

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
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Commodities

Rice, Tomato, Leafy vegetables, Onions

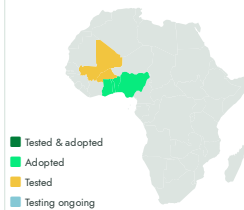
Sustainable Development Goals



Categories

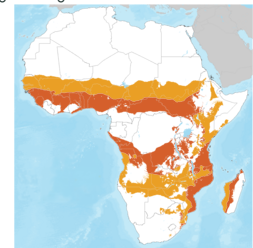
Production, Practices, Water management

Tested/adopted in



Where it can be used

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



Target groups

Farmers

This technology is **pre-validated**. 9-9 Scaling readiness: idea maturity 9/9; level of use 9/9

Inclusion assessment 4

Climate impact 7

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 program

Tubewells provide reliable access to shallow groundwater, improving irrigation, productivity, and resilience to dry periods. Affordable and easy to maintain, they are suitable for smallholders, including women and marginalized groups.

Development partners (extension services, NGOs, cooperatives, suppliers) can support diffusion through training, technical support, and awareness-raising, facilitating adoption in sedimentary soils in floodplains and contributing to SDGs on water, food security, and rural livelihoods.

| | | | |
|------------------------------------|--|---|---------------------------------|
| 900 USD Cost per hectare | 2587 USD Revenue per hectare | 1687 USD Net income per hectare | 187 % ROI per hectare |
| Open source / open access | | | |



Tubewell
<https://taat.africa/eyl>
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