

INSTALLATION OF PICO-SCALE HYDRO SCHEME FOR A HOUSEHOLD



1. INVESTIGATION

The owner's farmer house.
The family harvest all foods themselves.
And getting energy has been a long time dream

A small stream flows in front of his house.



Measurement of flow rate

2. CONSTRUCTION OF INLET

Inlet water from the intake



Water inlet structure with steel mesh sheets to avoid grit.
The grit causes damage to a turbine.



Construction of inlet structure



Buying sand is a bit expensive. Instead we have a lot of free red soil in the mountain area.
Using this natural red soil with cement makes good natural concrete. This is farmers' old wisdom.





Completion of inlet area.
It is resumed natural feature without a dam.

Intake water goes to a two-staged buffer tank unit to eliminate grit and to stabilise water supply to the generator. We used scrapped bath units.



Penstock construction with owner's family.

Adjustment length of a water pipe.



An air breather to eliminate air in the water. This can avoid hammering jet impact to the turbine.

Outlet.

Just a small stream has a potential of incredible volume of water flow.





A power house (turbine & generator).
The owner's son is a good carpenter.



generator built-in turbine unit



Small pelton generates small energy at 300watts at maximum,
but works for 24 hours.



A handmade controller unit.



An ammeter (LHS), voltmeter (RHS) and
a battery protector (below them).
Our nominal output is about 120watts.

Deep-cycled batteries for industry.



Owner's family and some
guests under lighting powered by the water.
Installed by 'Greencrafts'. The owner is Mr.Ohmori
who is managing sustainable organic farm named 'Earth Farm'