



**aQysta**  
*Innovating for Impact*

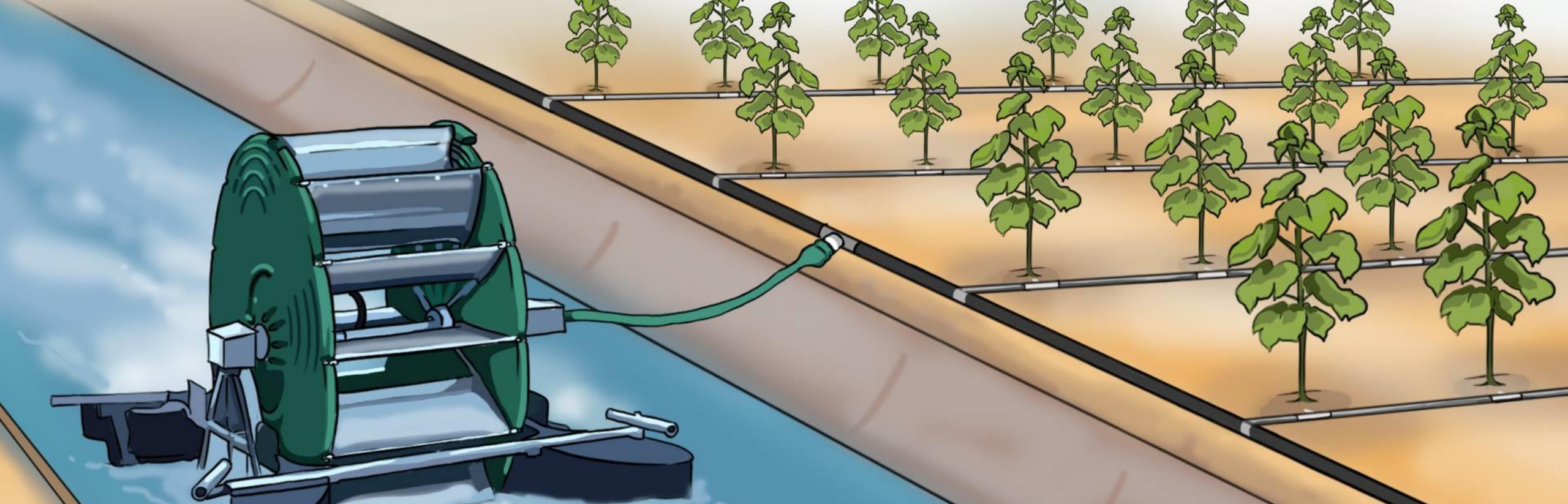
**The Barsha Pump**

**1.6 billion**  
**people**  
suffer from  
**Economic**  
**Water Scarcity**



- Zero Emissions
- Zero Operating Costs
- Virtually no maintenance
- 24/7 Operations





**70% Cost Savings**  
(compared to conventional pumps)



**2-5x Yield Increase**  
(v. rainfed Farming)

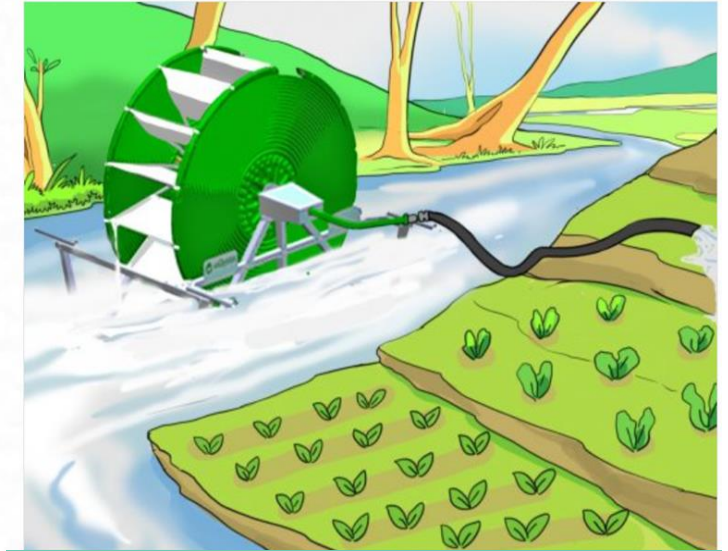


**50 % Water Savings**  
(at no additional cost with drip)

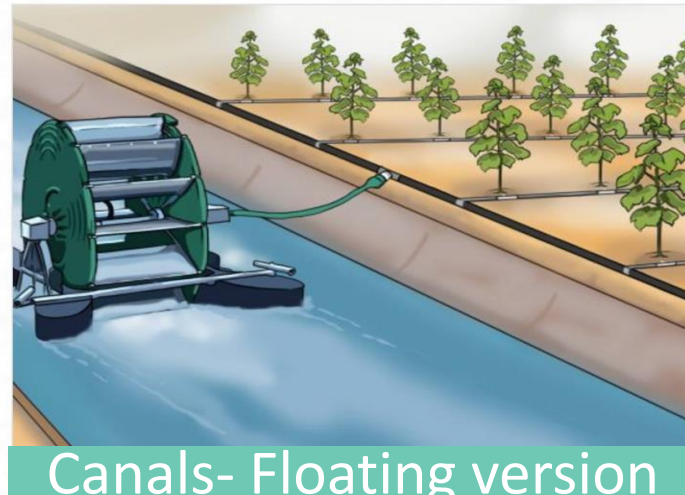
# Product - Barsha Pump



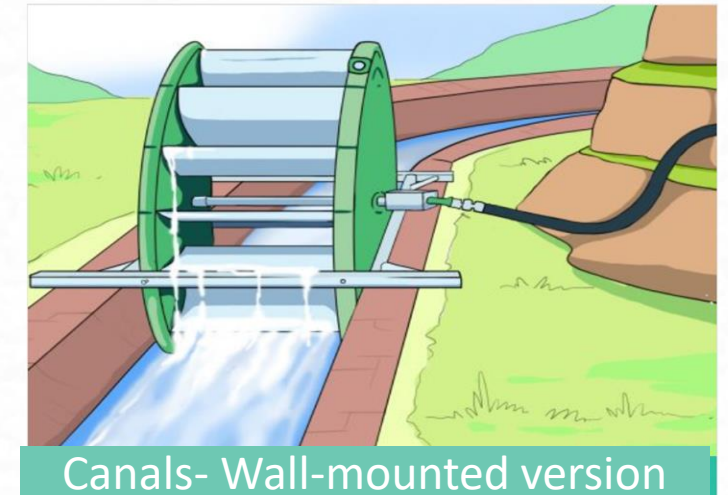
Rivers- Floating version



Rivers- Standing version



Canals- Floating version



Canals- Wall-mounted version



# Global Traction



**200**

Hectares of land Irrigated



**300**

Millions Litres of Water Pumped



**5000**

Number of people Served



**100**

Tons of CO2 emissions Saved





# The International aQysta Team – 30 Members, 8 Nationalities

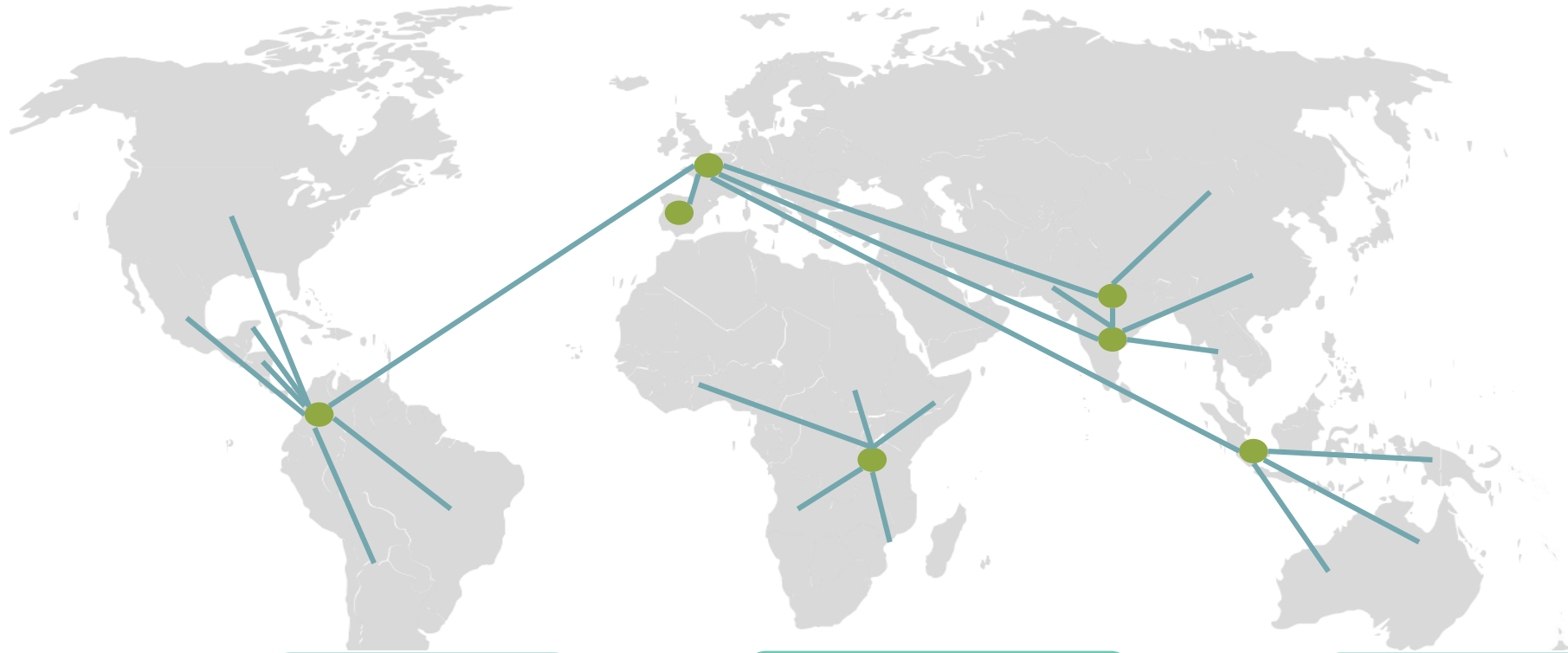


## Partners & Customers





# Distribution - Hubs & Spokes Strategy



aQysta  
Regional Hubs

Distributor

Distributor

Distributor

Farmers

NGOs

Government





# From Barren to Green in 3 months





## **Example Case: Nepal**



Arjun Karki  
Ratmate, Sindhuli, Nepal  
Sunkoshi River



Distance: 300 meters  
Height: 14 meters



Flowrate: 0.4 l/s (35,000 liters per day)  
Storage Tank+ Furrow Irrigation



Storage Pond: 15,000 litres



Crops: Vegetables, Maize, Paddy (Nursery)  
Total Area Covered: 1 hectares



Also used for cattle farming





## **Example Case: Indonesia**











Euro Hit 40





After 3  
Months!





Lessons Learnt, Insights  
& Way-forward



# Ability and Willingness to Pay

- Farming as a Profitable Business
- Irrigation – Public or Private Good?

# Two Scaling Mechanisms

- Government Subsidy
- Financing Mechanism to spread up-front costs



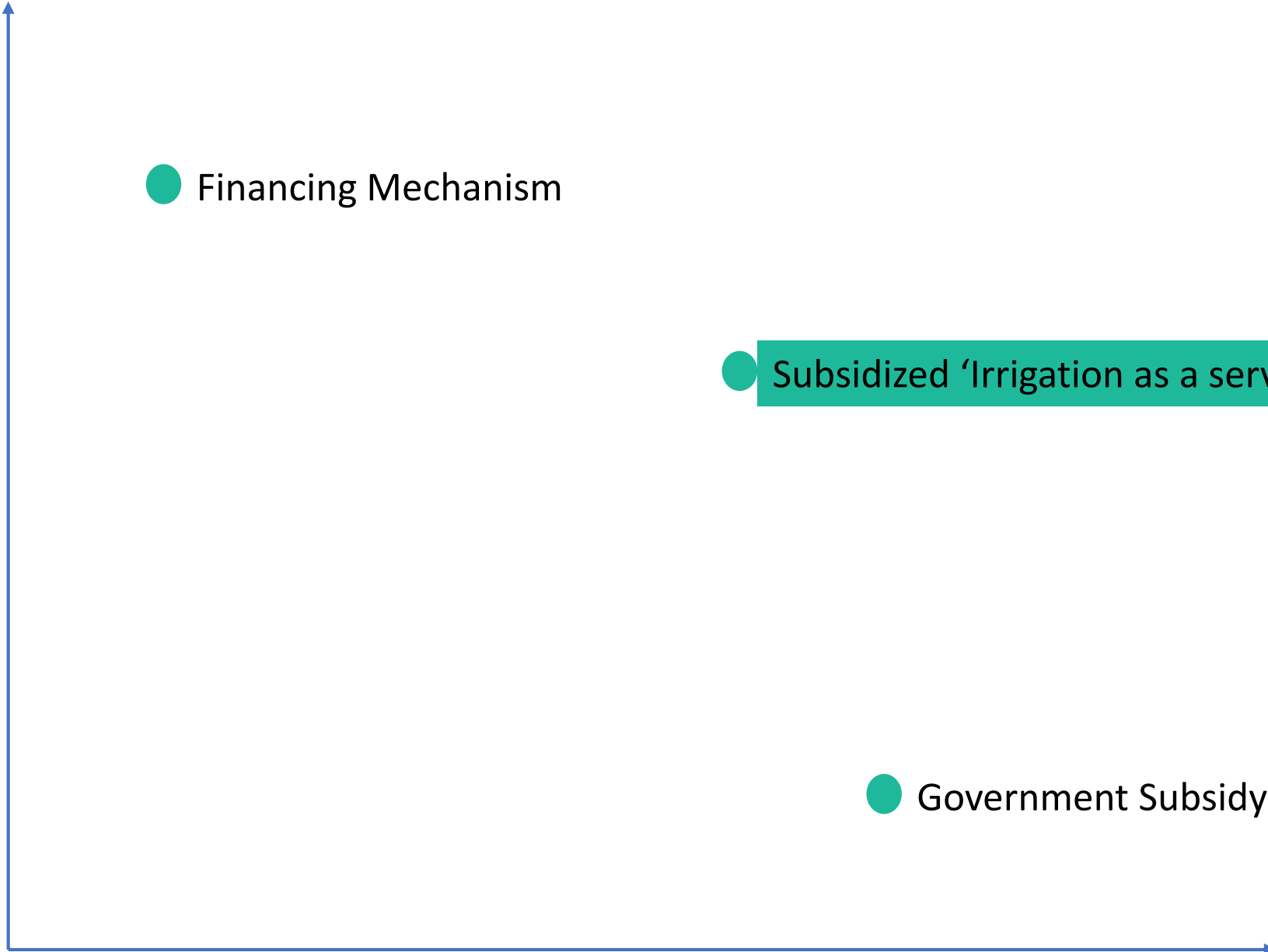
Impact

● Financing Mechanism

● Subsidized 'Irrigation as a service'?

● Government Subsidy (hardware)

Scale



Smallholder  
agriculture  
and Irrigation  
demands are  
both highly  
variable



Water Source



Land Size



Type of Crop



Irrigation Method



# Technology Roadmap

## 2016

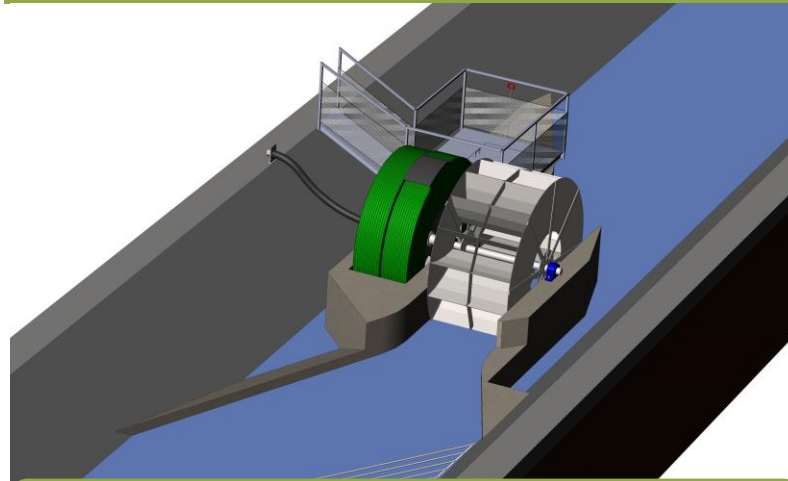
### Barsha Pump



- Head: 20 meters
- Flowrate: 40,000 liters per day
- Land served: 2 hectares

## 2019

### HyPump



**10x**  
more powerful than Barsha pump

## 2020

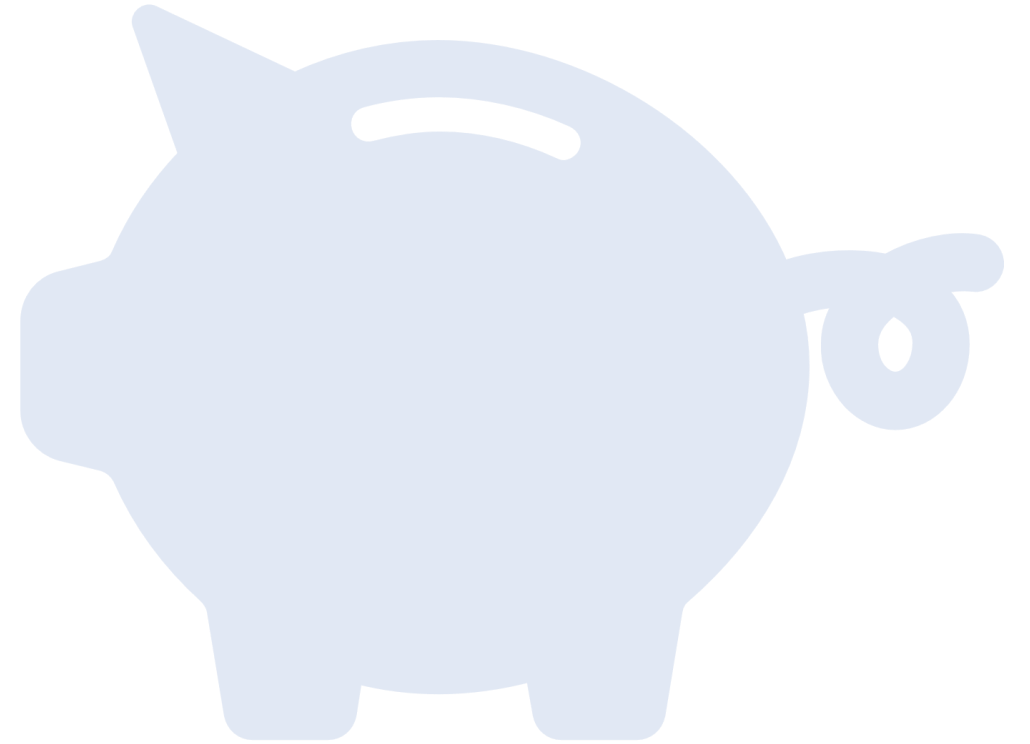
### Integrated Turbine Pump (ITP)



**100x**  
more powerful than Barsha pump



# Government Policy and Innovation



- Government is risk averse by nature, with bureaucracy involved in the decision-making process.
- 'wait and see' approach
- **Government support for trading, not innovating**



# Innovation is an iterative process and takes time

- Needs patience from all stakeholders
  - Patient Capital

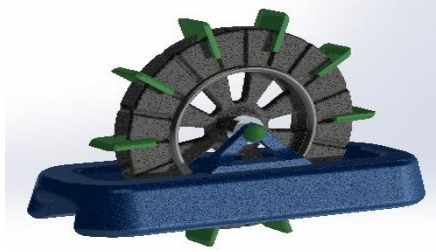


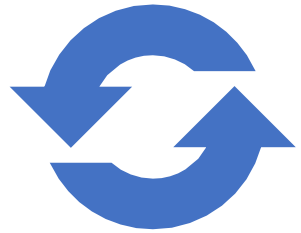
# Concept Stage

# Experimental Prototype

# Demonstration Unit

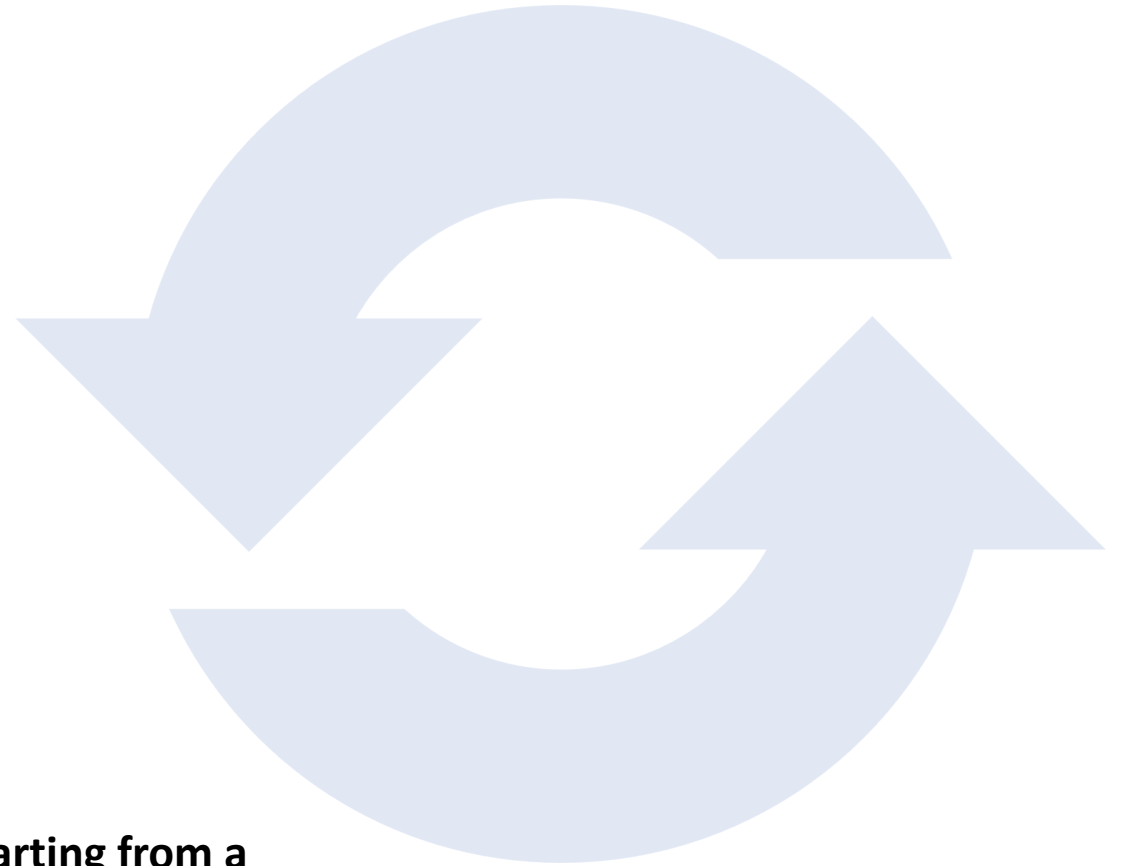
# Commercial Product

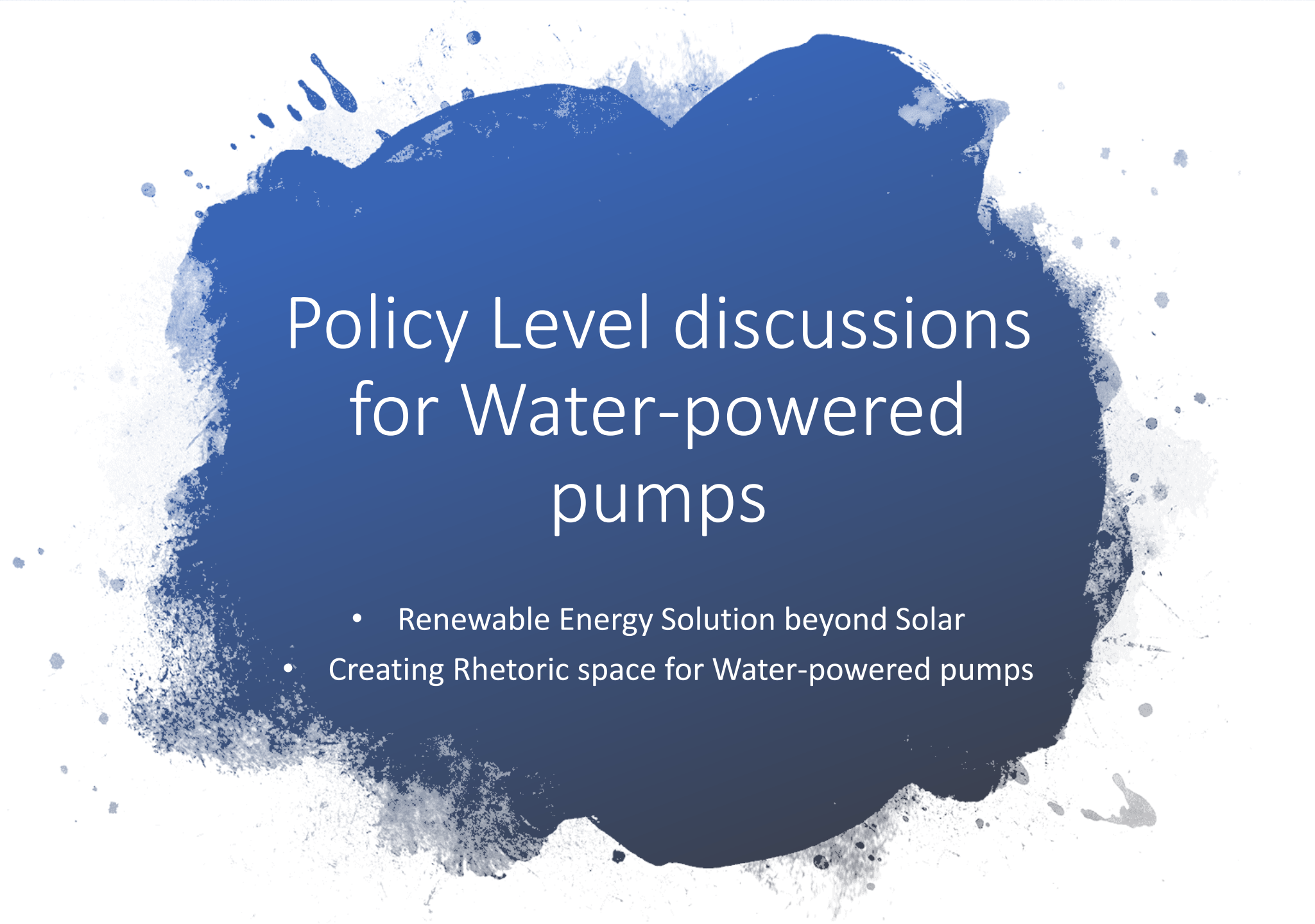




# Innovation Ecosystem Support

- **Bringing an innovation to the market, starting from a developing country is way more challenging**
- **Non-governmental organizations as early adopters of innovative technology**
- **Gap from demonstration to scaling**





# Policy Level discussions for Water-powered pumps

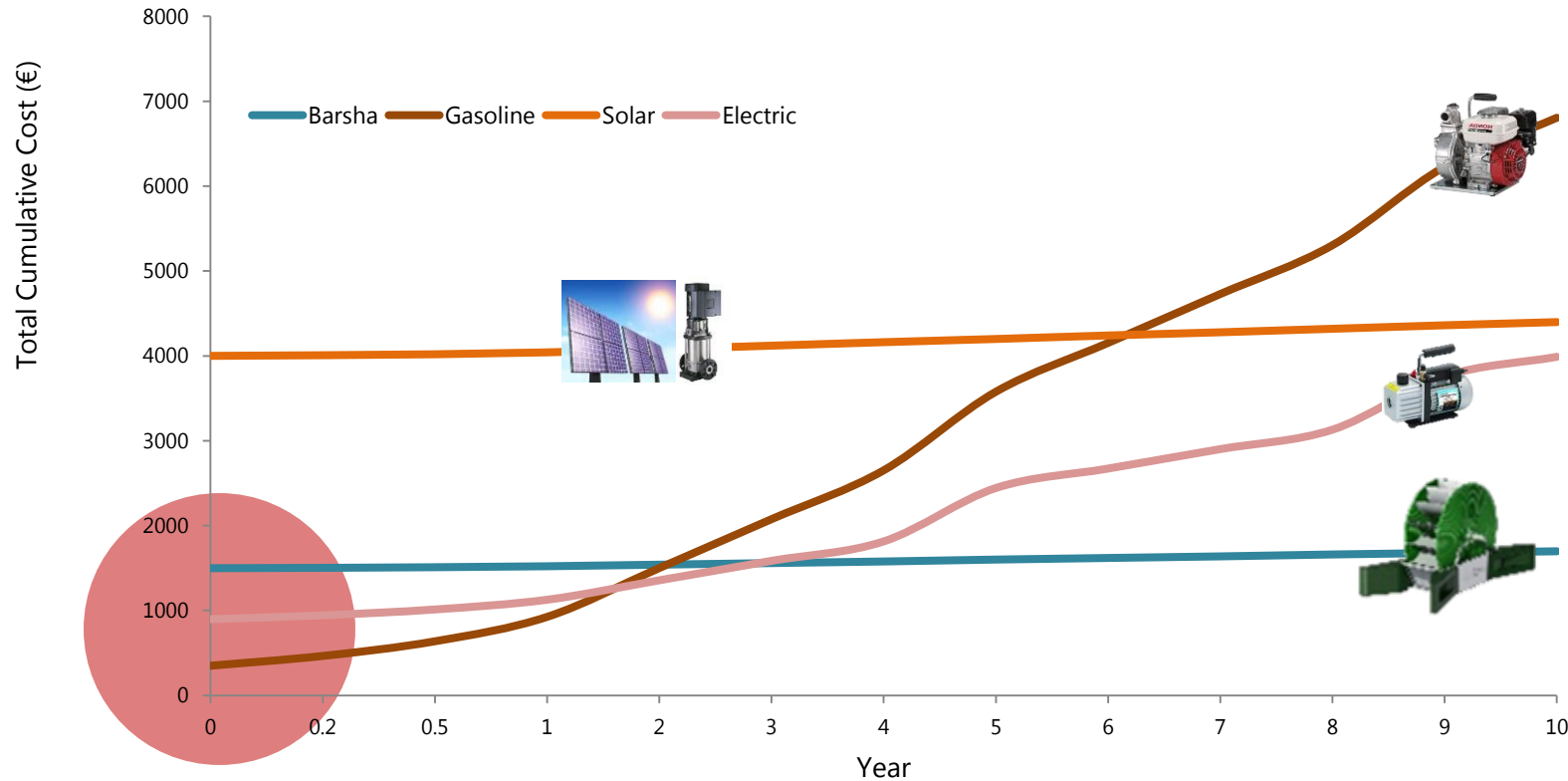
- Renewable Energy Solution beyond Solar
- Creating Rhetoric space for Water-powered pumps



Let us Irrigate better, together!



# Competition Analysis



## Barsha Pump

- Barsha Pump: €1,600
- 28 cubic meters per day to 15 meter

## Diesel Pump

- Fuel Price/Liter: €1.16 (incl. transport)
- Price: €371
- Annual Fuel Cost: €557

## Solar Pump

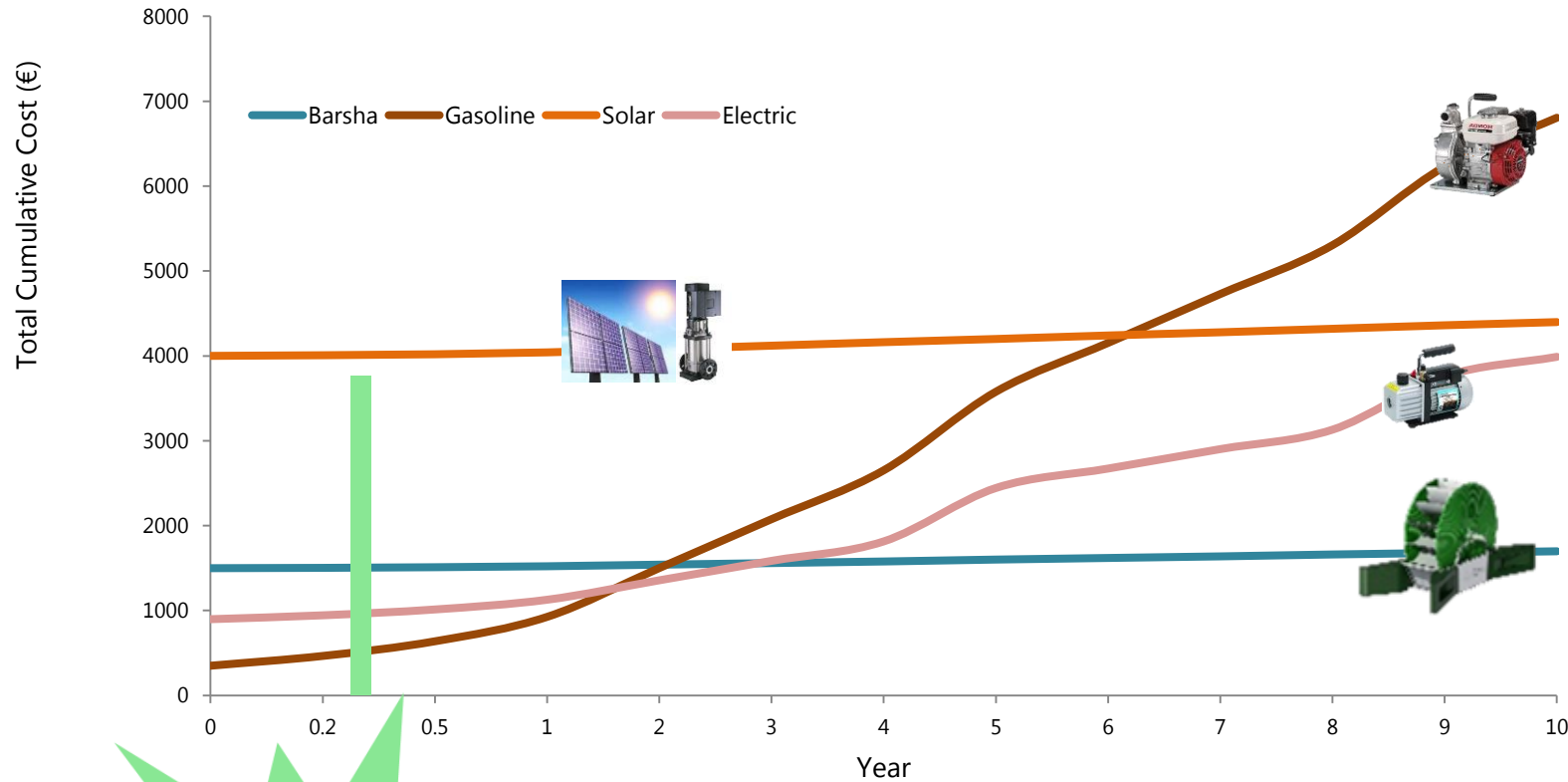
- €3,816
- €424 for Installation

## Electric Pump

- €424
- Infrastructure: €530
- Electricity: €0.09/kWh
- Annual Electricity Cost: €200



# Competition Analysis



**Income from harvest in 3 months**

## Barsha Pump

- Barsha Pump: €1,600
- 28 cubic meters per day to 15 meter

## Diesel Pump

- Fuel Price/Liter: €1.16 (incl. transport)
- Price: €371
- Annual Fuel Cost: €557

## Solar Pump

- €3,816
- €424 for Installation

## Electric Pump

- €424
- Infrastructure: €530
- Electricity: €0.09/kWh
- Annual Electricity Cost: €200