

Social and environmental innovation in small hydroelectric plants

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ESHA

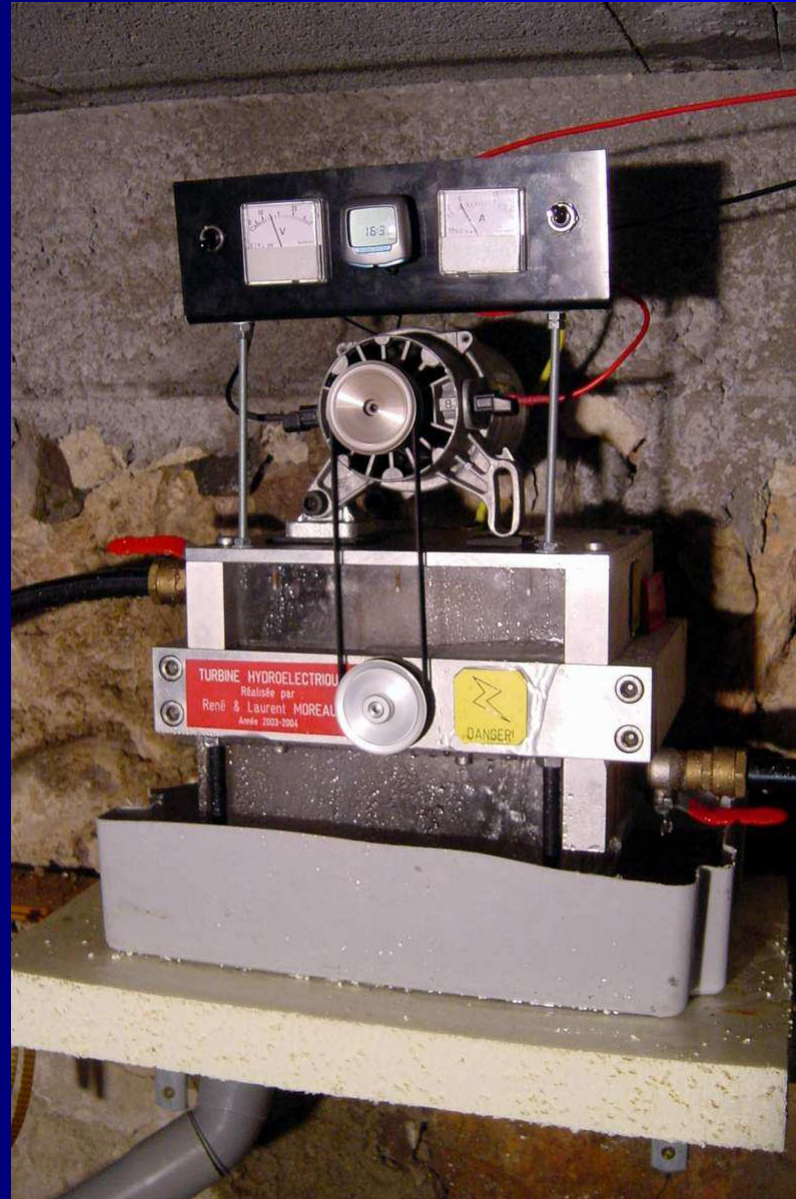
SMALL HYDRO DEFINITION

“Hydroelectric power plant with an installed
(maximum) capacity up to 10 MW”

A small hydro plant (6,7 MW)



Another small hydro plant (pico hydro, 600 W)



Social engineering:

A methodical approach to overcome opposition against a project

Basic question:

Why many people are opposing small hydro?

Basic assumption

Opposition comes from fear

Fear based on facts or
interpretation of facts



rational fear

Fear based on pure emotion:



irrational fear



Total fear

Our model of man (and woman)

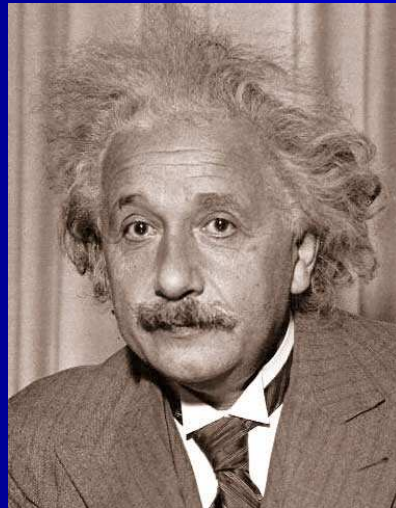
Merely rational



Perfect human being



Merely irrational



Typical fears

Fear of losing money

Fear of personal safety and health

Fear of having any kind of disadvantage

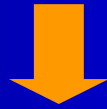
Fear of decrease of living condition

Fear of any unexpected alteration in life

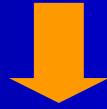
Fear about environment in a wider sense



Environmental issues \equiv Social issues



Environmental issues \equiv Social issues



Tools applicable:

**New approaches to design and implementation
(conceptual strategies)**

Involvement

Ownership and identity

Old target: implement a small hydro plant



fear: environmental measures are an ineffectual attempt to compensate for severe ecological destruction (theory of conspiracy)

New target: environmental sustainability including small hydro



Changing priorities in overall design → multi-discipline approach



Multi-purpose plants



To aim at the main target but also to alter conditions which are not primarily necessary, but likely to be in the interests of other people

- Installation of small hydro plants within drinking water supply systems;
- Installation within irrigation systems;
- Installation within wastewater treatment plants;
- Installation within cooling water systems;
- Implementing recreational infrastructures;
- Improvement in ecological performance;
- Improvement of flood protection;

Combined energy production and consumption



To improve the effect of production on the public in relation to employment, identification and “green power image”

- consortia of users:
 - irrigation
 - industrial units
 - final users (a whole village or a block of flats)

Multi-resource systems



To take advantage of the better “green power image” of other RES with respect to small hydro

To improve the performance of RES systems thanks to the high reliability, predictability and availability of small hydro

Environmental audits (ISO 14001-EMAS...)



To prove that plant design and operation are such that the safeguard basic features of the ecological integrity of the environment are preserved

THE END







