

5. SAFETY AND FIRST AID

Forest firefighting is physically demanding, dangerous work that requires strength, stamina and the ability to remain alert despite fatigue and stress. Every year many firefighters are killed by flames and smoke; as many again by falling trees, by sunstroke or accident with a tool or vehicle. Constant attention to safe working practices can keep the toll of death and injury to an absolute minimum (Chandler *et al.*, 1991). Safety is the prime responsibility of every person at the fire.

Crew Welfare

It is widely recognized that the effectiveness of a fire crew is reduced by around 50 percent after 6 – 8 hours work, and falls even more sharply after this. Crews thus need changing after eight hours: a good time is in the early morning or late evening when the wind is often at its weakest and the fire thus less force. If return home for a nights rest is impossible, tents and bedrolls need to be brought to the fire site (Heikkilä, Gronqvist and Jurvelius, 1993).

Food and drinking water are essentials. A ready supply of potable water must be freely available from the outset: perhaps surprisingly, work rate falls most steeply if no water is drunk between 1 and 2 hours after starting. Meal breaks are taken in rotation and the food must be both appetizing and nourishing. Supplies are maintained from base camp or are locally purchased as convenient.

‘Watch-Out’ Situations

The following *watch-out* list was developed after analysis of many accidents, injuries and fatalities (NWCG, 1992). It warns firefighters of potential problems.

1. You are given an assignment that is not clear to you.
2. You cannot see the main body of the fire.
3. You are not in communication with everybody.
4. You are getting spot fires over your line.
5. You are attempting a head attack on the fire.
6. You are in an area where you do not know local fire behaviour conditions.
7. You are working in an area you have not seen in daylight.
8. You are working in steep, broken topography.
9. You are working an indirect attack in heavy fuels.
10. You notice rolling materials on the slope you are working on.
11. You are assigned to construct a line downhill.
12. You or your crew complain of headaches, fatigue or drowsiness while working

Individual Protection

Fire crews are exposed to heat, smoke and fatigue. Smoke rather than the severe heat is perhaps the critical element. It burns the eyes, limits clean air, and contains high levels of deadly carbon monoxide. It is common for initial attack crews to work four to eight hours at a stretch, and fatigue and stress are often cited when a firefighter is injured. Physical fitness is required, safety is all important. As noted by Perry (1990), "The safety of everyone engaged in firefighting is the personal business of everyone, both for himself and his fellows."

All the crew members must be correctly dressed in protective clothing: helmets, clothes, strong boots and work gloves. Plastic goggles protect the eyes from flying particles and smoke, and cotton cloth shrouds protect against burns on the ears and neck. Smoke masks with disposable paper filters give some protection to the respiratory system. A personal water canteen is a sensible addition. People wearing tee-shirts, shorts and unsuitable footwear must not be allowed near the fire-ground.

'Nomex' or similar brands of flame resistant suits are widely used in temperate climates. They provide excellent protection but have proved to retain too much body heat for use in East Kalimantan conditions and the wearer quickly suffers exhaustion. This is likely to be the case throughout Indonesia. Pure stout-cotton overalls are cooler to wear and still provide good protection. There should be no plastic in the cloth weave or in the fittings.



Plate 5 Individual protective equipment provided by FFPCP to the Provincial Forestry and Estate Crops Office of South Sumatra