SOUTHEAST ASIA
FIRE DANGER RATING SYSTEM PROJECT

Gouvernement Government
du Canada of Canada

Canada

Fire in Southeast Asia

- Forest Biomass burning in Southeast Asia is used for agricultural land preparation and land clearing

- Burning is increasing due to population growth, transmigration and increased development, particularly in Indonesia and Malaysia

- During El-Nino induced droughts, fires burn out of control and produce large amounts of smoke

The 1997-98 Disaster

- Costs were estimated to be up to US$ 9.2 billion as a result of fire and consequent haze

- Significant impacts on human health, transportation, tourism, timber supply, and habitat

- Carbon emissions from burning in Indonesia during 1997 represented up to 40% of the mean annual global emissions from burning fossil fuels


Malaysia

Indonesia

Project Mandate

- To develop and implement an early-warning system to prevent and mitigate potential fire and haze disasters such as those of 1997-98

- CFS was asked to assist resource management agencies in Southeast Asia based on its 80 years of fire research and systems development

- The Canadian Forest Fire Danger Rating System was selected as the early warning system to be used for fire management in Southeast Asia

Fire Danger Rating

- Fire Danger Rating illustrates the potential for fires to start, spread and do damage

- The Canadian Forest Fire Danger Rating System (CFFDRS) is the cornerstone of forest fire management in Canada

- The system has been adopted in regions as diverse as New Zealand, Fiji, Spain, Alaska, Florida, and Mexico
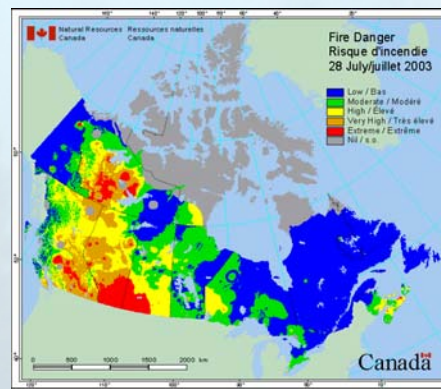
CFFDRS Adaptation

- The CFFDRS has been adapted to suit the climate, vegetation, and burning practices in Southeast Asia

- This was achieved through collaborative research with Southeast Asian institutions in the areas of:

Fire management   Forest and agricultural science
Meteorology   Remote sensing
Environmental monitoring   Air quality

Sabah Forestry Department
researchers collect fuel samples
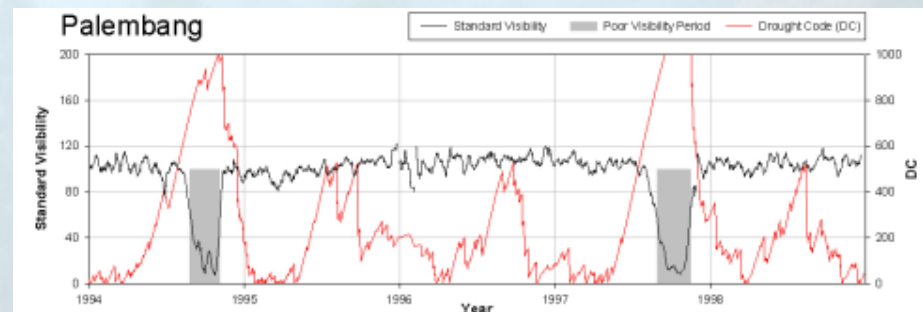
Historical climate analysis used to determine critical fire danger levels

The System

- The Fire Danger Rating System (FDRS) is driven by daily weather observations from multiple locations

- Weather data is processed in a geographic information system and integrated with spatial fuels data

- The result is maps showing areas of high fire danger, distributed to the public and fire managers via the Internet, television, and fax.
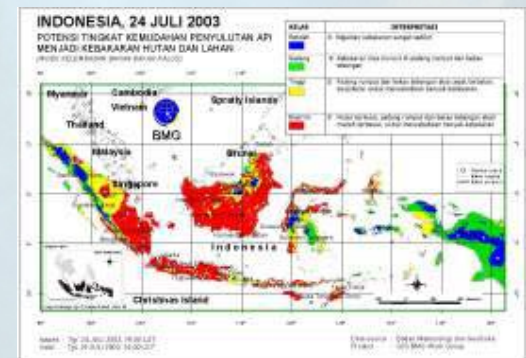
Prevention

- Prevention is the first line of defense for fire management in Southeast Asia
- During periods of high danger, prevention measures include:
  - public notices indicating that burning will produce significant amounts of smoke
  - increased communication with local stakeholders
  - cancelling or restricting burning permits

Detection and Suppression

- Detection efforts can be focused on areas of high fire danger to ensure fires are found and acted upon when they are small and easier to control

- Fire suppression resources can be pre-positioned at priority locations and deployed more quickly and efficiently
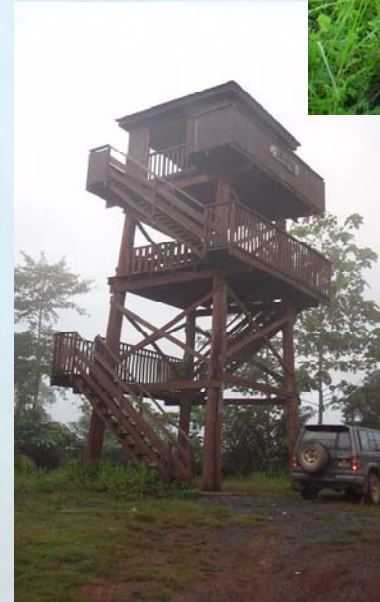
Accomplishments

- FDRS has been implemented at district, provincial, and national scales in Indonesia and Malaysia

- The FDRS has been institutionalized within existing key agencies:
    - Forestry departments   Meteorological services
    - Universities   Fire departments

Impacts

- Through development of local trainers, agencies are capable of sustaining FDRS activities in :
  - Research and adaptation, Systems development, Fire management planning

- Introduction of FDRS has strengthened strategic fire management planning:
  - Indonesia's fire legislation requires the use of FDRS
  - Forest License holders in Sabah, Malaysia, are required to develop FDRS-based fire management plans

Partners

Indonesian Agency for Technology Assessment and Application

Indonesian Meteorological and Geophysical Agency

Indonesian Ministry of Forests

Indonesian National Institute of Aeronautics and Space

West Kalimantan Forestry Department, Indonesia

Bogor Agricultural University, Indonesia

Malaysian Centre for Remote Sensing

Malaysian Meteorological Service

Forestry Department of Peninsular Malaysia

Faculty of Forestry, University Putra Malaysia

Malaysian Fire and Rescue Department

Sabah Forestry Department, Malaysia

ASEAN Secretariat Coordinating and Support Unit

Canadian International Development Agency — Agence canadienne de développement international

Natural Resources Canada — Ressources naturelles Canada

Canadian Forest Service — Service canadien des forêts

Alberta SUSTAINABLE RESOURCE DEVELOPMENT

For more information

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