Tubewell: Shallow Groundwater Tubewell

Tubewell

The Shallow Groundwater Tubewell is a simple and economical technology for exploiting shallow groundwater (< 20 m) in floodplains with sedimentary soils. A PVC pipe (50 or 63 mm) is installed and the water is pumped using a small 5 to 8 hp pump, powered by fuel or solar energy. Drilling, carried out using a manual auger or jetting, allows for flow rates of 0.5 to 5 m³/h, ensuring reliable irrigation for small farms at low cost.

International Water Management Institute
Adebayo Oke

This technology is pre-validated.

9·9 Scaling readiness: idea maturity 9/9; level of use 9/9

900 USD	2587 USD	1687 USD	187 %
Cost per hectare	Revenue per hectare	Net income per hectare	ROI per hectare

IP
Open source / open access

Problem

- **Limited depth and geology**: Tubewells can only be used when water is shallow (< 20 m) and in non-rocky soils.
- **Costs and maintenance**: Pumping requires energy and regular maintenance, increasing costs for smallholders.
- **Access and reliability**: Despite moderate costs, the initial investment and seasonal variability of water can limit irrigation.

Solution

- **Reliable access to water**: Uses shallow groundwater (< 20 m) for irrigation.
- **Affordable installation**: Manual drilling or jetting, simple and inexpensive.
- **Direct pumping**: Reduces infrastructure requirements and optimizes water for crops.
- **Low energy and solar power**: Small pumps (5–8 hp) and solar power compatibility.
- **Easy maintenance**: Simple equipment available locally.

Key points to design your business plan

The Shallow Groundwater Tubewell allows smallholders to access shallow groundwater (< 20 m) for reliable irrigation, complementing rainfall, with 5–8 hp pumps and affordable installation costs.

Manufacturers: Produce durable equipment (PVC pipes, rods, pumps) and collaborate with agricultural institutions and programs to strengthen credibility and market.
Resellers: Sell equipment and drilling services, offer complete packages, and support user training.
Users: Reliable irrigation all year round, reduced manual labor and energy costs, simple maintenance, and essential training for optimal use.

Inclusion assessment 4

Climate impact 7

Commodities

Rice, Tomato, Leafy vegetables, Onions

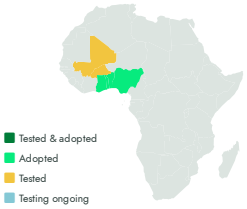
Sustainable Development Goals

2 ZERO HUNGER

Categories

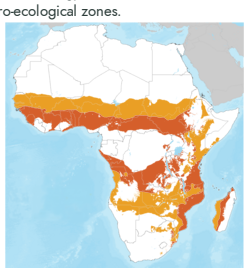
Production, Practices, Water management

Tested/adopted in



Where it can be used

This technology can be used in the colored agro-ecological zones.



Target groups

Farmers