Water Powered Technologies

WATER CHANGES EVERYTHING

Sustainable, emission free water pumping solutions delivers water without using any fuel or electricity.

Water Powered Technologies

About Us

Water Powered Technologies Ltd (WPT) is a UK-based clean-tech company revolutionising the way the world moves water, without fuel, electricity, or emissions. At the heart of our innovation is the Papa Pump®, a globally patented hydro-powered water pump that uses the energy of naturally flowing water sources, such as rivers, streams, and springs, to deliver water uphill or across distances with zero running costs.

Our hydro pumps use no external energy sources but operate just through the power of running water and are designed to require little or minimal maintenance during their operational lives.

The composite Papa pump, has been sold in over 60 countries with full large-scale production capabilities proven and implemented.

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Company Milestones

1770s — Traditional Ram Montgolfier (with metal valves)

1800s — Rubber valves replace noisy unreliable metal valves.

1990s — **Papa Pump** develops new **'venturi valve'** which enables complete re-design of a ram pump to an in-line design.

2010s — Papa Pump develops new **injection moulded design** using high specification composite materials which increases performance and is non-corrosive.

2015 — Papa Pump develops new **'Sureflow'** automatic Flow Control Valve enabling the pump to operate effectively during periods of low flow.

2016 — The new **'Venturo'** uses the same technology as the Papa Pump but on a much larger scale, pumping up to 30,000m³ litres a day - a new benchmark in water powered pumping technology.

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Our Solution

PapaPump®

Our patented technology, Hydro ram pump reliably delivers water from a position near the water source to a higher location without using any fuel or electricity..!

The world's first and only injection moulded, composite water powered pump.

Water Regulation
Advisory Scheme
approved for United Kingdom

Attestation de Conformité Sanitaire
approved for use with drinking water in France.

National Sanitation Foundation
international accreditation
for use in residential or commercial plumbing projects.

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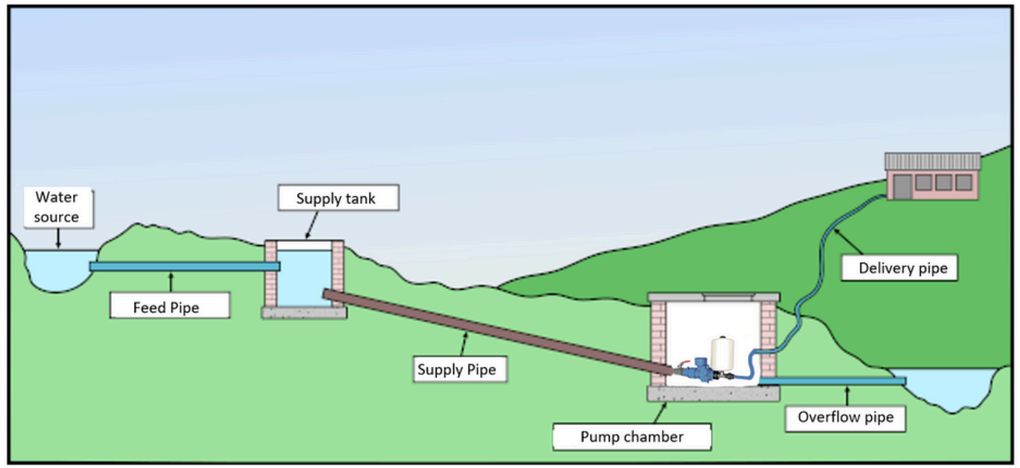
How Papa Pump Works?

- The Papa Pump uses natural power of water flowing downhill to pump itself to higher ground for irrigation, watering livestock or human use.
- Hydrams can lift water to over 30 times the height of the fall to it from the source of water. The power for pumping comes from the flow of water via gravity to the pump, and doesn't require a generator, electricity or even wind.
- They operate continuously, 24 hours per day, 7 days per week. The only maintenance that is usually required is a change of valve ($30) every 2 to 3 years.

It can be used as a stand-alone unit to pump water to the field or can be combined with other complementary technologies such as drip irrigation. Another major benefit of the technology is that it can be implemented without requiring existing or additional infrastructure, as long as flowing water is present.



A typical hydraulic ram pump system, with water flowing down the drive pipe to the pump, from where it's delivered to higher ground where it's needed.

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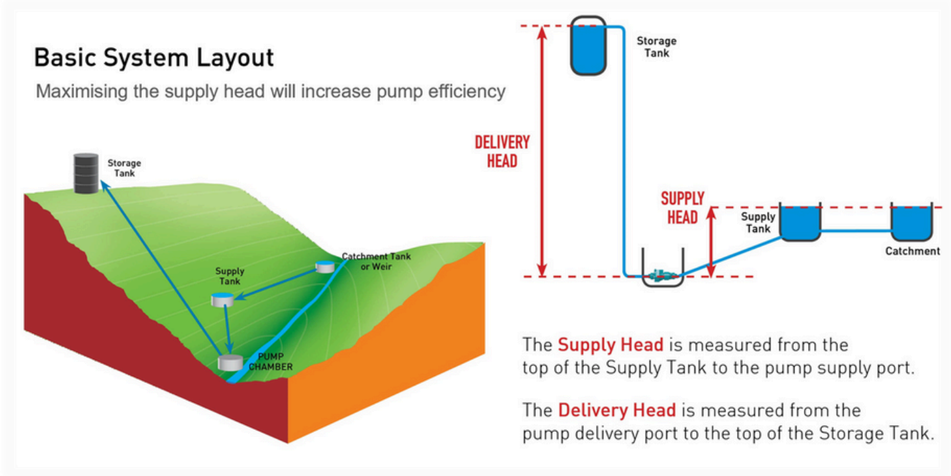
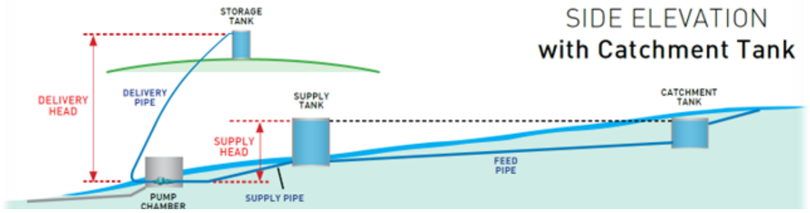
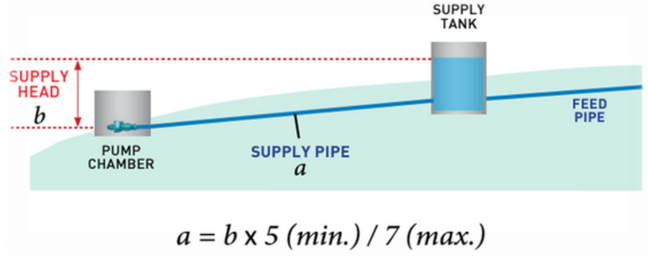
Supply Head And Pipes

- The more supply head you can have the more efficiently the pump will operate, you should always try to use the maximum supply head available.
- The minimum supply flow required with a 2” pipe is 20L/M (5.3 US gpm). The amount of friction caused by a pipe increases with the length of the pipe.
- All pipes should be kept as straight as possible and be kept on a consistent gradient to reduce friction, this will also make it much easier to clean the supply pipe once it comes to servicing.
- Do not use a soft of flexible pipe for the supply pipe, the ideal pipe to use is 2” (internal diameter) steel pipe.
- The length of the supply pipe can be from 3 – 10 times the supply head – although optimum efficiency is between 5 -7 times.







$$a = b \times 5\ (min.) / 7\ (max.)$$

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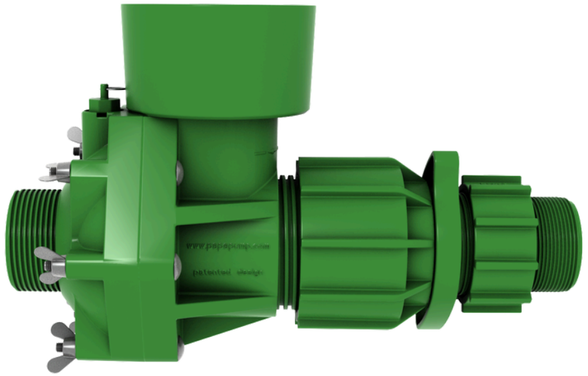
Papa 'Agri' Pump Specifications



The Agri pump is manufactured utilizing a high quality injection molded engineering composite material.

	Agri Pump
Casing	Glass-filled Nylon
Barrel	Glass-filled Nylon
Seals	EPDM
Max. Head (Meters)	100
Max. Pressure (Bar)	10
Weight (kg)	2.5
Length (cm)	30
Width (cm)	18
Height (cm)	16
Inlet Diameter	2 Inch BSP
Outlet Diameter	1 inch BSP
Inlet Flow	5- 60 L/Min
Outlet Flow *	100 – 30,000 L/Day

*Please refer to pump performance chart to determine daily output flow rates.

The Papa pump specifications above relate to the pump unit - although the papa pumps are supplied as ‘kits’ which include a pressure vessel, 2 inch shut-off valve, delivery hose assembly, water filter, maintenance tool, set of replacement valves and installation and maintenance manuals.

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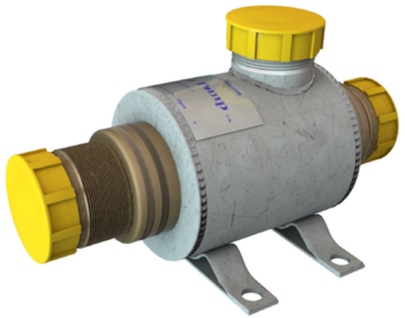
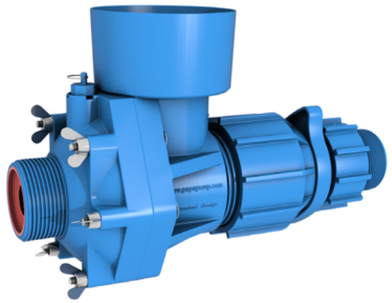
Papa Pump Specifications





	Metal Pump	Composite Pump
Casing	Stainless Steel (304) (Wras approved)	Glass-filled Nylon (Wras approved)
Barrel	Bronze (660) (Wras approved)	Glass-filled Nylon (Wras approved)
Seals	EPDM (Wras approved)	EPDM (Wras approved)
Max. Head (Meters)	200	100
Max. Pressure (Bar)	20	10
Weight (kg)	6.5	2.5
Length (cm)	34	30
Width (cm)	15	18
Height (cm)	17	16
Inlet Diameter	2 Inch BSP	2 Inch BSP
Outlet Diameter	1 inch BSP	1 inch BSP
Inlet Flow	5- 60 L/Min	5- 60 L/Min
Outlet Flow *	100 – 30,000 L/Day	100 – 30,000 L/Day

Papa pumps are available in two versions; The metal pumps is ‘heavy duty’ premium product manufactured from high quality stainless steel and bronze - whilst the ‘composite’ pumps offer a lower cost alternative utilising a high quality injection moulded engineering composite material.

*Please refer to pump performance chart to determine daily output flow rates.

The Papa pump specifications above relate to the pump unit, although the papa pumps are supplied as ‘kits’ which include a pressure vessel, 2 inch shut-off valve, delivery hose assembly, water filter, maintenance tool, set of replacement valves and installation and maintenance manuals.

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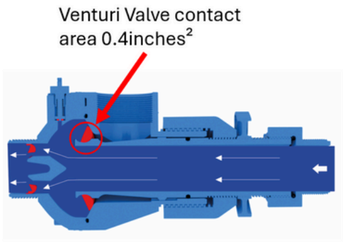
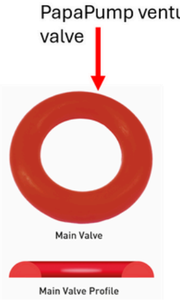
PapaPump vs Traditional Ram Pump

- Traditional hydraulic ram pumps often suffered from reliability issues because they use valves which have a high surface area and are subjected to great hydraulic pressure which can cause intermittent lock on of the valve and high fatigue.
- The PapaPump utilizes our novel and ‘patented’ venturi valve which operates on a different principle than all other ram pumps thereby reducing size, pressure and wear on the valve by 95% whilst also allowing greater adjustability over a wider range of available water flows. Maintenance intervals and costs are dramatically reduced as a result with high reliability defining the PapaPump as the breakthrough product in its class.
- Maintenance is very simple so a complete change of valves can be undertaken in around 10 minutes by the user utilizing the unique multi-tool provided with each PapaPump kit.
- Because of the large surface area of traditional pump valves it is necessary that the delivery head is at least 3 times the supply head to prevent valve lock on, PapaPumps can operate with a delivery head equal to the supply head without valve lock on occurring.





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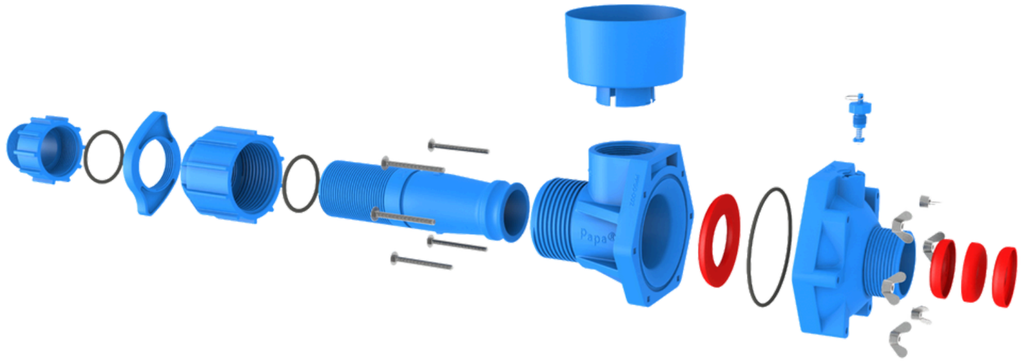
PapaPump Performance

All ‘ram’ pumps utilize a similar operating principle whereby a large volume of ‘low pressure’ water is converted into a lowered volume of ‘high pressure’ water and the maximum efficiency is dependent on the overall system design. The pumps themselves will also have an effect on the overall system efficiency although with most pumps operating effectively the differences can be marginal and it is not the policy of WPT to claim ‘higher efficiencies’ compared to other ‘ram’ pumps manufactures – however there have been previous independent comparisons which indicate that PapaPumps do operate at higher efficiency and with nearly 30 years of experience it has been widely commended by customers replacing traditional pumps with PapaPumps that there is always an increase in the efficiency. WPT accept this although would prefer to adopt that it is the reliability of function of PapaPumps providing a significant advantage overall. Whilst each site is different a single PapaPump can deliver over 30,000 L/day.



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Benefits of the Papa pump

- Unlike a solar pump, it runs **24 hours a day**.
- It doesn't require any fuel or electricity to run.
- **Zero emissions**.
- Requires very **little maintenance** (inexpensive valves that need changing every 2-3 years).
- Uses surface water so won't affect ground water levels.

- Can make **big savings** on utility/water costs.
- Can be used in **off grid and remote locations**.
- The pump can be **serviced quickly on site**.
- More the one pump can be installed in parallel to move **more water** over greater distances/elevation.
- **Does not require large flows** of water to work.
- Can be used in **below freezing** temperatures.

Papa Pump

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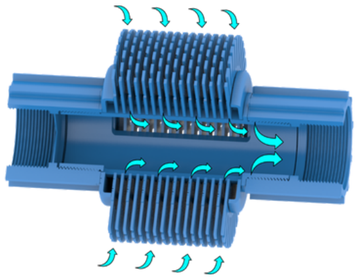
Ancillaries

- Tradition ram pumps are not supplied with intake filters which means users need to provide their own filter to prevent the ingress of debris.
- Each PapaPump is supplied with our unique and ‘patented’ Seradisc filter which eliminates the ingress of debris entering the pump thereby dramatically reducing maintenance requirements.
- Each PapaPump is also supplied with a high-quality full flow ball valve enabling easy isolation of the system for pump maintenance.
- Each kit also includes a full spare set of valves, seals and a multi-tool.



Seradisc filter

Full flow ball valve

Multi-tool

Valve and seal set

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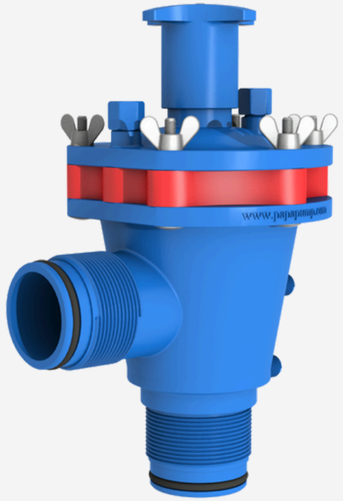
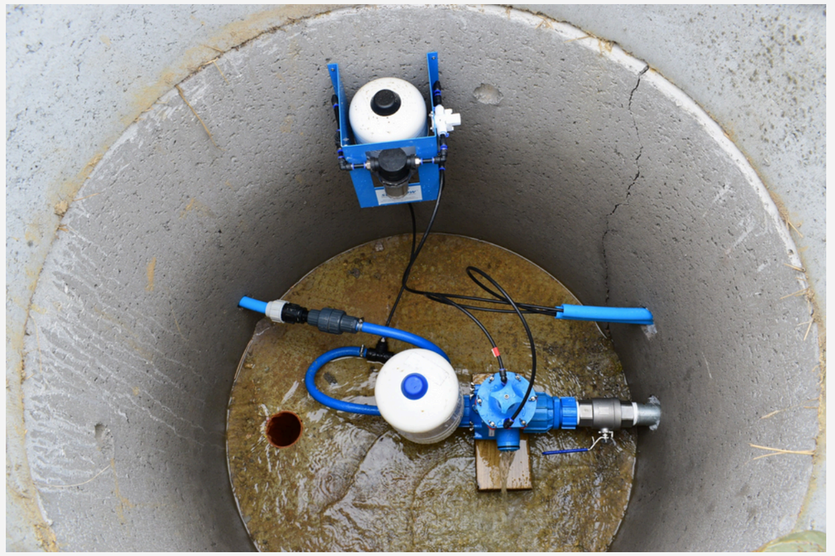
Sureflow

Water Powered Technologies have developed the Sureflow Valve to work with WPT products to ensure seamless and automatic operation where flows are small, variable or intermittent. This is especially useful in countries subject to dry seasons or low rainfall.





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Other Affordability Options

Other finance models could include ‘direct finance’ as currently adopted by the agricultural development bank of Panama.

Opportunities to increase affordability could include local assembly / manufacture to reduce price of pumps although this would be most beneficial pending local market uptake where non-finance options proved effective for mass adoption.

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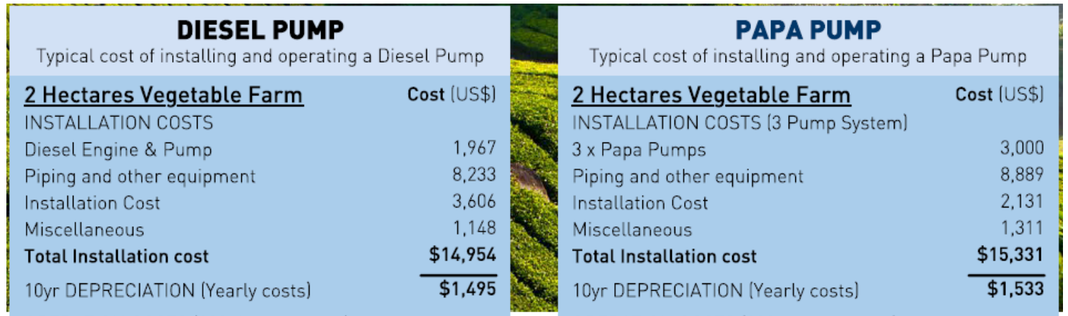
Hydro Papa Pump vs Diesel Pump System

EXAMPLE:FRUIT PLANTATION AND VEGETABLE IRRIGATION



DIESEL PUMP

Typical cost of installing and operating a Diesel Pump

2 Hectares Vegetable Farm	Cost (US$)
INSTALLATION COSTS	
Diesel Engine & Pump	1,967
Piping and other equipment	8,233
Installation Cost	3,606
Miscellaneous	1,148
Total Installation cost	**$14,954**
10yr DEPRECIATION (Yearly costs)	$1,495
OPERATION COSTS (300 days per year)	
Diesel and Labour (unskilled) per year	$9,614
Total Yearly Cost	**$11,109**
CO_2 emissions (kg per year)	68,192

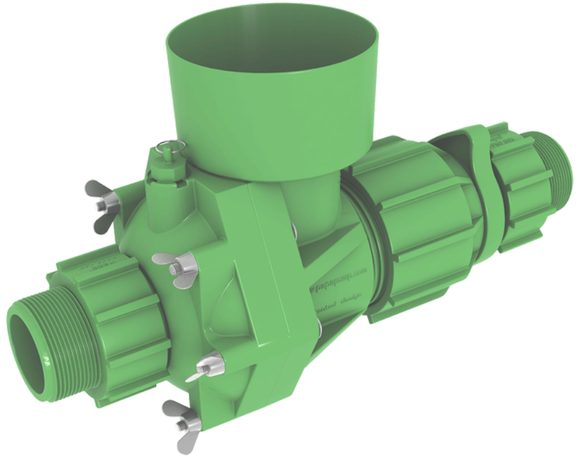
40 Hectares Plantation	
INSTALLATION COSTS	
Diesel Engine & Pump	6,557
Piping and other equipment	66,531
Installation Cost	6,755
Miscellaneous	2,616
Total Installation cost	**$82,459**
10yr DEPRECIATION (Yearly costs)	$8,246
OPERATION COSTS (160 days per year)	
Diesel and Labour (unskilled) per year	$7,520
Total Yearly Cost	**$15,766**
CO_2 emissions (kg per year)	368,238

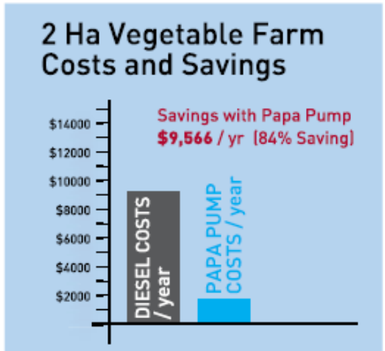
PAPA PUMP

Typical cost of installing and operating a Papa Pump

2 Hectares Vegetable Farm	Cost (US$)
INSTALLATION COSTS (3 Pump System)	
3 x Papa Pumps	3,000
Piping and other equipment	8,889
Installation Cost	2,131
Miscellaneous	1,311
Total Installation cost	**$15,331**
10yr DEPRECIATION (Yearly costs)	$1,533
OPERATION COSTS (300 days per year)	
Cost of internal valves ($30 every 3 years)	$10
Total Yearly Cost	**$1,543**
CO_2 emissions (kg per year)	ZERO

40 Hectares Plantation	
INSTALLATION COSTS (6 Pump System)	
6 x Papa Pumps	6,000
Piping and other equipment	17,777
Installation Cost	4,262
Miscellaneous	2,289
Total Installation cost	**$30,328**
10yr DEPRECIATION (Yearly costs)	$3,033
OPERATION COSTS (160 days per year)	
Cost of internal valves ($60 every 3 years)	$20
Total Yearly Cost	**$3,053**
CO_2 emissions (kg per year)	ZERO





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PAPA PUMP: ZERO-ENERGY WATER SOLUTION SAVES £20,000/YEAR

Water needs	20m³ per day
Before Papa Pump Installation:	
Cost of mains water	£22,000+ VAT
After Papa Pump Installation:	
Cost of mains water	£2,000+ VAT
Cost of spring water	£0.00
Saving on Mains Water	**£20,000**
Estimated cost of installation	**£18,000**
Return on Investment	**less than 1 year**

Challenge:

- Farm relied on mains water to supply a 500-strong livestock herd, rising water costs became unsustainable. A nearby stream couldn't support conventional pumps due to its remote valley location

Solution:

- Farmer installed a spring catchment and a supply tank 20m above the pump chamber, Deployed a dual Papa Pump system. Pumped water 126 meters vertically over 1.2 km — without electricity or fuel
- Nearly 100% of mains water replaced with free spring water
- Annual savings of £20,000

Case Study | Lowmans Farm | Devon

SUPPLY TANK

PUMP CHAMBER

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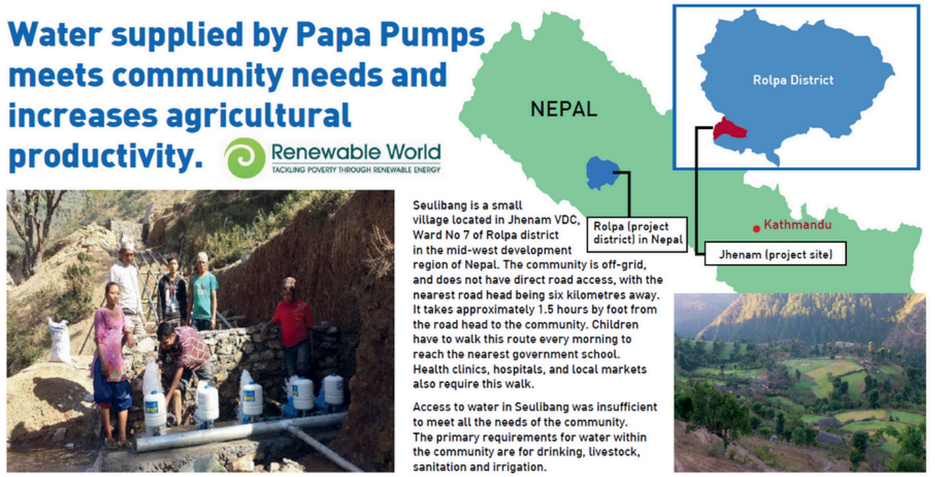
Case Studies and Project Details

- Agriculture is the main income source for the Seulibang community. Irrigation depends on rain, limiting vegetable farming to just 4–6 months during the rainy season.
- The village has one water source for drinking and a stream for sanitation and livestock use. No suitable water source exists for year-round irrigation.
- Despite the challenge, many households are eager to grow vegetables for both consumption and income. Lack of water access is driving migration, especially among youth and working-age people

Renewable World initially planned to install a hydraulic ram pump, but due to reduced efficiency at delivery heads over 100m, it was found unsuitable. After consulting Water Powered Technologies, they opted for the Papa Pump, capable of delivering around 18,000 litres of water per day without fuel or electricity. This reliable water access enabled households to grow cash crops during dry seasons, leading to improved year-round income and helping to reduce out-migration from the community.

Case Study | Mountain Village Water Supply | Nepal



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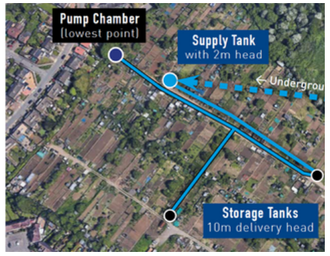
Case Studies and Project Details

A Northampton allotment faced the challenge of manually carrying water uphill from a spring nearly 500 metres uphill - a time-consuming and exhausting task. They installed a Papa Pump from Water Powered Technologies, which uses no fuel or electricity, relying solely on the natural energy of flowing water. The system now pumps up to 1,500 litres of water per day to storage tanks at the top of the site, making it easier for members to access water for their vegetables and flowers—saving time, effort, and ongoing costs.

Kingsley Park Allotments | Northampton



Facts and Figures

Supply Head = 2 metres, Delivery Head = 10 metres

Delivery = 1500 litres per day,

Total Installation Costs including Papa Pump Kit, Pump Chamber, Pipes & Connectors, 2 x Storage Tanks,

Groundworks & Trenching = £7,500 + VAT

Running Costs = £0

Water Powered Technologies

a 100% Renewable Energy Product

Thank You — Let’s Power Your Next Clean Water Project Together. Get In Touch With Us.

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AWARDS

2023 FINALIST PIA PUMP INDUSTRY AWARDS 2023

THE RURAL SOUTH WEST amazon REGIONAL FINALIST 2021/22

E&T Innovation AWARDS Finalist

CleantechInnovate 2019 FINALIST

THE ENVIRONMENT AND ENERGY AWARDS FINALIST

THE LINCOLNSHIRE SHOW 2016

ROYAL HIGHLAND SHOW 23-26 June 2016

Western Morning News WMN countryside AWARDS 2014

UK Water Efficiency Awards 2014

ENDS GREEN ECONOMY awards 2013 HIGHLY COMMENDED

CLEAN AND COOL MISSION 2013 FINALIST

Climate Week 4-10 March 2013 Awards Finalist

SHORTLISTED SOUTH WEST GREEN ENERGY AWARDS 2012