ASEAN Peatland Forests Project (APFP)

Peatland Fire Prediction and Warning system

APFP Regional Component

Outcome 2: Protection and sustainable management of peatland enhanced

- Output 2.1: mechanisms for effective regional prediction and monitoring of peat fires strengthened
- 2.1.1 FDRS- develop a real- time warning system for peat fires
- 2.1.2 Hotspot monitoring and refinement of ASMC System
- 2.1.3 Support of field testing for the systems at the pilot sites

The Fire Prediction and Early Warning System using FDRS is initiated by APFP and co-supported by SEApeat Project

-Pilot testing in NSPSF, Selangor, Malaysia

-Pilot testing in Riau Province, Indonesia

-……refined system to be introduced to other ASEAN Members State

What is FDRS

- The FDRS is a system that monitors forest/vegetation fires risk and supplies information that assists in fire management. The products of FDRS can be used to predict fire behaviour and can be used as a guide to policy-makers in developing actions to protect life, property and the environment.
- The meteorological variables used (Temperature, Relative Humidity, Rainfall, Wind Speed) are those measured at Malaysia Principal meteorological stations and automated weather station (AWS)

Automated Weather System(AWS)

Essential Data for FDRS

- Temperature (ºC)
- Relative Humidity (%)
- Wind Speed (km/hour)
- Rainfall (mm)

Data Processed into

- Fine Fuel Moisture Code (FFMC)
- Duff Moisture Code (DMC)
- Drought Code (DC)
- Initial Spread Index (ISI)
- Build Up Index (BUI)
- Fire Weather Index (FWI)

Fine Fuel Moisture Code (FFMC)

- Temperature
- Relative humidity
- Wind speed
- Rainfall
- Indicative values of the moisture content of litter and other cured fine fuels
- Indicator for bush and grass fires on surface of peat.

Duff Moisture Code (DMC)

- Temperature
- Relative humidity
- Rain
- **Numerical ratings of the average moisture content of a surface organic layers (duff),**
- **Indicator for fire risk in drained peatland areas**

Drought Code (DC)

- Temperature
- Rain
- Indicative values of the moisture content of a deep peat layer
- Indicator of fire risk in peat swamp forest areas

Initial Spread Index (ISI)

- Indicates **the rate that the fire will spread in its early stages**.
- The ISI is a combination of the effects of the **wind speed and fine fuels moisture** content on the fire spread.

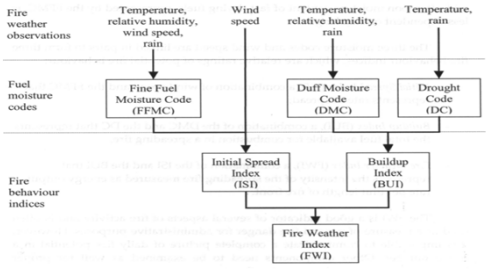
Build Up Index (BUI)

- Indicative values of the amount of fuel available for combustion.
- They also indicate how the fire will develop (in peat soils) after initial spread.
- The BUI is calculated from the DMC and DC.

Fire Weather Index (FWI)

- Overall Index on risk of significant fire.
- Combines ISI and BUI to provide a numerical rating of fire intensity.
- represents the intensity of the spreading fire

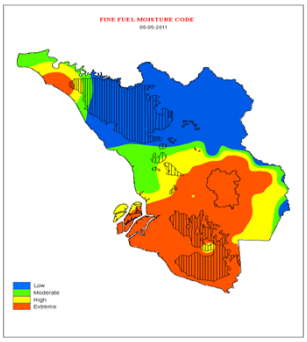
SUMMARY OF THE CANADIAN FOREST FIRE INDEX SYSTEM



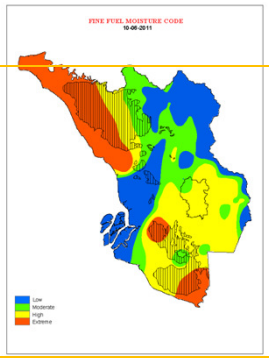
Pilot Testing in Selangor, Malaysia

Fire Prediction and Early Warning System to Reduce Peat Fires in Malaysia
Pilot Project
The State of Selangor
Peatland area incorporated into the FDRS maps

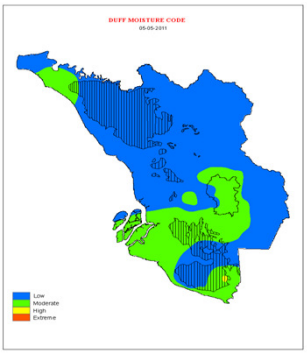
- 5 May 2011
- Grass and Bush Fire risk
- Hatched areas are peatland areas
- In this view – highest risk in southern Selangor



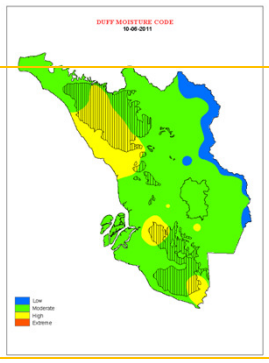
- 10 June 2011
- Grass and Bush Fire risk
- Hatched areas are peatland areas
- In this view – highest risk in Northern Selangor and two sites in southern Selangor



5th May 2011
Risk of fire in drained peat in central and southern selangor

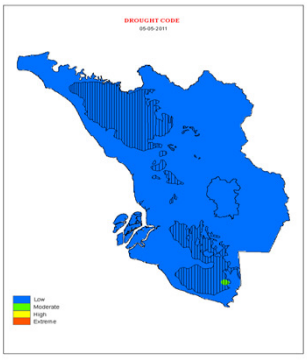


10 June 2011
Risk of fire in drained peat in North and south Selangor



Regional Project Executing Agency

5th May 2011
Drought code – indicator of Fire risk in remaining peat swamp forest



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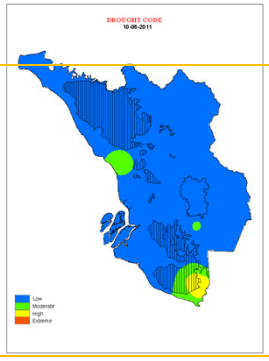
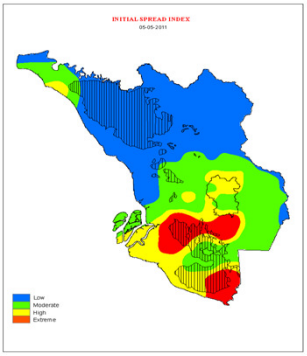
10 June 2011
Drought code – indicator of Fire risk in remaining peat swamp forest
High risk in southern Selangor – near KLIA



Regional Project Executing Agency

5th May

Initial fire spread index
Indicates that fires in southern Selangor will spread fast and so urgent to adequately control any fires that develop.



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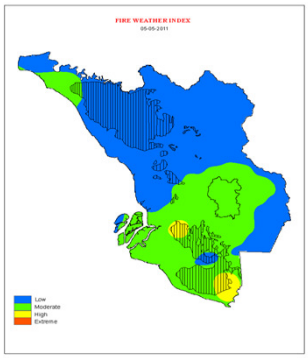
5th May 2011
Overall Fire weather Index



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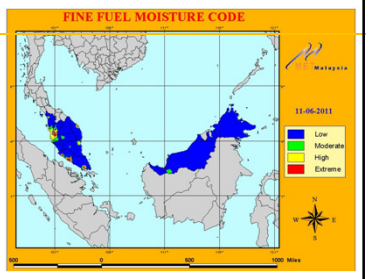
11 June 2011
Malaysia Fine fuel Moisture Index

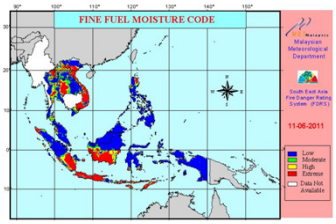


Regional Project Executing Agency

11 June 2011

ASEAN Fine fuel Moisture Code

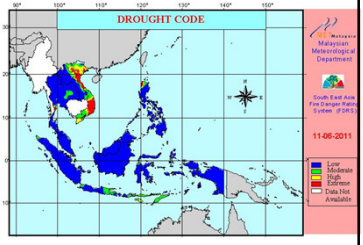
Note: extreme risk Vietnam, south Sumatra and Central Kalimantan



11 June 2011

ASEAN Fine fuel Moisture Code

Note: extreme risk Vietnam,



Mechanism for Dissemination

- The FDRS info/map is available on the internet on daily update basis visit www.met.gov.my -- iklim ---Pilot projek FDRS Tanah Gambut
- Email
- Automated SMS alert
- SOP to be developed with the state agencies for use of the information to prevent fires

Interpretation & Decision

- Groundthruthing
- Verification
- SOP

Development of PFPWS by APFP

1. **Technical Meeting for the Development of the ASEAN Peatland Fire Prediction and Warning System, FRIM, 10 June 2010 Discussion on concept**
2. **Technical Workshop on the development of the ASEAN Peatland Fire Prediction and Warning System, Kuala Lumpur, 13-14 July 2010 Discussion on Fire Prediction and Early Warning System**
3. **Proposed Fire Prediction and Early Warning system were discussed in Kuching (July2010), Brunei(11th TWG) and MSC Singapore (16-17 Feb2011)**

Process of pilot testing of PFPWS in Selangor

Working Group- MMD, NRE, DID, DOE, JPSM, JPNS
Discussion of Preparation for pilot testing in Project Site, Selangor Malaysia

Stage 1: MMD with support of various agencies to developed initial maps provided at website

www.met.gov.my ---- iklim ---- Pilot projek FDRS Tanah Gambut

Stage 2: Verification process by
Forest reserves – JPSM/FDS
Pilot site – GEC
Peatland on stateland/agricultural land – DOE

Process of pilot testing of PFPWS in Selangor

Stage 3: Review of initial result on 9 August 2011 by working group

Stage 4: After review meeting, modification if required to conduct follow up test until 30 Sept 2011

Stage 5: Conduct workshop to discuss with users and stakeholders for inputs to refine further Fire Prediction and Early Warning System

Stage 6: Sept, pilot testing in Riau based on lessons learned from Selangor, Malaysia

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Next Steps

Testing and verification in Malaysia

System development in Indonesia/Testing in Riau

Linkage with Private sector (APRIL) to showcase their FDRS

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