

Vishnu Bachubhai Dumania

Surendranagar

Gujarat

An improved system for saving water

Background

Coming from the Little Rann of Kutchch, traditionally a salt manufacturing region, Vishnu Bhachubhai Dumania (17), has made a slight modification in the tradition water pumping system. His system does not require constant monitoring and thus saves time, labour and fuel to operate the pump.

Of the six siblings, only he and his younger sister could attend school while the rest remained engaged in salt manufacturing work. He is appearing for his secondary exams this year. Ironically, a person who has been able to practically operationalise scientific principles even as a child and come up with such a design, failed in Maths and Science in his first attempt at the Secondary exams.

He is currently staying at the boys hostel run by Ganatar, an NGO in Patdi and is also attending tuition classes so that he can attempt Maths and Science papers again. He has no bitter feelings about the failed first attempt. *"The papers were difficult last year that is why I failed. I am studying hard this year and I will not only pass, but pass with good marks,"* he says. He has a lot of interest in social sciences, especially History and would like to become a teacher.

The population of his village is around 1000 and pathetically, only ten children are in the school. The villagers remain in the village during rainy season only, while during winters and summers, they leave the village and move to the Rann for salt manufacturing. The region is locally known as *Kharopat* and the community traditionally involved in salt manufacturing is known as *Agariya*. These people engage their children in the security of wells and oil engines, which consumes most of their time and they could not attend school.

Genesis

Vishnu was ten years old when he was forced to leave school because his family needed his services. For others it might have been a big blow. But Vishnu just converted this into an opportunity. Since he dearly wanted to pursue his education, he came up with a design that would substitute his services.

His family was involved in salt making in Surendranagar and they needed young Vishnu to monitor the level of water in the water tank and switch-off the pump when the water supply was exhausted. The water source is located at a distance of about a kilometer from the place of processing and it required a person to constantly monitor water level since the motor pump would break down if it continues to operate in the absence of water.

The challenge for Vishnu was to find a way by which he could go to school like other children and yet not neglect his family duty. He had to design a system to monitor the water level, and give an indication when the water level went down beyond permissible limits. It should then automatically switch off the pump.

His solution involved attaching a box with a rope to the pipe, which discharges the wastewater. To the other side of the rope, he attached a stone with a weight equal to the weight of the box when it was full with water. This stone was attached to a red flag.

When the level of water decreases, the flow of water into the box would also slow down. The box would become lighter and move up and the stone at the other end would move down. The flag attached to the stone would also go down. When the flag moves away from visibility range, it is a signal that the water in the reservoir is getting over.

He has also attached a mechanism through which the motor would switch off. Thus, there was no requirement of a person to devote time monitoring water level.

| The design was so popular that most salt making families in the area began using it.- It is an effective labor saving device. More importantly, for Vishnu it was a savior as it freed him of his daily chores and gave him an opportunity to pursue his studies.