WPT Catchment Wide Water Solutions

Using hydro rams to 'Pump and Store' is the most sustainable water delivery solution for farmers

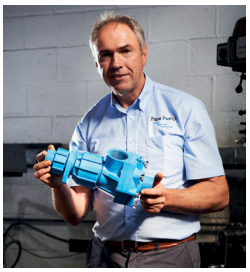
INTRODUCTION

If recent droughts have taught us anything, it is that we should be better prepared for increasingly unpredictable rainfall patterns. There are several measures that can be taken, but one of the best solutions is being disadvantaged by a lack of understanding. Using modern hydro-ram pumps to pump and store water on farms is a solution that ticks a lot of boxes, but often seems to be ignored by agencies and regulators.

WHAT IS A HYDRO RAM?

An old cast iron ram pump

A hydro ram is an ancient but ingenious way to use the natural kinetic energy of flowing water to pressurize water and enable it to be delivered over long distances and to impressive heights. Many were used on farms in the 20th Century and while some are still working today, many fell into misuse because of the availability of cheap mains water and pumps powered by electric and diesel. But utility and energy costs have risen and the environment is part of every decision today. However, because of the high pressures involved, the old Victorian design ram pumps had be constructed of large and heavy lumps of cast iron prone to 'high maintenance' for their owners and this has discouraged many farmers from looking again at hydro rams.



The Papa Pump weighs around 5.5lbs.

Game changers - The new Papa Pump and Venturo hydro rams

The **Papa Pump** is a modern version of the hydro ram. It uses a new glass/nylon composite material which is light, very hard and non-corrosive. Water Powered Technologies, the manufacturers of the Papa Pump, have also designed and patented a new valve to make the new pump more efficient than its larger, metal predecessors. The result is a water pump that has all the benefits of a hydro ram but without the drawbacks on performance, cost and maintenance.

The **Venturo** is the world's largest ram pump and has been developed to transfer much larger quantities of water (up to 1188 gallons per minute).

The Venturo Zero Energy Pump has been developed for large scale agriculture and utility applications.

Benefits of Water Powered Technologies' Zero Energy Pumps:

- **UK Technology with Global Potential**
- Uses no fuel or electricity
- Reduces reliance on mains water
- No impact on ground water levels
- Pumps continuously
  - working 24/7 day and night
  - cuts operational man hours
- If you want to pump more water, just turn the Papa Pump up
  - whereas with diesel and electric pumps, you have to add more expensive power
- Can be self installed by the farmer
- Uses surface water, naturally aerated and generally free from minerals
- Modularly scalable
- WPT technology has won awards from Environmental Organisations

WATER CATCHMENT MANAGEMENT

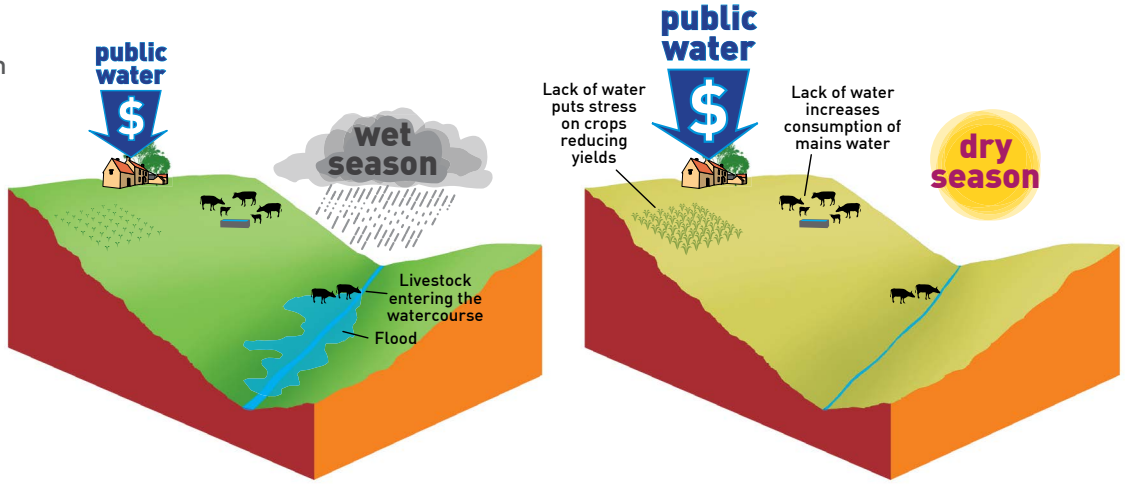
Because the **Papa Pump** delivers water from springs, streams and rivers to higher ground, it is the perfect system to enable water catchment management of the local watercourse. Fencing can be erected to keep livestock from drinking directly from, and subsequently fouling the watercourse and their exclusion will improve water quality downstream.

PRINCIPLES OF PUMP AND STORE

Pump and Store is simply collecting extra water when it is plentiful, storing it, and using it when there is water shortage. It means farms don't have to rely on public utility water for livestock or irrigate when normal sources have dried up.

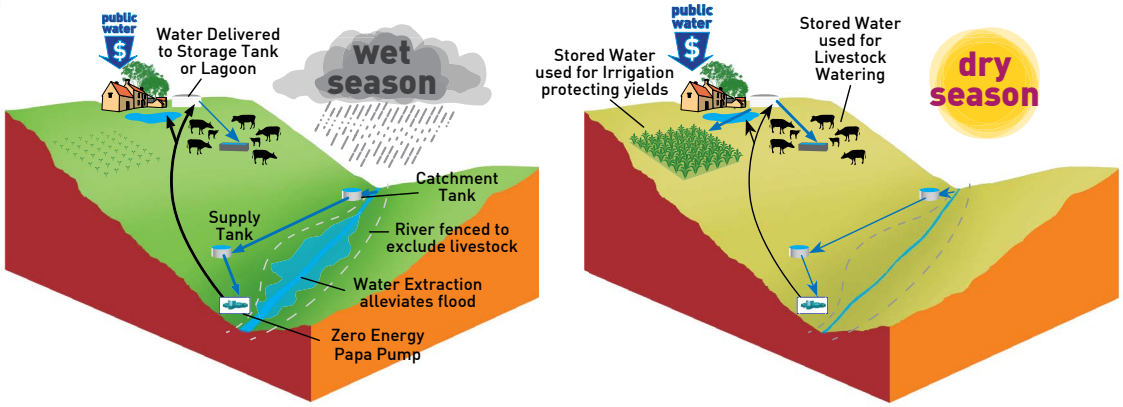
Example WITHOUT a Pump and Store System

Heavy reliance on public water supplies. Abundance of water in wet season and lack of water in drought. Livestock enter the watercourse to drink.



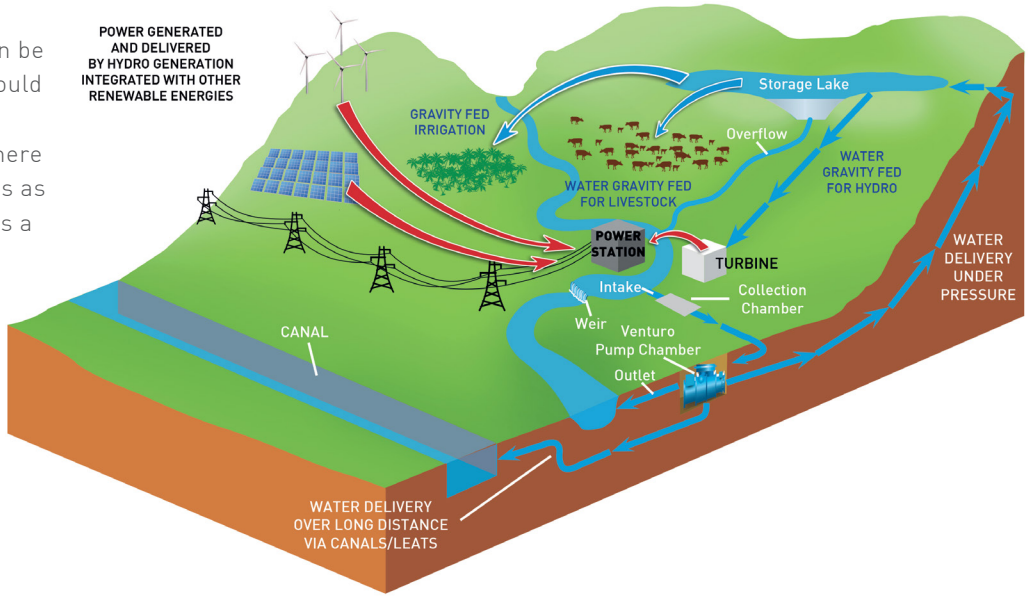
Example WITH a Pump and Store System using a Papa Pump

Mains water usage reduced all year round. Water stored when available and used to supplement water supplies in dry periods. Water delivered to the farm by the Papa Pump and livestock can be kept out of the watercourse, improving the water quality.



PUMP AND STORE SYSTEM INTEGRATING RENEWABLE ENERGIES

The scale of water delivery that can be achieved with the Venturo Pump could only be matched with a system of 1000's of solar panels. However, there is definitely a place for solar panels as there is for wind turbines. Each has a strength and an advantage in a particular scenario. The exciting thing about the Venturo Pump is that it is satisfying a need where previously renewable power has been lacking, using the power of flowing water for large scale production.



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