



*risk*

**Professional Development Program  
in Fire Management – Concluding  
Report**

---



*environment*

On behalf of the South Sumatra Forest  
Fire Management Project, Palembang,  
Indonesia

---



*management*

Metis Associates  
PO Box 1772  
Bowral NSW 2576  
Australia

Ph (+61) 2 4888 2366  
Fax (+61) 2 4888 2355  
Email [brett@metis-associates.com](mailto:brett@metis-associates.com)

## Table of Contents

Basis of the Professional Development Program.....	3
In Country Training at Palembang .....	4
Training materials.....	4
Duration .....	6
Translation .....	6
Training Abroad in Australia .....	7
Participant awareness.....	7
Site selection .....	7
Presenters .....	8
Accommodation .....	8
Food.....	8
Transport.....	8
Duration .....	8
Participant dynamic .....	9
Recommendations .....	9
APPENDIX 1. ....	10
APPENDIX 2 .....	13

## **Basis of the Professional Development Program**

Fire managers have used study tours as a means to transfer skills, understanding and knowledge in fire management between participants from different countries and a host country of the study exchange for about six decades. The desired outcomes of such exchanges in the Indonesian context are:

1. to provide the participants with alternate perspectives of fire management to enable comparison between differing systems,
2. to provide participants with the opportunity to objectively analyse the merits or otherwise of different fire management systems
3. to enable participants to identify processes, strategies and management systems that suit Indonesian fire management needs and mesh with financial, social and cultural needs and constraints.

Study tour outcomes can be hampered by practical differences in fire management between Indonesia and the countries where the study tours take place. This is especially so if the participants are not prepared sufficiently in advance and expect to identify instant solutions.

It is important to acknowledge that “principles” of fire management are similar, irrespective of location. Fire behavior, fuel types, topography, weather and equipment may be vastly different, but the principles of effective rural and forest fire management apply equally around the globe.

Observing practical management differences but understanding that underlying principles don't alter, are key parts of the learning experience however it is recognised that during a compressed study tour many of the reasons for difference may not be expressed with clarity, or may be placed in the wrong context. This can lead to participants returning from a study tour with little effective information that will enable them to review and analyse their circumstances or, in turn, develop unrealistic goals and ideas that either are very difficult to implement or cannot be implemented.

The learning environment targeted was one of shared collegiate learning aimed, at providing participants with a high level understanding of the topic and its direct relevance to the management and support of fire management in Indonesia.

The preparatory training in the host-country utilised a structured program of topics that were later investigated and further elaborated in the host country, in this case Australia. The focus of this concept is to prepare the participants well in advance so that they will not only collect and assimilate information in a passive way but also interact in an active manner to process, analyse and value the information attained during the study tour.

While the Professional Development Program targets improvements in the general knowledge, technical knowledge and personal confidence of the participants in the field of fire management, it primarily targets an increased ability for participants to analyse and think through key issues. Importantly, it focuses heavily on understanding the underpinning principles of sound fire management. The concept is intended to provide the participants with a set of analytical tools for fire management that they can use to examine their own circumstances as well as those prevailing in the host country.

The Professional Development Program is outcome driven, not output driven. Skilled managers in the field of fire management are a product of some technical knowledge, human relationship skills, and most importantly an analytical capacity to examine a problem, frame options for solutions and make a decision. These skills are best delivered by outcome oriented training not ‘hard’ training methods that are often marked off in output focused elements such as in

competency based training. The outcome oriented training course is more subtle in delivery, more subtle in its assessment of effectiveness but can deliver longer lasting and higher order outcomes.

## **In Country Training at Palembang**

### **Training materials**

Brief descriptions of the training material content and intent is set out below. Each participant was provided with a full set of training aids, including English versions of all presentation notes and powerpoints. Some components were translated into Bahasa.

Two complete sets of the training material and course outlines were also provided to the Project during the initial exercise in Palembang. These were provided specifically for Project personnel use to ensure that a full appreciation of the content of the program is available for Project records.

Course materials covered the following topics and included an initial examination of both the Indonesian and Australian situations:

#### **Decision Makers**

- ❖ Developing an Institution
  - This module was specifically developed for SSFFMP. The module was focussed on the needs and requirements of organisational development using the “form follows function” principle i.e. to develop an appropriate “form” or shape of an organization, it is necessary to understand the “functions” that must be achieved by it.
- ❖ A Fire Management Framework
  - The framework approach of developing fire management understanding is a suitable method of increasing participant knowledge. This is the case with current participants.
- ❖ Law, Policy and Practice
  - Participants noted that though complex this was deemed very valuable.
- ❖ A briefing on Australian culture and society
  - Participants were provided with a range of briefing information on living in Australia to ensure comfort while travelling.

#### **Technical Managers**

The technical managers were present at the Decision Maker briefing and then underwent a further 2.5 days of detailed briefing. Technical managers revised in detail the training materials presented to the decision makers as well as those below:

- ❖ Fire Behaviour
  - The fire behaviour module was presented to allow the participants to appreciate the variation in fire behaviour notable in Sumatra as well as that presented in Australia.
- ❖ Community Based Fire Management (CBFiM)

- CBFiM was compared and contrasted with the volunteer fire system in Australia. Some participants were particularly focussed on this topic as it posed key management differences to Sumatra.
- ❖ Technical Aspects
  - Participants were briefed on Command and Control systems used in Australia, the Fire Danger Rating system and Planning and Budgeting. The session on Planning and Budgeting was of particular interest to the technical managers
- ❖ Focal Topic Selection
  - This was not a subject of presentation but a continuous flow of ideas that were later selected by participants.

The topics selected by the participants were:

Command and Control Structures – Pak Rifai

Internal Management Systems - Pak Dawami

Planning and Budgeting – Pak Taufik

Managing and Developing Volunteers – Pak Junaidi

Fire Investigation – Pak Hartono

Organisational Structures – Pak Sudarso

Participants were encouraged to use the framework for fire management to place their knowledge into a wider context. It was also discussed with the participants that they should reconvene as a group upon return to Sumatra and make a formal presentation on their selected focal topic.

A second key component of the pre-training in Palembang was to canvass participants and define their expectations from the Australian leg. A schedule of their expectations was developed and is attached at Appendix 2. During the Study Exchange within Australia debriefing of participants was conducted each day to ensure that issues arising during the day were clarified. A concluding debrief at Gympie in Queensland indicated that participants had satisfactorily examined those matters of interest to them.

Appendix 2 also contains a comparison of Law Policy and Practice that the group developed as part of the pre-training in Palembang as well as the outline elements of a Fire Management Framework that can be incorporated into planning and activities in South Sumatra.

## Training Venue

The Swarna Dwipa proved to be a suitable training venue facilitating both lecture style presentations as well as ‘coffee table’ discussions.

Most important was the turning off access to mobile phones during presentations. Mobile phones are a constant source of distraction and regularly cause participants to withdraw from conversation or miss important points.

## Duration

A three day training package of materials was delivered to two separate groups. This allowed only very limited introduction of some materials to the Decision Makers, however the following 2.5 days allowed enough time to deliver adequate overviews of each subject to the technical managers group.

This course was significantly shorter than the previous use of the training materials. Although the shorter pre-training time was adequate to deliver an oversight training on each subject, greater time availability would improve the participant knowledge uptake. If this course is conducted again a 5 day pre-training program is preferable.

## Translation

The translator was an experienced university lecturer in soil science, with an understanding of fire management and specific terms often used. The translator provided a very professional approach to his work and worked diligently to impart the translation as close as possible to that presented by the trainers. This was of great benefit to the trainers and the delivery of complex and difficult materials was well conducted.

For future reference, a similar interpreting arrangement would work well.

## **Training Abroad in Australia**

### **Participant awareness**

Some time was dedicated to pre-briefing the participants on Australia, the climate, currency, banking, communications, food and mosques. It was apparent that all the participants came well prepared, carried appropriate clothing, shoes and personal effects.

### **Site selection**

The selection of the two primary venues in Australia – New South Wales and Queensland was deliberate. New South Wales (Sydney) offered close proximity to the corporate offices of the main fire agencies and an appropriate presentation structure for the Decision Makers. Queensland is the most north easterly state in Australia and ranges from tropical to sub-tropical climate. It also offered a range of situations within a day's drive of Brisbane that could provide examples of the central and district functions associated with fire management.

### ***New South Wales***

The NSW sites were all within one day travel from Sydney allowing easy access. The Royal National Park site allowed an overview of fire management in a conservation system. At Garigal National Park, planning and implementation of prescribed fire to provide protection for housing at the park/urban interface was examined.

The Rural Fire Service sites allowed a contrast with operations centres in NSW with that in Queensland. The NSW operations centres are much larger and contain more technological aids than their counterparts in Queensland. They are also considerably more expensive to construct and maintain. Discussion with the participants indicated that the Queensland model is much preferred for Indonesian conditions, given the current status of fire management and institutional development in Indonesia.

The State Forests visit encompassed a corporate overview from an organisation conducting commercial forest management as well as its role as one of the major rural fire management authorities in NSW. Practical field examples of forestry specific fire management were examined and discussed.

An evening presentation and discussion with the Australia Indonesia Business Council was prepared for the Bupati to present some investment opportunities in South Sumatra.

### ***Queensland***

The Head Office of the Department of Primary Industries, Forestry, provided a corporate overview of the conduct of public forestry in the state, as well as the key role taken by the Service as a fire management authority.

The Beerburrum field office was able to provide a very practical view of a local operations centre that was established on a small budget, and demonstrated some essential elements for fire management operations that are missing or partly missing in Indonesia.

The pine plantations offer a valuable discussion on fuels management in a planted forest and clearly demonstrated various fuel loadings that had previously been treated with fire and those that had not. It also demonstrated the relative simplicity and ease of using prescribed fire in a monoculture plantation.

A natural sclerophyll forest, dominated by *Eucalyptus sp*, adjacent to a similar area from which fire has been excluded and on which sclerophyll forest is declining in favour of rainforest

development was examined. Whereas fire has been regularly applied to the sclerophyll forest allowing that forest to maintain its form and structure, the adjacent area from which fire has been excluded has almost completely altered to a rainforest type, providing clear demonstration of the impact on vegetation that accrues from the absence or application of fire in Australian tropical forests.

Stradbroke Island offered an intensive exposure to landuse, management planning and the operational circumstances of managing fire in a small and isolated community with limited resources, but with significant tourism impact. It also offered an example of stakeholder cohesion and cooperation, working in partnership with limited resources.

The Queensland Fire and Rescue Service (QFRS) offered a contrasting volunteer fire management organisation, including differences in its structure and operational interaction with the urban fire service, while continuing close cooperation with the major land management agencies – forestry and conservation.

### Presenters

The presenters in Australia were pre-briefed on the training materials delivered in Indonesia and informed of the background and basis for the study tour in Australia. (Presenters in Indonesia allocated time to uncover the key issues of concern to the participants regarding each major topic to adequately inform presenters during the Australian leg.) This translated into presentations being well targeted and the information being pitched at the appropriate levels.

### Accommodation

The hotels selected were suitable and acceptable to the group, in particular the access to a bed a breakfast package.

### Food

Prior experience in selecting food outlets led the trainers to finding food courts, and where possible Indonesian food. Indonesian restaurants were located in Sydney and Brisbane allowing the participants to access some food that they were more familiar with.

### Transport

A 21 seat bus was hired in Sydney as a group of 19 were expected to be transported. The bus and trailer proved suitable and cost effective.

A twelve seat minibus was used in Brisbane and driven by one of the trainers. This proved practical and posed no problems. The 12 seat minibus is only suitable for groups of 7 or less. A larger group would be too confined in the minibus when transporting both passengers and luggage.

### Duration

The study tour ran across 16 days including travel time from Palembang and return to Palembang. This effectively provided two working weeks in Australia. The travel times, distances, presentation locations and field locations were identified by the trainers to be at the upper limit of what could be achieved in the time available. Any greater content would have strained the training and compromised success. The participants and trainers felt that the time allocation of two weeks is an appropriate period for the technical managers.



## Participant dynamic

A degree of success of any training or study tour is reliant upon the personality and interest of the individuals. The technical managers participated well in the discussions and some efforts were made to encourage those quieter participants and draw out their views.

The technical managers became increasingly relaxed in the second week of the tour as they became more familiar with the program.

The absence of nearly all the Decision Makers in the first week did create some hierarchical issues with the technical managers having to assist and monitor the comfort of the Bupati. In future it may be more appropriate to separate groups such as this to ease this dynamic.

## Recommendations

1 - It is strongly recommended that SSFFMP facilitate the convening of a workshop at which the Technical Managers can present their focal topic – say 20 minute presentation for each topic. It would be highly valuable if the workshop could also include at least some of the Decision Makers targeted for this exercise, but who, for various reasons, were unable to attend the study exchange within Australia.

2 - A second recommendation is that the above workshop might also be used to enable participants to make a comparison or contrast between Indonesia and Australia regarding their combined expectations. Perhaps a joint presentation on behalf of the group by say two of the participants to cover the key issues listed in their expectations and examined in Australia.

To assist the participants in preparing for this workshop it would be valuable to notify them about the intent to hold the workshop and provide them with several weeks notice for preparation.

3 – This is the second training program of this nature conducted in Indonesia by Metis Associates. In both circumstances the individual participants have benefited from the interaction with their Indonesian colleagues alone and the chance to share ideas / difficulties and solutions.

The simple value of ‘keeping in touch’ and having a chance to meet once or twice per year to talk over fire should not be underestimated. It is recommended that for the life of the project that the project facilitate the initial meetings to bring the participants to a single location on occasions. At the same time these meetings, the location and management should be handed over to each one of the participants to run.

4 – Metis Associates (Brett Shields) and Global Fire Management (Ross Smith) would like to offer ourselves as ongoing mentors in fire management for the technical managers. In this we would be pleased if the project could encourage and ensure that each person has our personal contact details. We are willing to correspond with the participants to discuss fire issues with them.

Brett Shields Director – Metis Associates PO Box 1772 Bowral NSW 2576 Australia  Phone - +61 2 4888 2366 Email – <a href="mailto:brett@metis-associates.com">brett@metis-associates.com</a>	Ross Smith Director – Global Fire Management 3 Yawung Ave Baulkham Hills NSW 2153 Australia  Phone +61 2 9674 5295 Email - <a href="mailto:gabbar@idx.com.au">gabbar@idx.com.au</a>
--	--

## TRAINING SCHEDULE

## APPENDIX 1.

### Agenda for Decision Maker Briefing

Indonesia leg First session – Novotel Hotel, Palembang

Start	8.30	Introduction
Presentation 1	9.00 – 9.45	Sustainable Framework (Brett)
Presentation 2	9.45 – 10.30	Law Policy and Practice (Ross)
Morning Tea	10.30 – 11.00	
Presentation 3	11.00-11.45	Australian Agencies (Ross)
Presentation 4	11.45 – 12.30	Study Exchange in Australia (Brett)
Lunch	12.30 – 1.30	

### Agenda for Technical Manager Training

Indonesia leg Second and subsequent sessions – Swarna Dwipa Hotel, Palembang

<b>Day 1</b>		
1 <sup>st</sup> Session	8.30 – 12.30	As per agenda for Decision Makers briefing
2 <sup>nd</sup> Session	2.00 – 5.00	Individual introductions, course objectives, identify participant expectations in Australia, introduce focal topic concept and ideas (Brett and Ross)
Break	5.00 – 6.00	Break to check in and settle into rooms
Debrief	6.00 – 7.00	Metis to facilitate the first evening discussion with some highlights from Australian tour, and first group's video (Brett)
Dinner	7.00	
Post Dinner	Optional	Metis will have several Australian training videos showing equipment, fire behaviour and other facets of fire management (Brett)

<b>Day 2</b>		
1 <sup>st</sup> Session	8.00 – 8.30	Re-visit expectations and focal topics
2 <sup>nd</sup> Session	8.30 – 10.30	Sustainable Fire Management System (Brett)
Break	10.30 – 11.00	
3 <sup>rd</sup> Session	11.00 – 12.30	Law, Policy and Practice (Ross)
Lunch	12.30 – 1.30	
4 <sup>th</sup> Session	1.30 – 3.00	Fire Behaviour (Ross)
Break	3.00 – 3.30	
5 <sup>th</sup> Session	3.30 – 5.00	Community based fire management (Brett)
Break	5.00 – 6.00	
Debrief	6.00 – 7.00	Facilitate discussion to examine and clarify matters raised during day 2

<b>Day 3</b>		
1 <sup>st</sup> Session	8.00 – 10.00	Technical Matters (Fire Danger Rating, Command and Control, Planning and Budgeting ) (Brett and Ross)
Break	10.00 – 10.30	
2 <sup>nd</sup> Session	10.30 – 11.30	Confirm Focal Topic selections, review expectations (Brett and Ross)
Prayers	11.30 – 1.30	
3 <sup>rd</sup> Session	1.30 – 3.30	Final debrief
END	3.30	Indonesian segment concludes

#### Australian Study Tour Schedule

Sat 18 <sup>th</sup>	Travel Palembang to Jakarta on morning flight and take the evening flight from Jakarta to Sydney
Sun 19 <sup>th</sup> City hotel	Arrive Sydney (early morning). Metis Associates to meet at the airport and transport to the Hotel. (NOTE all hotel check in times at 2.00pm)  The hotel will place baggage in a baggage room and the participants can do an orientation tour.
Mon 20 <sup>th</sup> City hotel	Bus to meet group at the hotel 8.30am Royal NP for presentation 10.00-11.30am.  Sutherland Rural Fire Service for presentation 1.30-3.30pm  Return to hotel at 5.00 pm. Debrief at 6.00 to review days activities and clarify any issues with participants
Tue 21 <sup>th</sup> City hotel	Bus to meet group at the hotel 8.30am State Forests NSW for presentation (Cumberland – Paul de Mar) (a morning presentation, followed by inspections at the Nursery, the education centre and the arboretum).  Afternoon will be viewing Australian fauna at Koala Park and return to hotel around 4.30pm
Wed 22 <sup>th</sup> Central Coast hotel	Depart Hotel at 8.00 - Travel to Morisset to meet State Forests guide. Drive in to Watagans to visit a fire tower, picnic grounds, eucalypt plantation, logging and fire lookout points.  Drive to Newcastle to stay overnight.
Thu 23 <sup>rd</sup> City hotel	Depart hotel at 8.30 and travel to Gosford Fire Control for morning presentations from Rural Fire Service  Drive to Garagil NP for afternoon presentation by NPWS on interface hazard reduction using Prescribed burning  Return to hotel around 5.00pm

Fri 24 <sup>th</sup> City hotel	Morning debrief for decision makers. Afternoon prayers and free time
Sat 25 <sup>th</sup> City hotel	Decision makers depart on afternoon flight (3.10pm) Technical Manager free time
Sun 26 <sup>th</sup> City hotel	Technical Managers flight to Brisbane on 11.00am flight Pick up 12 seater bus and drive into Brisbane CBD. Brisbane orientation to include the food court at the Mall, and Southbank
Mon 27 <sup>th</sup> City hotel	Presentation by DPI Forestry. Structure and organization of Forests Department, Planning and Budgeting, Equipment, Community interactions (am at the city office) Presentation by QFRS, Structure of Queensland Fire & Rescue Service, Urban and Volunteer arms, command and control issues, volunteer Management (pm, at the training centre Whyte Island, Brisbane City) Debrief on day's activities.
Tue 28 <sup>th</sup> City hotel	North Stradbroke Island Ferry across at 9.00 to meet Dave at Kingfisher tour (4wd). Inspection Dunwich fire station, inspect recent (2 years) fire events in the town (overview current vegetation management activities)  Inspect Brown Lake, pine plantation, wetlands and tourist resorts/town areas to consider fire events, community interaction and vegetation management. Address by Consolidated Rutile Limited (sand mining) re North Stradbroke Island Fire Management Plan and community inputs to plan  Return on 3.00 pm ferry Debrief on day's activities
Wed 29 <sup>th</sup> Gympie Forest Centre	Travel to Beerburrum Forestry – Operations Centre, Equipment, plantation, native forest, prescribed fire use fire tower (Barry Stark / Peter Venz)  Overnight at Gympie Forestry Training Centre. Debrief on day's activities
Thu 30 <sup>th</sup> City hotel	Return travel to Brisbane and open discussion.
Friday 1st City hotel	Debrief and conclusion discussion on any outstanding issues Afternoon free
Sat 2 <sup>nd</sup>	Fly Brisbane to Jakarta (flight via Sydney) arrive Jakarta 8.00pm. Flight leaves Brisbane 12.10pm to Sydney and then 4.00 pm ex Sydney to Jakarta

The expectations of the Technical Managers in the study group were identified over the 3 days of the pre-briefing exercises in Palembang.

The group identified the following matters that they wished to see, to inspect or to discuss during the exchange exercises in Australia, and those matters that they wished to examine in more detail in South Sumatra.

- Learn about inter-agency and intra- agency coordination
- Examine core causes of fire in Sumatra
- Examine the implementation and success of community awareness programs in Australia.
- Examine how to empower volunteers in Sumatra (by considering how empowerment has been devolved in Australia.)
- How to raise funds, i.e. to be more certain of obtaining a guaranteed supply and timely allocation of funding from Central and Provincial sources
- Friendship and links to other fire professionals.
  - Maintaining those links.
- Law enforcement in Australia and the linkages to prevention activities
  - How to build awareness of the law in Indonesia at grass roots levels
- Volunteer organization and management in Australia
  - Recruitment processes
  - How to build up the capabilities of volunteers
  - Maintaining enthusiasm and motivation
- Visit representative desert (NB this may not be possible as the tour schedule is already established.)
- Visit zoological and botanical gardens
- Inspect different forest types in Australia
  - Native forest managed for production
  - Indigenous species plantations
  - Exotic species (coniferous) plantations
  - Undisturbed native forest (Conservation area with zero disturbance)
- Ability to transfer experience and knowledge upon return to Sumatra
  - Collect relevant materials and brochures – education, information, training
- Post event responses to disasters
  - Community impacts and recovery
  - Rehabilitation
- Urban Edge impacts
- Fire suppression techniques
- Understand information flow (vertically and horizontally)

## LAW POLICY & PRACTICE

Comparing fire management responsibilities in Indonesia and Australia

ISSUE	INDONESIA	AUSTRALIA
“Drivers” of the political system, i.e. the current government and administrative structures reflect the underlying nature of administrations implemented by and familiar to early colonists.	Dutch Colonial background	UK Colonial background
NATIONAL DPR Principle Law/Regulation Policy Implementation	Yes Yes Yes Yes	No (fire management is strictly a state level matter)
PROVINCE/STATE DPRD1 Principle Law/Regulation Policy Implementation	Yes Yes Yes <sup>1</sup> Yes	Yes Yes Yes <sup>2</sup> No
DISTRICT/SHIRE DPRD2 Principle Law/Regulation Policy Implementation	Yes Yes Yes <sup>1</sup> Yes	No No No/Yes <sup>3</sup> Yes
SUBDISTRICT Principle Law/Regulation Policy Implementation ----- VILLAGE BPD Principle Law/Regulation Policy Implementation	No No <sup>1</sup> No No  Yes Yes Yes <sup>1</sup> Yes	Not applicable – These administrative subdivisions are not recognised within Australia.

1 In Indonesia ability of subordinate administrations to make laws is constrained by the preceding higher level administration and there is no carte blanche power to make new laws without overarching national legislation. i.e. the laws made at Provincial level must conform to the National legislation, legislation at District level must conform to Provincial level law, and, by

association, to the National Law. The ability of subordinate administrations is also related to the presence or absence of “house of representative” members at that level. Note that “Subdistrict” level does not enjoy House of Representatives status, so there is no ability to make laws at subdistrict level.

2 Agencies will develop policy but not the government

3 Local Governments in Australia may adopt specific rules, procedures or plans, but they must be in accord with overlying legislation enacted by the state i.e. the constraint to comply with the overarching legislation is similar in both countries. Local government has no ability to make legislation in its own right within Australia.

---

#### References cited

*Environmental Law in Indonesia. “A Gap Analysis”* Sarah Waddell, GTZ

*A Review of Legal Regulatory and Institutional Aspects of Forest and Land Fire in Indonesia.* Dr Dicky Simorangkir and Sumantri. Project Firefight SE Asia.

## Sumatra Fire Management Framework – Developed by the SSFFMP fire training technical managers

### Event Analysis

#### Fire Behaviour

Fire type	Timing	Flame Ht	Rate of Spread
Alang Alang	Every year	3-4m	Slow walk pace
Ex HPH	Every year	Up to 16m	Fast walk pace
Peat	Some each year	Nil	Difficult to tell
Mountain evergreen	Rare	Unknown	Unknown
Home Garden	Rare	Unknown	Unknown
Bush (unclear tenure)	Every year	3-4m	Unknown
Sonor Rice	Every 3-4 years	Low	Lots of smoke

### Impact Analysis – Who or What is impacted?

#### Alang Alang Fire

- Community respiratory health
- Road transport is cut
- Grazing area shortage

#### Ex-HPH

- Community health and shortages of water for drinking and agriculture
- Loss of forest assets as well as access to some forest products
- Loss of some community livelihoods in the forest

#### Bush

- Farmers home gardens can be lost
- Rare for a house to be burnt
- No people are burnt in bush fires

#### Peat

- Community respiratory problems
- Loss of peat soil
- Loss of forest
- Political impact from smoke
- Transportation cut (road and airport)
- Also used to increase farmer income from sonor rice production

#### Prevention

- Public exhibition of Laws and Regulations
- Education campaigns involving police and law enforcement
- Community development to address poverty reduction and increasing farmer income
- Establish a community fire use schedule



- Fire Breaks
- Community alternatives to burning
- NOTE – Prevention activities are informed largely from fire cause

#### **Preparedness**

- Good communication network
- Command structure
- Volunteers equipped and trained
- Financial readiness
- NOTE – Preparedness activities are informed largely from fire behaviour and fire cause

#### **Response**

- Improvements in fire fighter personal safety
- Coordination of fire fighting
- Experience for the fire fighter, crew leader and fire boss
- At larger fire events need more equipment
- Shorten the information route that fire detection has to take to reach the district level
- Water shortages in the dry season
- NOTE – Response activities are largely informed from fire behaviour

#### **Restoration**

- Community restoration – HOW?
- Improve ecological restoration
- Improve law enforcement
- Reduce community poverty and grow community economic resources
- Some compensation for volunteers