

SAMBUPONTI NOZZLE

(New Innovation)

MAXIMIZING CONTROL ON LAND AND FOREST FIRE

**Safety, Secure, Comfort, Useful
and
Multifunction**

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- ❖ In the dry season, the risk of forest fire is high.
- ❖ Forest fire happens because of the human behavior, not because of the nature (small possibility)
- ❖ Delay in fire suppression would result in the fire spreading out of control as well as thick haze.
- ❖ When the fire is uncontrollable, it becomes near impossible to be suppressed by man. Only rain can suppress the fire.

Why the fire spread out of control?

1. Natural factor (strong wind, flammable materials such as woods and leaves, and high temperature)
2. Human behavior factors:
 - a. Delayed response (lack of personnel and equipment and difficult access)
 - b. Limited capability and endurance in suppressing the fire, such as:
 - Length of time to suppress fire (causing stamina to decrease)
 - Limited endurance against smoke/haze
 - Limited endurance against the heat

These factors cause firefighters to have to evacuate the area for their safety, which in turn causes the fire to spread and harder to control.

Of those, the following efforts can be done:

1. On natural factors: Remove or wetting (Garu or excavator)
2. On human factors:
 - a. Add personnels and equipments, open access.
 - b. Increase the personnel capability and endurance, so that they can last longer during fire suppression effort. This can be done by using **SAMBUPONTI NOZZLE.**

Based on the usage so far, by using Sambuponti nozzle, the firefighters' endurance iduring fire suppression against heat and haze is better, resulting in better chance in controlling and suppressing the fire.

1. Safety First
2. Maintaining firefighters' endurance
3. Speed up fire suppression
4. Expanding the area in which fire can be suppressed
5. Suppressing below-ground peat fire
6. Optimizing the firefighter crew function
7. Water usage efficiency and effectiveness

How to achieve the purpose?

What changes have been made?

No	Changes on	Before	After	Benefit
1	The form of nozzle pipe	Straight pipes	Add handle and pole to the pipe	Safety, comfort and can be unmanned
2	The number of nozzle	One nozzle type	Three nozzle types	Variation of nozzle : variable, spray and peat
3	Nozzle function	One function	Multifunction	Can be used in several condition
4	Pipe size	1.5 inch	1 inch	Sronger water pressure and efficient water usage
5	Fire fighter formation	Only on one spot	More than one spot	Fire suppression become faster and wider

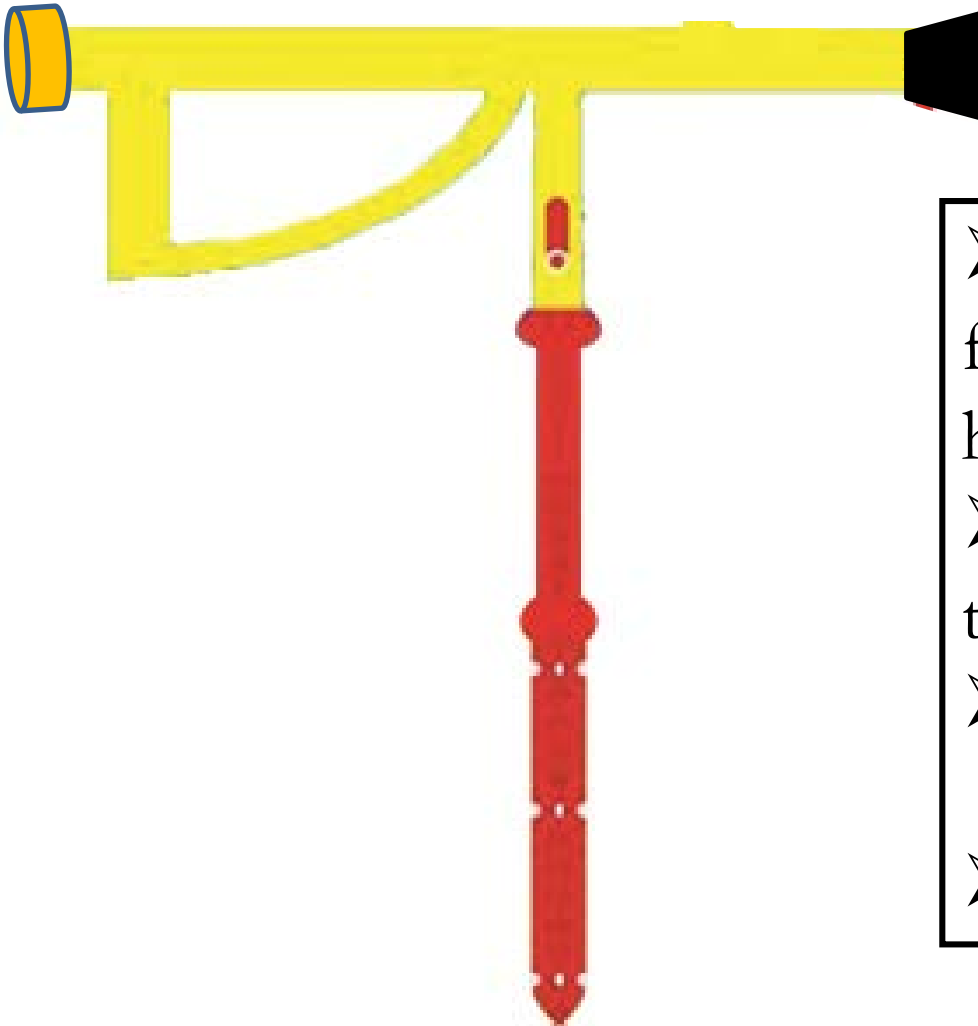
FIRE SUPPRESSION USING “REGULAR NOZZLE” (WITHOUT “SAMBUPONTI NOZZLE”)



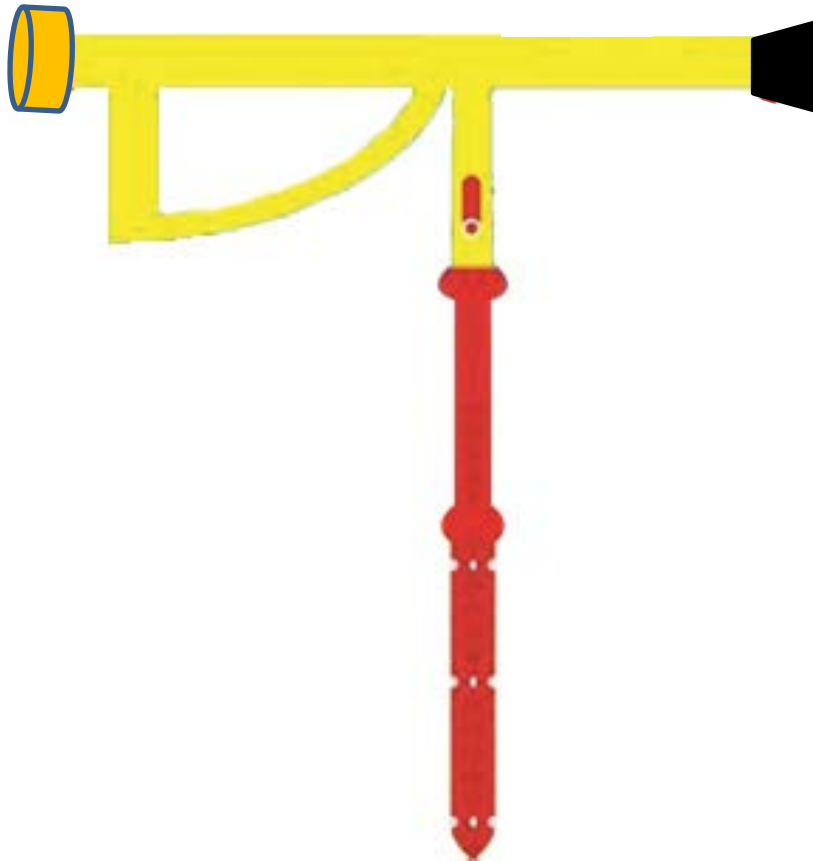
SAMBUPONTI NOZZLE IS AN INNOVATIVE FIRE FIGHTING EQUIPMENT THAT IS SIMPLE, SAFE, COMFORTABLE, RELATIVELY LIGHT TO BRING, MULTIFUNCTION AND WORK EFFECTIVELY.

SAMBUPONTI NOZZLE SET
CONSIST OF :

1. SAMBUPONTI PRIMER 2.5 INCH
2. SAMBUPONTI PRIMER 1.5 INCH
3. SAMBUPONTI BRANCH 1 INCH

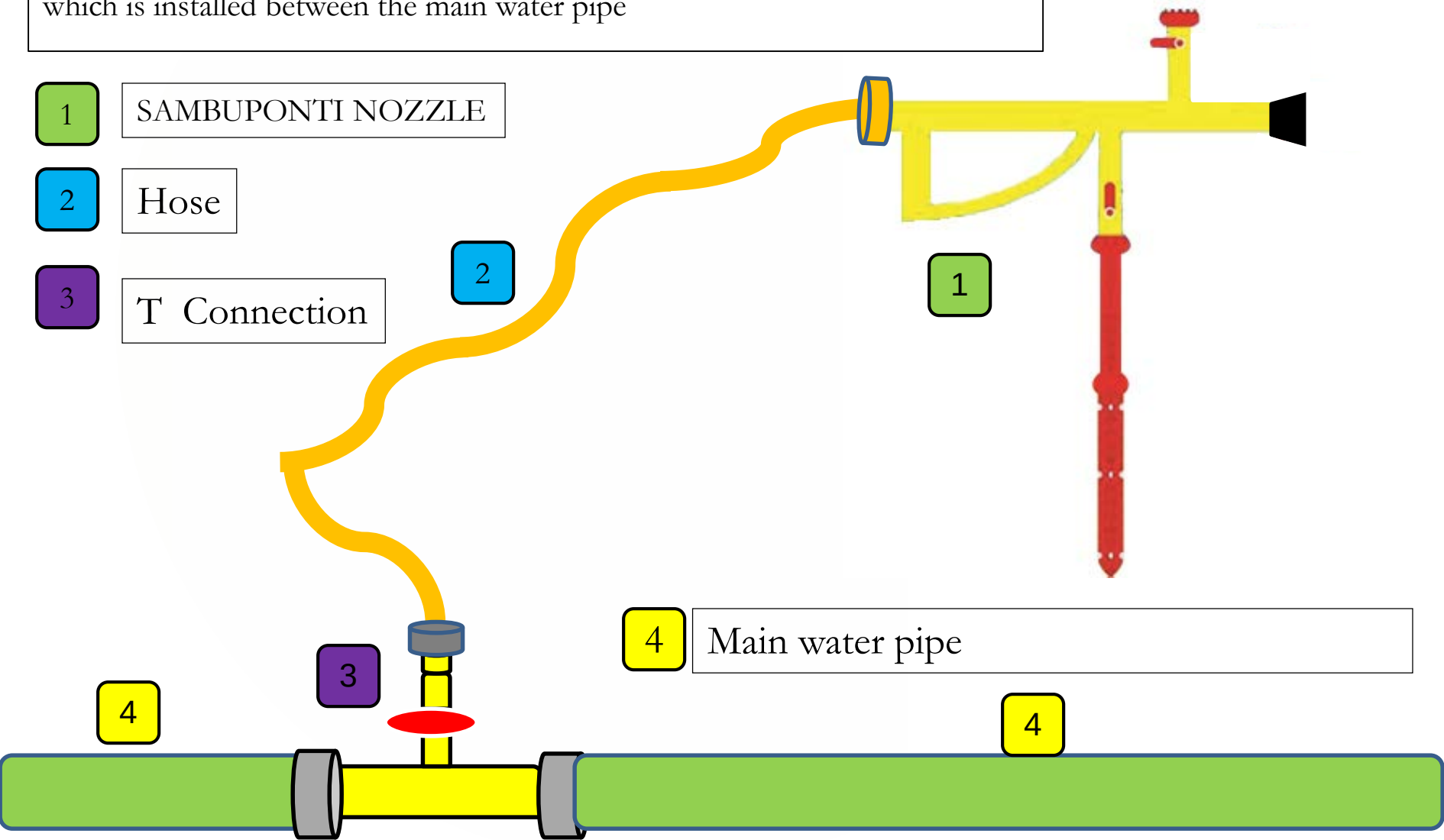


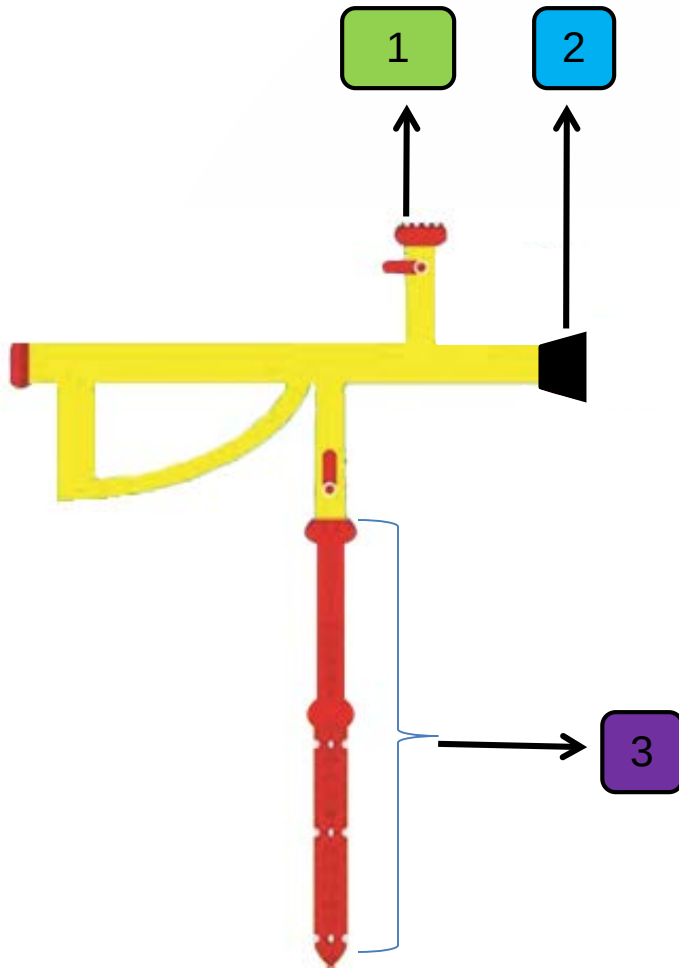
- Its position is at the front, at the end of the hose
- Suppressing the side of the fire 'head'
- Large pump (tohatsu V82)
- 2.5 inch hose



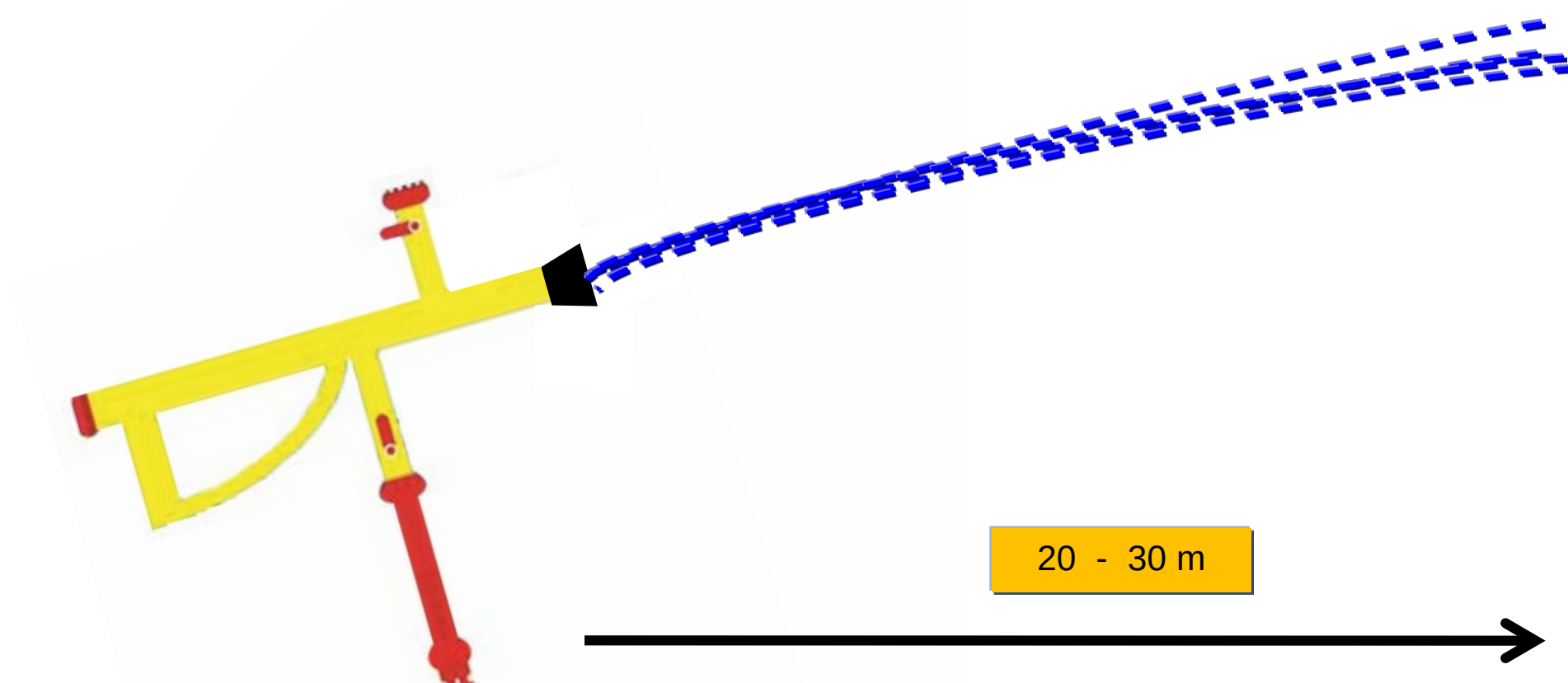
- Its position is at the front, at the end of the hose
- Suppressing the side of the fire ‘head’
- Medium-size pump
(tohatsu V20,
Sibaura 516 or
Mark 3)
- 1.5 inch hose

SAMBUPONTI BRANCH is an integral and inseparable equipment consisting of SAMBUPONTI NOZZLE, HOSE DAN T CONNECTION which is installed between the main water pipe

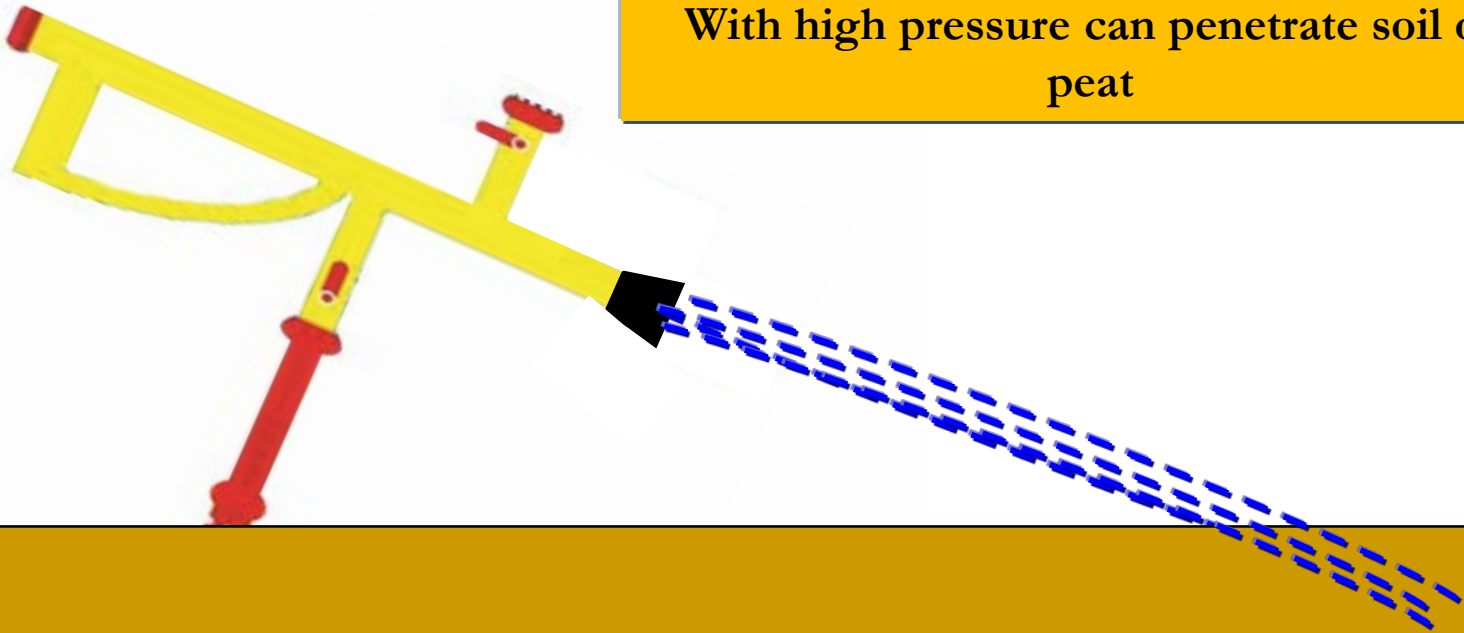




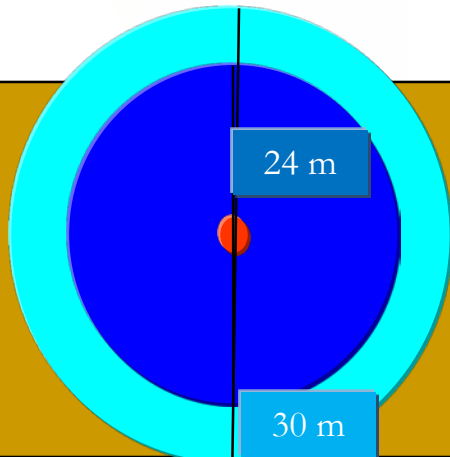
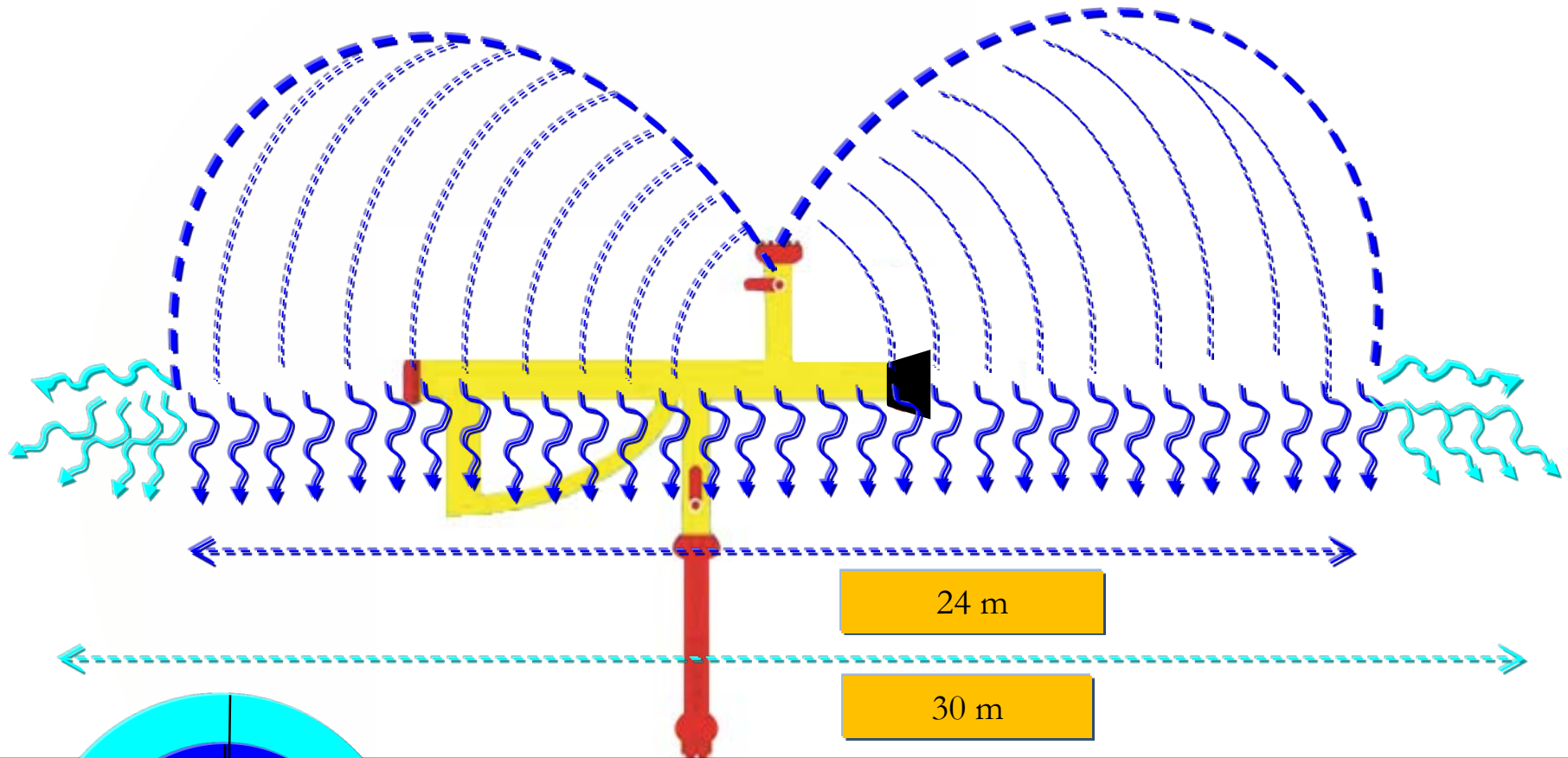
- Consist of three (3) types of nozzle, which are :
variable Nozzle, spray Nozzle, and peat Nozzle
- Positioned between the main water pipe
- Multifunction :
 - ▶ Suppressing the 'body and tail' of fire
 - ▶ Perform mop up
 - ▶ Wetting the surface of the of burnt area (Spray Nozzle)
 - ▶ Extinguish underground peat fire (Peat Nozzle)



With high pressure can penetrate soil or peat



SAMBUPONTI NOZZLE“ SPRAY



Size of spray coverage per unit

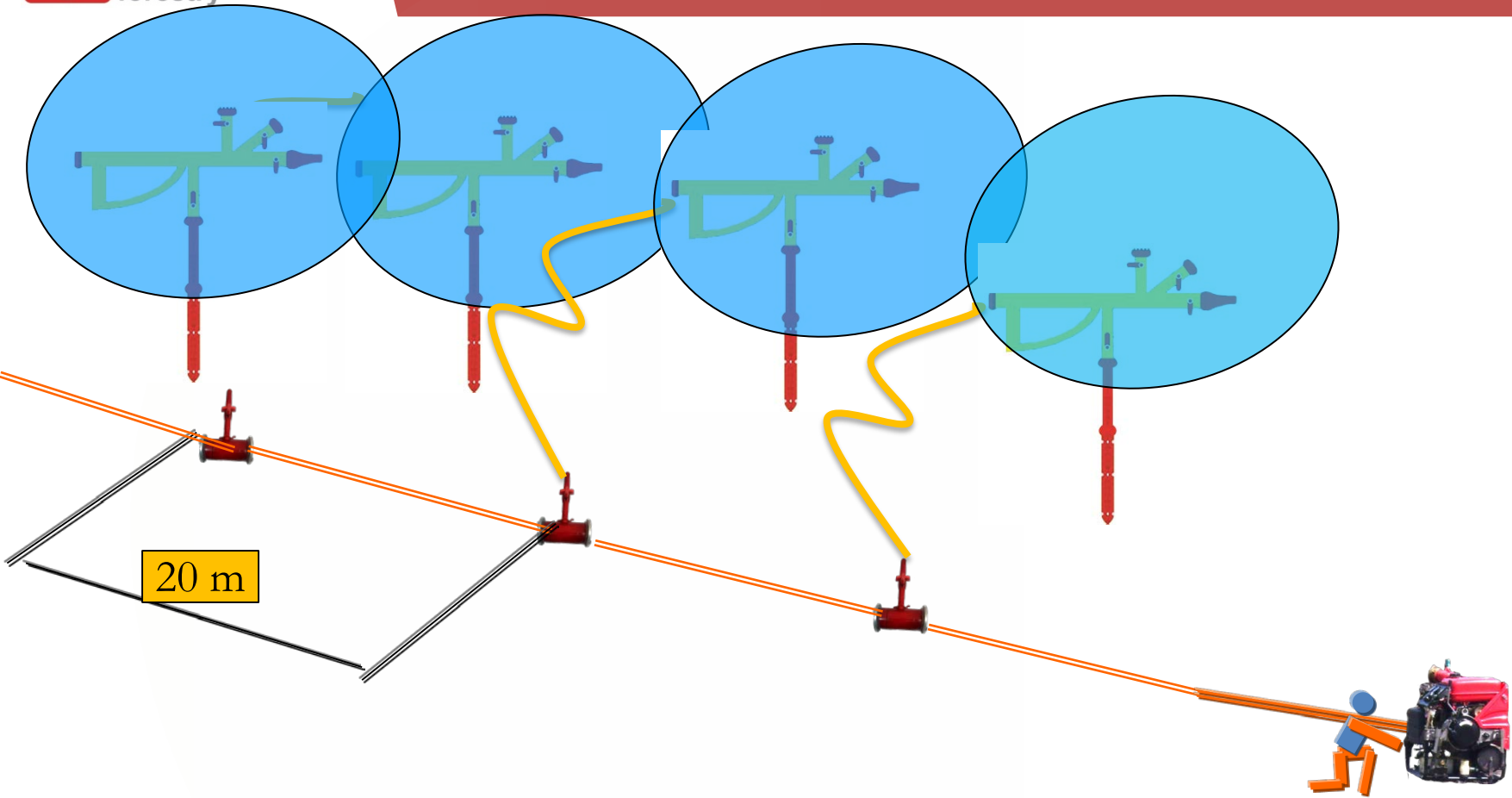
= 706.50 m²

Spray volume

= 68,50 ltr per minute

Depth of spray under peat surface

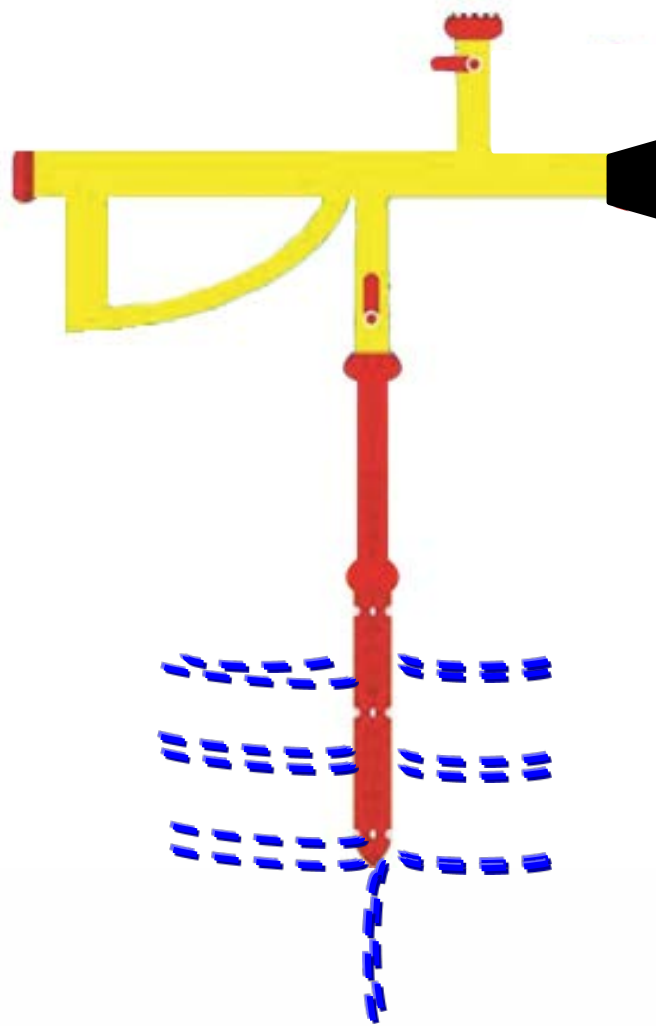
= 10 – 20 cm per jam



Tohatsu V82 = 15 - 20 unit SAMBUPONTI, hose length 500 m

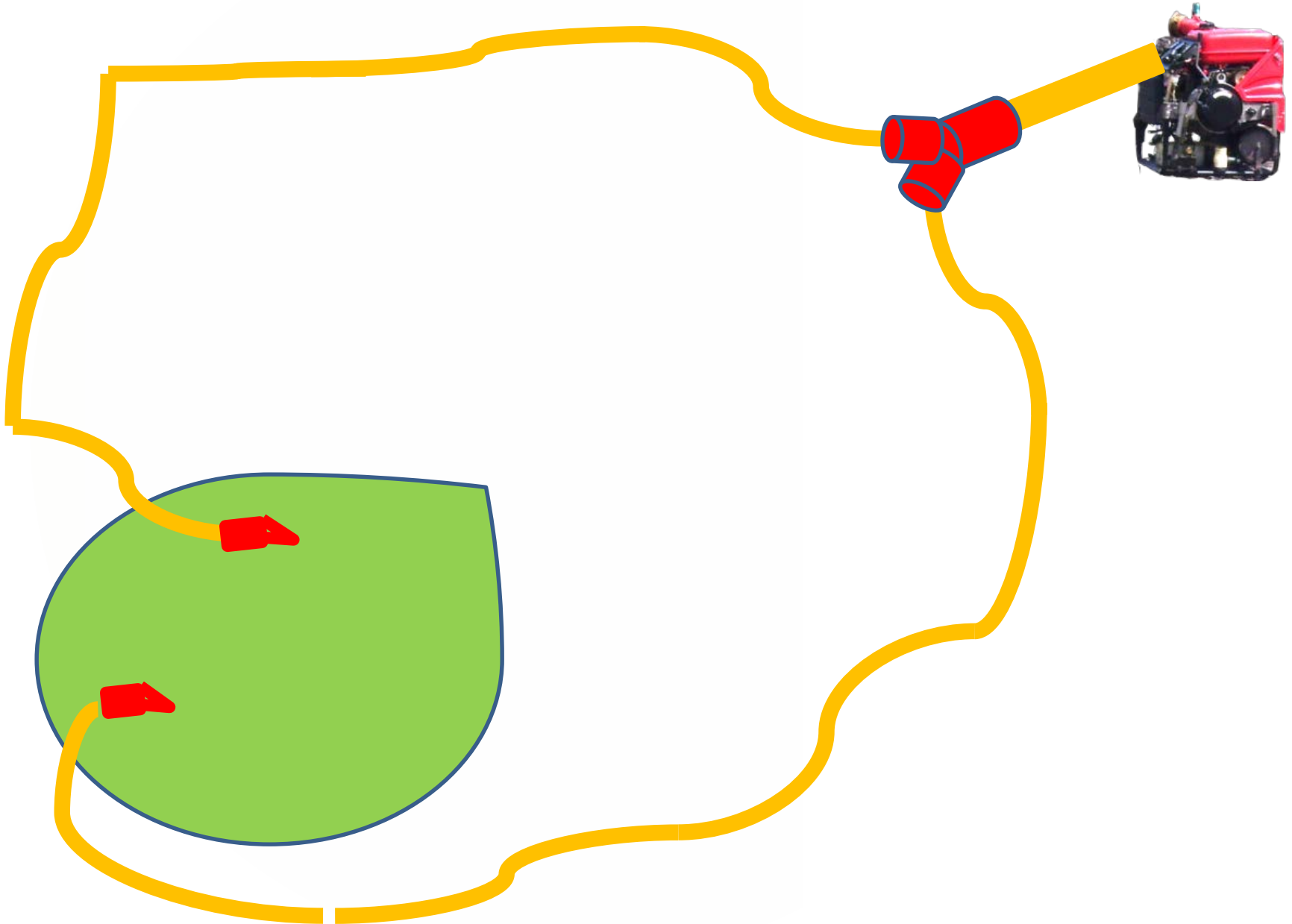
Tohatsu V20 = 8 - 10 unit SAMBUPONTI, hose length 300 m

Mini striker = 3 - 5 unit SAMBUPONTI, hose length 150 m



SAMBUPONTI NOZZLE SPRAY “PEAT”

OLD METHOD FIRE SUPPRESSION







1. VARIABLE NOZZLE

It can spray the top of the fire, create a wet breaks and mop up





2. SPRAY NOZZLE

Used to make wet fire breaks and wet the burnt area (spraying like rain), without having to be operated by Fire Fighters

SAMBUPONTI NOZZLE can be left unmanned, while Fire Fighters team can rest, eat and pray. The fire is still under control



3. PEAT NOZZLE

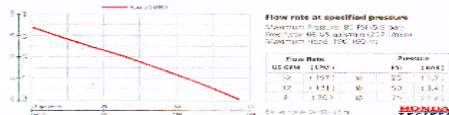
Used to suppress underground peat fire. The nozzle pipe can be connected starting from 0.5 meters depth to any depth needed. The connecting pipe system is similar to the wellbore pipe connector system.





MINI-STRIKER®

MINI-STRIKER® adalah pompa tipe single stage yang digerakkan Mesin Honda 4-tak, 2.5 HP dapat mencapai tekanan sampai 85 PSI (5.9 BAR) dan volume pasokan hingga 68 GPM (257 LPM). Sangat portabel dan ringan – dengan berat di bawah 9 kg – pompa ini berkinerja baik. Dapat digunakan sendiri atau digunakan secara bersama-sama (landem) dengan pompa lainnya, dan merupakan pilihan yang sangat cocok untuk aplikasi di lapangan.



SPESIFIKASI

Pompa/ Pump

- Tipe/jenis : 1 (satu) tingkat / stage.
- Bahan : aluminium alloy dan baja yang tahan terhadap korosi dan anti karat
- Sistem pengisian : pompa hisap (priming pump) atau manual.
- Height of suction : 2.5 meter menggunakan selang hisap berdiameter 1.5".
- Discharge outlet : Diameter 1.5".

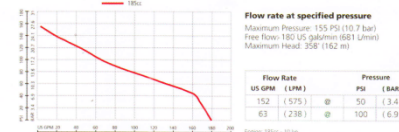
Mesin/ Engine

- Tipe/jenis : 4 tak dengan sistem pendingin udara
- Isi silinder/ Displacement : 49.4 cc
- Tenaga/Power : 2.5 HP
- Stater : Recoil stater
- Kapasitas tangki : 1.7 liter bensin murni
- Sistem Pengapian/Ignition system : Transistorized magneto
- Berat : berat pompa kering adalah 8.75 kg



MARK-3® PORTABLE

MARK-3® adalah produk unggulan WATERAX yang digerakkan oleh mesin 2-tak 185 cc, 10 hp, dengan menggunakan pompa 4-stage sentrifugal pump end yang bebas perawatan. Dengan berat pompa ± 26 kg, pompa ini bisa mencapai tekanan hingga 380 PSI (26.2 BAR), laju aliran mencapai 98 GPM (371 LPM) dan sangat ringan sehingga dapat digendong oleh seorang petugas pemadam kebakaran. Desain fiturnya yang kokoh menjadikan Mark - 3® sebagai standar pompa kebakaran lahan hutan di seluruh dunia.



SPESIFIKASI

Pompa/ Pump

- Tipe/jenis : 4 (empat) tingkat / stage.
- Bahan : aluminium alloy yang tahan korosi dan baja anti karat
- Sistem pengisian : pompa hisap (priming pump) atau manual.
- Height of suction : 3 meter menggunakan selang hisap berdiameter 2".
- Discharge outlet : Diameter 1.5".

Mesin/ Engine

- Tipe/jenis : Tipe 2 tak dengan sistem pendingin udara
- Isi silinder/ Displacement : 185 cc
- Bahan silinder : Liner / sleeve menggunakan cast Iron (besi tuang) dan dapat diganti apabila terjadi kerusakan
- Tenaga/Power : Maksimal 10 HP.
- Stater : Recoil stater dan manual dilengkapi dengan dekompresi untuk meringankan stater.
- Kapasitas tangki : 20 liter, Bensin Campur (2Tak)
- Sistem Pengapian/Ignition system : CDI
- Berat : 26 kg

Kelengkapan



1. PREVENTION

- Socialisation
- Community Development Program
- Development of community fire team (Masyarakat Peduli Api / MPA)
- Training
- Early Detection
- Patrols
- **Sambuponti Nozzle**

SAMBUPONTI NOZZLE

- **Wetting fire-prone areas**
- **Wet area can be managed without burning**
- **Wetting the planted area – preventing fire from wind-borne fire**

2. SUPPRESSION

3. MOP UP

Size of
burnt area
(ha)

Time

0

BREAKTROUGH

1. PREVENTION

- Socialisation
- Community Development Program
- Development of community fire team (Masyarakat Peduli Api / MPA)
- Training
- Early Detection
- Patrols
- **Sambuponti Nozzle**
(Wetting the area)

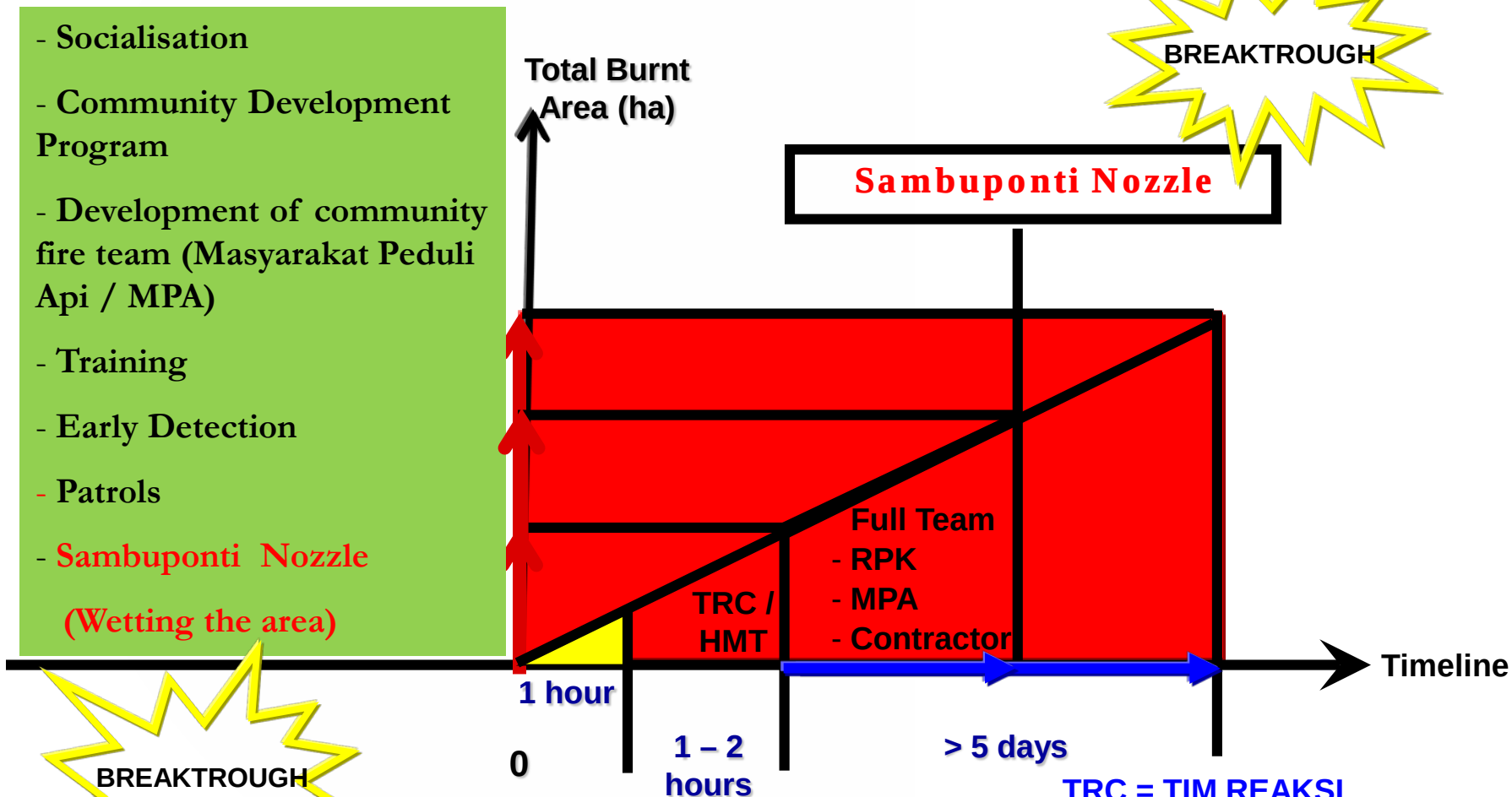
2. SUPPRESSION

3. MOP UP

Sambuponti Nozzle

BREAKTROUGH

Total Burnt Area (ha)



BREAKTROUGH

TRC = TIM REAKSI CEPAT/Fast Response Team
HMT = HELI MOBIL TIM / Helitack Team



No	Before Sambuponti	After Sambuponti
1	Can not determine time & numbers of personnel needed, and total area on fire	Able to estimate number of Fire Fighters needed and time needed to suppress fire, total area on fire, rising confidence and morale for the firefighters.
2	Pessimist view in handling huge fire, frustration and relying on rains	Optimistic and confident that the huge fire can be suppressed using Sambuponti
3	Fire Fighter personnel can not stand the heat and haze when in close distance from fire directly	Fire Fighter does not have to be in close distance with the fire (<i>self operation fire protection</i>)
4	Fire Fighter personnel works 12 hours per shift	Sambuponti works non stop 24 hours (team only monitors the pump engine)
5	No guidelines to anticipate fires that come from outside concessions	Sambuponti can anticipate incoming fire from outside concession with wetting the area rapidly

THANK YOU