



WATER RESOURCE MANAGEMENT IN KERALA– PERFORMANCE EFFECTIVENESS OF JALANIDHI PROJECT

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Abstract: *The drinking water sector in Kerala has witnessed the emergence of different efforts in the provision of safe and adequate drinking water. But the goal of providing safe and adequate drinking water to all people in all types of localities has not been achieved. The total water supply schemes of KWA in operation as on March 31, 2017 in the State is 1,073. In the recent past, community managed drinking water supply schemes have been implemented in Kerala to fill the gaps in the water supply by the state government and panchayats. While community management demands more involvement of the beneficiaries, the authority takes advantage of it to transfer the responsibility of the service to them and withdraw from the picture. Jalanidhi is a paradigm shift in the area of water resource management projects. This contains various plans and programmes for the effective and efficient usage of available water. The Jalanidhi will be success in this regard for ensuring the efficient and sustainable use of inherent water potential for the present and future generations.*

Water; we are living or alive because of water. This constitutes the importance of water in our life. We have enough water in our earth. But most of the countries or people are facing acute water shortage. We can see the problem associated with water in two ways. One is related to the quantity and other is related to the quality. 72% or 2/3rd of our earth surface is covered with water. So scarcity of clean water is the real problem rather than scarcity of water.

We get water from different sources. But from where we get it from the prescribed quantity and quality is the real problem. Now-a-days the demand for clean water is running forward and the supply is running backward. If sufficient measures were not taken, the gap between demand and supply will widen and most of the experts predict a global war for water.

Water is a natural resource vital for the survival of life. It is becoming increasingly evident that limited availability

of water can impede further progress while its thoughtless exploitation can negate most of our socio-economic achievements.

With the availability of water and water use pattern undergoing constant changes and facing pressures owing to a variety of environmental and human factors, it has become necessary to lay down guidelines and policy parameters for the optimal utilization and proper conservation of this natural resource. There is an imminent need to create greater social awareness about the rights and responsibilities in the use of water and to put in place better management practices in the utilization of this invaluable resource. It is also necessary to ensure people's participation in water sector within the framework of decentralized democratic institutions and to evolve suitable frameworks and strategies for the continual up-gradation of water environment. Further it is important to make sure that the right of every citizen to equitable access to water for his or her basic needs is protected and enforced through appropriate policy, legislative and programme initiatives. (State water policy, 2008)

Creating accessibility in drinking water availability is very important. In order to maintain the availability of water in adequate quality and quantity, the Government have introduced Centrally Sponsored, State sponsored and externally aided projects in the State.

Water supply programmes were initiated and implemented even before the formation of the State. Water related activities in the geographical area of the present State of Kerala began for the first time in the year 1833 under the leadership of Velu Thampi Dalawa. From 1833 to the beginning of the 20th century, minor water supply schemes as single attempts, were planned and executed in an unorganized manner.

History of organized pipe water supply in Kerala dates back to the beginning of 20th century. First organized water supply scheme was the water supply scheme to Thrivananthapuram in 1931. Second in the series was Ernakulam water supply scheme, which was a part of the State of Cochin. It was installed in 1934 with Periyar River as its source. This was followed by Kozhikkode water supply scheme in the District of Malabar. Alleppey water supply scheme in the State of Travancore was started in 1939. Now there are 1072 water supply schemes are running in Kerala.

Jalanidhi is one among this kind, funded by World Bank, which was introduced in the State during 2001 with the main objective of assisting the Government of Kerala to improve the quality of Rural Water Supply and Environmental Sanitation. Project implementation plan was prepared and appraised in mid-2000 and an agreement with the World Bank was signed on 4th January 2001. The Government has also created an autonomous institution, viz, 'Kerala Rural Water Supply and Sanitation Agency (KRWSA)' to implement this project. The project expected to cover 3 lakh households, benefiting a population of more than 15 lakh from the selected Grama Panchayats. Communities in the project areas are expected to benefit from improved and sustainable water supply and environmental sanitation services. The stakeholders enjoyed time savings in collecting water, better health from more and cleaner water, improved sanitation and hygiene practices. Women are considered as the most beneficial group. The project made efforts to mainstream women users into the planning and decision making activities. Gramapanchayat involved in the project got benefited from panchayat strengthening programmes and mobilisation of internal resources from beneficiaries. Government of Kerala improved institutional capacity to facilitate water supply and sanitation services in the state due to the project. The Project has been

designed as a demand responsive Project with a community driven development approach in its implementation. The project integrated water supply with sanitation, health promotion, and environmental management and ground water re-charge measures. Jalanidhi seeks to cover 92 GramaPanchayats from the four districts of Thrissur, Palakkad, Malappuram and Kozhikode and 18 GramaPanchayats from the remaining nine districts, excluding Alappuzha. The areas were selected on the basis of water scarcity.

1.3 OBJECTIVES OF THE STUDY

- To evaluate the performance of Jalanidhi project in Kerala.
- To explore the lacuna in the existing jalanidhi project.
- To study the need and necessity for revamping Jalanidhi project.

1.4 METHODOLOGY

The present study was exploratory in nature. After a prelude to the empirical enquiry, a historical investigation was conducted. Both primary and secondary data were used for the study. A primary level investigation was made through pretested research schedule/ questionnaire among the beneficiaries of Jalanidhi project.

POPULATION

The population of the present study was 6959 households from 4 panchayats of Kottayam and Pathanamthitta districts.

SAMPLE

Jalanidhi project spread over 112 panchayats of various districts, which constitute 92 Gramapanchayats from Thrissur, Palakkad, Malappuram and Kozhikode and 20 Gramapanchayats from 9 districts except Alappuzha. The present evaluation study was limited to 2 panchayats each from the 2 districts which are identified on the basis of intensity of the problem of water scarcity. The chart showing the districts and panchayats chosen for the present investigation is given below.

Sl.No	Districts	Panchayats	
		1	2
1.	Kottayam	Kaduthuruthy	Kadanad
2.	Pathanamthitta	Konni	Kodumon

Using the general formula for calculating the sample size $N/(1+N(0.05)^2)$, 378 samples were selected from the total population of 6959 households. Depending on the size of the population 89 households from Kadanad, 125 from Kaduthuruthy, 80 from Kodumonand 84 from Konnipanchayat were selected on equi- proportionate basis. Secondary data were collected from journals, publications, governmental organizations, etc.

The data collected are systematically arranged and analyzed. Inferences, generalizations, diagonal relationship and variances are made. For this, appropriate statistical tools and techniques were employed. Measures of central tendency, Z-test, relative, position and relationships were analyzed. Inferences and generalizations are drawn and conclusions and

suggestions are made. Systematic tabular and graphic representations are done.

6.1 PERFORMANCE EFFECTIVENESS OF JALANIDHI

1. Among the four gramapanchayats selected for the study, Kadanadhad water supply coverage of 35% prior to the implementation of Jalanidhi and it was 31% in Kaduthuruthy, 46% in Kodumon and 72% in Konni.
2. Implementation of Jalanidhi has created additional water supply coverage of 50% in Kadanad, 31% in Kaduthuruthy, 20% in Kodumon and 21% in Konni.
3. The total water supply reached 62% to 93% in each panchayat after the implementation of Jalanidhi.
4. As per the project 52% of beneficiaries would be from BPL communities. But in Kaduthuruthy and Konni Panchayats covered more APL families than BPL families.
5. As per the Project 16% of beneficiaries would be from SC/ST communities.
6. Beneficiaries have various opinion regarding the water availability, quality and overall performance of the schemes.
7. In general, 98% of the beneficiaries positively remarked about the success of this Project. With that 83% believed that jalanidhi project is a sound solution for redressing the water scarcity in Kerala.
8. Supporting agency shows a pivotal role in the working of Jalanidhi. 93 percent of respondents are satisfied with the working of supporting agency.
9. The fund utilization was in the ratio of 75:10:15 between the Government, Panchayats and beneficiaries; however, it was in the ratio of 80:10:10 for ST schemes.
10. Beneficiaries have to pay 15% of capita cost and 100% of operational and maintenance cost.
11. To meet the operational and maintenance cost of jalanidhi project, monthly subscription at the rate of Rs.30-Rs.60 was collected from the beneficiaries.
12. For empowering the beneficiary groups, training programmes are also organized at the panchayat level. Nearly 60% of the respondents are not satisfied with the quality of the training they got as part of Jalanidhi project.
13. Most of the rural water supplies including jalanidhi depend mostly on open wells, tube wells, bore wells, rain water etc., 57% of the beneficiaries are satisfied with the quality of water supplied by Jalanidhi, judging it by the physical characteristics of colour, odour and taste.
14. Among the beneficiaries, 70% were using water for drinking and cooking, and others for various purposes.
15. Water supply projects have been shown to be an immense success when the community is involved right from the start of any project. Since it is a demand driven project, cost sharing and willingness from the part of interested people is very essential. 90% opined that people participation is the main energy source of this project.
16. Environmental sanitation under jalanidhi was implemented through the construction of new latrines and maintenance of existing latrines.

6.2 EXPLORING THE LACUNA

1. Role of Panchayat was merely as a facilitator and as a result the operation and maintenance of the project was given to beneficiary groups, which were not in a position to handle it in a proper manner.
2. Water recharge measures were not given adequate importance in Jalanidhi project. Rain is the main source of natural water recharge, but the natural slope of the terrain in the State in many places, lead to quick runoffs. Lack of interest of the beneficiaries in water recharge measures after getting water for their needs is also adversely affect the recharge measures.
3. Some of the poorest people are unable to pay the 15% of beneficiary shares. Because of that they were left out from the Project coverage.
4. The operation and Maintenance costs of Jalanidhi project sometimes turn out to be very high for the beneficiaries. This high level of cost may sometimes lead to default in payment, which ultimately affects the functioning of the project.
5. Due to lack of proper coordination, monthly charges are not properly collected in certain beneficiary groups and Panchayats.
6. Political decisions and political interference created bias in the identification of water supply sites. So it adversely affects the proper working of Jalanidhi project.

6.3 SUGGESTIONS FOR REVAMPING JALANIDHI

1. The role of Panchayats should be upgraded from the level of a facilitator to the level of controller and administrator of the Project. Operation and maintenance of the project should be done by the panchayat itself with the support and help of beneficiary group.
2. Panchayats should take necessary measures to include the poorest people, who are unable to pay the capital cost and monthly share project coverage.
3. Make it mandatory that all Panchayats should designate sufficient funds to solve the water supply problems by utilizing the available water resources potential.
4. The Panchayat should maintain proper accounting and follow strict monitoring of the Project.
5. Panchayats have to use their unutilized and under-utilized water resource potential for the successful implementation of this project.
6. Beneficiary Groups are to be strengthened through proper support and arrangements of regular meeting.
7. It is found that the economic status of beneficiaries have a major bearing on water consumption. The rich sections may use water lavishly for modern domestic gadgets, gardening, washing vehicles etc. Absence of control on using water may lead to over use, thereby leading to higher electricity charges and depletion of water sources.
8. Increase the number of beneficiaries by demand estimation. It reduces the capital cost and monthly subscription per head.

9. Per capita availability of water for each households should be monitored and link that usage with their monthly subscription. If meters are provided for household, monitoring becomes easy.
10. A water quality measurement system should be adopted to test the quality of water supplied periodically.
11. Maintenance should be done properly on a predetermined interval. It can be done only by increasing the efficiency in cost collection and management.
12. Water shortage is more acute in the urban areas. So the authorities have to widen this project into urban areas also.

The drinking water sector in Kerala has also witnessed the emergence of different efforts in the provision of safe and adequate drinking water. But the goal of providing safe and adequate drinking water to all people in all types of localities has not been achieved. The state intervention in the provision of providing drinking water began even before the formation of the state. During the pre-independence period water supply programmes were mainly concentrated on urban areas. After the formation of the state Kerala, the provision of rural drinking water supply programmes increased rapidly. In the recent past, community managed drinking water supply schemes have been implemented in Kerala to fill the gaps in the water supply by the state government and panchayats. These water supply schemes are being implemented with the financial assistance from external funding agencies like the World Bank, JBIC etc...

While community management demands more involvement of the beneficiaries, the authority takes advantage of it to transfer the responsibility of the service to them and withdraw from the picture. Jalanidhi is a paradigm shift in the area of water resource management projects. Jalanidhi is a community managed rural drinking water supply scheme implemented with the financial assistance of World Bank and its objectives of demonstrating the viability of the cost sharing model and in building up the state's capacity in environmental sanitation were commendable. Though these ideals point to far reaching implications in the state, the planning and implementation of jalanidhi lacked this long term vision.

The first silent objective in this study was to examine the implementation and functioning of jalanidhi as a new community managed approach in the drinking water sector which has been discussed in the fourth chapter. Jalanidhi is also following a demand driven approach. The functioning of jalanidhi is a public private partnership that blends the government and panchayat with the beneficiaries. The entire beneficiaries divided into several groups and actively participated in the planning, implementing and maintain of various water supply schemes in jalanidhi. As a rural drinking water supply programme, jalanidhi not only concentrated on the quantity of water but also the quality of water provided. Environmental sanitation is also implemented as a long term goal with water supply programmes. Another important objective was to study the performance effectiveness of jalanidhi project. Most of the beneficiaries opined that the project is excellent and serving beyond their expectations. It is observed that the vast majority of beneficiaries who had real problem with regard to drinking water stated that; jalanidhi could solve the drinking water scarcity in Kerala.

Regarding time, quality and quantity of water available, 60% are satisfied with quality and 95% are satisfied with quantity of water available through Jalanidhi. As a beneficiary, people have to pay 15 % of capita cost and 100% of operational and maintenance cost. Majority of respondents replied that they get merit from Jalanidhi project equal to the financial expenditure that they have to pay for getting the service.

The next objective in this study was to explore the gap in the existing jalanidhi project. The main aim of this objective was to find out the critical factors that adversely affected the success of jalanidhi. The concept of ownership transfer to the beneficiaries has introduced an element of ambiguity about the functioning of authorities. Their complete withdrawal from the picture results in the project being stopped after launching. Hence retaining the ownership in the authority is suggested. This would give the authorities the right to check, evaluate and correct the functioning of the schemes, leading to an overall improvement of jalanidhi.

The last objective was to give proper suggestions and recommendations for revamping the existing jalanidhi project. Retaining the ownership of various schemes implemented in jalanidhi in the authority will reduce the confusion among the beneficiaries. Jalanidhi project was implemented to provide adequate drinking water supply in the rural area where a large number of populations is poor and socially disadvantaged. But some of the targeted population was not able to pay the 15% of its capital cost and maintenance cost. So authority should take necessary measures to include the poorest people, who are unable to pay the capital cost and maintenance cost. Panchayat can also increase the number of beneficiaries by demand estimation. It reduces the capital cost and maintenance cost per head. Panchayat also will have to check and evaluate the quantity and quality of water providing under this scheme for ensuring the effectiveness of the project. Effective utilization of water resource will reduce the scarcity. So a project like jalanidhi that effectively utilize the inherent potential of water resource will support the sustainable development of environment. The water management science has to be diagnosed by internationally renowned water management scientists. Modern science, especially Satellite Technology, Astro Physics, Computerized macro dynamic operational magnetic model etc... can be used for water resource management. Application of science and technology in developed economies are operational models in this context.

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