

Ground-water Level Measuring Device

Background

Ground water is an important source to meet the water requirements, hence reliable estimation of ground water resources is the need of the hour. Commercially available water level measuring equipment are expensive, hence RuTAG IIT Delhi took the initiative to design and develop low cost ground water level measuring device, so that the technology would be accessible rural farmers. It is an electric switch-type device, with electrodes having open ends attached to a wire, which is further connected to a battery and a beeper. When electrodes encounter conductive fluid, the circuit is completed & buzzing starts and depth is measured from the marked cable.



Ground Water Level Measuring Device

Area of the Project

Electrical, Electronics, Civil Engineering.

Challenges

- Device is extemporary made using plastic pipe, wood, plastic reel, etc.
- Inaccuracy in measuring the depth of ground water.
- Gets affected by the presence of moisture in the well, which eventually gives false reading.
- Low quality cord breaks in tension.
- No vertical stability due to light weight of the probe.
- Due to its improper shape, the device often struck inside well.
- Plastic reel lacks the robustness to hold probe & circuit.

Salient Features and Advantages

- Complies with IS 15896:2011.
- Probe is made with Stainless steel rust resistant material.

- Probe is an assemblage of four parts i.e. Plumb bob, perforated tubular body, high pressure cord holding gland, and a sensor.
- One end of the probe is a plumb bob for vertical stability and other end for holding electric cord through a leak proof gland.
- Improved operational stability using plumb bob as added mass.
- Better quality cord for high tension load capacity.
- Light-weight aluminium casted cable spool with better operational life.

Project Timeline

- Problem Identification: 2015.
- Design Improvements and manufacturing: 2015-2017.
- Dissemination: 2017 onwards.

Impact of the Technology

- Rationing of ground-water for irrigation purposes.
- To sensitize the stake holder (especially farmers).
- Scientific ground water exploration.
- Monitoring of ground water levels.

Success Stories

- Being used by Central Ground Water Board, Ministry of water resources Govt. of India.
- Vendors have been identified for fabrication, manufacturing and assembly.

Current Funding

Office of the Principal Scientific Adviser (PSA) to the Govt. of India.

Collaborations/ Field Agency

Ram Krishana Jaidayal Dalmia Seva Sansthan, Chirawa, Rajasthan.

In Project Pipeline

- Vendor identification and development for efficient manufacturing.
- Technology dissemination.

Benefits from Industry Collaboration

- Improved industry – academia relations.
- Better market penetration.
- Dedicated vendors/ manufacturers.

Tentative Cost of Device is about Rs. 15,000* (including GST @ 18%)

* This cost does not include freight and installation.