



BMKG Modernization Through Cooperation With International Development Partners

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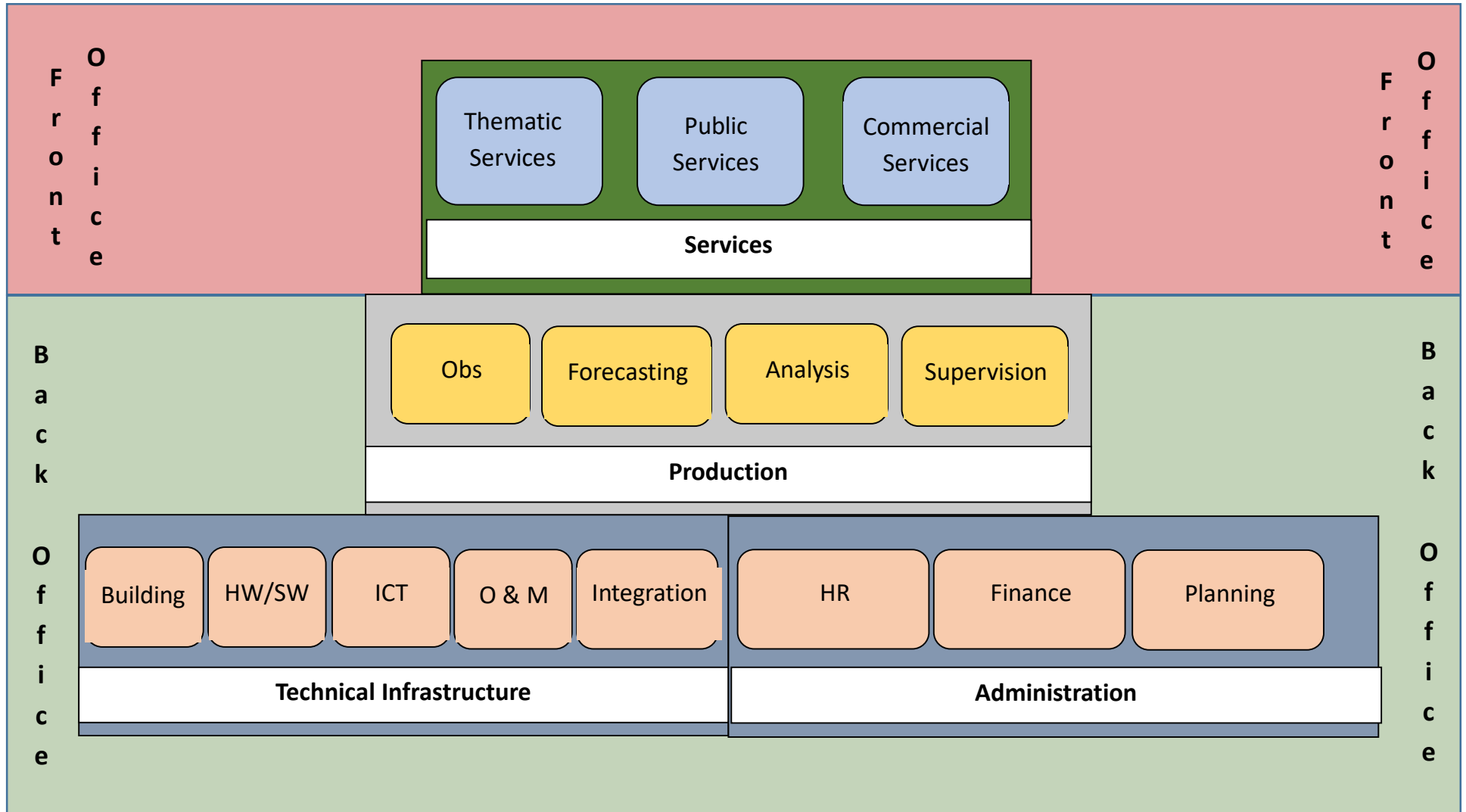
Indonesian Agency for Meteorology, Climatology and Geophysics (BMKG)

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BUSINESS PROCESS OF BMKG



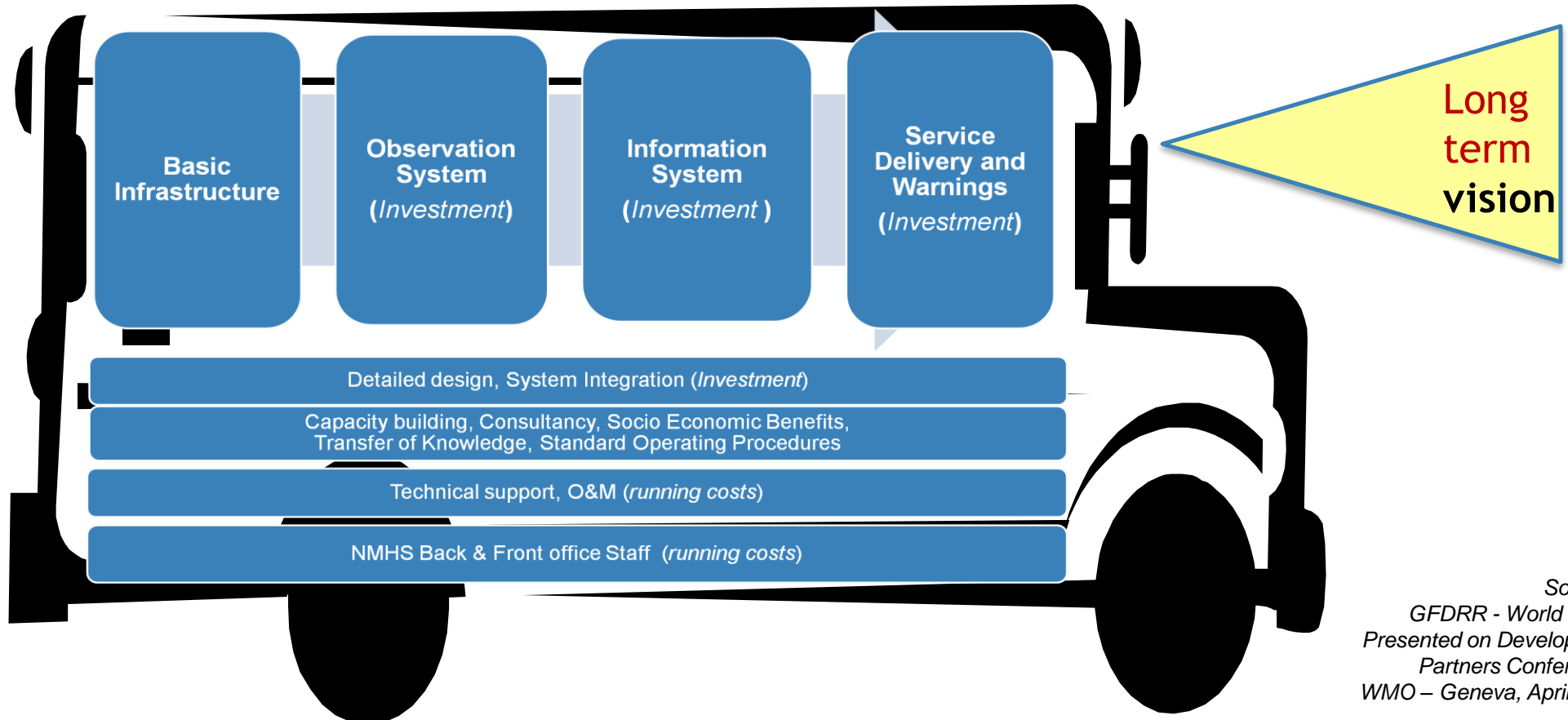
Traditional Approach of Development Project

- Issue on **sustainability** & optimum use of project deliverables
- Separate project **design and implementation**
- **Itemized** project (Non fully integrated projects)
- Issue on **Operation & maintenance** after the project

Shifting Paradigm

The “bus” to modernization :

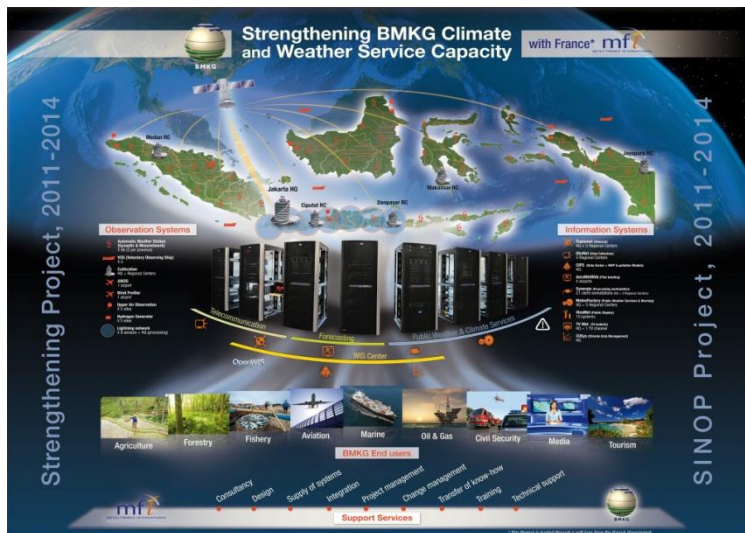
carries all that is needed for providing NMHS foundations



Strengthening BMKG Climate and Weather Service Capacity Project (2012-2015)



- ❑ Funded by French Government Softloan (Natixis Bank)
- ❑ **1 single contractor** for “**Design & Build**” acting as main integrator → *Quick process*
- ❑ Expected **visible outcome** for users
- ❑ **Flexible design** all along project duration
- ❑ **>30% of project budget** dedicated to “**non technical aspects**” incl. capacity building, assistance to start, Standard Operating Procedures, system integration, etc
- ❑ “**Twinning**” with **Météo-France**
→ involvement of Météo-France experts (transfer of Knowhow, training, etc)
- ❑ 12-18 months **Technical Support**





Observation Systems

- Automatic Weather Station (Synoptic & Mesonetwork)
X 66 (2 per province)
- VOS (Voluntary Observing Ship)
X 5
- Calibration
HQ + Regional Centers
- AWOS
1 airport
- Wind Profiler
1 airport
- Upper Air Observation
X 5 sites
- Hydrogen Generator
X 5 sites
- Lightning network
X 9 sensors + HQ (processing)

Information Systems

- Transmet (Telecom)
HQ + 5 Regional Centers
- ObsNet (Data Collection)
5 Regional Centers
- CIPS (Data Center + NWP & pollution Models)
HQ
- AeroMetWeb (Pilot briefing)
4 airports
- Synergie (Forecasting workstation)
21 client workstations (HQ + 5 Regional Centers)
- MeteFactory (Public Weather Services & Warning)
HQ + 5 Regional Centers
- VisuMet (Public Display)
15 systems
- TV Met (TV bulletin)
HQ + 1 TV channel
- CllSys (Climate Data Management)
HQ



BMKG End users



Support Services




* This Project is funded through a soft loan from the French Government

Strengthening BMKG Climate and Weather Service Capacity Project











End to end Integrated Project



OBSERVATION SYSTEMS

-  AWS
> 66 sites
-  Upper Air + Hydrogen generator
> 5 sites
-  VOS
> 5 sites
-  AWOS + Wind profiler
> 1 airport
-  Lightning network
> 9 sites
-  Calibration equipment
> 1 site

INFORMATION SYSTEMS

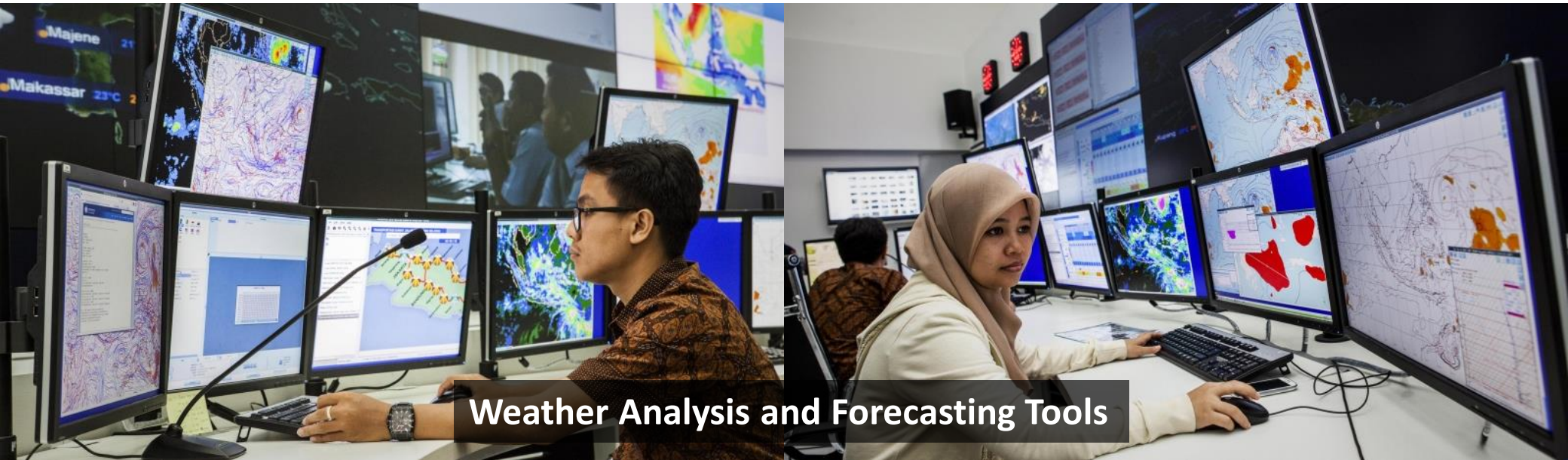
-  TRANSMET
> 1 HQ + 5 RC
-  OBSMET
> 5 RC
-  CIPS
> 1 HQ
-  CLISYS
> 1 HQ
-  SYNERGIE-WEB
> 21 workstations
-  AEROMET-WEB
> 4 Airports
-  METEFACTORY®
> 1 HQ + 5 RC
-  TVMET
> 1 HQ + 1 TV channel
-  VISUMET
> 15 Public screens
-  WEB & APP
> 1 website
+ 1 mobile application

SUPPORT SERVICES

-  CONSULTING
> Survey and Detailed Design Study
-  PROJECT MANAGEMENT
> 3500 days
-  TRAINING
> 200 people trained
> 4 master degrees
-  CHANGE MANAGEMENT
> Organisation & Process
-  INTEGRATION
> Turnkey approach
-  TECHNICAL SUPPORT
> 1 year



PROJECT DESIGN STUDY, SYSTEM INTEGRATION, PROJECT MANAGEMENT, TRANSFER OF KNOW-HOW, CHANGE MANAGEMENT



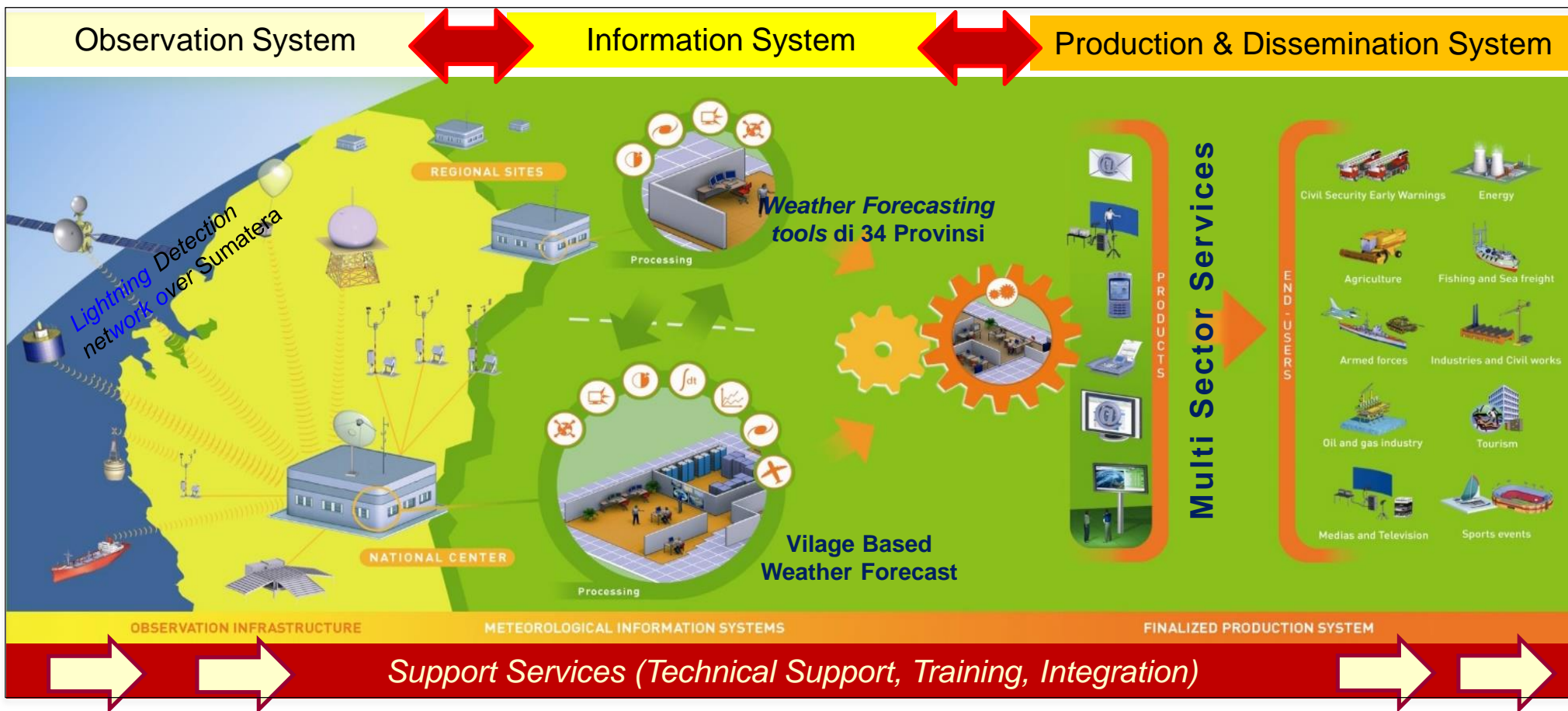
Weather Analysis and Forecasting Tools



Central Information and Processing System – High Performance Computing System

Scaling Up Strengthening BMKG Climate and Weather Service Capacity Project (2019 – 2023)

Continuation of Modernization Project



- **Basic Foundation has been build on Phase-1 project (2012 – 2015)**
- Scale up the operational capacity
 - Sub district Village based local forecast
 - Complete infrastructure on 34 provincial forecasting offices

**French Government
Loan
(Natixis Bank)**



List of BMKG Modernization Project In Cooperation With International Development Partners

No	Title	Lender	Status	Period
1.	Strengthening BMKG Climate and Weather Service Capacity	Natixis Bank	Completed	2012 – 2015
2.	Scalling Up Strengtheing BMKG Climate and Weather Service Capacity (SUS)	Natixis Bank	Ongoing	2019 – 2023
3.	Strengthening Marine Meteorological Services -1 (MMS-1)	Natixis Bank	Ongoing	2018 – 2025
4.	Strengthening Marine Meteorological Services -2 (MMS-2)	AFD	Ongoing	2019 – 2025
5.	Indonesia Disaster Resilience Initiative Project (IDRIP	World Bank	Ongoing	2020 - 2024

BMKG – KMA Cooperations

No	Area of Cooperations	Activities
1.	Capacity Development and RTC operation	Training on NWP, ICT, network security, weather radar, satellite data application/operation, instrument maintenance, etc.
		Cooperation on e-learning
		RTC Expert visit
2.	Climate and Air Quality	WMO/GAW activity
		Climate (subseasonal to seasonal) Prediction
		Applied Climate Service
3.	Numerical Weather Prediction Research and Development	Joint research on Numerical Weather Prediction,
4.	Intercomparison and Calibration of Equipment	Intercomparison study and calibration of BMKG laboratorium equipment
5.	Public Weather Services	Mutual visits for exchanging and sharing technologies of IBF & RBW
		Severe weather warning technology
6.	Radar and Satellite Weather Services	Technical assistance and capacity building on GK-2 satellite data utilization
		Technical assistance and capacity building on weather radar data management, quality control and derived composite products
7.	Aeronautical Meteorology	Sharing experience and knowledge on volcanic ash
8.	Climate Change	Joint analysis on climate data and climate projection
		Training on high scale climate data and climate projection
		Joint analysis on climate change impact to the el-nino, MJO, tropical cyclone, and other phenomena
9.	Marine Weather Service	Marine weather broadcast service by satellite and broadcast content
		Expansion of marine weather broadcast service by satellite into the Southeast Asia region



Thank You

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