

# **Sustainability in Rural Water Supply: A Case Study of Jalanidhi, Kerala**

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**ABSTRACT:** The planning, implementation and maintaining rural water supplies have always been considered the responsibility of the central government and external support agencies. But this system of water provision and management was not sustainable. This called for the need to involve communities in the process of acquisition and management of water facilities. Community participation was therefore espoused as one of the key strategies of the International Drinking Water and Sanitation Decade. It was expected that community managed water supply schemes can guarantee the technical sustainability of the facilities as well as give more equal access to water. As a part of decentralization, national and state governments and non-governmental organizations launched several projects like Sector Reform Projects, Swajaldhara, Giridhara, Jeevadhara, etc. and several agencies like Kerala Rural Water Supply and Sanitation Agency were also formed. But the challenge is the sustainability of such schemes with growing population and increased demand of water. Watershed programmes can be developed to generate water conservation activities according to land capabilities. Techniques like Participatory Rural Appraisal (PRA) and Participatory Learning and Action (PLA) can be used to understand and tap the strengths of the community and to empower them.

**KEYWORDS:** Rural Water Supply, Kerala Water Authority, Kerala Rural Water Supply and Environmental Sanitation Project, Jalanidhi, Sustainability

## **I. INTRODUCTION**

Water provision is indisputably the most politicized public service, and developing countries have been greatly affected by the consequences of the ideological and political tendencies surrounding it. Since water is a basic need, it was assumed for a long time that the responsibility of the provision of water supply should be entrusted to the government. But, the fiscal crisis of the governments combined with structural adjustment programmes compelled most of the developing countries to look for alternatives in water management. Community based development schemes emerged as a solution to these problems related to the sustainable management of rural water supply. Social cohesion in community managed schemes gives rise to the clarity of purpose and sense of ownership that ensure sustainability. Participatory Rural Appraisal (PRA) techniques have an important role in the sustainability of these community managed schemes.

This paper deals with various water supply frameworks and programmes in national and state levels, role of Kerala Water Authority (KWA) in rural water supply and its limitations, decentralized – community led water supply reforms, practices adopted by Kerala Rural Water Supply and Sanitation Agency (KRWSA) or Jalanidhi in community driven rural water supply schemes (RWSS), and sustainable concerns of those schemes.

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## II. OBJECTIVES

- i) A study of rural water supply schemes in Kerala, with special focus on Jalandhi
- ii) To expose challenges to sustainability faced by Jalandhi and to suggest remedial measures

## III. GOVERNMENT OF INDIA PROGRAMMES- NATIONAL AND STATE

National intervention in rural water supply started with the Accelerated Rural Water Supply Program (ARWSP) in 1972 and became a national priority with the introduction of the National Drinking Water Mission in the mid-1980s. Later renamed the Rajiv Gandhi National Drinking Water Mission, this was institutionalized with the creation of the Department of Drinking Water Supply and Sanitation within the central Ministry of Rural Development in 1999.

As a part of Rajiv Gandhi National Drinking Water Mission, some pilot projects were implemented over a period 1999 to 2002, and funded by the Government of India directly via district level Panchayat Raj Institutions (PRI). Accordingly, under the 73rd Amendment to the Constitution of India, responsibility for providing and managing rural water supply was devolved to the PRI. In some states, the PRI were not fully empowered. In those states, it was expected that implementation would be done through the District Water and Sanitation Mission. Although the district institution was the nodal agency for implementation, actual implementation was to be done through Gram Panchayats (GP).

## IV. RURAL WATER SUPPLY IN KERALA AND ROLE OF KERALA WATER AUTHORITY

Water supply, considering its importance in deciding quality of life of people, always has been an area of priority in Kerala's development plans. The importance attached to the sector has increased more in recent years.

In Kerala, the responsibility of design, construction, operation and maintenance of water supply in the entire State of Kerala was entrusted with the Kerala Water Authority (KWA) which was established on 1<sup>st</sup> April 1984 by the Government of Kerala (GoK). The major sources of funds for KWA were in the form of grants from GoK and Government of India (GoI), loans from GoK and financial institutions and revenue collected from the supply of water and sewerage charges. But, as this type of water supply projects were centralized ones and not driven from the community, it had many limitations such as poor coverage, lack of reliability, poor quality, etc. In most of the cases, these schemes could not satisfy the community requirements.

Responding to these challenges, in 2000 the Central Government launched the nationwide Sector Reform Project (SRP) covering 26 of India's 28 states at a cost of Rs.1328.38 crores. By 2002, the Program had been piloted in 67 districts of the country. The main reform agenda for the provision of rural water supplies was to introduce demand-responsive approaches, community participation, and decentralization of powers for implementing and operating drinking water supply schemes. In this new approach, the government's role was primarily as a facilitator and it was expected that communities would be willing to manage and operate the drinking water supply schemes and contribute to the costs.

In December 2002, the federal government launched the centrally-sponsored 'Swajaldhara' scheme for nationwide scaling-up of decentralized delivery of rural water supply and sanitation services successfully piloted under the SRP.

### A. SWAJALDHARA

The Swajaldhara guidelines refer to the project as a "progressive withdrawal of the state from the provision of the fundamental right to drinking water". The key principles of Swajaldhara were,

- i) Adoption of demand responsive, adaptable approach along with community participation based on empowerment of villages

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- ii) Full ownership of drinking water assets with appropriate level of Panchayats
- iii) Partial capital cost sharing either in cash or kind including labour or both
- iv) 100% responsibility of operation and maintenance by the users
- v) An integrated service delivery mechanism

Keeping in view the concept of decentralization of powers, the powers to sanction Swajaldhara projects had been delegated to District Water and Sanitation Committee (DWSC) as envisaged in the revised guidelines issued in June 2003.

Some Non-Governmental Organizations (NGOs) also executed rural water supply projects with different names such as Giridhara, Jeevadhara, etc. in different parts of Kerala.

### **B. GIRIDHARA**

Giridhara Water Supply and Sanitation Project was a centrally sponsored project for the development of SC/ST department of Kerala. The main aim of this project was to improve the water supply and sanitation condition of tribal community, especially for the selected GPs of Wayanad. GoI allotted Rs.1663 lakhs for this project under Socio Economic Unit Foundation (SEUF).

The specific aims of the programme were to use water and sanitation as an entry tool for poverty reduction, to improve social capital of the tribal communities through sustainable capacity building programmes, to release the synergetic or internal strength of the tribal communities and to establish their capabilities in making extraordinary things happen.

### **C. JEEVADHARA**

Jeevadhara was a project implemented from the lessons learnt from other community managed rural water supply schemes implemented by the World Bank, SEUF and SRP. It was an ambitious project which meant to look into water supply, environment sanitation, water recharging measures, water quality monitoring and tsunami projects through capacitating and strengthening local initiatives.

The project was granted to GPs based on GP income, SC/ST population, water scarcity, water quality, sanitation coverage etc. It followed a detailed institutional network, with many of the tiers constituted by beneficiaries, with importance to women.

With the devolution of responsibility of rural water supply to the PRIs, a new organization that could work with local-level stakeholders was required. Thus, the creation of a new autonomous agency- the 'Kerala Rural Water Supply and Environmental Sanitation Agency' (KRWSA) was proposed to plan, share information on, and facilitate provision of rural water supply and sanitation at the local level.

## **V. KERALA RURAL WATER SUPPLY AND ENVIRONMENTAL SANITATION PROJECT (JALANIDHI)**

Kerala Rural Water Supply and Environmental Sanitation Project or Jalanidhi project is a World Bank approved project aimed to assist GoK in improving the quality of rural water supply and delivery of environmental sanitation services to achieve sustainability of investments. This was to be achieved through: (a) establishing state capacity to implement a new decentralized service delivery model and building the state's capacity to manage and scale-up the new decentralized model state-wide; and (b) demonstrating that communities can plan, manage, build, and operate rural water supply and environmental sanitation, and finance operation and maintenance costs.

The KRWSA facilitated provision of rural water supply and sanitation at the local level by building the knowledge and capacity of communities using NGOs and piloting community-led approaches. As a result, communities became empowered and were able to work with technicians to specify their own water and sanitation schemes and build them using mostly community contracting.

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Specific project delivery objectives were to demonstrate the viability of cost-recovery and institutional reforms by developing, testing and implementing the new service delivery model on a pilot basis, and to build the state's capacity in improving sector management in order to scale up the new decentralized service delivery model state-wide.

The project philosophy/ characteristics are:

- i. Demand driven approach-* Unlike the supply driven approach hitherto followed, this project was implemented based on the need of the people. The project was introduced only in areas where interested groups of people show their willingness to participate in the project and abiding by the conditions of cost-sharing. The group then gets a legal entity by registering themselves and only then proceeds with the rest of the planning. The source selection, technology selection, purchases, contracting and implementation is done by this registered body, the beneficiary group with technical help from Support Organizations (SO). This inculcates a sense of ownership in the people.
- ii. Cost sharing-* To ensure stake-holding of the project, 15% of the capital costs is borne by the beneficiary community. Of the remaining, the GP bear 10% and 75% is the share of the government.
- iii. Cost Recovery -* The Beneficiary Groups themselves meet 100% of the recurring costs of operations and maintenance. This lightens the burden on the state exchequer, thereby helping the Government to utilize this money for other priority needs, such as the health sector.
- iv. Integrated Approach-* The objective of the project being sustainable supply of safe drinking water, sustainability of source, sustainability of operations, regularity and adequacy of supply and quality of water needs to be ensured. This is being met through other well-integrated components. Sustainability of source is ensured through Point- Source recharge measures. Quality is ascertained through a mix of sanitation and hygiene promotion and provision of infrastructure like latrines, compost pits etc. Sustainability of system is ensured through community empowerment, capacity building, women empowerment and social mobilization.
- v. Pro-Poor Approach-* Special efforts have been taken in the project design to include the poor and vulnerable while selecting the user groups. The project has been so designed to incorporate the beneficiary contribution of 15% of capital costs either through cash or in kind, as labour. Intra-group subsidization and even inter-group subsidization is permitted at the behest of and under the total responsibility of the beneficiary groups. Thrift and Credit schemes are promoted in the Beneficiary Groups as "Self Help Groups" which are operated by the women of that group.
- vi. Women Development Initiatives-* Women are the most affected both directly and indirectly, during water shortages. The project makes conscious efforts to mainstream the women users in the planning and decision-making activities. Apart from this, the "Thrift and Credit Groups" also help them make the payments towards the recurring expenditures of the water supply system. Income generation activities are also designed in the project where groups of women are given financial assistance and skill development training to start viable micro- enterprises of their choice.
- vii. Community Empowerment-* Capacity building and equipping the community to operate the project is a major thrust area of this project as this is planned, designed, implemented, owned, and operated by the users themselves. This will not only ensure the involvement of the people, but will also chart a new path to community-based approach for meeting any local needs.
- viii. Community Contracting-* The users themselves are fully involved in all the activities right from identifying their sources, deciding on the technology to be utilized, community contracting and implementation till the operations and maintenance aspects of the schemes. All contracting of goods, works, and services will be done at the user level itself for which adequate training will be provided and guidelines made available.
- ix. Utilization of available resources -* The Schemes already operational in these project areas, will also be rehabilitated, and handed over to the User groups. This will ensure efficient utilization of investments made.
- x. Dovetailing with Decentralized Planning-* This project will be operationalized through the GPs and the beneficiary groups, thereby acknowledging and strengthening the efforts of decentralized planning in Kerala.

## **VI. MAJOR CONCERNS IN THE SUSTAINABILITY OF RWSS**

From the inference of questionnaire surveys conducted on Jananidhi schemes [7], the main challenges faced by rural water supply systems includes water quality problems, poor operation and maintenance, deteriorating source sustainability, lack of continuous professional support to GPs or communities and emerging climate changes.

### ***A. COMMUNITY PARTICIPATION***

Jalanidhi is a 'Demand Driven' rural water supply programme in which beneficiaries should have the major role in planning, implementation, operation and maintenance. This is believed to instill in them a sense of ownership. However, it has been seen that the communities differ in their socio-cultural and educational background and therefore all communities do not exhibit competence in the different phases associated with the project. This limitation can be overcome only through scientific techniques of understanding the characteristics of the community and also by empowering them.

Members of the local community, who only receive basic training about the schemes, are expected to participate significantly in planning and post construction management of the schemes and to ensure that the projects become financially self-sufficient. PRA and PLA can be the effective solution to community participation problems. PRA used by NGOs are sufficient to incorporate the knowledge and opinions of rural people in the planning and management of these schemes. PLA is an approach for learning about and engaging with communities. Similar to PRA, it enables local people to share their perceptions and identify, prioritize and appraise issues from their knowledge of local conditions.

### ***B. WATER CONSERVATION***

The rural water supply schemes rely on nearby surface water sources (rivers, canals, streams, reservoir and ponds) as well as ground water sources (open wells and bore wells). The quantity of available surface water depends largely upon intensity and duration of rainfall and will vary considerably between wet and dry years. Perennial sources are very limited in number, so these schemes get affected by water scarcity in summer season. Short term relief measures are adopted to mitigate water shortages by developing water sources that are often not sustainable.

The sustainability of drinking water source is probably the most important factor determining whether a rural drinking water supply system will function satisfactorily for an appreciable length of time. Sustainability plans should be prepared especially for over exploited, critical sources. It is necessary to plan, prepare and implement source sustainability measures for all existing sources of drinking water supply schemes. Groundwater recharge structures should be planned on watershed basis and adopted to augment available water. Conjunctive use of surface water, ground water and rainwater sources adequate supply at all times at least cost.

Watershed development programmes mainly aimed at collection, storage and reuse of harvested water according to land capabilities. The ultimate purpose is to increase the economic and social well being of the beneficiaries. Various water harvesting techniques include rain pitting, digging, and renovation of wells and ponds, etc. There may be some constraints such as non-availability of inputs and subsidy on time, inadequacy of sanctioned amount, lack of awareness about the beneficiary programme, lack of supervision and follow up, lack of technical guidance, and political interference. Recently the GoK has launched a new mission named 'HarithaKeralam' which emphasis on waste disposal at source and households and renovation and cleaning of water sources. Existing ponds and wells will be cleaned and revitalized. In Phase II, cleaning of rivers, lakes and other water bodies will be taken up.

### ***C. WATER QUALITY***

Studies revealed that there was some dissatisfaction about the quality and adequacy of water supplied. Jananidhi does not have any water treatment or disinfection process other than chlorination. Disinfection of drinking water of Jananidhi schemes is irregular and inadequate. Inadequate testing and irregular monitoring of drinking water quality is another

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concern. Nowadays, water sources are more and more susceptible to ground and surface water contamination as a result of various domestic and industrial activities. Many sources report bacteriological contamination, especially during rainy season due to poor sanitation, poor operation and maintenance and lack of hygiene leading to water borne diseases. Proper treatment according to specific quality issues is the only solution. Awareness programmes among rural people about the importance of safe water and poor environmental and domestic hygiene may be effective to some extent.

### VII. CONCLUSION

Kerala, one of the smallest states in India, is known for its development model, focused on literacy and women centered socio-economic empowerment. It has been the first to implement decentralized local governance, with its people's plan in the late 1990's. The technical and managerial competencies developed during the implementation of the Jananidhiprogramme have paved the way for the success of this community management approach. Even though Jananidhi is synonymous with rural water supply, there are some concerns regarding sustainability of this RWSS. The paper investigates the limitations in making Jananidhi a sustainable model for rural water supply. Some of the major concerns are quality and quantity of water supplied and insufficient empowerment of some of the communities which are so essential in making the programme successful. These can be addressed by adopting scientific techniques in social and technical domains. Integration of watershed development programmes to generate water conservation activities, effective and complete community participation and quality assurance can make the schemes sustainable.

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