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Success Story in Kerala

Local Governments and User Groups Plan and Implement Large Water Supply Schemes

Three large, river-based schemes in Aliparamba in the north of Kerala, India, are the first of their kind in the state to have been planned and implemented by the local governments (or Gram Panchayat) and User Groups, and to institute a management model based on Scheme Level Committees. This field note analyzes the evolution of these successful schemes.



Many existing rural water supply schemes in Kerala do not meet the demand and aspirations of users in terms of adequacy of quantity, quality or reliability of service.

Executive Summary

This field note documents the evolution of three large, river-based schemes in Aliparamba Gram Panchayat¹ near Kozhikode in the north of Kerala state, India. This success story is significant because the schemes are the first of their kind in Kerala to have been planned and implemented by the Gram Panchayat and User Groups,² and to institute a management model that invests ownership and corporate oversight with a Scheme Level Committee representing participating User Groups, that is overseen by a Gram Panchayat-level Coordination Committee. The schemes, which are providing potable water to 3,532 families in an area where 90 percent of open wells run dry from February to May each year, serve as a model for effective, decentralized planning and implementation. Many innovations were required to address social, technical, institutional, and financial issues. These are documented here, and provide valuable lessons to policymakers and practitioners in scaling-up such approaches.



Background

Gram Panchayats in Kerala are large relative to other states in India, and on average cover 6,000 households spread over an area ranging from 15 sq. km. to over 300 sq. km. The Kerala Water Authority has traditionally been responsible for urban and rural public water supply. Kerala Water Authority schemes are typically large water supply schemes based on river water sources and are designed to cover urban towns and one or more Gram Panchayats from a single scheme. These schemes may not cover the entire Gram Panchayat area and a large number of households within a Gram Panchayat—located interior from the main villages—do not benefit from the scheme. Typically, these excluded areas are inhabited by socially disadvantaged, poor or tribal populations.

Many schemes do not meet the demand and aspirations of the users in terms of the adequacy of quantity, quality or reliability of service. In fact, coverage is mainly through public standposts. Due to lack of community ownership of public standposts and indifference to the service provided, wastage and poor maintenance is quite common, particularly in rural areas. Also, cost recovery is extremely low: users do not pay the Gram Panchayat for public standpost services, the Gram Panchayat does not pay the water authority the tariff on each public standpost provided, and the Authority itself regularly defaults on the payment of its bills to the Kerala State Electricity

¹ A *gram* is a village. *Panchayats*, or village councils, are a tier of local government.

² The term 'Beneficiary Group' was used under the project: a group of about 25–30 households formed with the help of a NGO Support Organization under the project.

Board.³ A key issue underlying this situation is that community consultation and participation in the planning and implementation of these schemes by the Kerala Water Authority is very low. As a consequence, Kerala Water Authority schemes overlook the fact that private wells are traditionally used as the primary source of drinking water (by about 80 percent of the population⁴), and that piped water is a viable option only if it means a higher level of service in the form of a private household connection and a reliable supply of good quality water is provided.

In 1999, in response to this situation and with assistance from the World Bank, the Government of Kerala decided to pilot a new decentralized service delivery approach with significant cost recovery and institutional reforms. A new agency called the Kerala Rural Water Supply and Sanitation Agency was set up to facilitate implementation of the proposed Kerala Rural Water Supply and Environmental Sanitation Project, now popularly known as *Jalanidhi*.

The project concept is a major departure from earlier practices in the sector since it is based on principles of community-driven development (see Box 1) with a focus on sustainable service delivery rather than only on building water infrastructure. This new approach to service delivery represents a shift *from* top-down planning *to* informed decisionmaking by Gram Panchayats and User Groups that plan, implement, and manage their own schemes.

³ In practice, these arrears are deducted from Plan Funds allocated to Local Self Government Institutions from the Government of Kerala, but this nevertheless results in economic distortions and loss of transparency in service provision.

⁴ As per Census 2001 data.



In the initial stages of this project, the water supply schemes constructed were small ('mini' or 'micro' piped water supply schemes) covering 40–50 households each, and providing mainly individual household connections. These schemes are based on groundwater sources such as open dug wells, ponds or bore wells. In areas with limited groundwater, rainwater harvesting structures were also promoted. The schemes are planned, implemented, and managed by User Groups, formed through a

community mobilization process under the aegis of the Gram Panchayat, facilitated by a Support Organization, which is a nongovernmental organization. The User Groups are given training in the technical, managerial, and financial aspects of the scheme by the training division of the Kerala Rural Water Supply and Sanitation Agency with the help of Support Organizations.

There were no large water supply schemes using surface sources during the initial years of the project.

Box 1: Elements of Community-Driven Development Operationalized Under the Project

- Self-selection by Gram Panchayats and User Groups.
- Empowerment of User Groups (legally registered; bylaws; MoU with Gram Panchayat and Kerala Rural Water Supply and Sanitation Agency linked to Community Empowerment Plan; inclusion of poor people, women, fishermen, Scheduled Castes, and Scheduled Tribes).
- Administrative approval for projects with Gram Panchayats.
- Sustainability of schemes (institutional, technical, financial, and operational).
- Community contracting.

The concept of *Jalanidhi* is a major departure from earlier practices in the sector since it is based on principles of community-driven development with a focus on sustainable service delivery rather than on building water infrastructure.

Why and How were Large, River-Based Schemes Selected?

The User Groups organized in Aliparamba during the initial stages of the project had the option of developing and managing their own small schemes based on open wells, bore wells or ponds. However, in Aliparamba, there was widespread concern about the sustainability of these schemes—the Gram Panchayat estimates that about 90 percent of wells in the area run dry by February each year, and remain dry until as late as May. Larger, river-based schemes offered the advantage of a more reliable water source, and the Gram Panchayat and User Groups requested that the

Kerala Rural Water Supply and Sanitation Agency explore this option with them. Subsequently, the Kerala Rural Water Supply and Sanitation Agency responded to this challenge and launched the pilot projects in Aliparamba. While the project had anticipated implementing a number of such pilots, there was now a real need to explore innovative solutions and to champion them against a legacy of failure of large schemes. There were many unanticipated issues. These are described briefly below in the relative order in which they were dealt with, and generally relate to social, technical, institutional, and financial considerations.

Social Issues

The process of community mobilization began with a workshop at the Gram Panchayat level, Gram Sabha⁵ meetings, and cluster meetings in different parts of the villages. The

Support Organization (Solidarity Movement of India) conducted about 120 such cluster meetings to form and orient User Groups⁶ and complete household level baseline surveys, including water sources and demand. The Support Organization also had a key role in guiding the preparation of Community Empowerment Plans (see Box 2). From this process emerged the request to consider larger, river-based schemes. However, initial acceptance of the idea was not universal. Some User Groups doubted that they could manage and operate such large schemes, since the idea behind small schemes was that group pressure would ensure reliable (or better) service provision and revenue collection. How would this work for larger schemes? And what would be the role of the User Groups? Some User Groups were reluctant to give up their powers and duties and pass responsibility to the

Table 1: Summary of Water Supply Schemes in Aliparamba Gram Panchayat

Aliparamba Gram Panchayat⁷	
Total population	31,372
Total households	5,404
Number of wards	20
Project Schemes	
Project start date	May 2003
Number of Beneficiary Groups under project	<ul style="list-style-type: none"> 60 community User Groups
Two small schemes (open well)	<ul style="list-style-type: none"> Nayagra User Group: 56 households; 336 people Aishwarya User Group: 22 households; 132 people
Two large piped schemes (river)	<ul style="list-style-type: none"> Kodakkaparamba: 24 User Groups; 1,251 households; 6,966 people West Manalaya: 24 User Groups; 1,231 households; 7,338 people
One Kerala Water Authority rehabilitated piped scheme (river)	<ul style="list-style-type: none"> East Manalaya: 10 User Groups; 1,050 households; 6,300 people

⁵ Gram Sabhas are community meetings that hold the Gram Panchayat to account. ⁶ At this stage the Scheme Level Committee had not been conceived, and the User Groups together with the Gram Panchayat were the main decisionmakers. ⁷ Project status report submitted by the Support Organization, Solidarity Movement of India, in May 2007.

Box 2: Community Empowerment Plans

The key project document for participating User Groups is their participatory rapid appraisal-based Community Empowerment Plan. The plan is the basis for implementation and future comparative assessments. The plan includes the following items related to water supply:

- Community mobilization: details of User Group formation, registration, and bank accounts; socioeconomic survey or social mapping; water sources mapping.
- Community contributions: cash and labor contributions.
- Feasibility studies and detailed engineering designs, including evaluation of feasible technology options and selection of schemes.
- Operation and Management Plan, including water distribution management and tariffs, income, and expenses.
- Capacity-building initiatives: planned classroom and field-based activities, likely participants, scheduling, Support Organization help, and post implementation follow-up.
- Implementation schedule: delivery of inputs and services, monitoring progress, success indicators, and capacity enhancements.
- Community monitoring: simple indicators.
- Mutual obligations and responsibilities of User Group, Gram Panchayat, Support Organization, and Kerala Rural Water Supply and Sanitation Agency.



higher Scheme Level Committee, and concerns were raised about potential conflicts between User Groups.

Technical Issues

With these social concerns in mind, it was initially proposed that each User Group could have its own water tank and retain control of internal distribution. This idea was rejected because the hilly terrain meant that tanks would more often than not be located outside a User Group's area and because households are spatially so disbursed.

Secondly, the question of how many schemes came up. The choice to have three schemes came about largely for practical reasons. In East Manalaya, an existing Kerala Water Authority scheme was serving about 305 households and about 47 active public standposts. Although the facilities had deteriorated and service was now via direct pumping bypassing the old storage facilities, these households were keen to remain independent because they were getting a reasonable service at low cost (the Kerala Water Authority rate of Rs. 22, or US\$0.54, per 10,000 liters⁹). However, since the scheme could potentially serve a much larger area, the existing users eventually agreed to have the scheme rehabilitated and expanded.

The new scheme now serves 1,050 households. Since East Manalaya bisects the remainder of the Gram Panchayat area, it was then practical to have at least two further schemes on either side of the existing Kerala Water Authority scheme. In fact, a fourth scheme was also considered, but after

⁹ US\$1 = INR 40 (as of September 19, 2007). Conversion rates are from www.xe.com; all conversions in the text are approximations.

There were many unanticipated issues to overcome, generally related to social, technical, institutional, and financial considerations. They provide lessons to policymakers and practitioners in scaling-up such approaches.

reviewing the technology options on source works this was incorporated into the Kodakkaparamba scheme.

Although the Support Organization had taken responsibility for the rehabilitation of the East Manalaya scheme, it was proposed that the two 'greenfield' schemes in Kodakkaparamba and West Manalaya required the services of a more experienced technical consultant.

The Kerala Rural Water Supply and Sanitation Agency, in close liaison with the Gram Panchayat and the Support Organization, then contracted a consultant (Center for Social and Environmental Care) to prepare detailed designs and cost estimates for the larger schemes, to prepare bid documents for works packages, to support the bidding process, and to supervise construction work.

Institutional Issues

The next challenge was to identify a viable management model that could address the social concerns of the User Groups. With the continuing support of the Kerala Rural Water Supply and Sanitation Agency, it was proposed to establish Scheme Level Committees as the key institutional body. The Scheme Level Committees were constituted with representatives from each participating User Group. Elected executive committees were also established in Scheme Level Committees to take responsibility for operation and maintenance, meter reading, billing and collection, and keeping accounts.

Financial Issues

It is significant that out of 60 User Groups, only two User Groups opted for small, independent schemes

(which have also been successful). The other 58 User Groups were willing and able to pay the relatively higher costs of the river-based schemes since that provided the hope of a more reliable source.

The capital costs per capita were:

- Rs. 1,788 (US\$44.4) and Rs. 2,064 (US\$51.3) for the small, independent schemes in Nayagra and Aishwarya.

- Rs. 3,278 (US\$81.5) and Rs. 2,507 (US\$51.1) in West Manalaya and Kodakkaparamba.
- Rs. 2,242 (US\$55.7) in East Manalaya.

The experience gained in Kodakkaparamba and West Manalaya shows that the total period and scheme cycle required for the large schemes could be calculated as in Table 2.

Box 3: Design of Schemes

Design criteria were (a) 70 lpcd (liters per capita per day); (b) design horizon of 20 years at 12 percent population growth per decade; (c) eight-hour storage capacity, that is, one-third daily demand; and (d) individual household taps, with a minimum 7 meters distribution pressure. In particular, to cover the costs of connections, households were required to pay the full 15 percent contribution upfront, as opposed to small schemes where 7.5 percent was upfront and 7.5 percent during works or as labor input.

Box 4: Key Partners that Supported the Gram Panchayat and User Groups

- **Kerala Rural Water Supply and Sanitation Agency:** Act as a facilitator to assist Gram Panchayats, Support Organizations, and User Groups in implementing the project by overseeing procurement, design, and construction, financial flows, as well as monitoring and evaluation; jointly manage the Support Organization contract with the Gram Panchayat; and provide training to User Groups, Gram Panchayats, and Support Organizations.
- **Gram Panchayats:** Prepare project proposals, select User Groups for participation, and provide 10 percent counterpart funding for infrastructure building costs to User Groups; jointly manage the Support Organization contract with the Kerala Rural Water Supply and Sanitation Agency; advise and guide User Groups in scheme planning implementation and service provision; and aid in conflict resolution.
- **Support Organizations:** To mobilize User Groups, prepare, and implement Community Empowerment Plans (described in Box 2); capacity building; and liaising with Gram Panchayats and the Kerala Rural Water Supply and Sanitation Agency.
- **Technical consultant:** Prepare detailed project reports, including technical design and construction supervision.

Table 2: Scheme Cycle in Kodakkaparamba and West Manalaya

Activity	Period from start date (in months)
Community mobilization	4
Formation of Scheme Level Committees	4
Preparation of feasibility studies by the Kerala Rural Water Supply and Sanitation Agency	5
Positioning of technical consultant	8
User Group capital cost contributions in full	8
Planning process up to detailed survey and preparation of bidding documents	12
Bidding process up to and including award of contracts	15
Implementation Phase Quadrilateral Agreement ⁹ signed	16
Administrative and technical agreements sanctioned	17
Period of principal construction works	29
Ancillary small works	30
Commissioning	32
Initial post-implementation handholding	36

Figure 1: Institutional Arrangements for Operation and Maintenance



⁹ See Box 5.

Detailed Institutional Arrangements for Operation and Maintenance

The institutional framework for the schemes is shown in Figure 1.

The Scheme Level Committees are governed by their bylaws and the rules that apply to organizations under the Societies Registration Act (1860). The sector functions can be defined as follows.

Monitoring and Regulation

The Gram Panchayat president and members of participating wards sit as nonvoting members on the Committee. They offer advice and guidance to the Scheme Level Committee and arbitrate if there are disputes among User Groups. Most recently, a coordination committee has been established to guide the Committees in setting tariffs, connection fees, and salaries as well as to offer advice and help to reconcile any conflicts. The coordination committee is chaired by the Gram Panchayat president, and includes two members from each Scheme Level Committee executive committee, the Gram Panchayat standing committee chair, the leader of the opposition in the Gram Panchayat, the Gram Panchayat secretary, and a representative from the Kerala Rural Water Supply and Sanitation Agency.

Ownership

Ownership is vested in the Scheme Level Committee. This is explicit in the bylaws. The Scheme Level Committee owns the system on behalf of the User

There is a need to develop an institutional framework of support from local government and service providers to ensure capacity in service provision as well as monitoring and regulation.

Groups that it represents. The general meetings of the Committee are used to monitor the activities of the executive committee and to discuss and approve the budget and the audited accounts of the Committee. The Scheme Level Committee may appoint an internal or external auditor, and has the power to remove members of the executive committee.

Oversight

Corporate oversight is the responsibility of a seven-member executive committee, as is explicit in the bylaws. The structure of the executive committees is: one president, two vice presidents, one secretary, two joint secretaries, and one treasurer. Two of the office-bearers should be women. The term of office is two years and can be renewed.

The Gram Panchayat president sits as a nonvoting member of the executive committee. The secretary manages day-to-day activities, and is the custodian of records (except those relating to finance and accounts, which are held jointly with the treasurer). The treasurer maintains an account of transactions and the financial statements. Bank accounts are operated jointly by the president, the secretary, and the treasurer. The executive committee oversees day-to-day operations and maintenance, meter reading, billing and collection, and financial and operational accounting, and has the power to penalize or disconnect households with the consensus of the Scheme Level Committee.

Operations

In the first year of operations, the contractor worked under a turnkey



Table 3: Proposed Block Tariff in Kodakkaparamba

Basic fee for 10,000 liters per household per month	Rs. 50 (US\$1.2)
10,000 to 20,000 liters	Rs. 8 (US\$0.19) per 1,000 liters
>20,000 liters	Rs. 10 (US\$0.24) per 1,000 liters

obligation to operate the systems. This was considered an effective way to ensure hands-on training for the operational staff (pump operators, plumbers, office staff, and part-time meter readers).

The basic tariff structure is shown in Table 3. Connection fees for participating User Groups are built into the total cost of the scheme. However, User Groups that wish to connect later must pay a connection fee (which at the time of writing is around Rs. 7,000,

or US\$175, including a surcharge of Rs. 4,000, or US\$100, to the Scheme Level Committee). There are no commercial connections permitted under the schemes since the schemes benefit from concessionary electricity rates for domestic service provision. Schools and health clinics have been provided with separate schemes.

Box 5 provides a summary of key clauses from the project 'Implementation Phase Quadrilateral Agreement' and the bylaws.

Box 5: Key Clauses from the Implementation Phase Quadrilateral Agreement and the Bylaws Relating to Oversight and Operations

Implementation Phase Quadrilateral Agreement (selected clauses):

- 4 (d): The Scheme Level Committee will have the power to appoint required staff for operations and maintenance purposes and fix their terms of reference.
- 6 (iii): The Gram Panchayat shall recognize the Scheme Level Committee as the owner...of the water supply scheme.

Bylaws (selected clauses):

- 7 (functions of the Scheme Level Committee): (e) Appoint agency or agencies for operation and maintenance of the scheme on contract basis if found necessary; (o) Hire technical assistance and consultancy services for efficiently carrying out different functions of the Scheme Level Committee; (q) Hire skilled and unskilled labor for the successful implementation of the project on contract basis.
- 11 (function of the Scheme Level Committee): (b) Convene general body meetings to monitor and evaluate the activities of the Scheme Level Executive Committee; (d) The Scheme Level Committee shall act as the agency for the adoption of regulations regarding conservation and usage of drinking water resources and environmental sanitation guidelines in the operational area and monitoring its implementation; (k) The Scheme Level Committee shall appoint an auditor from among the members to represent it at the agency or Gram Panchayat or any other federated body; (o) The annual meeting of the Scheme Level Committee shall discuss and approve the budget of the group for the succeeding year and the audited accounts of the Scheme Level Committee for the previous year.
- 12 (powers of the Scheme Level Committee): (iv) The Scheme Level Committee shall have the powers to appoint an external auditor to audit the accounts of the group annually; (v) The general body can remove members of the Scheme Level Executive Committee or dissolve the entire Scheme Level Executive Committee for nonperformance or acts of omission or commission, which may lead to nonattainment of the objectives of the Scheme Level Committee.
- 16 (functions of the Scheme Level Executive Committee): (c) The committee shall fix and revise user charges and tariffs on a normative basis as and when required; (e) Ensure the quality of drinking water supplied and develop a scientific system for quality monitoring; (f) They shall minute the proceedings of every meeting of the Scheme Level Committee and the Scheme Level Executive Committee shall ensure scientific bookkeeping and accounting practices; (k) Dissemination of information to members, their capacity building and for enabling them to take informed decisions.
- 17 (powers of the Scheme Level Executive Committee): (d) The Scheme Level Executive Committee shall have powers to regulate or ration water supply in order to ensure equity in distribution and differentiate users; (f) The Scheme Level Executive Committee shall have all the delegation of powers required for incurring expenditure towards procurement of funds, payment towards goods and services required for implementation as well as operation and maintenance of water supply projects, subject to guidelines issued from time to time in this matter; (g) The Scheme Level Executive Committee shall have the power to collect the user charges as determined by the Scheme Level Committee; (h) In case of nonpayment of user charges from the part of Beneficiary Groups/Beneficiaries the Scheme Level Executive Committee shall have the powers to take action with the consensus of the Scheme Level Committee.
- 25 (funds and accounts): (d) The group shall function on a 'no profit, no loss' basis.
- 27 (auditor): The Scheme Level Committee shall appoint an external auditor to audit the annual financial transaction of the group.
- Clause 28 (records and registers): (a) The Scheme Level Committee shall keep in their office documents such as bylaws, registration certificate, minutes book, membership register, vouchers, receipt books, day book, activity reports, copy of the documents submitted to the registrar, and all other official documents.

This represents an opportunity in Kerala to advocate for a more nuanced approach to devolution with specific responsibilities assigned to appropriate tiers of local government.

Looking Ahead: Need for Institutional Support to Ensure Scaling-up and Sustainability

The initial start-up period has thrown up new challenges that the Kerala Rural Water Supply and Sanitation Agency intends to proactively address. These include the need for:

- Providing for future renewal and replacement costs, and expansions.
- Maintaining stocks of essential spares.
- Introducing consumer meters to ensure equitable distribution to users.
- Simplifying recordkeeping and accounting practices.¹⁰
- Building capability of the Scheme Level Committee executive committee to plan, in particular with respect to future financing, access to professional skills after project closure, and operational performance monitoring.
- Strengthening monitoring, regulatory, audit, and reporting requirements.

Most important, there is a need to develop an institutional framework of

¹⁰ The large schemes in Kodakkaparamba and West Manalaya have been provided with various registers and receipt books for a range of items, including: a consumer card for meter readings; a similar office card for consumer meter readings; a record of daily collection; recording movements of staff; a cash book for all transactions; a ledger of all expenses; records of electricity charges; records of all maintenance works; salaries; complaints; billings book; receipts book; record of disconnections; stock register; and record of meter replacements.



support from local government and service providers to ensure capacity in service provision as well as monitoring and regulation. Looking ahead, this can be seen to represent a real opportunity in Kerala to advocate for a more nuanced approach to devolution with specific responsibilities assigned to appropriate tiers of local government

with necessary funds and skills. This would allow infrastructure projects to dovetail with institutional support from local government, which is necessary for scaling-up and longer term post-construction sustainability. The Kerala Rural Water Supply and Sanitation Agency is already implementing another 10 similar schemes that are



expected to be progressively commissioned over the next few months. Thereafter, the Kerala Rural Water Supply and Sanitation Agency intends to conduct a larger performance assessment and lessons learned exercise, and also prepare detailed guidelines and manuals for building and management of rural water schemes by village communities. In addition, the Government of Kerala is attempting to pilot a partnership model between the Kerala Water Authority and the Gram Panchayats for the implementation and management of large 'multi-Gram Panchayat' water supply schemes, where the Kerala Water Authority will provide bulk supply and the Gram Panchayats will manage internal water distribution, including billing and cost recovery.

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