FIFTEENTH KERALA LEGISLATIVE ASSEMBLY

COMMITTEE
ON
PUBLIC ACCOUNTS
(2023-2026)

SIXTY FIRST REPORT

(Presented on 26th JUNE 2024)

SECRETARIAT OF THE KERALA LEGISLATURE
THIRUVANANTHAPURAM
2024

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on

Paragraphs relating to Housing and Cultural Affairs Departments contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2014

and

Paragraphs relating to Water Resources Department contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015

(General and Social Sector)

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COMMITTEE ON PUBLIC ACCOUNTS

(2023-2026)

COMPOSITION

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Shri. Selvarajan P. S., Joint Secretary.

Shri. Jomy K. Joseph, Deputy Secretary

Smt. Beena O. M., Under Secretary.

INTRODUCTION

I, the Chairman, Committee on Public Accounts, having been authorised by the Committee to present this Report, on their behalf present the Sixty First Report on paragraphs relating to Housing and Cultural Affairs Departments contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2014 (General and Social Sector) and paragraphs relating to Water Resources Department contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015 (General and Social Sector).

The Report of the Comptroller and Auditor General of India for the years ended 31st March 2014 (General and Social Sector) and 31st March 2015 (General and Social Sector) were laid on the Table of the House on 23rd March 2015 and 24th February 2016 respectively.

The Committee considered and finalised this Report at the meeting held on 22nd May 2024.

The Committee place on records our appreciation of the assistance rendered to us by the Accountant General in the examination of the Audit Report.

SUNNY JOSEPH,
Chairman,
Committee on Public Accounts.

Thiruvananthapuram,
26th JUNE... 2024.

REPORT

HOUSING, CULTURAL AFFAIRS and WATER RESOURCES DEPARTMENTS

5.2 Role of Kerala State Nirmithi Kendra in Civil Construction Works

The Kerala State Nirmithi Kendra (KESNIK) was set up in 1989 under the Travancore Cochin Literary, Scientific and Charitable Societies Act 1955 as an Apex body to co-ordinate, monitor and regulate the activities of the various Nirmithi Kendras[1] in the State. The Memorandum of Association of KESNIK (MoA) as approved (April 1989) by Government of Kerala (GOK)/Detailed Project Report (DPR) inter alia envisaged the following objectives stating that KESNIK would:

- act as a seminal agency, to generate innovative ideas in the building construction sector,
- undertake Research and Development (R&D) activities and interact with agencies to ensure field level application of research in housing sector,
- set up production centres, to prefabricate standardised building materials, propagate Cost Effective Environment Friendly and Energy Efficient (CEEF)[2] technologies in building construction,
- set up fair price shops (Kalavaras) to address the spiralling cost of building materials and
- conduct R&D, orientation training programmes and finishing schools through the training centre 'Laurie Baker International School of Habitat Studies' (LaBISHaS).

An audit was conducted during December 2013 to March 2014 covering the period 2009-14 through test check of records to assess whether the activities of KESNIK complied with the terms and conditions of the MoA and the guidelines/instructions issued by GOK. The records of the corporate office of KESNIK at Thiruvananthapuram and the Regional Nirmithi Kendras (RNKs) in

1 Nirmithi Kendras were intended to provide an institutional framework to meet the challenges in the housing sector. India's first 'Nirmithi Kendra' was set up in Kollam district of Kerala in 1985 to provide cost effective and environment friendly (CEEF) building technology and affordable solutions to housing

2 CEEF technology involves use of locally available and innovative material, cutting down consumption of energy intensive materials (cement, steel), ensuring local participation in construction activities, blending new styles with traditional ones and designing according to the lay of the land

four[3] districts were examined. These units were selected on the basis of judgement sampling.

Audit findings are discussed in the following paragraphs:

5.2.1 Receipt of Grants-in-aid and their utilization

GOK annually released grants-in-aid to KESNIK for various schemes/activities. Analysis of the utilisation of grants-in-aid received during 2009-14[4] revealed that against the release of grants of ₹17.10 crore, expenditure incurred was ₹14.28 crore (83.5 *per cent*). There was an accumulated unspent balance of ₹5.93 crore with KESNIK (May 2014) including ₹1.51 crore for Kalavara scheme as explained in paragraph 5.2.5, ₹2.26 crore for R&D activities as stated in paragraph 5.2.6, ₹0.21 crore received from GOI/GOK/HUDCO[5], etc. prior to March 2006.

While admitting (November 2014) the facts, GOK stated that the unspent balance as of 2014 is being utilised, and presently the balance has come down significantly.

[Audit Paragraph 5.2, 5.2.1 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2014.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraphs is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

1) While considering the above audit paragraphs, the Committee wanted to know about the action taken by the Department regarding the audit observation. The witness, Additional Chief Secretary, Revenue and Housing Departments replied that the unspent balance of the year 2014 had been utilized and 90% of the grants-in-aid received during the previous year had been utilized in the current financial year itself. The Committee expressed its displeasure towards the submission of the current status of action taken by the Department regarding the audit paragraphs on the meeting day and warned against the repetition of such flaws in the future. Then the Committee enquired why an amount of ₹0.21 crore received from the Government of India was kept in the account without

3 Idukki, Palakkad, Thiruvananthapuram and Thrissur districts
4 The finalization of annual accounts has been completed only up to the financial year 2011-12
5 Housing and Urban Development Corporation Ltd.

adjustments for a long period. The Director, Kerala State Nirmithi Kendra replied that the objection had been dropped based on the reply furnished by the department.

2) The Senior Audit Officer interfered and informed the Committee that the objections pointed out in the Report of the Comptroller and Auditor General that had been laid on the table of the house could only be dropped after the consideration of the Public Accounts Committee. The Senior Deputy Accountant General further clarified the differences between the Audit Report and the inspection report and supplemented that it is the privilege of the Public Accounts Committee to consider the objections described in the Audit Report.

3) The Committee inquired about the current status of unspent amount. The Director, Kerala State Nirmithi Kendra replied that there was no unspent amount at present and the whole amount had been utilized in 2008. To the Committee's query regarding the unspent amount, the Director, Kerala State Nirmithi Kendra explained that a revised report with the current status had been furnished to the Housing Department in the month of August. The Committee noticed that in the reply given to the Committee on 14/11/2016 it was stated that there was unspent amount of ₹5.93 crore. Then the Director, KESNIK replied that the entire amount had been utilized in 2018. The Committee directed to submit a detailed report regarding the current status of the unspent amount at the earliest. The Director, KESNIK agreed to do so.

Conclusion/Recommendation

4) The Committee directs the department to furnish a detailed report regarding the status of the unspent amount out of the grants in aid released to KESNIK for various schemes / activities, within two months.

5.2.2 Works undertaken using CEEF technology

As per MoA, KESNIK would undertake all civil and related works in addition to construction of buildings especially public buildings utilizing Cost Effective Environment Friendly and Energy Efficient (CEEF) technology involving District and Regional level Kendras. The estimated project cost of each work to be undertaken under CEEF technology was to be based on a separate Schedule of Rates (SoR) to be published periodically by KESNIK. Preparation and publication of a separate SoR for construction using CEEF technology was essential due to substantial cost advantage (about 30 *per cent*) as compared to that used in conventional building techniques which was based on

Public Works Department (PWD) SoR. Government had, therefore, confirmed (September 2007) that Nirmithi Kendras should not follow PWD SoR for their works.

KESNIK had not prepared separate SoR for constructions using CEEF technology. During 2009-14, KESNIK had undertaken 1155 construction works through 14 RNKs in the State. Audit noticed that out of the 598 works undertaken in the four test checked districts during 2009-14, 146 works could have been executed incorporating CEEF technology. However, it was noticed that only 3 works were executed incorporating CEEF technology. It was further noticed that out of 77 works undertaken by RNK, Thrissur during 2012-13, 62 were road works (80 *per cent*) where no application of CEEF technology was involved.

The overall savings in the use of CEEF technology, over conventional building technology estimated at 30 *per cent* was thus foregone due to non-adoption of CEEF technology by KESNIK. KESNIK did not work out the savings in any of the cases, despite being requested by Audit. Since, in a construction work, all items of works are not executed using CEEF technology, the items of work that can be done using CEEF technology need to be segregated and savings worked out. As KESNIK does not have any such details, Audit could not calculate the savings.

GOK stated (November 2014) that, the works undertaken by KESNIK were mostly public/departmental works. The consent of administrative authority awarding the work is required for construction with CEEF Technology. However, most of the authorities are reluctant to accept the CEEF technology because the Annual Maintenance Contract (AMC) of the building constructed using CEEF technology will also come under PWD and PWD does not entertain alternative technologies.

The Government reply is misleading in view of the fact that the KESNIK could have undertaken maintenance of buildings constructed by it using CEEF technology, as KESNIK has been established by the Government of Kerala with the basic objective of using CEEF technology in building construction.

[Audit Paragraph 5.2.2 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2014.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

5) The Additional Chief Secretary, Revenue and Housing Departments brought into the notice of the Committee that for Cost Effective Environment Friendly and Energy Efficient (CEEF) Technology, KESNIK had to prepare a separate Schedule of Rates (SoR). The current Finance Commission had authorized working groups to establish a uniform rate for alternative technology state-wide and its draft had already been done.

6) The Committee found that C&AG had pointed out that the Government reply was misleading in view of the fact that KESNIK could have undertaken maintenance of buildings constructed by it using CEEF Technology, as KESNIK had been established by the Government of Kerala with the basic objective of using CEEF Technology in building construction. The Senior Deputy Accountant General enlightened the Committee that the work done by KESNIK was based on CEEF Technology. Hence the Public Works Department was reluctant to accept the AMC of works done by KESNIK. Therefore, a separate agency is required for the maintenance of these buildings.

7) When the Committee desired to know about the Annual Maintenance Contract of buildings constructed using CEEF Technology, the Additional Chief Secretary, Revenue and Housing Departments informed the Committee that the PWD did not undertake the Annual Maintenance Contract of the works done by KESNIK since they did not entertain alternative technologies. He supplemented that instead of annual maintenance, they envisioned a long term maintenance contract and if it was included in the contract of the Nirmithi Kendra itself no such difficulties would arise in the future. The Committee concluded that the agencies executing the construction work would also be responsible for the annual maintenance contract and that was under the consideration of the Government and directed the Department to take necessary steps at the earliest in this regard.

Conclusion/Recommendation

8) The Committee opines that the agencies executing the construction work should be responsible for its annual maintenance as well. Therefore, the Committee recommends the department to ensure sufficient allocation of funds for annual maintenance so that KESNIK could undertake the annual maintenance of the buildings constructed by it using CEEF technology.

5.2.3 Co-ordination of activities of KESNIK and District Nirmithi Kendras (DNKs) set up at district level

The MoA and directions of GOK required KESNIK to co-ordinate, monitor and regulate the activities of the District Nirmithi Kendras (DNKs) which function independently, with different bye laws. However, it was noticed that KESNIK did not exercise any control over the activities of the DNKs, resulting in different DNKs functioning independently without a common set of standards and specification.

KESNIK admitted its inability to exercise any control/coordination over the functioning of the DNKs and stated that no corresponding provision was incorporated in the bye laws of DNKs which were independent entities under the respective District Collectors.

Thus, the objective of KESNIK to function as a controlling body of the various DNKs in order to achieve synergy in the functioning of various Nirmithi Kendras, was not achieved. Thus, all such DNKs need to be brought under the umbrella of KESNIK for proper co-ordination, spread and use of CEEF technology throughout the State.

[Audit Paragraph 5.2.3 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2014.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

9) While considering the audit para, the Additional Chief Secretary, Revenue and Housing Departments informed that KESNIK is under the control of the Housing Department and District Nirmithi Kendras (DNKs) are under the

control of Revenue Department. He added that a meeting had been conducted in the previous month to achieve synergy in the introduction of common set of standards in labour and specifications for the functioning of various Nirmithi Kendras. He added that, in his opinion, it was not advantageous to function District Nirmithi Kendra as branches of KESNIK. KESNIK had regional offices and could function independently.

10) To the Committee's query regarding the legal status of various Nirmithi Kendras, the Additional Chief Secretary, Revenue and Housing Departments informed that each District Nirmithi Kendras are independent entities and has no relation with State Nirmithi Kendra.

Conclusion/Recommendation

11) No comments

5.2.4 Introduction of innovative/new building products

As per MoA, KESNIK was to set up production centres to prefabricate standardised housing materials, to formulate strategies and to implement schemes for the supply of good quality, cost effective, energy efficient, eco-friendly, environment friendly and disaster resistant building materials. It was envisaged that the consumption of costly materials like, cement, steel, etc. could be minimised, by adopting innovative building practices.

KESNIK had set up 10 production centres with financial assistance received through Plan grant for 'Setting up Production Centres'. However, verification of records of three selected production centres revealed that the centres at Muttom (Idukki district) and Chittoor (Palakkad district) produced only hollow/solid cement blocks during the period 2009-14. The production centre at Kodumbu (Palakkad district) also focused on producing hollow/solid concrete blocks besides producing negligible quantities of other items like paving blocks, window/door frames, fencing posts, pit covers, jally, etc. during 2009-14. Thus, production of CEEF building materials was mainly confined to Hollow and Solid concrete Blocks alone.

KESNIK acknowledged (December 2013) that it was not focusing on developing new cost effective building materials due to lack of research activities. GOK stated (November 2014) that production centres were generally meant for manufacturing a commodity in large quantity and that niche products were not viable to be produced in mass production. It stated that products like

Hollow concrete blocks, compressed stabilised earth blocks, solid concrete blocks, pavement tiles, etc. which were in great demand, were being produced at these centres and that other items which had less demand, were cast in-situ in small construction projects.

Thus, KESNIK failed in attaining its objective of supplying cost effective, energy efficient, eco-friendly, environment friendly and disaster resistant building materials through these production centres.

[Audit Paragraph 5.2.4 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2014.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

12) The Committee wanted to know about the action taken by the department regarding the audit observation, the Director, Kerala State Nirmithi Kendra submitted that KESNIK had started production centres and that products like hollow bricks, concrete slabs etc. were produced in these centres. Now discussions were going on for the evaluation of the possibilities of '3D' printing using Modern technologies.

Conclusion/Recommendation

13) The Committee recommends that KESNIK should ramp up the research and development activities for CEEF technology and set up more production centres for cost effective, environment friendly and disaster resistant building materials.

5.2.5 Functioning of Fair Price Shops - Kalavaras

KESNIK was to set up Fair Price Shops (Kalavaras) with the help of grants received from GOK for sale of building materials, to contain their escalating cost. Guidelines for the sale of building materials (except sand) to APL/BPL households through Kalavaras were issued by GOK in September 2009. The year-wise release of grants by GOK under the Kalavara scheme and their utilization during 2009-14 is given in Table 5.4:

Table 5.4: Year-wise release of grants under the Kalavara scheme and its utilization *(₹in lakh)*

Sl No.	Year	Opening Balance	Grant obtained	Total funds available	Expenditure	Percentage spent	Unutilised grant
1	2009-10	NIL	150.00	150.00	70.21	46.81	79.79
2	2010-11	79.79	61.87	141.66	69.48	49.04	72.18
3	2011-12	72.18	57.19	129.37	57.44	44.39	71.93
4	2012-13	71.93	320.00	391.93	133.34	34.02	258.59
5	2013-14	258.59	NIL	258.59	107.44	41.55	151.15

(Source: Details provided by KESNIK)

It was envisaged to supply steel and cement at discounted[6] prices to BPL households constructing houses with plinth area up to 600 sq.ft. Other beneficiaries constructing houses with plinth area upto 2000 sq.ft. were to be supplied these materials at procurement cost along with 10 per cent service charge or market price whichever was lower. With effect from February 2011 onwards, Government restricted the scheme only to BPL families for construction of houses up to 600 sq.ft. by offering subsidy up to 15 per cent of procurement cost (limited to 50 bags of cement and 500 kg of steel).

Though KESNIK had set up nine Kalavaras[7] (March 2014) to supply quality building materials at reasonable rates, it could not spend even 50 per cent of the available funds in any of the years.

During the period 2009-14, the number of beneficiaries who purchased building materials from Kalavaras was only 2,624. It was noticed that targets in terms of number of beneficiaries procuring steel and cement was fixed only from 2012-13 onwards. However, against the target of 3000 and 4800 BPL families during 2012-13 and 2013-14 for the State, achievement was only 761 (25.36 per cent) and 1141 (23.77 per cent). In the four test checked districts, only 37 and 578 BPL beneficiaries procured building materials from three

6 Steel per kg. – Procurement cost less discount of two per cent (Minimum of Rupee One); Cement per bag – Procurement cost less ₹5

7 District-wise location of Kalavaras – Adoor, Chitoor, Ernakulam, Kalluvathukal, Karode, Kozhikode, Palai, Palakkad and Thiruvananthapuram

Kalavaras during 2012-13 and 2013-14 respectively. Analysis of unutilised grant received from GOK during 2012-13 revealed that KESNIK had obtained ₹224 lakh for the subsidised sale of building materials and ₹36 lakh for meeting administrative expenses through 14 Kalavaras, including 7 Kalavaras operated by DNKs. However, KESNIK did not release ₹130 lakh due to the DNKs which resulted in under-utilization of the amount. The expenditure incurred towards subsidy assistance was only ₹64.86 lakh resulting in ₹159.14 lakh (71 per cent) remaining unspent during the year.

While admitting the underutilization of grants towards subsidy assistance, KESNIK stated that supply of building materials through Kalavaras was only to the specified beneficiaries and most of the Government housing schemes were executed through outside agencies. It was also stated that houses under housing schemes like the ST Housing scheme were located in remote areas and the transportation charges of materials from Kalavaras to these localities might not be economical to these beneficiaries. Government stated (November 2014) that if the issue of transportation cost is addressed, more beneficiaries would come forward to take the benefit of the scheme. The reply fails to state as to why KESNIK despite obtaining grants from GOK did not release the same to DNKs resulting in lesser beneficiaries obtaining benefits of the scheme besides funds remaining unutilised.

[Audit Paragraph 5.2.5 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2014.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraphs is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

14) While considering the audit para the Director, Kerala State Nirmithi Kendra informed that the materials were supplied from the Kalavaras at a subsidy of 15% and later the Revenue Secretariat recommended to raise it to 25%. When the materials were bought at a subsidized rate of 15%, the beneficiaries would get a profit of ₹6000/- to ₹7000/-. But if it was increased to 25%, the beneficiaries would get a profit of ₹25000/- approximately and it would be more attractive. He added that the Government would issue an order in that regard within one month.

15) The Additional Chief Secretary, Revenue and Housing Departments explained that the performance of KESNIK had changed significantly in the past few years. At the time of audit in 2014, the turn over of KESNIK was approximately ₹30 crore but in the last year it was increased to ₹85 crore. For the first time, a profit of ₹2.5 crore had been achieved this year, and now all the sub centres were making a profit.

16) In response to the Committee's query regarding the materials supplied through Kalavara, the Director, KESNIK replied that cement and steel were mainly supplied and the beneficiaries were BPL families constructing houses with plinth areas upto 750 sqft. The beneficiaries of this category were provided a maximum of 500 kg steel and 50 bags of cement.

17) To the Committee's query about the publicity regarding the scheme, the Director, Kerala State Nirmithi Kendra replied that if the recommendation of 25 per cent subsidy is accepted, the Presidents at the Panchayat level would be called for an online meeting in the presence of the Hon'ble Minister. He also added that currently, the scheme is not attractive.

18) When the Committee wanted to know about the year-wise release of grants under the Kalavara schemes and its utilization, the Director, Kerala State Nirmithi Kendra informed that in the last three years, subsidies had been given to 350 persons. There was no balance at present, and about ₹20 lakh had been disbursed.

Conclusion/Recommendation

19) No comments

5.2.6 Research and Development activities under LaBISHaS

GOK converted (June 2007) the then existing training centre of KESNIK as Laurie Baker Nirmithi Training and Research Institute (LBNTRI). Subsequently, LBNTRI was renamed (September 2009) as Laurie Baker International School of Habitat Studies (LaBISHaS). The activities earmarked under LaBISHaS were: (1) Finishing School[8] (2) Orientation training[9] and (3)

8 A finishing school programme focuses on teaching skills and technical norms as a preparation for entry into a particular scheme of work. In the context of KESNIK, it is a programme that is intended to equip the students and trainees who have just completed an academic course to familiarise with various practical aspects of construction field

9 Training programme intended to provide detailed knowledge regarding a particular area to workers who are already skilled in the construction sector, either to update their knowledge or to make their job easier in that area is called orientation programme

Research and Development. It was noticed that LaBishaS could utilise only ₹2.11 crore of the ₹4.37 crore received from the State Government for its activities during 2009-14. Expenditure over the years has been showing a declining trend with only ₹two lakh being spent during 2013-14.

It was noticed that despite availability of funds, five activities involving ₹1.08 crore were not undertaken at all during 2012-14 as given in Table 5.5 below:

Table 5.5: Activities not undertaken

Sl No.	Name of the Scheme	Amount (₹in lakhs)
1	Campus development of LaBISHaS	45
2	Research programme	10
3	Skill improvement training	10
4	Training for Engineers for sustainable construction	3
5	Skill upgradation training	40
Total		**108**

Even though, one of the main objectives of KESNIK was to undertake Research and Development activities in housing and allied fields, it admitted (October 2014) that no R&D activities were being undertaken by LaBISHaS primarily due to the non-availability of the minimum number of faculty with prescribed qualifications. The fact was also confirmed by GOK (November 2014). Thus, there is need of initiating research activities by appointment of adequate number of staff with prescribed qualification.

[Audit Paragraph 5.2.6 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2014.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

20) When the Committee enquired about the audit para, the Director, Kerala State Nirmithi Kendra replied that the scheme did not come true because the

Government later took back the land allotted to LaBISHaS in Thiruvananthapuram. Now 6.95 acres of land have been given back and took the pocession of it. A tune of ₹300 crore had been allotted in the budget for this project and administrative sanction would be issued soon.

21) The Committee desired to know about the current status of the establishment of the Research wing. The Director, Kerala State Nirmithi Kendra submitted that the land was handed over to the Department last month and that the building should be constructed there. In addition to that, the affiliation of the university should be obtained, the faculty should be appointed, post creation should be done and they had approached the Finance Department for the post creation. He also informed that at present, there was no research wing. The administrative sanction for the construction of the building would be obtained this month itself.

22) To the Committee's query regarding the land acquired, the Director, KESNIK replied that 6.95 acres of land near Thiruvallam to Kovalam route in Thiruvananthapuram had been assigned for this project. Then the Additional Chief Secretary, Revenue and Housing Departments informed that in addition to the Research Centre, a National Housing Park was also planned to be constructed for demonstrating different kinds of technologies.

23) The Committee stressed that priority should be given for the construction of the Research Wing.

Conclusion/Recommendation

24) The Committee recommends to strengthen the establishment of Research Wing under LaBISHaS, by appointing adequate faculty with prescribed qualification and providing necessary infrastructure.

5.2.7 Activities to promote self-employment schemes

One of the objectives set forth in the MoA required KESNIK to dovetail the self- employment schemes of Government, Public Sector Undertakings and Commercial Banks with the housing needs of the State, in order to encourage youth to undertake income generating activities related to housing. It was noticed that KESNIK had not taken any action in that regard. KESNIK admitted that no steps were taken to achieve the objective of formulating projects which needed specialised knowledge and expertise to be implemented by the Kendra directly or through the DNKs. Thus, the aim for formulating projects to

encourage youth to undertake income generating activities was not achieved.

5.2.8 Conclusion

KESNIK had not prepared separate SoR for construction works using CEEF technology. The works undertaken by KESNIK involving CEEF technology was negligible. It did not exercise control over the activities of the DNKs. It did not focus on developing new cost effective, environment friendly and disaster resistant building materials due to lack of research activities. The scheme to provide building materials at discounted rates to the BPL families failed to attract sufficient number of beneficiaries. LaBISHaS, the R&D wing of the KESNIK did not undertake Research and Development activities due to failure to have the minimum number of faculty with prescribed qualifications.

5.2.9 Recommendations

- KESNIK should prepare separate SoR for CEEF technology and keep it updated;
- Necessary steps may be taken to ensure that DNKs operate under the umbrella of KESNIK; and
- Adequate faculty with prescribed qualification should be appointed in LaBISHaS to increase its effectiveness and for undertaking R&D activities.

[Audit Paragraph 5.2.7, 5.2.8 and 5.2.9 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2014.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraphs is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

25) The Director, Kerala State Nirmithi Kendra informed the Committee that the scheme had been completed and the Committee accepted the reply furnished by the department.

Conclusion/Recommendation

26) No comments

5.6 Idle investment of ₹59.50 lakh in construction of open enclosure for crocodiles

- **Inordinate delay in construction of open enclosures for crocodiles resulted in unfruitful expenditure of ₹59.50 lakh;**
- **Irregular receipt of ₹62.90 lakh from GOI for the same purpose and its diversion.**

As part of modernization of Thiruvananthapuram zoo, the Director, Museums and Zoos, Thiruvananthapuram (Director) submitted a proposal to the State Government (February 2005) for construction of four open enclosures to house and display four different species of crocodiles. The proposal envisaged the creation of a dry moat (trench) as a physical barrier on the visitors side, an artificially created water body, sand banks, islands, suitable landscaping, etc., including two glass viewing galleries to view the crocodiles through the water. Based on the proposal, the State Government accorded (March 2005) administrative sanction for the construction of four enclosures at an estimated cost of ₹85.30 lakh. Sanction was also accorded to entrust the work to the Public Works Department (PWD). Consequently, the entire amount of ₹85.30 lakh was deposited with the PWD in March 2005.

PWD entrusted the work 'Construction of new open enclosures for crocodiles (four numbers) in Thiruvananthapuram zoo as part of modernization of 'zoo' to a contractor (July 2005). The work consisted of 116 items to be completed at a cost of ₹61.78 lakh. Time of completion of work was fixed as March 2007. The PWD incorrectly declared the work as completed (February 2010) and paid ₹59.50 lakh to the contractor, though 32 items of work including work on the viewing gallery had not been completed (July 2014). The Director stated (July 2014) that the issue of non-completion of work had been taken up with the PWD on many occasions. Thus, even after nine years and availability of adequate funds, the project had not been completed and the crocodiles were still housed in unsuitable cages with no viewing facilities for the visitors visiting the zoo. This has resulted in an idle investment of ₹59.50 lakh.

It was further observed that the Director wrongly submitted a similar proposal (May 2005), to the Central Zoo Authority (CZA), Government of India for 100 per cent financial assistance for construction of four enclosures by concealing the fact that the State Government had already accorded administrative approval and sanctioned ₹85.30 lakh for the same project (March

2005). GOI had also released funds to the tune of ₹62.90 lakh[10] for construction of three enclosures. Contrary to the provisions of the Memorandum of Understanding (MOU) entered into between the CZA and the State Government which required that money released by the CZA should not be taken into revenue account and should be used only for the purpose for which it was sanctioned, the first instalment of ₹30 lakh was credited to the Revenue Account of the State Government and the final instalment of ₹32.90 lakh was retained by the Directorate. The Director also submitted (July 2012) Utilisation Certificate to the GOI falsely certifying that ₹59.50 lakh of GOI assistance had been spent on the said work while the expenditure was actually incurred from State Government funds and the GOI funds were retained in treasury/with the Director.

The submission of false proposal to GOI by the Director resulted in receiving ₹62.90 lakh deceitfully. This further led to consequent misrepresentation of facts and diversion of GOIs funds for which the State Government needs to fix accountability.

Government admitted the lapse (September 2014) on the part of the Director in submitting proposal for the same work to both the CZA and GOK and attributed it to procedural lapses. Government also stated that the same was done in good faith and intention for the development and modernisation of Zoological Garden. Moreover, the work of crocodile enclosures was still remaining incomplete even after nine years which is indicative of lack of seriousness on the part of the Government in taking care of public affairs.

The Government's reply is not acceptable as it has failed to fix responsibility for serious lapses on the part of the departmental authorities in obtaining and retaining GOI funds deceitfully.

[Audit Paragraph 5.6 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2014.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

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10 First instalment of ₹30 lakh received in October 2005 and Second instalment of ₹32.90 lakh received in December 2006

27) While considering the audit para, the Committee desired to know about the reason for issuing a completion certificate before completing the work and also about the reason for receiving funds from the State Government and the Government of India for the same purpose. The witness, the Director, Museums and Zoo replied that the audit objection was in relation to the construction of four open enclosures to house and display four different species of crocodiles. He added that the Public Works Department prepared an estimate for an amount of ₹85,30,000/- and accorded administrative sanction. The total cost of the project was ₹85.30 lakh and the entire amount was deposited with PWD in March 2005. He added that after two months, the same proposal was submitted to the Central Zoo Authority for financial assistance, and the Central Zoo Authority released funds to the tune of ₹62.90 lakh. Funds were obtained both from the Central Zoo Authority and from the Government of Kerala for the same work and deposited in separate accounts. He again added that the work was started in 2005, and after seven years in 2012, the Central Zoo Authority demanded a Utilization Certificate. The department obtained Utilization Certificate from the Public Works Department for ₹59,50,047/- without stating the component wise list. The permission for submitting it to the Central Zoo Authority (CZA) was obtained from the State Government only in 2015.

28) To the Committee's query regarding the amount specified in the utilization certificate, the Director, Museums and Zoo replied that it was ₹59,50,047/-. The Committee noticed that the utilization certificate obtained from the Public Works Department for the work using State fund was submitted to the Central Zoo Authority. The Committee expressed its displeasure towards the deceitful submission of the utilization certificate and enquired whether the proposal was submitted to the Central Zoo Authority after according Administrative Sanction from the Government of Kerala. The Director, Museums and Zoo replied affirmatively and supplemented that before receiving administrative and financial sanction from Government of Kerala, the Director had to first submit the proposal to the Central Zoo Authority for financial assistance and admitted that there had been procedural lapse on his part.

29) The Committee wanted to know about the reason for depositing the first installment of funds sanctioned by the Central Zoo Authority (CZA) to the revenue account and the second installment to the S/B Account of the Department. The Director, Museums and Zoo replied that there was no provision for depositing the central fund with the revenue account and supplemented that, as per the Memorandum of Understanding between Central Zoo Authority and

State Government, the money released by CZA should not be taken up into revenue account and should only be deposited in a separate account and admitted that it was a breach of agreement on the part of the department. Later the settlement of assistance granted by CZA was done by remitting an amount of ₹3,39,593/- from the Treasury Savings Bank Account of the department.

30) The Committee expressed its dissatisfaction over the submission of current status of the action taken only on the same day of the meeting and commented that the Committee could not tolerate such practices. Then the Committee enquired about the details included in the new report submitted, the Director, Museums and Zoo replied that the balance amount was remitted to CZA after obtaining sanction from the Government to submit the utilization certificate to CZA in 2015. To the Committee's query regarding the repayment of balance amount to CZA, the Director, Museums and Zoo replied that according to the Government Order dated 19.09.2015, except ₹59 lakh, the balance unspent amount with PWD should be transferred to the State Account. He added that, subject to that condition, Government issued an order to remit the remaining amount of more than ₹3,00,000/- and Utilization Certificate to CZA. He supplemented that more than twenty five lakh rupees was also with PWD. In response to the Committee's query about that balance amount the Director, Museums and Zoo replied that despite repeated requests, PWD had not remitted the amount yet.

31) The Committee pointed out that the funds were made available from both the Central and State Governments, but only one fund was used. The Director of Museums and Zoo informed the Committee that the C&AG had pointed out that the work had not been completed despite getting sufficient funds and currently only 60% of the work had been completed and strict instructions had been given to the PWD to complete the work. He added that the amount held with PWD should be recovered and an evaluation should be done by a Chief Technical Examiner. He also added that it was not clear whether the work worth ₹59,50,047/- had been done and a report on how much would be required to complete the rest should be sought from them. Only then they could get a special administrative sanction from the Government to set up the crocodile cages.

32) The Committee enquired as to how utilization certificate was issued without completion certificate. The Director, Museums and Zoo replied that the work was a violation of the MoU and the CZA demanded a utilization certificate

for the amount spent under the MoU during these years. Accordingly, the then Director contacted the PWD and they gave a paper stating that ₹59,50,047/- had been spent and it had been handed over to CZA. He added that Government had issued an order that the PWD would refund the balance after the completion of the work, but an amount of ₹25,90,000/- held by the PWD had not been refunded yet. To the Committee's query about whether the Public Works Department or the Cultural Affairs Department had lapsed in that matter, the Director, Museums and Zoo replied that both departments had lapsed in that regard.

33) The Senior Deputy Accountant General informed the Committee that the work should be executed by the department concerned or that the matter should have been brought to the notice of the Government. He also informed that the Government gave permission for the submission of Utilization Certificate in 2015 but it was furnished to CZA in 2012 itself.

34) The Committee asked whether more amount would be required to complete the work and who would be responsible for it. The committee also pointed out that the audit report did not mention any laundering of money and points out misrepresentation of facts and duplication. The Committee noticed that there were many procedural lapses, for which the Cultural Affairs Department was responsible. The Committee recommended that inorder to make use of and save the expenditure incurred so far in that work, both the Secretaries of PWD and Cultural Affairs should take immediate steps to complete the work in a time bound manner.

35) The Committee pointed out that administrative sanction was given for the construction of Crocodile Complex in 2005, but is has been 17 years now and the park had not been completed yet. The Committee commented that by the time the Committee start considering each issue, the officials involved will have retired from service. The Committee said that if the reply is made available on the day of taking evidence, it would be difficult for the Committee to give an opinion. The Committee noticed that the reply made available to the Committee now only shows about how much work has been completed till now and demanded clarification on who was personally responsible in that matter. The Committee condemned the procedural lapse and directed the department to fix responsibility against the officials concerned. The Committee also wanted to know how the remaining amount needed to supplement the crocodile complex would be met, and discussions should be conducted at Secretary level to fix the

time limit for the completion of project.

Conclusion/Recommendation

36) The Committee points out that submission of Utilization Certificate in respect of construction of open enclosures in the Zoo without actually completing the work is improper and is a serious lapse. So the Committee recommends to fix responsibility against the delinquent officials involved in the procedural lapses and violation of guidelines on the matter within two months.

37) The Committee views with serious concern that the work is still remaining incomplete even after seventeen years and condemns both the officials of Public Works and Cultural Affairs Department for the irresponsible attitude and directs that joint effort should be taken by both departments to complete the work in a time bound manner. The Committee also directs to furnish a report of the actions taken in this regard, within two months.

3.1 Introduction

The World Bank approved Jalanidhi project was implemented in Kerala (2001) by KRWSA, an autonomous body established under the Travancore-Cochin Literary, Scientific and Charitable Societies Registration Act, 1955. The project integrates Water Supply with Sanitation, Health and Hygiene promotion, Environmental Management and GWR measures. All the WSS were designed to provide 70 lpcd[11] water to the project population. The project aimed at improving quality of Rural Water Supply and delivery of environmental sanitation services. It envisaged partial capital cost sharing and 100 per cent financing of Operation and Maintenance (O&M) costs of the Schemes by Beneficiary Groups (BGs) which were community institutions created to strengthen the ability of the users in planning, designing, implementing, operating and managing the components of the project. Capital cost sharing for WSS was in the ratio 75:10:15 between Government of India (GOI)/Government of Kerala (GOK)/KRWSA, GPs and BGs respectively for general schemes. In the case of tribal schemes, it was 80:10:10. The O&M cost of the scheme was to be borne fully by BGs.

The project was initially proposed to be implemented in 92[12] of the 358

11 Litres per capita per day

12 Eighty Nine as envisaged in Project Appraisal Document and additional three GPs were included.

GPs in Palakkad, Malappuram, Thrissur and Kozhikode districts. It was later (2003) scaled up to cover an additional 20 GPs in the remaining nine[13] districts. The project also envisaged rehabilitation of existing KWA water supply schemes by augmenting the source, protection of sources from pollution, construction of new facilities, repairs and replacement of the existing structures, machinery, equipment and pipelines to conform to the technical standards.

Agreement for Phase I of Jalanidhi project (Project cost ₹451.40 crore) was executed between GOI and World Bank on 4 January 2001. The scheduled date of completion was 30 September 2008[14]. Agreement for Phase II of Jalanidhi project, with an outlay of ₹1022 crore was executed for the period February 2012-June 2017 and was under execution. This Performance Audit focused on implementation of Water Supply Schemes and Ground Water Recharge in Phase I of Jalanidhi project.

3.2 Audit Objectives

The Performance Audit aimed at assessing whether:

- Rural WSS implemented, improved the accessibility of targeted population to stipulated quantity and quality of drinking water as envisaged;
- steps taken to improve the perenniality of drinking water source by promoting and implementing GWR schemes were effective; and
- policy of empowerment of BGs to make investment decision, planning and implementation of schemes and managing funds and scheme operations was effective.

3.3 Audit Criteria

Audit Criteria for the Performance Audit are derived from

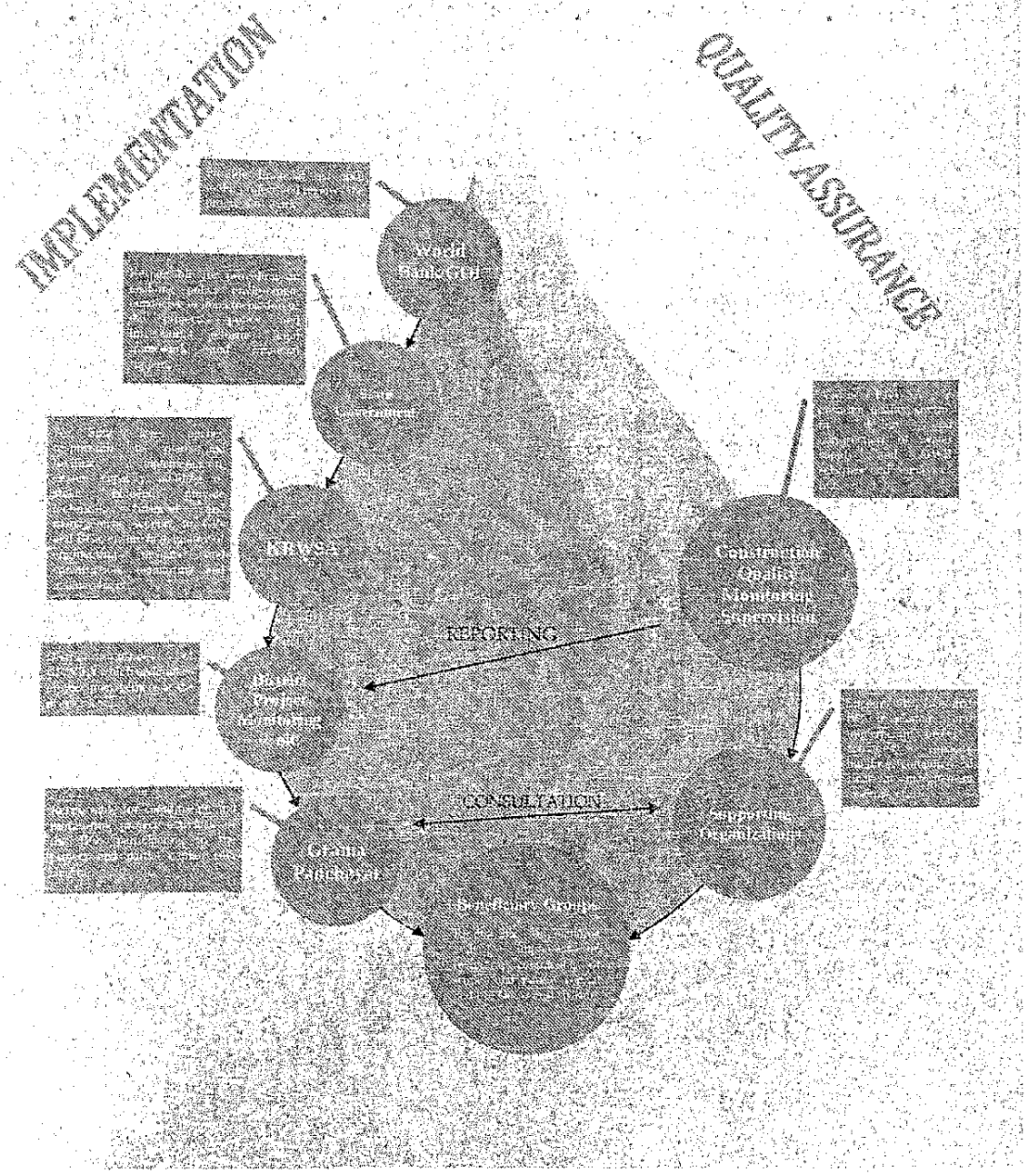
- The Development Credit Agreement between GOI and International Development Association (World Bank) for Phase I of the project;
- Project Implementation plan prepared by Government of Kerala and Project Appraisal Document of the World Bank; and
- Government Orders, Notifications, Manuals, Guidelines, etc.

13 Alappuzha district was excluded due to disinterest of GPs.
14 The scheduled date of completion was originally 31 December 2006 which was later extended.

The various stakeholders and their responsibilities in the implementation of the Scheme are given in the Organogram given in Chart 1.1.

Chart 1.1

IMPLEMENTATION CHART OF THE JALANIDHI SCHEME



3.4 Scope and Methodology of Audit

The Performance Audit attempted to evaluate the WSS and GWR conceived and implemented in Phase I of Jalanidhi. The selection of audit period 2008-2015 ensured that schemes completed by KRWSA with World Bank funding till September 2008 and spill over works taken over by GOK for completion after exit of World Bank have been covered in the Performance Audit.

The Performance Audit was conducted from April 2015 to September 2015 to assess whether the overall objectives have been achieved through implementation of the scheme by KRWSA. Records in the Government Secretariat, KRWSA and District Project Management Units (DPMU), GPs and BGs identified as stakeholders in selected schemes were test checked during the course of the Performance Audit.

Of the 110 GPs which implemented small WSS, 22 GPs were selected by applying stratified simple random sampling. Eighty eight small WSS (four from each GP) were selected for detailed study, through judgmental sampling. Three out of 16 comprehensive WSS were also selected for detailed scrutiny using stratified simple random sampling.

The number of schemes and the methodology adopted for selection of schemes for audit is given in Table 3.1 below:

Table 3.1: Selection of GPs/Schemes

	Implemented	Selected	Method of selection
Total number of GPs	110 GPs	22 Gps (four schemes from each GP)	Stratified simple random sampling method
Number of comprehensive WSS	16 CWSS	3 CWSS	Stratified simple random sampling method

Besides, beneficiary survey of 25 beneficiaries from each selected scheme was also carried out.

Audit methodology included gathering of evidence by issue of audit enquiries, scrutiny of records, joint physical verification and conducting field survey among beneficiaries. Prior to commencement of audit, an Entry Conference was held on 26 May 2015 with the Executive Director, KRWSA

who is also the Secretary, Water Resources Department. The Exit Conference was held with the Additional Chief Secretary, Water Resources Department on 14 January 2016, in which the findings of the audit were discussed.

3.5 Financial Management

The original project outlay of ₹451.40 crore[15] was downsized by the World Bank to ₹381.50[16] crore. The expenditure incurred on WSS and GWR under Jalanidhi Phase I upto 30 September 2008 was ₹232.05 crore. Eleven Works remaining incomplete in 10 GPs at the time of exit of the World Bank continued to be implemented by KRWSA as spill over works with the assistance of GOK. As on November 2015, expenditure of ₹58.32 crore was incurred by GOK on spill over works.

Audit findings

3.6 Accessibility of targeted population to stipulated quantity and quality of drinking water

The project was originally targeted to implement 2500 new drinking WSS (inclusive of six large WSS) costing ₹205.60 crore, Audit observed that even though 3139 new drinking WSS (including 16 large WSS) costing ₹253.02 crore were implemented against the original target of 2500 WSS to benefit 2,50,000 Households (HH), only 161427 HHs (65 per cent) benefited from the schemes.

Of the 784 small WSS implemented in the test checked 22 GPs, 117 schemes had turned defunct and the remaining 667 schemes were either fully/partially functional. This has resulted in lower number of HHs benefitting under the scheme as brought out in the following paragraphs.

[Audit Paragraph 3.1 to 3.6 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraphs is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

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15 Community ₹54.50 crore, GP ₹34.30 crore, GOK/World Bank ₹362.60 crore

16 Community ₹53.41 crore, GP ₹26.71 crore, GOK/World Bank ₹301.38 crore

38) While considering the above audit paragraphs, the Committee enquired about the disparity regarding the percentage of coverage mentioned in the audit observation. The Director (HR), KRWSA replied that the audit para mentioned about the Jalanidhi Phase I which deals with the implementation of water supply schemes on a public and social basis. He added that the capital cost sharing for the project was in the ratio 75:10:15 from the Government, Panchayat and Beneficiary groups, respectively and it was implemented with public support. He added that the project was designed for a 20 years benefit and supplemented that even though the project was targeted to benefit 2,50,000/- households, the project appraisal document itself describes that only 1,75,000 that is only 75% of the targeted beneficiaries were expected to opt for the said project. Accordingly 188115 connections had been provided by KRWSA. He added that audit had come after 10 years and at that time 1,61,427 ie, 65% of the scheme were functional and they took the percentage of 2,50,000. But if 1,75,000 is taken as per KRSWSA then 92% of the schemes were functional. After the completion of the project KRWSA had handed over the scheme to the concerned Beneficiary Group and then the schemes were fully owned and managed by the Beneficiary Groups itself, without any support from the Government or any other agency. He added that people were implementing those projects with their own money, so there were some problems like source failures etc. To a query of the Committee about the dispute that arised with regard to the remittance of Panchayat share, he added that the share of the Panchayat was being remitted as the scheme is piloted by the World Bank.

39) To the Committee's query regarding the specific constraints like non payment of meter charge, disallowing new connections, non changing of defunct motors, disconnection of electricity which is leading to the failure of the Jalanidhi scheme, the Managing Director, Kerala Water Authority and the Executive Director (i/c), KRWSA replied that he had checked how many schemes were in existence and how many of them were functional and found that many of them are now defunct or partially functional. He added that a proposal for granting a Head of Account in state plan for the revitalization of such schemes had been forwarded to the Government. He further added that the primary objective of the KRWSA is to rectify such problems as those occurring in motors, lines or roads in some places and the non payment of electricity charge is another problem. It was decided to revitalize the schemes using revolving fund through a one time settlement and it was also decided to provide bulk water supplies at the district level through Jal Jeevan Mission.

40) The Committee noticed that the consumer had to pay a higher amount for water charges in Jalanidhi Scheme as compared to Water Authority. Then the Director (Technical), KRWSA informed that earlier the scheme was implemented in remote areas and then the consumers had to pay minimum ₹100/- as water charge. But when the Kerala Water Authority schemes were implemented only an amount of ₹40/- had to be paid as water charge. So the Jalanidhi Scheme is likely to become defunct as people depend more and more on KWA schemes.

41) To the Committee's query regarding the merging of the schemes of Jal Jeevan Mission and Jalanidhi, the Director (Technical), KRWSA replied that the department was planning to supply bulk amounts of water through Jal Jeevan Mission to the existing Jalanidhi Scheme, and hence the supply of pure water could be assured. The Managing Director, KWA & Executive Director(i/c), KRWSA explained the difficulties in attaching Jalanidhi projects and the projects of Jal Jeevan Mission. He informed that the modifications made in the Beneficiary group were not known after the winding up of Jalanidhi projects. For attaching the projects, the entire assets had to be attached, but the drawings of assets and other activities were likely to be less. He added that through the Jalanidhi scheme, a consumer had to pay a minimum of ₹100 as water charge. So there was no loss but the Water Authority suffered a loss of around ₹12/L. He supplemented that it requires some policy decisions. When the Committee enquired about quality testing of drinking water, the Managing Director, KWA & Executive Director (i/c), KRWSA gave a brief description that there were 85 laboratories with NABL accreditation for testing 12 parameters of drinking water. Including the State Referral Institute in Nettur which gained the accreditation of NABL for testing the 29 parameters of drinking water. There were 4 or 5 Laboratories exist in every district and so people could make use of them for testing. There were functioning Laboratories under Ground Water Department and Centre for Water Resources Development and Management and there existed a field kit testing method which was made useful during the flood affected period. Then the Committee pointed out that the roads under LSGD had been damaged to implement that scheme and restoration work has not been carried out so far.

Conclusion/Recommendation

42) **No comments**

3.7 Reduced coverage due to defunct/partly functional water supply schemes

WSS under Jalanidhi were conceived with the objective of providing 70 lpcd of quality drinking water throughout the life cycle of the WSS through private connections and 40 lpcd if provided through public stand posts. Audit attempted to ascertain whether sufficient quantity of water was provided to the beneficiary HHs in test-checked Panchayats. It was noticed that water meters were not installed in HHs which made it difficult to assess the quantity of water supplied.

Audit observed that of the 88 small WSS test-checked, 30 schemes costing ₹2.48 crore became defunct (Appendix 3.1) forcing the beneficiaries of these schemes to depend on alternate sources of water. The results of a beneficiary survey conducted by Audit also revealed that 450 out of 539 beneficiaries depended on neighbouring/public wells, rivers/streams/ponds, own sources, etc. as an alternate option for water supply. Major instances of schemes becoming defunct/partially defunct due to reasons like failure of source, quality/ technical issues, inactive BGs and other reasons are analysed below:

[Audit Paragraph 3.7 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

43) While considering the audit para the Director (HR), KRWSA informed that the schemes were defunct due to source/operation/distribution failures and quality problems and the beneficiary groups were failed to overcome those problems. He stated that he had visited the site of source failure and inspected the well with the help of the officials of the Ground Water Department and the depth of the well was increased and handed over to the Beneficiary Group. He added that it had a design warranty of 20 years and could distribute 350 litre/house. But families started consuming more water than the estimated quality and hence source failure occurred. The problem was intended to be rectified with the supply of bulk quantities of water through Jal Jeevan Mission. He added that source failure is a natural phenomenon and there were no measures to support the BGs and also no mechanism to replace the damaged motors, pipeline etc. A Sustainability Support Implementation Scheme was

started as per the recommendation of C&AG in 2010. He also added that the Government intended to include those schemes in the Jal jeevan Mission in order to correct the deficiencies in the earlier schemes.

44) To the Committee's query about the reason for inadequacy of source, the Director (H.R), KRWSA replied that source inadequacy is due to water drying up as well as an increase in per capita consumption. The Senior Deputy Accountant General brought in to the attention of the Committee that it was advised to identify the sources required for the schemes in summer and that it was not done to find the most in-depth source. He added that the sources were discovered in January and February. Hence the sources got water before reaching too deep. But in the summer the sources dried up and hence the shortage.

45) When Committee enquired about the further deepening of the source, the Director (H.R.), KRWSA replied that it was done in places where it was possible under Sustainability Support Scheme. He added that officials had been deputed from the Ground Water Department and the source was being identified through a geophysical survey, but the ground water level was decreasing year after year.

46) The Committee opined that the projects run successfully for the first few years but were not maintained when the consumption rises, and so many projects became defunct. The Director (H.R.), KRWSA responded affirmatively when asked whether any recharge programme is now available to raise the ground water level.

47) The Managing Director, Kerala Water Authority and Executive Director (i/c), KRWSA informed that multiple strata were usually present where a tube well is dug and Kerala is not located in the Gangetic basin. In the Gangetic basin there is alluvial soil in each layer and in such terrains the ground water keeps coming up due to the drilling of tube wells. He also added that considering the geographical structure of Kerala, drilling below a specific layer would cause the existing water level to reduce and to prevent this, a yield test was conducted while drilling the tube well.

48) When the Committee inquired which department conduct the yield test and when it was done, the Managing Director, Kerala Water Authority & Executive Director (i/c), KRWSA replied that it was done by the Ground Water Department and that the yield test was conducted by taking samples before and after digging of the bore wells.

49) The Committee decided to accept the explanation about the de-functioning of five schemes due to source inadequacy.

50) When the Committee enquired about the other eight defunct schemes the Deputy Director, KRWSA replied that now all the eight schemes were abandoned and in case of six schemes which faced institutional & financial capacity constraints, the beneficiary group was unable to move ahead by repairing the defunct motors. He also informed that the public is switching over to the new schemes of the Kerala Water Authority.

51) The Committee recommended that measures should be taken to re-vitalize the defunct schemes of KRWSA in co-ordination with the Jal Jeevan Mission and steps should be taken to strengthen the non-performing beneficiary groups.

Conclusion/Recommendation

52) The Committee recommends that measures should be taken to re-vitalize the defunct schemes of KRWSA in co-ordination with the Jal Jeevan Mission and steps should be taken to strengthen the non-performing beneficiary groups.

3.7.1 Failure of KRWSA in identification of water sources

The small WSS generally depended upon sources such as open wells, bore wells, streams, Rain Water Harvesting Structures (RWHS), etc., for supply of water. For the successful implementation of a WSS, the source had to be identified in peak summer i.e. in the months of March to May, quantum of supply from the source had to be ascertained by conducting yield test, wells constructed upto the required depth as recommended by hydrogeologist and RWHS constructed without defects. Audit observed that these pre-conditions were not complied with satisfactorily, which led to reduced coverage. Out of 88 schemes selected for scrutiny, Audit identified six schemes which became either non-functional or functioned sub-optimally due to failure of water sources as indicated below.

3.7.1.1 Thayamparambu BG in Vettom Panchayat

The scheme which was to benefit 326 beneficiaries was completed in March 2006. A joint site verification conducted by Audit and GP Secretary revealed that water was not available in the source well and the scheme was not

functioning since its inception. According to Para 5 of Technical Manual, the yield of source had to be ascertained prior to construction of well. Though the Detailed Scheme Report (DSR) envisaged geophysical survey and yield test, these were not conducted. Audit observed that the KRWSA guidelines required the agency to affix its approval to an Implementation Phase Completion Report (IPCR) attesting to successful execution and functioning of the scheme. Exit orders signifying the handing over of the scheme to the intended beneficiaries were to be issued only after preparation of the IPCR.

The failure of KRWSA in monitoring the successful execution and functioning of the scheme is evident from the fact that though IPCR was not prepared, Exit order was issued by KRWSA (December 2006). It was replied to Audit (January 2016) that IPCR and Exit orders of the scheme were issued only after ascertaining that the scheme had been properly executed and sufficient water was supplied. The reply was not factually correct, as Project Manager, DPMU himself had stated in the Exit order that the IPCR had not been submitted. Thus, the action of KRWSA of issuing Exit Order without preparation of IPCR was a serious lapse which calls for investigation and fixing responsibility.

[Audit Paragraph 3.7.1, 3.7.1.1 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraphs is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

53) When the Committee enquired about the audit observation the Managing Director, KWA and Executive Engineer (i/c) KRWSA replied that the scheme did not have adequate yield and it had now been included in the sustainability support scheme and had been made functional.

54) The Committee wanted to know the reason for not carrying out the geographical survey and yield test before the construction of a well which caused the scheme to be defunct from its inception.

55) The Managing Director, KWA and Executive Director(i/c) KRWSA replied that there was a situation of not getting enough water even after carrying out a geophysical survey before digging and the said scheme had been included

in the sustainability support scheme and had been made functional.

56) The Senior Deputy Accountant General brought to the notice of the Committee that there was a Committee in relation to IPCR [Implementation Phase Completion Report] and that Committee certifies the successful execution and functioning of the project and bills were often passed by submitting false certificates.

57) The Managing Director, KWA & Executive Director (i/c), KRWSA informed that IPCR includes technical matters and when the IPCR was signed and given to the DPMU and exit order will be issued based on it and the financial settlement of the Panchayat was included in the exit order. As a project, that must be completed in time and so instructions were given from time to time by KRWSA.

58) There is also a tendency for a Panchayat to go on indefinitely without exit due to some problem in the scheme. When the work goes on indefinitely, the reason for the delay had to be convinced to the World Bank, the funding agency. He added that sometimes in some exceptional cases after the time limit, has passed, based on the status of the work, the instruction was given to DPMU to issue exit order. However in that case, there was also the issue that the IPCR was not signed by the BG. He also added that the phase I of this project was implemented in 2000-2008, and it was envisaged as a social project. He added that the observation was made on the basis of the documents received by the audit during 2015-16 and sometimes this observation might had been made in general. He supplemented that all the problems in the project had been resolved now. There were also some interference by political parties on some BG's.

59) Following the above reply, the Senior Deputy Accountant General informed the Committee that Audit observations were made on the basis of key documents or basic supporting documents. He also informed that there is no question of generalisation. The project manager himself said that the DPMU had stated in the exit order that the IPCR had not been submitted. The Director (H.R), KRWSA informed that the report also mentioned that the IPCR and exit orders were not given as the work was not being completed.

60) The Managing Director, Kerala Water Authority & Executive Director (i/c), KRWSA also informed the Committee that IPCR had not been issued but the exit order could not be omitted. He added that since the amount had been invested, the documents can not be completed unless the exist order was given

after convincing the account. He also informed that the project had been restored later.

Conclusion/Recommendation

61) No comments

3.7.1.2 Nila and Jalavahini BGs in Vallathol Nagar GP

The WSS comprising 20 and 41 HHs respectively with a total cost of ₹7.78 lakh sourced water from bore wells with depth of 49 metre and 89 metre respectively as against 100 metre and 100 metre recommended by the hydrogeologist. The schemes became defunct due to insufficient water in the source. Failure of the Supporting Organisation (SO) to ensure that the depth of the well was maintained at levels specified by the Hydrogeologist led to the scheme turning defunct. The Government replied (January 2016) that digging of borewells were stopped at these depths as sufficient yield was noticed at these levels. The reply of Government is not acceptable since the scheme became defunct due to failure of KRWSA in ensuring depth of borewells as recommended by hydrogeologist and that technical parameters stipulated in the Technical Manual were not fully met while implementing the WSS. Thus, the case needs to be investigated for fixing responsibility of defaulting officers for ignoring recommendations of hydrogeologist and technical parameters.

[Audit Paragraph 3.7.1.2 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

62) The Director (H.R), KRWSA brought to the attention of the Committee that the audit objection was related to the drilling of a borewell. The Committee found that the report furnished by the department was cogent. Then the Senior Audit Officer enlightened the Committee that the reply furnished by the department for vetting was not convincing. She added that replies submitted to the C&AG for vetting should be convincing.

63) The Director (H.R), KRWSA informed the Committee that in the earlier replies, it was mentioned that the two water schemes were in working condition

and also added that Nila scheme and Jalavahini scheme had been functional for 7 years and 2 years respectively.

64) To the Committee's query as to who gave the order to reduce the depth of the borewell, the Director (H.R), KRWSA replied that the order was given by the hydrogeologist. The Committee pointed out that it was not incorporated in the reply. In response, the Director (H.R), KRWSA replied that a revised reply would be furnished before the Committee including the modification as suggested by the Committee.

Conclusion/Recommendation

65) The Committee directs the department to submit a revised reply regarding the Nila and Jalavahini BGs in Vallathol Nagar GP.

3.7.1.3 Nellithara BG in Kavassery GP

The scheme consisted of 39 HHs. The work was completed and handed over to the BG in February 2006. The Scheme became partially functional due to inadequate water at source. Audit noticed that contrary to provisions contained in the Technical Manual of KRWSA which requires source selection to be made during peak summer, the hydrogeologist had identified the source in January 2004. Audit further observed that the recommendation to dig an open well with 10 metre depth was also not adhered to and the depth was restricted to 7.10 metre. The suggestion of the hydrogeologist to introduce rain pits, buried infiltration tanks and trenches on the upslope of the well as GWR methods were also not executed resulting in the scheme becoming partially functional with pumping done in alternate days.

Failure of the SO and the Construction Quality Monitoring and Supervision (CQMS) agencies in discharging their responsibilities led to the scheme becoming partially functional. KRWSA stated (November 2015) that the identification of source was done in January to facilitate the pace of implementation and that depth was restricted only after ensuring availability of sufficient water for HHs. The reply was not acceptable in view of the failure of KRWSA to select source during peak summer as stipulated in the Technical Manual and failure to comply with recommendations of the hydrogeologist regarding depth of the wells, assessment of the adequacy of water by conducting yield test and implementation of GWR measures which eventually resulted in failure of the scheme, which calls for fixing of responsibility.

[Audit Paragraph 3.7.1.3 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

66) While considering the audit para the Committee sought explanation from the department. The Deputy Director, KRWSA replied that at the time of the marking of the ground water table, it became so deep that it was not feasible to dig that much, and 70 lpcd per day for a person was reduced to 40 lpcd per day. But when the consumers began to extract more water that eventually led to the failure of the scheme.

67) The Committee noted that the reply now given to the Committee was different from the previous reply and express as to which reply should be accepted.

68) The Managing Director, Kerala Water Authority & Executive Director (i/c), KRWSA informed the Committee that a revised reply would be submitted within two weeks.

Conclusion/Recommendation

69) The Committee views that the explanation given before the Committee in connection with the Audit Paragraphs during witness examination and the previous reply given to the Committee on the Audit Paragraph seems to be different. Hence the Committee directs the department to furnish a revised reply regarding the audit paragraph within two weeks.

3.7.1.4 Thrithalaparambu BG in Pazhayannur GP

The scheme targeted to benefit 40 HHs, was handed over to the BG in December 2004. The Technical Manual stipulates that drilling of borewell as source shall be continued up to the depth recommended by hydrogeologist, and discharge shall be measured by diverting the water through a V-notch[17].

Scrutiny of Measurement Book and IPCR revealed that the recommendations of hydrogeologist to drill the borewell up to a depth of 100

17 V-notch is a triangular channel section used to measure discharge values of water flow.

metres was not adhered to and the actual depth executed was only 73.5 metres (September 2003). Survey of beneficiaries as well as BG conducted by Audit revealed that the beneficiaries of the scheme obtained less than sufficient quantity of water and that the scheme was functioning partially with supply on alternate days only. The number of beneficiaries also declined from 40 to 23 due to irregular supply of water.

Government replied (January 2016) that though yield at that time was sufficient to cater to the needs of the BG, the hydrogeological conditions based on climatic changes and lowering of water table reduced yield in course of time. Government also suggested that a reduced distribution of water was the only alternative to maintain water supply in acute summer.

The reply was not acceptable in view of the fact that had KRWSA drilled up to the recommended depth, the quantity of water available for consumption would have been much higher. Failure of KRWSA to adhere to the Technical Manual and instead requiring beneficiaries to adapt to lesser quantity of water was not acceptable.

[Audit Paragraph 3.7.1.4 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

70) The Committee enquired about the current status of the scheme in Pazhayanur GP, the Deputy Director, KRWSA replied that the Scheme is functional.

Conclusion/Recommendation

71) No comments

3.7.1.5 Jalasree Narikkal BG in Thirunelli GP

The scheme which included 30 HHs was completed in September 2007 and the Exit order to own and operate the scheme by the BG was issued in March 2008. Audit noticed that ten HHs had opted out of the scheme for want of steady supply of sufficient quantity of potable water. Currently, water was being supplied for only one and half hours per day, two to three days in a week, which

was hardly sufficient to fill the 6,000 litre capacity OH tank. The existing 20 HHs were also not getting required quantity of water for domestic purposes. The DPMU, Wayanad identified (December 2007) the presence of weathered rock at the bottom of the open well as the reason for low yield of the well. Audit noticed that yield test of the source was also not conducted to ensure adequacy of water.

Government stated (January 2016) that though sanction for additional source was accorded in December 2007, it could not be pursued as the target date of exit was March 2008. It also stated that new or rehabilitation schemes were not envisaged under spill over works. The reply was not acceptable since sanction accorded to the WSS without ensuring sufficient yield and reluctance in taking up the work afresh clearly exposes the laxity of KRWSA in ensuring adequate water to the beneficiaries.

[Audit Paragraph 3.7.1.5 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

72) While considering the audit observation, the Committee noticed that the department had stated that the rehabilitation of the scheme would be taken up in that sustainability support scheme to ensure better service delivery to the beneficiary house holds, then the Director (H.R), KRWSA informed the Committee that as per the updated report the scheme would be taken up in the Jaljeevan Mission for completion.

Conclusion/Recommendation

73) No comments

3.7.2 Technical deficiencies in design and implementation by KRWSA

3.7.2.1 Deviation from Detailed Scheme Report - Irregular construction of tank

The Jaladhara WSS in Tanur GP envisaged providing potable water to 41 beneficiary HHs. The components of the scheme included construction of 5640 litre RCC[18] Overhead Service Reservoir (OHSR). Audit noticed during physical

18 Re-inforced cement concrete

verification that instead of an RCC OHSR, a ferro-cement tank of 7000 litres was constructed, which developed cracks within a year, causing leakage of water resulting in short supply of water to the beneficiaries. Government stated (January 2016) that cracks in the tank developed due to poor workmanship and that Ferro cement tanks were not being used in Phase II of the scheme. The reply was not acceptable as the scheme was designed with a life span of 20 years and the decision to deviate from the originally envisaged RCC OHSR in favour of Ferro cement tanks was injudicious.

3.7.2.2 Valamthode Vikasana Samithy in Chaliyar GP

A WSS for Valamthode Vikasana Samithy in Chaliyar GP in Malappuram district to benefit 54 HHs was completed in June 2006. The Kuravanpuzha stream in the forest was identified as source for conveying water to an OHSR through gravity main laid in the stream. Beneficiaries surveyed, reported to Audit that they were not obtaining potable water during rainy season. A joint site verification conducted by Audit (October 2015) along with Secretary of Chaliyar Panchayat revealed that the sand filter constructed in the stream had got fully damaged. Due to the force of turbid water rushing down the hill side, the chamber for collection of water was frequently demolished in heavy rains and the PVC pipes carrying water to the OHSR were washed away.

Government replied (January 2016) that since it does not support the O&M part, the BG was to undertake minor repair and maintenance works to rectify damages in infiltration zone. Audit observed that had KRWSA, considering the heavy flow of water, incorporated suitable checks at the design stage itself, the sustenance of the scheme could have been ensured.

3.7.2.3 Moothodath BG scheme in Vettom GP

The Moothodath BG scheme in Vettom GP in Malappuram district was commissioned (October 2004) to benefit 54 HHs. Audit noticed that 16 of the 54 HHs in elevated areas opted out of the scheme as water could not be pumped to these areas at sufficient pressure. It was observed that valves were not installed to regulate the supply of water for being pumped at the required pressure to elevated areas.

During the Exit Conference (January 2016), Government stated that the issue could have been easily resolved had the BGs installed valves to pump water to elevated areas at required pressure. The reply was not acceptable as the problem of adequacy of pressure to enable water to reach elevated areas should

have been considered at the design stage itself.

[Audit Paragraphs 3.7.2–3.7.2.3 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraphs is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

74) When the Committee enquired about the audit objections, the Director (H.R), KRWSA replied that those schemes were restored and a revised reply would be submitted to the Committee.

Conclusion/Recommendation

75) The Committee directs the department to submit a revised reply regarding the above audit paragraphs (3.7.2.1, 3.7.2.2 & 3.7.2.3).

3.7.2.4 Vandana WSS in Vellarada GP

The Vandana WSS in Vellarada GP in Thiruvananthapuram District was designed to benefit 42 HHs. As per the DSR, a 5 HP[19] motor was proposed for the scheme. However, only a 3 HP motor was installed. Audit noticed that though there was deviation from the original DSR, formal Exit order was issued by KRWSA (December 2008) citing completion of the scheme. A direction issued (November 2011) to KRWSA by the Ombudsman for Local Self Government Institutions, Thiruvananthapuram to render technical advice for installation of a 5 HP motor and to repair pipelines before 28 February 2012 was also not complied with (July 2015).

Audit also noticed that the signatures of the BG Secretary in the Memorandum of Association and IPCR of the scheme were different. It was confirmed to Audit by the BG Secretary, President, and Treasurer in writing that their signatures in the IPCR were forged. As such, the issue needs to be investigated and responsibility fixed for irregularly issuing Exit order on the basis of forged IPCR, to a scheme which failed to deliver on its objectives.

The Executive Director, KRWSA, during the Exit Conference (January 2016) agreed to investigate the issue.

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19 Horse power

[Audit Paragraph 3.7.2.4 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

76) While considering the audit para, the Director (H.G), KRWSA informed that the IPCR was signed by the Beneficiary Group, and if the signature was forged, the concerned staff of the supporting organization who was preparing the IPCR requested a police inquiry in that regard. The Committee noticed that in the reply given before the Committee, it was stated that a police investigation would be requested in the matter and enquired about the action taken in that regard. The Deputy Director (H.R), KRWSA replied that a police investigation had not been requested till date and a revised reply would soon be submitted.

77) The Committee expressed its dissatisfaction over the irresponsible attitude of the department and directed the department to fix the responsibility against the officer who had failed to request a police investigation in that regard. The Committee also directed the department to submit a revised reply at the earliest. The Director (H.R), KRWSA agreed to do so.

Conclusion/Recommendation

78) The Committee expresses its displeasure over the irresponsible attitude of the department and directs to fix responsibility against the officials who had failed to request police investigation against irregular issuance of exit order on the basis of forged IPCR.

3.7.2.5 Incomplete Comprehensive WSS in Pananchery GP

The Large Surface Based Comprehensive Water Supply Scheme (LSBCWSS) in Pananchery GP in Thrissur District was intended to provide piped water supply to 2500 HHs at an estimated cost of ₹4.97 crore. Administrative sanction and Technical Sanction was accorded (March 2006) by Pananchery GP and KRWSA respectively for ₹4.97 crore. Revised Administrative Sanction was accorded (October 2009) by Pananchery GP for ₹7.36 crore. KRWSA appointed M/s. Mahindra Acres Consulting Engineer Ltd. As technical consultant. As per the DSR, the scheme components included laying of gravity main from Peechi Dam off-take point to 2 MLD capacity Water

Treatment Plant (WTP) near Mylatumpara, Pumping main, distribution system divided into three zones and service reservoirs at Palakkunnu for Zone I, Vilangannur for Zone II and Kuthiran for Zone III.

Site verification and scrutiny of records maintained by the Scheme Level Executive Committee (SLEC)[20] 26 and KRWSA, revealed that the scheme was commissioned in June 2010, with water provided only to 1308 (52 per cent) beneficiaries against the target of 2500 HHs as shown in **Table 3.2:**

Table 3.2: Shortfall in coverage

Zone	No. of BGs (registered HHS)	No. of HHs supplied with water	No. of HHs deprived of water	Remarks of Government
I	13 (997 HHs)	652	345	Non filling of gap in distribution line, pressure test not conducted etc.
II	21 (1041 HHs)	656	385	Leakages in distribution network, pressure test not conducted.
III	5 (311 HHs)	Nil	311	The contractor stopped the work due to dispute and is under arbitration.
Total	39 (2349 HHs)	1308	1041	

(Source : Records of KRWSA)

Audit observed that poor quality of work resulted in depriving 1041 HHs of potable drinking water under the scheme. In the Exit Conference (January 2016), the Executive Director, KRWSA stated that the matter, being under adjudication, was still pending and that steps for completion of the scheme would be taken up after completion of adjudication process.

All the instances mentioned by Audit in Paragraphs 3.7.1 to 3.7.2 reveal laxity of KRWSA in designing and implementing WSS in violation of the provisions contained in its Technical Manual.

Recommendation No. 1: Government must ensure that KRWSA initiates measures to revive WSS which have gone defunct in order to mitigate hardships faced by the beneficiaries and strictly complies with provisions contained in the Technical Manual to prevent schemes from becoming defunct in future.

20 The committee responsible for implementation of Large Surface Based Comprehensive WSS

[Audit Paragraph 3.7.2.5 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

79) The Committee enquired about the completion of the project, the Director (H.R), KRWSA replied that only one zone of the Pananchery Water Supply Scheme had been completed. He added that the second zone involved plumbing work in the NH from Patticaud in kuthiran but due to Highway widening it was not approved and the project has been partially commissioned. He added that since a court case regarding this was pending before the court, KRWSA withdrawn from the project. IN 2019, ₹78 lakh was earmarked to consider the said project as a part of a sustainable development programme. But due to certain problems between the Panchayat and BG, it could not be implemented. Then the Panchayat President wanted to convince the accounts but they did not agree and therefore KRWSA could not interfere. Mean while KWA implemented a project there, and some people switched over to that project and now the said project had been taken up in Jal Jeevan Mission for 100% coverage.

80) The Committee enquired whether the infrastructure had been handed over to Jal Jeevan Mission, the Director (H.R), KRWSA replied that there were only two tanks and pressure filters and such assets of KRWSA be considered to hand over after consultation with JJM.

Conclusion/Recommendation

81) No comments

3.7.3 Deficiencies in Operation & Maintenance of schemes byBeneficiary Groups

As per project guidelines, the BGs were responsible for planning, technology selection, constructing WSS facilities, providing their part of the capital cost contribution, managing O&M of the improved facilities and levying and collecting sufficient user charges from the beneficiaries to fully recover the recurrent O&M costs. Audit scrutiny of records pertaining to the BGs in test-checked GPs and beneficiary survey revealed instances of schemes turning defunct due to failure of BGs to discharge their responsibilities envisaged in the

Project Guidelines as shown in Table 3.3:

Table 3.3: Schemes which turned defunct due to inadequate O&M by BGs

(₹in lakh)

Name of BG (Number of Hhs)	Cost of scheme	Date of completion	Period of non-functioning	Reasons for non-functioning
Adukkamala Koolippara BG in Madavoor GP (56)	8.01	February 2005	Four years	Inability of BG to collect water charges regularly from beneficiaries
Multi BG scheme in Thirunelly GP comprising five small Bgs (376)	67.61	October 2007	Seven years	Since the pump set used was 35HP submersible type, considerable expense was incurred to lift the pump set from well for each repair. Bgs were reluctant to afford such amount during each repair.
Perumal Oothu BG/ Moolagangal in Sholayur GP(37)	1.15	June 2004	Five years	Non-payment of monthly contribution by most of the beneficiaries, non co-operation of beneficiaries, non involvement of Beneficiary Committee in rectification of damage caused to distribution lines.
Vellakkulam BG in Sholayur GP (39)	2.08	June 2004	Eight years	Mud and silt got accumulated in the water collection chamber clogging the mouth opening of the pipe and arresting water flow. BG did not take measures to rectify this and negligence of BG resulted in stolen and damaged pipes.
Souhrudha BG in Thachanattukara GP (23)	2.75	December 2005	Eight years	Failure of BG to repair damaged pump set.
Pidavoor East BG in Thalavoor GP (30)	8.37	April 2008	Four years	Pump set got burnt as the pump operator failed to turn off the pump set. As majority of the HHs of BG had alternate sources of water, repairing / renewing of pump sets was not taken up.
Eravicode BG in Thalavoor GP (31)	7.95	September 2007	Two years	Pipeline laid alone Panchayat road was damaged during road repairing / widening.BG did not initiate action to get the damaged pipes repaired.
Kandillapara ST BG in Chaliyar GP (28)	6.66	February 2008	Seven years	Instillation of 10HP diesel pump instead of 3HP specified in DSR resulting higher capital and O&M cost. No attempt was made to obtain electric power connection. Inability of the tribal BG to afford high O&M cost resulted in the scheme becoming defunct.

Government replied (January 2016) that the schemes turned defunct due to technical, social and financial issues which were beyond the managerial capacity of BGs. It was further stated that there was no post exit support to BGs either from the GOK or KRWSA to address these issues.

Recommendation No. 2: Government may ensure that KRWSA offers post exit support to BGs and consider extending financial and technical support to BGs to ensure that the WSS do not further deteriorate and potable water is available to the beneficiaries. Government should also exhort the GPs to involve in post-exit management of schemes.

[Audit Paragraph 3.7.3 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

82) While considering the audit para the Director (H.R), KRWSA replied that there was no support system for the beneficiary groups to implement the project and the empowerment of the panchayats would be better for complementing such a system.

83) The Committee reiterated one of its earlier recommendations that the Government should come up with new schemes to revive such project. Then the Managing Director, KWA & Executive Director (i/c), KRWSA replied that a Head of Account had been allocated for that purpose and certain defunct schemes had also been completed using the amount from the said Head of Account.

Conclusion/Recommendation

84) The Committee recommends that the Government should come up with new schemes to revive those projects which turned defunct due to lack of post exit support to BGs, to ensure that the WSS do not further deteriorate and potable water is available to the beneficiaries.

3.8 Declaration of completion of schemes

As per World Bank guidelines, KRWSA was to appoint Construction Quality Monitoring and Supervision (CQMS) agencies who were responsible for

monitoring the quality of supervision by SO and to ensure quality of construction in the ongoing schemes. While the SOs were responsible for the day to day supervision of all procurement and construction activities, the CQMS agencies were responsible for concurrent monitoring of these activities through periodic reviews and inspections. KRWSA had also issued guidelines to be followed by CQMS agencies for discharging their works.

Exit order handing over the scheme to the BG is issued by KRWSA on the basis of IPCR after ensuring availability of adequate water to the beneficiaries. Audit noticed two instances where schemes for which IPCRs had been signed and Exit order issued, were not commissioned as detailed below.

3.8.1 Kairali BG in Vellarada GP

A BG comprising 50 HHs implemented the scheme. Audit noticed that formal Exit order was issued by KRWSA (December 2008) citing completion of scheme in September 2008. However, joint site inspection by Audit (June 2015) revealed that construction of ladders of OH tank, plastering of sides and surface of well and RCC were still incomplete. The Secretary of BG confirmed to Audit in writing (June 2015) that his signatures in the IPCR were forged.

Government stated (January 2016) that non-completion of various components of the scheme at the time of exit, as pointed out by Audit, had not come to their notice. It was also stated that since the completion report signed by the SO, BG Secretary, Team Leader, Accounts Officer and Project Manager of Thiruvananthapuram district had certified satisfactory completion of components of the work, the information now given by the BG Secretary after eight years of exit, that his signatures were forged in the IPCR, did not deserve any merit.

The reply of Government is not acceptable in view of the fact that passage of time does not minimise the gravity of an offence and that the Government cannot escape from its responsibility for ensuring right action when such schemes are implemented for common people by spending Government funds. As such, this instance of forgery pointed out by Audit needs to be investigated and appropriate action taken.

[Audit Paragraph 3.8, 3.8.1 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

85) While considering the audit para, the Committee enquired whether any police investigation had been conducted with respect to the forging in IPCR. Then the Director (H.R), KRWSA replied in the negative. Then the Committee pointed out that in the report to the Committee it was stated that a police investigation might be requested in that regard. But the Committee noticed that no investigation had been conducted as of the date and directed the department to take action against the officials who had failed to take action in that regard. Then the Secretary, Water Resources Department agreed to do so.

Conclusion/Recommendation

86) The Committee observes that no investigation had been conducted regarding the forging in IPCR. So the Committee directs the department to take action against the officials who had committed delinquency in this regard.

3.8.2 Vadakkekara scheme in Thachanattukara GP

The Scheme in Palakkad district, intended to benefit 20 HHs was not commissioned due to non-completion of inter connection between pumping main, reservoir and distribution line. IPCR was to be issued only on completion of the WSS, in all respects. However, KRWSA had wrongly issued Exit order (March 2006) ignoring the fact that the interconnection between pumping main and distribution line was incomplete.

Government stated in reply (January 2016) that the scheme was functioning with a new source constructed using GP fund and interconnections were done dismantling old pipes from the tank. Government further stated that the BG should have intervened during the exit process to ensure availability of water. The reply was not acceptable as it is indicative of lack of responsibility. Placing the blame on BGs is inappropriate since KRWSA should have ensured completion of work before signing the IPCR, which calls for fixing of responsibility.

Recommendation No. 3: Government should frame stringent provisions to deter officials from issuing IPCRs and exit orders without ensuring completion of WSS. Action may be taken against officials violating such instructions.

[Audit Paragraph 3.8.2 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

87) While considering the audit para the Director (i/c), KRWSA informed the Committee that there were 26 Projects under Vadakkakara Scheme in Thachanattukara Grama Panchayat. A Bore well had been drilled for that scheme and it is now functional.

88) The Committee directed the department to submit an updated report regarding the audit para at the earliest and the Director agreed to do so.

Conclusion/Recommendation

89) The Committee directs the department to submit an updated status of the reply regarding the audit paragraph within two months.

3.9 Quality of drinking water

The project envisaged definite and comprehensive parameters to ensure the quality of water to be supplied to beneficiaries. It stipulated compliance to standards prescribed by Central Public Health and Environmental Engineering Organization (CPHEEO). As per CPHEEO standards, the water should be free from pathogenic organisms, low in concentration of compounds that were acutely toxic or that have serious long term effects, clear, free from salinity, free of compounds producing taste and odour, non-corrosive, non-staining, etc.

Beneficiary survey and joint site inspection with the officials of GP/BG revealed that 30 of 88 schemes test-checked had become defunct, of which nine (Appendix 3.1) turned defunct due to poor quality of water. Of the balance 58 schemes, beneficiaries of 11 schemes (Appendix 3.2) stated that water distributed could not be used for drinking purpose. In the remaining 47 schemes, beneficiary committees of four schemes certified that water was fit for drinking as per periodical quality tests. Audit noticed that the beneficiaries in the remaining 43

schemes consumed the water without periodical tests to ensure the quality of water.

[Audit Paragraph 3.9 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

90) When the Committee enquired whether the quality tests were conducted regularly, the Deputy Director, KRWSA replied that quality tests were conducted twice a year and the results were uploaded to the website of Jal Jeevan Mission. The Committee further wanted to know whether the periodic testing was being conducted by BGs. Then the Director (H.R), KRWSA replied that there was no such system in KRWSA but when JJM was introduced all the sources were identified and test results were uploaded to the Integrated Management Information System (IMIS). He added that a scheme to test and restore such schemes had been sanctioned by the Government under plan scheme of this year and an allocation of ₹30 crore had been made for those projects. At present, a project had also been introduced to check and identify the problem affected areas and to provide necessary rectifications. He further added that the main cause of quality problem was the high PH value of water. Normally the PH value of soil is 5.6 and lime is added to regulate the PH. If it was not done the GI pipe would lose its galvanization and the water would contain traces of rust. He informed that all the schemes of Water Authority had lime treatment plants.

Conclusion/Recommendation

91) No comments

3.9.1 Schemes defunct due to excess iron content

KRWSA had identified (November 2007) 108 WSS in the State catering to4050 HHs (four in the test checked schemes)[21] having quality issues in water supplied owing to the presence of excess iron. KRWSA also identified (November 2013) fifty schemes as 'defunct' due to excess presence of iron. GOK, therefore, accorded sanction (February 2014) for the rehabilitation of 21 schemes by installation of Iron Removal Plants (IRP) and Terrafil filters at a cost of ₹1.78 crore.

21 (1) Thiyarakunnummal in Tuneri GP, (2) Oottukkulam in Kadalundi GP, (3) Jalavahini and (4) Varsha in Vallathol Nagar GP

Though KRWSA obtained ₹1.78 crore from GOK in March 2014 based on its proposal for installation of IRP in 10 schemes and Terrafil filters in 11 schemes, no expenditure was incurred and the amount was retained by the KRWSA. The KRWSA stated (December 2015) that expenditure was not incurred since 17 of the 21 schemes chosen for installation of IRPs and Terrafil filters had since been identified as non-functional. It was clarified that the possibility of installing new proven water purification natural technology with Zeolite based filtration plants in WSS was being explored.

In the test-checked Varsha WSS in Vallathol Nagar GP, Audit observed (May 2015) that IRP which was installed after commissioning of scheme, had been removed and unusable water with excess iron was being distributed to beneficiaries. The Secretary of BG reported that though there was sufficient water in the source, functioning of IRP caused frequent breaking of pumping main and reduced flow of water from IRP to the tank, which forced the BG to detach the IRP. Government stated (January 2016) that improper maintenanceby the BG resulted in idling of the IRP. Audit observed that KRWSA failed in addressing the problems associated with delayed installation of IRP. Government stated in the Exit Conference (January 2016) that the matter would be looked into.

Audit also noticed water quality issues in one out of three test-checked large WSS as detailed below:

[Audit Paragraph 3.9.1 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

92) While considering the audit para, the Committee enquired about the non-utilization of an amount of ₹1.78 crore received for the installation of Iron Removal Plants and Terrafil filters, the Director (H.R), KRWSA replied that no big schemes had been taken to execute it and therefore only a very small amount could be utilized. The Deputy Director KRWSA also informed that due to the non-availability of sufficient water for pre and post washing, the Beneficiary Groups detached the iron removal plant and supplied water. Later households were also provided with terafil filter units, two units each to reduce the presence

of iron content in the water. But it should be cleaned daily, due to shortage of water, the terafil filter units had now been replaced by a new cylinder system.

93) Pointing out the non-ulilization of ₹1.78 Crore, the Committee enquired why the amount had not been fully utilised for the project. The Deputy Director KRWSA replied that when IRP (Iron Removal Plants) was installed, people initially agreed to it, but now they were rejecting the scheme. The Director (H.R), KRWSA also informed the Committee that IRP systems were installed near the tanks and could not be installed near the pump houses since the system would deteriorate if it was not cleaned daily. That was the reason for installing terafil filter units in homes. It was also decided that IRP had not been promoted further to install terafil filters and thereby prevent further financial loss. IRP will cost upto ₹15 lakh and KRWSA had designed a near filter system to filter water according to the diameter through stainless steel / pipes and that had been implemented in some sites as a trial and the system seems practical.

94) The Committee observed that the response of the officials during witness examination regarding the audit observations were not in conformity with the RMT given before the Committee and wanted to submit an updated reply regarding the audit para urgently.

Conclusion/Recommendation

95) The Committee observes that the response of the department officials during witness examination was not in conformity with the Remedial Measures Taken statement submitted before the Committee. Therefore the Committee directs the department to submit a revised reply regarding the audit paragraph within two months.

3.9.2 Nenmeni Rural Water Supply Scheme

Nenmeni RWSS managed by KWA since 1993 was handed over to Nenmeni GP in April 2005. The scheme was rehabilitated at a cost of ₹42.93 lakh under Jalanidhi and commissioned in November 2007. The scheme was currently run by SLEC.

A report on water quality test conducted in October 2013 showed very high turbidity, presence of iron, and coliform bacteria rendering the water unfit for consumption. The Secretary, SLEC stated (January 2014) that a length of 12.34 kms of Asbestos Cement (AC) pipes used in the distribution line was damaged at various stretches resulting in deposit of slush in the distribution line.

Even though KRWSA had accorded sanction (March 2014) for the construction of a Water Treatment Plant (WTP) and allied works and work was awarded (March 2015) for ₹1.94 crore, proposal to replace the damaged AC pipes had not been reckoned so far. It is evident that construction of the WTP without replacement of the AC distribution lines would still expose the beneficiaries to contaminated water. With a view to assess the current status of water quality of the scheme, Audit test checked (December 2015) water sample from the scheme which revealed high presence of iron, coliform bacteria (1100 times above desirable limit) and high turbidity.

Government stated in reply (January 2016) that turbidity of water and quality issues posed problems in implementation. It was agreed in the Exit Conference (January 2016) that this was an issue which needed to be addressed.

[Audit Paragraph 3.9.2 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

96) When the Committee enquired about the audit observation, the Director (H.R), KRWSA replied that fund for the scheme had been sanctioned under the sustainability support program. Amount had been allotted for the replacement of A.C. pipes and the maintenance work is under way and now the scheme is functional.

Conclusion/Recommendation

97) No comments

3.9.3 Vannanthura Tribal BG

The Vannanthura WSS in Sholayur GP for 67 tribal HHs was implemented in March 2005. The source of water was an open well (dug well) located very adjacent (three to four meters) to the Siruvani River.

As the water in the well had a foul smell of mud, yellow colour and bad taste of iron, the beneficiaries opted out of the scheme which became defunct within a month of inception, as the intrusion of river water into the well had caused contamination of water.

Audit observed that the stipulation in the Technical Manual which required conducting Hydro geological survey and construction of infiltration wells in river beds was not adhered to. The KRWSA constructed an open well which resulted in seepage of river water and resultant contamination of water.

Government replied (January 2016) that openwell had been constructed as per the Technical Manual. It was admitted that the intrusions in the well could have been sealed as and when noticed and that pressure filter or infiltration gallery would be supplemented in revisits. The reply of Government that open well had been constructed as per the Technical Manual was not factually correct and was against the provisions contained in the Technical Manual.

[Audit Paragraph 3.9.3 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

98) While considering the audit observation regarding the Vannanthura Water Supply Scheme in sholayar Grama Panchayat, the Committee enquired whether the pressure sand filter had been installed and the Director (H.R), KRWSA replied negatively and added that it had been decided to connect the same with Jal Jeevan Mission scheme and a revised reply regarding that would be submitted to the Committee urgently.

Conclusion/Recommendation

99) The Committee directs the department to submit a revised reply regarding the audit paragraph within two months.

3.9.4 Thazhe Sambarcode Tribal BG

The scheme was completed (March 2005) to benefit 68 tribal HHs in lower Sambarcode ooru in Sholayur GP.

The source was an open well located adjacent to the Siruvani River. The scheme had a filtering unit and a Ground Level Service Reservoir (GLSR) made of ferro-cement with a capacity of 10,000 litre. Result of water quality test conducted at KWA lab (September 2002), revealed presence of Iron and Fluoride above acceptable limit and high presence of e-coli and coliform

bacteria making it unfit for drinking, which necessitated treatment before consumption. The Scheme turned defunct as the untreated water was unfit for consumption of beneficiaries.

As per Technical Manual, hydrogeological survey should be conducted before construction of the well and all recommendations made by Hydrogeologist were to be considered while constructing the well. But Audit observed that no such study was conducted.

Though a pressure filter was provided as a filter, it was not enough to provide safe water devoid of yellow colour, mud and taste of iron. In reply (September 2015) KRWSA stated that though a pressure filter could reduce turbidity, iron could be removed only by installing an IRP.

Lapses in design and conceptualization had resulted in the scheme being implemented without ensuring provision for purification of water. As such, KRWSA needs to install IRP for ensuring supply of pure drinking water.

Government assured in the Exit Conference (January 2016) that quality issues pointed out by Audit would be attended to on a war footing.

Recommendation No. 4: Government should hold KRWSA responsible for the failure to ensure quality of water supplied and to address the issues of water quality in the interest of the health of the beneficiaries. Government should, through KRWSA, install IRPs in WSS for ensuring purification of water to make the defunct schemes functional.

[Audit Paragraph 3.9.4 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

100) While considering the audit para, the Director (H.R), KRWSA informed the Committee that the scheme had been included in the sustainability support program and the work was in progress.

101) When the Committee enquired about the installation of Iron Removal Plants (IRPs) for the purification of water, the Deputy Director (H.R), KRWSA replied in the negative. Since there is the presence of fluorides, Reverse Osmosis

(RO) has to be placed along with IRP and investigations were being conducted for the purification of the water.

102) To the Committee's query regarding the incorporation of the scheme in to the sustainability support program, the Director (H.R), KRWSA replied that the scheme had been included in the sustainability support program that year. The program had not been incorporated in the sustainability support program in 2021 due to the non availability of the fund for the completion of the work.

103) The Committee wanted to know if there had been any studies conducted on water Quality issues.

104) The Director (H.R), KRWSA replied in the affirmative and added that based on the study, the new project had been launched and money had been allocated for quality improvement.

Conclusion/Recommendation

105) No comments

3.10 Sustainability of drinking water sources

Ground Water Recharge (GWR) is an important part of the hydrologic cycle in which water from surface works its way into the sub-surface replenishing ground water supplies. The recharge would be possible by adopting and implementing associated measures such as contour bunding/trenching, rain pits, rain water harvesting structures, percolation tanks, strengthening of terraces, check dams, etc. The following points were noticed in Audit.

3.10.1 Implementation of Sustainability measures by KRWSA

The Project envisaged setting apart eight per cent of the cost of water supply for implementing artificial GWR to augment and sustain the water sources. Accordingly, against ₹284.48 crore utilised for scheme implementation, ₹22.76 crore had to be spent for artificial GWR and sustainability of 3710 RWSS[22] under Jalanidhi Phase I project. However, the actual amount utilised on GWR was only ₹5.89 crore (two per cent of ₹284.48 crore). Due to inadequate attention paid to sustain and recharge water sources, they had dried 3139 WSS, 251 GP rehabilitated schemes, 147 KWA rehabilitated schemes, 173 institutional schemesup in 85 schemes (Appendix 3.3) of Jalanidhi Phase I. In order to meet the expenditure for extending sustainability support to Jalanidhi I schemes,

22 3139 WSS, 251 GP rehabilitated schemes, 147 KWA rehabilitated schemes, 173 institutional schemes

Rupees five crore was received (February 2013) by KRWSA from NRDWP[23] funds for 2012-13. Expenditure incurred on actual recharge of the ground water schemes was only ₹6.40 lakh.

Laxity on the part of KRWSA in allotting adequate funds for sustainability and failure to spend even the meagre resources received for the purpose was a cause for concern. The KRWSA admitted (June 2015) that no study had been conducted to evaluate the effectiveness of GWR measures adopted by Jalanidhi as the GWR activities were wound up once the project funding was over and there was no mechanism in place to monitor the effectiveness of O&M. The reply of KRWSA was not acceptable as it does not explain as to why the agency had failed to allot adequate funds for sustainability measures. Audit observed that the implementation of WSS by KRWSA without paying adequate attention to ensure sustainability of sources had resulted in the sources drying up and schemes turning defunct as observed below.

[Audit Paragraph 3.10, 3.10.1 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraphs is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

106) While going through the above audit paragraphs, the Committee wanted to know about the action taken by the department. The Director (i/c), KRWSA replied that at first there was BG's involvement in ground water recharge activities and then the Panchayat and BG showed a laxity in GWR activities. After that it was decided to develop a source before moving forward with GWR activities, but when the sustainable sources were ensured, allotment of adequate funds were not available. Consequently it could not be applied to certain schemes.

107) He added that as World Bank provided 100% funding in the final phase of phase I, the GWR activities were planned, however all of them could not be brought under the GWR programme.

108) When the Committee enquired whether any study had since been conducted to evaluate the effectiveness of GWR measure, the Director (i/c),

23 National Rural Drinking Water Programme

KRWSA replied affirmatively.

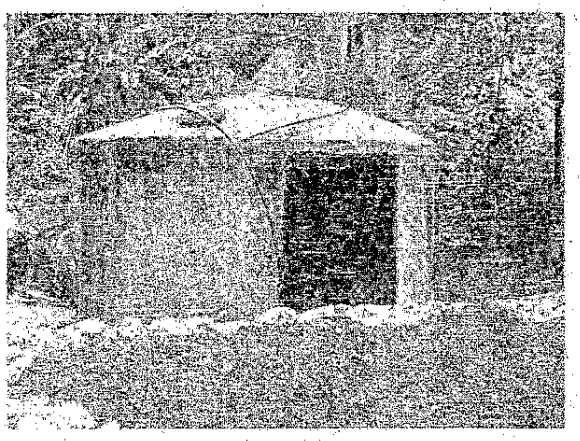
Conclusion/Recommendation

109) No comments

3.10.2 Kanakooth and Peruvampadam ST Colonies in Chaliyar GP

The Guidelines of KRWSA stipulated that RWHS[24] as a technology option for WSS should be resorted to only if all other options were found costly and not feasible. It required that the beneficiaries should be living in isolated, scattered and quality affected habitations facing acute water scarcity where no conventional water supply systems were feasible. However, Figure 3.1: Abandoned Rain Water Harvesting Audit noticed that in Chaliyar GP , Structure, Peruvampadam ST Colony 70 and 90 numbers of RWHS costing ₹25.74 lakh were constructed in Kanakooth and Peruvampadam ST Colonies respectively despite the fact that these areas were thickly populated and conventional water supply system with open well as source of water was feasible. The scrutiny of Measurement Books also revealed that filter units stipulated in the DSR were not installed in any of the RWHS.

Audit conducted a joint verification (June 2015) with the GP Secretary which revealed that only 23 out of the 160 RWHS were found existing and the remaining structures were found demolished. The existing structures were in abandoned condition. The inhabitants of both colonies used water either from the well constructed by the GP or from nearby streams. The beneficiary HHs stated that the RWHS were not used for collecting water since inception, due to leakages in tank. The installation of RWHS in areas where conventional WSS were feasible and defective construction including non-installation of filter units led to failure of scheme. Government stated in the Exit Conference that the issue will be examined.



24 Rain Water Harvesting Structures (RWHS)

[Audit Paragraph 3.10.2 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

110) While considering the audit para, the Committee enquired whether the scheme was currently functional, the Director (Technical), KRWSA replied negatively. He added that it was a project to supply clean drinking water to the colonies through rain water harvesting, but they were not ready to accept the project because the lifestyle of the colonists were different. He supplemented that the Accountant General's observation that only 23 out of 160 RWHS were found existing and the remaining structures were found demolished was correct and hence it was decided to include that project in JJM.

111) The Committee noticed that the reply furnished during witness examination before the Committee was not in accordance with the RMT presented before the Committee and directed that a revised reply should be made available to the Committee urgently.

Conclusion/Recommendation

112) The Committee notices that the reply furnished during witness examination was not in accordance with the Remedial Measures Taken statement submitted before the Committee. Therefore the Committee directs the department to submit a revised reply regarding the audit paragraph within two months.

3.10.3 The Padoor Manakkad BG in Kavassery GP

This scheme consisted of 38 HHs. Contrary to stipulations in the Technical Manual requiring the source to be identified during summer months, the Hydrogeologist had visited the site in December 2003 and also recommended GWR measures such as rain pits, buried infiltration tanks and trenches for sustainability of source for which a provision of ₹19,500 was made in the DSR. No GWR measures were implemented as recommended and the scheme became defunct due to insufficient water in source. Government stated that (January 2016) identification of wells was done using the scientific methods utilising the service of experienced hydrogeologists of the region and using

geophysical survey equipments. The fact, however, remains that non-adoption of GWR measures as recommended led to the failure of the scheme.

Recommendation No. 5: KRWSA should undertake GWR activities before implementation of WSS to ensure that the schemes do not suffer for want of adequacy of water in the long run.

[Audit Paragraph 3.10.3 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraph is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

113) The Committee enquried about the GWR measures implemented by the KRWSA to ensure the adequacy of sustainability of the source, the Director (i/c), KRWSA replied in negative and added that a revised reply would be submitted to the Committee.

Conclusion/Recommendation

114) The Committee directs the department to furnish a revised reply regarding the audit paragraph within two months.

3.11 Empowerment of Beneficiary Groups

The Beneficiary Groups (BGs) were tasked to initiate project activities, collect money and other resources, choose the levels of service and technology options and implement the scheme. Lapses in execution of responsibility assigned to BGs resulted in poor quality of implementation as is evident from following audit findings emerging from the survey of Bgs/beneficiaries conducted by Audit.

3.11.1 Registration of BGs

All the BGs were to be registered under the Travancore-Cochin Literary, Scientific and Charitable Societies Registration Act, 1955 (Act XII of 1955) to have legal recognition. However, 55 out of the 56[25] test-checked Bgs admitted that they had not renewed their registration annually. Failure to renew registration carries the inherent risk of the BGs functioning without legal

25 Of the 58 functional schemes in the test-checked schemes, two were RWHS which did not have BGs

sanctity and non-compliance to legal provisions like maintenance of records, regular audit of annual accounts, etc.

3.11.2 Failure to provide safe drinking water

As per para 3.8 of O&M Manual of KRWSA, the water to be supplied should be free from bacteria/virus or other organisms, harmful elements/solvents/chemicals, etc., and should not have any bad odour, taste or color. The CPHEEO have issued standards of physical, chemical parameters and bacteriological quality for the drinking water. The O&M Manual of KRWSA which required BGs to ensure chlorination with bleaching powder to be done at fixed intervals, the well and its surroundings to be kept clean and well maintained to ensure unpolluted water and cleaning of service reservoirs to be done at least once in a month, were not complied with. Technical Manual for Planning and Implementing Community Managed WSS requires analysis of residual chlorine daily, bacteriological analysis once in three months or as desired by the community and complete physio chemical and bacteriological analysis once in summer and monsoon or whenever deviation in water quality is observed. Beneficiary survey revealed serious irregularities in ensuring quality of water as given below:

- Fifty two of the 56 BGs did not conduct periodical testing of water to ensure quality.

- Out of 43 small WSS functioning with open well as source, 20 schemes reported yearly cleaning of source and six schemes reported monthly or bimonthly or quarterly cleaning. Seventeen schemes stated that the source was never cleaned.

- As per Operations and Maintenance Manual, the reservoir should be cleaned on monthly basis. Out of 56 small schemes, the reservoir was cleaned by the BGs fortnightly in three schemes, monthly in 18 schemes, bimonthly in six schemes, quarterly in 13 schemes, yearly in 14 schemes and was never cleaned in respect of two schemes.

- While 33 schemes adopted disinfection methods daily, two schemes conducted disinfection procedures occasionally or once in three months; 21 schemes had never adopted any disinfection method. The reasons stated included dislike of taste of chlorine, practical difficulty in adding chlorine, etc.

- Chloroscopes[26] were not provided for small WSS.

Had the BGs effectively discharged responsibilities pertaining to O&M of the schemes, many of the water quality issues pointed out earlier could have been mitigated.

3.12 Conclusion

Audit observed that even though 3139 new drinking water schemes (including 16 large WSS) were implemented against the original target of 2500 to benefit 2,50,000 HHs, only 1,61,427 HHs (65 per cent) benefited from the schemes. Almost 34 per cent of the schemes test checked had become defunct due to reasons like failure of source, quality/technical issues, inactive BGs, etc. which was a cause for concern. KRWSA disregarded provisions contained in its Technical Manual resulting in schemes turning defunct. KRWSA also failed in rightly identifying water sources and in the design and implementation of WSS. Instances of KRWSA irregularly issuing Exit Orders on the basis of IPCRs with forged signatures of elected members of BGs, and handing over schemes to BGs without ensuring completion were noticed. Failure to sustain and replenish water sources, inability of BGs to rectify technical failures and faulty O&M management led to schemes becoming defunct.

Though the project stipulated norms for quantity and quality of water supplied, Audit noticed supply of insufficient and unsafe drinking water to the beneficiaries. Despite GOK providing ₹1.78 crore for installation of IRPs and Terrafil filters, KRWSA could not utilise the funds for the purpose. The expenditure on sustainability measures was very low resulting in sources drying up, defeating the objective envisaged. The policy of empowering Bgs to usher in community participation to conceive, part-finance and implement WSS has not succeeded.

[Audit Paragraph 3.11 – 3.12 contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015.]
(General and Social Sector)

[Note furnished by the Government on the above audit paragraphs is included as Appendix II]

(Excerpts from the discussion of Committee with officials concerned)

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26 An equipment to test residual chlorine in treated water

115) While considering the above audit paragraphs, the Director (Technical), KRWSA informed that the schemes have been included in the sustainability support scheme based on the recommendation of C&AG indicating that the sustainable functioning of the schemes could be achieved by strengthening the Beneficiary Groups.

Conclusion/Recommendation

116) No comments

SUNNY JOSEPH
Chairman,
Committee on Public Accounts.

Thiruvananthapuram
26th JUNE 2024.

APPENDIX I

SUMMARY OF MAIN CONCLUSION / RECOMMENDATION

Sl No.	Para No.	Department concerned	Conclusion / Recommendation
1	4	Housing	The Committee directs the department to furnish a detailed report regarding the status of the unspent amount out of the grants in aid released to KESNIK for various schemes / activities, within two months.
2	8	Housing	The Committee opines that the agencies executing the construction work should be responsible for its annual maintenance as well. Therefore, the Committee recommends the department to ensure sufficient allocation of funds for annual maintenance so that KESNIK could undertake the annual maintenance of the buildings constructed by it using CEEF technology.
3	13	Housing	The Committee recommends that KESNIK should ramp up the research and development activities for CEEF technology and set up more production centres for cost effective, environment friendly and disaster resistant building materials.

4	24	Housing	The Committee recommends to strengthen the establishment of Research Wing under LaBISHaS, by appointing adequate faculty with prescribed qualification and providing necessary infrastructure.
5	36	Cultural Affairs	The Committee points out that submission of Utilization Certificate in respect of construction of open enclosures in the Zoo without actually completing the work is improper and is a serious lapse. So the Committee recommends to fix responsibility against the delinquent officials involved in the procedural lapses and violation of guidelines on the matter within two months.
6	37	Cultural Affairs Public Works	The Committee views with serious concern that the work is still remaining incomplete even after seventeen years and condemns both the officials of Public Works and Cultural Affairs Department for the irresponsible attitude and directs that joint effort should be taken by both departments to complete the work in a time bound manner. The Committee also directs to furnish a report of the actions taken in this regard, within two months.

7	52	Water Resources	The Committee recommends that measures should be taken to re-vitalize the defunct schemes of KRWSA in co-ordination with the Jal Jeevan Mission and steps should be taken to strengthen the non-performing beneficiary groups.
8	65	Water Resources	The Committee directs the department to submit a revised reply regarding the Nila and Jalavahini BGs in Vallathol Nagar GP.
9	69	Water Resources	The Committee views that the explanation given before the Committee in connection with the Audit Paragraphs during witness examination and the previous reply given to the Committee on the Audit Paragraph seems to be different. Hence the Committee directs the department to furnish a revised reply regarding the audit paragraph within two weeks.
10	75	Water Resources	The Committee directs the department to submit a revised reply regarding the above audit paragraphs (3.7.2.1, 3.7.2.2 & 3.7.2.3).

11	78	Water Resources	The Committee expresses its displeasure over the irresponsible attitude of the department and directs to fix responsibility against the officials who had failed to request police investigation against irregular issuance of exit order on the basis of forged IPCR.
12	84	Water Resources	The Committee recommends that the Government should come up with new schemes to revive those projects which turned defunct due to lack of post exit support to BGs, to ensure that the WSS do not further deteriorate and potable water is available to the beneficiaries.
13	86	Water Resources	The Committee observes that no investigation had been conducted regarding the forging in IPCR. So the Committee directs the department to take action against the officials who had committed delinquency in this regard.
14	89	Water Resources	The Committee directs the department to submit an updated status of the reply regarding the audit paragraph within two months.

15	95	Water Resources	The Committee observes that the response of the department officials during witness examination was not in conformity with the Remedial Measures Taken statement submitted before the Committee. Therefore the Committee directs the department to submit a revised reply regarding the audit paragraph within two months.
16	99	Water Resources	The Committee directs the department to submit a revised reply regarding the audit paragraph within two months.
17	112	Water Resources	The Committee notices that the reply furnished during witness examination was not in accordance with the Remedial Measures Taken statement submitted before the Committee. Therefore the Committee directs the department to submit a revised reply regarding the audit paragraph within two months.
18	114	Water Resources	The Committee directs the department to furnish a revised reply regarding the audit paragraph within two months.

APPENDIX II
Notes furnished by the Government

Sl. No.	Audit Para-graph	Recommendation	Remedial measures taken
1	5.2.1	**Receipt of Grants-in-aid and their utilization**	Grant received from 2009 onwards are for infrastructure development. The unspent balance as on 2014 amounting to Rs.5.93 crores were utilized for implementing various programmes in the following years and presently the balance has come down significantly. Only after completing the audit up to 2015-16 a clear picture regarding the same can be given. Presently the amount is approximately1.37 crores. The balance available in Kalavaras is being utilised for providing the subsidy in further years and no fresh fund for Kalavara was sought after the financial year 2013-14 The balance of Rs 0.21 crores outstanding from GOI/Hudco etc is actually the unapportioned portion of Institutional fee earned by KESNIK, which has not been adjusted in the Book of Account in the respective years. The same will be adjusted in coming finalised books of accounts.
2	5.2.2	**Works under taken using CEEF technology**	The GO of September 2007 does not prohibit Nirmithi Kendra in following the PWD SOR, but it permits Nirmithi Kendra to follow CEEF Norms in works where Nirmithi Kendra does not follow PWD SOR. At present all works are carried out on the basis CPWD SOR where there is also a provision to include any item which is not in the SOR on the basis of the local market rate. Considering this KESNIK had not prepared SOR, but based on the audit para steps were initiated to prepare SOR for Cost Effective Environmental Friendly Technology items. The works undertaken by KESNIK are mostly Public/departmental works. The consent of Administrative authority awarding the work is required for construction with CEEF Technology. However most of the authorities are reluctant to accept the CEEF technology because the AMC of the building constructed using CEEF technology will also come under PWD Department and PWD does not entertain alternative technologies. If proper legislature for entrusting the Annual maintenance of public building constructed using CEEF technology, to Nirmithi Kendra is there, perhaps more administrative department will come forward to promote construction using CEEF SOR/CEEF rates.KESNIK could not take AMC work of Govt Buildings

			constructed by it because the amount for AMC work is allotted only to PWD under their head of account. KESNIK had been carrying out the annual maintenance contract of EPF office for the last 8 years. Regarding the road works done during the period 2012-13 in Thrissur it may be noted that, there occurred a crisis situation with Thrissur District Panchayath where, the private contractors were reluctant to undertake the road works, so the District Panchayat approached Nirmithi Kendra to take up the road works, Nirmithi Kendra being a Governmental agency engaged in the construction field took up, the works entrusted by the District Panchayat/Government, to help them overcome the crisis situation and helping the public in turn. The works were undertaken and executed purely under the direct supervision of the LSGD Technical Wing. "Hollow Concrete block" was a product introduced under CEEF technology. At that time when this was introduced it was not included in PWD SOR. But due to the initiatives of KESNIK to propagate the use of HCB, it was widely accepted and included in the PWD SOR recently. At present all works are carried out on the basis of CPWD SOR in which there are provision for applying alternative technology which was not in PWD SOR. There is also a provision to include any item which is not in the SOR on the basis of local market rate. So there is no need to prepare separate SOR.
3	5.2.3	**Co-ordination of activities of KESNIK and District Nirmithi Kendra (DNKs) set up at district level**	The Government order regarding the formulation of the Kerala State Nirmithi Kendra (GO (MS).No.25/89/Hsg dtd 29/04/1989 states that KESNIK is formed as an apex body to Co ordinate , monitor, regulate the activities of Nirmithi Kendra's set up at district level. KESNIK and DNK's are presently 15 independent societies under charitable societies Act. More over KESNIK is under the control of Housing Dept and DNK's are under each District Collectors. KESNIK had already taken up the matter regarding the co-ordination of District Nirmithi Kendras and the same is under the consideration of Revenue Department. Though District Nirmithi Kendras are functioning as independent bodies KESNIK is rendering its technical assistance to them in cases, where help in this regard is sought.
4	5.2.4	**Introduction of innovative/new building**	Production centres are generally for manufacturing a commodity in large quantity. A niche product is not viable to be produced in mass production. The most demanded CEEP products in are Hollow concrete blocks, Compressed Stabilised Earth Blocks, Solid concrete blocks,

		products	pavement tiles etc. The production centres of KESNIK are manufacturing the above products in large volumes to provide quality material to public at reasonable price. The products such as concrete door and window frames are also produced bases on requirements. Other products such as Funicular Shells, Ferro cement roofing channels, RCC Planks, Ferro cement water tanks etc used in the construction of individual houses are items which have very low demand. They are mostly cast-in-situ; I.e for application of this material in small construction projects, it is economical to make these products at the construction site itself. Nirmithi Kendra has several skilled workers, who are expert in manufacturing such items in site. Over the years Nirmithi Kendra is rendering the assistance of these skilled workers to persons who need such products, there by promoting CEEF technology. Presently KESNIK had introduced items such as interlock mud/concrete walling Blocks which are CEEF items. As part of KESNIK objective to popularise alternative technologies KESNIK are presently taking steps to popularise Pre Fab construction practices. As part of this two demo model had been constructed in KESNIK office premises. So it cannot be treated that KESNIK is not supporting propagation of CEEF technology.
5	5.2.5	**Functioning of Fair Price Shops – Kalavaras**	The Scheme for Kalavaras is a continuing one and is a scheme mainly depended on the interest of beneficiaries.. It may be noted that the scheme is generally having a good beneficiary turnover even if thescheme has been restricted to BPL families constructing houses having plinth area upto 600 sqft and it is a good sign considering the wide spread EWS/BPL category. Transport cost is a main factor that is keeping away the potential beneficiaries from the scheme. If the matter of transportation cost is addressed, more beneficiaries will come forward to take benefit of the scheme. It may also be noted that, no funds were released during the period 2013-14, but Nirmithi Kendra had expended an amount of Rs.107.44 lakhs in that time utilising the unspent amount. So far KESNIK has not asked for any fresh funds as on date, but KESNIK are still continuing the scheme using the available funds,. Considering the vide spread of BPL beneficiaries 25% customer turnover is a good figure. KESNIK is a body incorporated by GOK under the control of Housing department but District Nirmithi Kendra's are independent bodies

			incorporated at each district level and under the control of respective District Collector and is under Revenue Department. So transfer of fund from an institution under department of Housing to another institution under Revenue Department is not feasible for time being. By considering the AG's suggestion the 50th EC of KESNIK had decided to extent the subsidy Scheme to Kalavaras done by District Nirmithi Kendra's also.
6	5.2.6	Research and Development activities under LaBISHaS	Government has provided fund and land for providing infrastructural requirements for LaBISHaS. But sanction was not provided for the required post a suggested by the inspection committee, constituted by University of Kerala for granting affiliation as an approved research centre. Moreover KESNIK has taken steps to start the research activity, but response was poor, since there was no recoganisation from an approved body. To have recoganisation the institute must possess the minimum number of faculty, having prescribed qualification, KESNIK has brought the matter to the attention of Government and Government have given direction the Director, KESNIK for taking up the proposal for the post creation after fulfilling all other requirements pointed out by the University Inspection Commission in their recommendation and with a detailed financial/analysis on the financial sustainability on the proposal.
7	5.2.7	Activities of promote self-employment schemes	KESNIK over the years is formulating various training programmes to make the trainees who are general public for the development of skills of such individuals so as to make capable of earning self employment. Artisan training programmes of KESNIK is mainly concentrated in the development of skills of individuals in construction related sector so as to make capable of earning self employment. Many of the successful participants had set up their own production centres, plant nurseries, Labour Societies etc.

P. SOBHANA
JOINT SECRETARY
HOUSING DEPARTMENT
GOVT SECRETARIAT, TVM

GOVERNMENT OF KERALA

CULTURAL AFFAIRS (B) DEPARTMENT

STATEMENT OF ACTION TAKEN ON THE RECOMMENDATIONS CONTAINED IN THE C & AG REPORT FOR THE YEAR ENDED ON 31.03.2014

Para No:	Report	Action Taken Report
5.6	Idle investment of Rs. 59.50 lakh in construction of open enclosure for crocodiles • Inordinate delay in construction of open enclosures for crocodiles resulted in unfruitful expenditure of Rs. 59.50 lakh ; • Irregular receipt of Rs. 62.90 lakh from GOI for the same purpose and its diversion.	As per G.O(Rt) No. 182/2005/CAD dated, 23/3/2005 administrative sanction was accorded for executing the work of construction of crocodile complex as a part of modernisation of Thiruvananthapuram Zoo at a total cost of Rs. 85.30 lakh. Accordingly, an amount of Rs. 85.30 lakh was deposited with the Public Works Department for execution of work. After initiating the work, Public Works Department had forwarded a utilisation certificate amounting to Rs. 59,50,047 as on 16/7/2012 (without completing the work). Simultaneously the same proposal was forwarded to Central Zoo Authority for financial assistance with the good intention of modernisation of Thiruvananthapuram Zoo. Accordingly, Central Zoo Authority released funds to the tune of Rs. 62.90 lakh. Rs. 30. 00 lakh sanctioned as first instalment by Central Zoo authority was remitted to the revenue head of account of the State Government and the 2nd instalment of Rs. 32.90 lakh sanctioned by the Central Zoo authority was deposited in the SB account of the Department. This amount is still being kept in the SB account and has never been utilised for any other purpose. Director, Museums and Zoos Department has also stated that on Central Zoo Authority's demand for utilisation certificate, the

then Director submitted the utilisation certificate received from Public Works Department for the works carried out with the state fund. This was done in good faith and good intention and hence there was no malafide intention on the part of the Department Director, Museums and Zoos Deparment has made a proposal requesting sanction for forwarding the utilisation certificate received from Public Works Department amounting to Rs. 59,50,047/- utilised for the construction of above work along with Rs. 3,39,953/- lakh drawn from the Treasury Savings Bank account of the Department to Central Zoo Authority for settlement of assistance granted by them, which is being examined by Government.

ബി. എസ്. പ്രവീണകുമാരി
അഡീഷണൽ സെക്രട്ടറി
സാംസ്കാരികകാര്യ വകുപ്പ്
ഡെപ്യൂട്ടി സെക്രട്ടറിയേറ്റ്

STATUS REPORT ON THE RECOMMENDATIONS CONTAINED IN THE C & AG REPORT FOR THE YEAR ENDED ON 31.03.2014

Para No:	Report	Status Report
5.6	Idle investment of Rs. 59.50 lakh in construction of open enclosure for crocodiles • Inordinate delay in construction of open enclosures for crocodiles resulted in unfruitful expenditure of Rs. 59.50 lakh ; • Irregular receipt of Rs. 62.90 lakh from GOI for the same purpose and its diversion.	As per G.O.(Rt)No.182/2005/CAD dated, 23/3/2005 administrative sanction was accorded for executing the work of construction of crocodile complex as a part of modernisation of Thiruvananthapuram Zoo at a total cost of Rs. 85.30 lakh. Accordingly, an amount of Rs. 85.30 lakh was deposited with the Public Works Department for execution of work. After initiating the work, Public Works Department had forwarded a utilisation certificate amounting to Rs. 59,50,047 as on 16/7/2012 (without completing the work). Simultaneously the same proposal was forwarded to Central Zoo Authority for financial assistance with the good intention of modernisation of Thiruvananthapuram Zoo. Accordingly, Central Zoo Authority released funds to the tune of Rs. 62.90 lakh. Rs. 30. 00 lakh sanctioned as first instalment by Central Zoo authority was remitted to the revenue head of account of the State Government and the 2nd instalment of Rs. 32.90 lakh sanctioned by the Central Zoo authority was deposited in the SB account of the Department. Director, Museums and Zoos Department has also stated that on Central Zoo Authority's demand for

utilization certificate, the then Director submitted the utilization certificate received from Public Works Department for the works carried out with the state fund. This was done in good faith and good intention and hence there was no malafide intention on the part of the Department Director, Museums and Zoos Department has made a proposal requesting sanction for forwarding the utilization certificate received from Public Works Department amounting to Rs. 59,50,047/- utilized for the construction of above work along with Rs. 3,39,953/- lakh drawn from the Treasury Savings Bank account of the Department to Central Zoo Authority for settlement of assistance granted by them.

Accordingly, as per G.O.(Rt) No.482/15/CLAD. Dated : 09.09.2015, Government had accorded sanction to the Director, Zoo Department to forward the utilization certificate for an amount of Rs.59,50,047/- submitted by the PWD and to remit an amount of Rs.3,39,953/-, out of 32.90 lakhs deposited in the SB account to the Central Zoo Authority. Accordingly the Director has forwarded the utilization certificate to CZA and remitted the amount. PWD has been asked repeatedly to refund the unutilized amount of Rs.25,79,953/-, however they have not refunded the amount till date. Director, Zoo department had remitted an amount of Rs.29,50,047/- which was deposited in the SB account of the department, to revenue Head of account of the State Government. The amount of

		Rs.25,79,953/- is still pending with PWD for the remaining works. Details of work proposed and completed till date are given below.

Sl.No.	Details of projects sanctioned	Details of work components	Details of works completed
1	Construction of open enclosure for Mugger Crocodile including viewing gallery Rs.23.30 lakhs	a. Construction of water tanks (4 Nos) b. Construction of two Nos of viewers gallery with toughened glass c. Landscaping the whole area d. Making of walkways	a. Works of four water tanks completed. b. Skeleton structure of two viewers gallery finished. Toughened glass not fixed.
2	Construction of open enclosure for Estuarine Crocodile. Rs. 17 Lakhs		
3	Construction of open enclosure for Gharial Rs.20.50 lakhs		
4	Construction of open enclosure for spectacled Caiman Crocodile including visitors gallery Rs.24.50 Lakhs		

JANARDHANAN. K
Additional Secretary
Cultural Affairs Department
Govt. Secretariat

Action Taken Report on Chapter III (Para No.3.1 to 3.12) of the C&AG Report (General & Social Sector)for the year ended on 31st March 2015

Preamble

Jalanidhi phase 1, a comprehensive water sanitation project implemented from 2000 to 2008 has covered 1,91,865 nos. of Households (HHs) in 3710 nos. of Water Supply Scheme (WSS) benefiting 10,56,103 people. Water supply (WS) is provided to all beneficiaries in the individual house premise either through piped connections or by providing Rain Water Harvesting (RWH) structures to 1,88,115 nos. of HHs out of the 1,91,865 HHs covered, leaving only a marginal no. of 3750 HHs—to whom drinking water is provided through public taps .

The partial capital cost was mobilized only from the beneficiaries who are provided with individual HH level connections and the beneficiaries to whom all the service is provided through public taps had been exempted from sharing capita cost .

As per Clause B-2.2 (a) of the Project Appraisal Document (PAD) only 70% of the targeted beneficiaries are expected to opt for private water connections (House Hold Connections). Therefore the projected target for the HH Connections was only 1,75,000 Nos (2500*100*75%). Against this target KRWSA has provided water supply in the premises of 1,88,115 Nos through individual HH pipe connections and RWH structures. Out of which 1,61,427 HH Connections are still benefitted at the time of Performance Audit during 2015-16. This is 92% (161427/175000*100) of the total target as per Project Appraisal Document (PAD).Against an envisaged target of 70% (1,75,000 House Holds) in the project appraisal document [PAD] , partial capital cost was mobilized ,either by cash or labor, from 98%oftheHHs covered[188115 House Holds] in the project . The HH premise water supply to all the beneficiaries covered in the project, also helped to avoid misuse of water through public taps .

The schemes are continued to be operated by the BGs with neither technical nor financial support either from local self-government department [LSGD] or from water resources department [WRD] as per the project design. The CAG report on the performance of the schemes prompted the Government to provide technical & financial assistance and issued AS for a sustainability support scheme for the FY 2018--2019 for an amount of 10Cr. Moreover an amount of Rs.55 Cr has also been allocated under the scheme during the current FY 2019-20.

The draft Para wise reply on the performance Audit Report on Rural Water Supply Schemes Implemented by Kerala Rural Water Supply and Sanitation Agency under Jalanidhi Phase

Para No.	Observations	Suggested Reply
3.6	**Accessibility of the targeted population to stipulated quantity and quality of drinking water** The projects was originally targeted to implement 2500 new drinking WSS (inclusive of six large WSS) costing Rs. 205.60 core, audit observed that even though 3139 new drinking WSS (including 16 large WSS) costing Rs. 253.02 crores were implemented against the original target of 2500 WSS to benefit 2,50,000/- Households (HH), only 161427 HHs (65percent) benefited from the schemes. Of the 784 small WSS implemented in the test checked 22 GPs, 117 schemes had turned defunct and the remaining 667 schemes were either fully / partially functional. This had resulted in lower number of HH benefiting under the schemes as brought out in the following paragraphs.	As per Clause B-2.2 (a) of the Project Appraisal Document (PAD) only 70% of the targeted beneficiaries are expected to opt for private water connections (House Hold Connections). (The average coverage of 100 HH per scheme is only a projected coverage in each of the total number of 2500 targeted schemes.) Therefore the projected target for the HH Connections was only 1,75,000 Nos (2500*100*75%). Against this target KRWSA has provided water supply in the premises of 1,88,115 nos. through individual HH pipe connections and RWH structures. Out of the total HH connections provided through project , 1,61,427 HH Connections are in service benefitting the HHs . This is 92% (161427/175000*100) of the total target as per Project Appraisal Document (PAD). The audit team had test checked only 88 schemes in 22 GPs and reported that 30 schemes are found to be defunct & in the remaining 11 schemes water quality issues were prevailing , depriving the beneficiaries from accessibility to potable quality of water . The audit also reported out of the 784 no .of total schemes in all the 22 GPs where the team conducted field checks , only 117 schemes were defunct at the time of audit . That means nearly 85% of the schemes were functional at the time of performance audit . The list of defunct schemes 117 nos. is not appended in the report. The audit team from the field checks also reported that 1,61,427 number of HHs are still benefitted by the drinking water supply from the functional Water Supply Schemes. This rural population is supplied with drinking water from the schemes fully owned & managed by the beneficiary groups, with practically no support either from the LSGD or the WRD even after a decade from the date of

		handing over the ownership and O&M responsibility to the BGs. The fact is that 92% of the PAD target on the Individual HH water supply connections are functional at the time of performance audit as against 65% highlighted in audit observations.
3.7	**Reduced coverage due to defunct/partly functional water supply schemes** WSS under Jalanidhi were conceived with the objective of providing 70 LPCD of quality drinking water throughout the life cycle of the WSS through private connections and 40 lpcd if provided through public stand posts. Audit attempted to ascertain whether sufficient quantity of water was provided to the beneficiary HHs in test-checked Panchayats. It was noticed that water meters were not installed in HHs which made it difficult to assess the quantity of water supplied. Audit observed that of the 88 small WSS test-checked, 30 schemes costing Rs.2.48 crores became defunct (Appendix 3.1) forcing the beneficiary survey conducted by audit also revealed that 450 out of 539 beneficiaries depended on neighboring/public wells, rivers, stream, ponds, own sources, etc. as an alternate option for water supply. Major instances of schemes becoming defunct / partially defunct due to reasons like failure of source, quality /technical issues, inactive BGs and other reasons are analysed below:	The design criteria @ 70 lpcd service level through House hold connections is the uniform yard stick fixed in the technical manual of KRWSA for design of water supply schemes in this project. The manual also stipulates that the service level criteria is to be location specific on the basis of established safe yield of the source[minimum sustainable yield] , beneficiary demand and preference of service level , willingness & capacity of the beneficiary to bear the cost of service level. The split up details of 30 schemes either failed to function from the date of inception or turned out to be defunct while in operation for different periods from the date of commissioning & handing over to BGs is Annexed . In this 18 schemes turned out to be defunct after in operation for a period from 1 to 10 years. In the remaining 12 schemes, 9 schemes failed to operate from the date of inception & the balance 3 schemes turned out defunct within 6 months of operation. [Ref. Appendix 3.1 of the Performance Audit Report] The reasons for failure of the schemes are given in matrix • 5 schemes by source inadequacy • 8 schemes had to either complete / replace the works/ equipment of various components of the scheme or to undergo major maintenance works • 6 schemes faced Institutional & Financial capacity constraints • 9 schemes developed WQ issues either during operation or from the date of inception The project through community mobilization built harmony among beneficiaries & presumed that this community dynamics prevailed at the time of implementation could ensure an equitable distribution & uniform consumption of water among all the beneficiaries in a BG at the time of O&M period also . Anticipating this installation of water meters [WM] in individual HH connections had been done away. But in reality, there were cases of excessive drawl & consumption of water by a section of the beneficiaries in the absence of a differential water tariffing on the basis of volumetric consumption .This excess drawl & consumption

		affects source sustainability of the scheme resulting in poor water quality & in adequate quantity issues. The audit team also could not ascertain the quantity of water pumped in the absence of Water meters in all the above schemes that become defunct by source sustainability issues . It is decided to install Water Meters[WM] in all the phase 1 schemes & the installation of WM would be initiated with the Sustainability Support implementation Scheme. It has been made mandatory to install Water Meters in all the individual HH connections to control consumption by resorting to volumetric tariffing.
3 .7.1	**Failure of KRWSA in identification of water sources** The small WSS generally depended upon sources such as open wells, bore wells, streams, Rain Water Harvesting Structures (RWHS), etc., for supply of water. For the successful implementation of a WSS, the source had to be identified in peak summer i.e. in the months of March to May, quantum of supply from the source had to be ascertained by conducting yield test, wells constructed up to the required depth as recommended by hydro geologist and RWHS constructed without defects. Audit observed that these pre-conditions were not complied with satisfactorily, which led to reduced coverage. Out of 88 schemes selected for scrutiny, Audit identified six schemes which became either non-functional or functioned sub-optimally due to failure of water sources as indicated below.	The sources of the small water supply schemes are mainly from the subsurface or ground water sources and to ensure source sustainability identification of the same is ideally to be done in the peak summer & yield test to also be conducted to arrive at the safe yield value. This is to ensure enough quantity of water to meet the water demand @ 70 lpcd, for all the HHs covered in the scheme . The RWH units & the Gravity schemes constructed are example of location specific schemes at a higher or lower service delivery rate depending on the source adequacy in hilly terrains. These schemes have the advantage of lesser operating cost. The audit team vouches that in the total 88 schemes test checked , only 1 scheme failed to function, from the date of inception, by source inadequacy and the list of balance 4 schemes in the table -- Appendix 3.1]turned out to be defunct by source inadequacy ,while in operation for a period from 6 months to 10 years. The audit also observed that the absence of water meter in the individual HH piped water connections prevented in assessing the quantity of water supplied to the beneficiary HHs. In this context it is pointed out that in all these schemes it could not be ascertained whether during the operational period , excessive water consumption than the design level @

		70lpcd prevailed among the beneficiaries. The failure of the source by excessive consumption of water than the yield limit of the source of the schemes can not be ruled out . The audit team also pointed out that in one such scheme , the Beneficiary Group themselves confirmed that excessive drawl of water was done to the magnitude of 3 times than the safe yield , that turned out to be defunct after 6 years of operation [Serial no.2 in Appendix 3.1]. Drawl rate of water to three times the magnitude of safe yield limit will have a cascading effect in lowering the safe yield limit. This could have adversely affected the source in terms of both quantity & quality of water that eventually led to scheme failure. But at the same time the recuperation rate of yield in the open wells / bore wells is very much dependent on the rate of drawl. The limitation in the availability of safe yield rate, for the designed service delivery in the open wells during the acute summer season, is a hard reality prevail in almost all parts of the state. It is well accepted that as time passes the period, gravity of scarcity of water in sub surface sources increase & spread across further locations in our state. This is an increasing phenomena in the state for nearly a past decade
3.7.1.1	**Thayamparmbu BG in Vettom Panchayath** The scheme which was to benefit 326 beneficiaries was completed in March 2006. A joint site verification conducted by Audit and GP Secretary revealed that water was not available in the source well and the scheme was not functioning since its inception. According to Para 5 of Technical Manual, the yield of source had to be ascertained prior to construction of well. Though the Detailed Scheme Report (DSR) envisaged geophysical	The implementation of this scheme could not be continued & completed as envisaged, since an alternate location for a sustainable source could not be identified. The originally identified source was without adequate yield to cater to the beneficiary HHs. The IPCR will be prepared only when the scheme is successfully completed & commissioned. In this scheme the IPCR was not prepared since the scheme could not be commissioned successfully .But it is clarified that exit order had to be prepared & issued in all schemes taken

	survey and yield test, these were not conducted. Audit observed that the KRWSA guidelines required the agency to affix its approval to an Implementation Phase Completion Report (IPCR) attesting to successful execution and functioning of the scheme. Exit orders signifying the handing over of the scheme to the intended beneficiaries were to be issued only after preparation of the IPCR. The failure of KRWSA in monitoring the successful execution and functioning of the scheme is evident from the fact that though IPCR was not prepared, Exit order was issued by KRWSA (December 2006). It was replied to Audit (January 2016) that IPCR and Exit orders of the scheme were issued only after ascertaining that the scheme had been properly executed and sufficient water was supplied. The reply was not factually correct, as Project Manager, DPMU himself had stated in the Exit order that the IPCR had not been submitted. Thus, the action of KRWSA of issuing Exit Order without preparation of IPCR was a serious lapse which calls for investigation and fixing responsibility.	up for implementation, irrespective of successful or non-successful completion of the scheme. This is to reconcile the accounts & financial settlement of the project implemented in any BG .
3.7.1.2	**Nila and Jalavahini BG in Vallathol Nagar GP** The WSS comprising 20 and 41 HHs respectively with a total cost of Rs.7.78 lakh sourced water from bore wells with depth of 49 meter and 89 meter respectively as against 100 meter and 100 meter recommended by the hydro geologist. The scheme became defunct due to insufficient water in the source. Failure of the Supporting Organization (SO) to ensure that the depth of the well was maintained at levels specified by the Hydro geologist led to the scheme turning defunct .The Government replied (January 2016) that digging of bore wells were stopped at these depths as sufficient yield was noticed at these	The **scheme Nila was operational for a period of 7 years** since completion & commissioning. It is also pointed out in the audit observations that inadequacy of the source has been reported **in the summer only.** Had it been the inadequate depth of drilling of the B/W , the yield inadequacy would have been surfaced in all the seasons. More over the schemes were in operation without Water Meters. It is needless to mention that voluntary control on consumption of water is the best practice to be adopted by the beneficiaries within the group for source sustainability in peak summer. The scheme Jalavahini in this GP failed to function after 2 years of operation. It is pointed out in the audit findings that

	levels .The reply of Government is not acceptable since the scheme became defunct due to failure of KRWSA in ensuring depth of bore wells as recommended by hydro geologist and that technical parameters stipulated in the Technical Manual were not fully met while implementing the WSS. Thus, the case needs to be investigated for fixing responsibility of defaulting officers for ignoring recommendations of hydrogeologist and technical parameters.	in both the cases electricity connection was withdrawn. It was not clear whether excessive drawl of water and its cascading effect in lowering the yield rate led to the current defunct status. It is also highlighted that the excess drawl of water could have resulted in excessive power consumption that BGs could not afford to pay.
3.7.1.3	**Nellithara BG in Kavassery GP** The scheme consist of 39 HHs .The work was completed and handed over to the BG in February 2006 .The scheme became partially functional due to inadequate water at source. Audit noticed that contrary to provisions contained in the Technical Manual of KRWSA which requires source selection to be made during peak summer, the hydro geologist had identified the source in January 2014 .Audit further observed that the recommendation to dig an open well with 10 meter depth was also not adhered to and the depth was restricted to 7.10 meter. The suggestion of the hydro geologist to introduce rain pits, buried infiltration tanks and trenches on the upslope of well as GWR methods were also not executed resulting in the scheme becoming partially functional with pumping done in alternative days. Failure of the SO and the construction Quality Monitoring and Supervision (CQMS) agencies in discharging their responsibilities led to the scheme becoming partially functional. KRWSA stated (November 2015) that the identification of source was done in January to facilitate the pace of implementation and that depth was restricted only after ensuring availability of sufficient water for HHS. The reply was not acceptable in the view of the	This is not figured in the list of schemes identified in appendix 3.1 of the CAG report, to ascertain how long the scheme was operational before turned out to be partially functional. This scheme will be revisited to ascertain with further deepening of the source the water scarcity issue faced now could be addressed. However the audit team also observed, that even after a decade of operation, the scheme is providing water supply to all its beneficiaries once in two days. It is also not clear whether excessive drawl of water from the source has forced the scheme to reach this stage. In the Sustainability Support Program planned in the balance period of 13th Five Year Plan technical and financial support will be provided to this scheme to make it fully functional.

	failure of KRWSA to select source during peak summer as stipulated in the Technical Manual and failure to comply with recommendations of the hydro geologist regarding depth of the wells, assessment of the adequacy of water by conducting yield test and implementation of GWR measures which eventually resulted in failure of the scheme, which calls for fixing of responsibility.	
3.7.1.4	**Thrithalaparambu BG in Pazhayannur GP** The Scheme targeted to be benefit 40 HHs, was handed over to the BG in December 2004. The Technical Manual Stipulates that drilling of bore well as source shall be continued up to the depth recommended by hydro geologist, and discharge shall be measured by diverting the water through a V- notch[23]. Scrutiny of Measurement Book and IPCR revealed that recommendations of hydrogeologist to drill the bore well up to a depth of 100 meters was not adhered to and the actual depth executed was only 73.5 meters (September 2003) .Survey of Beneficiaries as well as BG conducted by Audit revealed that the beneficiaries of the scheme obtained less than sufficient quantity of water and that the scheme was functioning partially with supply on alternative days only. The number of beneficiaries also declined from 40 to 23 due to irregular supply of water. Government replied (January 2016) that though yield at that time was sufficient to cater to the needs of the BG, the hydrogeologist conditions based on climatic changes and lowering of water table reduced yield in course of time. Government also suggested that a reduced distribution of water was the only alternative to maintain water supply in acute summer. The reply was not acceptable in view of the fact that had KRWSA drilled up to the recommended depth, the	All the schemes, that turned out to be suboptimal in functioning by source inadequacy, revisits will be done to ascertain the reasons that led to the current state. But rehabilitation of these schemes will be taken up only with the prerequisite condition that all beneficiary HHs have to install Water Meters to quantify the water consumption. The volumetric billing at differential tariffs will ensure controlled consumption by HHs thereby it ensure water conservation. This prerequisite condition is made mandatory rehabilitation of the phase I schemes that turned out partially or fully defunct. At the time of revisit of the scheme under Sustainability Support Program it will again evaluated whether further deepening of the existing Bore Well alone will resolve the issue.

	quantity of water available for consumption would have been much higher. Failure of KRWSA to adhere to the Technical Manual and instead requiring beneficiaries to adopt lesser quantity of water was not acceptable.	
3.7.1.5	**Jalasree Narikkal BG in Thirunelli GP** The scheme which included 30 HHs was completed in September 2007 and the Exit order to own and operate the scheme by the BG was issued in March 2008. Audit noticed that ten HHs had opted out of the scheme for want of steady supply of sufficient quantity of potable water. Currently, water was being supplied for only one and half hours per day, two to three days in a week, which was hardly sufficient to fill the 6,000 liter capacity OH tank. The existing 20 HHs were also not getting required quantity of water for domestic purposes. The DPMU, Wayanad identified (December 2007) the presence of weathered rock at the bottom of the open well as reason for low yield of the well. Audit noticed that yield test of the source was not conducted to ensure adequacy of water. Government stated (January 2016) that though sanction for additional source was accorded in December 2007, it could not be pursued as the target date of exit was March 2008. It also stated that new or rehabilitation schemes were not envisaged under spill over works. The reply was not acceptable since sanction accorded to the WSS without ensuring sufficient yield and reluctance in taking up the work afresh clearly exposes the laxity of KRWSA in ensuring adequate water to the beneficiaries.	The rehabilitation of this scheme will be taken up in the sustainability support scheme to ensure better service delivery to the beneficiary HHs
3.7.2.1	**Deviation from Detailed Scheme Report - Irregular construction of tank** The Jaladhara WSS in Tanur GP envisaged providing potable water to 41 beneficiary HHs. The component of	Whether repair of the existing ferro-cement tank or the construction of a new OHSR is required or not to operationalize this scheme will be ascertained & corrective actions will be initiated when the revisit of the scheme is

	the scheme included construction of 5640 liter RCC[24] Overhead Service Reservoir (OHSR). Audit noticed during physical verification that instead of an RCC OHSR, a Ferro -cement tank of 7000 liters was constructed, which developed cracks within a year, causing leakage of water resulting in short supply of water to the beneficiaries .Government stated (January 2016) that cracks in the tank developed due to the poor workmanship and that Ferro cement tanks were not being used in phase II of the scheme. The reply was not acceptable as the scheme was designed with a life span of 20 years and the decision to deviate from the originally envisaged RCC OHSR in favour of Ferro cement tanks was injudicious.	taken up under sustainability support program of phase 1 schemes.
3.7.2.2	**Valathode Vikasana Samithy in Chaliyar GP** A WSS for Valamthode Vikasana Samithy in Chaliyar GP in Malappuram district to benefit 54 HHs was completed in June 2006. The Kuravanpuzha stream in the forest was identified as source for conveying water to an OHSR through gravity Main laid in the stream .Beneficiaries surveyed reported to Audit that they were not obtained potable water during rainy season. A joint site verification conducted by audit (October 2015) along with secretary of Chaliyar Panchayat revealed that the sand filter constructed in the stream had got fully damaged .Due to the force of turbid water rushing down the hill side, the chamber for collection of water was frequently demolished in heavy rains and the PVC pipes carrying water to the OHSR were washed away. Government replied (January 2016) that since it does not support the O&M part , the BG was to undertake minor repair and maintenance works to rectify damages in infiltration zone. Audit observed that had KRWSA, considering the heavy flow of water, incorporated suitable	After the commissioning and exit of the scheme the operation and maintenance has to be carried out fully by the BG themselves. However the scheme revisit will be done in the Sustainability Support Program & corrective measures will also be initiated to ensure desired quality of the drinking water across the seasons.

	checks at the design stage itself, the sustenance of the scheme could have been ensured.	
3.7.2.3	**Moothodath BG Scheme in Vettom GP** The Moothodath BG Scheme in Vettom GP in Malappuram district was commissioned (October 2004) to benefit 54 HHs. Audit noticed that 16 of the 54 HHs in elevated areas opted out of the scheme as water could not be pumped to these areas at sufficient pressure. It was observed that valves were not installed to regulate the supply of water for being pumped at the required pressure to elevated areas. During the Exit conference (January 2016) Government stated that the issue could have been easily resolved had the BGs installed valves to pump water to elevated areas at required pressure. The reply was not acceptable as the problem of adequacy of pressure to enable water to reach elevated areas should have been considered at the design stage itself.	The absence of water meters in the beneficiary HHs will not ensure a controlled consumption by all the beneficiary HHs. The HH in the low lying area will get water in almost 24 Hours, preventing supply to high /hilly terrains. Installation of Water Meters in all beneficiary HHs will resolve the issue , once the BG agree for water tariffing by volumetric consumption, along with the installation of control valves for effecting delivery of water to the top most elevation in the distribution system
3.7.2.4	**Vandana WSS in Vellarada GP** The Vandana WSS in Vellarada GP in Thiruvananthapuram District was designed to benefit 42 HHs .As per the DSR, a 5 HP[25] motor was proposed for the scheme. However , only a 3 HP motor was installed. Audit noticed that though there was deviation from the original DSR, formal Exit order was issued by KRWSA (December 2008) citing completion of the Scheme .A direction issued (November 2011) to KRWSA by the Ombudsman for Local Self Government Institutions, Thiruvananthapuram to render technical advice for installation of a 5 HP motor and to repair pipelines before 28 February 2012 was also not complied with (July 2015). Audit also noticed that the signatures of the BG Secretary	Necessary technical support will be rendered to install the required HP pump in the pumping system to cater to the drinking water requirement of the BG. There were no mandate for KRWSA to render any services to the BGs/GPs in resolving the technical snags that resulted in either fully or partially defunct status of an infrastructure created under the project. This scheme will be revisited again in the sustainability program envisaged for the year 2019-20 Regarding forged signature of the office bearers of BG by the SO staff at present KRWSA will not be able to conduct an effective enquiry in the lapse of a period of nearly 8 years of this fraudulent practice . However police investigation will be requested in the matter. Steps have already been initiated to ensure that the exit orders are prepared only after a social audit on the

	in the Memorandum of Association and IPCR of the scheme were different. It was confirmed to audit by the BG secretary , President , and Treasurer in writing that their signatures in the IPCR were forged .As such , the issue needs to be investigated and responsibility fixed for irregularly issuing Exit order on the basis of forged IPCR , to a scheme which failed to deliver on its objectives. The Executive Director, KRWSA, During the Exit conference (January 2016) agreed to investigate the issue.	operational status by the BG , after the schemes are made functional in the sustainability support scheme
3.7.2.5	**Incomplete Comprehensive WSS in Pananchery GP** The Large Surface Based Comprehensive Water Supply Scheme (LSBCWSS) in Panachaery GP in Thrissur District was intended to provide piped water supply to 2500 HHs at an estimated cost of Rs. 4.97 crores. Administrative sanction and technical sanction was accorded (March2006) by Pananchery GP and KRWSA respectively for Rs.4.97Crores. Revised Administrative Sanction was accorded (October 2009) by Pananchery GP for Rs. 7.36 crore. KRWSA appointed M/s. Mahindra Acres Consulting Engineer Ltd. As technical consultant. As per the DSR, the scheme components included laying of gravity main from Peechi Dam off-take point to 2 MLD capacity Water Treatment Plant (WTP) near Mylatumpara, Pumping main and distribution system divided into three zones and service reservoirs at Palakkunnu for Zone I, Vilangannur for Zone II and Kuthiran for Zone III. Site verification and scrutiny of records maintained by the Schemes Level Executive Committee (SLEC) and KRWSA, revealed that the scheme was commissioned in June 2010, with water provided only to 1308 (52 per cent) beneficiaries against the target of 2500 HHs. Audit observed that poor quality of work resulted in	The issues related to non completion of this LWSS are under litigation , pending court cases. Part of the total no. of house holds originally covered had left out of the scheme. In that place of the dropped HHs additional HHs from other parts of the GP joined the scheme. The basic reason in non-completion of the scheme is the additional huge quantity of distribution pipes required than envisaged in the DSR , to provide robust distribution system to the entire HHs covered in the project. In the meantime KRWSA has taken steps to support and capacitate the SLEC in providing water to the remaining number of HHs & ensuring O&M collection from the beneficiary HHs. Rerouting the distribution lines & delay in obtaining road cutting permission for laying pipes in the NH also attributed to the delay in completion of works, which finally led to left out works by the closing date of the project. The unfinished works were not taken up subsequently which deprived the community to access safe drinking water . The scheme will be revisited during the remaining period of the 13th Five year plan to bring it fully functional scheme .

	depriving 1041 HHs of potable drinking water under the scheme. In the Exit Conference (January 2016), the Executive Director, KRWSA stated that the matter, being under adjudication, was still pending and that steps for completion of the scheme would be taken up after completion of adjudication process. All the instances mentioned by Audit in Paragraphs 3.7.1 to 3.7.2 reveal laxity of KRWSA in designing and implementing WSS in violation of the provisions contained in its Technical Manual.	
3.7.3	**Deficiencies in Operation& Maintenance of schemes by Beneficiary Groups** As per project guidelines, the BGs were responsible for planning, technology selection, constructing WSS facilities, providing their part of the capital cost contribution, managing O&M of the improved facilities and levying and collecting sufficient user charges from the beneficiaries to fully recover the recurrent O&M costs. Audit scrutiny of records pertaining to the BGs in test-checked GPs and beneficiary survey revealed instances of schemes turning defunct due to failure of BGs to discharge their responsibilities envisaged in the Project Guidelines. Government replied (January 2016) that the schemes turned defunct due to technical, social and financial issues which were beyond the managerial capacity of BG's .It was further stated that there was no post exit support to BGs either from the GOK or KRWSA to address the issues.	The water tariffing has been on a fixed amount basis irrespective of volumetric consumption of the beneficiary HHs. This led to cash crunch situation in certain BGs. It is also pertinent to point out that only the normal O&M charges can be borne by the BGs to meet electricity charges, maintenance cost & operator charges. It is beyond the affordability of the BGs to meet the charges /cost required for replacement/repair of components of the scheme like -- to develop additional source for meeting the water demand in future , to install new pumping system. Neither the GP nor the Government render support to the BGs, treating the BGs as a service provider for the rural public. The desired level of performance of these schemes cannot be ensured by the BGs standing alone. It is also a fact that instead the enthusiasm shown in the earlier period during the implementation & commissioning, the community behavior has changed from the role, responsibility & rights of the owners to that of consumers who are willing to pay for a better service without taking active involvement in O&M. The new scheme under state plan launched for revisiting phase 1 & other community managed schemes will take steps to hand over O&M of at least in one Large Water Supply Scheme (LWSS) to a locally

		developed O&M agency. This is to ensure sustainability of service and thereby to achieve sustainability of investment made in the RWSS.
3.8	**Declaration of completion of schemes** As per World Bank guidelines, KRWSA was to appoint Construction Quality Monitoring and Supervision (CQMS) agencies who were responsible for monitoring the quality of supervision by SO and to ensure quality of construction in the ongoing schemes. While the SOs were responsible for the day to day supervision of all procurement and construction activities, the CQMS agencies were responsible for concurrent monitoring of these activities through periodic reviews and inspections. KRWSA had also issued guidelines to be followed by CQMS agencies for discharging their works. Exit order handing over the scheme to the BG is issued by KRWSA on the basis of IPCR after ensuring availability of adequate water to the beneficiaries. Audit noticed two instances where schemes for which IPCRs had been signed and Exit order issued, were not commissioned as detailed below.	Construction Quality Monitoring and Supervision agency (CQMS) appointed in the project are responsible for concurrently monitoring the quality of construction by inspection of works at random and ensure that the project works, goods and services procured by the community are in confirmation with the required specification and quality. Audit noticed that the schemes for which IPCR has been signed and exit order issued were not commissioned. The CQMS is not contractually obliged to certify the completion report. This audit observation is noted & corrective steps will be taken in co-ordination with BG & GP.
3.8.1	**Kairali BG in Vellarada GP** A BG comprising 50 HHs implemented the scheme. Audit noticed that formal Exit order was issued by KRWSA (December 2008) citing completion of scheme in September 2008. However, joint site inspection by Audit (June 2015) revealed that construction of ladders of OH tank, plastering of sides and surface of well and RCC were still incomplete. The Secretary of BG confirmed to Audit in writing (June 2015) that his signatures in the IPCR were forged. Government stated (January 2016) that non-completion of	The audit observations have been brought to the team members that carried out project implementation in the GP in phase 1. In every exit order a financial settlement of expenditure is reconciled to release either the balance fund due or to recover the excess amount than the approved project expenditure respectively. The financial settlement is done in the exit order The discrepancy in the IPCR is noted. The particular SO & its Team Leader are not hired for technical services in this phase of the project. If this discrepancy had been brought to the attention of the KRWSA at the time of exit, effective

	various components of the scheme at the time of exit, as pointed out by Audit, had not come to their notice. It was also stated that since the completion report signed by the SO, BG Secretary, Team Leader, Accounts Officer and Project Manager of Thiruvananthapuram district had certified satisfactory completion of components of the work, the information now given by the BG Secretary after eight years of exit, that his signatures were forged in the IPCR, did not deserve any merit. The reply of Government is not acceptable in view of the fact that passage of time does not minimize the gravity of an offence and that the Government cannot escape from its responsibility for ensuring right action when such schemes are implemented for common people by spending Government funds. As such, this instance of forgery pointed out by Audit needs to be investigated and appropriate action taken.	measures could have been taken for completing the balance pending works before closure of the project. However in the revisit program envisaged to support the Jalanidhi schemes in phase I, corrective measures will be taken. Regarding forged signature of the office bearers of BG by the SO staff at present KRWSA will not be able to conduct an effective enquiry in the lapse of a period of nearly 8 years of this fraudulent practice . However police investigation will be requested in the matter.
3.8.2	**Vadakkekara scheme in Thachanattukara GP** The Scheme in Palakkad district, intended to benefit 20 HHs was not commissioned due to non-completion of inter connection between pumping main, reservoir and distribution line. IPCR was to be issued only on completion of the WSS, in all respects. However, KRWSA had wrongly issued Exit order (March 2006) ignoring the fact that the interconnection between pumping main and distribution line was incomplete. Government stated in reply (January 2016) that the scheme was functioning with a new source constructed using GP fund and interconnections were done dismantling old pipes from the tank. Government further stated that the BG should have intervened during the exit process to ensure availability of water. The reply was not acceptable as it is indicative of lack of responsibility.	The scheme IPCR is not made at the time of exit of this scheme .But exit order is a mandatory document to be issued to ensure the financial settlement of the project in the GP. Subsequent to the exit BG has taken up the balance works & commissioned the scheme .This does not relieve KRWSA from the responsibility of leaving unfinished works at the closing date. It is also highlighted that the initiative responses shown by different BGs in the same GP will vary during project implementation. Out of the 26 schemes completed in this GP except for this one all other schemes were completed within the project period.

	Placing the blame on BGs in inappropriate since KRWSA should have ensured completion of work before signing the IPCR, which calls for fixing of responsibility.	
3.9	**Quality of drinking water** The project envisaged definite and comprehensive parameters to ensure the quality of water to be supplied to beneficiaries. It stipulated compliance to standards prescribed by Central Public Health and Environmental Engineering Organization (CPHEEO). As per CPHEEO standards, the water should be free from pathogenic organisms, low in concentration of compounds that were acutely toxic or that have serious long term effects, clear, free from salinity, free of compounds producing taste and odor, non-corrosive, non-staining, etc. Beneficiary survey and joint site inspection with the officials of GP/BG revealed that 30 of 88 schemes test-checked had become defunct, of which nine (Appendix 3.1) turned defunct due to poor quality of water. Of the balance 58 schemes, beneficiaries of 11 schemes (Appendix 3.2) stated that water distributed could not be used for drinking purpose. In the remaining 47 schemes, beneficiary committees of four schemes certified that water was fit for drinking as per periodical quality tests. Audit noticed that the beneficiaries in the remaining 43 schemes consumed the water without periodical tests to ensure the quality of water.	The BGs have to supply potable quality of water to the beneficiary HHs from the schemes implemented under the project. Provision of water treatment plant is not envisaged in the DSR of Small Water Supply scheme. But whenever a WQ issue is noticed in the source, remedial measures are taken to supply potable quality of water from the scheme. Chlorination at regular intervals ensuring presence of residual chlorine at HH level is the standard practice to ensure desired level of WQ. BGs are capacitated for periodical check on WQ, but there is no monitoring agency to ensure whether periodical checks on WQ are done or not. The BGs are supporting GP in delivering DW to the rural population in the GP. In this endeavor GP should support & guide the BGs in maintaining quality of water consumed by the rural population in the LSG. It is also to be made mandatory on the part of the respective LSG to monitor the WQ issues through the committee constituted with Health Inspector, selected Asha Workers, &selected GP staff where the health & Education Standing Committee Chairman as the chairperson & GP secretary as convener , to implement this within the GP
3.9.1	**Schemes defunct due to excess iron content** KRWSA had identified (November 2007) 108 WSS in the State catering to 4050 HHs (four in the test checked schemes) having quality issues in water supplied owing to the presence of excess iron. KRWSA also identified (November 2013) fifty schemes as 'defunct' due to excess	The presence of Iron content than the permissible limits make the water non potable. In all these schemes where excessive iron content are noticed, actions have been taken to install IRPs to mitigate the WQ issue. Installation of IRP is an effective mitigation measure to address high level of iron content in the water drawn. But there need to be a continuous

	presence of iron. GOK, therefore, accorded sanction (February 2014) for the rehabilitation of 21 schemes by installation of Iron Removal Plants (IRP) and Terrafil filters at a cost of Rs. 1.78 crore. Though KRWSA obtained Rs. 1.78 crore from GOK in March 2014 based on its proposal for installation of IRP in 10 schemes and Terrafil filters in 11 schemes, no expenditure was incurred and the amount was retained by the KRWSA. The KRWSA stated (December 2015) that expenditure was not incurred since 17 of the 21 schemes chosen for installation of IRPs and Terrafil filters had since been identified as non-functional. It was clarified that the possibility of installing new proven water purification natural technology with Zeolite based filtration plants in WSS was being explored. In the test-checked Varsha WSS in Vallathol Nagar GP, Audit observed (May 2015) that IRP which was installed after commissioning of scheme, had been removed and unusable water with excess iron was being distributed to beneficiaries. The Secretary of BG reported that though there was sufficient water in the source, functioning of IRP caused frequent breaking of pumping main and reduced flow of water from IRP to the tank, which forced the BG to detach the IRP. Government stated (January 2016) that improper maintenance by the BG resulted in idling of the IRP. Audit observed that KRWSA failed in addressing the problems associated with delayed installation of IRP. Government stated in the Exit Conference (January 2016) that the matter would be looked into. Audit also noticed water quality issues in one out of three test-checked large WSS as detailed below:	monitoring mechanism to ensure back washing the IRP to avoid clogging & chocking the filter media. This routine & preventive maintenance of the IRP can only ensure safe removal of excess iron & the proper functioning of the equipment. The issues related to water quality has been effectively addressed in the LWSS implemented by Jalanidhi. But implementing Small Water Supply Schemes with the available source in the vicinity to cater to the local rural population, by & large lead to Source Quantity & Quality issues. The use of alternative remedial measures to address the WQ issues are being probed in to. Use of Individual HH level filters, Providing settling tanks are alternate remedial measures being provided in the phase 2 project to address the WQ issue & the same will be extended to the schemes become defunct by WQ issues in phase 1 project during the revisit planned for sustainability support.

3.9.2	**Nenmeni Rural Water Supply Scheme** Nenmeni RWSS managed by KWA since 1993 was handed over to Nenmeni GP in April 2005. The scheme was rehabilitated at a cost of Rs. 42.93 lakh under Jalanidhi and commissioned in November 2007. The scheme was currently run by SLEC. A report on water quality test conducted in October 2013 showed very high turbidity, presence of iron, and coliform bacteria rendering the water unfit for consumption. The Secretary, SLEC stated (January 2014) that a length of 12.34 KMs of Asbestos Cement (AC) pipes used in the distribution line was damaged at various stretches resulting in deposit of slush in the distribution line. Even though KRWSA had accorded sanction (March 2014) for the construction of a Water Treatment Plant (WTP) and allied works and work was awarded (March 2015) for Rs. 1.94 crore, proposal to replace the damaged AC pipes had not been reckoned so far. It is evident that construction of the WTP without replacement of the AC distribution lines would still expose the beneficiaries to contaminated water. With a view to assess the current status of water quality of the scheme, Audit test checked (December 2015) water sample from the scheme which revealed high presence of iron, coliform bacteria (1100 times above desirable limit) and high turbidity. Government stated in reply (January 2016) that turbidity of water and quality issues posed problems in implementation. It was agreed in the Exit Conference (January 2016) that this was an issue which needed to be addressed.	This single GP scheme had been taken over from KWA, carried out rehabilitation in the project to improve the service & subsequently handed over to the SLEC .Both the GP & the SLEC have shown initiative to run the scheme efficiently recovering full O&M cost . Normally all single GP KWA schemes are without a Water treatment plant, as in the case of this scheme also. The initiative & response of the SLEC and the GP in ensuring the sustainability of the investment with improved service delivery to the rural public has come to the attention of all the stake holders involved in the project implementation. Both the GP & SLEC projected the WQ issues prevailed in the scheme to KRWSA .The essentiality of further investment for WTP in this scheme has been well accepted by all with the operational results . The GOK has accorded sanction for setting up a WTP from the NRWDP fund received from GOI. The WTP with a capacity of nearly 2MLD has been commissioned & is in fully operational condition. The service & coverage enhancement of this scheme is currently extended to the all the HHs in the GP. The current functional & service delivery standards of this scheme is a success model of the community managed schemes . This is achieved with the team work of LSG& SLEC , each identifying the other as a key player in providing basic service to the rural population of the GP . The replacement of AC pipes in this scheme will also be taken up in the sustainability support program planned
3.9.3	**Vannanthura Tribal BG** -The Vannanthura WSS in Sholayur GP for 67 tribal HHs was implemented in March 2005. The source of water was an open well (dug well)	The quality issues in the scheme will be comprehensively addressed by installation of Pressure Sand Filter (PSF) and the same is planned in the revisit of the scheme under

	located very adjacent (three to four meters) to the Siruvani River. As the water in the well had a foul smell of mud, yellow colour and bad taste of iron, the beneficiaries opted out of the scheme which became defunct within a month of inception, as the intrusion of river water into the well had caused contamination of water. Audit observed that the stipulation in the Technical Manual which required conducting Hydro Geological survey and construction of infiltration wells in river beds was not adhered to. The KRWSA constructed an open well which resulted in seepage of river water and resultant contamination of water. Government replied (January 2016) that open well had been constructed as per the Technical Manual. It was admitted that the intrusions in the well could have been sealed as and when noticed and that pressure filter or infiltration have been sealed as and that pressure filter or infiltration gallery would be supplemented in revisits. The reply of Government that open well had been constructed as per the Technical Manual was not factually correct and was against the provisions contained in the Technical Manual.	Sustainability Support Program during 2019-20.
3.9.4	**Thazhe Sambarcode Tribal BG**- The scheme was completed (March 2015) to benefit 68 tribal HHs in lower Sambarcode ooru in Sholayur GP. The source was an open well located adjacent to the Siruvani River. The scheme had a filtering unit and a Ground Level Service Reservoir (GLSR) made of Ferro-cement with a capacity of 10,000 litre. Results of water quality test conducted at KWA lab (September 2002), revealed presence of Iron and Fluoride above acceptable limit and high presence of e-coli and coliform bacteria	The WQ test results pertain to the River Water from the nearby source not that from the source developed for the scheme. Based on the test results of the nearby source corrective actions were taken and a PSF have been included in the scheme for mitigating the WQ issue in the source. The operation & maintenance of the WQ mitigation installation is to be monitored closely for a satisfactory performance for continued operation. Leaving it to the BGs alone, the desired level of performance of these installations cannot be ensured. In the revisit of the scheme under Sustainability Support

		making it unfit for drinking, which necessitated treatment before consumption. The Scheme turned defunct as the untreated water was unfit for consumption of beneficiaries. As per Technical Manual, hydrogeological survey should be conducted before construction of the well and all recommendations made by Hydrogeologist were to be considered while constructing the well. But Audit observed that no such study was conducted. Though a pressure filter was provided as a filter, it was not enough to provide safe water devoid of yellow color, mud and taste of iron. In reply (September 2015) KRWSA stated that though a pressure filter could reduce turbidity, iron could be removed only by installing an IRP. Lapses in design and conceptualization had resulted in the scheme being implemented without ensuring provision for purification of water. As such, KRWSA needs to install IRP for ensuring supply of pure drinking water. Government assured in the Exit Conference (January 2016) that quality issues pointed out by Audit would be attended to on a war footing.	Program during 2019-20 detailed study on the prevailing Water Quality issues will be done and appropriate user friendly WQ issue mitigation installation will be done.
ound Water	Rd 0	**Sustainability of drinking water sources** -Ground water recharge (GWR) is an important part of the hydrologic cycle in which water from surface works its way in to the sub –surface replenishing ground water supplies .The recharge would be possible by adopting and implementing associated measures such as contour bunding /trenching , rain pits , rain water harvesting structures , percolation tanks , strengthening of terraces , check dams , etc .The following points were noticed in Audit.	GWR proposals are made depending on the topography, lithology and site conditions so as to avoid disasters due to over saturation by recharge. GWR measures again has to be conducive to the terrain & in highly hilly terrain GWR measures are to be avoided to minimize land slide & slip. Therefore in all schemes GWR measures can not be implemented with engineering constructions normally practiced & instead alternative measures have to be adopted for natural recharge.

3.10.1	**Implementation of sustainability measures by KRWSA** The project envisaged setting apart eight percent of the cost of water supply for implementing artificial GWR to augment and sustain the water sources, Accordingly. Against Rs.284.48 crore utilized for scheme implementation, Rs.22.76 crores had to be spent for artificial GWR and sustainability of 3710 RWSS[28] under jalanidhi phase -I project. However the actual amount utilized on GWR was only R.5.89 crore (two per cent of Rs.284.48 crore) Due to inadequate attention paid to sustain and recharge water sources, they had dried up in 85 schemes (Appendix 3.3) of jalanidhi phase –I. In order to meet the expenditure for extending sustainability support to Jalanidhi I schemes, Rupees Five crore was received (February 2013) by KRWSA from NRDWP[29] funds for 2012-13 .Expenditure incurred on actual recharge of the ground water schemes was only Rs.6.40 lakh. Laxity on the part of KRWSA in allotting adequate funds for sustainability and failure to spend even the meagre resources received for the purpose was a cause for concern. The KRWSA admitted (June 2015) that no study had been conducted to evaluate the effectiveness of GWR measures adopted by jalanidhi as the GWR activities were wound up once the project funding was over there was no mechanism in place to monitor the effectiveness of O&M .The reply of KRWSA was not acceptable as it does not explain as to why the agency had failed to allot adequate funds for sustainability measures .Audit observed that the implementation of WSS by KRWSA without paying adequate attention to ensure sustainability of sources had resulted in the sources drying up and schemes turning defunct as observed below.	The limitations for executing the GWR activities are given below 1. Restricted by the non-availability of land and other factors (opposition from local residents and the GP). GWR proposals are dropped for this reasons. 2. For Bore well sources artificial recharge is not practically effective. 3. Even though exemption in mobilizing GP share has been given neither the GP nor the BG had shown enthusiasm for carrying out implementation of GWR works 4. The LWSS implemented under the project are mainly based on river based schemes , for which separate GWR measures were not implemented under the project 5.

3.10.2	**Kanakooth and pervampadam ST Colonies in Chaliyar GP** The Guidelines of KRWSA stipulated that RWHS[30] as a technology option for WSS should be resorted to only if all other options were found costly and not feasible. It required that the beneficiaries should be living isolated , scattered and quality affected habitations facing acute water scarcity where no conventions water supply systems were feasible .However , Audit noticed that in Chaliyar GP , 70 and 90 numbers of RWHS costing Rs.25.74 lakh were constructed in Kanakooth and Peruvampadam ST Colonies respectively despite the fact that these areas were thickly populated and conventional water supply system with open well as source of water feasible .The scrutiny of Measurement Book also revealed that filter units stipulated in the DSR were not installed in any of the RWHS. Audit conducted a joint verification (June 2015) with the GP Secretary which revealed that only 23 out of 160 RWHS were found existing and the remaining structures were found demolished. The existing structures were in abandoned condition .The inhabitants of both colonies used water either from the well-constructed by the GP of from nearby steams .The Beneficiary HHs stated that the RWHS were not used for collecting water since inception, due to leakages in tank. The installation of RWHS in area were conventional WSS were feasible and defective construction including non-installation of filter units led to failure of scheme .Government stated in the Exit conference that the issue will be examined.	RWH is a solution to seasonal scarcity in the acute summer season that can meet the water demand @ a lower service level than 70 lpcd. But at the same time depending on the severity of scarcity, as an option to cater to the DW demand alone in highly hilly terrain areas / locations prone to saline intrusion RWH units are provided. (RWH was provided to this GP which was prone to salinity intrusion) The BG concept for carrying out annual & preventive maintenance of the RWH has not been insisted upon. With almost nil O&M charges, the BGs should have carried out annual maintenance cost of the units. These are ST BGs & Special care should have been taken either by the GP or the Tribal Dept for up keeping these RWH units than leaving it to vulnerable groups. This will be taken up with the respective GPs and BGs during the implementation of Sustainability Support Program.
3.10.3	**The Padoor Manakkad BG in Kavassery GP** The scheme consisted of 38 HHs contrary to stipulations in the Technical Manual requiring the source to be identified during summer months, the hydrologist had	The GWR measure could be done at any point of time whenever the source sustainability issue has surfaced . The extraneous reasons that attribute to the source depletion in the operational state for nine years is to be ascertained and

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	visited the site in December 2003 and also recommended GWR measures such as rain pits, buried infiltration tanks and trenches for sustainability of source for which a provision of Rs.19, 500 was made in the DSR. No GWR measures were implemented as recommended and the scheme became defunct due to insufficient water in source. Government stated that (January 2016) identification of wells as done using the scientific methods utilizing the service of experienced hydro geologists of the region and using geophysical survey equipment's. The fact however remains that non -adoption of GWR measures as recommended led to the failure of the scheme.	corrective measure will be taken during the Sustainability Support Program.
3.11	**Empowerment of Beneficiary Groups** The Beneficiary Groups (BG's) were tasked to initiate project activities, collect money and other resources, choose the levels of service and technology options and implement the scheme. Lapses in execution of responsibility assigned to BG's resulted in poor quality of implementation as is evident from following audit findings emerging from the survey of BG's/Beneficiary conducted by Audit.	Instead the enthusiasm shown in the earlier period of commissioning the scheme, the community behavior has changed from the role, responsibility & rights of the owners to that of consumers who are willing to pay for a better service without taking active involvement in O&M. The focus in BG& GP empowerment has to be realigned with respect to the time & change in the community behavior to ensure investment sustainability with improved service. This Capacity Building Program is part and parcel of the Sustainability Support initiative.
3.11.1	**Registration of BG's** All the BGs were to be registered under the Travancore-Cochin Literary ,Scientific and Charitable Societies Registration Act ,1955 (Act XII of 1955) to have legal recognition .However , 55 out of the 56^{31} test -checked BG's admitted that they had not renewed their registration annually. Failure to renew registration carries the inherent risk of the BG's functioning without legal sanctity and non-compliance to legal provisions like maintenance of records , regular audit of annual accounts , etc.	Steps are taken to get the BG registration renewed while implementing the sustainability support program envisaged in the phase 1 GPs. This is a mandatory condition stipulated for extending sustainability support to ay scheme.

3.11.2	**Failure to provide safe drinking water** As per Para 3.8 O&M Manual of KRWSA, the water to be supplied should be free from bacteria/virus or other organisms, harmful elements/solvents/chemicals, etc., and should not have any bad odor, taste or color. The CPHEEO have issued standards of physical , chemical parameters and bacteriological quality for the drinking water .The O&M Manual of KRWSA which required BG's to ensure chlorination which bleaching powder to be done at fixed intervals , the well and its surroundings to be kept clean and well maintained to ensure unpolluted water and cleaning of service reservoirs to be done at least once in a month, were not complied with , Technical Manual for planning and Implementing Community Managed WSS requires analysis of residual chlorine daily, bacteriological analysis once in three months or as desired by the community and complete physic chemical and bacteriological analysis once in summer and monsoon or whenever deviation in water quality is observed. Beneficiary survey revealed serious irregularities in ensuring quality of water as given below. • Fifty Two of the BG's did not conduct periodical testing of water to ensure quality. • Out of 43 small WSS functioning with open well as source, 20 schemes reported yearly cleaning of source and six schemes reported monthly or bimonthly or quarterly cleaning. Seventeen schemes stated that the source was never cleaned. • As per operations and Maintenance Manual, the reservoir should be cleaned on monthly basis .out of 56 small schemes , the reservoir was cleaned by BG's fortnightly in three schemes, monthly in 18 schemes , bimonthly in six schemes , quarterly in	The main role of the BGs is to operate & manage the scheme to ensure DW supply to all its beneficiary HHs . It is also important to ensure the pot ability of the water supplied. But it is not fair to thrust the entire responsibility to BGs alone in ensuring the WQ also .Basically BGs are responsible for providing service and in this context , the GP should take up responsibility to monitor the Quality of water supplied to its population . The WQ problem mitigation installations already fit in the system are to be well maintained with the support of the installation supplier. Periodical WQ monitoring at the source & at HH level are mandatory. In every GP there is a team of SHG / officials & Standing Committee Chair Person on Health & Education. They can render supporting services to the BGs in ensuring the desired level of WQ for *potability.*

d the BG's	effectively	13 schemes , yearly in 14 schemes and was never cleaned in respect of two schemes. • While 33 schemes adopted disinfection methods daily, two schemes conducted disinfection procedures occasionally or once in three months; 21 schemes had never adopted any disinfection method. The reasons stated included dislike of taste of chlorine, practical difficulty in adding chlorine, etc. • Chloroscopes were not provided for small WSS. Had the BGs effectively discharged responsibilities pertaining to O&M of the Schemes, many of the water quality issues pointed out earlier could have been mitigated.	
	3.12	**Conclusion** Audit observed that even though 3139 new drinking water schemes (including 16 large WSS) were implemented against the original target to benefit 2,50,000 HHs , only 1,61,427 HHs(65 per cent) benefited from the schemes .Almost 34 per cent of the schemes test checked had become defunct due to the reasons like failure of source, quality/technical issues , inactive BG's etc. which was a cause for concern .KRWSA disregarded provisions contained in its Technical Manual resulting in schemes turning defunct. KRWSA also failed in rightly identifying water sources and in the design and implementation of WSS. Instances of KRWSA irregularly issuing Exit Orders on the basis of IPCR s with forged signatures of elected members of BG's, and handing over schemes to BG's without ensuring completion were noticed. Failure to sustain and replenish water sources, inability of BG's to rectify technical failures and faulty O&M Management led	The performance audit team test checked the operational performance of 88 schemes spread in 22 GPs & reported that out of the total no .of schemes (784) in the test checked GPs 117 schemes are found to be defunct . Based on this sample size, 85 % of the schemes are in operation & serving the water demand of the rural HHs at the time of audit. The audit team projected that the HHs benefitted at the time of audit from the total schemes of Jalanidhi phase1 as 65% of the HHs targeted. This observation is on the basis of the target of 250000 HH. But as per Clause B-2. A. 2 of the Project Appraisal Document (PAD) the target of HH connection (Private Connections) is only 175000 HH connections. Since the audit found that 1,61,427 HH are benefitting, the 93% of the target of 175000 is still operational at the time of audit. The audit pointed out that the technical snags & shortfall in building capacity of BGs by KRWSA are the reasons that led to the suboptimal functional state of the

	to schemes becoming defunct. Though the project stipulated norms for quantity and quality of water supplied, Audit noticed supply of insufficient and unsafe drinking water to the beneficiaries' .Despite GOK providing Rs.1.78 crores for installation of IRPs and Terrafil filters, KRWSA could not utilise the funds for the purpose. The expenditure on sustainability measures was very low resulting in sources drying up, defeating the objective envisaged .The policy of empowering BG's to usher in community participation to conceive, part-finance and implement WSS has not succeeded	community managed schemes, added to that there are various other reasons that attributed to operational failure of these schemes. These reasons include, but not limited, Changed community behavior, Absence of a supporting frame work in the GPs to monitor the operations of this Self Help Groups, Not recognizing the BGs as the service providers either by WRD or LSGD, Excessive use & drawl of water at least by a section of BGs that led to source scarcity. Issues in maintaining the WQ issue mitigation installations. However KRWSA has taken up the key recommendations of the CAG audit team with GOK & is successful in getting Administrative Sanction for a state plan for rendering support to the community managed schemes. This is to resolve the major maintenance issues beyond the financial & technical capability of the BGs. In the absence of a driving force within the GP or from the WRD & LSGD Departments in monitoring the functions of the BGs, the social issues developed within the BGs could not be amicably settled and that also attributed to increasing no. of defunct schemes.

S.MURALEEDHARAN
Joint Secretary to Govt.
Water Resources Department
Govt. Secretariat, Tvpm.

Appendix 3.1

Details of defunct schemes

(Reference: Paragraphs 3.7, 3.9; Pages: 37, 45)

Sl. No.	Name of scheme	Panchayat	Total HHs	Total cost (₹ in lakh)	Issues identified on site verification and Beneficiary Survey	Date of completion	How long the scheme functioned
1	Thayamparambu	Vettom	41	4.21	Water not available in the source (open well) and not functioning since its commissioning	March 2006	Defunct since inception
2	Brahmaputhra	Erumapetty	39	6.34	Scheme became defunct due to source failure. Yield test (05/2005) recommended for five hours of daily pumping and warned that excess pumping will affect the long life of the source. But the BG stated that while running the scheme, pumping was done for 16 hours daily.	November 2006	Six years
3	Nila	Vallathol Nagar	20	3.12	Source failure in summer, BG unable to manage expenditure. KSEB disconnected electricity	May 2007	Seven years
4	Jalavahini	Vallathol Nagar	41	4.66	No water in source. Electricity connection withdrawn	April 2007	Two years
5	Padoor Manakkad	Kavasseri	38	5.90	Absence of water in source led to stoppage of the scheme	February 2006	Nine years
6	Nelluri	Tuneri	28	3.66	Constant power failure and voltage fluctuation led to damage of pumpset and main switch	February 2004	Ten years
7	Vandana	Vellarada	42	10.40	Scheme was not functioning due to non-installation of pumpsets with required capacity.	September 2008	Not working since inception
8	Kairali	Vellarada	50	7.96	Scheme defunct as pumping could not be made	September 2008	Not working since inception
9	Ganga Maduravellil Borewell	Kaduthurithy	51	6.53	Submersible pumpset in borewell was not functioning and the distribution lines were damaged. The BG did not make any rectification attempt.	December 2007	One year
10	Vadakkekara	Thachanattukara	30	2.81	Pumping main to reservoir and reservoir to distribution line not completed.	February 2006	Defunct since inception
11	Soubrida	Thachanattukara	23	2.75	Pumpset damage	December 2005	One year
12	Perumal Oothu (Moolagangal) Tribal	Sholayur	34	1.15	Damage to distribution line and BG inactive	October 2007	Eight years
13	Thusharam	Koduvalli	45	5.05	Selection of unsuitable pumpset led to stoppage	October 2006	One year
14	Multi BG scheme of 5 BGS (Brahmagiri, Sangamam, Triveni, Jyothi, Karunya)	Thirunelly	376	67.61	BG not able to bear the high operational cost.	October 2007	One year
15	Kandillappara	Chaliyar	29	6.65	BG was inactive due to financial constraints	February 2008	Defunct since inception
16	Veerakkulam Tribal	Sholayur	38	2.08	BG inactive to make rectification.	April 2004	Three years

Sl. No.	Name of scheme	Panchayat	Total HHs	Total cost (₹ in lakh)	Issues identified on site verification and Beneficiary Survey	Date of completion	How long the scheme functioned
17	Adukkamala Koolippara	Madavoor	56	8.01	BG inactive	February 2005	Four years
18	Pidavoor East	Thalavoor	30	8.37	BG inactive to run the scheme	April 2008	Three years
19	Edarikode	Thalavoor	31	7.95	BG inactive in repair work on the distribution line.	September 2007	Five years
20	Kanakooth	Chaliyar	70	11.26	The RWH structures were the sources of water. None of the structures were used for storing water for drinking purpose.	April 2006	Not worked since inception
21	Peruvampadam	Chaliyar	90	14.48	The RWH structures were the sources of water. None of the structures were used for storing water for drinking purpose.	March 2006	Not worked since inception
Defunct schemes due to quality issues							
22	Kothaparamba	Vettom	88	8.43	Due to high salinity, water was not used	October 2005	Defunct since inception
23	Nandini	Vellarada	51	8.73	Soil near the outer boundary of the well collapsed and water is not fit to drink	September 2007	Six years
24	Nellikkattuparambu	Nenmara	38	6.92	Due to poor quality of water beneficiaries opted out scheme	January 2006	Six months after inception
25	Vannanthura Tribal	Sholayur	67	3.57	Inferior quality of water. Beneficiaries opted out	March 2005	One month after commissioning
26	Thazhe Sambarcode Tribal	Sholayur	68	1.78	Yellowish color and Iron taste	March 2005	Ten years
27	Pravaham	Koduvalli	48	8.80	Water tasted iron. Beneficiaries not interested	January 2007	Three years
28	Anaswara	Kaduthuruthi	42	5.03	Inferior quality of water	November 2006	Two years
29	Vanabandhu	Thirunelly	36	5.70	Brown colour and sediments and iron contents	April 2007	Defunct since inception
30	Lifeline	Tanur	115	7.60	Poor quality of water	July 2005	Two months
	TOTAL			247.51			

Appendix 3.2

Small water supply schemes functioning without addressing quality issues

(Reference: Paragraph 3.9; Page: 45)

Sl. No.	Scheme	Panchayat	No. of HH	Total cost (₹ in lakh)	Issue	Findings of field survey, record verification and beneficiary group survey
1	Thiyyara Kunnummal	Tuneri	41	6.37	Poor quality of water	The source was open well constructed in a paddy field and marshy area. Water test result of the scheme revealed Low PH, excess turbidity, presence of E-coli and other coliform bacteria, excess iron in the water. KRWSA issued Exit order and the scheme commissioned without addressing the quality issue. BG is not adopting CPHEEO standards. No disinfection methods were adopted. Water quality test were not conducted regularly. No beneficiary out of 23 surveyed used the water for drinking purpose.
2	CCUP School Bhagam	Tuneri	40	5.76	Poor quality of water	The source an open well was located very near to paddy field. No precautionary measures like infiltration gallery were constructed to arrest contamination from paddy field. The well was constructed at a depth of four metre against 10 metre recommended by the hydro geologist. BG is not adopting CPHEEO standards. No disinfection methods were adopted. Water quality tests were not conducted regularly. One out of 25 beneficiaries surveyed used the water for drinking purpose.
3	Oottukkulam	Kadalundi	34	3.58	Yellowish colour and taste of iron	Beneficiaries complained of yellowish colour and excess iron which caused damage to vessels. Water quality result showed presence of iron. A water purification system was installed, but it could not provide iron free water. Iron Removal Plant should have been installed to remove the iron content in the water. Chlorination is done regularly. However, no methods were adopted to ensure the supply of iron free water. No beneficiary out of 25 surveyed used the water for drinking purpose.
4	Kalnadu	Nenmara	46	7.27	Inferior quality water	There was supply of inferior quality of water and it was not used for drinking or cooking. The water quality test was not conducted before commencement of the scheme. The KRWSA replied that quality issue could be mitigated by adopting proper treatment. No CPHEEO standards were followed before the supply of water. No regular quality checking is done. No beneficiary out of 25 surveyed used the water for drinking purpose.
5	Kandamkulam	Nenmara	44	3.35	Supply of inferior quality water	The supplied water was of poor quality due to severe iron taste and yellow color. Water quality test was not conducted before commencement of the scheme. The beneficiary group admitted that BG had not followed CPHEEO standards before the supply. No disinfection methods were adopted. Three beneficiaries out of 25 surveyed used the water for drinking purpose.
6	Pulippara	Thalavoor	42	4.21	Iron taste for water	Water quality test (11/2007) showed presence of iron (0.46 mg/litre) above the desirable limit (0.3 mg/litre). The scheme functioned without installation of IRP. Disinfection method using bleaching powder is adopted, but methods for supply for iron free water were not adopted by the BG. Three beneficiaries out of 25 surveyed used the water for drinking purpose.

Sl. No.	Scheme	Panchayat	No. of HHs	Total cost (₹ in lakh)	Issue	Findings of field survey, record verification and beneficiary group survey
7	Varsha	Vallathol Nagar	43	5.97	Poor quality of water	Quality test revealed the presence of iron 2.45 mg/litre against the permissible limit of 1 mg/litre and advised to go for iron removal methods before supply. IRP not installed properly. The BG was not making any treatment or disinfection of water before supply. No quality test of water is conducted. Eight beneficiaries out of 25 surveyed used the water for drinking purpose.
8	Olippara Junction	Ayilur	34	3.58	Due to bad color and taste, not taken for drinking	Borewell source. Water quality test results were not made available. The BG had not tested the water. The BG president stated that the water was not potable. However, disinfection by bleaching powder is adopted. Four beneficiaries out of 25 surveyed used the water for drinking purpose.
9	Padinjare Thiruvazhiyode	Ayilur	52	5.63	Possibility of contaminated water	The open well was located in the middle of paddy field. Cracks developed on the side walls of the well. The BG had not ensured CPHEEO standards before the supply of water. BG stated that chlorination is done. Four beneficiaries out of 25 surveyed used the water for drinking purpose.
10	Pulikkoth	Madavoor	43	6.16	Iron content in the water	KWA test result (03/2008) after implementation (05/2005) of the scheme shows high turbidity and iron content. But without addressing the issue, the scheme continued to operate. Further tests were not conducted. CPHEEO standards were not followed. Disinfection methods using bleaching powder was used, but no method adopted for supply of iron free water. No beneficiary out of 25 surveyed used the water for drinking purpose.
11	Areepramala	Madavoor	39	7.63	Iron content	KWA test result (07/2004) indicated high PH, presence of iron above the desirable limit and bacteria and recommended that water should be analysed for physical, chemical and bacteriological contamination once in a year. This was not done. Six beneficiaries out of 23 surveyed used the water for drinking purpose.

Appendix 3.3

Schemes in Phase I whose sources had dried up

(Reference: Paragraph 3.10.1; Page: 48)

Sl. No.	Name of District	Name of GP	Name of Scheme
1.	Malappuram	Nediyirippu	Musliyarangadi
2.	Malappuram	Nediyirippu	Kuttippalamkunnu
3.	Malappuram	Nediyirippu	Kalothu Kottiyamkandi
4.	Malappuram	Nediyirippu	Edakkodu Epplikodu
5.	Malappuram	Nediyirippu	Chundattuparamb
6.	Malappuram	Nediyirippu	Vattapparambu
7.	Malappuram	Nediyirippu	Panakapp arambu
8.	Malappuram	Nediyirippu	Kunnarthodi
9.	Malappuram	Nediyirippu	Varikalay
10.	Malappuram	Nediyirippu	Mathilvilall Kunnathuparambu
11.	Malappuram	Nediyirippu	Milyampadi Palekkode
12.	Malappuram	Nediyirippu	Kariyampurathu
13.	Malappuram	Nediyirippu	Parammel
14.	Malappuram	Porur GP	Dharma School Kunnu
15.	Malappuram	Pulikkal	Pulloorpurai
16.	Malappuram	Pulikkal	Nanmbarakunnu
17.	Malappuram	Pulikkal	Ishwarya WSS
18.	Malappuram	Pulikkal	Jalanidhi Alungal Thodiyil
19.	Malappuram	Edakkara	Nallemthanni
20.	Malappuram	Edakkara	Karunechi
21.	Malappuram	Edakkara	Mailadumkunnu
22.	Malappuram	Moothedam	Amruthavahini
23.	Malappuram	Moothedam	Karimbuzha Palakkara
24.	Malappuram	Moothedam	Shrothas WSS Chelakadavu
25.	Malappuram	Moothedam	Kottamala WSS
26.	Malappuram	Moothedam	Saphalam WSS
27.	Kozhikode	Madavoor	Puthuserimmal
28.	Kozhikode	Madavoor	Cooligam Adukkammala WSS
29.	Kozhikode	Madavoor	Paingattammel
30.	Kozhikode	Madavoor	Poyil WSS
31.	Kozhikode	Madavoor	Areepramala
32.	Kozhikode	Madavoor	Melathatte
33.	Kozhikode	Madavoor	Peedamparamala
34.	Kozhikode	Madavoor	Vellattummal
35.	Kozhikode	Madavoor	Parappara
36.	Kozhikode	Madavoor	Vadakepurayil
37.	Kozhikode	Madavoor	Gain Kozhiparamba
38.	Kozhikode	Thiruvambadi	Athulya Punnakkal (Urumi)
39.	Kozhikode	Thiruvambadi	Thushara
40.	Kozhikode	Thiruvambadi	Amruthavahini
41.	Kozhikode	Koodranji	Pattothu WSS
42.	Kozhikode	Koodranji	Hilvali WSS Muthuvambay
43.	Kozhikode	Koodranji	Pallikkunnu WSS
44.	Kozhikode	Koodranji	Kookara Sauhrudaya BG
45.	Kozhikode	Koodranji	Pulari WSS
46.	Kozhikode	Koodranji	Mundanmala WSS
47.	Kozhikode	Koodranji	Olimala WSS
48.	Kozhikode	Nochad	Edavanathara
49.	Kozhikode	Nochad	Muthukunnu
50.	Kozhikode	Nochad	Neelothu Nadukandi Meethal
51.	Kozhikode	Nochad	Illathupara WSS

Sl. No.	Name of District	Name of GP	Name of Scheme
52.	Kozhikode	Nochad	Meppattu Bhagam
53.	Kozhikode	Nochad	Chembranthara Jalopyoga Sangam
54.	Kozhikode	Kavilumpara	Kabani WSS
55.	Kozhikode	Chemanchery	Cheenalachiri
56.	Kozhikode	Chemanchery	Vikas Nagar
57.	Ernakulam	Palakkuzha	Podipara
58.	Ernakulam	Palakkuzha	SLEC Kozhippilly
59.	Ernakulam	Palakkuzha	Vettuparappuram
60.	Ernakulam	Palakkuzha	Neduvanchery
61.	Ernakulam	Palakkuzha	Kavumbhagam
62.	Thrissur	Panjal	Masjid Road
63.	Thrissur	Panjal	Changalapalam WSS
64.	Thrissur	Panjal	Shivaganga Jalapriya
65.	Thrissur	Panjal	Varsha
66.	Thrissur	Panjal	Puthuma
67.	Thrissur	Panjal	Keezhillam
68.	Palakkad	Kongad	Puliyankade SVS
69.	Palakkad	Kongad	Vettukulam
70.	Palakkad	Kongad	Varuna
71.	Palakkad	Kongad	Mancherikavu
72.	Palakkad	Kongad	Mahatmagandhi
73.	Palakkad	Kongad	Gandhi WSS
74.	Palakkad	Kongad	Sahrudha WSS
75.	Palakkad	Kongad	Thriveni
76.	Palakkad	Kongad	Yuvagana
77.	Palakkad	Kongad	Nellikunnu
78.	Palakkad	Kongad	Kasthurba
79.	Palakkad	Kongad	Akshaya
80.	Palakkad	Kongad	Cholakunnu
81.	Palakkad	Kongad	Ayyappankavu
82.	Palakkad	Kongad	Pavithram
83.	Palakkad	Kongad	Chundekadu
84.	Palakkad	Kongad	Janapriya WSS
85.	Palakkad	Kongad	Menashery