



25TH November 2020 9.00-11.45 am Washington DC time

Global wildfires and tropical dry ecosystems: How integrated fire management helps mitigate emissions and their connection with NDCs

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Integrated Fire Management



Fire Emission Abatement with IFM

Anja A. Hoffmann

25. November 2020 online Presentation

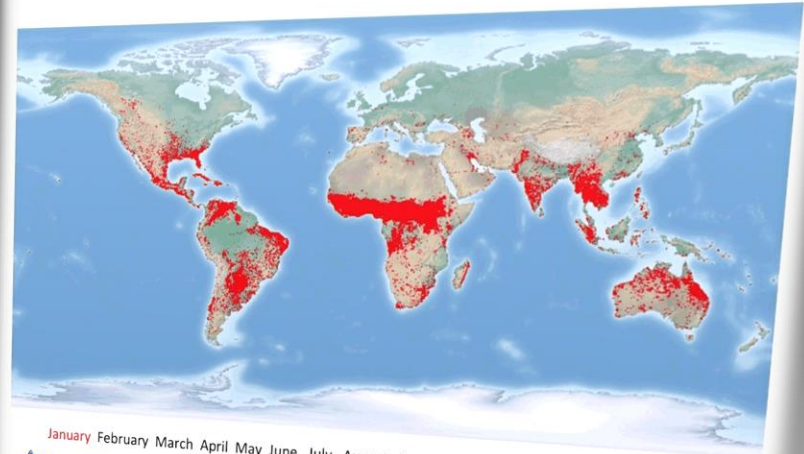


Integrated Fire Management

Global Role of Fire

- The annual area burned globally ~ 430 Million hectare of vegetation
- Fire continent Africa ~ 200 million ha annually, ~40% of biomass worldwide
- Fire is important ecological driver in fire dependent eco-systems
- Fire is an negative disturbance in fire sensitive eco-systems
- Fire is a forest and land management tool
- Worldwide Paradigm shift from strict suppression (zero fire) policy to “more” IFM

2012 MODIS Active Fire Detections from the Aqua and Terra Satellites



January February March April May June July August September October November December

Active fires, shown in red, are detected using MODIS data from the Aqua and Terra satellites
Source: NASA Fire Information for Resource Management System (FIRMS) <https://earthdata.nasa.gov/firms>

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The negative Impacts of Fire

Smoke & Haze impacts



Economic impact on forestry and agriculture



Transport



Courtesy G. Frederiksson

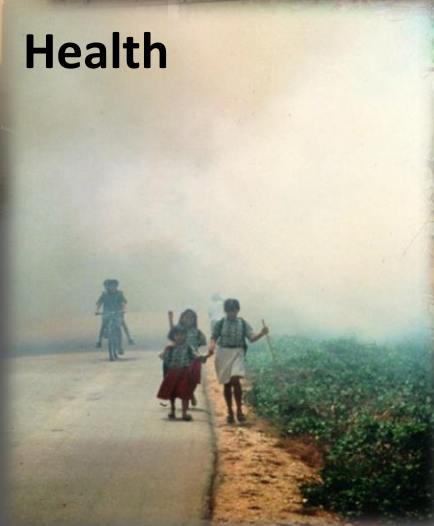


Courtesy B.Sanders



Courtesy G. Frederiksson

Health



Ecological Impacts on flora & fauna





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Positive Fire impacts

➤ Plant level

- Fire & smoke stimulated seed germination
- Fire stimulated flowering
- Stimulation of grass/plant growth



➤ Landscape/forest level

- Reduces/ removes fuel to pre-empt dangerous wildfires -> emissions
- Reduces bush encroachment -> wildlife & livestock management
- Pest control
- Land management tool for forestry, agriculture and conservation





Integrated Fire Management

Is Fire a problem or is Fire a solution?

- Traditionally fire management is rooted in forestry -> firefighting to protect forest resources
- Fire is a forest and land management tool
- Fire is essential for rural people for their different land uses and natural resource management systems



Where, what, when and who is burning for which objective?
Is it a wanted or unwanted fire?



Integrated Fire Management

Integrated Fire Management

Integrated Fire Management (IFM) is a holistic framework for managing fires in different land uses while providing co-benefits for local communities and natural resource management

➤ The elements of Integrated Fire Management

- Prevention (Risk Reduction)
- Preparedness (Readiness)
- Suppression (Response)
- Restoration (Recovery)



• Research & Analysis

- ✓ Data & Information production & dissemination

➤ Multi-Stakeholder approach is needed to successfully prevent unwanted fires

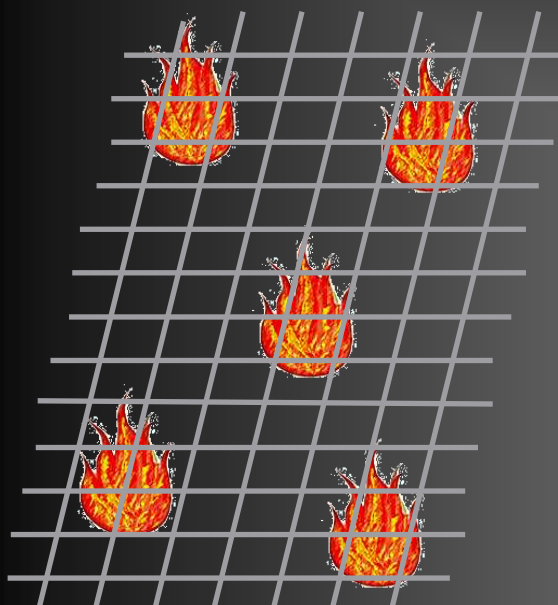


Fire! A Multistakeholder Effort!



Fire Managers must balance these Elements

Prevention



Early burning/ prescribed burning, Awareness & Environmental education campaigns, land tenure,, Law compliance & enforcement,, alternative use of fire, Agroforestry,

Monitoring, Detection & Communication



Taking decision

Based on mandates, policy & laws, regulations , values to be protected

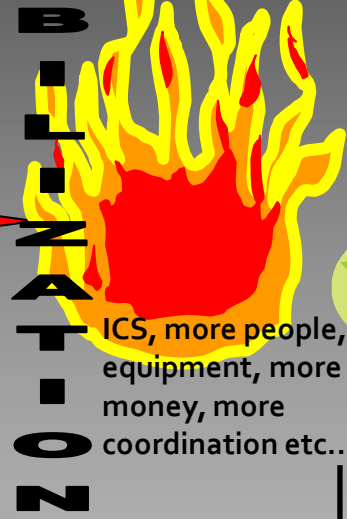
Preparedness: Training, Logistics, communication, equipment & warehousing and maintenance, fire break maintenance, early warning, management plans, large scale mobilization planning etc.

Initial attack



Fire crews & equipment from Government, villages, private sector etc.

M O B I L I Z A T I O N



ICS, more people, equipment, more money, more coordination etc..



Fire Suppression/Response

Restoration

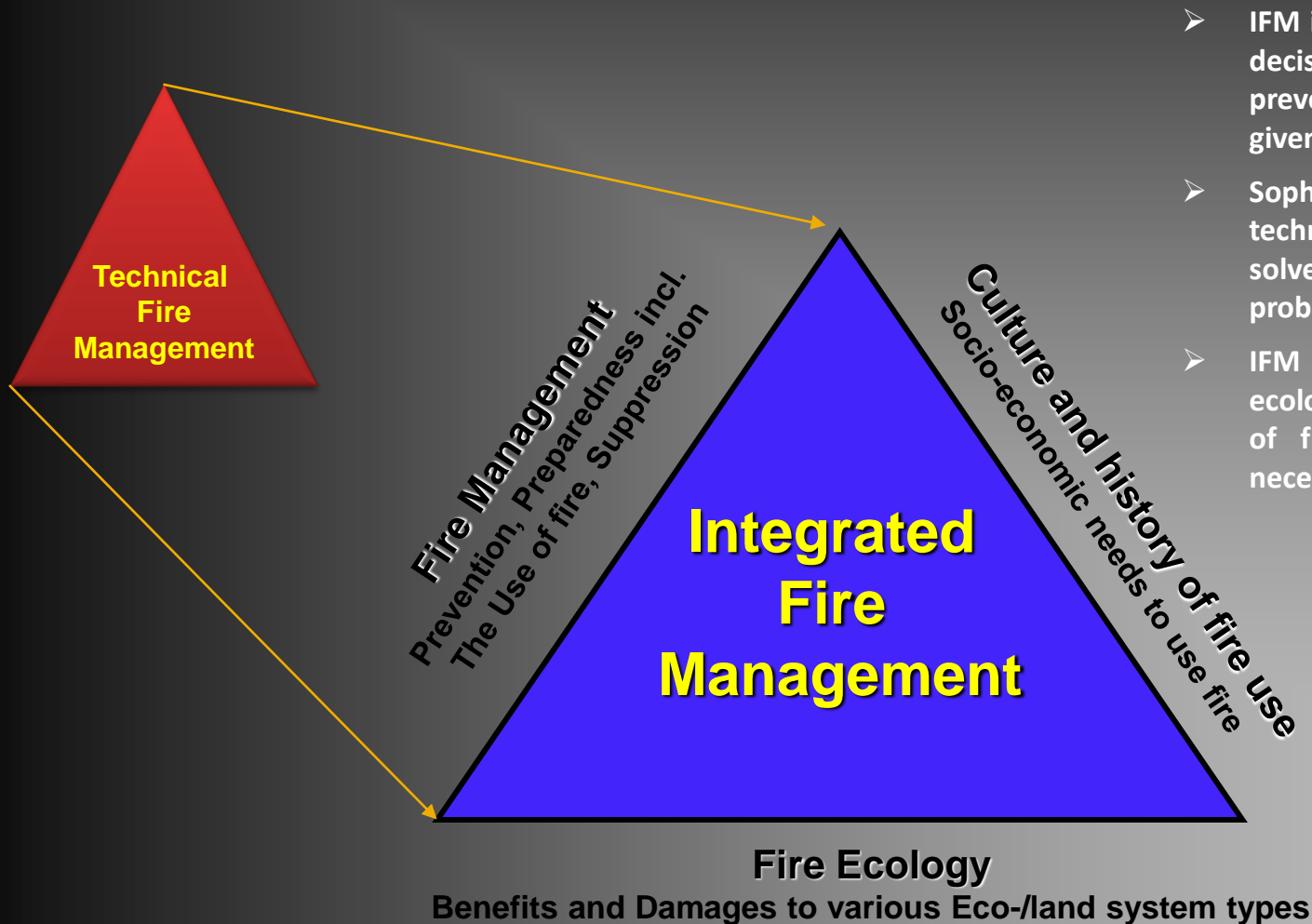
Research, Analysis & Information

Fire Ecology, Fire Information, Fire reporting, Early Warning (FDR), Fire fighting resources (data base), Fire investigation, Conversation and biodiversity goals, etc.



Integrated Fire Management

IFM concept after R. Meyers



- IFM is a range of possible technical decisions and actions available to prevent, control or use fire in a given landscape
- Sophisticated fire management technologies only is not likely to solve the worldwide increasing fire problem
- IFM is holistic integration of ecological and socio-economic role of fire as well as the cultural necessities of using fire.



Integrated Fire Management

Prescribed burning – Tool for various purposes

➤ The knowledgeable practice of burning deliberately to accomplish a predetermined (land) management objective

➤ **Protection**

- Fire breaks
- Reducing fuel load/fire hazard
- Reducing fire emission

➤ **Conservation**

- Control of invasive alien species
- Wildlife Management
- Pest management

➤ **Agriculture**

- Domestic livestock/pasture management
- Control of bush encroachment
- Pest management

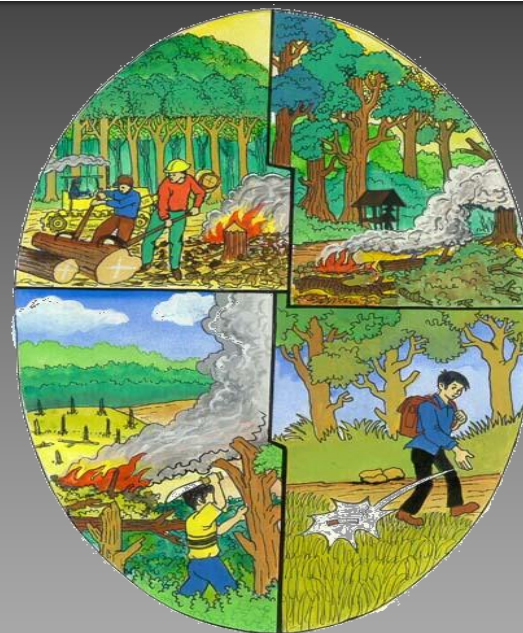




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Fire Prevention at community level

- Create sensitivity, awareness and knowledge about fire & the use of fire to improve natural resources income
- Enable communities to manage fire for their own benefits
- Provision and introduction of alternatives on fire use and alternative agriculture practices (income generation)
- Support communities to regulate and enforce on village fire regulations (land tenure)
- Enable communities to prevent & suppress unwanted fires through village fire crews



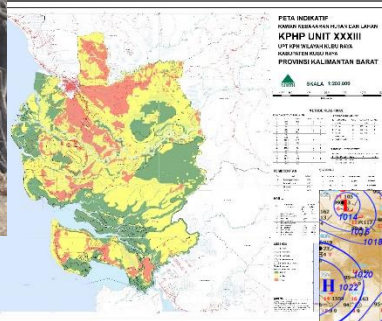


Integrated Fire Management

Preparedness, Readiness and Fire Danger



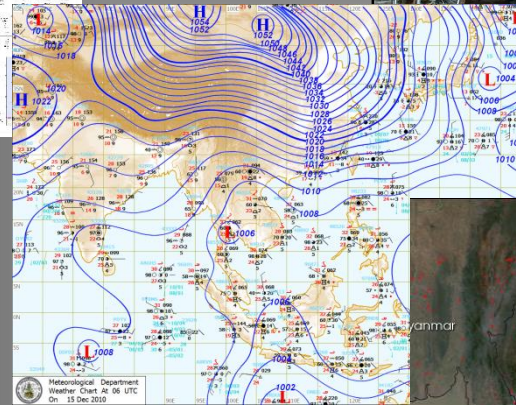
Fire Danger



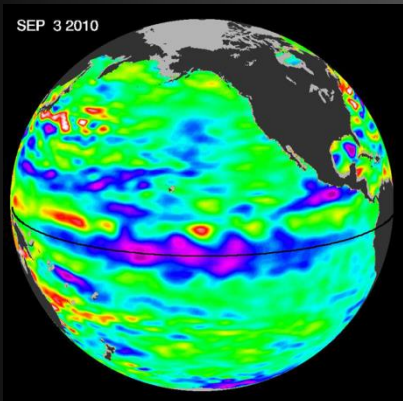
Fire Risk



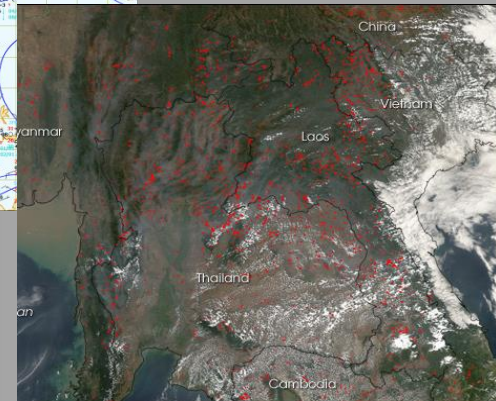
Available and trained resources



Daily weather forecast



El Nino

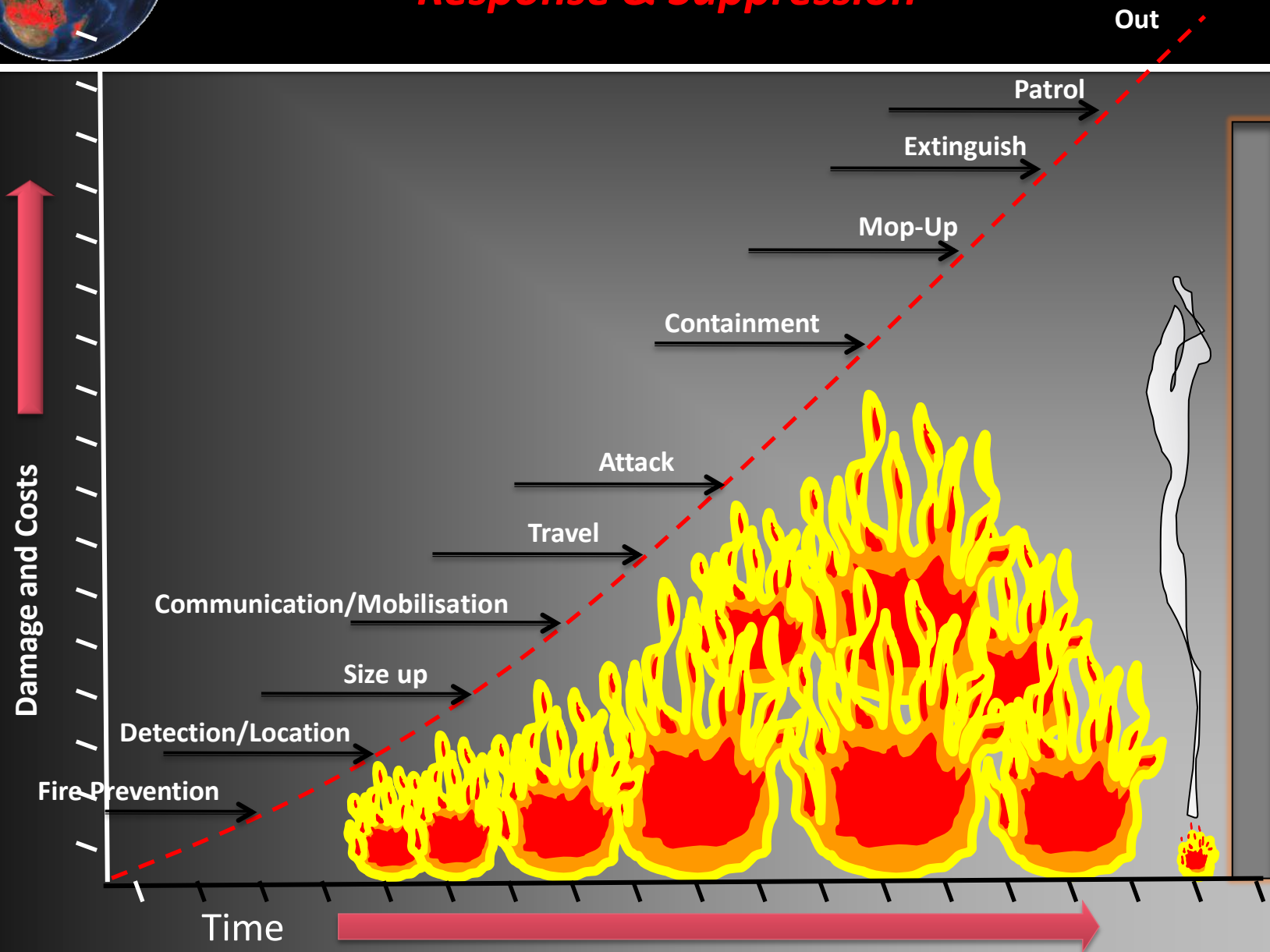


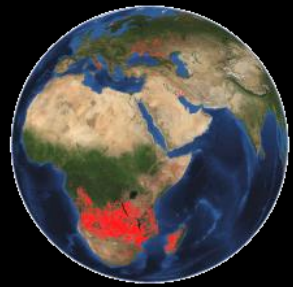
Current Fire Activity



Integrated Fire Management

Response & Suppression





Integrated Fire Management

Restoration





Integrated Fire Management

Summary of IFM

- IFM includes technical elements of fire management, the use of fire and considers the culture and ecology of fire
- Need to distinguish fire-dependent vs fire-sensitive ecosystems and understand that each requires different fire management approaches
- IFM needs to balance between conservation, protection, development, livelihood goals and emission reduction.
- IFM understands the underlying fire causes to find appropriate fire management solutions at various levels
- Successful IFM looks at the involvement of local communities considering the rural socio-economic conditions and needs
- IFM needs the coordination of actors and stakeholders in the implementation of fire management and emission goals -> cross cutting
- IFM needs to have enabling policies, legislation and regulatory framework at the various administrative levels.





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