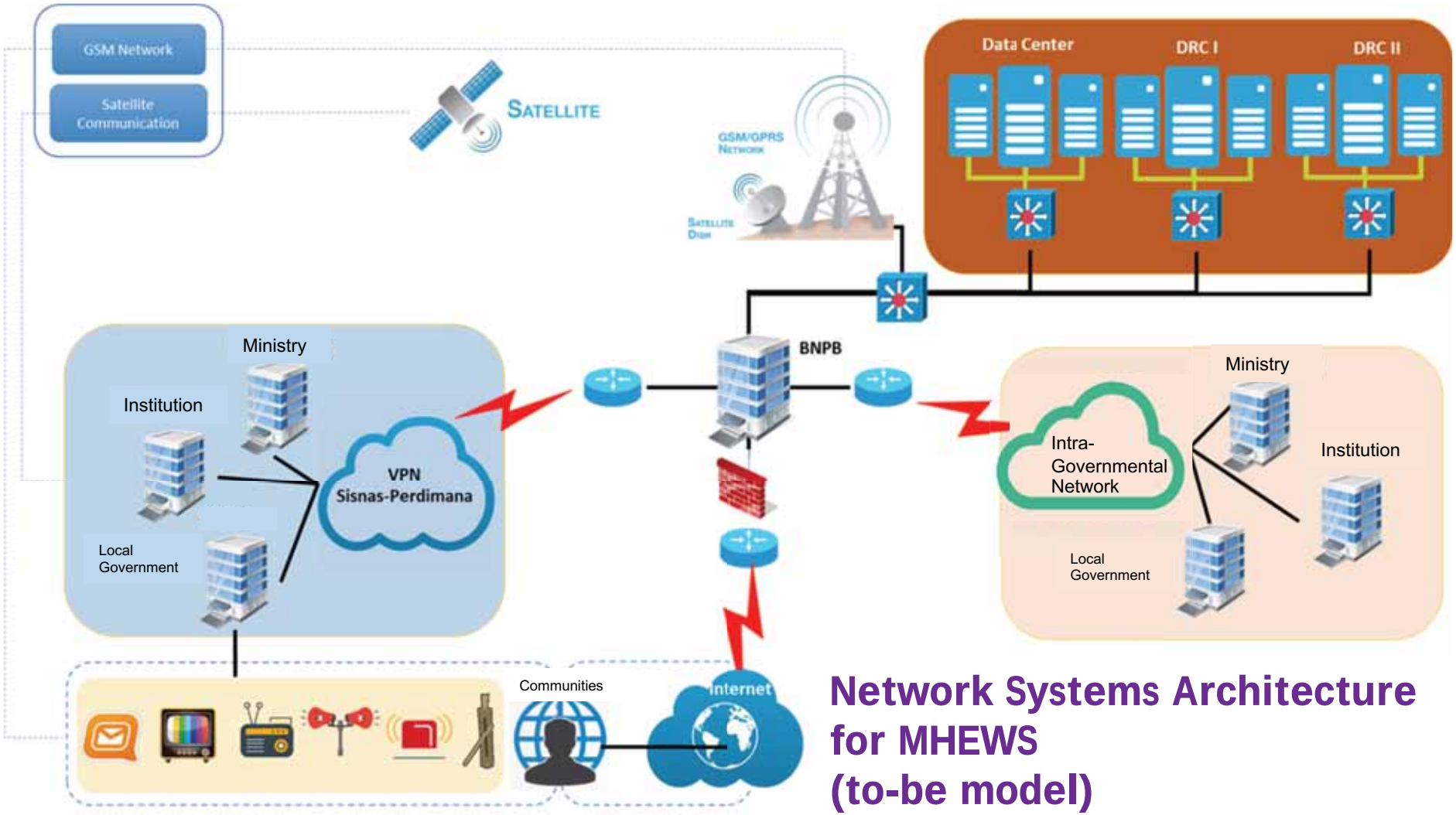
End-to-end multi-hazard early warning :
covers all EWS elements (knowledge of risk, monitoring and warning services, dissemination and communication, and response capabilities).

A people-centred multi-hazard early warning :
allows communities threatened by hazards to act in sufficient time and in an appropriate manner to reduce the possibility of injury, loss of life and damage to property, and the environment.

THE STRATEGIC FRAMEWORK

The architecture of MHEWS (to-be model)





Network Systems Architecture for MHEWS (to-be model)

The Actors at the National Level of MHEWS: The Ministries/Institutions

Earthquake and Tsunami

National Disaster Management Authority
Meteorology, Climatology, and Geophysical Agency
The Ministry of Energy and Mineral Resources
Ministry of Public Work and Public Housing
Agency for the Assessment and Application of Technology
Geospatial Information Board

Flood

National Disaster Management Authority
Meteorology, Climatology, and Geophysical Agency
Ministry of Public Work and Public Housing
Agency for the Assessment and Application of Technology
Geospatial Information Board

Volcanic Eruption

National Disaster Management Authority
The Ministry of Energy and Mineral Resources
Meteorology, Climatology, and Geophysical Agency
Ministry of Public Work and Public Housing
National Institute of Aeronautics and Space

Landslide

National Disaster Management Authority
The Ministry of Energy and Mineral Resources
Meteorology, Climatology, and Geophysical Agency
Agency for the Assessment and Application of Technology

Drought

National Disaster Management Authority
Meteorology, Climatology, and Geophysical Agency
The Ministry of Energy and Mineral Resources
Ministry of Public Work and Public Housing
Ministry of Agriculture
Peatland Restoration Agency
Ministry of Agriculture

Extreme Weather

National Disaster Management Authority
Meteorology, Climatology, and Geophysical Agency
National Institute of Aeronautics and Space
Agency for the Assessment and Application of Technology

Epidemic

National Disaster Management Authority
Ministry of Health
Meteorology, Climatology, and Geophysical Agency
Ministry of Agriculture

Nuclear

National Disaster Management Authority
Nuclear Energy Regulatory Agency
Meteorology, Climatology, and Geophysical Agency
Agency for the Assessment and Application of Technology

Technology Failure

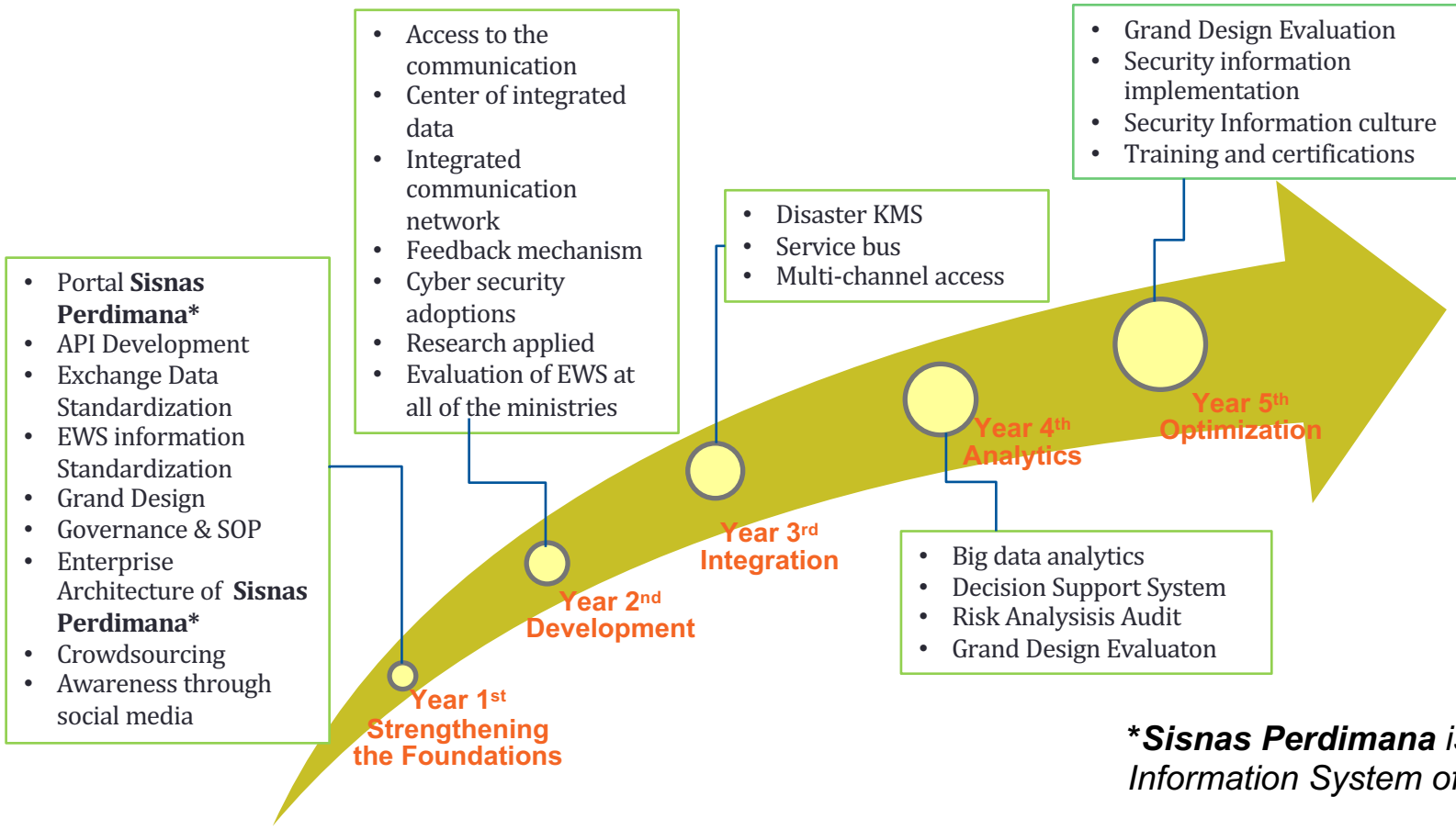
National Disaster Management Authority
Ministry of Industry
Meteorology, Climatology, and Geophysical Agency
Ministry of Environment and Forestry
Ministry of State Owned Enterprises

The Actors/Stakeholders at the Provincial and District Level of MHEWS

ALL HAZARD IDENTIFIED

- Local Disaster Management Authority (BPBD)
- Communities
- Non Government Organization (NGO)
- Local Government
- Academic community
- Private sector

Roadmap - 1st year to 5th year



***Sisnas Perdimana** is The National Information System of MHEWS*

Why the MHEWS is important and has to be developed ?

1. To protect life.
2. To reduce the loss of life and livelihoods from disasters and simultaneously build resilience.
3. To build national and regional capacity.
4. To avoid or reduce the impact of hazards.
5. To support the achievement of the Sustainable Development Goals (SDGs) such as food security, resilient cities, environmental management and climate change adaptation.

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