

# Institutional Roles in Irrigation Management in Nepal

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## **Introduction**

This report outlines the institutional framework and processes involved in irrigation governance in Nepal. The findings are based on interviews with officials across several tiers of government, including national, provincial, and district-level offices. It focuses on the division of responsibilities for deep and shallow tubewell installation, subsidy provision, implementation processes, and overall coordination challenges. A visual flowchart has also been included to summarize institutional roles at the end.

## **1 Department of Water Resources and Irrigation (DWRI)**

### **Scope of Responsibility**

The Department of Water Resources and Irrigation (DWRI) is responsible for the planning, installation, and management of deep tubewells. These are primarily used in the Terai region, where water extraction requires accessing deeper aquifers. DWRI does not work on shallow tubewell schemes; these are managed by provincial authorities.

### **Application and Implementation Process**

The process begins at the local level, where a farmer group or Water User Association (WUA) submits an official request for a deep tubewell through their ward office. Upon receiving the request, DWRI assumes full implementation responsibilities.

The department covers 100% of the infrastructure cost, which includes: (i) Installation of the deep tubewell (ii) Provision of a 15-horsepower electric pump and installation of a three-phase electric line in collaboration with the Nepal Electricity Authority (NEA). However, farmer's group would need to cover a maximum of 3% of the cost for construction of a shade house.

## Distribution and Allocation

DWRI installations are limited in number each year. Distribution is either on a first-come, first-served basis or based on field-level need assessments. The officials from the DWRI noted that approximately 18 tubewells were distributed and installed in Province 1, and around 20 in Province 2, by the department in the last year.

## 2 Provincial Governments

### Scope and Budgeting

Provincial governments are responsible for shallow tubewell installation and management. Each province is divided into districts, and each district receives an annual budget to spend on irrigation management. In Madhesh province, every district receives a budget of NPR 80 lakh to 1 crore (approximately USD 58,000 to 72,000) per year for irrigation activities, primarily shallow tubewell and irrigation pump subsidies.

### Subsidy and Eligibility

Madhesh Provincial governments offer an 85% subsidy on the cost of a one irrigation equipment bundle (shallow tubewell, electric pump and plastic pipes), which typically costs NPR 1 to 1.15 lakh (USD 720 to 820) per unit. Due to limited budgets, only 80 to 100 irrigation equipment bundles can be distributed per district per year, despite receiving around 1,000 applications annually.

Eligibility requirements and selection criteria include:

- A minimum landholding of more than 2 *bighas* (approximately 0.5 hectares)
- Groups of farmers can apply jointly if their total landholding meets the threshold
- Farmers who received subsidies in the past two years are ineligible
- Priority is given to water-scarce areas

### Geographic Variation in Demand and Constraints

Some districts—particularly those without rivers or major irrigation canals—face greater urgency and demand for irrigation infrastructure. Groundwater depletion is more severe in these areas. For instance, Dhanusha and Mahottari lack large rivers or canal systems, making farmers in these districts heavily dependent on groundwater for irrigation.

One of the officials highlighted a pressing dilemma in the distribution of irrigation pumps. On one hand, there are visible signs of groundwater depletion; on the other, the department continues to distribute shallow tubewells and pumps out of necessity, as farmers face a critical shortage of irrigation water and have no alternative sources. The official further emphasized that technical assessments—such as hydrogeological surveys and the enforcement

of proper spacing between tubewells—are generally lacking but essential for ensuring long-term sustainability.

### **3 District Agriculture Offices (Krishi Gyan Kendra)**

#### **Implementation Role**

District Agriculture Offices are responsible for implementing provincial irrigation programs at the local level. They handle the application process, screen applicants, and oversee shallow tubewell distribution.

#### **Field-Level Observations**

In Dhanusha district, pump ownership remains low (e.g., around 15%), and rental markets dominate. Rental rates are approximately NPR 300 per hour. However, Power cuts and voltage fluctuations hinder effective pump usage, especially for electric pumps. Further, farmers must arrange electric line extensions to their fields themselves, as no government support is provided for this. In many cases, farmers use bamboo poles and accidents might happen because of carelessness in wiring.

Though pump subsidies are technically available, they are not always active. When available, they are announced through public notices. For 2025, the notice is expected around August-September.

Smaller farmers (less than 10 *kathha*) qualify for smaller 2-inch pumps, while larger farmers are eligible for 5-inch pumps. Groundwater depletion is not uniformly critical across districts but tends to worsen during dry seasons.

### **4 Department of Agriculture (DoA)**

#### **Facilitation and Assessment Role**

The Department of Agriculture is not directly involved in either deep or shallow tubewell implementation. Its primary roles include: (i) Facilitating access to irrigation services for farmers and farmer groups (ii) Assessing whether irrigation infrastructure contributes to increased productivity.

The department neither administers subsidy programs nor manages installation logistics. Its involvement is limited to coordination and monitoring.

### **5 Conclusion**

Irrigation infrastructure in Nepal is governed through a layered institutional system. Deep tubewells are centrally managed by DWRI, while shallow tubewells fall under the jurisdiction of provincial governments, with implementation delegated to district agriculture offices. The

Department of Agriculture plays a secondary role, focusing on facilitation and performance monitoring. Despite clearly defined roles, systemic challenges persist, including funding limitations, power supply issues, groundwater stress, and technical capacity gaps. Better coordination and technical guidance are essential for equitable and sustainable irrigation access.

## Annex: Institutional Roles in Irrigation Management

