MANAGING FOREST AND LAND FIRE IN INDONESIA

Directorate of Forest and Land Fire Management
Directorate General of Climate Change
Ministry of Environment and Forestry
POLICY OF FOREST AND LAND FIRE IN INDONESIA
1. Prioritize prevention efforts, through early detection, monitoring hotspot-prone areas, and monitoring daily conditions in the field.

2. Monitoring and supervision up to local level. Involve army, police, village heads, religious and community leaders to provide continuous education to the community in handling forest and land fires.

3. Permanent solution to encourage all stakeholder to carry out land preparation without burning.

4. Sustainable Peat ecosystems and its hydrological areas management must be well implemented.

5. Don't let the fire spread and be responsive.

6. Law enforcement carried out without compromise, providing strict sanctions so that there is a deterrent effect.
PRESIDENTIAL INSTRUCTION NO. 3 OF 2020: FOREST AND FIRE CONTROL

- Encourage the community to actively involved to control forest and land fires.

01. Supervision, monitoring, evaluation and synchronization of the policy of forest and land fire in National level and local governments.

02. Provide adequate funding for implementing forest and land fire management in routine budget and unexpected expenditure budgets at the national level and local governments.

03. Increase efforts to control forest and land fires by prioritizing prevention, patrols, early detection and early suppression.

04. Ensure the availability of social and health service for communities affected by forest and land fires.

05. Impose sanctions on violations of the law related on forest ad land fire.

06. Improving coordination and collaboration among stakeholders including providing data, mitigation efforts and restoration.

07. The administrative sanction impose to the corporation and concession holders that have no adequate resources, facilities and infrastructure to manage the forest and land fires.
EFFORT TO MANAGE FOREST AND LAND FIRES IN INDONESIA

**Strengthening Coordination**
- Implementing Presidential Decree No. 3 of 2020
- National, regional and provincial Coordination Meeting on Forest and Land Fire
- Coordination and collaboration between stakeholders of forest and land fire in national level and local governments.

**Capacity Building, Infrastructure and Funding**
- Capacity building (Fire Brigade, Army, Police, etc)
- Revitalization of infrastructure for forest and land fire control.
- Manage and coaching fire care community (MPA)
- Budgeting and utilization fund etc for controlling forest and land such as Village Management Fund, Revenue Sharing Fund (DBHDR), Special Allocation Fund (DAK).

**Control of forest and land fires**
- Early warning and early detection
- Implementation of Preventive Patrols
- Weather modification
- Early Suppression
- Suppression
- Air Operation (water bombing, surveillance)
- Reporting (Daily, monthly, yearly)

**Domestic and International Cooperation**
- Collaboration among stakeholders such as the Geospatial Information Agency (BIG), the Meteorology, Climatology and Geophysics Agency (BMKG), universities, and etc.
- Regional Cooperation within the framework of the ASEAN Agreement on Transboundary Haze Pollution (AATHP)
- Collaboration of Forest and land fire (ITTO, GCF, SUPA, JICA and KFS)

**Preparedness and Awareness**
- The central government issued an advisory related to forest and land fire preparedness and warning;
- Establishment of a task force to monitor forest and land fires
- Increase increase efforts to prevent forest and land fires through campaigns and outreach on forest and land fires
FUNDING FOR CONTROLLING FOREST AND LAND FIRES IN INDONESIA

APBN (State Revenue and Expenditure Budget)
Central Government budget

APBD (Regional Revenue and Expenditure Budget)
Local Government (Provincial/Regency/City) budget. Governors/Regents/Mayors must allocate costs for implementing forest and land fires prevention adequately in routine budget items and emergency fund (Presidential Instruction No. 3 of 2020)

Grants
Funding from external parties such as community, corporations, foreign exchange and or foreign services obtained from foreign grant providers which do not need to be repaid.

DBH DR (Reforestation Fund Profit Sharing Fund)
Expansion of the use of DBH DR for preventing and controlling forest and land fires for Provincial/Regency/City Orders (PMK No. 19 of 2021)

Indonesian Environment Fund (managed by BPDLH)
Special fund for management of forestry, energy and mineral resources, carbon trading, environmental services, industry, transportation, agriculture, marine and fisheries, and other fields related to the environment managed by An official Indonesian government agency under the Ministry of Finance that carries out the management of the environmental fund in the
The **ONE DATA ONE MAP POLICY FRAMEWORK**, applies to all components in Indonesia.

Inter-institutional agreement (Letter of MoEF No.218/MENLHK/PPI/PPI.4/2016 of 20 April 2016) : LAPAN (currently BRIN) provide hotspot from its groundstation; MoEF as data custodian of forest and land fire and BMKG provide climate information.

The **MoEF has appointed as the data custodian** of distribution of hotspots, prone area to forest and land fires, burnt area (area of forest and land fires) based on Presidential Decree No. 23 of 2021 and Decree of the Head of the Geospatial Information Agency(BIG) Number 16 of 2023 Thematic Geospatial Information Data Custodian.
There is a decrease in the burnt area by ± 488,064.65 Ha (29.59%) in 2023 (moderate – strong El Niño) compared to 2019 (weak El Niño).

The burnt area in savanna/shrubs/open land/water bodies is 595,664.89 ha (51.30%) from the total burnt in Indonesia.

This indicates that there is increased effectiveness of forest and land fires efforts even though El Niño conditions are stronger in 2023 compared to 2019.

ENSO (El Niño–Southern Oscillation) data from BoM and BMKG.
ACTIVITIES:
EARLY WARNING AND FIRE RISK REDUCTION
Activities of Forest and Land Fires in Indonesia

Prevention

1. Integrated Fire Patrol
2. Increasing awareness and campaign (publications, social media, etc.)
3. Capacity building and infrastructure
4. Strengthening regulation and intensive coordination between stakeholders
5. Weather Modification, peat rewetting and etc
6. Increasing community participation through Fire Care Community (MPA)

Suppression

- Early Warning and Early Detection
- Groundcheck Hotspot
- Ground Suppression
- Air operation (water bombing, surveillance, etc)

Post Fire

- Monitoring and Collecting Data/Information of burnt area
- Estimation of burnt area and its emissions
- Law enforcement

Key Factors:

Strengthening coordination and cooperation;
Strengthening Prevention, funding and Increasing awareness;
Capacity building and increase response time
INTEGRATED FIRE MANAGEMENT IN INDONESIA (SINCE 2016)

PERMANENT SOLUTION FOR FOREST AND LAND FIRE THROUGH PREVENTION

A
CLIMATE ANALYSIS AND MEASURES
WEATHER MONITORING
WEATHER MODIFICATION
ANALYSIS REGION

O
OPERATIONAL CONTROL
INTEGRATED TASK FORCE
EARLY DETECTION
SUPPRESSION READINESS (LAND, AIR)
FIELD TACTICAL POSTS
LAW ENFORCEMENT
FIRE CARE COMMUNITY

L
LANDSCAPE MANAGEMENT
PRACTITIONER CONCESSION/CORPORATION
TRADITIONAL AGRICULTURE (Burn Land)
PEATLAND MANAGEMENT
EARLY WARNING AND EARLY DETECTION EFFORT

**Early Warning**
- Weather prediction, BMKG
- Prone Fire Map, MoEF
- FDRS from BMKG, Integrated Sipongi including event FDRS

**Early Detection**
- CCTV Thermal
  - Range within 20 km in 15 location
  - Daops Pekanbaru, Riau/22.04.2020
  - Alt 21m, Dist. 19.87 km
- DRONE
  - Burnt Area estimation using drone Daops Siak, Riau

**Monitoring Karhutla – Sipongi Plus**
- Data Custodian: MoEF
- Supporting Data: BRIN-BMKG dan BRGM
- Mobile Apps
- Smoke Monitoring

[Graphs and images showing data and locations]
DEVELOPMENT OF FIRE MONITORING SYSTEM IN MINISTRY OF ENVIRONMENT AND FORESTRY

1997
- Ground station Bogor-Jakarta
- Disseminate radio, fax, email
- Single source of hotspot (NOAA)

2001
- Dissemination:
  - Radio
  - Fax
  - Email
  - TV
- Mailing list Spoon/Art yahoo groups

2006
- L-X band at rooftop (dome)
- Relay Terra/Aqua hotspot

2009 – 2011
- Joint Collaboration
  - Indonesia –Australia
  - www.indofire.org

2014 - 2016
- LAUNCH SIPONGI
  - www.sipongi.menlhk.go.id
- Fully automatic
- Dual Interface (Public dan Internal Interface)
- Hotspot NOAA dan Terra Aqua
- Social Media (facebook and twitter)

2017 - 2018
- Integration Sipongi and KMS (BPRED)
  - Cluster hotspot ➔
  - groundcheck recommendation
  - SMS blast hotspot

2019
- Hotspot: Landsat hotspot (LAPAN and NASA)
- Mobile app (Android)
- SMS blast (MoU KLHK - Kemenkominfor)
- Online reporting

2020
- Refresh dashboard,
- Groundcheck on Mobile app (Android)
- Groundcheck and suppression reporting

2021 - 2022
- Sipongi Plus
- Weather forecasts, peat water level, user analytics, Daops Location, etc
- Add wildfire patrol information system
- Mobile app (IOS)
- Refresh dashboard,

2023 - 2024
- Refresh Dashboard
- Shp automatic
- Reformulation of Online Reporting (Groundcover and Suppression)
- Weather Information, etc
AWARDS FOR SIPONGI MONITORING SYSTEM

Top 99 Public Innovation, 2019

Top 45 Public Innovation, 2019

Top 15 Public Innovation Special Category, 2021

Inovator of Sipongi, 2021

Admin of Sipongi, 2021

Nominee for UNPSA Initiatives and The SDGS, 2021
MANAGING FOREST AND LAND FIRE USING SIPONGI

1. Supporting information for activities and report of Field Personnel:
   - Location prone to forest and land fires
   - Groundcheck
   - Suppression
   - Integrated with Patrolling Monitoring System
   - Reporting from Private Sector

2. Inter-institutional data collaboration (BMKG, BRIN, BRGM, etc)

3. Recognition: Accessed > 2.3 million users Visitation and cooperation with other institution.

4. Impact of Sipongi
   - Increase collaboration among stakeholder
   - **Increase response time** from 3 days to 1 day, that contributes to **reducing burnt area and reducing emission** from wildfire.
FIELD ACTIVITIES AS A FOLLOW-UP TO INFORMATION FROM SIPONGI

**Daily task:**
1. Area monitoring (water sources, peat water level, fuel, weather, etc).
2. Campaign and socialization
3. Collecting information and problem mapping
4. Groundcheck hotspot and early suppression
5. Reporting

**Leveling Reporting:**
1. Manggala Agni Unit
2. Task Force
3. Regional Climate Change office
4. National Monitoring Center

**Daily reporting:**
1. Whatsapp
2. SiPongi system
3. Official reporting

**Follow up (Action, Monitoring and Evaluation)**

- Hotspot And Fire Reports From The Community
- Patrol team: Fire brigade, Army, Police, NGO, community and etc
- Suppression
- Groundchecking
The Map of Prone Area to Wildfire as a basis for planning and budgeting for forest and land fire control activities and for the forest and land fire disaster risk map (combine with burnt area and certain index)

Targeted villages are the focus location of the prevention activities which include: Patrolls (Routine, Integrated Patrolls and Patrolls with Fire Care Communities/MPA) and MPA activities.
The Manggala Agni are trained personnel with competency skills (technical, managerial, and socio-cultural) to manage wildfire and rescue.

37 UNIT
46 Workshop
2.071 MA

423 personnel in Conservation area and National Park
2,226 personnel in forestry local authority
Activities:

- Land preparation without burning
- Sustainable agriculture practices
- Agrosilvofishery
- Wood vinegar
- Composting, etc

Total MPA: 7,109
CAMPAIGN (FOREST AND LAND FIRE PREVENTION)

- Socialization and campaigns at school and village levels
- Islamic Council Statement (fatwa) regarding forest and land burning and other religious approaches
- Mass media publications, and SMS Blasting alertness

Talk shows, discussions, seminars, workshops
Television and Radio
Social Media

The MoEF in collaboration with the Ministry of Communication and Information implemented SMS BLAST early warnings to the public in area that have increasing hotspots and fires
**POST FIRE ACTIVITIES**

**Burnt area calculation:**

- Landsat 8, sentinel, hotspot data, suppression data
- Combine BA automation, manual classification and ground check/verification with local authority
- Collaboration MoEF (3 working units) and BRIN (2 working units)

**Monitoring and Collecting Data/Information of Burnt area**

**Law enforcement**
THANK YOU
TERIMA KASIH

WITH JOINT EFFORTS THE FOREST AND LAND FIRES CAN BE CONTROLLED