

Initial Framework of “National Forest Fire Management Project”



सत्यमेव जयते

Ministry of Environment, Forest and Climate Change

Government of India



Initial Risk Management Framework

- ❖ Forest fire management includes process of planning, preventing, controlling fire and fighting fires to protect people, property and forest resources .
- ❖ The objective of this framework is to minimize forest fires by informing, enabling and empowering forest fringe communities and incentivizing them to work in tandem with the State forest departments.
- ❖ The framework intends to substantially reduce the vulnerability of forests across the diverse forest ecosystems in the country against fire hazards.



Central Monitoring Committee on Forest Fire



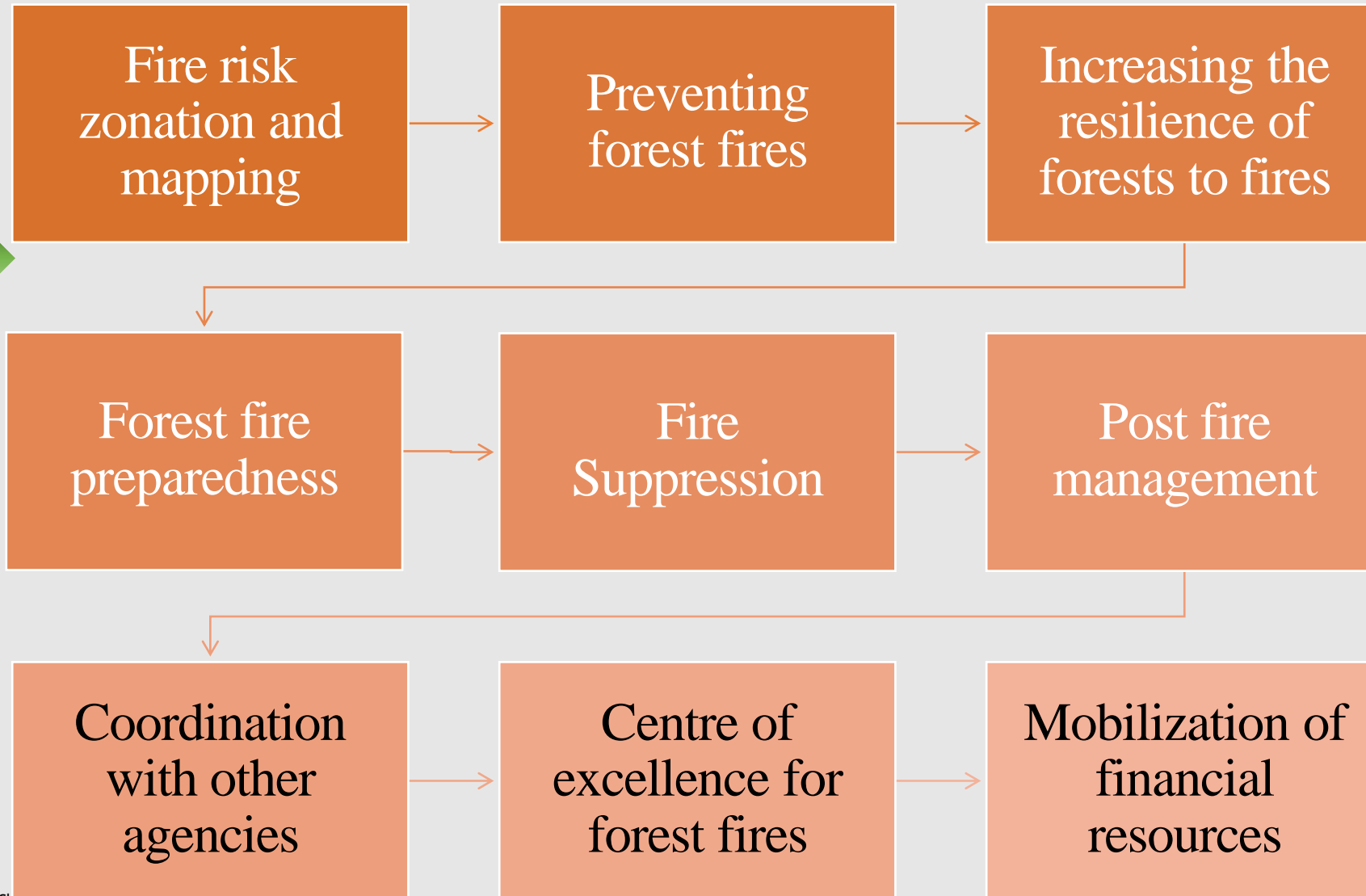
- **Central Monitoring Committee (CMC):** In compliance of the direction of the Hon'ble National Green Tribunal, New Delhi this Ministry has constituted a Central Monitoring Committee (CMC) under the Chairmanship of Secretary (EF&CC) vide notification dated 04.06.2019 to monitor the implementation of the National Action Plan on Forest fire. Principal Chief Conservator of Forests of all States and Union Territories are members of this Committee.
- **Constitution: Secretary, MoEF&CC - Chairman**
 - **Members: DGF&SS, ADG(FC), ADG(WL),**
 - **Representative of CPCB, WII, NDMA, ICFRE, FSI and NRSC**
 - **PCCFS of all the States &UTs**
 - **IGF(FPD) - Member Secretary**
- **Mandate of CMC:** To monitor implementation of National Action Plan on Forest Fires and address all issues arising out of forest fires.





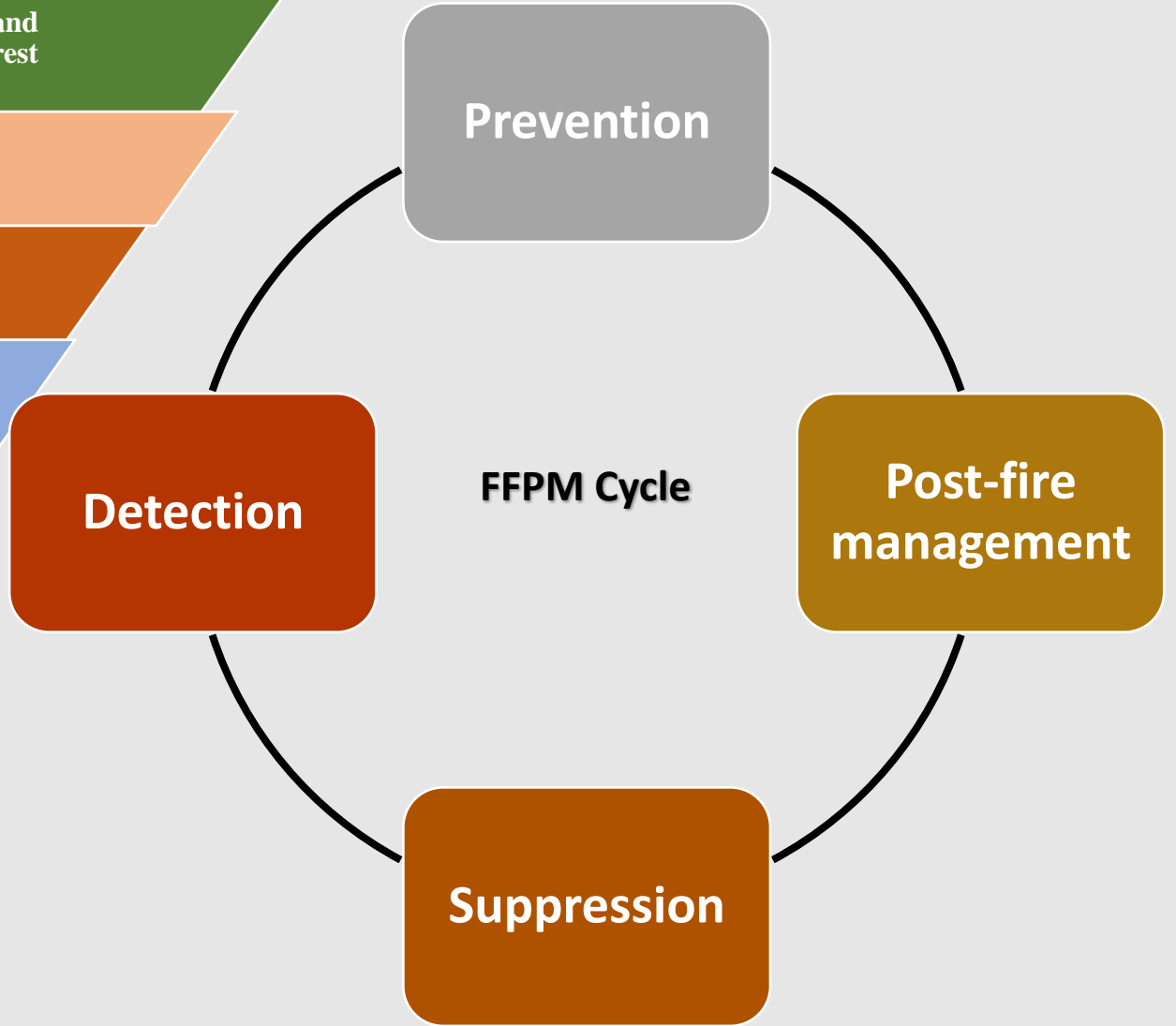
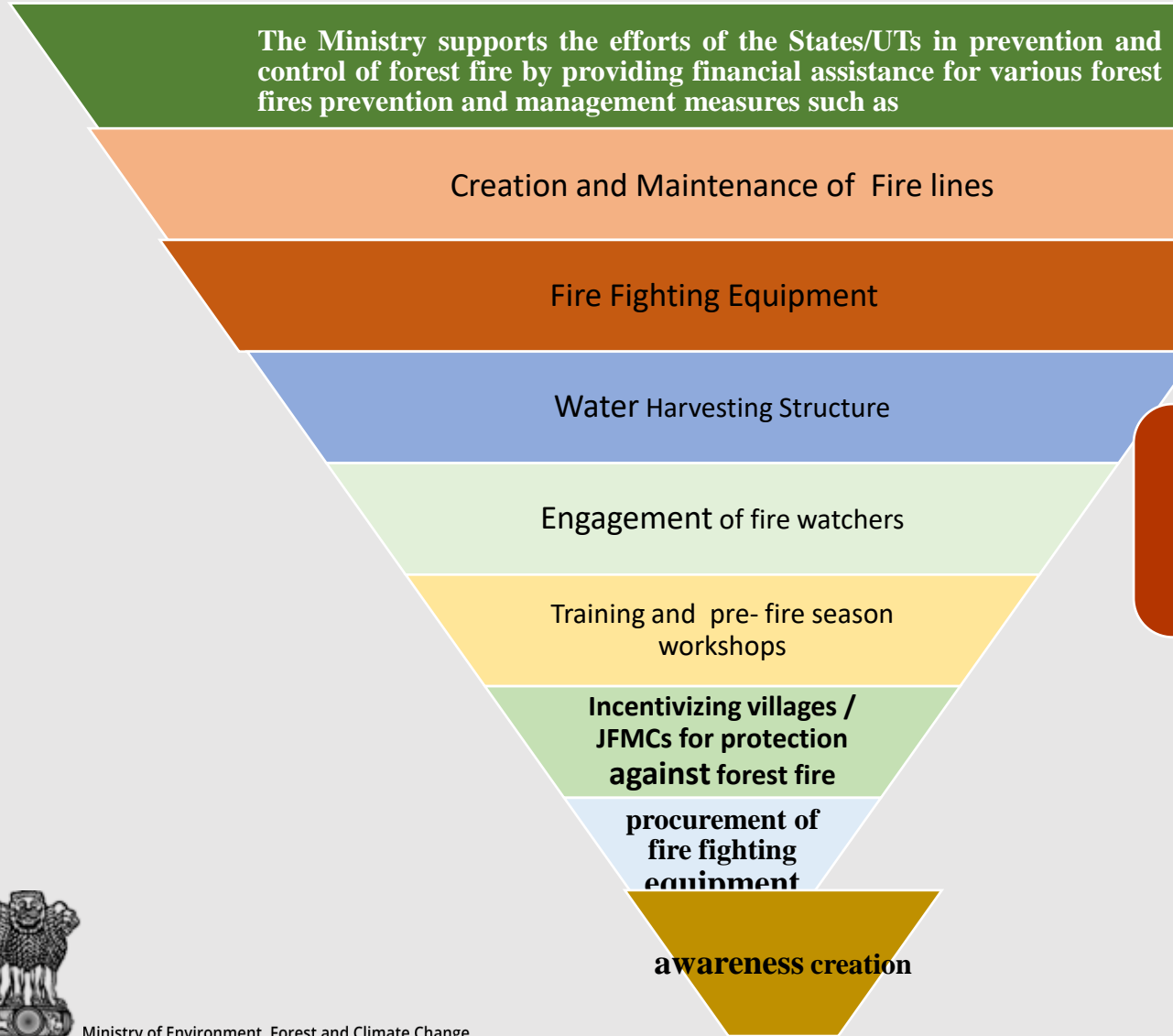
NATIONAL ACTION PLAN ON FOREST FIRE

**ACTION POINTS
UNDER
NATIONAL
ACTION PLAN
ON FOREST
FIRE**





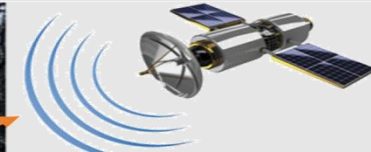
Forest Fire Prevention & Management Scheme (FFPM)



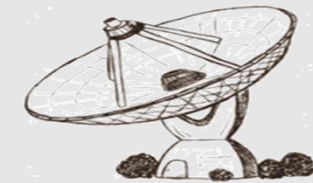
FOREST FIRE MONITORING PROCESS



Alerts to Fire fighters
Feedback to SFD's and FSI



Signals Transmitted to Earth Station



Data Received Centre (NRSC)

Data Processing Centre



State Forest Department

Email Alerts to State Nodel Officers



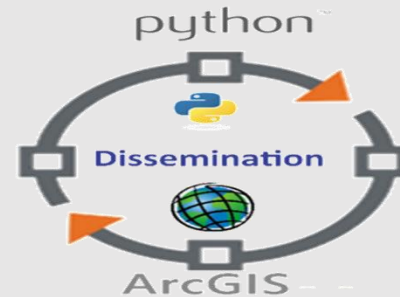
SMS alerts to Subscriber



Near Real Time
Large Forest Fire



FSI van Agni Geo-portal



- ❖ Pre-fire alert (one week advance based on forest fire danger area).
- ❖ Near real time forest fire danger monitoring. (MODIS & SNPP- VIIRS)
- ❖ Large forest fire monitoring.

Forest fire Management Process

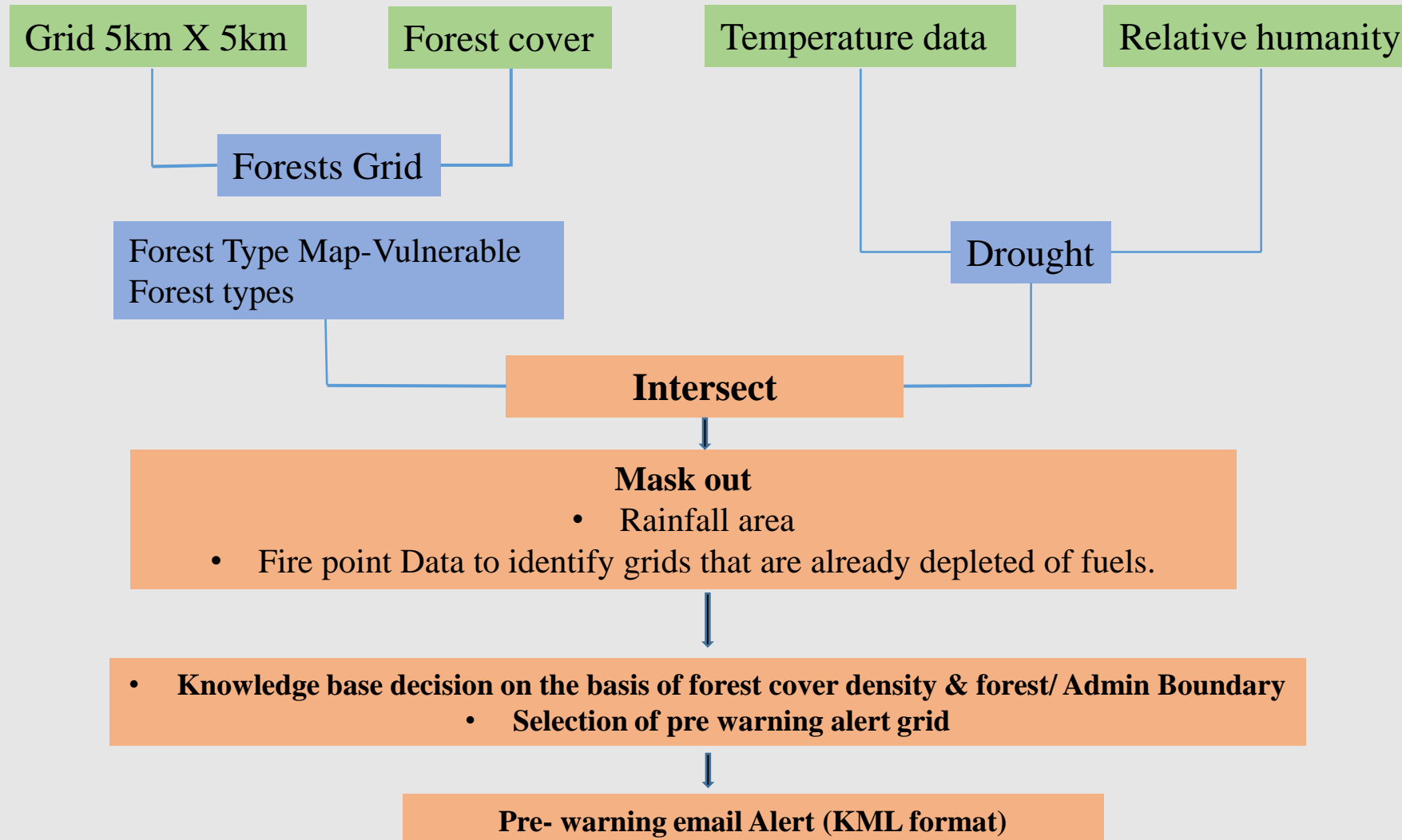
| System Tools | System Process Components | Systems |
|---|--|-------------|
| <ul style="list-style-type: none"> • Maps (Vegetation, Topography, assets, road, ignition distribution etc.) • Fire behavior prediction tools • Cultural & social context of fire • Ecological response to fire | <p><u>ANALYSIS OF THE FIRE PROBLEM</u></p> <ol style="list-style-type: none"> 1. Consequence of (Economic Social Environmental. 2. Fire on (Intensity spread rate duration) 3. Assets (Value Vulnerability) | |
| <ul style="list-style-type: none"> • Fire use laws/ regulation • Planning controls • Education programs • Ecological fire training • Fire use education | <p><u>RISK REDUCTION –PREVENTION</u></p> <ol style="list-style-type: none"> 1. Ignition Reduction Strategies <ul style="list-style-type: none"> -regulate fire use, educate fire users, technology improvement, development planning control. 2. Impact Mitigation Strategies <ul style="list-style-type: none"> -Fuel reduction -Reduce assets vulnerability 3. Fire uses Strategies <ul style="list-style-type: none"> -Ecosystem Maintenance -Fire regime restoration | Improvement |

Cont.



| System Tools | System Process Components | |
|---|---|-------------|
| <ul style="list-style-type: none"> • Climate, weather monitoring and prediction • Fire danger rating • Detection/ suppression & Communications resources • Fire training system and tools | <p><u>READINESS PREPAREDNESS TO FIGHT FIRES</u></p> <ol style="list-style-type: none"> 1. Strategies <ul style="list-style-type: none"> -Early warning/ Predictive systems -Community warning mechanism -Detection and Response infrastructure -Communications system -Component fire control staff | Monitoring |
| <ul style="list-style-type: none"> • Response mobilization plans • Operational responsibility & procedures • Strategic information access tools • Operational management system | <p><u>RESPONSE- FIRE FIGHTING OPERATIONS</u></p> <ol style="list-style-type: none"> 1. Detection and reporting 2. First response 3. Containment and control 4. Mop up and patrol 5. Command and control | |
| <ul style="list-style-type: none"> • Damage assessment tools • Recovery assistance plans | <p><u>RECOVERY POST FIRE</u></p> <ol style="list-style-type: none"> 1. Community welfare assistance 2. Economic loss reduction(salvage logging and replanting, infrastructure repair) 3. Environment repair | Improvement |

Grid Based Pre-warning Alert System

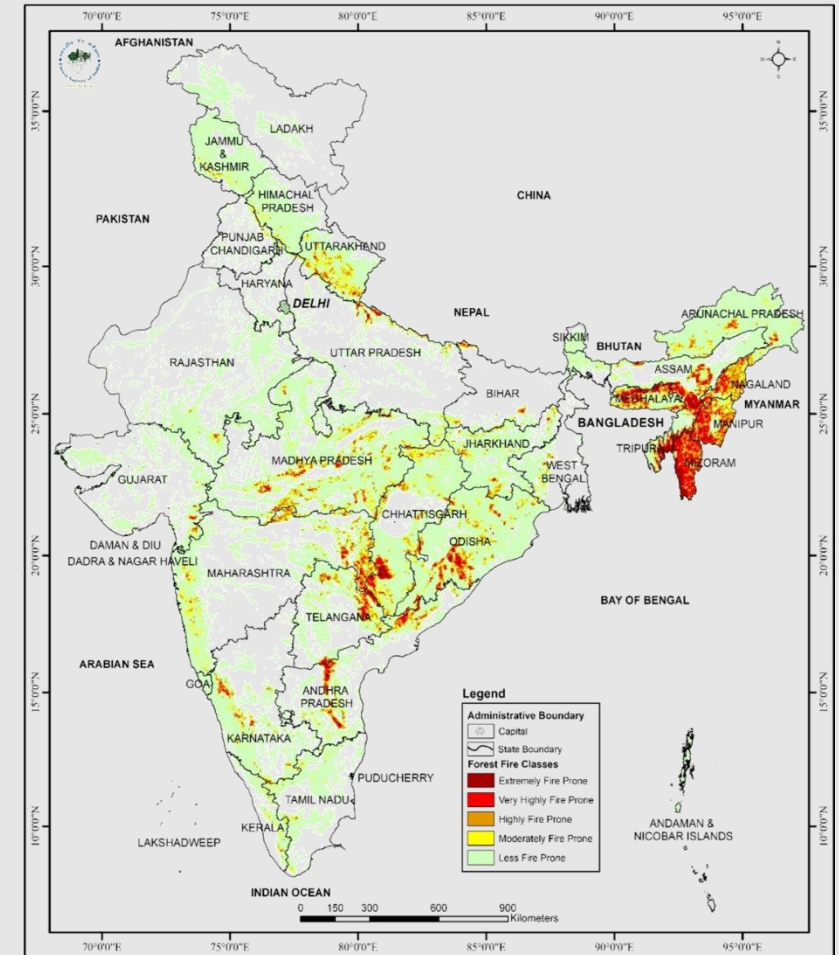




Fire Prone Forest Area in India

Total Fire prone forest area is 35.46% (7,13,789.03 sq km) of the forest cover (as per ISFR 2021)

| S. No. | Category | Forest cover (in sq km) | % of Total forest cover |
|--------|------------------------|-------------------------|-------------------------|
| 1 | Extremely Fire Prone | 20,074.47 | 2.81 |
| 2 | Very Highly Fire Prone | 56,049.35 | 7.85 |
| 3 | Highly Fire Prone | 82,900.17 | 11.61 |
| 4 | Moderately Fire Prone | 94,126.68 | 13.19 |
| 5 | Less Fire Prone | 4,60,638.36 | 64.54 |
| | Total | 7,13,789.03 | 100.00 |
















INITIATIVES

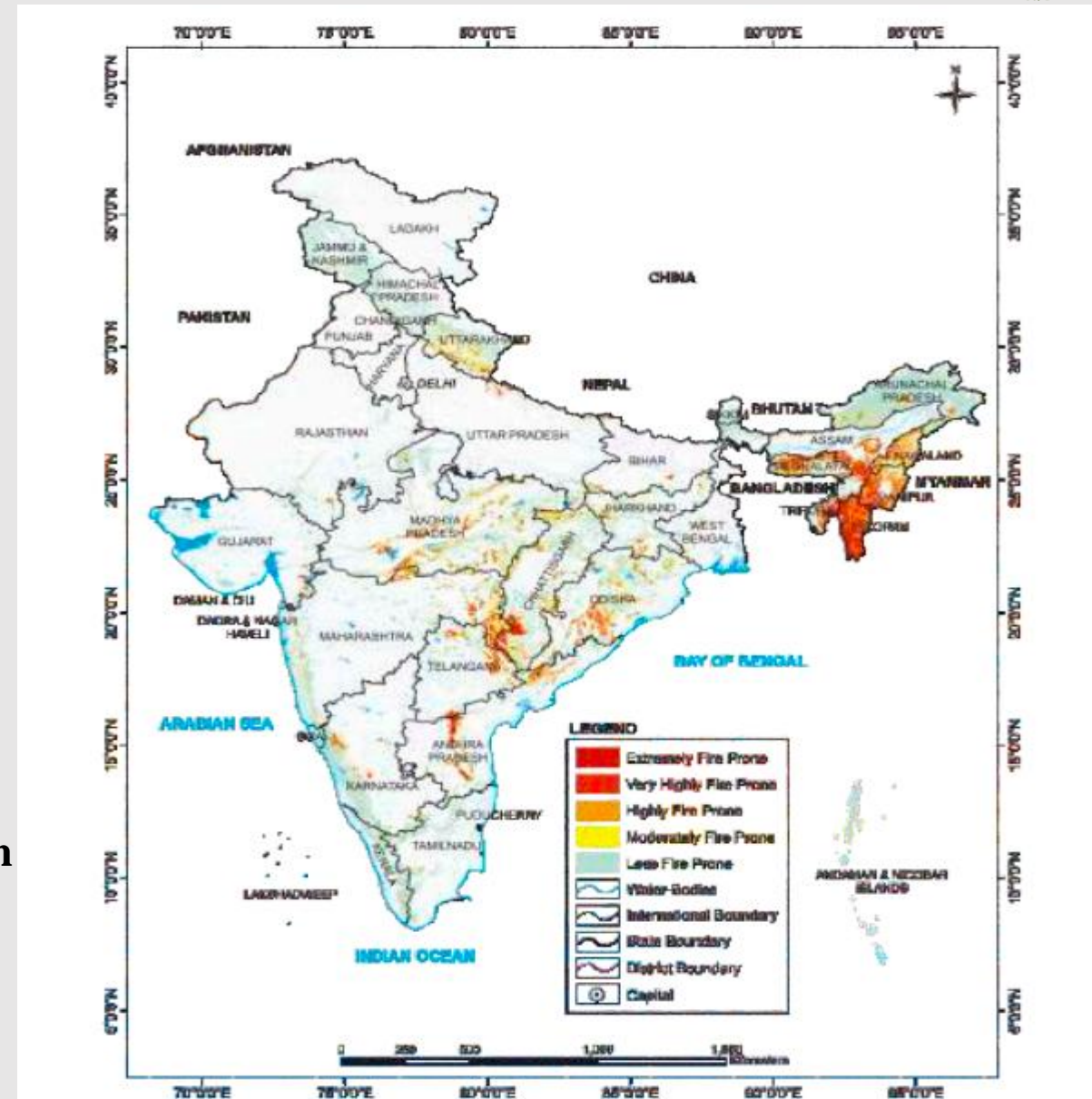
- ❖ To Collaborate on developing fire fighting infrastructures, communication systems
- ❖ Development of modern fire fighting equipment tools
- ❖ Development of Drones for surveillance in forest prone areas
- ❖ Establishment of water sprinkler towers, watch towers, check dams water reservoirs
- ❖ Specialized vehicles for fire fighting operations
- ❖ Creation, Maintenance and monitoring of fire lines
- ❖ Mapping of Fuel load, control burning
- ❖ Capacity Building of Communities
- ❖ Convergence with NDMA, MHA, NDRF, SFD and COMMUNITIES



North-East as the Most Vulnerable / Prone to Forest fire

- Forest in the North East region and central India was found to be the most vulnerable
- One of the major reason for forest fire in NE region is slash and burn (Jhum Cultivation)

| | | | |
|---|-----------------------|---|--------------------------|
|  | Mizoram |  | Tripura |
|  | Manipur |  | Assam |
|  | Madhya Pradesh |  | Meghalaya |
|  | Andra Pradesh |  | Arunachal Pradesh |
|  | Chhattisgarh |  | Odisha |
|  | Nagaland | | |



Top 20 Districts according to number of forest fire detected by FSI using SNPP-VIIRS sensors(This includes large, Continuous and repeated forest fires)



| S.L.No | District | State | Nov 2020-June 2021 (No of Forest fire alerts) |
|--------|----------------|----------------|---|
| 1 | Gadchiroli | Maharashtra | 10,577 |
| 2 | Kandhamal | Odisha | 6,156 |
| 3 | Bijapur | Chhattisgarh | 5,499 |
| 4 | Karbi Anglong | Assam | 4,881 |
| 5 | Kadapa | Andhra Pradesh | 4,872 |
| 6 | West Singhbhum | Jharkhand | 4,553 |
| 7 | Pauri Garhwal | Uttarakhand | 4,512 |
| 8 | East Nimar | Madhya Pradesh | 4,210 |
| 9 | Mayurbhanj | Odisha | 4,073 |
| 10 | Sundargarh | Odisha | 3,940 |

Cont.

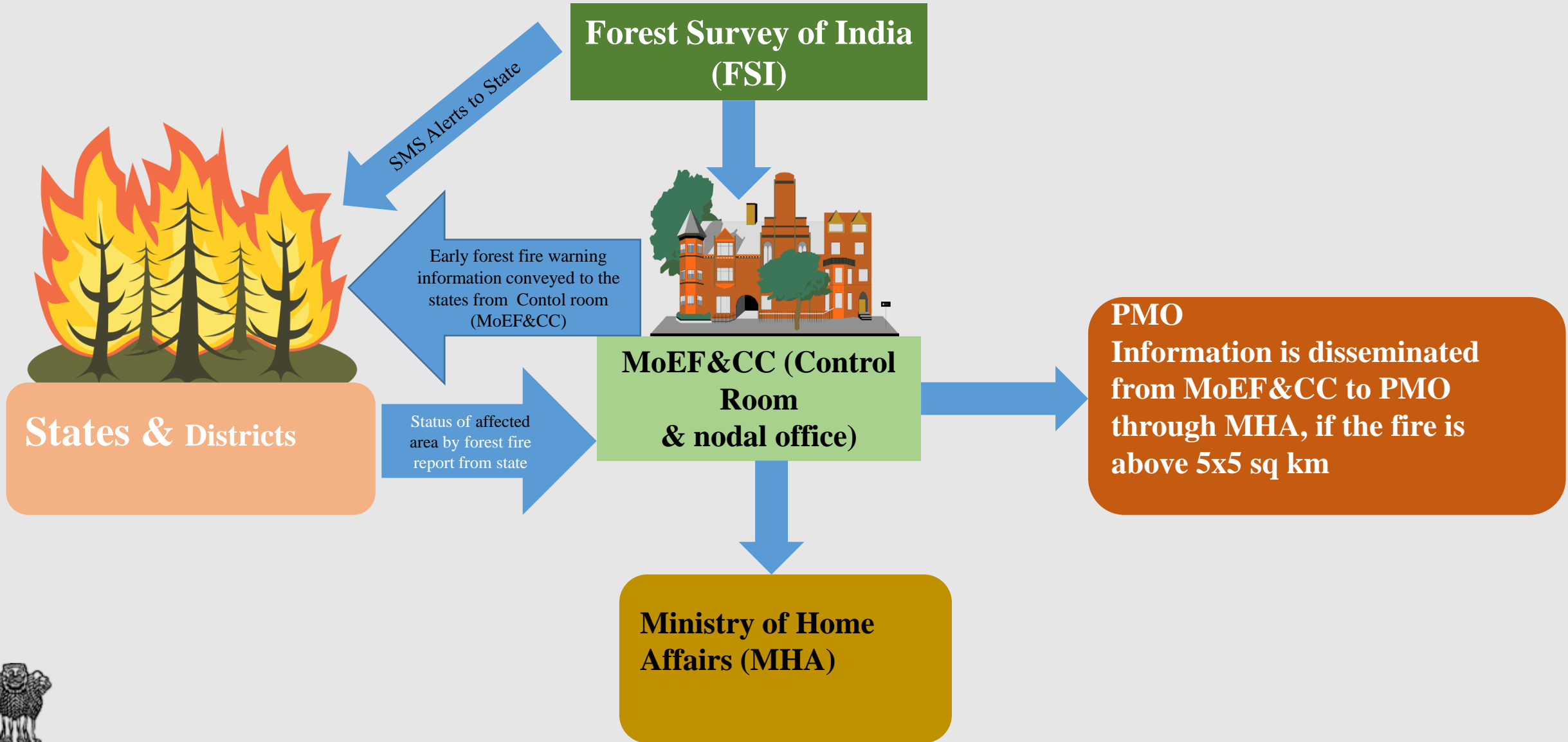
| S.L.No | District | State | Nov 2020-June 2021(No of Forest fire alerts) |
|---------------|--------------------|-----------------------|---|
| 11 | Nainital | Uttarakhand | 3,802 |
| 12 | Raisen | Madhya Pradesh | 3,713 |
| 13 | Kalanhandi | Odisha | 3,555 |
| 14 | Chhindwara | Madhya Pradesh | 3,535 |
| 15 | Narayanpur | Chhattisgarh | 3,510 |
| 16 | Bhupalpally | Telangana | 3,477 |
| 17 | Aizawl | Mizoram | 3,336 |
| 18 | Kendujhar | Odisha | 3,194 |
| 19 | Dima Hasao | Assam | 3,188 |
| 20 | Rayagada | Odisha | 3,172 |



Important Strategies For building excellence in fighting forest fire

- Consultative workshop will be organized at State & district level, where the local people, stakeholders and forest officials should come up with an idea based on their ground experience during forest fire incidents.
- After the workshop all the Ideas and valuable inputs shared by the States / district will be evaluated to enhance the technique on forest fire fighting strategies.
- Based on the Input SOP (Standard Operating Procedure) will be created for PAN INDIA.
- Forest fire to be considered as disaster and to be added in NDMA Act .
- DMP is finalized with the help of NIDM.

Dissemination of forest fire information flow in MOEF&CC



Traditional Methods used in dousing forest fire (Fire beater)



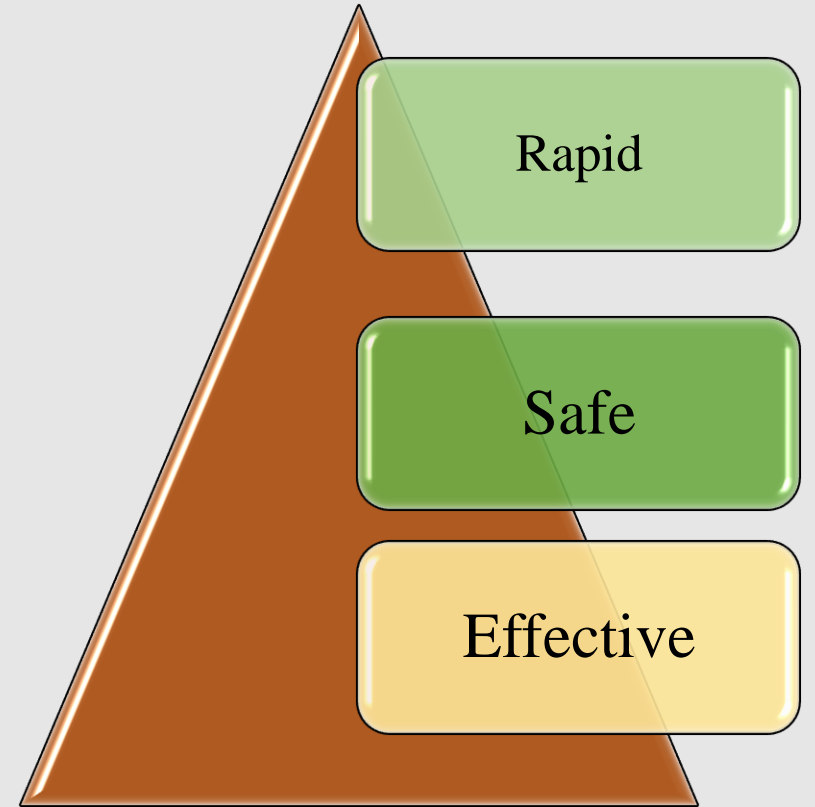
Modernized methods used in dousing forest fire (Blower)



Helicopter (IAF-Mi 17 V5) used in dousing fire incident in Sariska Rajasthan 29th March 2022



Forest fire prevention and management should be rapid, safe & effective.





“Prevention is better than Cure”



Thank you