Activities for preventing peatlands fire in Central Kalimantan, Indonesia

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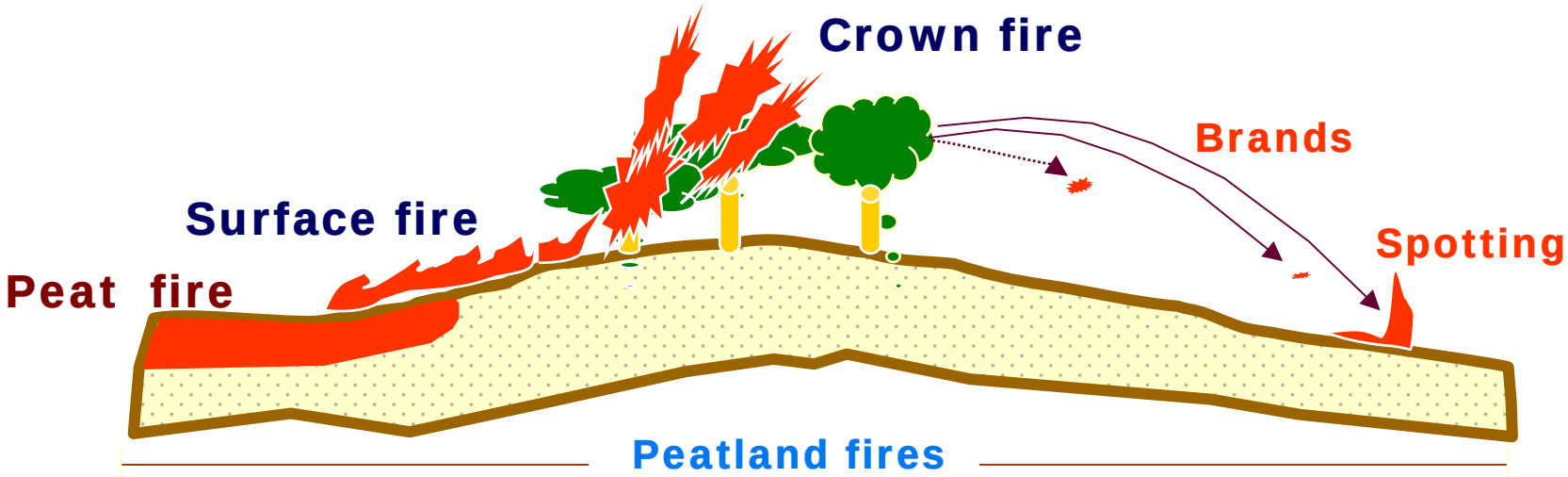
Contents

- Briefly about Peatland fire behavior and fire dynamics
- Activities for preventing peatlands fire
- Introduce Unpar and villages Fire Fighting Team in Central Kalimantan

What is Peatlands fire?



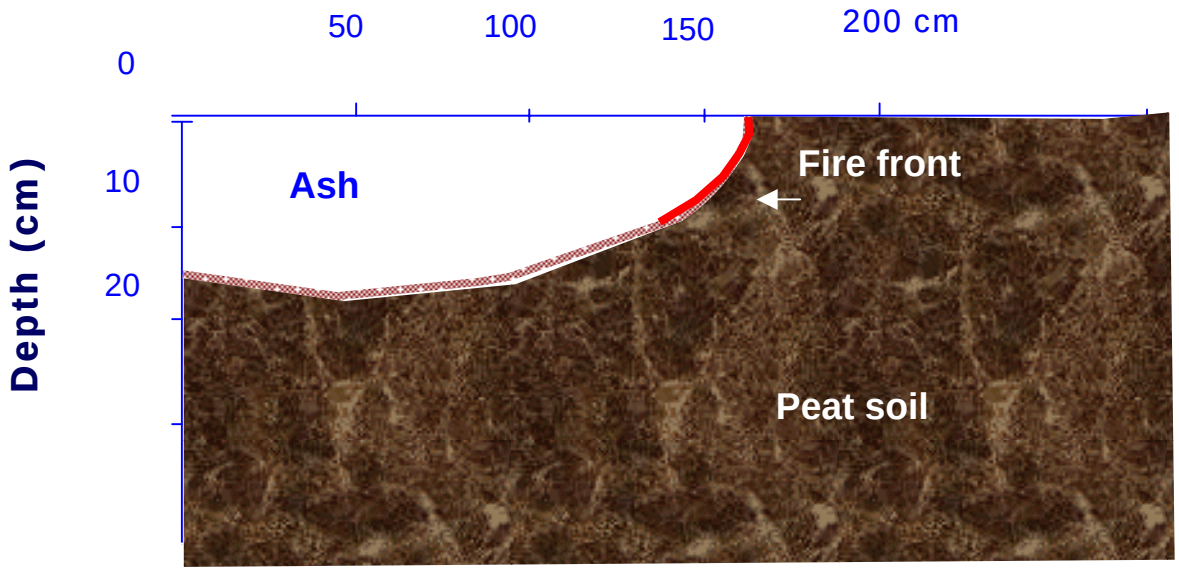
Surface fire

Peat fire

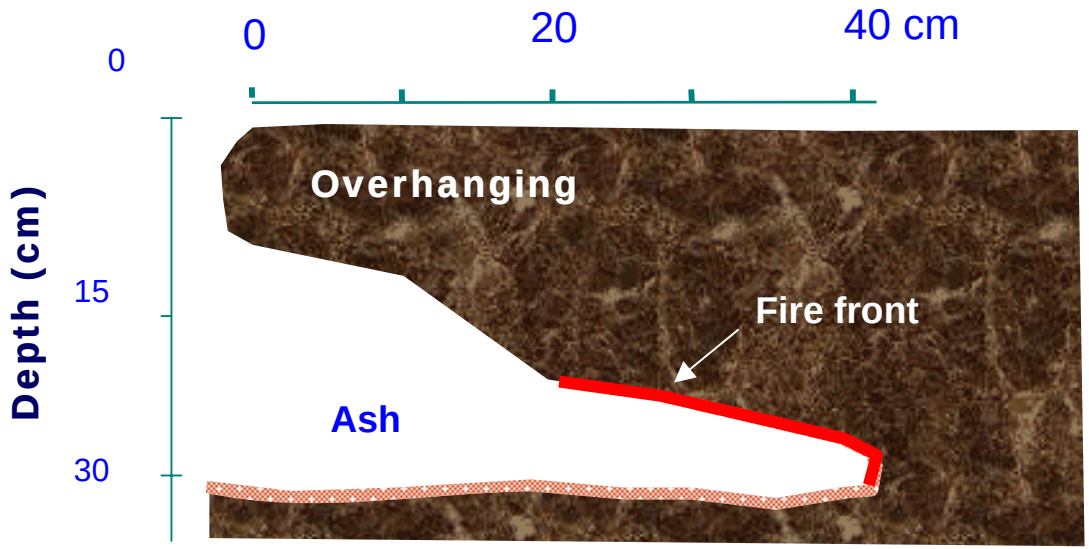
Crown fire

Type of peat fire

1. Surface peat fire



2. Subsurface peat fire



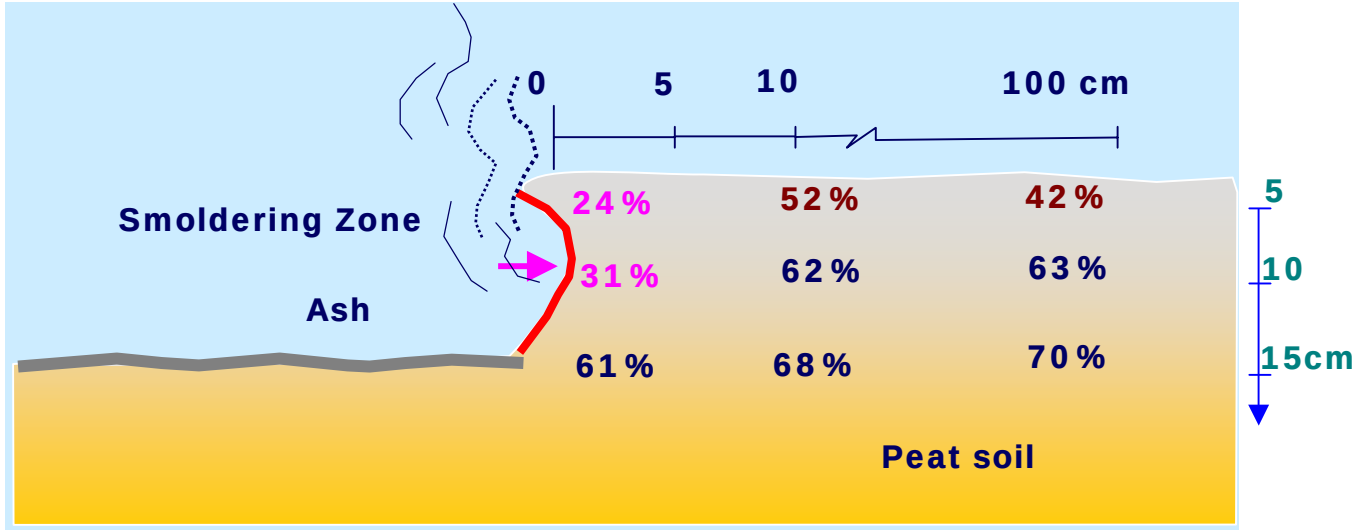
Peat fire spreading rate

Peat fire front	Peat fire spreading speed (cm h^{-1})				N
	Mean	Max imum	Minimum	SD	
Surface peat fire	3.83	6.49	1.73	1.41	20
Subsurface peat fire	1.29	2.50	0.50	0.64	20

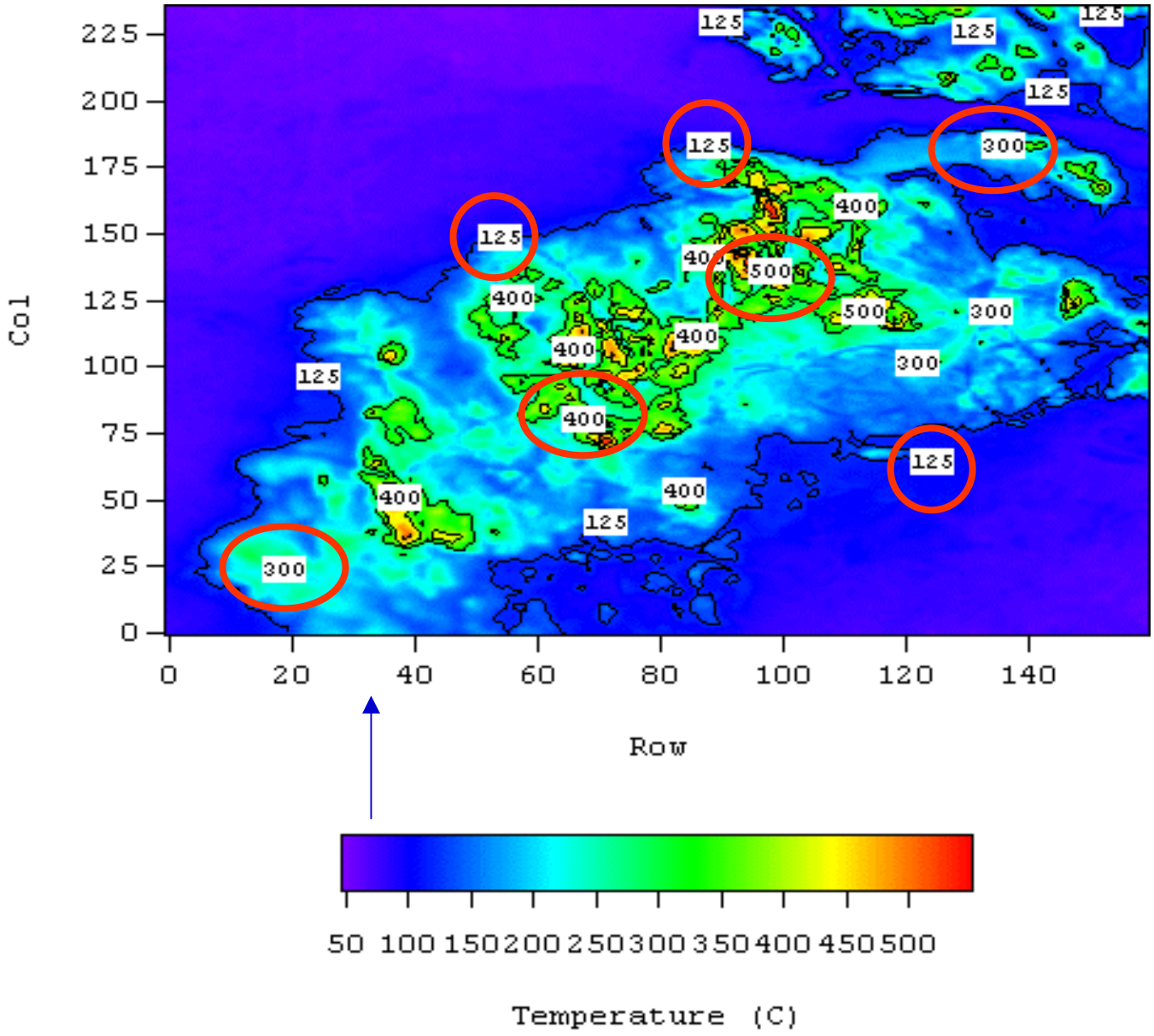
6.49 cm/h x 24 hours = 156 cm/day

2.50 cm/h x 24 hours = 60 cm/day

Peat Moisture

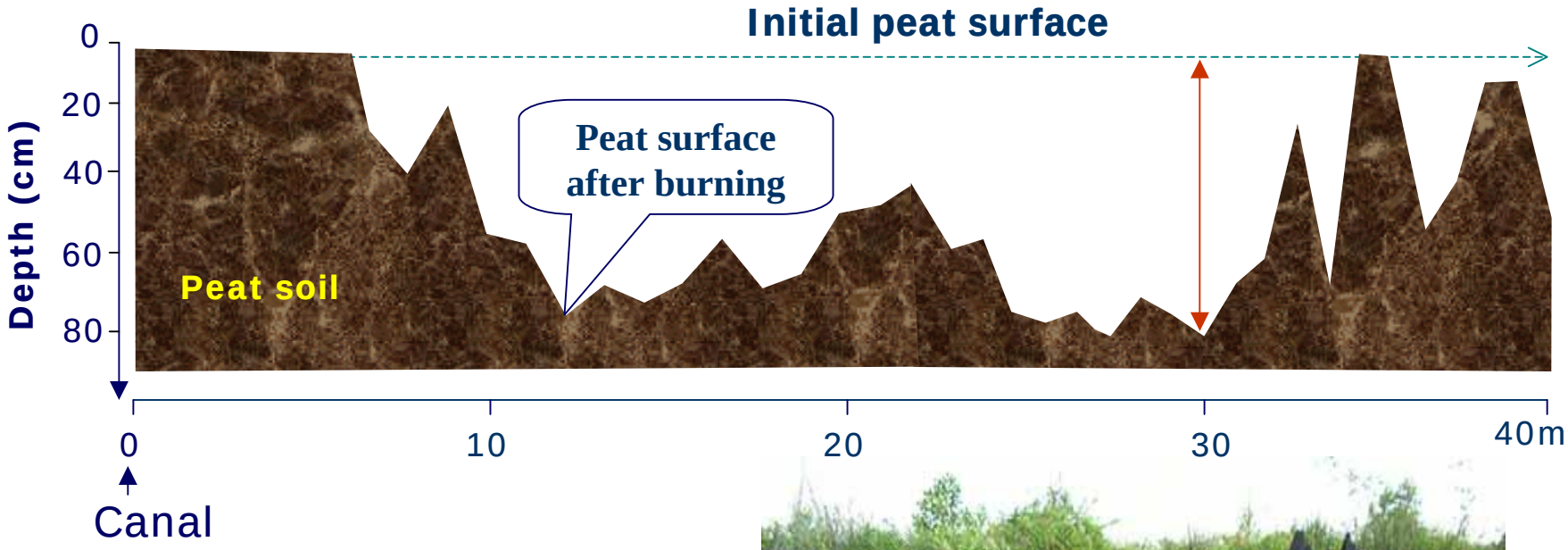


Temperature in peat layer during a fire event



Peat fire damage

Change of micro topography



Peat loss by fire:

Maximum = 80 cm

Averages = 56 cm

Measured at 1 m interval

Scheme of tropical peat fire dynamics

Initial fuels
Crown : 7%
Surface :10%
Ground :73%

Surface fire >600ºC

Peat ignition
- Bush
- Secondary peatland
- Often by wildfire
- Ignition: 255-277ºC
- In crack and woody

Ground fuels composition 0-50 cm
Grass root :18%
Woody peat: 5%
Fine peat : 25%
Coarse peat: 52%

Surface peat fire

Initial

Front Temperature 275ºC

Peat moisture
GWL
< 40 % (db)
70-80 cm depth

Flaming and Glowing temperature 300-400ºC

Volatile matter 17 - 52 %

Calorific value 19 kJ/g

Spread rate 42-155 cm/day

Degradation rate 3 mg/min

Potential fuel for next fire season

Flaming and Glowing temperature 300-400ºC

Subsurface peat fire

Penetrated

Fire penetration 50-60 cm

Mass loss 8.27 kg/m2

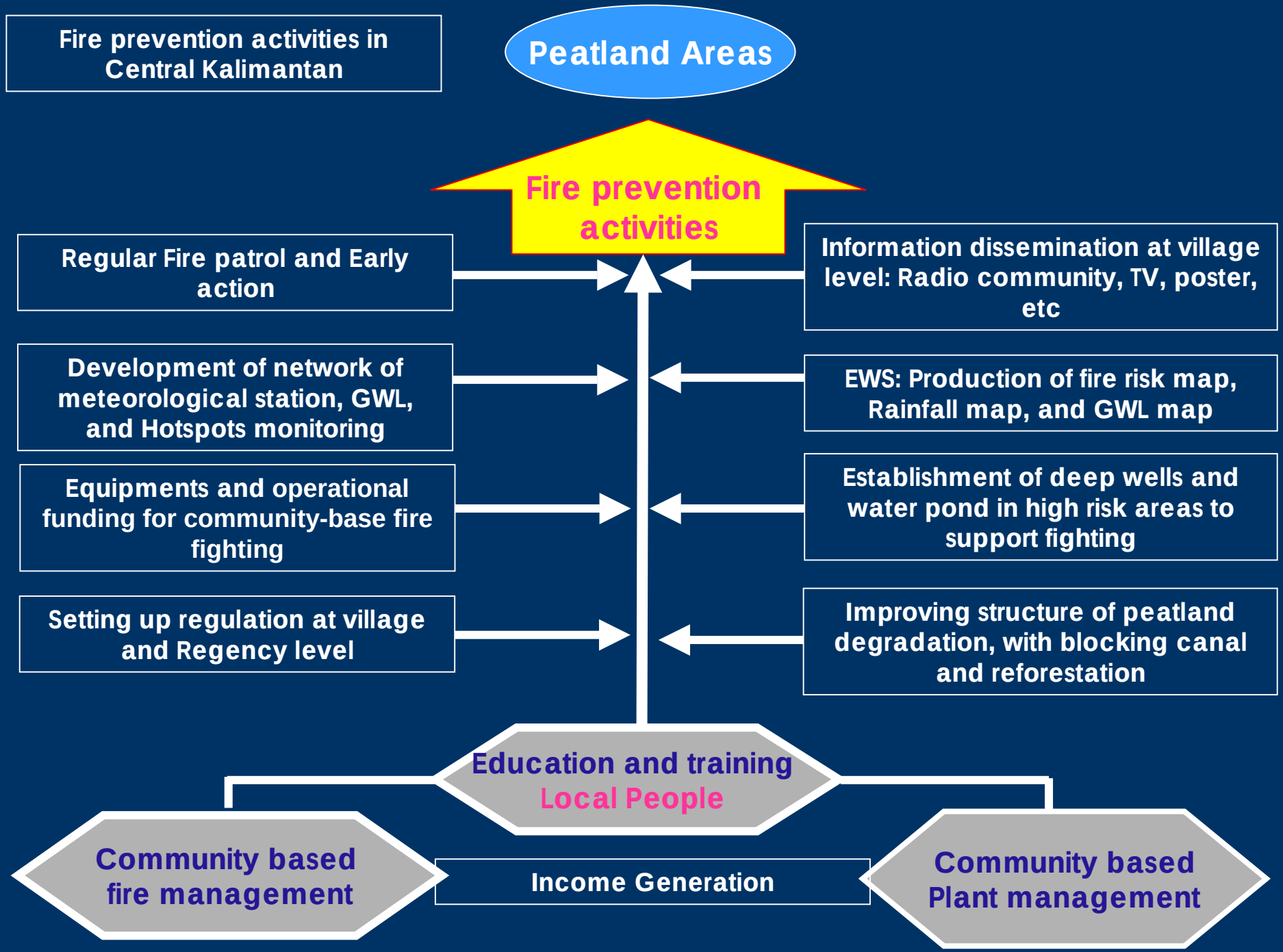
Volatile matter < 20 %

Calorific value 18 kJ/g

Heavy damage

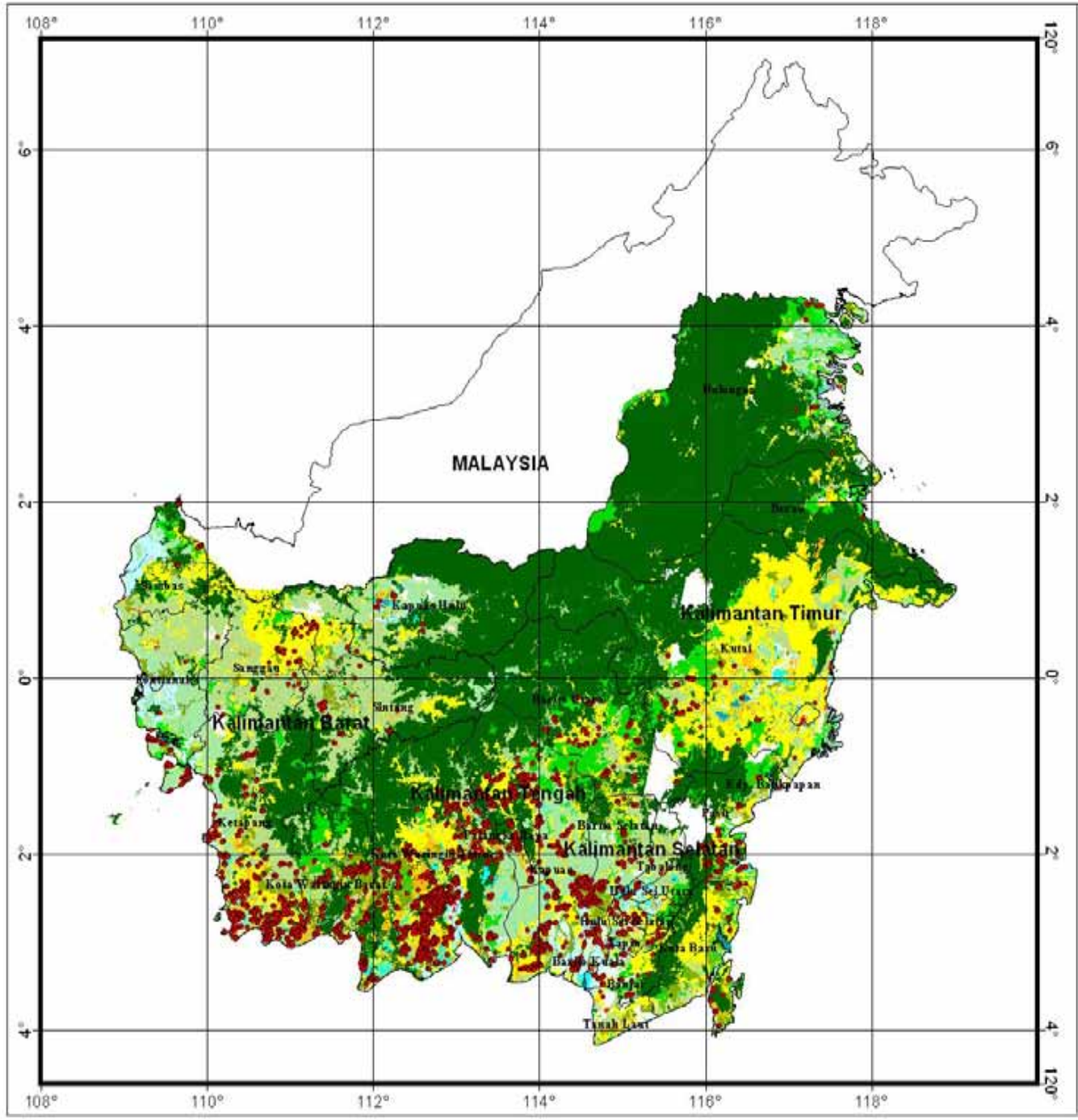
Spread rate 12-60 cm/day

Degradation rate 0.5-1.4 mg/min


Fire prevention activities in Central Kalimantan
Peatland Areas
Fire prevention activities
Regular Fire patrol and Early action
Development of network of meteorological station, GWL, and Hotspots monitoring
Equipments and operational funding for community-base fire fighting
Setting up regulation at village and Regency level
Information dissemination at village level: Radio community, TV, poster, etc
EWS: Production of fire risk map, Rainfall map, and GWL map
Establishment of deep wells and water pond in high risk areas to support fighting
Improving structure of peatland degradation, with blocking canal and reforestation
Education and training
Local People
Community based fire management
Income Generation
Community based Plant management

Difficulty

1. Rainfall ------> ***Forecasting*** of rainfall for 1-4 months
2. Hotspot ------> Provided in ***wide area***, and quite difficult to download website.
3. Ground Patrol-----> Accessibility



INFORMASI SPASIAL

PENUTUP/PENGGUNAAN LAHAN

dan

DISTRIBUSI TITIK PANAS (HOTSPOT)

KALIMANTAN

Bulan September 2006

Total Hotspot: 5622

100 0 100 200 300 Km

Proyeksi : ..... Geodetic
Sistem Grid : ..... Grid Geografi
Datum : ..... WGS 84

LEGENDA :

- Titik Panas (Hotspot)
- Hutan Primer
- Hutan Sekunder
- Hutan Mangrove
- Hutan Gambut
- Hutan Rawa
- Perkebunan
- Ladang
- Semak Belukar
- Tandus (Lahan Terbuka)
- Sawah
- Waduk
- Rawa
- Tambak
- Kota
- Kampung
- Awan

SUMBER DATA :

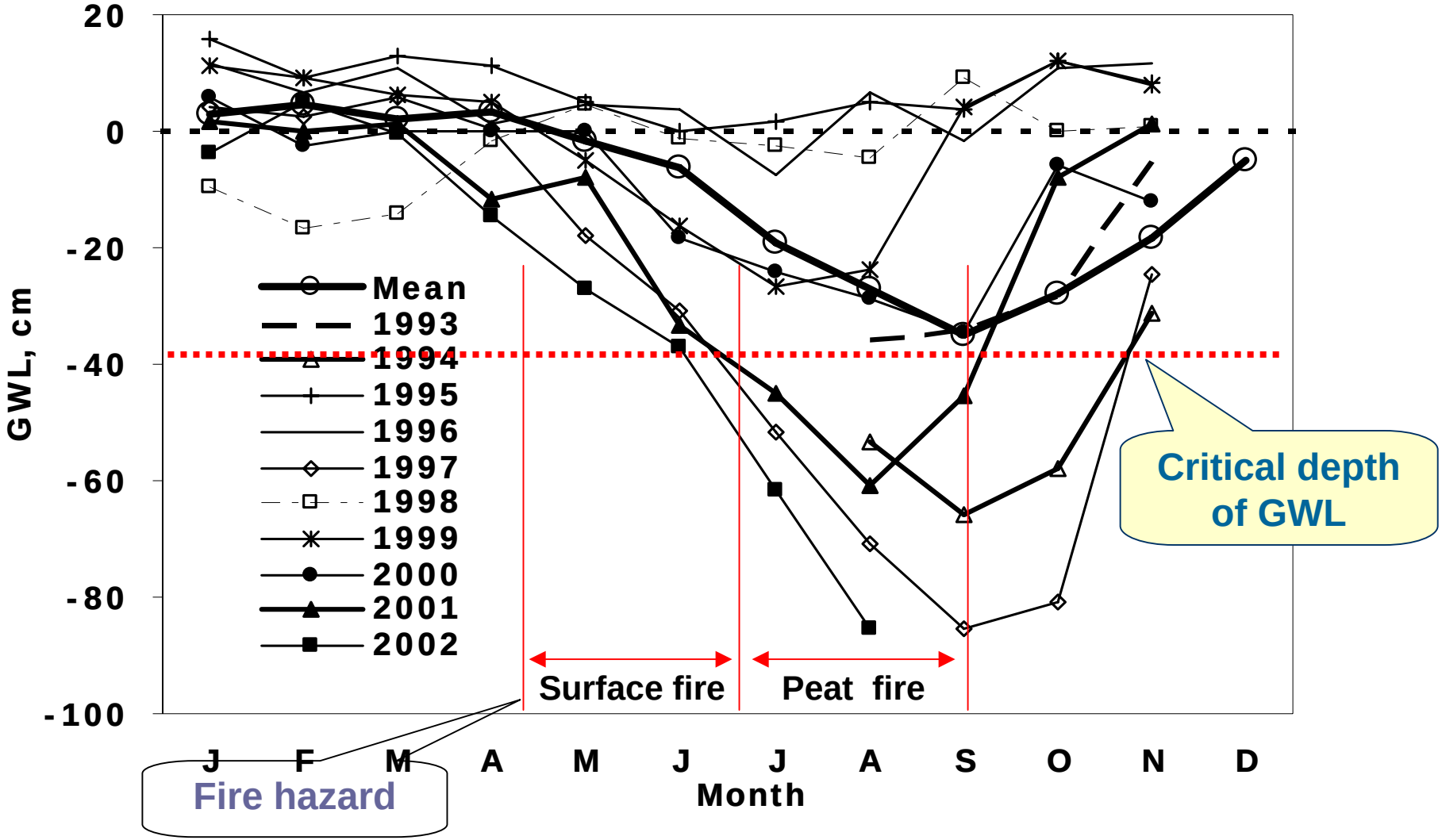
1. Hasil Interpretasi Penutup/Penggunaan Lahan pada Skala 1:100.000
2. Interpretasi Dilakukan dengan Cara Delineasi Visual pada Layar Monitor dengan Tampilan skala 1:100.000 citra Landsat 7 Kombinasi 542 (RGB) Tahun 2001 - 2002
3. Peta Penggunaan Lahan (landuse) ReRProT Digunakan dalam Identifikasi Obyek
4. Citra yang Berawan Diidentifikasi dan Diinterpretasi dari Citra Lainnya pada Wilayah yang Sama yang Tidak Berawan
5. Informasi Infrastruktur dan Batas Administrasi dari Peta Rupa Bumi Skala 1:250.000 dan Diperbaiki dengan Menggunakan Citra Landsat
6. Titik Panas Diekstrak dari NOAA 16 bulan September 2006

DIBUAT OLEH :

LAPAN

LEMBAGA PENERBANGAN DAN ANTARIKSA NASIONAL (LAPAN)
DEPUTI BIDANG PENGINDERAAN JAUH
PUSAT PENGEMBANGAN PEMANFAATAN DAN TEKNOLOGI PENGINDERAAN JAUH
Jl. LAPAN 70, Pekayon, Pasar Rebo, Jakarta Timur 13710,
Telp. 021-8710065, 8710706, Faks. 021-8710274

Ground Water Level in Palangka Raya



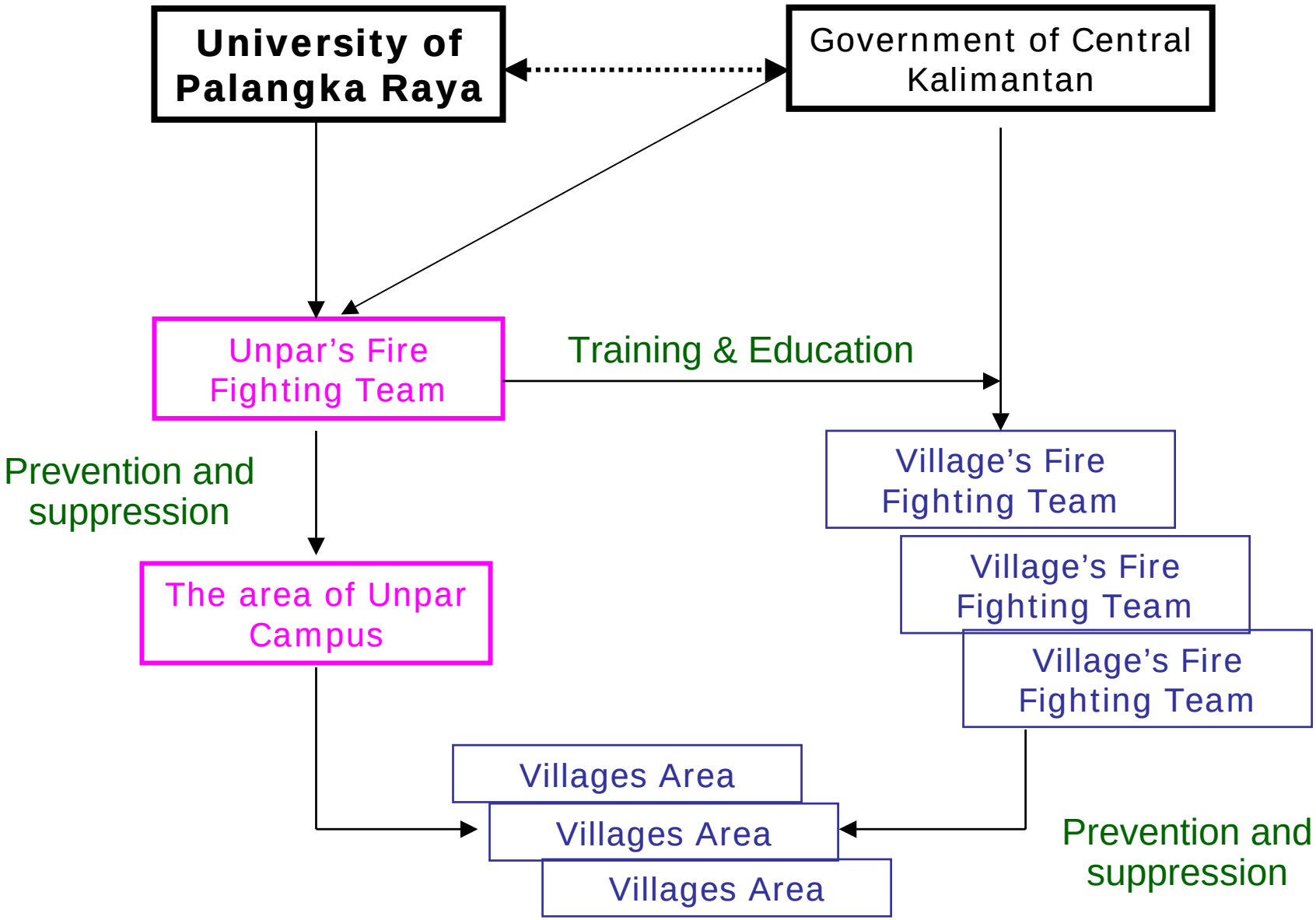
Rubber plantation of local community in Gohong village


UNIVERSITAS PALANGKA RAYA
UNIVERSITAS PALANGKARAYA
UNPAR

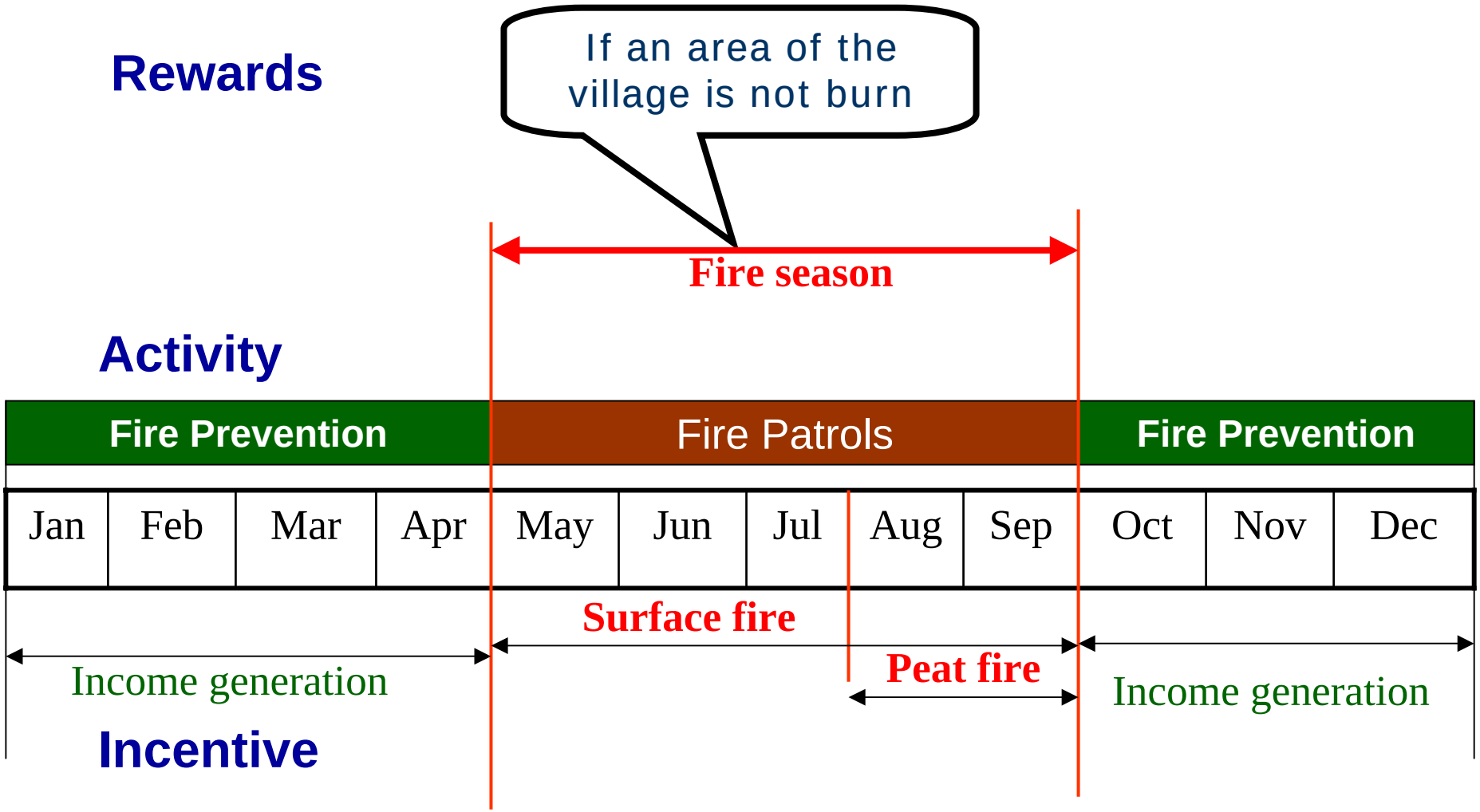
FIRE FIGHTING TEAM OF PALANGKA RAYA UNIVERSITY
A vision, mission, activity and strategy

Unpar Fire Fighting Team
43 members

2. Network of the Unpar Fire Fighting Team

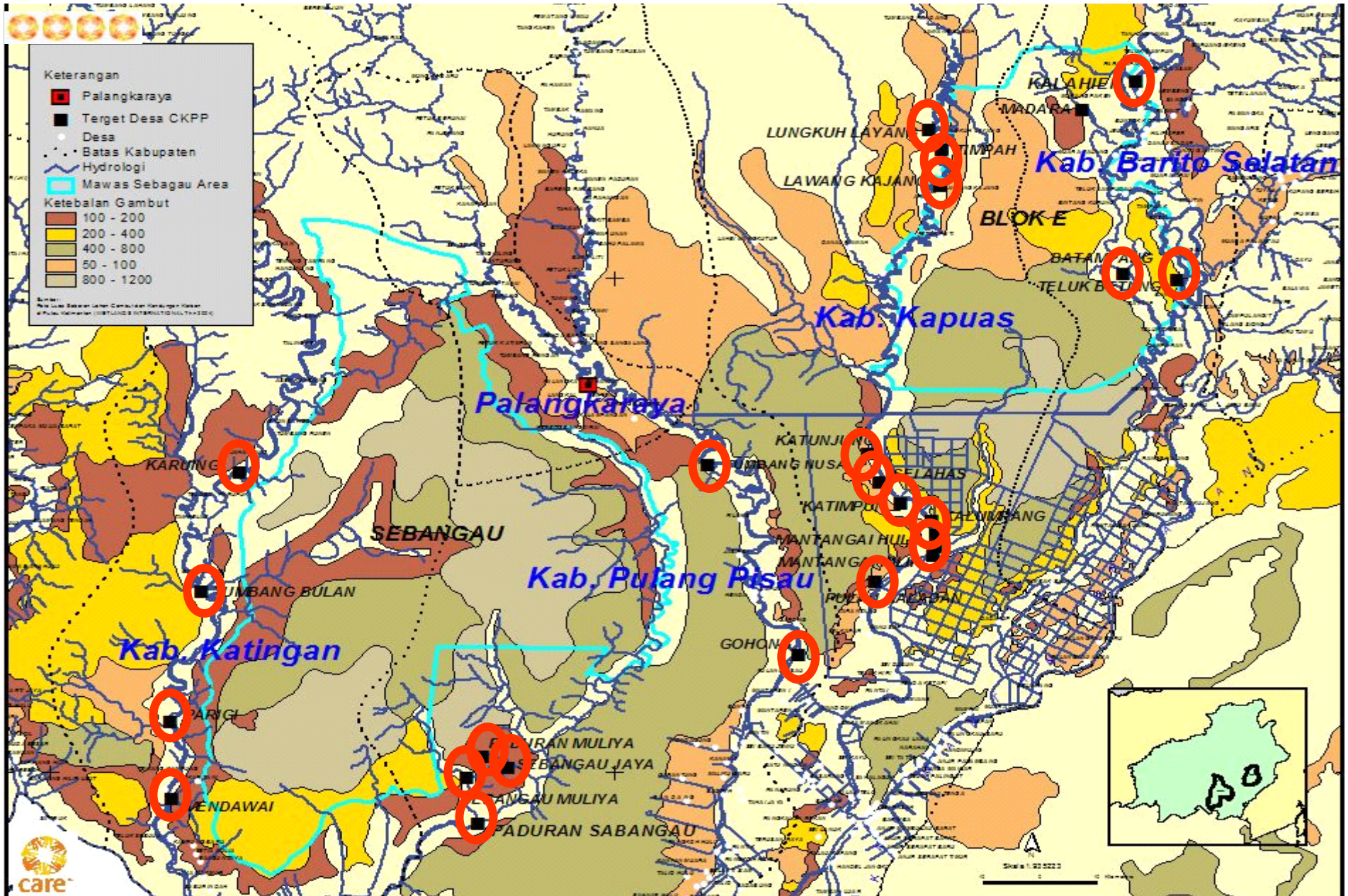


Strategy for peatland fire control in Central Kalimantan



Unpar's fire crew in Pulang Pisau
3 September 2005

Central Kalimantan map with show of 25 villages with Fire Fighting Team (*CKPP Project*)




FKPP

Photos training of the village fire Team
(Community based fire management)


N PENCEGAHAN DAN PENANGGULANGAN
HUTAN DAN LAHAN-BERBASIS MASYARAKAT
DESA GOHONG, 28 30 Agst 2006
WETLANDS
WWF for a living planet
BOS

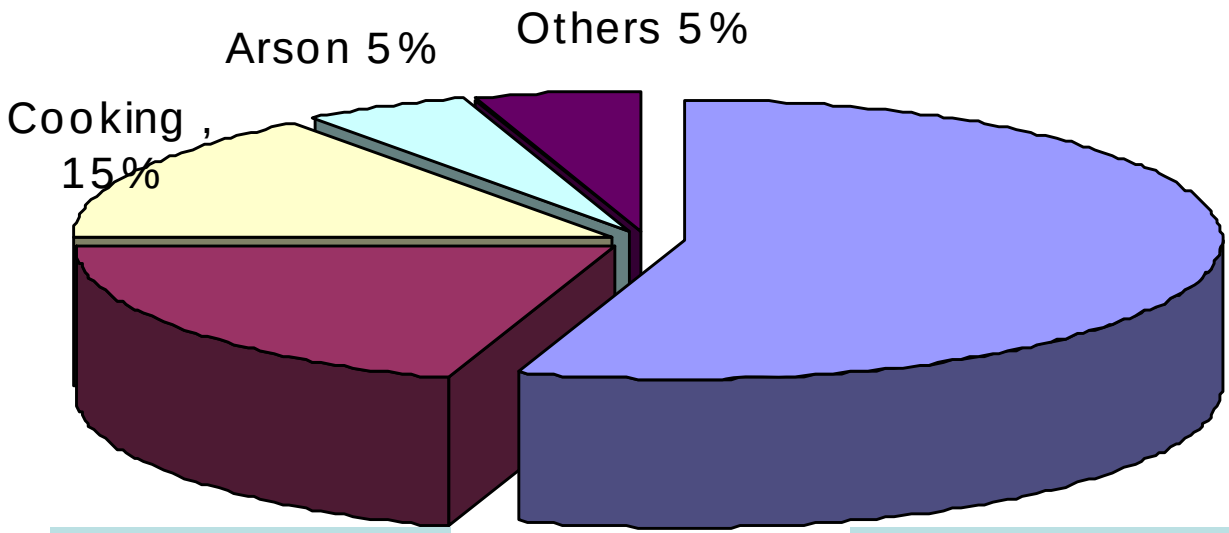

Grandong di Maliku

Photos training of Farmer

(Community based Plant management)


PELATIHAN PETANI KADER GERAKAN NASIONAL REHABILITASI HUT
KABUPATEN PULANG PISAU TAHUN 2006 ANGKATA
DI KECAMATAN SEBANGAU
TANGGAL 25
DINAS KEHUTANAN DAN PERKEBU
KABUPATEN PULANG

The sources of fire in Central Kalimantan



Cigarettes 20%

Land clearing 55%

Control

75% wildfire will be reduced

Settlement

Fire as a tool for Land Clearing

Fire as a tool for Land Clearing

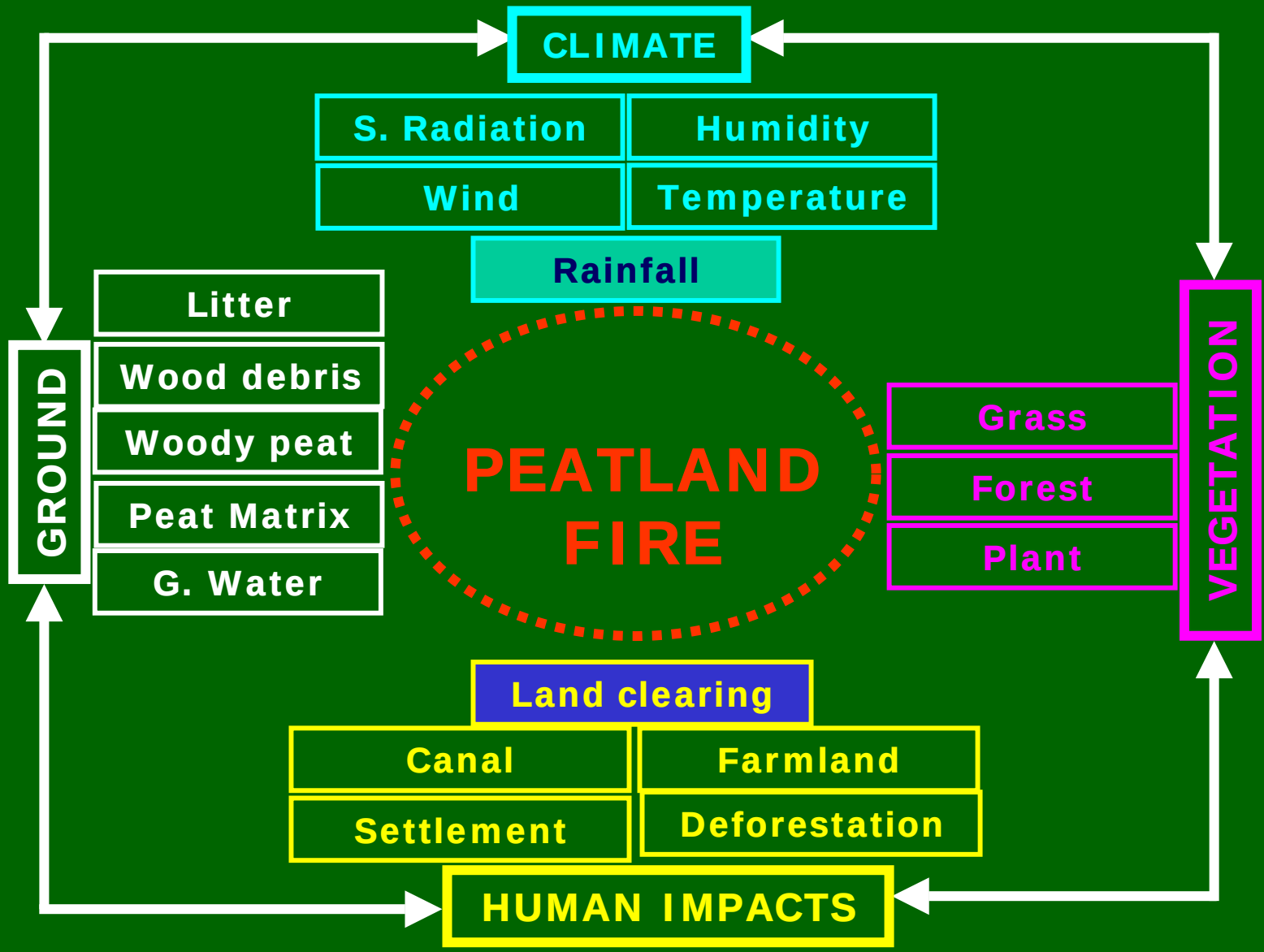

Land clearing

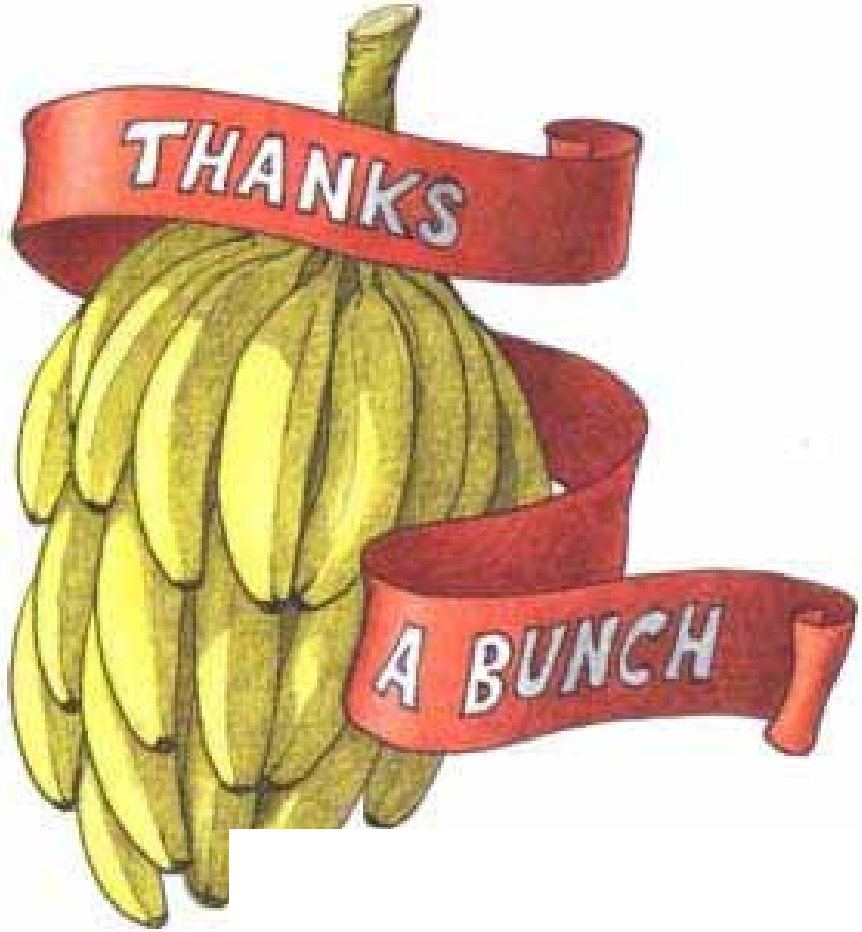
Fire as a tool for Land Clearing


MERATUS
0012

Logging

The factors Controlling the peatland fire




THANKS
A BUNCH