INDONESIA'S RIAU SMOKE
"SOURCES AND MITIGATION"

•Faculty of Forestry Bogor Agricultural University (IPB)
•Chair for Southeast Asia Wildland Fire Network-UNISDR

2015

Outline presentation

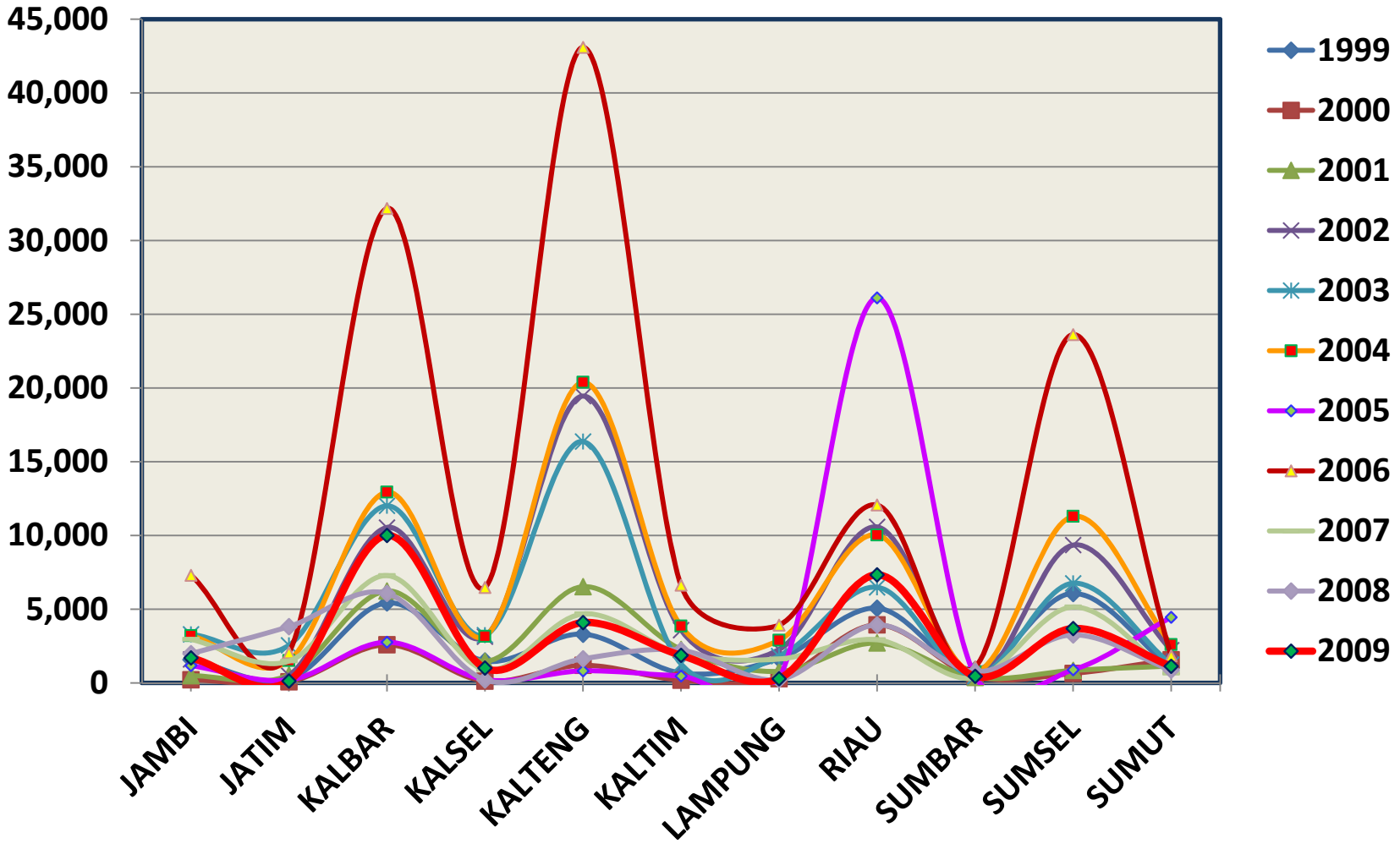
1. RIAU FIRES
2. SOURCE OF THE FIRES
3. MITIGATION EFFORTS

RIAU FIRES

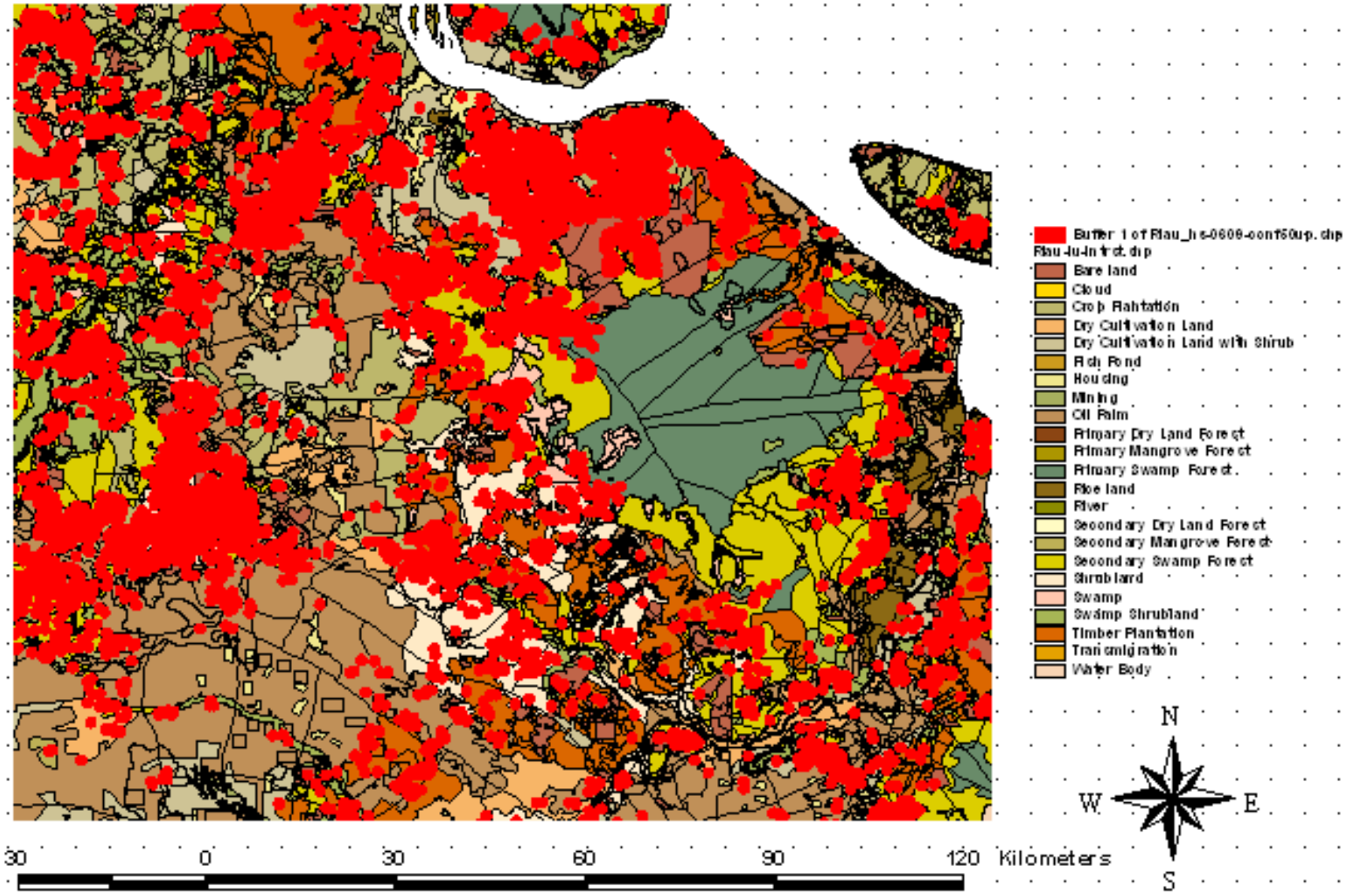
RIAU


Malaysia
Medan
Kuala Lumpur
MALACCA
NORTH SUMATRA
Singapore
Pulau Nias
Batam
Tanjung Pinang
RIAU
Bukittinggi
WEST SUMATRA
Pulau Siberut
JAMBI
Jambi
Map data ©2015 Google

Total hotspot detected 1999-2009 (Bappenas, 2009).

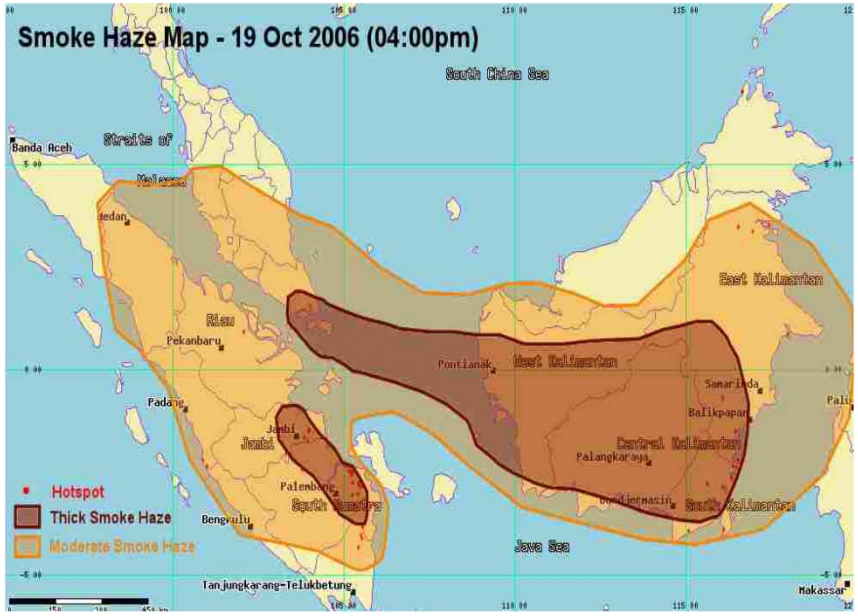


Burnt Area Bengkalis, 2000 - 2010

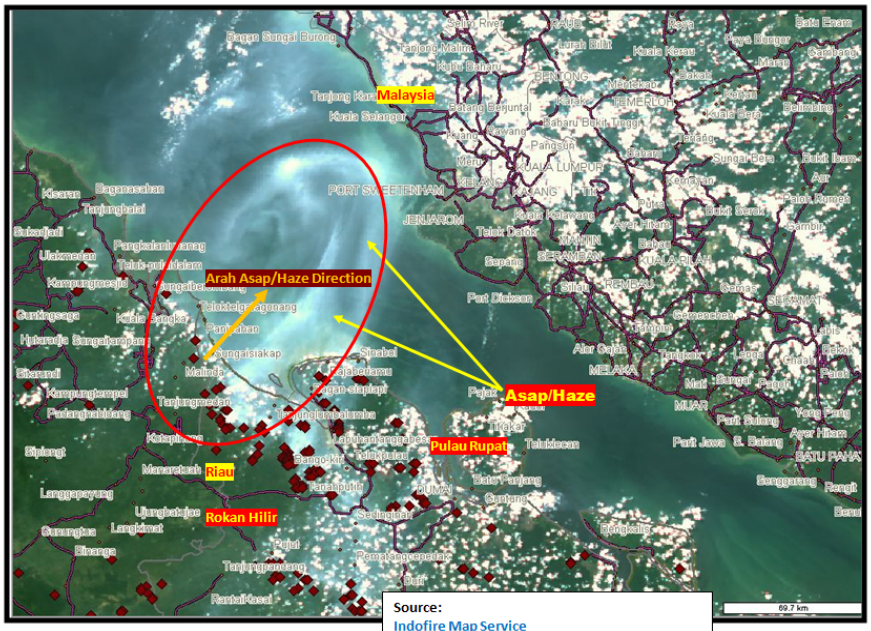


CITY PEKANBARU,RIAU (2013)

Trnansboundary haze pollution, June 2013

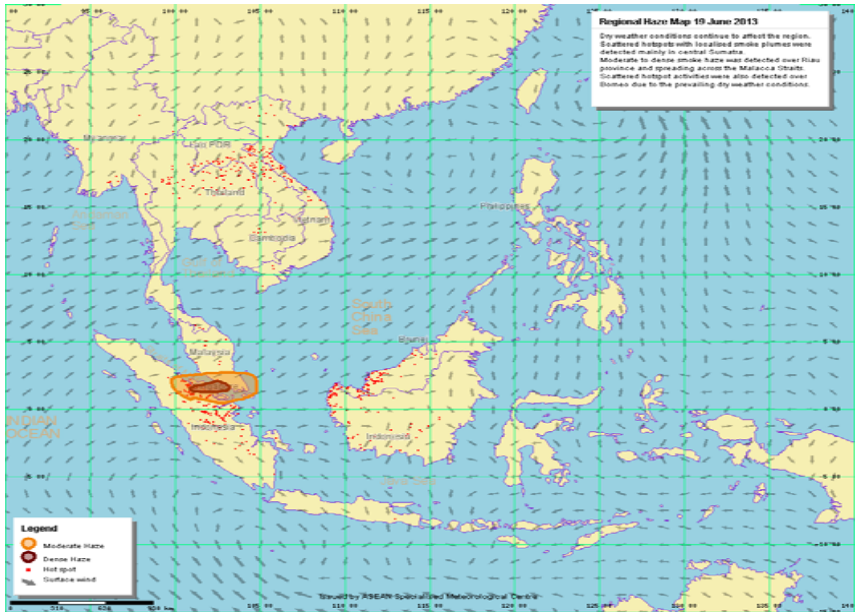


RIAU PROVINCE, AQUA MODIS, 14 JUNE 2012, TIME 13:35 WIB

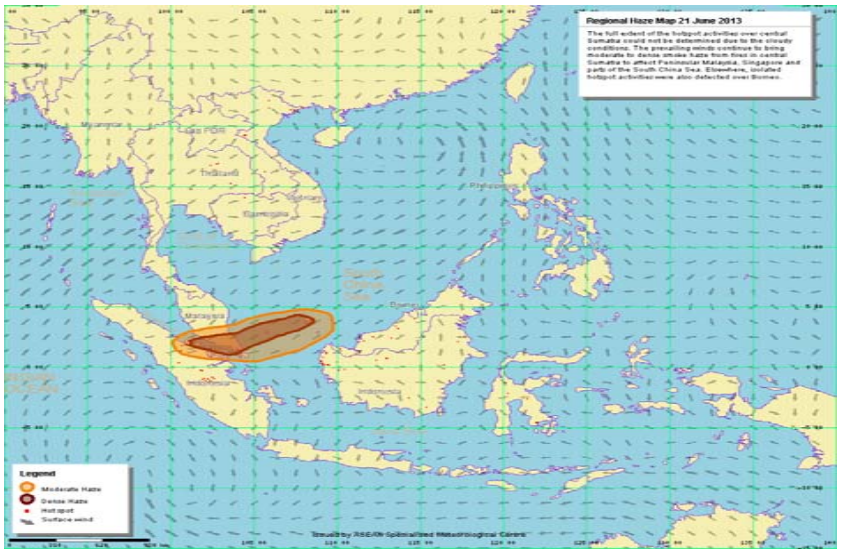


Source:
Indofire Map Service
http://indofire.landgate.wa.gov.au/indofire.asp

19 JUNE 2013



21 JUNE 2013



(Jakarta, Monday, 24 June 2013)

“For what is happening, as the president, I apologize to our brothers in Singapore and Malaysia”

SOURCES

Forestry plantation (2013)

Forestry plantation (2013), occupied by communities planted with oil palm

Sago plantation in Kep. Meranti(Feb. 2014)

Gaol, 2014

SAGO PLANTATION (2014)

Land preparation area for oil palm(RIAU POS, 2014)

TESSO NILO NATIONAL PARK (2014)

TNNP (2014)

BIOPSHERE RESERVE GIAM SIAK KECL, RIAU (2014)

BUKIT TIGA PULUH NATIONAL PARK (2014)

Foto: Patar (Mongabay, 2014)

BUKIT TIGA PULUH NAT. PARK (2014)

Foto: Patar (Mongabay, 2014)

Fires by community in Rokan Hulu (2014)

2015 RIAU FIRES

PELALAWAN DISTRICT (RIAU GREEN, JANUARI 2015)

(Riau terkini, 12 Feb. 2015)

ROKAN HILIR DISTRICT (RIAU GREEN, FEBRUARI 2015)

KEPULAUAN MERANTI DISTRICT OFFICE (RIAU GREEN, FEBRUARI 2015)

Fires in Rupat (Riau Green, 29 Maret ‘15)

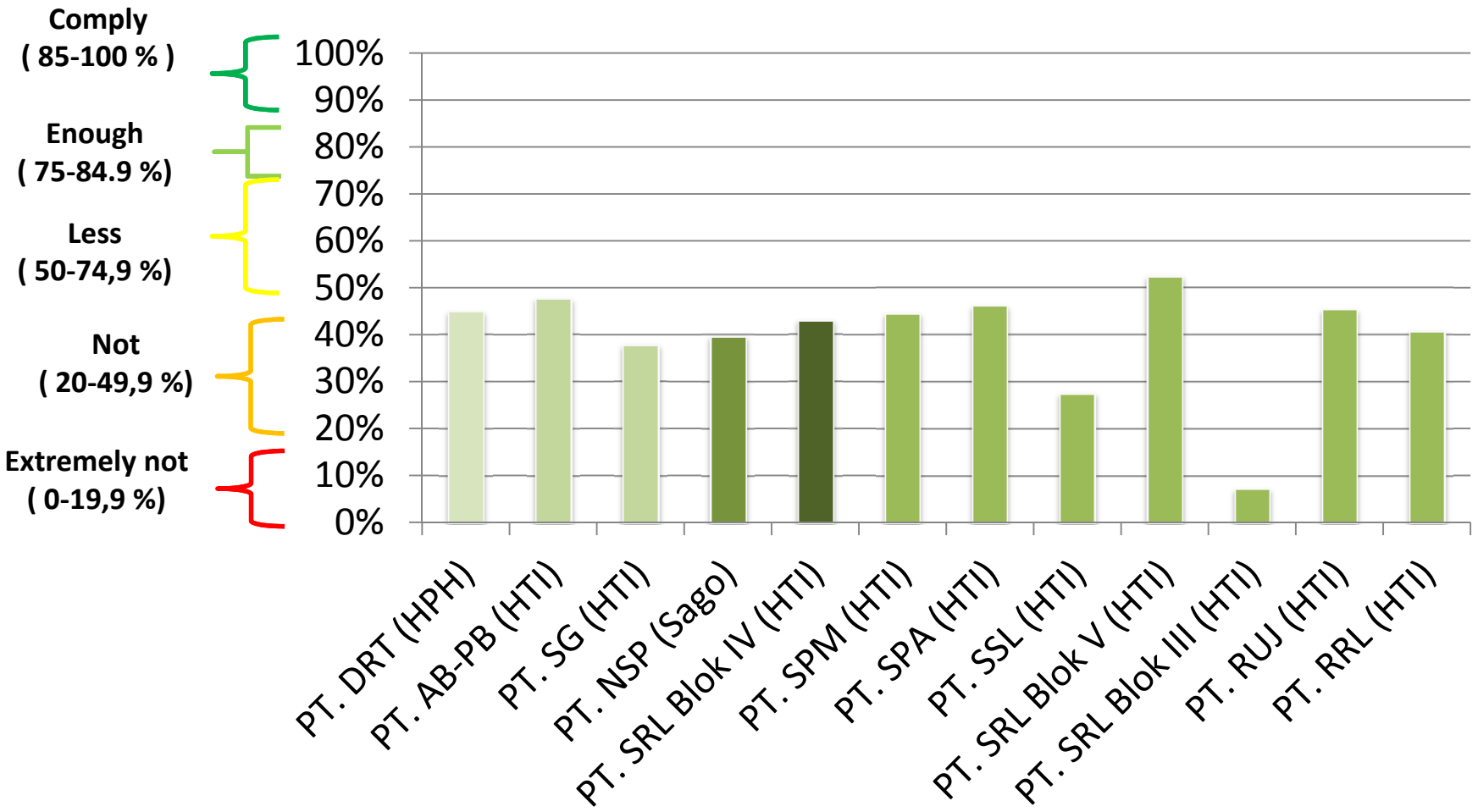
CITY DUMAI with PSI 500
(Riau Green, 29 Maret 15)

Fires in communities land (March, 2015)

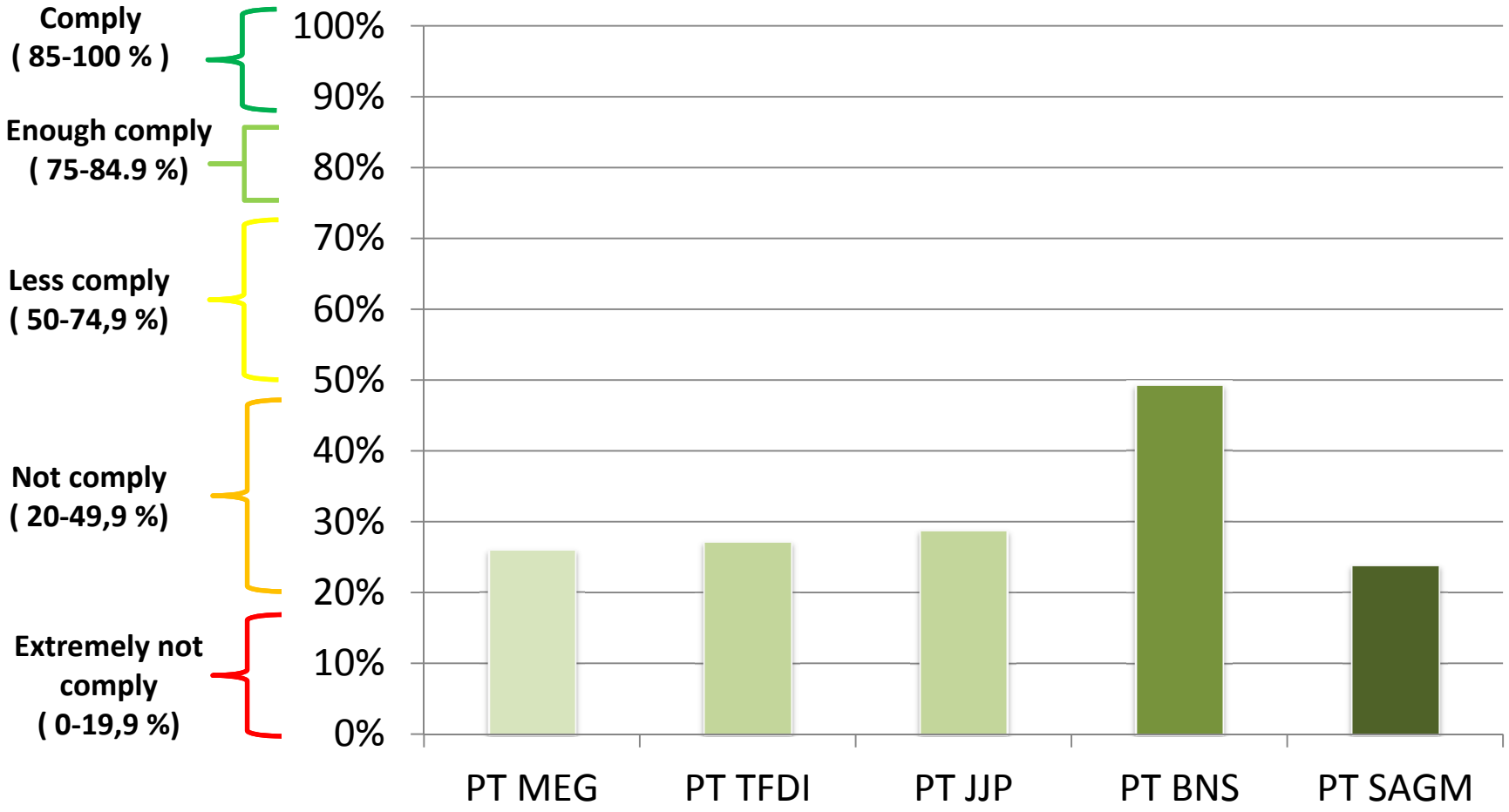
17 July 2015

AUDIT COMPLIANCE IN RIAU PROV (2014):
1. FORESTRY PLANTATION COMP.
2.OIL PALM COMP.
3. DISTRICT AGENCIES AND CITY

RESULT OF AUDIT COMPLIANCE FOR FORESTRY PLANTATION COMPANY IN RIAU PROVINCE

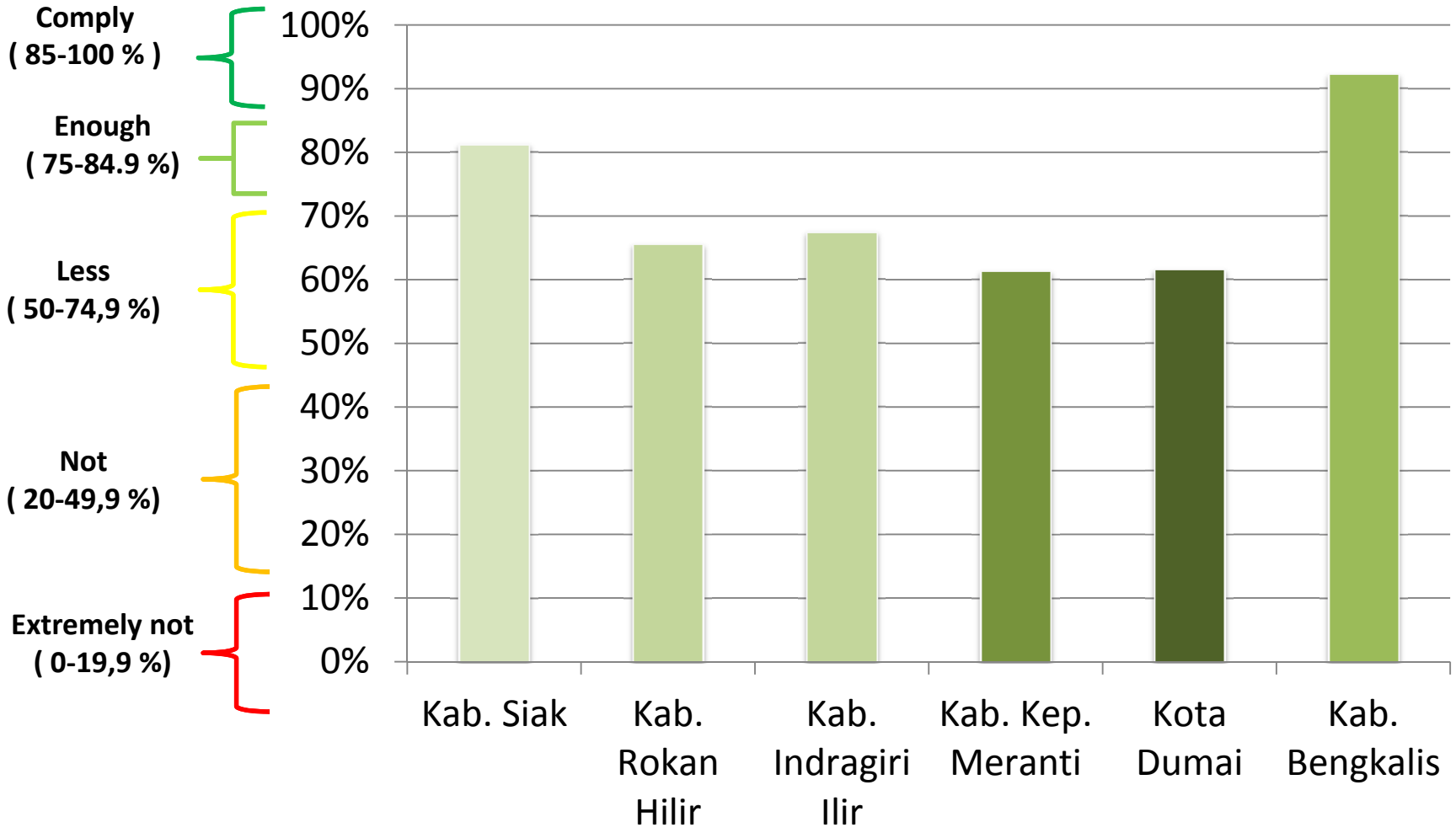


RESULT OF AUDIT COMPLIANCE FOR OIL PALM COMPANY IN RIAU PROVINCE (2014)

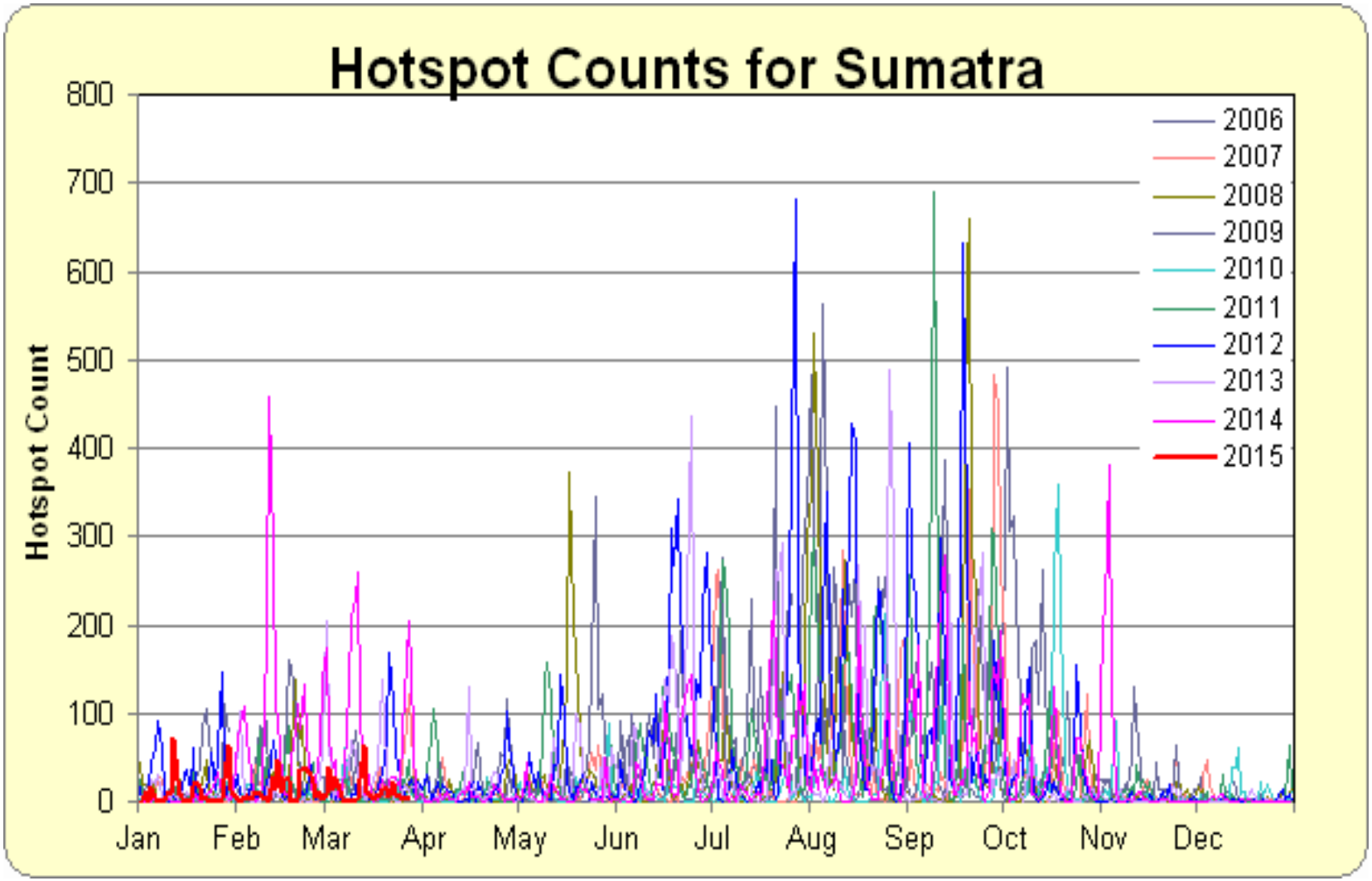


IS THESE FIRE TOWER ????

RESULT OF AUDIT COMPLIANCE FOR DISTRICTS AND CITY IN RIAU PROVINCE (2014)



KONDISI HOTSPOT DI SUMATRA, 2006-MARET 2015 (ASMC, 2015)



Accumulation hotspot data taken from NOAA-18 in ASEAN(ASMC, 2015)

Negara ASEAN	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Cambodia	6650	10526	13885	12911	**14701**	**14270**	**14992**	**19033**	**17349**
Laos	8566	16580	14139	15327	**22819**	**12707**	**17679**	**15770**	**11540**
Indonesia	**29059**	**15141**	**14982**	**25792**	**8180**	**22386**	**27667**	**15613**	**24898**
Sumatera	12014	7017	8349	10297	4147	10320	14032	8398	9728
Kalimantan	17045	8124	6633	15495	4033	12066	13635	7215	15170
Malaysia									
Peninsular	299	587	632	858	939	862	1236	1418	2608
Sabah& Serawak	1147	1798	1523	2467	1577	1468	2401	1549	1719
Filipine	1606	2322	1311	1357	2894	952	1167	1462	1946
Myanmar	**18751**	**33468**	**27740**	**34871**	**38359**	**27976**	**52033**	**44397**	**37926**
Vietnam	5193	8394	8947	9897	**12537**	**9448**	**13981**	**12442**	**13225**
Thailand	8578	14696	13654	14314	**18503**	**13920**	**27033**	**22817**	**19120**

MITIGATION EFFORTS !

ARTIFICIAL RAIN


МЧС РОССИИ
RF-21515

PRESIENT SBY. IN RIAU MARCH 2014

Presiden SBY send army and polices to Riau provinces (2014)


GARIS POLISI
DALAM PENYIDIKAN POLISI


DILARANG
MENGOLAH LA-
HAN,SEDANG

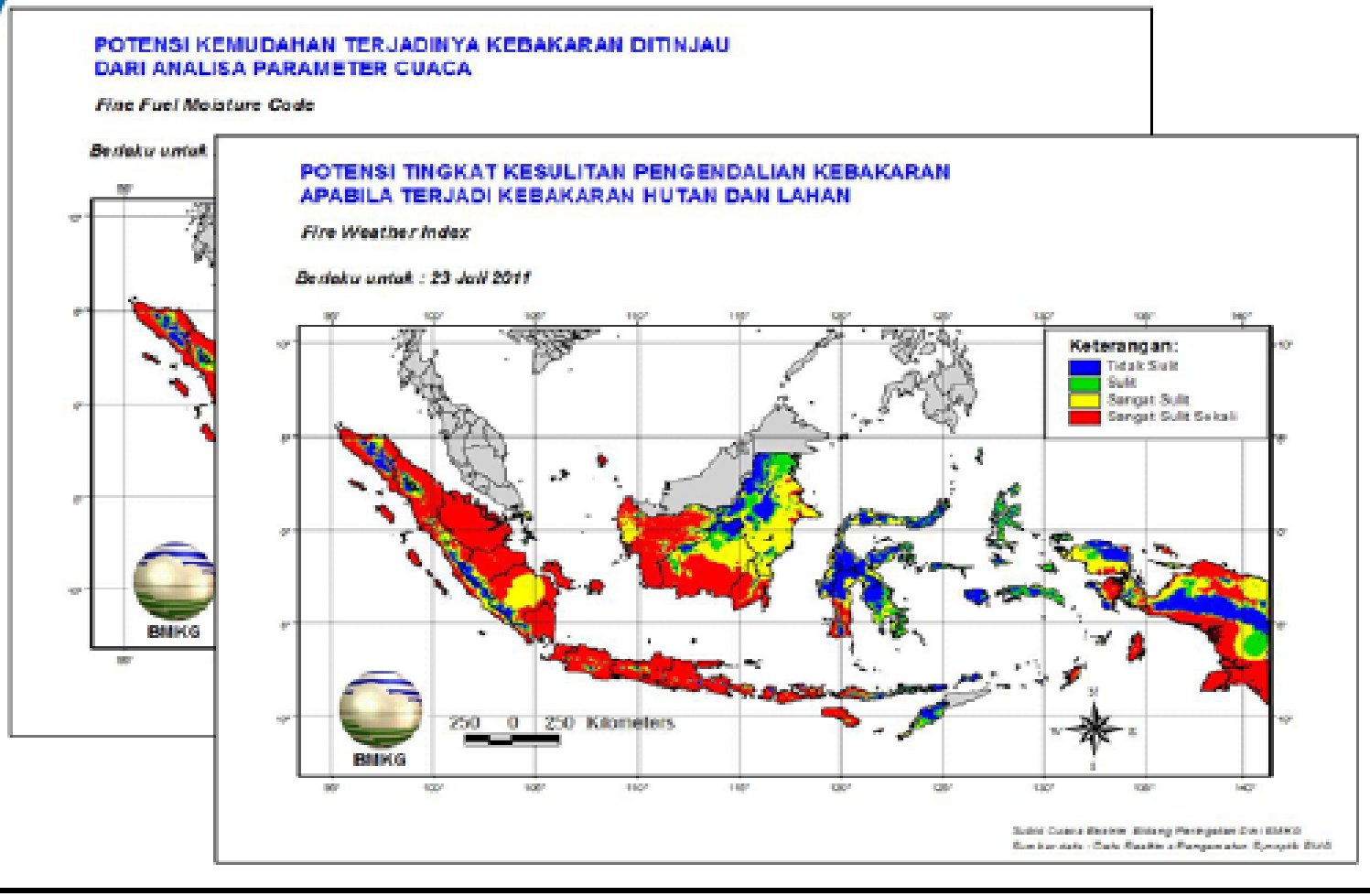
NATIONAL EMERGENCY APPEAL (2006)

Hotspot detected in the year 2005 and 2006

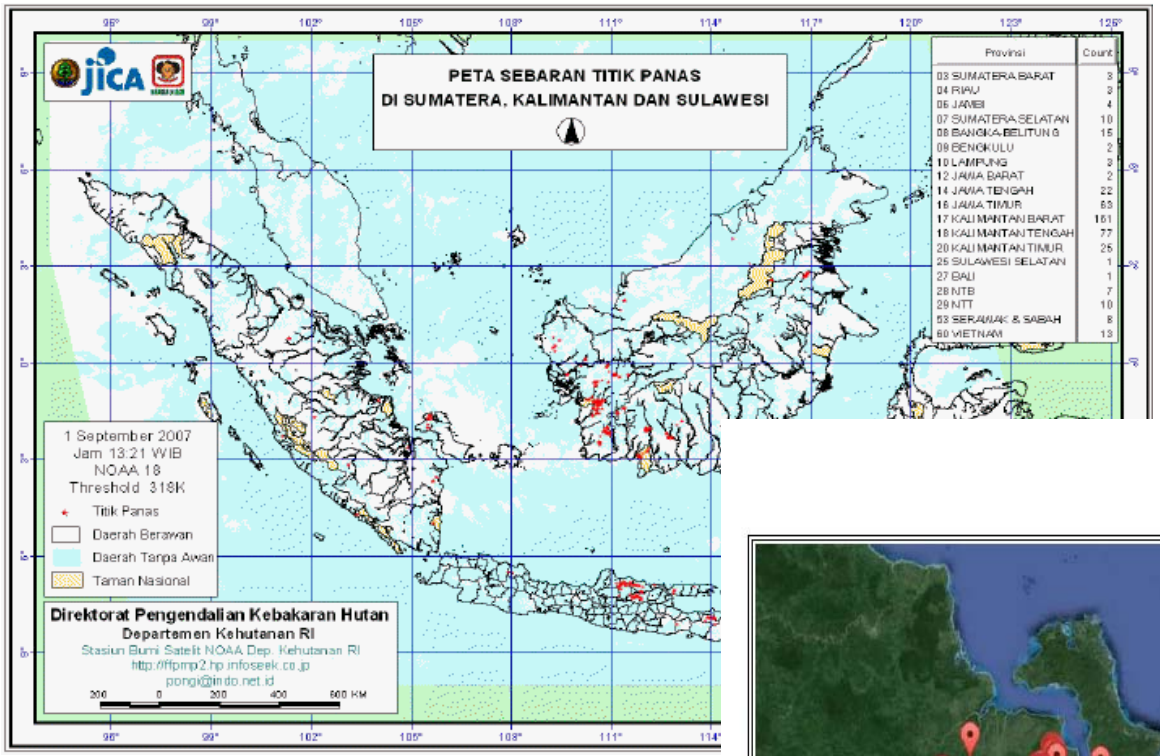
No.	Province	Hotspot detected		
		2005	2006	%
1	North Sumatra	3.830	3581	-6,50
2	Riau	22.630	35.426	56,54
3	Jambi	1208	6948	475,17
4	South Sumatera	1182	21.734	1738,75
5	West Kalimantan	3022	29.266	864,43
6	Central Kalimantan	3147	40.897	1199,56
7	South Kalimantan	758	6469	753,43
8	South Sulawesi	133	1201	803,01

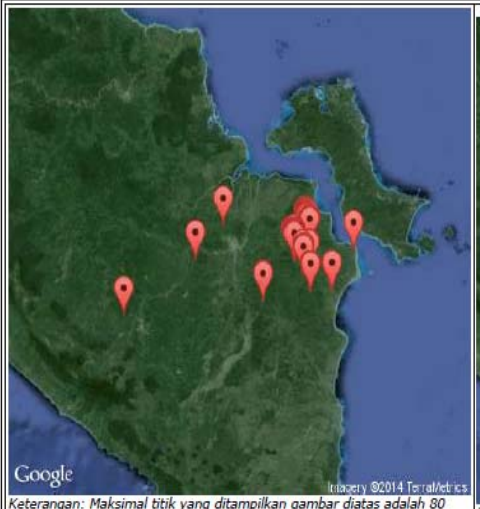
EARLY WARING SYSTEM

Indonesia FDRS (source: BMKG)



EARLY DETECTION SYSTEM





Keterangan: Maksimal titik yang ditampilkan gambar diatas adalah 80 titik

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No	Acquired (GMT+7)	Confidence	Brightness	Radiative Power Satellite	Satellite	Latitude	Longitude	Kabupaten	Kecamatan	Desa
1	2014-10-09 10:05:00	97	354.5 K	170.0 MW	TERRA	-2.995	105.551	OGAN KOMERING ILIR	TULUNG SELAPAN	SIMPANG TIGA SAKTI
2	2014-10-09 12:55:00	96	352.6 K	628.0 MW	AQUA	-3.756	104.040	MUARA ENIM	LUBAI	SUMBER MULYA
3	2014-10-09 12:55:00	95	348.7 K	531.8 MW	AQUA	-3.757	104.033	MUARA ENIM	LUBAI	SUMBER MULYA
4	2014-10-09 10:05:00	95	349.7 K	148.4 MW	TERRA	-3.455	104.882	OGAN KOMERING ILIR	PEDAMARAN	CINTA JAYA

COUMMUNITY BASED FIRE MANAGEMENT


ISUZU
GD
3-WAY


PIENTAR
sang hyang seri
SELECTION


01/10/2006


01/10/2006


01/10/2006


21/10/2006

FIRE’S FIGHT COMUNITY

BIOGAS

ELECTRIC POWER PLANT USING BIOMASS

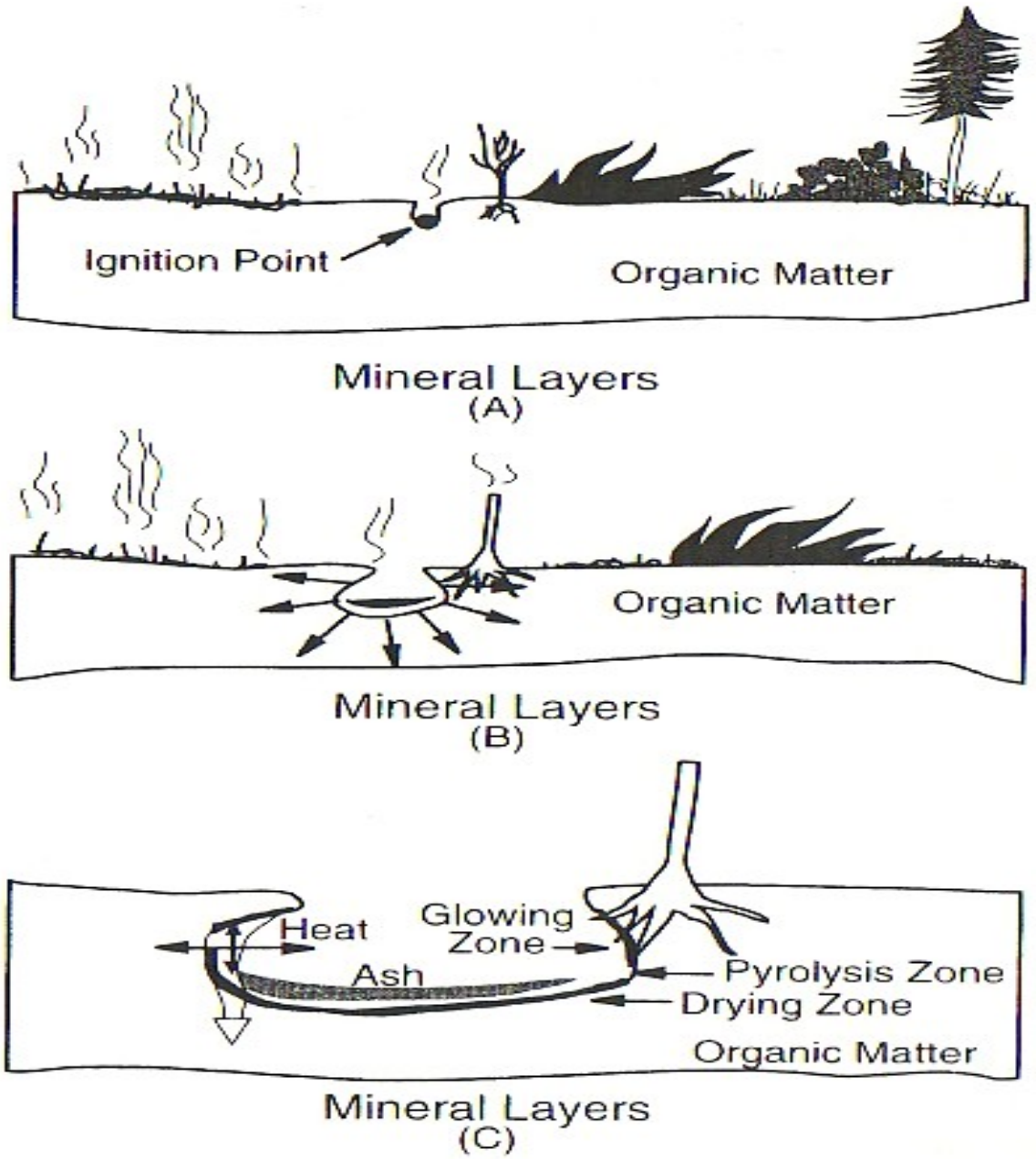

Schneider
Electric
PowerLogic™
20035
88
3032
97835208
kWh
E
PF
F

CHALLENGES !

- CARBON STOCK IN TROPICAL PEAT : 83.3 Gt.

- INDONESIA : 44.5 Gt. (53.1 %)
- Other Tropical area : 25.7 Gt. (30.2 %)
- Other Souteast Asia : 13.6 Gt. (16.2%)

- **INDONESIA:**
- West Papua : 10.3 Gt. (23%)
- Kalimantan : 15.1 Gt. (33.8 %)
- Sumatra : 18.3 Gt. (41.1 %)


Ignition Point
Organic Matter
Mineral Layers
(A)
Organic Matter
Mineral Layers
(B)
Heat
Glowing
Zone
Ash
Pyrolysis Zone
Drying Zone
Organic Matter
Mineral Layers
(C)

BAPPENAS

Indonesia Emission Reduction Target

Sector	Emission Reduction Plan (Giga ton CO2e)		Action Plan	Agency
	26%	41%		
Forestry and Peatland	**0.672**	**1.039**	Controlling forest fire and peat fire, Water resource management, Forest and land rehabilitation, HTI, HR. Reducing Illegal Logging, Avoiding deforestation, community engagement.	Ministry of Forestry, Ministry of Environment, Ministry of Public Work, Ministry of Agriculture
Waste	**0.048**	**0.078**	Building Landfill, wasting management based on 3R and integrated water waste management in urban area	Ministry of Public Work, Ministry of Environment
Agriculture	**0.008**	**0.011**	Introduction low emission rice, water irrigation efficiency, applying organic fertilizer	Ministry of Agriculture, Ministry of Environment
Industry	**0.001**	**0.005**	Energy efficiency, applying renewable energy	Ministry of Industry
Energy and transportation	**0.038**	**0.056**	Applying bio fuel, engine efficiency	Ministry of Transportation, Ministry of Energy, ministry of Public Work
	0.767	**1.189**		

SUMMARY

- ALL OF THE FIRES SOURCE FROM MAN MADE WITH MANY PURPOSE BEHIND
- DO NOT ALL OF STAKE HOLDER REALLY CARES ABOUT THE FIRES
- MORE FIRES OCCURS IF PREVENTION EFFORTS ARE NOT BECOME THE BEST SOLUTION HENCE MORE MONEY SPENT
- MOST EQUIPMENTS USED TO FIGHT THE FIRES OMLY SHOW HOW IT WORKS BUT NOT SOLVE THE PROBLEMS


THANK YOU