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Har Ghar Jal
Jal Jeevan Mission

Policy Tips- III

Role of community ownership and operational efficiency for a sustainable rural water supply

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May 2025

Introduction

Jal Jeevan Mission (JJM) in India, considered as world's largest rural drinking water supply initiative, strives for drinking water secure future to all rural households. The scheme promises a functional household tap connection (FHTC) to all households for drinking water in adequate quantity and of prescribed quality regularly. Since its inception in 2019, the scheme has focused on providing tap water facilities to every rural household in India and through appropriate water supply arrangements. A growing body of literature supports the role the local communities in developing a sustainable drinking water service delivery system (Chaudhuri et al., 2020; Hutchings et al., 2017; World Bank, 2011; Dinesh Kumar et al., 2022). Poor ownership of water supply systems and poor operations and maintenance management have been shown to be the two crucial factors that have contributed to rapid deterioration of the water supply facilities in the past (Chaudhuri et al., 2020). While there is a policy thrust towards decentralization; management of drinking water schemes continues to be operated by state agencies. The JJM holds community ownership as an important strategy for sustainable management of the rural water supply systems (GOI, 2019). The village Water Sanitation Committee (VWSC) provide an institutional framework for the villagers' active participation in planning, implementation, and service management. However, only about 30% of the villages are certified (where VWSC has taken responsibility of operations and maintenance of the scheme) while tap connections has been completed in 80 percent of the households. Completing the infrastructure and not making it functional will not only come with huge opportunity loss to the villagers but also will make it increasingly difficult to operate them as time elapses.

Sustainability of schemes is considered a major issue in the rural water supply (Bandyopadhyay, 2016) and it primarily depends on the efficiency of the service management at the village level which has a direct bearing on its ability to keep the operational and maintenance (O&M) costs low. While the initial investment in village-level schemes is a one-time expenditure, the O&M costs are recurrent. A considerable part of the total O&M costs is the expenditure on the salary of the pump operators. The current employment practices of operators are also found to be inefficient and lack accountability to maintain the operator's productivity and keep the costs at a minimum. Some of the existing issues involve high variation in salaries of water pump operators, and inefficient staffing practices, such as employing full-time operators irrespective of the size of the village. Such practices place unnecessary financial burdens on the VWSC. Inefficient structures of remuneration to the pump operators raise excessively the costs per household. Hence, this poses a threat for the sustainability of rural water supply systems at stake.

Additionally, the inefficiency in the management of the pump operators increases the cost of the drinking water scheme per household. Due to high costs most rural villages fail to recover the overall cost of piped drinking water schemes. Often the low recovery of cost is due to reluctance to pay and the inability of the scheme management to collect the charges (Misra, 2008). The reasons are many. The people from rural background consider water as a public good. Providing safe drinking water is seen as the responsibility of the government (Bandyopadhyay, 2016). Also, communities often refuse to pay because of their experience

of past scheme failures/inefficiencies (Chaudhuri et al., 2020). In such a condition, high recurring operational costs are likely to deter them from paying. Hence, high O&M costs threaten the viability of the rural water supply systems as it's difficult to recover high water charges.

In this context, a successful operation is critical to the sustainability of drinking water schemes and the water pump operators play a major role. In order to make water pump operators live up to the task it is important that they are hired properly, given adequate training and compensated as per the work done. Hence, shifting hiring decisions to local communities can be an effective solution. It empowers villages to tailor pump operator schedules and staffing levels to their actual water needs. This can be achieved through community-based management or part-time employment practices as an alternative to the existing practices. Here, the government can assist by issuing clear guidelines on service standards while leaving the choice of full-time, part-time or community management to the VWSC. This flexibility lets villages adjust staffing as per their needs and ensures better satisfaction as the community is involved in managing the operator. The local oversight also fosters accountability, as villagers directly monitor attendance and performance and can revise staffing quickly. Villagers' concerns need to be heard and addressed. Therefore, shifting responsibility of employing the operators to the water committee would make operators far more responsive to local needs.

Due to the inefficiencies observed in pump operator employment, a comprehensive framework is needed to guide the VWSCs with efficient employment recommendations to ensure operational efficiency and cost-effectiveness. It considers the work requirements for a village and provides employment recommendations to optimise hiring decisions.

As shown in Figure 1, the efficient employment framework depends on determining the number of working hour necessary to service a village based on its characteristics. The key determinants of operator workload considered the framework include the village population, water supply capacity and additional considerations. The larger population implies more water needs to be supplied to the village which then requires longer water pump operation. The water supply capacity, as measured in litres per minute (LPM), influences the speed at which required water supply can be met. Some additional time allowances are incorporated to account for maintenance, demand fluctuations, etc. Finally, the estimated work hours adequate to service the village's water supply needs are obtained.

"…shifting hiring decisions to local communities can be an effective solution. It empowers villages to tailor pump operator schedules and staffing levels to their actual water needs."

An efficient employment framework for VWSCs

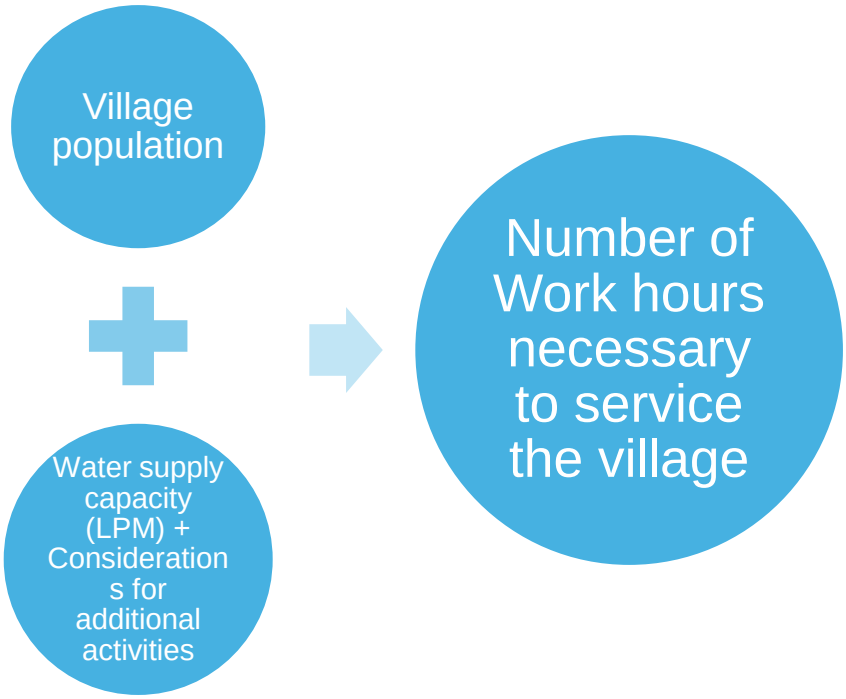

Figure 1: Development of the Efficient Employment Framework

Comparison of efficient employment framework with current employment practices:

A case study analysis of 8 villages is performed to assess the estimated cost savings from applying the efficient employment framework. A critical aspect of the study was to compare the current salary expenditures with those estimated under the proposed efficient employment framework. The per-household salary costs for the eight villages were obtained under both scenarios (Figure 2). The findings highlighted that in several villages, operators were overpaid relative to their actual workload. In cases where the workload did not justify full-time employment, significant cost savings could be achieved by transitioning to part-time employment. The disparity in actual and the recommended expenditure demonstrates the financial benefits of implementing the proposed framework. The results show, by aligning work hours with actual water demand, per household salary expenditure per month could be reduced one-third or half of the current expenditure.

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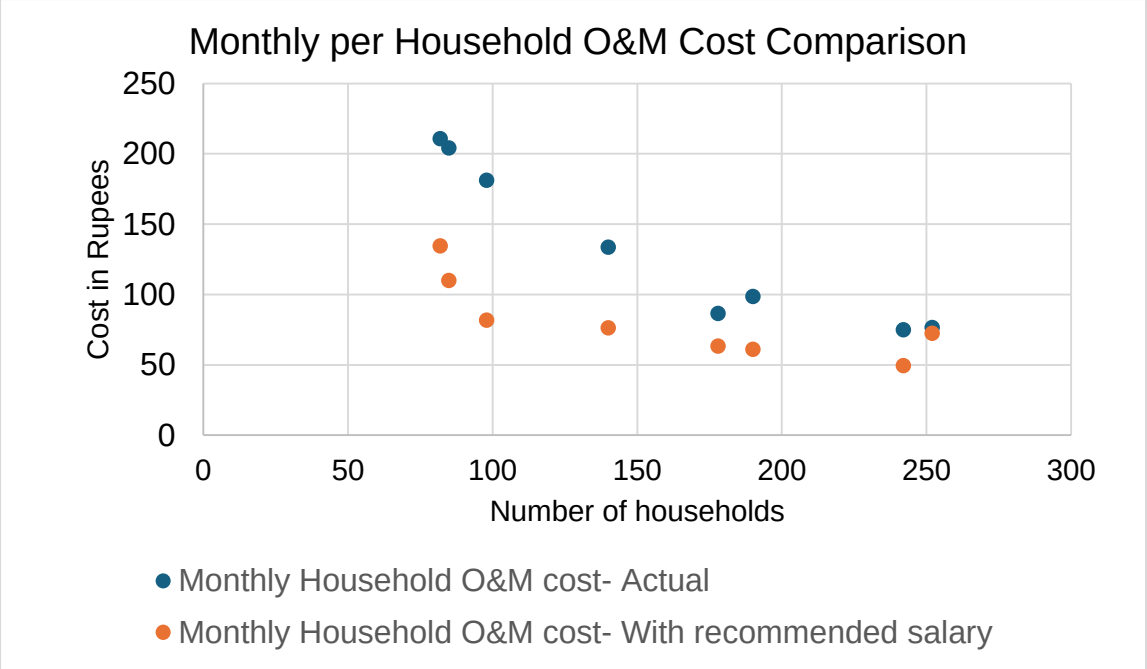

Figure 2: Monthly per-household expenditure on the pump operator's salary

Additionally, Figure 2 plots the monthly per-household cost of the operator's salary across all eight villages. It shows that household-level cost figures are much lower when comparing the recommended part-time employment model with the current full-time arrangement. The difference is stark especially in villages with lower number of households as costs per household rise significantly faster with the same increase in salary expenditure.

Therefore, community-based service management and flexible employment of operators as per village needs is likely to add cost efficiency. It is also likely to build resilience in rural water governance making access to safe drinking water for all sustainable.

Policy Suggestions:

1. VWSC should estimate the annual cost of operations and the implied user charges
2. VWSC should prepare a financial budget every year showing expected expenditure and how the expenditure will be met
3. VWSC should hire qualified pump operators and arrange to provide adequate training to them to efficiently operate the scheme.
4. State should provide guideline to the VWSC on the compensation it may pay based on the work involved.
5. Central and state Government may also provide support for IEC activities and training at the VWSC level.

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