MHPP
Mini Hydro Power Project

Garumpalo

Mini Hydro
Fact Sheet
INDONESIA

Family Hydro Power

Tp100 installation

Garumpar is part of Patanyaman, which has a MHP since some years. Located 10 km from the village center, power lines where to expensive so far. Additionally the capacity reaches its limits as more and more people in Patanyaman use TV and other electrical appliances.
Knowing the MHP requirements and management procedures, the 10 households from Garumpar, asked MHPP if they could "test" one of the Tp100 prototypes from Bandung.

Nearly each household has a family member working abroad, either in "Arab" or Malaysia. So Garumpar was able to pay about 50 % of the cost by its savings. This covered fully the cost for construction.
A first visit from MHPP in June clarified potential and explained the required construction principles. On September MHPP staff brought the Electro-mechanical equipment and supervised its installation and the cabling to the village.

The operator (picture) starts the turbine 5 o'clock in the afternoon and stops it at about 7 o'clock morning (to get people off the TV and to work)

The daily rhythm changed for the farmers in Garumpar. Typically dinner shifted 2 hours later form sunset 18 o'clock. The food can be prepared even if I is already dark.
The evenings the people often spend at one neighbor's house to join the TV. News, soap operas, or even political debates are now at hand at Garumpar.

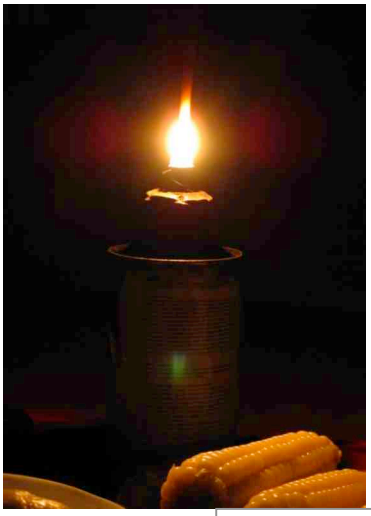
Balaloe the next village down the river saw the construction going on and now considers doing its own MHP soon. So "spreading the word" comes with the actual possibility to install their own power supply.

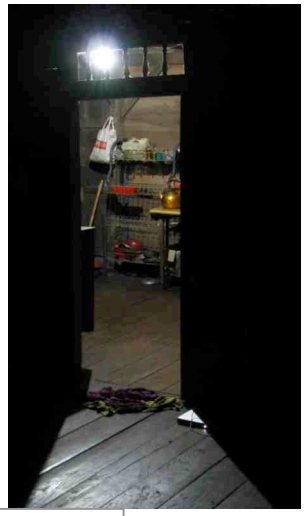
Update:
½ year later some problems with turbine bearings where solved from the villagers themselve. This indicates that for a installations sustainability a strong local management is most crucial.


Installing turbine and generator

General Information

Dusun / Desa / Kecamatan	: Garumpar / Patanyamang / Camba
Kabupaten/Provinsi	: Makassar / Sulawesi Barat
Inagoration date	: 09.2008
Connected households	: 9 houses
Total capacity	: 800 W
Capacity per house	: 3 x 8 W CFL + 3 -4 TV sets (in total)
Productive use	: -
Tarif	: Rp. 7000 / month household
Total project cost	: Rp 30 mio
Local organisation	: UPT Patanyamang
Installation	: Opperator Patanyamang, MHPP staff
Duration of construction	: 2 month
Site preparation	6 days
Construction	6 days
Installation / wiring	3 days





Increased quality of live

Technical Specifications

Civil structure		
Intake	:	Stone masonry (incl. Flush gate)
Canal	:	none
Sand trap:	:	1.5 / 1 / 0.5 m (no flush gate)
Flow	:	25 l/s
Penstock	:	Ø 8”, length: 65m
Transmission cable	:	850 m
Electro Mechanic		
Turbine	:	Tp100 , bo 100 mm, 800 W
Manufacturer	:	Kramat Raya, Bandung
Generator	:	Synchronous 3 KVA, AVR, China
Control system	:	3 kW, from Aji

Patanyamang performs exceptionally well on managing its MHP. The know-how and experience inures now to the benefit of Garumpar. Construction of civil structure, penstock and power house was organised, done and financed completely by the villagers themselves.

Construction of penstock and powerhouse

Costs for 10 households

Total Cost	:	Rp. 30 mio.
Civil structure	:	Rp 9 mio in work
Cement	:	Rp. 8 mio. / 30 pk.
Penstock	:	65 m.
Electro Mechanical (MHPP)	:	Rp 15 mio.
Transmission (MHPP)	:	Rp 4 mio.
Villagers contribution	:	Rp 1.225.000,- / hh

Management

Management and operators	:	2 persons
Management cost	:	Rp. not yet
Bookkeeping is assisted by OPT Patanyamang		

Family Hydro Power

Tp100 design is made to be produced in small work-shops, located closer to rural target areas. There it can become a viable business as costs for distribution and services drop with the clients close. Installation costs of a Family-Hydro scheme can be cheaper as lower requirements in flow and head need less sophisticated civil structure. The future users can do so more work themselves. It reduces necessary financial resources and allows some communities to acquire even their own Family- Hydro power plant.

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Mini Hydro Power Project (MHPP) is a cooperation project between the Diretorate General of Electricity and Energy Utilization within the Indonesian Ministry of Energy and Mineral Resources and the German Technical Cooperation (GTZ) on behalf of the German Government

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