Standardization will prevent money from being wasted on equipment that is too complex or cumbersome to use, that is incompatible with other equipment, and that is potentially hazardous to firefighters. Donors must adhere to the agreed standards.

A secondary aim of equipment standardization is to help Indonesia develop local fire equipment manufactures where none exist today. Fire rakes were specially produced in Palembang to a design by FFPCP. For more complex firefighting equipment (e.g. slip-on tanks, Nicolas, 1999), joint venture manufacture with an overseas partner is a likely starting point. (Nicolas, 1999a).

IFFM commissioned the manufacture of a pair of 'slip-on' pickup-truck-mounted pumper units in Samarinda. These were modeled on imported units and while there have been problems of reliability, the original imported units had there own drawbacks of high initial cost and non-availability of spare parts.

Plate 3. High quality fire rakes manufactured in Palembang, South Sumatra province.

Basic Training of Firefighters

In late 1998 ASEAN recognised the severe shortage of firefighting expertise within Indonesia and some weaknesses in other countries within the region. In consequence a decision was taken to establish by 2004, a Regional Research and Training Centre in the Management of Forest and Land Fire: it is planned that the Centre will be placed with the University of Palangkaraya, Central Kalimantan province. But if Indonesia is the judicious choice to host the future regional training centre, it must remain open to

doubt that the selection of Province is the best. Funds are being sought and much preliminary work is needed to agree an appropriate curriculum.

As noted above, little attention has been paid to the practicalities of firefighting in Indonesia. International workshops that followed from the disastrous vegetation fire seasons of 1997 - 1998 chose, in the main, to focus on high technology systems to monitor and predict future fires. While fire danger rating systems can help firefighters anticipate risks, in many places there are no fire crews in the field to help. Far too little importance was placed on organization, training and equipping at the field level. It must be remembered that;

- Firefighting depends on well-trained crews kept in practice with regular theoretical and practical courses.

- Managerial staff need more advanced training in forest fire management, forest firefighting and 'tactical reasoning'. They also need a radio system adapted for use in fire management. A strategic pyramidal organization and a tactical chain of command are concepts which remain to be developed, but whose absence must not hinder field level development.

- First aid knowledge and training is essential. Firefighters must be able to rescue their injured colleagues and wounded civilians.

- Discipline is necessary during firefighting campaigns that require numerous personnel for many days. Fire control must be conducted with military methods and discipline.

Table 1 (FFPCP) and Table 2 (IFFM) show examples of basic training programmes developed jointly with the Regional Offices of MoFEC in South Sumatra and East Kalimantan. (Beebe and Ismunandar, 1998).

Days 1, 2 and 3: Theory
Fire Terminology and Legislation
Fire Behaviour, Weather and Topography
Weather Station and Fire Danger Index
Patrolling and Fire Detection
Fire Suppression Techniques
Command, Communication and Discipline
First aid and Safety
Fire Reporting
Days 4 and 5: Practice
Tool Use and Safety
Crew Organization
First Aid
Fireline Construction Techniques
Direct and Indirect Attack
Water use
Mop Up Techniques
Practice Fire

Table 1. Basic training programme used in South Sumatra province in 1998.