



### Need for electricity in jungle medical facilities:

- Lighting
- Recharge communications devices

### Selection Criteria

Backpackable to remote locations

Operate in dense jungle environment

#### Solar

- Bulky and awkward to transport
- Requires clear view of sky
- Requires battery storage for night operation
- Reduced usefulness during monsoon season

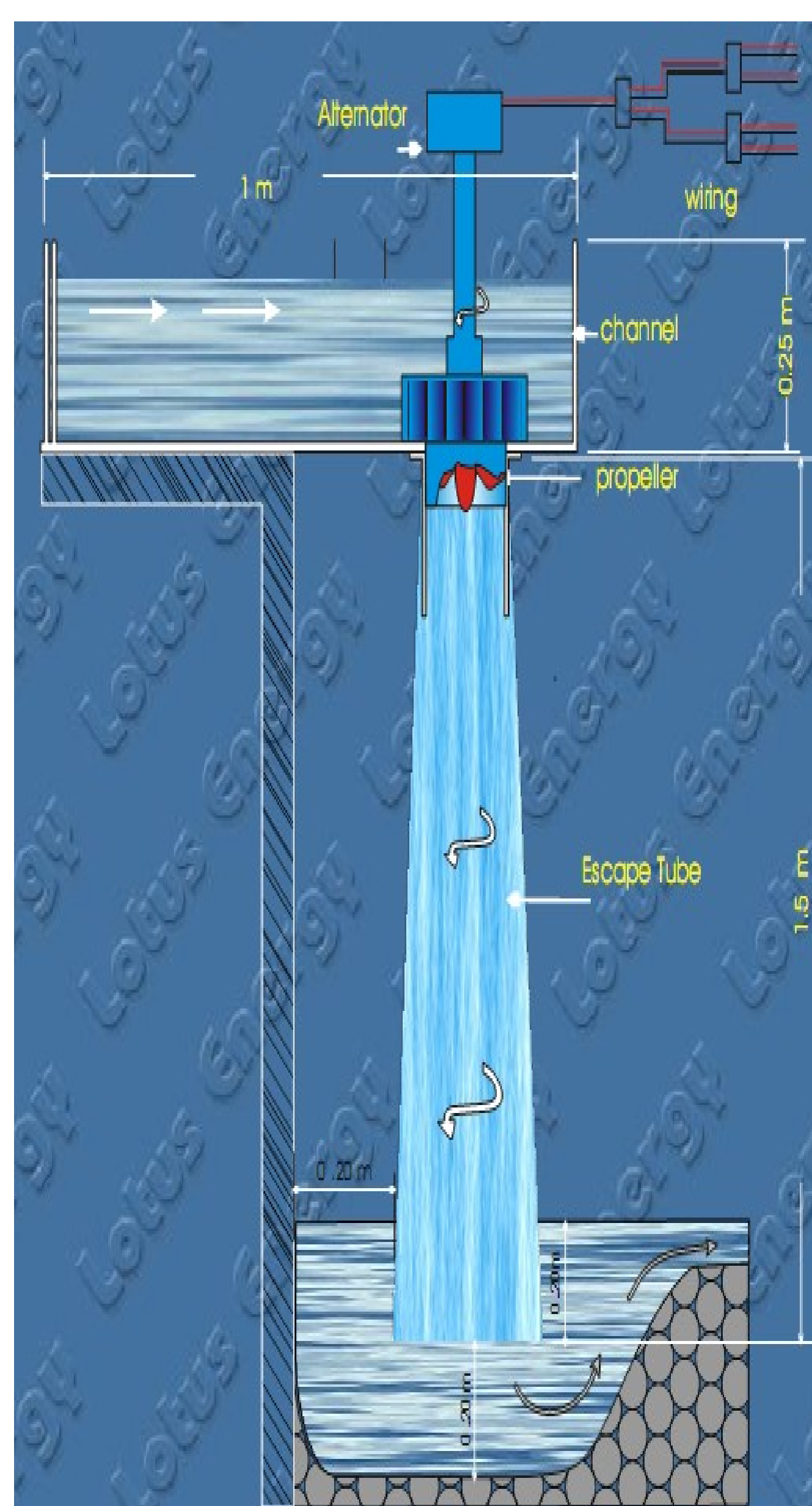
#### IC generation

- Bulky and heavy to transport
- Requires continual refueling
- Noisy

#### Wind

- Bulky and awkward to transport
- Limited wind regime in jungle

Simple to install and maintain by local inhabitants



#### TECHNICAL SPECIFICATIONS

	MHG-200LH	MHG-500LH	MHG-1000LH
1 Rated power output	200W	500W	1000W
2 Maximum allowable load	250W	650W	1200W
3 Intended voltage	110 / 220V~	110 / 220V~	110 / 220V~
4 Frequency at rated power output	50-60 Hz	50-60 Hz	50-60 Hz
5 Frequency at runaway speed	75 Hz	75 Hz	60Hz
6 Rotor runaway speed	1500rpm	1500rpm	1200rpm
7 Weight	16kg	32kg	75kg
8 Height	68cm	78cm	92cm
9 Diameter	20cm	30cm	42.5cm
10 Generator	Single phase permanent magnet alternator		
11 Rotor characteristics	NdFeB 3-pair pole permanent magnet		
12 Stator wire size	0.5mm	0.7mm	1.0mm
13 Load controller fuse	1.0A	2.5A	5.0A
14 Upper Bearings size - greased	2 x 6203	2 x 6204	1206
Upper bearing size - sealed	6004-2Z		
15 Recommended cable	0.50sq.mm/A	0.75 sq.mm/A	1.50 sq.mm/A
16 Operating temperature	5 to 50 ° C	5 to 50 ° C	5 to 50 ° C
17 Operating humidity	0 to 90%	0 to 90%	0 to 90%

#### Notes:

1,2. Rated power output is the manufacturer's specified output for the given head and flow conditions. A higher output is possible if the head is greater or the flow is faster than recommended. If the maximum allowable load is exceeded then permanent damage to the stator may occur.

3. Is approximately 110 / 220V when the ELC is used.

5,6. Runaway speed is the speed of the rotor if no load is applied. This speed is reduced under load.



#### LESSONS LEARNED

Hydro Unit Transportable

Generator assembly backpackable (16 kg)

Robustness

Very sturdy system

Ease of Maintenance

One upper grease fitting (every 3 months)

Suction

Seal between suction tube and water channel very important

Type of Loads

Good for resistive loads (lighting, small batteries)

Use of Local Materials

Local wiring not US quality

CFL or LED lighting (tube fluorescents ballast requires too many amps)