Government of Kerala

PERFORMANCE BUDGET 2022-23

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Performance Budget 2022-23

Water Resources Department

Finance Department

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WATER RESOURCES DEPARTMENT

FINANCE DEPARTMENT

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FOREWORD

In January 1968, the Administrative Reforms Commission, set up by the Government of India, recommended the introduction of performance budgeting both at the Centre and in the States, in departments and organisations that are in direct charge of development programmes. The Government of India accepted the recommendation and advised the State Governments accordingly. In Kerala, the first attempt at performance budgeting was made in 1970-71, when the Performance Budget of the Public Works Department (Buildings and Roads Branch) was prepared. Since then, the State Government has been preparing the Performance Budgets of selected departments each year. On the recommendation of the Public Accounts Committee for the period 2008-11, in its 140th Report, three departments have been selected for performance budgeting, and the Water Resources Department is one among them.

The Performance budgeting is envisaged to evaluate the plan schemes in the selected departments for indicating the physical dimensions of the financial budget vis-a-vis actual physical performance. Based on such evaluation the performance budget report is prepared and presented to the Legislature along with budget documents. The findings and recommendations of the performance budgeting are to be taken for corrective measures and thus lead to the improvement of financial management of the departments/institutions and help to achieve the goal in time by speedy implementation of the scheme.

The Performance Budget 2022-23 of Water Resources Department consists of the details of Irrigation Department, Groundwater Department and two autonomous bodies, namely, Kerala Water Authority and Kerala Rural Water Supply and Sanitation Agency (Jalanidhi). The details of autonomous bodies are included in the seventh chapter. Based on the reports furnished by the Departments/ Autonomous bodies and data collected by conducting field visits in implementing offices, Finance Department has prepared the Performance budget 2022-23. The structure of the performance budget report 2022-23 is given below:

Chapter 1

Introduction

In Chapter I, a brief introduction of the Water Resources Department has been included. The vision, mission and the organizational set up of the department has also been included in this chapter.

Chapter 2

Comments of Finance Department

Recommendations are made based on diagnostic studies and field visits pertaining to selected schemes of the Water Resources Department. Durng the year, some plan schemes have randomly been selected for evaluation. During the diagnostic stage, problems were analysed through verification of files and field visits, questionnaires and group discussions with stakeholders and study of documents such as Government Orders, Circulars, detailed project reports and other available documents. Recommendations include process changes, leveraging on technology and work related suggestions, etc.

Chapter 3

Financial Outlays and Quantifiable Deliverables

The chapter reflects the budgetary allocations provided for major schemes in the Water Resources Department. These allocations are juxtaposed with physical output and their projected outcomes. The main objective is to establish a one-to-one correspondence between the financial budget 2022-23 and the Performance / Outcome budget 2022-23 of various schemes and programmes implemented by the Water Resources Department. Details are furnished in Annexure I.

Chapter 4

Reform Measures and Performances

The details of reform measures, policy initiatives, and innovative technologies taken by the department and how these relate to the immediate outputs and financial outcome in various areas/ fields, such as public-private partnerships, alternate delivery mechanisms, social and women empowerment processes, greater decentralization, transparency etc are discussed in this chapter.

Chapter 5

Review of Past Performance

The chapter reviews the performance of the department during the year 2021-22 in terms of targets already set. It reviews the scheme-wise past performance of various programmes and activities undertaken by the department. The comparison of performance/outcome during the financial year 2021-22 and 2022-23 for various programmes /schemes are presented in Annexure-II

Chapter 6

Financial Review

Chapter 6 highlights overall trends in expenditure vis-a-vis Budget Estimates /Revised Estimates/Actual Expenditure in recent years, and the position of unspent balances with the department. The details are included in Annexure III.

Chapter 7

Review of Performances of Autonomous Bodies

The chapter includes the review of the performance of autonomous bodies under the administrative control of the Water Resources Department. Details of Kerala Water Authority and Kerala Rural Water Supply and Sanitation Agency (Jalanidhi) are included in this chapter.

Thiruvananthapuram
February 2024

CHAPTER –1

INTRODUCTION

Formation of Irrigation Department

In Kerala, the Irrigation department was initially a part of the Public Works Department. Based on the recommendation of the Retrenchment Committee, the staff of the Public Works Department underwent reduction and led to the formation of Irrigation Division, with three sub-divisions and nine sections on 19/3/1934 to carry out the irrigation works of the State. Later, as per the G.O (P) No 27/90/PW & T dated 29th march 1990 the Irrigation department was spun off from the Public Works Department with effect from 1st April 1990.

Kerala, being a state with a network of rivers, has several irrigation projects aimed at enhancing agricultural productivity and ensuring water availability. Though there are various methods for providing water for irrigation, best and the most reliable method which can be used for Kerala is the construction of storage reservoirs for impounding water during the monsoon and utilising the water in the reservoir for critical periods of the crops when there is insufficiency. Hence, major and medium projects were taken up and a major portion of the cultivable land could be made ayacut under these projects. The oldest irrigation project in Kerala is the Peechi Irrigation Project, built across Manali river in Thrissur district. This straight concrete gravity dam was completed in 1959 which serves as an irrigation dam for nearly 17555 Ha of land and also caters the drinking water needs of the population. Numerous Irrigation projects like the Vazhani, Malampuzha, Mangalam, Gayathri, Pothundy, and Neyyar were taken up for enhancing the irrigation potential of Kerala. Out of these the Malampuzha Irrigation Project in Palakkad district is the first large-scale irrigation system attempted in the State.

Minor Irrigation Schemes play an important role in Kerala where average farm size is small and land labour ratio is low. With a view to enhance irrigation efficiency and to accelerate crop productivity, measures for implementing micro irrigation projects across the state have been initiated. Modernisation of canals and expansion of irrigation in water deficient area is also an important priority.

In the present situation almost all projects are being converted into multipurpose projects in order to maximise the utilisation of existing resources. In order to improve the irrigation potential, innovative MI Schemes have also been implemented in almost all parts of the state.

Irrigation (I & A)

Irrigation & Administration wing deals with the Major & Minor Irrigation works across the state, Inter-State Water sharing, Flood Control & Coastal Zone Management and Salt water extrusion apart from the general administration of the department.The Chief Engineer, Irrigation & Administration is the administrative head of the department. The hierarchy is given in the subsequent page. The Chief Engineer is also assisted by Law Officer, Senior Finance Officer, and Senior Administrative Officer for dealing the areas realated to legal, financial and administrative matter respectively.

Vision

The departmental activities are framed in line with the State Water Policy 2008 and Kerala Irrigation and Water Conservation Act, 2003.

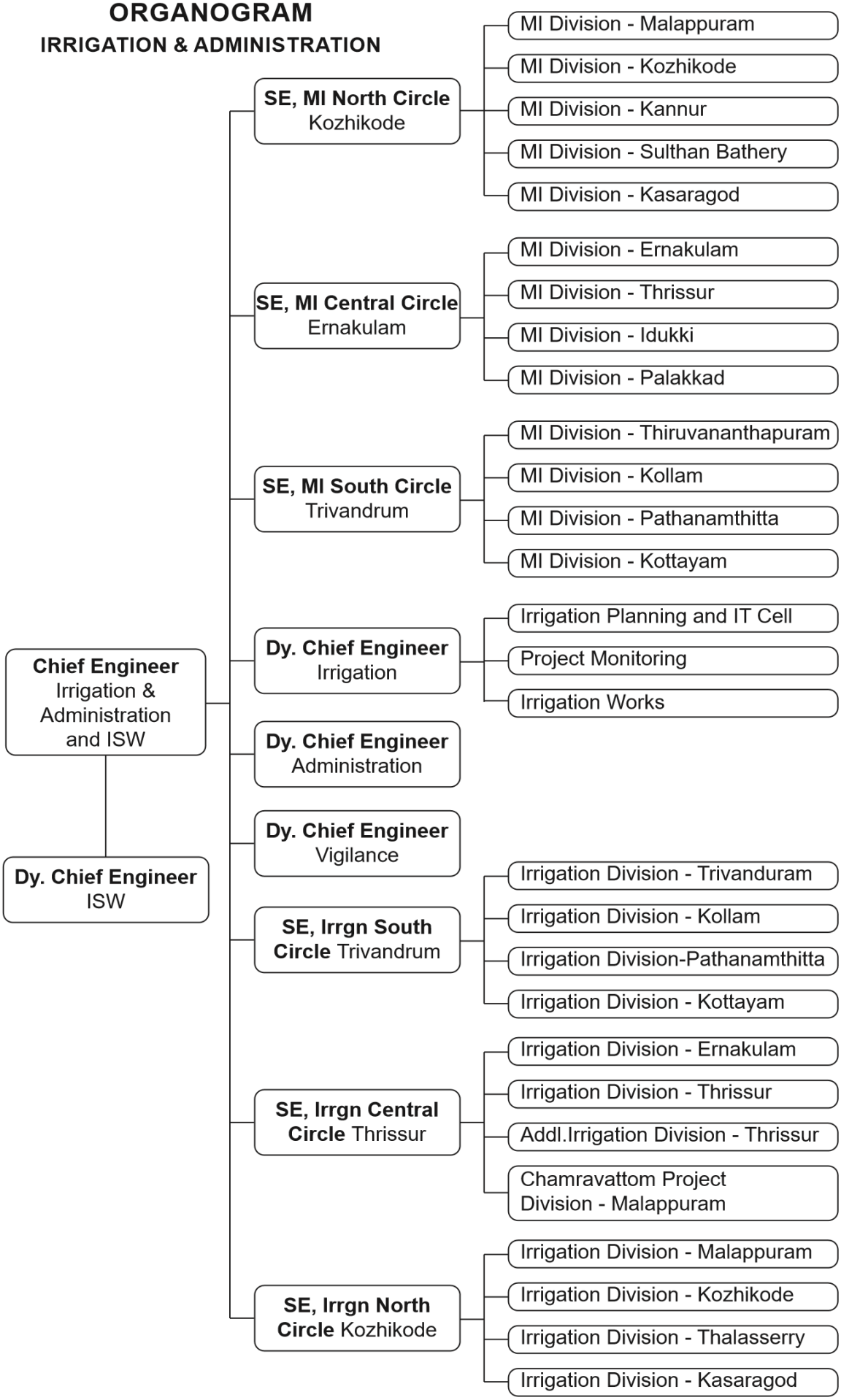
- ✓ Sustainable development, maintenance of quality of water and efficient management of water resources to match with the growing demands on the precious natural resource of the country.
- ✓ Providing assured irrigation to facilitate sustainable agriculture development and food security.
- ✓ To develop and implement environmentally sustainable and ecologically sound inland water transport system.
- ✓ Improving agricultural growth by ensuring better irrigation/drainage management.
- ✓ To implement innovative technologies to combat and mitigate the effects of natural calamities and climate change

Mission

The Department mainly focuses on conservation/ management of water resources by protecting its sources in an environmentally and economically sound manner and construction and maintenance of irrigation structures.

ORGANOGRAM

IRRIGATION & ADMINISTRATION



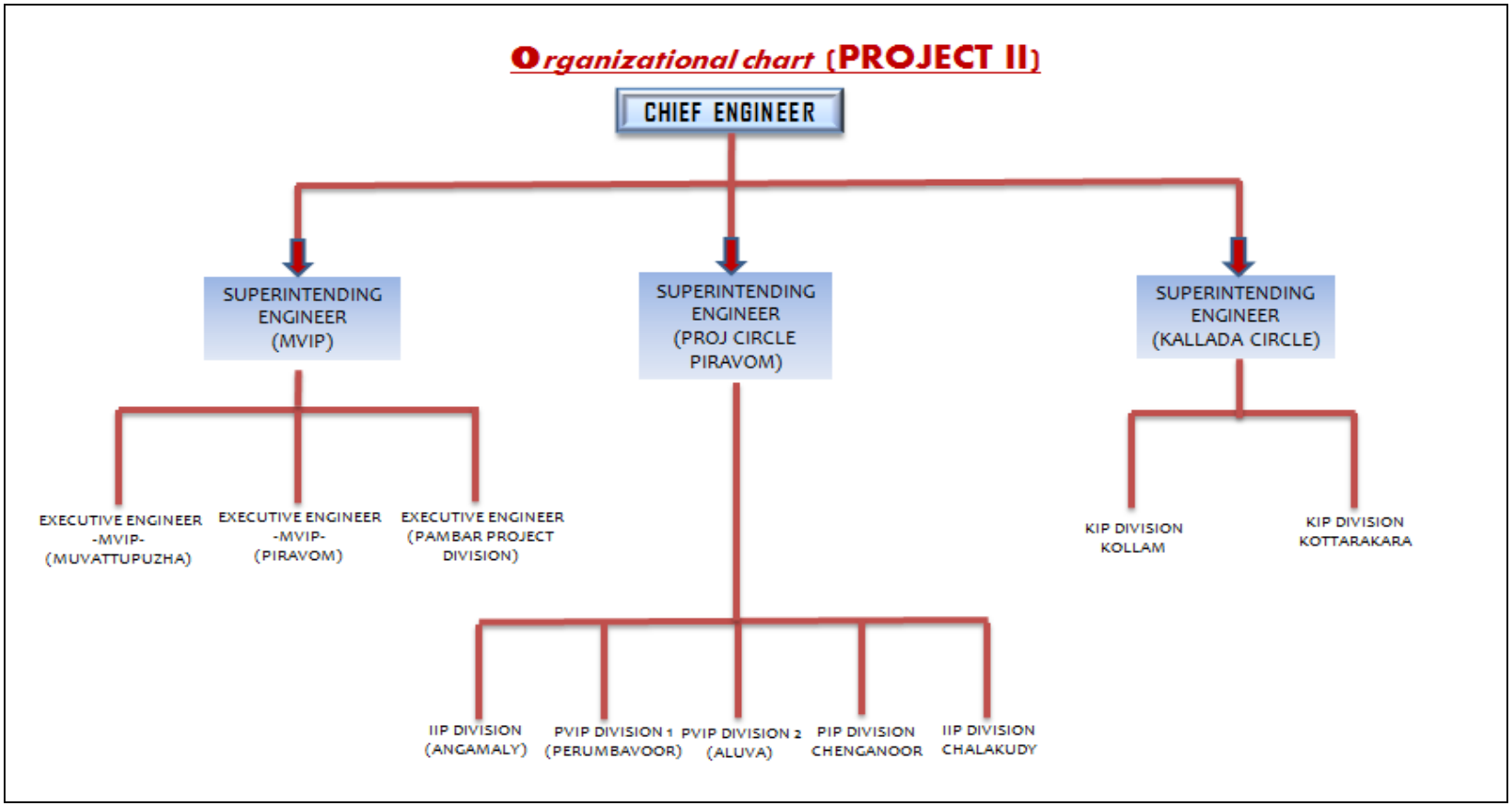
PROJECT- 1 (CAUVERY CELL)

All the major and medium irrigation projects in the northern parts of the state, i.e from Palakkad to Kasaragod comes under Irrigation Projects-1, Kozhikode. Chief Engineer (Project I) is the head of the department. At present there are 11 completed projects in the region viz. Malampuzha, Mangalam, Pothundy, Meenkara, Chulliyar, Walayar, Chitturpuzha, Kuttiyadi, Pazhassi, Kanhirapuzha and Regulator cum Bridge at Thrithala. Besides increasing irrigation facilities, these projects have helped the overall development of the region to a greater extent by way of improving infrastructure, irrigation facilities, employment opportunities and availability of drinking water. The ongoing projects under the control of this office are Karapuzha Project, Banasurasagar Project and Chammravattom Project.

PROJECT II

Irrigation Project II which is a part of the Irrigation Department is entrusted with the responsibility of implementation of major and medium irrigation projects in central and southern parts of Kerala. Maintenance of the completed projects in this region is also the responsibility of this wing. Muvattupuzha Valley Irrigation Project, Idamalayar Irrigation Project, Pambar Basin Project and Meenachil River Valley Project are the projects which are ongoing.

Figure 1.1: Organizational chart (Project II)



Objectives and Functions:-

The main function of the Project II Wing of the Irrigation Department includes planning, designing, execution and monitoring of the major and medium irrigation projects and maintenance of commissioned projects. The main projects under the Project II are Idamalayar Irrigation Project, Periyar Valley Irrigation Project, Muvattuppuzha Valley Irrigation Project, Kallada Irrigation Project, Pamba Irrigation Project, Vazhani Irrigation Project, Pambar Basin Project, Chimmini Irrigation Project, Meenachil River Valley Project, Cheerakuzhy Irrigation Project and Neyyar Irrigation Project.

KUTTANAD PACKAGE & INLAND NAVIGATION

The Chief Engineer (Inland Navigation & Kuttanad Package) is the project head of Kuttanad Package & Inland Navigation. During 2018-19, as per GO(MS)No:31/2018/WRD dated 29.06.2018, the post of Chief Engineer (Kuttanad Package) is redesigned as Chief Engineer (Inland Navigation & Kuttanad Package) and the full jurisdiction of development of Inland Waterways is transferred from Chief Engineer (Irrigation & Administration) to Chief Engineer (Inland Navigation & Kuttanad Package).

The Kuttanad Wet Land System which spreads over 32 panchayats of Alappuzha District, 27 panchayats of Kottayam district and 5 panchayats of Pathanamthitta District, is predominantly agriculture belt of Kerala, where people depend on farming and allied activities like fishing, animal husbandry etc for their livelihood. The cultivation is done on continuous blocks or padasekharams or polders bounded by rivers and canals. Before sowing, the flooded water is pumped out using engine pumps after the reparation of bunds. But during monsoon and heavy shower, the flow of water in the canals and also the intrusion of water from the river to the bunds increases, which may lead to the breakage of weak bunds causing flood in the paddy field and resulting in heavy crop loss. Also the standing crops are subjected to extensive damage due to the saline water intrusion from the estuaries to the paddy field during the dry seasons. The people in the Kuttanad region have been facing severe agrarian distress for the past many decades owing to these problems and also due to a variety of other factors. Later, based on the request from Government of

Kerala, Union Government entrusted Dr. M. S. Swaminathan Research Foundation (MSSRF), Chennai to conduct a scientific study of the region and to suggest suitable measures to mitigate the agrarian distress in Kuttanad. Hence MSSRF recommended a variety of interventions to be implemented as a package, with a total cost of ₹1,840 crore (2007 Price Level) which was accepted by the Union Government for funding under central sector ongoing schemes. Of which those related to Flood Control, Salinity Management and drainage with a total cost of ₹1517.90 crore are undertaken by the Irrigation Department under the Chief Engineer (Kuttanad Package and Inland Navigation) Alappuzha.

Functions and objectives

The strategy is to manage flood by erecting strong bunds along the periphery of the padasekharams of Kuttanad wetland with clay obtained from deepening the channels all around and protecting the clay bund thus formed by constructing retaining wall using rubble masonry or Pile & Slab along the channel side where the existing bund is very weak. Also modernization of Thaneermukkom Barrage (TMB) which regulates intrusion of saline water during dry season is also taken up for execution which includes construction of RCB at the IIIrd stage replacing existing earthen bund and replacing old shutters with stainless steel shutters in the 1st & 2nd stage etc. This will contribute immensely to manage flood efficiently. A scheme for improving the efficiency of Thottappally Spillway (TSW) which diverts the excess flood water directly to the sea has also been taken up for alleviating problems caused by flood in Kuttanad Region.

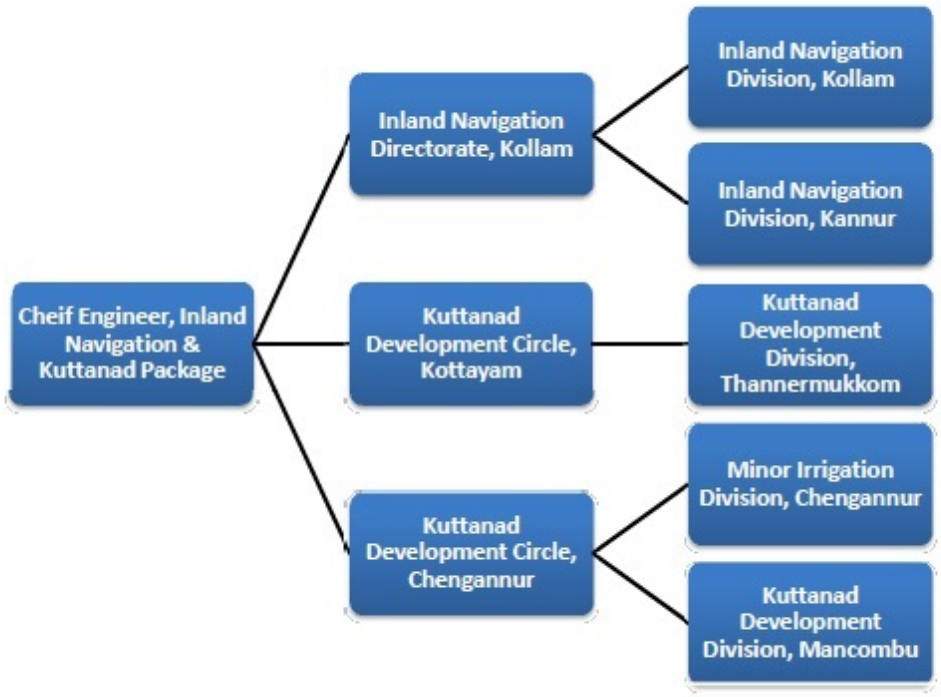
The Central Government while accepting the report of M.S Swaminathan foundation has reiterated that proposals made in the report shall be put forward for funding under appropriate schemes of the ministries concerned. Accordingly all the schemes under Kuttanad Package were proposed for funding under 'Flood Management Programme'.

Organisational structure

The office is headed by the Chief Engineer at Alappuzha with three circle offices at Chengannur, Kottayam & Kollam (Inland Navigation Directorate). There are also five divisional offices which are situated at Mancombu, Chengannur,

Thaneermukkom, Kollam and Kannur, 12 Sub divisions and 35 Sections along with supporting staff. In addition to these, a Quality Control and Monitoring wing is functioning under the Chief Engineer with an Executive Engineer and two Assistant Engineers at Chief Engineer's office, Alappuzha. There is also a Quality Control Lab at Thaneermukkom.

Figure 1.2:Organisational structure of Kuttanad Package & Inland Navigation



Irrigation Design and Research Board (IDRB)

The Irrigation Design and Research Board (IDRB) is the Central Design and Research Organization of Water Resources Department, Government of Kerala. The Design, Research, Quality Control, Coastal Erosion studies, Field Studies Circle and Investigation wing of the institution are under the control of the Chief Engineer (Investigation and Design) with headquarters at Thiruvananthapuram. IDRB was formed in August 1986 vide G.O.(MS) No.24/86/Irrgn dated 14-08-1986 and subsequently started functioning under the Chief Engineer IDRB vide G.O. (MS) No. 7/1987/Irrgn dated 24/03/1987.

Vision

Towards a dynamic centre, striving continuously in pursuit of excellence in the field of quality design and innovative research for water resources management of the State.

Objectives of IDRB

IDRB, the pioneering institution of Water Resources Department is entrusted with the activities of investigation and design of all irrigation projects, all water retaining structures like dams, check dams, regulators and other various irrigation structures. The Chief Engineer (Investigation and Design) co-ordinates, monitors and reviews all the works relating to investigation, design, research, quality control, coastal erosion, water resources and hydrology.

The primary objective is to bring IDRB as one of the best institutions in the country for design, research, investigation, hydrology and other related works. For carrying out these activites, the following schemes were incorporated:

- Modernization of IDRB
- Formation of River Basin Organization
- Dam Rehabilitation and Improvement Project

The major works include:

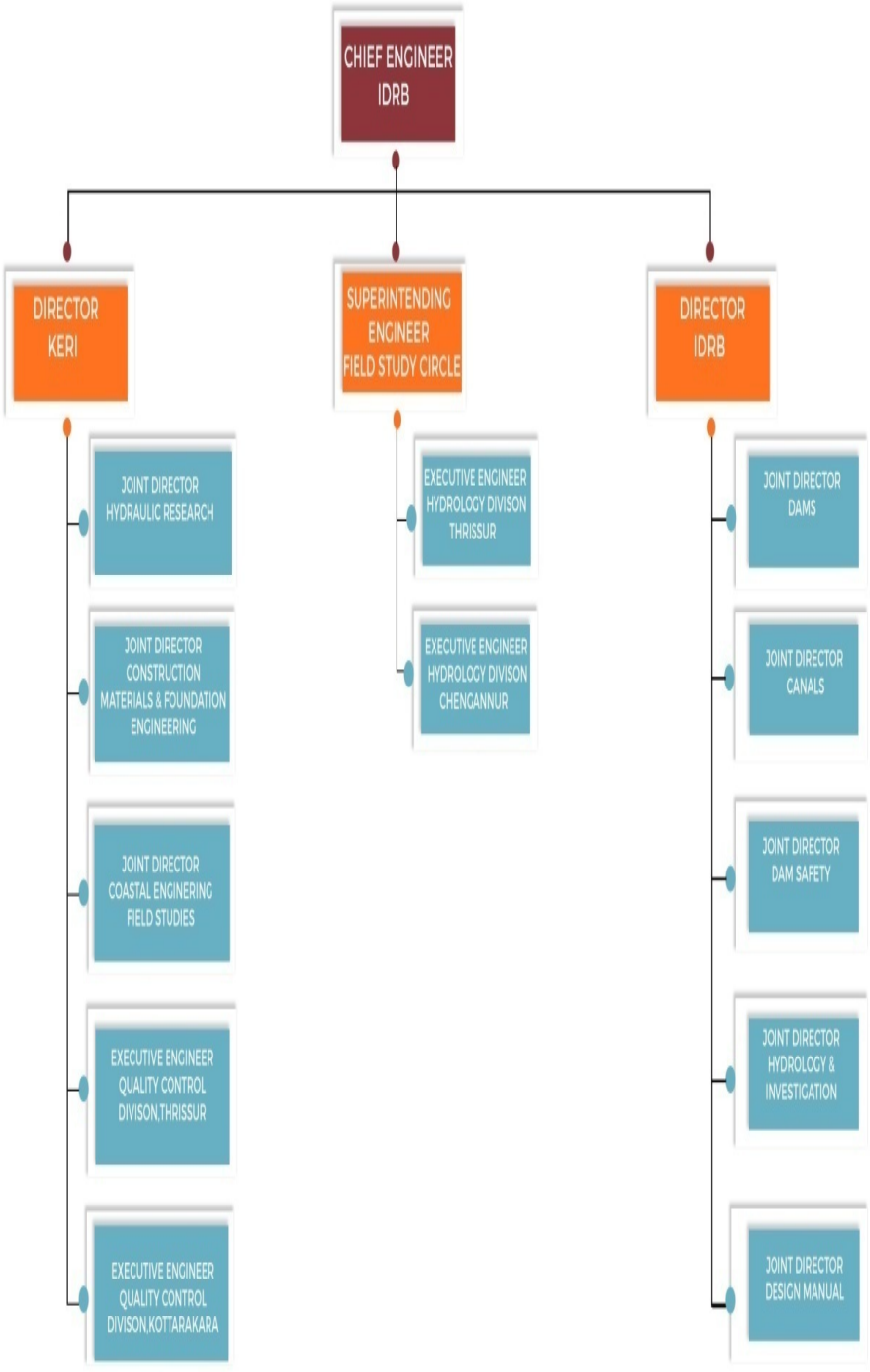
- Examination and formulation of project reports of medium irrigation projects for getting clearances from CWC.
- to conduct trainings for the capacity building of officers of Irrigation Department
- receiving and submitting of design indent of various works and submission of drawings of design
- Online monitoring of dams.
- To conduct investigation works for the design of irrigation Structures.

Functions of IDRB

The office of the Director (Designs) at Thiruvananthapuram is in charge of designs, while the office of the Director (Research) stationed at Peechi is in charge of research. Works related to water resources and hydrology are being dealt with by the

office of the Superintending Engineer – (Field Studies) stationed at Thrissur. The monitoring of Peechi Irrigation Projcet is done by Chief Engineer (I & D)

Figure 1.3: Organogram of IDRB



GROUNDWATER DEPARTMENT

Groundwater Department is the nodal agency for groundwater investigation and construction of groundwater extraction structures in the State. The department has started functioning as a part of the Agriculture Department and later evolved as an independent department in the year 1978. The initial focus of the department was to provide solution to the irrigation needs and later extended to domestic and industrial needs also. Ever since its inception, the Groundwater Department has been dealing with various groundwater related issues and has been a key service provider to all the sectors across the State. The department also presently engages in implementing mini water supply schemes, conservation and management of groundwater resources and monitoring of groundwater regime.

Vision of the department

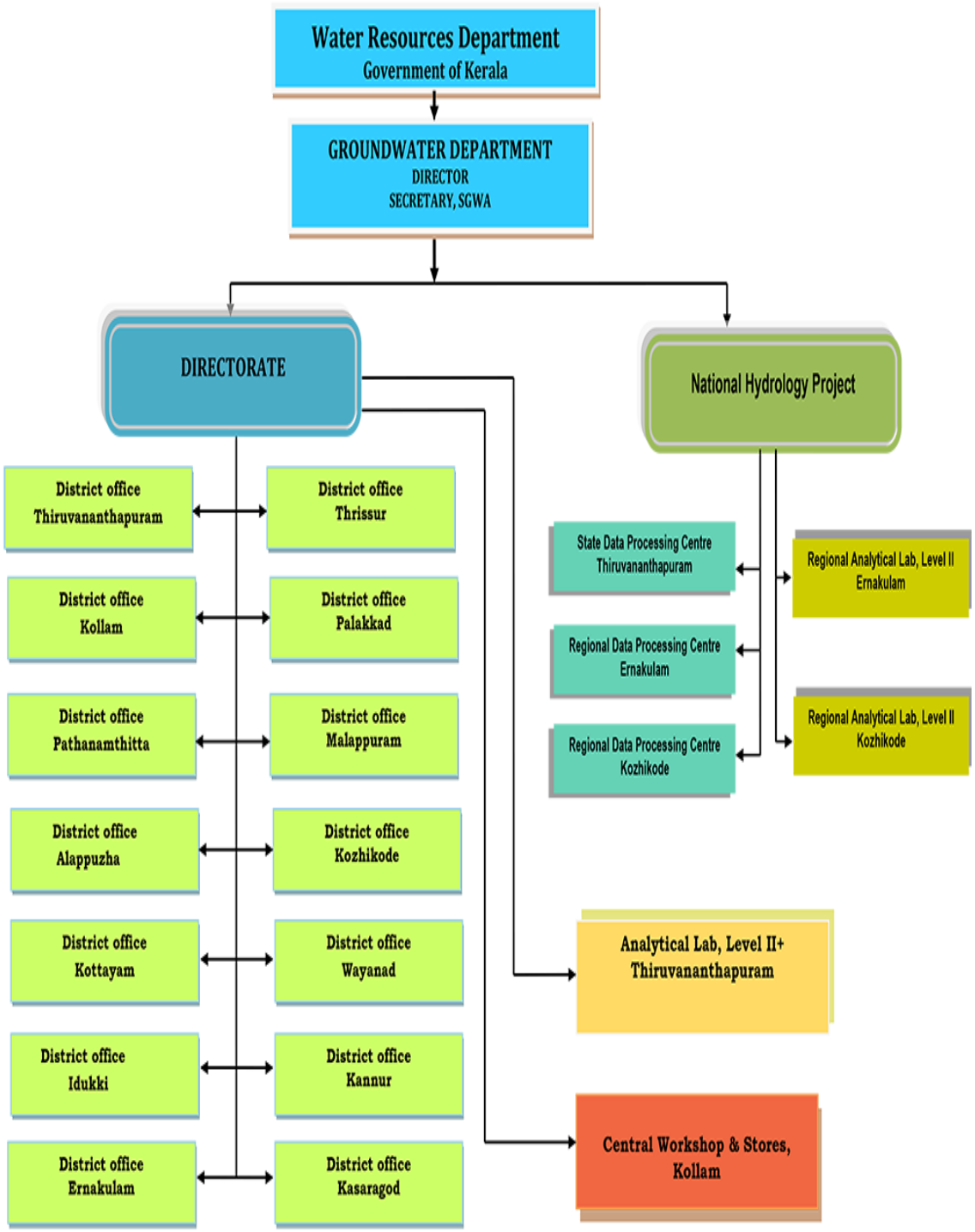
Moving forward to watershed based groundwater management to support water security and sustainable groundwater utilisation

The main activities of the department are:

- ✓ Groundwater resource estimation
- ✓ Groundwater investigation
- ✓ Construction of groundwater abstraction structures (Bore well, Tube well, Filter point well)
- ✓ Implementation of mini drinking water supply schemes and Hand pump schemes for Plan and Deposit schemes.
- ✓ Providing Functional Household Tap Connection (FHTC) under Jal Jeevan Mission
- ✓ Implementation of groundwater conservation structures
- ✓ Implementation of Kerala Groundwater (Control & Regulation) Act 2002
- ✓ Water quality analysis
- ✓ Pumping test for groundwater regulation and groundwater studies
- ✓ Data collection for various scientific studies
- ✓ Specific studies on disputes pertaining to groundwater resource exploitation
- ✓ Renovation of mini drinking water supply schemes and reparation of Hand pump.
- ✓ Rapid risk assessment studies for Kerala State Disaster Management Authority as and when required

- ✓ Activities under Navakeralam Mission
- ✓ Water Conservation activities under Jal Shakti Abhiyan (Catch the Rain Programme)
- ✓ Implementation of National Hydrology Project (100% Central Sector Scheme)

Figure 1.4: Organisational structure of Groundwater Department



CHAPTER-2

Comments of Finance Department

"Little drops of water
Little grains of sand,
Make the mighty ocean,
And the pleasant land."

.....by Julia A.F. Carney

Despite Earth being called the "Blue Planet" because of its abundant water, only a small percentage is freshwater, and even a smaller fraction is readily accessible. Preserving water is crucial because it is a finite resource, and excessive use or pollution can deplete the available freshwater. If we all do our part in saving precious water supplies, we can make a huge difference for the environment. Conservation of water saves energy. Energy is needed to filter, heat and pump water. It is the duty and moral obligation of a person to use water carefully and judiciously. Hence, we all must reduce the usage of water. The reduction in the use of water reduces carbon footprint. Using less water keeps more in our ecosystems and helps to keep wetland habitats topped up for animals like otters, water voles, herons and fish. This is especially important during drought periods and in areas where there is a big demand for water supplies.

Water has played a crucial role in the development and sustenance of human civilization throughout history. Its significance is evident in various aspects such as agriculture, transportation, hygiene, and even cultural and spiritual practices. The availability of water is essential for agriculture. Early civilizations emerged near rivers and other water sources because of the fertile soil and reliable water supply for crops. Ancient civilizations like the Mesopotamian, Egyptian, and Indus Valley civilizations flourished along the banks of major rivers, utilizing the water for irrigation and farming. Throughout history, control over water resources has been a source of conflict and a factor in the rise and fall of civilizations. Managing water resources effectively has been a key aspect of governance, and the development of irrigation systems and water laws has played a role in shaping societies. The connection between water and human civilization is profound and multifaceted, influencing

everything from the location of settlements to economic and industrial development, public health, and cultural practices.

Kerala is endowed with abundant water resources, including rivers, lakes, backwaters, and numerous water bodies. The state's geography, with the Western Ghats on one side and the Arabian Sea on the other, contributes to the presence of 44 rivers and other water sources. Forty one of them flow westward and 3 eastward. But due to rising population, urbanisation, industrialization, changing lifestyle of people, etc, the demand for fresh water is increasing. Water management in Kerala is a difficult task due to high spatial and temporal rainfall variations, undulating topography with steep slope towards sea, high population density, lengthy coastal stretch with saline backwaters and estuaries, climate change, etc. The Water Resources Department has a big role in water management in Kerala.

Water Resources Department comprises Irrigation Department, Ground Water Department, and three autonomous bodies - Kerala Water Authority, Kerala Rural Water Supply and Sanitation Agency (KRWSA), and Kerala Irrigation Infrastructure Development Corporation (KIIDC). These departments/autonomous bodies perform various functions to preserve the Water resources, to give irrigation facilities, and supply pure drinking water in Kerala. Irrigation department was initially a part of the Public Works Department. Later, as per the G.O (P) No.27/90/PW&T dated 29th March 1990, the Irrigation department was spun off from the Public Works Department with effect from 1st April 1990. Kerala Water Authority was constituted on 1st April 1984 through the promulgation of the Kerala Water and Waste Water Ordinance, 1984 by converting the erstwhile Public Health Engineering Department to provide for the development and regulation of water supply and management of public drainage system in the state. The ordinance was later ratified by the enactment of the Kerala Water Supply and Sewerage Act 1986. Kerala Water Authority is the implementing agency of the Jal Jeevan Mission which is the biggest project under the Water Resources Department.

Jalanidhi or Kerala Rural Water Supply and Sanitation Agency (KRWSA) is another autonomous body functioning under the Water Resources Department. KRWSA implements 'Jalanidhi', a world bank assisted programme, and small water supply schemes and sanitation services in rural Kerala. Currently, there is no plan scheme allocation to KIIDC ltd.

Plan Allocation to Water Resources Department

The main sector under the Water Resources department is Irrigation and Flood Control. Apart from this, the schemes in the Sewage and Water Supply, a sub sector of the Social and Community Sector, also come under the Water Resources Department.

Finance (Performance Budget) Department mainly evaluates the works under Plan Schemes. The plan outlay provided for the Irrigation and Flood Control during the financial year 2022-23 was ₹54085 lakh[1]. The total outlay consists of state plan schemes, state share for CSS, EAP (External Aided Project) and NABARD-RIDF. Details of outlay provided for the sector during the financial year 2022-23 are as follows:

Table 2. 1: Plan allocation to Irrigation & flood control

Sl No	Name of the sub sector	Amount (₹ in lakh)
1	**Major and Medium irrigation**	**17300.00**
2	**Minor irrigation**	**17318.00**
	a. Groundwater Development	3018.00
	b. Surface Water Development	14300.00
3	**Command Area Development**	**10.00**
4	**Flood Control and Coastal Zone Management**	**19457.00**
	a. Flood Control	9250.00
	b. Coastal Zone Management	10207.00
	Total	**54085.00**

The plan outlay for the Water supply and Sewage during the financial year 2022-23 is ₹90571 lakh. Kerala Water Authority and Jalanidhi (Kerala Rural Water Supply and Sanitation Agency) are the two main agencies involved in the supply of drinking water in Kerala. Details of allocation are given below:

Table 2. 2: Plan allocation to Water supply and sewage

Sl No	Name of the agency	Amount (₹ in lakh)
1	Kerala Water Authority	85675
2	Jalanidhi	4896
	Total	**90571**

[1] Excluding Central share

As part of the Performance Budgeting of the Water Resources Department-2022-23, Finance (Performance Budget) Department has evaluated major plan schemes. Scheme- wise details are given below:

I. Renovation of Main Canal, Branch Canal and Distribution System in the Pazhassi Irrigation Project (Outlay: ₹1000.00 lakh)

Pazhassi Irrigation Project is the first major irrigation project in the northern region of Kerala. The project mainly consists of a diversion barrage across Valapattanam river at Kuilur. The details of the components of the project are tabulated below:

Table 2. 3:Canal System of Pazhassi Irrigation Project

Sl No	Name of the canal	Total length in km	Ayacut area in sq. km
1	Main Canal	46.26	5.69
2	Mahe Branch Canal	23.034	24.76
3	Edakkad Branch Canal	11.855	12.56
4	Azheekkal Branch Canal	18.080	12.70
5	Kattampalli Branch canal	7.78	12.80
6	Thaliparamba Branch Canal	6.60	3.44
7	Morazha Branch Canal	8.00	9.30
	Total	121.606	81.25*

* Total ayacut of the irrigation project is 115.25 sq.km. Of this an area of 34.00 sq.km is garden land.

The ayacut of the project spreads across the taluks of Iritty, Thalassery, Kannur and Thaliparamba in Kannur district. Water distribution through the canal system has not been possible since 2008 due to the dilapidated conditions of the structures. Later, renovation works in the main canal (ch. up to 5.5 Km) have been completed. The target is to enable water distribution through the entire canal system by December 2025.

An amount of ₹1000.00 lakh was earmarked in the financial year 2022-23 for the renovation and modernization of the main canal, Mahe branch canal and distribution system of the Pazhassi Irrigation Project. Of this, ₹671.59 lakh has been expended for a total of 22 works which includes spill-over works also, details of which are given below:

Table 2.4:: Pazhassi Irrigation Project (Financial year -2022-23)

Sl No	Name of the work	Expenditure (in Lakh)
1	Pyip Rejuvanation of main canal Ch 2 km to 3/400 km desilting inside the tunnel ch 2/050 to ch 3/350 km for the year 2021-22	30.28
2	Pyip-Rectification work to damaged aqueduct in main canal near ch 15/300km at Valayal	41.33
3	PYIP Reconstruction of compound wall on the left bank downstream (DS) side of Pazhassi Barrage	17.07
4	PyIP Providing lining in main canal ch 13/500km to ch 14/775km upstream (US) of existing SDRF lining work near ch 14/000 km for the year 2021-22	18.55
5	PyIP Rectification work to damaged under tunnel (UT) in main canal near ch 32/500 km in Kuttiyatoor Grama Panchayat	79.71
6	PyIP Providing lining in main canal ch 11/700 km to ch 11/800km for the year 2021-2022	21.31
7	PyIP Providing lining in main canal ch 12/300 km to ch 12/800 km DS of existing SDRF lining work for the year 2021-2022	27.38
8	PyIP Desilting the cut and cover in Azheekkal branch canal near ch 0/200 km for the year 2021-22	2.49479
9	PyIP Providing lining in Main Canal Ch 12/800 km to Ch 13/500 km US of existing SDRF lining work for the year 2021 2022	23.92
10	Pyip Rejuvenation of main canal between ch 2/000 km and 3/400 km cleaning the mouth of tunnel	2.63
11	Pyip Flood damage 2012 Reconstruction of main canal at ch 0/300 km	224.78

Sl No	Name of the work	Expenditure (in Lakh)
12	PyIP Rectification work to damaged pillars of aqueduct cum bridge in main canal near Ch 42/500km at Parassinikkadavu	36
13	Pyip Rectification and reformation of main canal ch 17/745 km to ch 17/810km - providing lining for the year 2021-22	20.19
14	Pyip Rectification and reformation of main canal ch 16/300 km to ch 16/500 km on US of existing SDRF lining work for the year 2020-21	17.68
15	PyIP Rectification and reformation of main canal ch 26/300km to ch 26/600 km downstream of existing SDRF lining work for the year 2021-22	6.84
16	PYIP Rectification work to damaged regulators and surplus escape in main canal in ch 37/000km to ch 40/700 km	8.38
17	PyIP Rectification work to damaged UT in main canal near Ch 34/000km in Mayyil Grama panchayat	32.15
18	PyIP Rectification of Mahe Branch Canal Ch 5/050 km to Ch 5/500km Desilting work for the year 2021-22	3.66
19	PYIP Rectification work to damaged regulators in main canal ch 22/500km to ch 25/200 km	20.91
20	PyIP Rectification of Mahe branch canal Ch 5/650 km to Ch 6/150 km Desilting work for the year 2021-22	3.31
21	PyIP Rectification and reformation of main canal Ch 26/300km to ch 26/600 km US of existing SDRF lining work for the year 2021- 22	17.88
22	PyIP Providing lining in main Canal Ch 14/775 km to Ch 15/000km US of existing SDRF lining work for the year 2021- 22	15.14
	TOTAL	671.59479

The officials of Finance Department has visited the Pazhassi Irrigation Division and selected some of the plan works for assessment randomly. No major irregularities were noticed while assessing the works carried out.

Encroachment in the canal stretches and shortage of staff in the office concerned are the major constraints faced by the division as reported by the officials concerned. The other concern is the non-availability of vehicles. Only a single vehicle (Mahindra Bolero) is available for the use of the officers of the Division, Sub Division and Sections. Hence, it is very difficult for the officials to detect and evict the encroachments. A total of 459 encroachments were detected and out of them 88 were evicted. In order to keep an eye on the vast area (2062 ha) of the project which spreads across four taluks, the availability of sufficient number of vehicles is essential. During the field visit, it is observed that a large portion of the canal system is unlined and canal boundaries are seen undemarcated. During the field visit, it is found that many parts of the canal system have been encroached. Ironically, some of the encroached areas cannot be reclaimed due to the various reasons which are tabulated below:

Table 2.5: Encroached Land in Pazhassi Irrigation Project

Sl No	Name of the Canal	The reasons for difficulty in reclamation of encroached areas.
1	Mahe Branch Canal - Panniyanoor distributary	700 m at tail end of the stretch has been utilized for the construction of NH bypass.
2	Edakkad Branch Canal- Mundallur FB- II	Ayacut has been converted into residential area.
3	Edakkad Branch Canal - Chala distributary	1 km at tail end has been utilized for the construction of road.
4	Edakkad Branch Canal East FB	Most of the ayacut has been converted into residential area.
5	Azheekkal Branch Canal - Valiyannoor distributary - II	Most of the ayacut has been converted in to residential area and 250 m at tail end has been utilized for the construction of road.
6	Azheekkal Branch Canal - Varam I	The entire area has been utilized for the construction of road.

Sl No	Name of the Canal	The reasons for difficulty in reclamation of encroached areas.
7	Azheekkal Branch Canal - Athirakam FB	The entire area has been utilized for the construction of road. Hence, at present no ayacut exists.
8	Azheekkal Branch Canal - Kakkad FB	The entire area has been utilized for the construction of road. Hence, at present no ayacut exists.
9	Azheekkal Branch Canal- Kottali distributary and its all FBs	The entire area has been utilized for the construction of road and the FBs have been merged into the Kakkad river. Hence, at present, no ayacut exists.
10	Thaliparamba Branch Canal	400 m at tail end of canal has been utilized for the construction of NH bypass.

The original width and vigour of the canals have been shrinking due to encroachment. Encroachment in the canal is not an issue in the Pazhassi Irrigation Project only but rampant in almost other divisions of the state also. Encroachment in the canals leads to various problems which will adversely affect both the water system and its surrounding environment. Structures built in the encroached area within or near the canal impede the natural flow of water. This reduces the efficiency of the canal system and will lead to water stagnation. It also increases the risk of flooding in adjacent areas during heavy rainfall.

Article 51 – A (g) of the Constitution of India provides that it shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures. Subsequently, in line with this, government have enacted several Acts and made rules thereunder to protect the environment and to prevent encroachment. Despite these, land and canal systems are continuously being encroached.

Recommendations

1 : The department should take necessary and stringent action to prevent the encroachment in the canal and its adjoining areas.

2: Irrigation Department may present a new scheme before the State Planning Board, Kerala for lining of canal and demarcation of boundaries for preventing encroachment throughout the state.

3 : The officials concerned should strictly inspect the whole stretch of the canal at least once in a month to spot and identify the encroachments. If any encroachment is noticed, urgent and speedy action should be taken with the assistance and coordination of Revenue and Police authorities to evict/ clear such encroachments.

4 : 'A Canal and Land Information System', based on the GIS (Geographic Information System) platform, may be developed for real time assessment.

Revenue loss incurred due to the non-realization of collection fee from Kerala Building and Other Construction Workers Welfare Fund Board (KCWWF) Cess.

On verification of the contingent bills of works in the Pazhassi Irrigation Division, it is observed that one percent of collection fee due to government pertaining to KCWWF cess has not been realized. The practice is same in most other offices/divisions also under the Water Resources Department (District office of Groundwater, Kozhikode & Kasaragod, Irrigation Division (Major) Kasaragod, Banasurasagar Irrigation Division, Wayanad, Bhavani Basin Division, Palakkad etc.). It is observed that there is a considerable loss of revenue to the Government in this regard.

As per para 3 (1) of the Building and Other Construction Workers Welfare Cess Act 1996, there shall be levied and collected a cess for the purposes of the Act, at such a rate not exceeding two percent, but not less than one percent of the cost of construction incurred by an employer, as the Central Government may, by notification in the Official Gazette from time to time specify. As per para 3(3) of the Act, the proceeds of the cess collected shall be paid by the local authority or the State Government collecting the cess to the Board after deducting the cost of collection of such cess not exceeding one percent of the amount collected .

Recommendation # 5: The department should collect 1% of the KCWWF cess and remit the same to the appropriate receipt head of account.

II. Modernization of Field Channels and Drains of CADA Canals of Major Projects (Outlay: ₹800.00 lakh)

During the financial year 2022-23, it was proposed to expand the area of ayacut by carrying out the modernization of field channels of the projects viz. Mangalam, Malampuzha, Pothundy, Chitturpuzha and Cheramangalam. The scheme envisaged for rectifying the damages and arresting the leakages of selected channels so that water distribution to the entire ayacut of those channels could be controlled to a greater extent, thereby preventing issues of water logging. An amount of ₹6,65,91,344 was utilized for carrying out those activities and modernization of projects in Chitturpuzha, Malampuzha, Mangalam, Pothundy and Cheramangalam. As part of evaluation of CADA Canal Scheme, Finance Department team has visited Malampuzha Division, Alathur Sub Division and LBMC (Left Bank Main Canal) Sub Division in Palakkad and randomly selected some of the CADA works for assessment.

Photo 2.1: Kizhakkethara Canal

Neither any noticeable irregularity nor any delay in implementation of work was observed. At the same time, a portion of the field canal of Kizhakkethara was seen encroached (See Photo # 2.1).

Improvement of Paruvassery field channel offtake ch at 18/550 km to LBMC (Challiparambu - Thenidukku)

Administrative sanction for an amount of Rs 10 lakh was issued on 07.06.2021 and technical sanction for the same amount was issued on 18.06.2021. The work was tendered on 05.07.2021. The site was handed over to contractor on 02.08.2021 and the time limit of completion of the work as per agreement was on 01.02.2022. After handing over the site, the estimate of the work was revised since the existing CADA canal is 5 meter below the road level and also for the reason of intermittent downpour. But, the contractor could not complete the work on stipulated

time because of the heavy shower and consequent drenching in the canal. Hence the time of completion of work was extended up to 30.05.2022 and the work was successfully completed on 29.05.2022. **On field verification, it was noticed the presence of many shrubs and bushes in the canal embankment as seen in the picture. It may lead to seepage and internal erosion. Consequently, the embankment tends to be instable. The officials concerned of Malampuzha Division should take urgent action to remove the vegetation in the canal and its embankment.**

Photo 2.2: Paruvassery Field Channel

Retention of Unclaimed Securities

Finance Department team verified the Security Register maintained in LBMC (Left Bank Main Canal) Sub Division, Palakkad, and noticed that 16 security deposits in the form of Fixed Deposits, NSC, etc amounting to ₹3.95 lakh has been retained in the office. The details of the security deposits kept are given below:

Table 2.6: Security Deposits

SL No	Year	Name of Contractor	Deposit Amount (in Rs)
1	2017-18	K K Haridas	14500
2	2017-18	P G Jayan	10000
3	2018-19	Muralidharan P R	8800
4	2015-16	Abdul Manaf	500
5	2018-19	Sahabudheen	10000
6	2019-20	Aravindhakshan R	1000
7	2019-20	Nishil Niyas	19100
8	2019-20	Sreedharan M	28800
9	2019-20	Ramesh S	61900
10	2019-20	Ramesh S	62200
11	2019-20	Ramesh S	37300

SL No	Year	Name of Contractor	Deposit Amount (in Rs)
12	2019-20	H Abdul Rahiman	30000
13	2019-20	C Mukundan	29080
14	2019-20	Abdul Hakeem K A	13700
15	2019-20	C Mukundan	25859
16	2019-20	C Mukundan	33000
Total			**394739**

As per the rules, the security deposits are to be released after the expiry of Defect Liability Period. But even though the validity period of the securities has been expired, no action is seen initiated by the Division either to release the security deposit or to deposit the same to the Government.

As per article 282 of Kerala Financial code Vol I "Lapse of deposits to the Government"- All deposits unclaimed for more than three complete financial years should be credited to the Government at the close of March in each year.

Recommendations

1 : Action may be taken to credit the above Security Deposit amount to Government under the appropriate revenue head of account.

2: Periodical physical verification of the security deposits should be conducted at regular intervals.

3 : Departmental action may be initiated against the erring officials.

III Renovation of Kuttiyadi Irrigation Project (Outlay: ₹300.00 lakh)

The Kuttiyadi Irrigation Scheme, one of the most important irrigation projects in Malabar region and the only one in Kozhikode District, was started in 1962 with the aim of supplying water for agricultural purpose in the district. The project was partially commissioned in 1973 and became fully functional in 1993. Originally, it was proposed to irrigate an ayacut area of 14560 hectares, in Kozhikode, Koyilandy and Vadakara taluks. Now, this project is being used not only for agricultural purpose but also for drinking purpose. The canal plays a major role in mitigating drought in

the district during the summer season. Due to the efficient water supply, impact of severe drought in Kozhikode district could be reduced to a great extent in the current year.

This project is also a source of water to Kozhikode Corporation, Koyilandy, Payyoli & Vadakara Municipalities and 43 Grama panchayats in the Kozhikode, Koyilandy & Vadakara Taluks. 174 mm3 of water is being taken for drinking purpose for the people of Kozhikode Corporation through JBIC scheme. Almost all the wells dug under Jalanidhi Scheme and also the drinking water projects carried out by Panchayats in Kozhikode district are being recharged through canal under Kuttiyadi Irrigation Scheme.

Figure 2.1:Cut-off diagram of Kuttiyadi Irrigation Project

The length of Left Bank Main Canal is 40.22 km and that of right bank main canal is 34.27 km. There are 10 branch canals having a total length of 138 km. The total length of distributaries & sub distributaries comes to 330 km. During the financial year 2022-23, an outlay of ₹300.00 lakh was earmarked and provided for the renovation and modernization works of the Main canal, Branch canals and distributaries of Kuttiyadi Irrigation Project. Out of this ₹2,69,37,622/- has been expended for renovation works. Since the project has been commissioned long ago,

most of the canals are seen deteriorated and eventually, it leads to seepage of water in many places.

Some of the hindrances in water distribution through the canals observed during field visit by Finance Department are given below:

1. Most of the structures like aqueducts, siphons, super passages, under-tunnels etc. were constructed 50 years back and are now in dilapidated condition. These damaged structures create a threat to life of people. Concrete in heavy blocks from the bottom of aqueduct barrels are being detached, due to the pressure exerted by water. It creates panic among local people. All these structures have to be either reconstructed or repaired. Two aqueducts have already been demolished as per the orders of Disaster Management Authority i.e one in Puramery distributary and the other in Azhiyur Branch canal.
2. Side walls of the canals have been eroded considerably and the canals have lost their original structure. Consequently, the width of canal beds as well as flow of water through the beds have drastically been reduced.
3. Super Passages were provided to channelize rainwater out of canal to the other field area. But, most of these drainways have now been converted into rural roads by widening. As a result, water during flood flows directly in to the canal thereby accumulating large volume of silt in the canal. This reduces the capacity of the canal resulting in non-availability of water at the tail end canals.
4. The width portion of the Main Canal (chainage 1/350 km to 1/650 km) at the bottom is only 3.5 meter instead of the prescribed width of 5.8 meter. Hence, only 12.60 m3/s of water could be distributed instead of 18.38 m3/s as per the design. This reduces water supply to all downstream canals. The same is also seen in ch: 6/700 km of left bank of the Main Canal
5. Annual maintenance work pertaining to the cleaning of canal and removal of silt had been done by Grama Panchayat through MGNREGS. But, now the above works are being treated as repeated works and the funds have not been provided under MGNREGS since 2021.
6. Since all canals, aqueducts and siphons are now in dilapidated conditions, heavy leakage is seen in many places. As per the design the maximum possible leakage was to be 1.5% of the water supply. But, at present the actual leakage is four times of it.

Photo 2.3: Dilapidated Structures

Recommendation : Now canals and canal structures are in very bad condition due to its use in the long run. Rectification works are being done only in small amounts through the funds allocated in the state budget and also through the funds allotted from SDRF and RKI. Since these funds are not sufficient enough to enhance the efficiency of the project, Government may consider to allocate more funds for revamping and upgrading the project.

Photo 2.4: Aqueduct of Kuttiyadi Irrigation Project

Scope of Tourism Potential in and around Kuttiyadi Irrigation Project.

The reservoir of Kuttiyadi Irrigation Project lies in Peruvannamuzhi village. Peruvannamuzhi is a beautiful area known for its natural beauty, serene surroundings, and having a variety of attractive destinations that make it an important tourism spot. Peruvannamuzhi dam and adjoining area is surrounded by rolling hills, dense forests, and a charming reservoir. Peruvannamuzhi is located just 52 km from Kozhikode town and very close to Wayanad. Two Tourism Management Committees are functioning under the Kuttiyadi Irrigation Scheme. Details of these TMC are tabulated below:

Table 2.7: Tourism at Kuttiyadi

Particulars	Peruvannamoozhi TMC	Thonikkadavu-Kariyathumpara TMC
Established on	01/03/2022	02/10/2021
Revenue generated as on 31/03/2023	20,81,933	1,27,43,920
Expenditure incurred as on 31/03/2023	12,96,205	52,17,692
Balance kept in Bank account as on 31/03/2023	7,85,728	75,26,228
Number of employees	7	15
Number of tourist visited in the FY 2022-23	88,583	3,56,756

The first phase of development works in the tourism centers under the Kuttyadi Irrigation Scheme has been completed. The master plan for the second phase is under preparation now. The design of Island Tourism Project which includes 3 thuruth (island) in Peruvannamoozhi Reservoir is also in progress.

Responsible tourism, also known as sustainable tourism, is an approach to travel and tourism that seeks to maximize the positive impact of tourism while minimizing its negative effects on the environment, culture, and communities. Responsible tourism aims to promote tourism that is ethical, environmentally friendly, and socially responsible. **This can also be implemented successfully in the Peruvannamoozhi Tourism project. The Peruvannamoozhi Tourism Project may be amalgamated into the upcoming Wayanad, Kakkayam, Iringal, Kappad Integrated Tourism Corridor and a substantial amount of revenue may be generated thereby.**

IV Groundwater Based Drinking Water Scheme (Outlay: ₹ 558.00 lakh)

Groundwater based drinking water scheme refers to initiatives aimed at providing safe and reliable drinking water supply to communities by utilizing groundwater resource. The scheme focuses on the extraction, treatment (if required), and distribution of groundwater to meet the drinking water needs of the population. The scheme envisages digging wells and drilling borewells and tubewells as the primary water source. Groundwater is typically extracted through mechanism of pumping to ensure continuous and steady supply. During 2022-23, it was proposed to implement 80 mini water supply schemes and dig 210 borewell/tubewell. It also envisaged renovation of 53 drinking water supply systems and reparation and maintenance of existing groundwater conservation structures which includes 450 hand pumps. An outlay of ₹558.00 lakh was provided for the above activities during the financial year 2022-23. Component-wise expenditure details are tabulated below:

Table 2.8: Scheme Name -Ground Water Based Drinking Water Scheme (Financial year -2022-23)

Sl No	Name of the component	Allocated amount (in Lakh)	Expenditure (in Lakh)
1	Implementation of MWSS, construction of Borewell /Tubewell and Hand Pump scheme	400	396.48796

Sl No	Name of the component	Allocated amount (in Lakh)	Expenditure (in Lakh)
2	Renovation of MWSS , reparation of Hand Pump and Artificial Recharge scheme	158	130.4973
	TOTAL	558	526.98526

Groundwater-based drinking water scheme refers to a system that provides potable water to communities or individuals by extracting and treating groundwater from underground aquifers. This system includes pipelines, a storage tank, and distribution points aptly located to ensure adequate water supply to communities. Groundwater extraction requires infrastructure such as electric pumps, electronic meters and civil structures depending upon the quantity of water to be utilized and location of the system.

Regular operation and maintenance activities are essential for the smooth functioning of groundwater-based drinking water supply systems. This includes monitoring of groundwater levels, periodic water quality testing, and reparation of civil structures and electrical accessories. The sustainability of groundwater based drinking water supply systems depends on the effectiveness of the working of Beneficiary Committee. As part of evaluation of the above scheme, Finance Department observed that, due to the inefficiency of the Beneficiary Committee, the beneficiary contribution could not be collected properly and hence the project itself was stalled. This situation is prevalent in many places.

Work : Drinking Water Supply Scheme at Mavilampadi (Muthuvath) at Balussery in Kozhikode district

On scrutinizing the file, it is seen that there was a delay in executing the agreement in respect of the work - Mini water supply scheme at Mavilampadi (Muthuvath) at Balussery in Kozhikode district. The work was executed by Groundwater Department, Kozhikode with an estimate of ₹10.85 lakh. Selection Notice was sent on 08.12.2022. Agreement was signed on 09/01/2023. The difference between the above two dates is about 32 days. On verification of the file, it is found that the Groundwater Department, Kozhikode, however, did not collect any fine for the delay occurred in this regard.

As per section 2009.6 of the Kerala Public Works Department (KPWD) Manual, successful bidder shall execute an agreement within a maximum period of 14 days from the date of acceptance of the tender. Fine at the rate of one percent of the contract amount subject to a minimum of ₹1000 and a maximum of ₹25000 shall be levied if agreement is not executed within 10 days after the notified period of 14 days.

Photo 2.5: Drinking Water Supply Scheme at Mavilampadi (Muthuvath) at Balussery in Kozhikode district

Recommendation : All works should be carried out in accordance with the provisions contained in the Kerala PWD manual. Action shall be initiated against the officials for dereliction of duty.

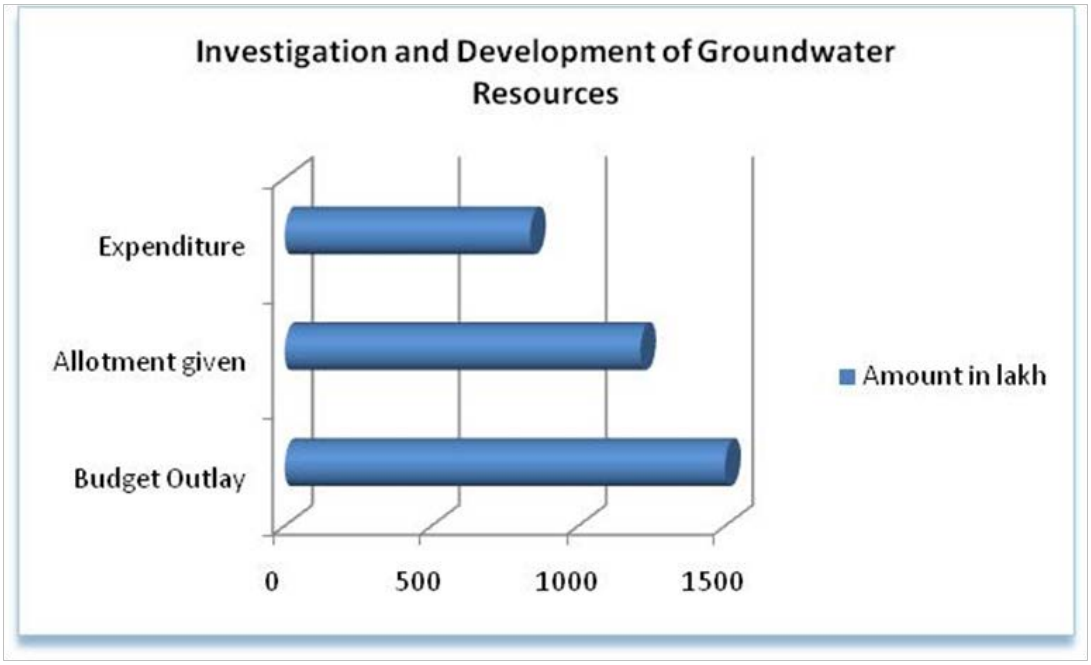
V Investigation and Development of Groundwater Resources (Outlay: ₹1500.00 lakh)

Investigation and Development of groundwater resources is a complex and multifaceted process that requires careful planning, monitoring, and management to ensure a sustainable and reliable source of water for various purposes. It is essential for the well-being of human beings and also for the preservation of natural ecosystems. An amount of ₹1500.00 lakh was earmarked in the budget 2022-23 for

the investigation and development of Groundwater Resources. The scheme aims for the realistic evaluation of groundwater resources and for providing infrastructural facilities like drilling machines and other materials for the development of groundwater resources. Estimation of Groundwater resource, investigation of groundwater by hydrogeological, geophysical and remote sensing studies, construction of groundwater extraction structures such as bore well, tube well and filter point well, and water quality studies are being carried out under this scheme. Procurement of machinery and accessories and materials for bore well/tube well construction, maintenance of machinery and vehicles, procurement of IT hardware and software, equipment for hydrogeological investigation, purchase of digital toposheets, geophysical equipment and other field related instruments, chemicals for laboratories etc. are also included in this scheme. In addition to the above, administrative expenses of GWD such as Tour TA of officials, Transfer TA, Water charge, Electricity charge, Rent, POL and other expenses are also being booked under this scheme.

During the FY 2022-23, an amount of ₹1211.34 lakh was allotted to this scheme. Out of this, an amount of ₹835.73 lakh was utilized. These details are graphically presented in the Figure – 2.2 below:

Figure 2.2: Details of budget outlay, allotment and expenditure under the scheme.



During the financial year 2022-23, it was proposed to carry out 12000 groundwater investigations, 1500 drilling (deposit) works, 50 well logging, 650

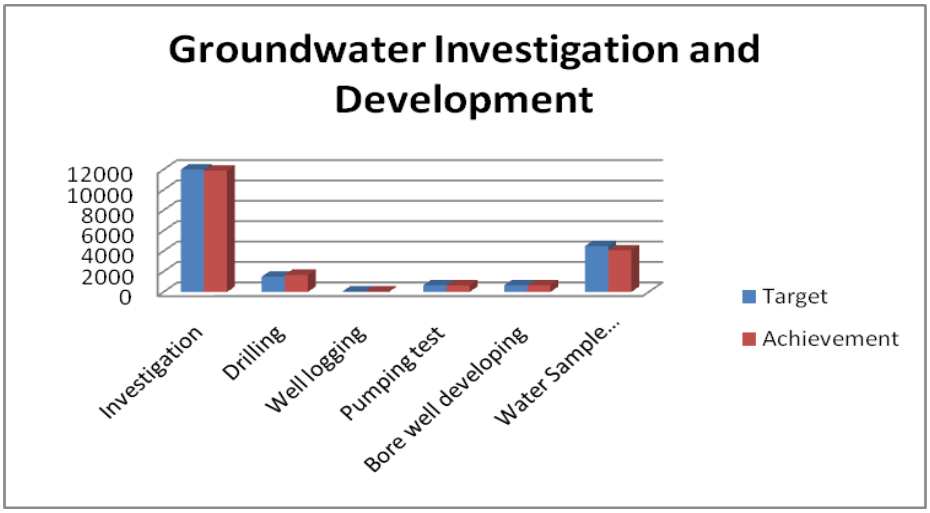
pumping test analyses, 650 bore well developments and 4500 water sample analyses. Achievement of the scheme is tabulated below:

Table 2.9: Details of Target and Achievement

Components	Target (Number)	Achievement (Number)
Investigation works	12000	11890
Drilling works	1500	1677
Well logging	50	54
Pumping test	650	645
Bore well development	650	651
Water Sample analyses	4500	4076

The above details are graphically presented in the Figure. 2.3 below:

Figure 2.3: Graphical representation of target and achievement



During the field visit by Finance Department Team, it has been noticed that Groundwater Department uses old machinery like rig, truck and other mechanical tools for the implementation of scheme. Old machinery adversely affects productivity, safety, and overall efficiency. Older machinery is prone to breakdowns and malfunctions. Frequent breakdowns will disrupt work schedules, lead to increased downtime, and also escalation of operating costs. Old machinery consumes more

energy, requires more labour and produces less output. As time elapses machinery requires frequent and costly maintenance to keep it running. Replacement of parts of older equipment is also a challenge.

It is important to note that the scheme - Investigation and Development of groundwater resources- mixes the heterogeneous components such as construction of groundwater extraction structures, investigation of groundwater resources, water quality studies, procurement of machinery, and also includes administrative expenditure like tour TA, Transfer TA, POL etc. A small portion is being used for procurement of machinery. There is no separate plan scheme available for the procurement of machinery and for its reparation

Recommendation : Groundwater Department may put forth a new scheme before the State Planning board, Kerala for purchasing state of the art machinery and also for reparation and maintenance of existing machinery used. Latest and modern technology may be made use of so as to improve efficiency and to achieve optimum output.

VI Renovation & Modernization of Canals under Chitturpuzha Project (NABARD) RIDF (Outlay: ₹1200.00 lakh)

Chitturpuzha Irrigation project in Palakkad district, envisaged the construction of Moolathara regulator and Thenbaramadakku anicut and re-modelling the existing 3 old anicuts viz. Kunnamkattupathy, Nurnee and Nurnee Alankadavu anicuts. The above 4 anicuts are constructed across the river Chitturpuzha, a tributary of Bharathapuzha, and from these independent systems, irrigation is being provided in Chittur taluk for the last hundred years by diversion canals. During the early years of 1960s, a dam was constructed at Aliyar in the upper reaches of Chitturpuzha by Tamil Nadu Government in the area falling in that State. This reduced the flow of water to the downstream side causing drought in the anicut areas. An Inter State agreement was made between Governments of Kerala and Tamil Nadu. As per the agreement, the total quantity of water to be released annually to Chitturpuzha project is 7250 mcft (205.3 mcm). Taking into account the availability of water, a consolidated development programme was contemplated combining the scheme and inter linking with other projects like Walayar, Meenkara and Chittur.

At present a few canals are not being capable of carrying its maximum designed capacity of water. Moreover, the current capacity of canal at the

embankment hardly meets the irrigation requirement of its ayacut. Most of the civil structures and canals are in dilapidated conditions.

An amount of ₹1200.00 lakh was earmarked in the state budget 2022-23 for renovation and modernization of canals of Chitturpuzha project. By the NABARD loan scheme, it is ruminated to recuperate the Chitturpuzha project. Lining of canals is also included in the scheme. The administrative sanction for the same has been issued vide G.O (Rt) No 807/2023/WRD dated 14/09/2023.

During the financial year 2022-23, an amount of ₹110.66 lakh was expended for spill over works under the Plan heads. Expenditure details of spillover works during the financial year 2022-23 are tabulated below:

Table 2.10: Renovation & Modernization of canals under Chitturpuzha Project (Financial year -2022-23)

Sl No	Name of the work	Allocated amount (in Lakh)	Expenditure (in Lakh)
1	Rectification of Vilayodi branch canal ch 0/680 km to 0/ 950km	13.08716	13.08716
2	Urgent rectification works of Koduvayur branch canal between. ch 1/700 Km to 1/950 km	7.38609	7.38609
3	Urgent rectification works to Arampadam branch canal near ch 11 near aqueduct	15.23259	15.23259
4	Urgent rectification works to Mothirapara branch canal ch 1/800 Km to 2/200 Km	22.22331	22.22331
5	Rectification works to Naduchalla branch canal 0/000 to tail end	2.13062	2.13062
6	Rectification of under tunnel and providing retaining wall at ch 8 /550 km of RB main canal	1.98455	1.98455

Sl No	Name of the work	Allocated amount (in Lakh)	Expenditure (in Lakh)
7	Rectification works to the damaged canal side walls of Thembaramadakki main canal ch 6/450km to 6/550 km	24.11104	24.11104
8	Dam and appurtenant - reconstruction of damaged culvert in the outlet channel of Vengalakayam eri	7.29127	0
9	Urgent renovation works to main canal ch 14/300 km to 14/700 km	17.07432	17.07432
10	Urgent rectification works to the damaged side wall of Vakkode branch canal Ch 2/400 Km to 2/500 Km	7.43426	7.43426
	TOTAL	117.95521	110.66394
Source : Plan space			

Recommendation : The department should take urgent action to complete the NABARD RIDF work at the earliest.

VII Idamalayar Irrigation Project (Outlay ₹2100 lakh)

The Idamalayar Irrigation Project is a significant water management system of Kerala. The project initiated in 1979 was completed in 1996. The project is primarily aimed for irrigating vast cultivable land lying on the right side of Periyar river in Aluva and Paravur taluks of Ernakulam district and Mukundapuram taluk of Thrissur district. The project is a diversion scheme intended to irrigate an extent of 14394 ha. of wet and dry lands with the Cultivable Command Area (C.C.A) of 13209 ha. The Idamalayar Irrigation Project was commenced in 1981 with a project cost of ₹17.85 crore.

Cut off diagram of the project is shown in Figure :2.4

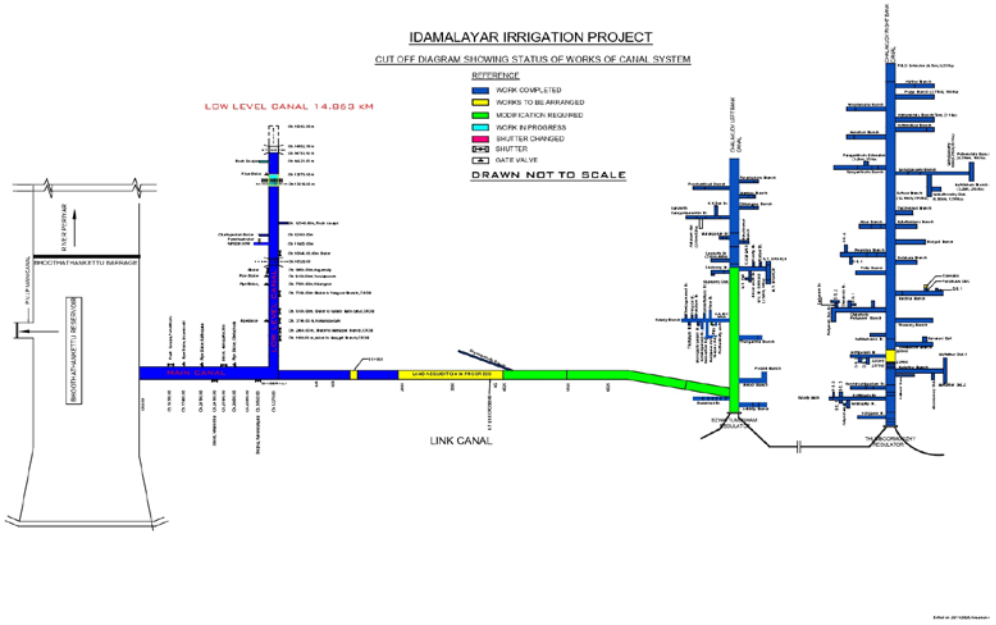


Figure 2.4:Cut off diagram of Idamalayar Irrigation Project

The work of main canal of Idamalayar Irrigation Project, which has a length of 32.278 km starts from the right side of Bhoothathankettu barrage, is completed in all respects achieving an ayacut of 999 ha. The main canal bifurcates into two, one is a low-level canal which has a length of 27.25 km and the other is a link canal of length 7.575 km. Construction of the Low-level Canal up to 15 km has been completed, except at the Railway crossing in Nedumbassery panchayat. Since the work of MC road crossing was completed by adopting the push-through mechanism, water distribution has been enabled only up to Ch.1254 m in low- level canal. Later, low-level canal beyond Ch. 15.00 km has been dropped by the Government.

Total length of branch canals as per the original scope of IIP is 26.00 km. But, all branch canals, except Kanjoor - Thekkumbhagam branch (of ayacut area around 500 ha as per revised proposal), have been dropped by the Government.

The link canal is proposed to connect IIP with the Chalakudy Left Bank Canal of Chalakudy River Diversion Scheme (CRDS) at Poothamkutty. Investigation works of the Link canal from 2035m to 7575m have already been done.

The Hon'ble Finance Minister, Kerala announced in his budget speech 2022-23 that IIP would be commissioned in the year 2024-25. In order to achieve

the target, the revised Detailed Project Report (DPR) for link canal was submitted to the Government on 20/06/2022. The project cost for completion of link canal on war footing basis is ₹127 crore as per revised DPR with a benefit cost ratio of 1.687.

Later the site was inspected by the Chief Technical Examiner, Finance Department on 22/10/2022. After perusal of DPR and the related documents, Chief Technical Examiner opined that the possibility of arrangements of lift irrigation from a portion of LBMC where the proposed link canal joins the CLBC to be explored and directed the Irrigation Department to furnish a fresh proposal for placing before the Special Working Group (SWG) and instructed to submit the revised DPR for an amount of ₹95 crore only for the construction of link canal between Ch.2035m to 7500m (including LA) and renovation of CRDS canals. Later Irrigation Department opined that in order to accomplish the objective of completion of link canal of IIP, either deepening of LBMC or lifting water from the lower bed level at Ch.7500m of link canal to the existing bed level of LBMC at Ch 9/900km is necessary. As such DPR is being modified after incorporating provisions for lifting water to LBMC.

An outlay of ₹2100.00 lakh was earmarked in the financial year 2022-23 for land acquisition and construction works of Kanjoor Thekkumbhagam branch canal, annual maintenance of canals and approved spill over works. An amount of ₹1402.48 lakh has been utilized for the project during the financial year 2022-23, as reported by the Irrigation Department. Total expenditure of IIP as on 30.06.2023 is ₹566.256 crore.

Recommendation: The department may take necessary steps for land acquisition and take urgent actions to complete the work of Kanjoor-Thekkumbhagam branch canal.

VIII Cheramangalam Project- Improvement of Anicut and Allied Structures (Outlay: ₹250.00 lakh)

The Cheramangalam Scheme was commissioned in 1951. It is a diversion scheme in Palakkad district with a weir in Gayathri River. The scheme irrigates an ayacut of 1180 Ha in Alathur Taluk. The command area of the project lies in the panchayats of Melarcode, Erimayoor, Alathur, and Kavassery. The project comprises a main canal and its three branches. Main canal has a length of about 15.540 Km. The details of the branch canals are given below:

Table 2.11: Branch Canal system

Sl No	Name	Length (km)
1	16 A branch canal	4.80
2	Erakulam branch canal	3.00
3	Vadakethara branch canal	2.200

An amount of ₹250.00 lakh was earmarked in the annual budget of 2022-23 for the improvement of Cheramangalam anicut and its allied structures. The length of the proposed canal renovation is 2540 metre. A sum of ₹202.37 lakh has been expended for 15 works during the financial year 2022-23.

The details of the works executed during the financial year 2022-23 are tabulated below:

Table 2.12: Details of work

Sl No	Name of the work	Amount & Date of Administrative Sanction	Amount & Date of Technical Sanction	Date of tender	Date of commencement of work	Date of completion of work	Reason for the delay occurred.
1	Improvement and urgent rectification works to main canal ch 15/270 km to 15/370 km and Erakulam branch canal 2/040 km to 2/150 km	₹22.22 lakh & 08.03.2022	₹22.22 lakh & 17.03.2022	18.03.2022	12.05.2022	03.08.2022	Nil
2	Improvement and urgent rectification work main canal Ch 2/900km to 3/000km	₹15.50 lakh & 08.10.2020	₹.15.50 lakh & 23.10.2020	31.10.2020	12.01.2021	15.11.2021	Heavy Rain ,unavailability of materials & impact of Covid 19
3	Improvement and urgent rectification works to 26 field boothies	₹ 30.50 lakh & 17.06.2021	₹ 30.50 lakh & 23.06.2021	26.06.2021	18.08.2021	17.02.2022	Nil
4	Improvement and urgent rectification works to 15 field boothies 0/340km to 0/760km	₹ 15.50 lakh & 17.06.2021	₹ 15.50 lakh & 23.06.2021	26.06.2021	23.08.2021	28.05.2022	Heavy rain

Sl No	Name of the work	Amount & Date of Administrative Sanction	Amount & Date of Technical Sanction	Date of tender	Date of commencement of work	Date of completion of work	Reason for the delay occurred.
5	Improvement and urgent rectification work to 16A branch canal Ch 2/300km to 2/ 580 km	₹ 17.66 lakh & 14.06.2021	₹ 17.66 lakh & 24.06.2021	26.06.2021	18.08.20.21	10.12.2021	Nil
6	Improvement and urgent rectification works to 16A branch canal at Ch 1/200 km to 1480 km	₹ 17.50 lakh & 14.06.2021	₹ 17.50 lakh & 24.06.2021	26.06.2021	18.08.2021	22.04.2022	Heavy rain
7	Improvement and urgent rectification work to 23 field boothies ch 0/550 km to 1/120km	₹ 19.60 lakh & 23.06.2021	₹ 19.60 lakh & 23.06.2021	26.06.2021	18.08.2021	14.12.2021	Nil
8.	Improvement and urgent rectification work to Main canal Ch:0/950 km to 1/050 km	₹11.10 lakh & 07.06.2021	₹ 11.10 lakh & 22.06.2021	08.07.2021	04.08.2021	28.04.2022	Intermittent rain
9.	Improvement and urgent rectification work to Main canal Ch:3/400 km to 3/500 km	₹ 11.10 lakh & 07.06.2021	₹ 11.10 lakh & 22.06.2021	08.07.2021	06.08.2021	17.05.2022	Intermittent rain
10.	Improvement and urgent rectification work to Main canal Ch:4/700 km to 4/800 km	₹9.20 lakh & 07.06.2021	₹9.20 lakh & 22.06.2021	08.07.2021	06.08.2021	24.05.2022	Intermittent rain
11.	Improvement and urgent rectification work to Main canal Ch:5/800 km to 5/900km	₹12.40 lakh & 07.06.2021	₹12.40 lakh & 22.06.2021	28.06.2021	18.08.2021	04.05.2022	Intermittent rain
12.	Improvement and urgent rectification work to Main canal Ch:6/900km to 7/000 km	₹12.20 lakh & 07.06.2021	₹12.20 lakh & 22.06.2021	29.06.2021	18.08.2021	04.05.2022	Intermittent rain
13.	Improvement and urgent rectification work to Erakulam Branch canal Ch : 1/500km to 1/620 km	₹.11.23 lakh & 07.06.2021	₹11.23 lakh & 22.06.2021	08.08.2021	13.08.2021	08.08.2022	Intermittent rain
14.	Improvement and urgent rectification work to 18 Field Boothies Ch 0/250km to 0/500 km	₹.9.30 lakh & 07.06.2021	₹9.30 lakh & 22.06.2021	29.06.2021	13.08.2021	26.04.2022	Intermittent rain

Sl No	Name of the work	Amount & Date of Administrative Sanction	Amount & Date of Technical Sanction	Date of tender	Date of commencement of work	Date of completion of work	Reason for the delay occurred.
15.	Improvement and urgent rectification work to 22 Field Boothies	₹5.70 lakh & 07.06.2021	₹5.70 lakh & 22.06.2021	28.06.2021	18.08.2021	28.05.2022	Intermittent rain

As part of evaluation of Cheramangalam Project, Finance Department team has visited Malampuzha Division and Alathur Sub Division in Palakkad and randomly selected some of the plan works for assessment. No major irregularities were observed.

Improvement and urgent rectification work to main canal ch 4/700 to 4/800

Administrative sanction for an amount of ₹9.20 lakh was issued on 07.06.2021 and technical sanction for the same was issued on 22.06.2021. The work was tendered on 08.07.2021. The site was handed over to the contractor on 06.08.2021 and the time limit for completion of work as per the agreement was on 05.02.2022. But, the contractor could not complete the work on stipulated time and the time of completion was extended to the contractor up to 04.05.2022 without imposing fine. During summer season, water was distributed through the canals to the fields for irrigation. Hence, the work could not be carried out in time. Subsequently, the time of completion of work was again extended up to 30.05.2022 without imposing fine. The work was completed on 24.05.2022.

Photo 2 6: Rectification work

Section 2112 of Kerala PWD Manual stipulates that the extension of time for completion of a work shall at a time not exceed 25% of the original time or six months whichever is less.

Recommendation # 1 : All works should be carried out in accordance with the provisions contained in the Kerala PWD Manual

Contradiction of data available in the Plan space with the actual data.

Finance Department team got wind of a wrong entry pertaining to the work in the 'Plan space' website with the actual work done. As per the plan space website, a total amount of ₹ 194.64 lakh was utilized on 16 works for the plan scheme under Cheramangalam Project during 2022-23. On verification of the files and other documents by the team of Finance Department, it is seen that the actual utilization was ₹ 202.37 lakh for 15 works. On inquiry, the official concerned of the project replied that there occurred a typing error while entering details in the plan space website and also stated that incorrect entries in the Plan space can not be edited after the end of the same financial year.

Recommendation # 2 : Chief Engineer (Project I) should issue strict and clear instructions to the Executive Engineer of all Divisions to ensure that accurate information is entered in the 'Plan space' website.

IX Renovation of Kanjirapuzha Project (NABARD RIDF) (Outlay: ₹ 1000.00 lakh)

Kanjirapuzha Irrigation Project is one of the medium irrigation projects implemented in Palakkad district. The detailed investigation of the scheme was started in 1947 and the project was taken for implementation with an estimate of ₹ 365 lakh in 1954. The work was started in 1961 with an aim to complete it by March 1969. But the project couldn't be completed within the stipulated time frame. It escalated the cost of the project. It was partially commissioned in 1980. The irrigation is being carried out through Left Bank Main Canal (61.71 km), Right Bank Main Canal (9.36 km) along with a network of distributaries and field boothies and thus making the total length of the canal to be 250 km. The total ayacut proposed in the project was 9713 hectares. But, the canals constructed could provide only an ayacut of 8243 hectares. The efficiency of the canal system has been reduced due to seepage and leakage. Hence, refurbishment and periodic maintenance of the canal system is essential for keeping it effective and fully functional.

Photo 2.7: Kanjirapuzha Dam

An amount of ₹1000.00 lakh was earmarked for NABARD-RIDF during the financial year 2022-23 for the renovation and maintenance of canals. The administrative sanction for the same has been issued vide G.O(Rt)No 807/2023/WRD dated 14/09/2023. The details of works proposed under the NABARD-RIDF are given below:

Table 2.13: List of works proposed under NABARD-RIDF scheme

Sl. No.	Name of the work	Amount in lakh
1	NABARD - KPIP - Rectification works to LBMC Ch. 38/000 Km to 38/600 Km in Pookkottukavu GP - General Civil work	60.30
2	NABARD - KPIP - Rectification works to LBMC Ch. 38/600 Km to 38/800 Km in Pookkottukavu GP - General Civil work	12.50
3	NABARD - KPIP - Rectification works to LBMC Ch. 37/400 Km to 38/000 Km in Pookkottukavu GP - General Civil work	35.70
4	NABARD - KPIP - Rectification works to Karumanamkurissi distributary Ch. 1/200 Km to 2/800 Km for the year 2023-24 - General Civil work	20.50

Sl. No.	Name of the work	Amount in lakh
5	KPIP-NABARD-Construction of side protection wall for Ottappalam distributary ch :2/000 km to 2/300 km	8.30
6	KPIP-NABARD-Rectification works ch :43/700 km to 44/100 km of LBMC	19.76
7	KPIP-NABARD-New lining works ch :46/460 km to 48/480 km of LBMC	61.50
8	KPIP-NABARD- Lining works ch :50/834 km to 52/000 km of LBMC	24.00
9	NABARD - KPIP - Rectification works to breached portions Ch. 1/700 Km to 3/000 Km of Veeramangalam distributary - General Civil work	20.50
10	KPIP-NABARD-Canal lining of LBMC from ch : 57/050 km to 61/150 km	66.00
11	KPIP-NABARD-Revamping works to Mundanattukara distributary from ch : 900 to 1000 m.	45.00
12	NABARD - KPIP - Rectification works to Kulapully distributary near to Ch. 08/000 Km.	20.50
13	NABARD - KPIP - NABARD - 2023-24 - NABARD - KPIP - New lining works Ch. 26/000 Km to 26/200 Km of LBMC for the year 2023-24 - General Civil work	49.71
14	NABARD - NABARD - 2024 - KPIP - New lining works, silt removal and jungle clearance Ch. 8/000 Km and 9/000 Km of LBMC for the year 2023-24 - General Civil work	99.03

Sl. No.	Name of the work	Amount in lakh
15	NABARD - KPIP - New lining works, silt removal Ch. 12/950 Km and 13/200 Km of LBMC for the year 2023-24 work - General Civil work	51.60
16	KPIP - New lining works and jungle clearance Ch. 12/700 Km and 12/800 Km of LBMC for the year 2023-24 work - General Civil work	61.62
17	NABARD - KPIP - NABARD - 2023-24 - NABARD - KPIP - New lining works Ch. 25/500 Km to 25/900 Km of LBMC for the year 2023-24 - General Civil work	70.32
18	KPIP - Rectification works Ch. 17/400 Km and Ch: 17/450 Km of LBMC for the year 2023 - 24 - work General Civil work.	19.42
19	NABARD - KPIP - NABARD - 2023-24 - NABARD - KPIP - Rectification works Ch. 29/750 Km to 30/200 Km of LBMC for the year 2023-24 - General Civil work	65.14
20	NABARD - KPIP - Rectification works to Arakkurussi canal from Ch. 2/500 Km to 3/100 Km - at Muthuvally in Thenkara GP 2023-24 - General Civil work	5.00

Recommendation : The department should take urgent action to complete the NABARD RIDF work at the earliest.

X Thottapally Project (New Scheme) (Outlay: ₹500.00 lakh)

Thottapally Spillway functions as the drain-way of Kuttanad to the Arabian Sea. The spillway splits the Thottapally lake with the fresh water part to the east and saline Thottapally river mouth to the west merging with the Arabian Sea. Thottapally spillway is constructed to spill out excess water in the Upper Kuttanad and the Lower Kuttanad regions received through Manimala River, Achancovil River and Pamba

River. During monsoon season, the water level in rivers-Achenkovil, Pamba and Manimala rises spontaneously and causes flood in low lying areas of Kuttanad.

As per GO(Rt)No.360/2021/WRD dated 09.07.2021, administrative sanction for an amount of ₹7030.00 lakh was accorded for protection works on both banks of Pamba river near Thottapally. The work is proposed as part of Second Kuttanad package for which an outlay of ₹500.00 lakh was provided in annual budget 2022-23 for the components specified in the Government order and flood control works near Thottapally spillway. The work for a total amount of ₹37 crore has been tendered in connection with the project and the expenditure towards the work is expected to incur in the financial year 2023-24

Recommendation : The fund provided in the budget should be utilised in time to achieve the desired goals without cost escalation and also to achieve the very object of planning process.

XI Study on Coastal Protection Measures (Outlay: ₹57.00 lakh)

Coastal protection measures are strategies and structures designed to mitigate and prevent coastal erosion, manage sea-level rise, and protect coastal communities and ecosystems from the impacts of coastal hazards. These measures can vary in complexity and scale, depending on the specific coastal challenges and available resources. Some common coastal protection measures are seawalls, breakwaters, groynes, beach nourishment, mangrove restoration, etc.. These measures help to reduce coastal erosion. It is important to note that the choice of coastal protection measures should consider the specific environmental conditions, local ecosystems, long-term sustainability, and the potential impacts on neighbouring areas. Scientific studies play a crucial role in informing and guiding coastal protection measures. These studies provide a solid foundation for understanding the unique coastal dynamics, risks, and potential solutions in a specific region. The findings from these studies are used to develop comprehensive coastal protection plans that are both effective and environmentally sustainable. Collaborating with experts in these fields and using up-to-date data and technology is crucial to ensure the success of coastal protection efforts.

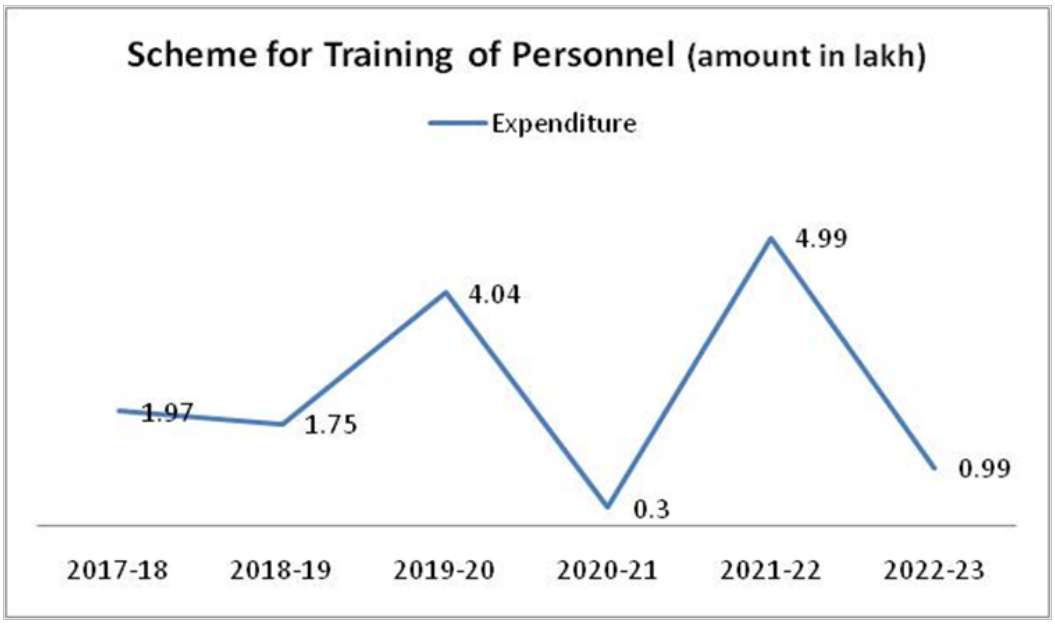
During the financial year 2022-23, budget outlay for the scheme was ₹57 lakh. The sanctioned amount was ₹46.6 lakh. Of the sanctioned amount, an amount of ₹36.78 lakh has been expended for carrying out studies for implementation of appropriate anti-sea erosion activities. Regarding this, the

Government of Kerala has signed an MoU with National Centre for Coastal Research (NCCR), Chennai. Now, studies are going on based on the MoU.

XII Training of Personnel (Outlay: ₹10.00 lakh)

The objective of the scheme 'Training of Personnel' is to provide training to the technical and administrative personnel of the department in the relevant fields to upgrade/improve knowledge, skill and abilities by exposing them to the latest advancements in groundwater investigation, construction of groundwater extraction structures, groundwater conservation and management practices, modern computer application etc. Research and scientific studies on new water management technologies, sustainable and scientific groundwater development, study on groundwater contamination and pollution etc. are also proposed under the scheme. An outlay of ₹10.00 lakh was provided during the financial year 2022-23 for the above activities. Of this, an amount of ₹0.99 lakh was utilized for 9 training programmes. Details are graphically depicted in the Figure 2. 5:

Figure 2.5: Details of expenditure on scheme for training of personnel



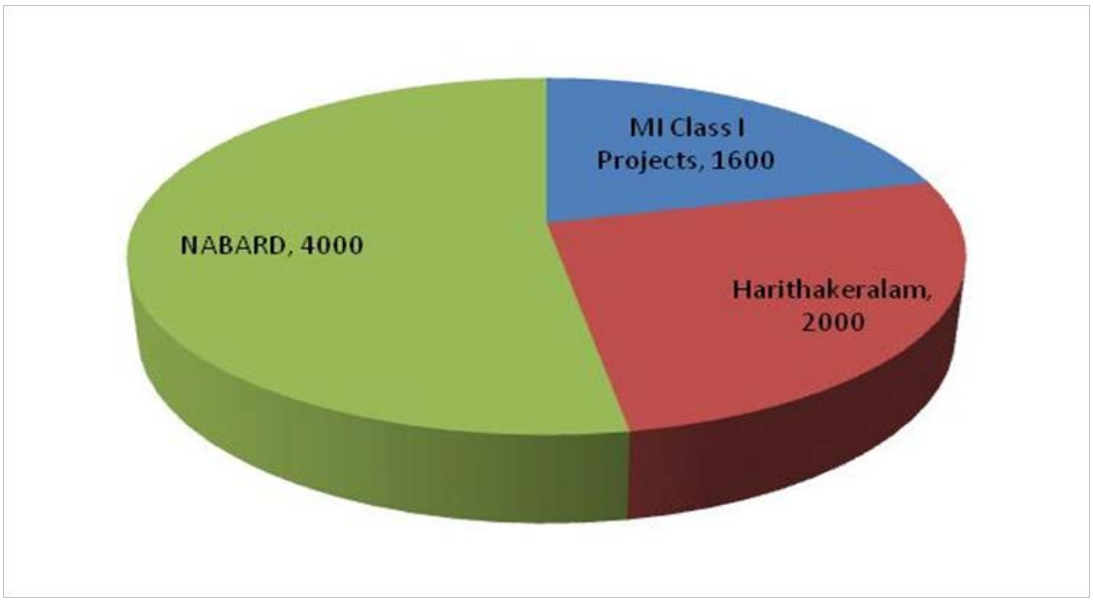
Recommendation: Groundwater Department should try to utilize the funds to the maximum, allotted for the training purpose as it supports and promotes the professional development of the officials concerned. It helps them stay up-to-date with evolving laws, regulations, and best practices in their respective fields. All officials should be given training in the modern technology to

improve their capacity and also to achieve economy in expenditure and efficiency in operations.

XIII Minor Irrigation Class – I (Outlay: ₹7600.00 lakh)

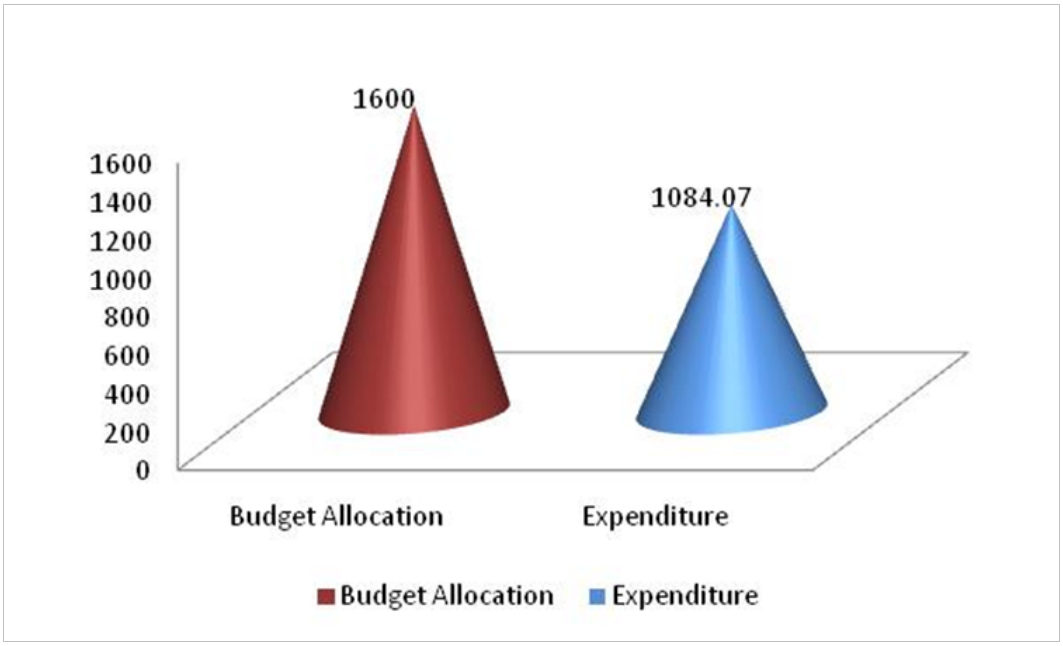
Irrigation schemes are classified into three categories on the basis of cultivable command area (CCA); 1) Major Irrigation, 2) Medium irrigation, and 3) Minor Irrigation. Major Irrigation schemes are implemented in areas (CCA) which have more than 10,000 ha of land, Medium Irrigation schemes in area between 2,000 ha and 10,000 ha and Minor irrigation schemes up to 2000 ha. Minor Irrigation Class 1 projects typically refer to small-scale irrigation projects with a command area between 50 hectares and 2,000 hectares. Minor irrigation schemes have equal importance as that of major and medium irrigation systems due to many features such as small capital investments, less gestation period, and farmers' friendly, and so forth. The scheme aims to enhance water availability, optimize water distribution, and increase agricultural productivity in the irrigated area. Minor Irrigation Class 1 projects include various types of irrigation systems, such as tanks, ponds, check dams, diversion weirs, lift irrigation schemes, and small-scale canal networks. These projects cater the irrigation needs of small and marginal farmers and support sustainable agricultural practices Under MI class I scheme. A total outlay of ₹7600.00 lakh was earmarked to this scheme during the financial year 2022-23. A graphical presentation of the same is given in the following Figure 2. 6 :

Figure 2.6: Component-wise allocation to MI Class I



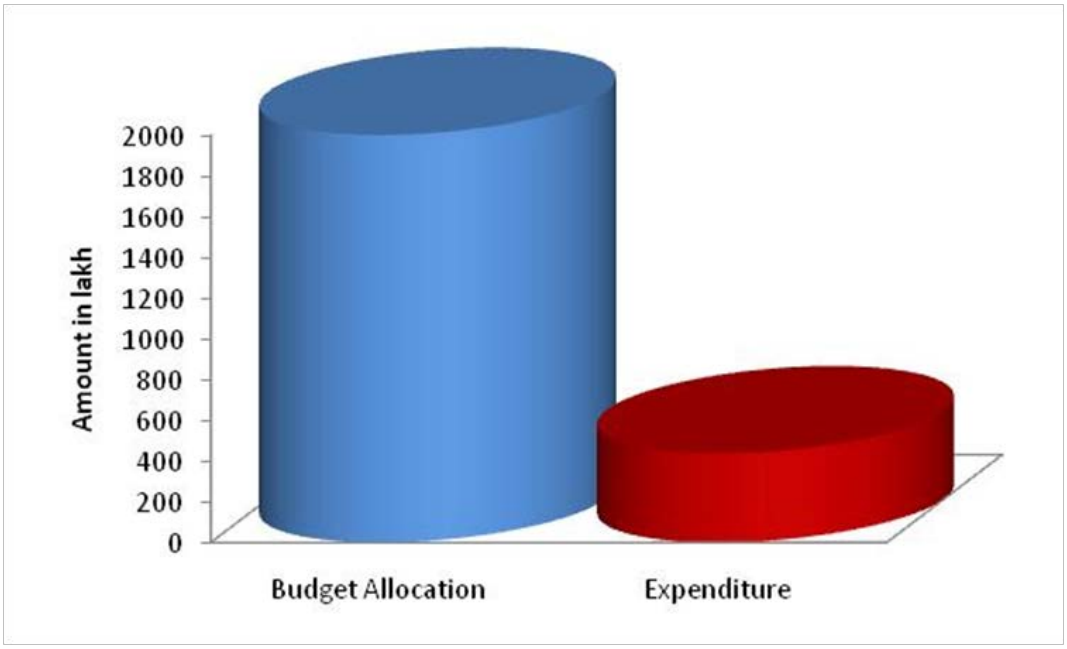
Of the total allocation for the scheme, an amount of ₹1600.00 lakh was earmarked under the head of account 4702-00-101-99 for undertaking Minor Irrigation Class I works during the financial year 2022-23. The amount was allocated for incurring the expenditure towards completing ongoing works and for taking up new works such as construction of check dams, sluices, bunds, vented cross bars, salt water barriers etc. Administrative sanction for an amount of ₹3537.40 lakh has been issued for 19 works during the financial year 2022-23 and an amount of ₹1084.07 lakh has been utilized for the MI works which includes spill-over works also. Details of Budget Allocations and Expenditure under the above head of account during 2022-23 are presented in Figure 2.7 below:

Figure 2.7: Details of Budget Allocation and Expenditure under the h/a 4702-00-101-99 (MI Class I Projects) Amount (₹ in lakh)



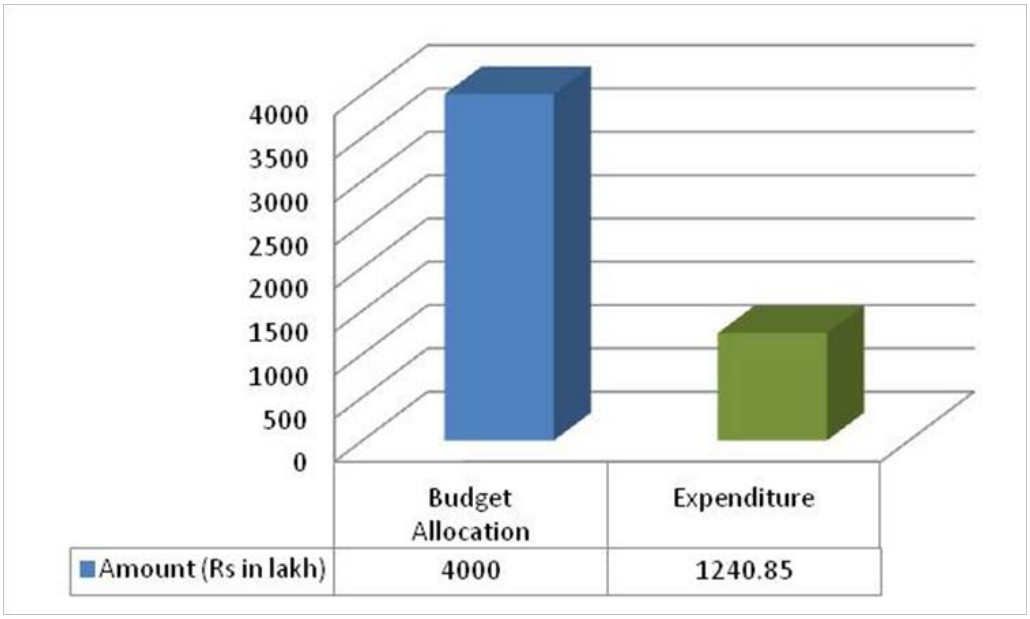
An amount of ₹2000.00 lakh was provided under head of account 4702-00-101-66 for Minor Irrigation Class I- Harithakeralam. Under the Harithakeralam scheme, works pertaining to the conservation of water and soil are being carried out with the assistance of various departments and farmers. During the financial year 2022-23, administrative sanction for an amount of ₹1892.50 lakh has been issued for a total of 19 works under Harithakeralam. An amount of ₹436.01 lakh has been utilized which includes spill over works also. Details of Budget Allocation and Expenditure under the above Head of Account is depicted in the Figure 2.8 below:

Figure 2.8: Details of Budget Allocation and Expenditure under the 4702-00-101-66 (Harithakeralam)



NABARD has been providing loan assistance for Minor Irrigation works under RIDF. Minor irrigation works assisted by NABARD includes construction of Regulator cum Bridges (RCBs), Salt Water Extrusion cum Bridges (SWECBs), ponds, Vented Cross Bars (VCBs), check dams, storage weirs, cross bars and protection works etc. During the financial year 2022-23, an outlay of ₹4000.00 lakh was earmarked for Minor Irrigation Class I works under NABARD RIDF. Of this, an amount of ₹1240.85 lakh has been utilized. Details are graphically presented in the Figure 2.9 below:

Figure 2.9: Details of Budget Allocation and Expenditure under h/a 4702-00-101-95 (NABARD Assistance)



The officials of Finance Department visited MI division, Kasaragod and Palakkad and selected some of the works for assessment randomly. No major irregularities were noticed in both divisions.

NABARD RIDF -XXI- Construction of Salt Water Exclusion Regulator cum Bridge (RCB) across Kariangod river at Palayivalavu in Kasaragod.

The project envisaged for preventing intrusion of saline water from Kariangod river, thereby protecting an area of 4866 ha of fertile land in the upstream of Kariangod bridge. The site is located across the Kariangod river which is 5 km away from Kariangod bridge on NH 66, and the bridge is built at a distance of 10 km from sea mouth. The benefitted areas of the project are Nileswaram Municipality and Kinanoor- Karinthalam, West Eleri, East Eleri, Kayyur-Cheemeni, and Cheruvathur grama panchayats.

Administrative sanction for an amount of ₹6500 lakh was issued on 22.01.2016. Of this, NABARD RIDF loan was ₹6175 lakh. Details of technical sanctions and expenditure up to 2022-23 are tabulated below:

Table 2.14: Component-wise details of the Project

Sl No	Name of the component	Sanctioned amount (in crore)	Revised Estimate amount (in crore)	Expenditure (In crore)
1	Civil work	52.50	48.36	46.86
2	Mechanical work	8	6.88	7.04
3	Electrical work	0.879	0.7629	0.832
	Total	61.379	56.0029	54.732

During the field visit, it is observed that the project is successful. The prevention of saltwater intrusion seems to be at the optimum level. The Regulator cum Bridge connects the roadway from Nileswaram to Kayyur and also from Nileswaram to Cheruvathur Grama Panchayat. It reduces the distance of travel by 12km. Even though the project is a successful one, the shortcoming noticed by Finance Department is the absence of footpath. Since the length of RCB is 227m, the footpath could have been provided.

Photo 2.8: Regulator cum Bridge across Kariangod river at Palayivalavu in Kaasaragod.

MI Class I - Reconstruction of VCB across Kurudanthodu at Melepura in Erimayur Grama Panchayat, Palakkad

The project is envisaged to reconstruct a Vented Cross Bar (VCB) across Kurudanthode at Erimayur in Palakkad district. Administrative sanction for an amount of ₹45 lakh was issued on 01.08.2019. Technical sanction for an amount of ₹35 lakh was issued on 07.12.2020. The work was tendered on 28.12.2020. The site was handed over to the contractor on 25.02.2021. The work was completed within the stipulated time. No serious irregularities were observed except the delay in issuing technical sanction. It is seen that there is a gap of more than one year between the date of administrative sanction and date of technical sanction. On inquiry, the official concerned replied that the delay occurred due to Covid pandemic. The delay in issuing technical sanction was also seen in other works even after Covid crisis. eg. Seven month delay in issuing technical sanction for the work - Construction of VCB across Vilayannurthodu at Thenkurussi in Palakkad. Hence, the reply from the officials concerned is not fully satisfactory.

Recommendation: Delay in the issuance of technical sanction should be avoided. The Chief Engineer and his subordinates should pay due and special attention to this matter and to ensure that all the works do not prolong for flimsy and untenable reasons.

Cauvery Basin Projects

The river Cauvery originates on the eastern slopes of the Western Ghats and has its catchment area spread over the states of Kerala, Karnataka and Tamil Nadu. Three tributaries of the river, namely Kabani, Bhavani and Pambar have their catchment areas in the state of Kerala. As per the Cauvery Water Disputes Tribunal (CWDT) verdict of 2007, Kerala has been allocated total of 30 TMC of water for the three sub basins viz – Kabani sub basin 21 TMC, Bhavani sub basin – 6 TMC and Pambar sub basin 3 TMC. A comprehensive basin development strategy covering medium irrigation and minor irrigation projects will be implemented in the basin for the utilization of water resources.

A. Kabini sub basin

The two ongoing medium irrigation projects in Kabini sub basin are Karapuzha project and Banasurasagar project.

XIV Karapuzha Irrigation Project (Outlay: ₹1700.00 lakh)

The Karapuzha Irrigation Project is the first medium irrigation project in the Kabani sub-basin of Kaveri river. Kabani is a tributary of Kaveri river. The Kabani originates in the confluence of the Panamaram river and the Mananthavady river, and flows eastwards to join the Kaveri river in Karnataka. Karapuzha, an east flowing river joins the Panamaram river. The catchment areas of Karapuzha and Panamaram rivers are entirely within the state of Kerala.

The Karapuzha Irrigation Project is envisaged to construct an earthen dam with a concrete spillway at Vazhavatta across the Karapuzha river. The reservoir of the Karapuzha Irrigation Project is originally designed to store 76.5 mm3 of water. The project aimed to irrigate a net ayacut of 5221 hectares across Vythiri, Sulthan Bathery and Mananthavady taluks of Wayanad district. In addition, the project also caters to drinking water requirements of the Kalpetta municipality and a set of adjoining grama panchayats. The Government of Kerala included the Karapuzha Irrigation Project initially in the Fifth Five Year Plan. The procedure for establishing the project was started in 1974. It was approved by the Planning Commission in April 1978. Subsequently, the Government of Kerala, in July 1978, accorded

administrative sanction of the project for an amount of ₹7.60 crore contemplating irrigation to a gross command area of 5600 hectares, with the ultimate irrigation potential of 8721 ha. But, the project couldn't be completed within the stipulated time frame. It escalated the cost of the project.

The State Planning Board, Kerala identified four large scale infrastructure projects characterized by overruns. A Technical Committee was also appointed to study and to suggest recommendation for the same. Karapuzha Irrigation Project was one of them. After the detailed review of the projects and site visits, the Technical Committee submitted its recommendation in August 2018. As per the recommendations of the Technical Committee, the original scope of the project was reduced to achieve an ayacut of 2537.85 hectares instead of the originally proposed 5221 hectares (Gross Ayacut 5600 hectares). The major changes based on the recommendations of the Technical Committee are given below:

Table 2.15: Canal system of Karapuzha Irrigation Project

Sl.No .No.	Details of the canal system	Original proposal	Recommendations of Technical Committee
1	Main canal (Left Bank Canal and Right Bank Canal)	2 Nos	2 Nos
2	Branch canals	5 Nos	4 Nos
3	Distributaries	21 Nos	9 Nos
4	Ayacut	5600 ha.	2537.85 ha.

The canal network of the project is shown in Figure 2.10. The Karapuzha Irrigation Project does not have a distinct main canal. The Right Bank Canal (RBC) and the Left Bank Canal (LBC) originate from a distribution chamber located near the spillway itself. The RBC of the project has a length of 8805 m from which Arimunda distributary takes off at 3700 m. The RBC at chainage 8805 m, branches off into two canals. To the left, the Kariambadi branch canal extends to a length of 8500 m with four distributaries. To the right, the Kolliyil branch canal extends to a length of

3310 m with a distributary, namely, Manivayal. The LBC has a length of 16740 m with two branch canals, namely Kottur and Padinjareveedu. Kottur branch canal extends up to 5250 m and has three distributaries. The length of Padinjareveedu branch canal is 8940 m.

Figure 2.10:: Cut-off diagram of Karapuzha Irrigation Project

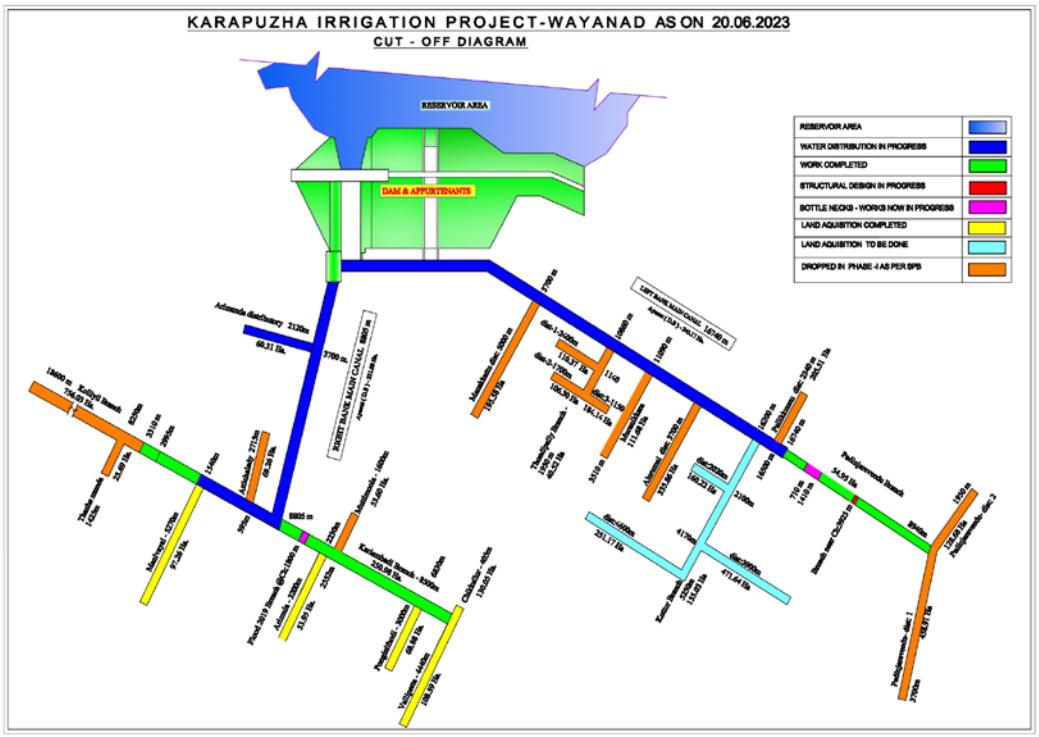


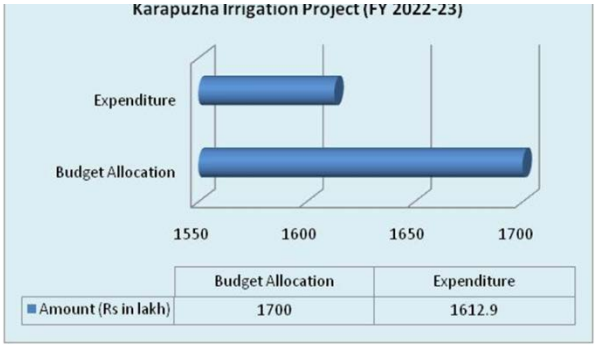
Photo 2.9 Paddy field nearby Karapuzha Dam

Table 2.16 Present details of the Canal System of Karapuzha Irrigation Project

Name of the Canal		Total length in Km	Ayacut (in sq.Km)
Main Canal (100% Completed)	1.Left Bank Canal	16.74	2.45
	2. Right Bank Canal	8.805	3.31
Branches (46.27% completed)	1.Padinjareveedu	8.94	0.5495
	2.Kottur	5.25	1.5500
	3. Kariambady	8.500	2.5098

Name of the Canal		Total length in Km	Ayacut (in sq.Km)
	4. Kolliyil	3.31	0.9867
Distributaries (3.50% completed)	1. Arimunda	2.12	0.6031
	2. Manivayal	5.27	0.9726
	3. Arimula	3.20	0.5395
	4. Ponginithody	3.00	0.6888
	5. Vallipetta	4.44	1.0859
	6. Chikkallur	0.405	1.3005
	7. Kottur (a set of 3 distributaries	10.520	8.8303

Figure 2.11: Details of Budget Allocation and Expenditure for FY 2022-23



An outlay of ₹1700 lakh was provided for construction of canals and for rectification and maintenance works in the Karapuzha Irrigation Project during the financial year 2022-23. Of this, an amount of ₹1612.90 lakh has been utilized for a total of 61 works. The total amount expended on the Karapuzha Irrigation project was ₹373.17 crore as on 31.05.2023. Head works of the dam, spillway and LBC have been fully constructed. It is scheduled to start distribution of water through LBC by January

2024. Presently, water is distributed through RBC up to the chainage 8805 m. With this, 44.47 hectares of land could be brought under cultivation. Progress of work pertaining to branch canals is tabulated below:

Table 2.17: Canal System of Karapuzha Irrigation Project

Sl No	Name of the branch canal	Current status
1	Padinjareveedu	90% of the work has been completed
2	Kottur	Investigation on canal alignment is in progress.
3	Kariambady	Canal was broken at chainage at 1800 m due to the flood in 2019. Work is expected to be completed by January 2024.
4	Kolliyil	The work up to chainage 2995 has been completed out of the total work of chainage 3310 m. The remaining portion will be taken for implementation in the final stage of the project.

Photo 2.10: Paddy cultivation

Tourism scope of Karapuzha Irrigation Project

The primary purpose of the Karapuzha Irrigation Project is to provide water for agricultural activities in the region by harnessing water from Karapuzha river. While the project primarily caters to the agricultural needs of the people, it can also be mused as a tourism potential site in the region. Dam is a major attraction by itself, and the beautiful landscape gardens around the dam make it a popular spot for picnic. The dam offers natural scenic beauty to the tourists. Besides, there is the scope for recreational and cultural entertainment. Entry fee to the centre provides a direct source of revenue for the management and maintenance of garden. At present, only ₹30/head is fixed as an entry fee. It is high time to enhance entry fee. If it is enhanced, the revenue generated through entry fees can be utilised for providing more amenities to the visitors and for the development of infrastructure around the dam site, including visitors center, pathways, gardens, and recreational facilities.

Photo 2.11: Garden of Karapuzha dam

Recommendation : The department should take steps to enhance the entry fee of the garden and make use of the available free land near the dam for enhancement of tourism activities.

XV Banasura Sagar Irrigation Project

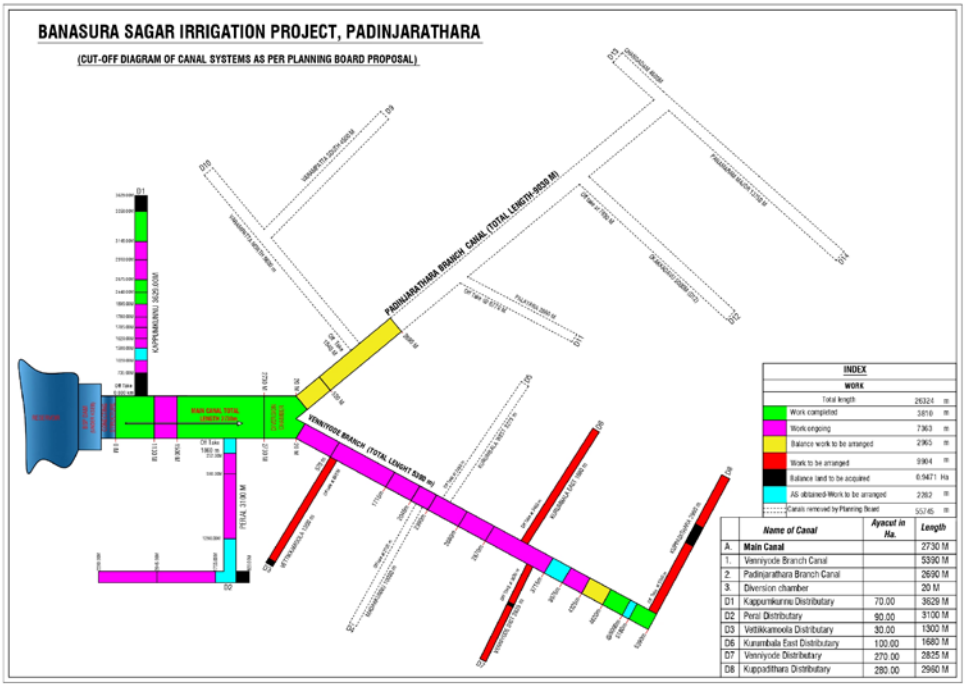
(Outlay: ₹1200.00 lakh)

Banasura Sagar Irrigation Project (BIP) lies in Wayanad district and is in the basin of Karamanthodu, which is a tributary of Panamaram River, which in turn is a tributary of Kabani River and it ultimately adjoins with the Kaveri River. Wayanad District is mostly a hilly terrain. The major crops grown are paddy, pepper, coffee, banana, vegetables, ginger and other cash crops. As the terrain is hilly, rainwater

flows quickly so that the rivers are flooded. When the rain recedes, rivers become dry all on a sudden. Hence, the only solution is to build a storage dam and distribute the water through canals.

Banasurasagar dam was constructed by the Kerala State Electricity Board (KSEB) in 1973 mainly for the Kuttiyadi Augmentation Scheme. Out of the 6.7 TMC of water storage capacity in the reservoir, 5 TMC of water is diverted to the Kuttiyadi Hydro - electric scheme. The remaining 1.7 TMC water is available for the project.

Figure 2.12:Cut-off diagram of Banasura Sagar Irrigation Project



The main canal originates from the reservoir, and is 2.73 km long. From a collection chamber located at the tail end of the main canal, the main canal splits into two branches: the Padinjarathara branch canal (which is about 9.03 km long) and the Venniyode branch canal (which is about 5.39 km long). 14 distributaries were envisaged at the initial stage of the project. Before reaching the tail end, the main canal is diverted into two distributaries namely; Kappumkkunnu and Peral. Of the remaining 12 distributaries, 6 take off from the Padinjarathara branch canal and 6 from the Venniyode branch canal. On the basis of the report of the Technical Committe of State Planning Board of Kerala, six distributaries of Padinjarathara branch canal, namely Varampatta north distributary, Varampatta south distributary, Palayana distributary, Okakkadavu distributary, Panamaram Major distributary and

Changadom distributary, and 2 distributaries of Venniyode branch, viz, Madakkunnu distributary and Kurumbala west distributary have been scrapped.

Table 2 18: Canal Distribution of Banasurasagar Irrigation Project

	Name of Canal	Total Length (in Meter)	Current Status.
A	Main Canal	2730	Out of the total length, 2360m has been completed and the remaining 370 m work is in progress. (7% of the remaining work was completed as on 30/6/2023)
1.	Venniyode Branch Canal	5390	Out of the total length,1619 m has been completed and the remaining work is in progress.
2.	Padinjarathara Branch Canal	2690	379.3 m has been completed
D1.	Kappumkunnu distributary	3629	Out of the total length, 1575 m has been completed.
D2.	Peral distributary	3100	Work is ongoing
D3.	Vettikkamoola distributary	1300	Work to be arranged
D6.	Kurumbala East distributary	1680	Work to be arranged
D7.	Venniyode distributary	2825	Work to be arranged
D8.	Kuppadithara distributary	2960	Work to be arranged for which an area of land of 0.0095 hectare has to be acquired

In spite of the construction works carried out under the project and significant expenditure incurred, not a single drop of water could be effected to be flowed through the canal because the work on the main canal itself has not been completed. The construction of the main canal was completed between 0 m and 1130m and between 1500 m and up to the diversion chamber. The balance work of the above 370 m stretch is going on. The agreement for the work was executed on 25.04.2022 and the site has been handed over to M/s M T Construction Company, Kasaragod as back as on 04.05.2022. During the site visit by the Finance Department team, it has been observed that only 7 % of the total work was completed as on 30/06/2023.

In connection with Kappumkunnu distributary, 0.07 hectare of land between the chainage 3350m and 3629m, and 0.573 hectare of land between the chainage 0 m and 705 m are to be acquired. Expert committee has visited the former site but

the report has not yet been finalized. For acquiring the latter, the permission of government has not been received. Only, valuation statement has been submitted to Superintendenting Engineer, Kannur.

Though the Padinjarathara - Kuppadithara road was constructed by Panchayat between 543.30 m and 568.30 m across the alignment of the Padinjarathara branch canal, the BIP division has resolved the bottlenecks by completing the 'cut and cover' method. Remaining works in the Padinjarathara branch canal is stated to be included in the action plan of 2023-24.

The works in the Venniyode branch canal are ongoing. Between the ch. 20 m to 570 m only foundation pillars of Aqueduct were constructed in 2008. Work under this stretch was arranged during 2017-18, but, after the transfer of site, the contractor raised objections regarding the strength of Mass pier and Tresle pier. Hence, work has been arranged for taking core samples to ensure the strength of the same. The remaining works of Venniyode branch canal are in progress. Details are given below:

Table 2.19: Remaining works of Venniyode branch canal

SL No	Name of Work	Date of transfer of site to contractor	Estimate PAC (in lakhs)	Agreed PAC (in lakhs)	Expenditure as on 30.06.2023 (in lakhs)	Present Status (as on 30.06.2023)
1	Construction of an aqueduct from Ch.20m to 570 m	07.04.2017	301.76	252.31	30.55	15% completed. Work arranged for taking core samples
2	Construction of Venniyode branch canal from Ch 570 m to 1715 m including covered flume and Cross Drainage works	09.06.2020	460	422.3	141.85	37% work has been completed. Revised estimate submitted returned for correction which is under correction process
3	Construction of Aqueduct from ch 1715m to 2045 m	06.05.2022	329.84	308.54	39.99	30% completed
4	Construction of branch canal from Ch 2045 m to 2390m including CD works	26.08.2021	327	265.33	63.87	50% ccompleted

SL No	Name of Work	Date of transfer of site to contractor	Estimate PAC (in lakhs)	Agreed PAC (in lakhs)	Expenditure as on 30.06.2023 (in lakhs)	Present Status (as on 30.06.2023)
5	Construction of branch canal from ch 2390m to 2680m including CD works	09.07.2021	168	133.775	Nil	45% completed
6	Construction of branch canal from ch 2680m to 2870m including CD works	09.07.2021	485	131.93	42.13	50% completed
7	Construction of branch canal from ch 2870m to 3715m including CD works	09.07.2021	485	369.88	369.88	10% completed
8	Construction of Aqueduct from ch 3715 to 3975m including CD works		297			TS stage
9	Construction of branch canal from ch 3975m to 4325m including CD works	27.02.2021	220	183.979	89.24	53% completed
10	Construction of an aqueduct from Ch 4325m to 4620m including CD works	06.09.2017	224.15	199.46	44.08	Work terminated on 17.12.2021. Estimate for balance work has been submitted for approval.
11	Construction of branch canal ch 5090m to ch 5180m					Estimate for aqueduct is under preparation.

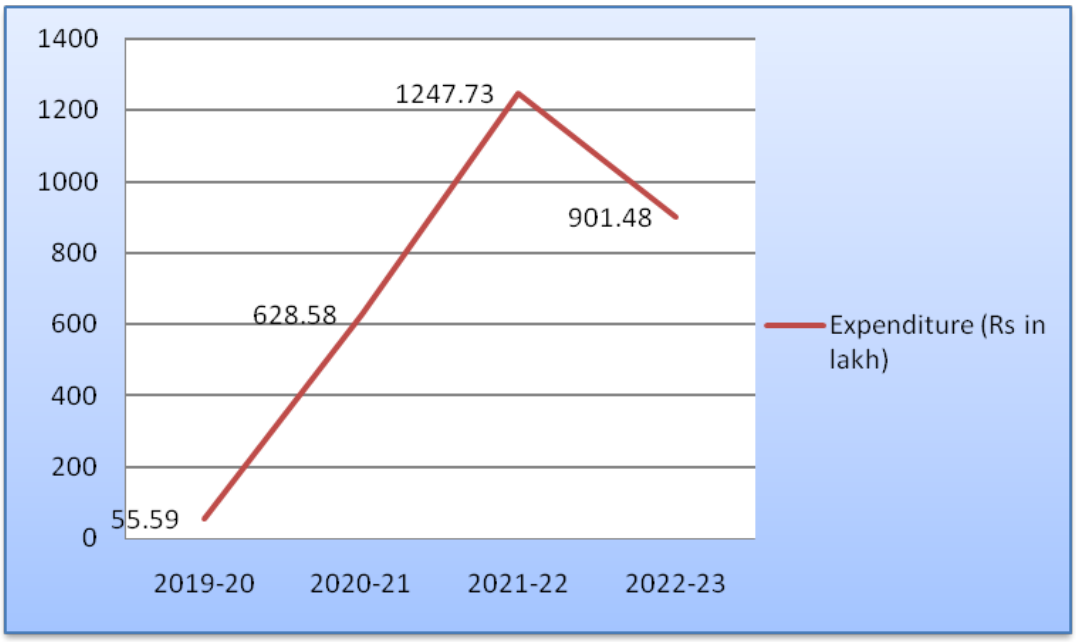
XVI MI Projects in Cauvery basin (Outlay: ₹260.00 lakh)

The objective of the scheme is to utilize a portion of water allocated by the Cauvery Water Disputes Tribunal to Kabani and Pambar basins of Kerala. A number of small streams are mapped in the hill areas for development. The topography of Wayanad is suitable for implementation of minor irrigation projects which can sustain groundwater recharge, provide drinking water and irrigation facilities. Comprehensive

development of small streams, construction of check dams, rehabilitation of ponds, lift irrigation, protection works etc. in Kabani and Pambar basins are being taken up in the scheme.

During the financial year 2022-23, an amount of ₹260.00 lakh was set apart in the budget for Minor Irrigation Projects in Cauvery basin. Administrative sanction has been issued for three works amounting to ₹214.01 lakh and an amount of ₹ 901.48 lakh has been utilized (including spill over works). Expenditure during the last four financial years are graphically presented in the Figure 2.13 below:

Figure 2.13: Details of Expenditure of MI projects in Cauvery Basin.



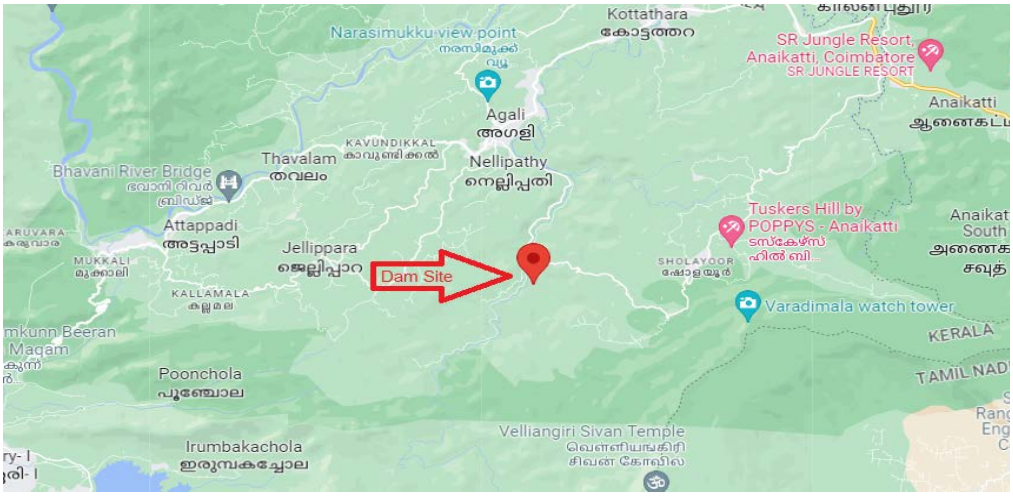
B. Bhavani Basin –

XVII Attappady Valley Irrigation Project (Outlay: ₹50.00 lakh)

Attappady Irrigation Project, a medium irrigation project envisages the construction of a concrete gravity dam across Siruvani river at Chittur in Agali village of Mannarkkad Taluk in Palakkad district. Siruvani river is a tributary of Bhavani river. Attappady experiences acute drought during summer. The drought is a slow-onset disaster characterized by the lack of precipitation, resulting in water shortage. It can have serious impact on health, agriculture, energy and the environment besides economy. Demographically 40% of the population in Attappady are tribals, who are extremely backward, living below poverty line, and depend on agriculture and cattle rearing for their livelihood.

The investigation of Attappady Valley Irrigation Project (AVIP) was started in 1970. Location of the dam was identified with the assistance of the Geological Survey of India. After finalization of the location of dam and its alignment, necessary steps for the implementation of the project have been carried out since 1976. Land for the submerged area of the proposed dam, office and quarters for the staff was acquired immediately. The work related to AVIP was stalled in 1989 due to non-issuance of certificate of clearance by the Central Water Commission (CWC) and paucity of funds. As per the final order of the Cauvery Water Disputes Tribunal (CWDT) on 05.02.2007, Kerala was awarded 6 TMC of water from the Bhavani River basin and 2.87 TMC of water was specifically awarded to the AVIP project. Site for the proposed dam may be seen in the pictures below:

Photo 2.12: Site for the proposed dam



An amount of ₹50.00 lakh was earmarked during the financial year 2022-23 for the initiation of the AVIP works including detailed investigation, soil testing, preliminary head works etc. Renovation of Nellippathy left bank earthen canal and improvement to Panthancode diversion scheme are also proposed under the project. During the financial year 2022-23, an amount of ₹72.0166 lakh has been expended for AVIP including spill-over works. Details of the Plan scheme expenditure are tabulated below:

Table 2.20: Bhavani Basin Project-Attappady (Financial year -2022-23)

Sl No	Name of the work	Expenditure (₹ in Lakh)
1	AIP construction of bore well, water tank and water supply to Bhavani Basin Office and Quarters Buildings	11.8869
2	AIP Construction of Staff Quarters Stage II	38.42203
3	AIP-Construction of Staff Quarters	15.25316
4	AIP Boundary Stone and MWL Stone Laying	1.32644
5	AIP Renovation of Compound Wall Gate Portico Area and Back Yard wire mesh Fencing	3.40617
6	Construction of staff quarters stage II electrical work	1.7219
	TOTAL	72.0166

Photo 2.13: Staff Quarters at Bhavani Basin Division

Finance Department team has visited Bhavani Basin Division at Agali and randomly selected some works for assessment. No major irregularities were seen.

Construction of borewell, water tank and water supply to the Office of Bhavani Basin Division and staff quarters.

On examination of the bill pertaining to the work, Finance Department got wind of the purchase of IT hardware devices by using a part of the amount allotted to the work. The details are furnished below:

Name of the IT hardware	Amount (₹)
Computer (2 number)	80000
Exide 1050 UPS	15600
Exide 150 Ah Battery	35400

The contractor had purchased the above items and supplied to the division. As per GO(MS) 24/2017/ITD dated 18/11/2017, Government departments and Government owned/controlled institutions including Local Governments shall procure IT hardware devices only through Centralized Procurement System. Procurement of

IT hardware items for office use by including the same in work estimates is highly irregular.

Recommendation # 1: Irrigation Department should procure IT hardware devices only through established mechanism.

Non-realization of arrears of rent

In 2010, land under the Attappady Irrigation Scheme and the vacant buildings were handed over to IHRD for establishing a college at Attappady, as per G.O (Rt) No.252/2010/WRD dated 04/03/2010. The property was given on rent by Water Resources Department to IHRD for a period of 5 years. But, the educational institution run by IHRD is still functioning without renewing the contract. The Executive Engineer concerned has informed the team of Finance Department that an amount of ₹1,07,41,220/- has to be received from IHRD as arrears of rent.

Recommendation # 2: Administrative Department should take urgent action for collecting the arrears of rent from IHRD.

Recommendation #3 : A bipartite agreement on rent should be signed between Water Resource Department and IHRD if no valid agreement exists. If a valid agreement exists it should be renewed periodically.

C. Pambar Basin Projects

Pambar river, one of the east flowing rivers in Kerala, merges with Amaravati River in Tamil Nadu, reaches the Amaravati Reservoir and Dam and eventually joins the Cauvery River near Karur. According to the final verdict of Cauvery Water Disputes Tribunal, Kerala is eligible for 30 TMC of water from Cauvery basin. Out of this, 3 TMC is Pambar basin's share. In order to utilize this share effectively, following schemes were proposed in the Pambar basin:

1. Thalayar Scheme
2. Chengalar Scheme
3. Vattavada Scheme
4. Champakad Scheme

XVIII Lower Chattamunnar Dam (Outlay: ₹50.00 lakh)

There are two proposals under the Thalayar scheme, one is Upper Chattamunnar Dam and another is Lower Chattamunnar Dam. After the primary investigation, Upper Chattamunnar Dam has been dropped. Lower Chattamunnar Dam site is proposed near the the Chattamunnar Tea estate and below the road bridge to Pombumalai Estate. Munnar – Udumalpetta road passes by the site on the left bank of the proposed dam. Detailed contour survey work was completed on 18.03.2018. Lower Chattamunnar Dam is identified as the most suitable site due to the presence of exposed rock and V shape of the river course. Soil investigation work of the Lower Chattamunnar Dam has been completed. As per the soil investigation results, the soil and rock strata are found similar in the Pattissery dam site. Hence, the Chief Engineer, IDRB recommended to conduct a detailed soil investigation in the presence of GSI team. Estimate for additional investigation work was prepared and the same has been tendered on 09/11/2022.

Photo 2. 14: The site proposed for Construction of Lower Chattamunnar Dam

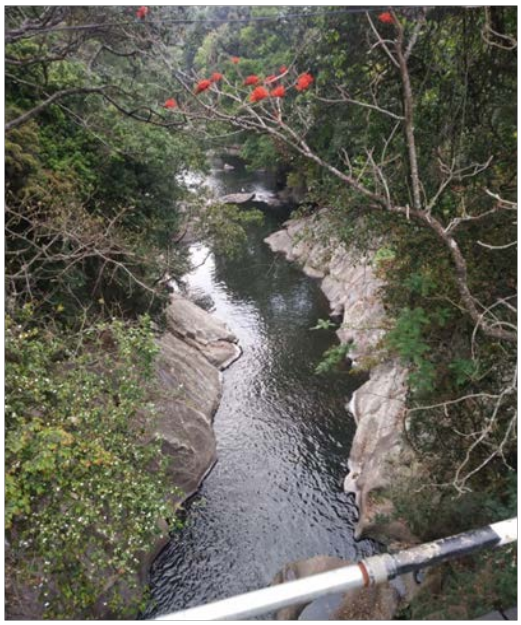


Table 2.21: Construction of Lower Chattamunnar Dam (Financial year -2022-23)

Sl No	Component Name	Allocated amount (in Lakh)	Expenditure (in Lakh)
1	Pambar Project - Upkeeping of IB at Marayur 2021-22	1.25	0.73785
2	Pambar Basin - Feasibility stage geotechnical investigation of Lower Chattamunnar Dam in Thalayar Scheme- By double tube barrel boring method.	5	0
3	Repairs and maintenance of Twin type staff Quarters including roof Truss work - Staff Quarters at Marayoor	12	10.86556
4	Hiring of Vehicle for Pambar project sub division Marayoor	5.1	0
	TOTAL	23.35	11.60341

Source : Plan space.

XIX Pattissery Project (Outlay: ₹1400.00 lakh)

The state share of Chengalar scheme is 0.78 TMC and three dams proposed by Irrigation Department under this scheme are

a) Pullardy Dam

b) Kanthalloor Dam

c) Pattissery Dam

Since the Dam site of Pullardy Dam lies in the forest area of Mannavan Shola, land acquisition is a tedious process. Besides, the submergence area of Kanthalloor Dam is a thickly populated private land. Hence, the only project which is feasible is 'Re-Construction of Pattissery Dam and Canal system'.

Photo 2.15 Pattissery Dam

Administrative sanction for Pattissery Dam has been issued for an amount ₹26 crore as per GO(Rt)No.327/2013/WRD dated 23.3.2013. The Technical sanction was accorded as per GO(Rt)No. 92/2014/WRD dated Tvm. 28.01.2014 for an amount of ₹23 crore. The work was awarded to M/s. Paulose George Construction Company Private Ltd with a period of completion of 24 months. Accepted PAC is 10.50% below the estimated rate. The work was started on 21.07.2014. But, due to the change in foundation level of the dam, with the recommendation of the Geographical Survey of India, the design was revised.

Revised Administrative Sanction was obtained on 24.01.2019 for civil, mechanical, electrical and instrumentation works amounting to ₹46.82 crore. Out of this, ₹42.90 crore was set apart for civil works. The rate of balance work executed has been enhanced to SoR 2012 estimate rate without GST. Later the earth dam from chainage 0 to 36.00 m has been replaced. Hence the estimate for civil work was again revised to ₹42.83 crore. As per the recommendation of the Project Monitoring Committee, earthen dam from Chainage 95.50 to 140.00 m has been replaced with rock fill dam using rubble at dam site for cost savings. The estimate has been revised on 07.03.2022 in order to replace earthen dam with saddle dam having counterfort wall resting on pile foundation. As per supplementary agreement, time of completion of work (ToC) has been extended upto 30.06.2022. However, the contractor demanded enhancement of rate from the agreed rate for executing balance work and the work has now been stopped. The proposal for the enhancement of rate has been submitted to the government on 08/07/2022.

An amount of ₹1400.00 lakh was also provided in budget 2022-23 for the completion of the reconstruction works of Pattissery dam and canal system under Chengalar scheme. Details of expenditure during 2022-23 are tabulated below:

Table 2. 22: Details of Allocation and Expenditure

Sl No	Component Name	Allocated amount (in Lakh)	Expenditure (in Lakh)
1	Pambar Basin Reconstruction of Pattissery Dam and canal system under Chengalar scheme- Dam and Appurtenant works	1394.0557	722.39766
2	Pambar Basin - Detailed soil investigation work for aqueduct at Ch. 35m of canal system of Pattissery Dam.	3.1	0
3	Pambar Project - Upkeeping of IB at Marayoor for the year 2020-21	2.2955	2.2955
4	Pambar Project - Upkeeping of IB at Marayoor for the year 2019-20	0.5488	0.5488
	TOTAL	1400	725.24196
Source : Plan space.			

XX Mullaperiyar Project (Outlay: ₹ 50.00 lakh)

Government of Kerala proposed that the existing 126 year-old Mullaperiyar dam be decommissioned since no amount of rejuvenation can perpetuate the dam, and hence a fresh one be built. The technical committee appointed by Government of Kerala recommended the state to take up construction activities at the proposed site, a few meter downstream from the existing structure. The special task force has prepared a DPR for the same. The other studies/works included are model studies, dam break analysis, investigation for road way etc. Ministry of Environment Forest and Climate Change has given nod for Environment Impact Assessment pertaining to the new Mullaperiyar Dam. An amount of ₹16.04 lakh has been expended for Environment Impact Assessment of new Mullaperiyar Dam during the financial year 2022-23.

CHAPTER -3

FINANCIAL OUTLAYS AND QUANTIFIABLE DELIVERABLES

The chapter contains a tabular format which is visualized as vertical compression and horizontal expansion of Statement of budget estimates. The objective is to establish a one to one correspondence between the financial budget 2022-23 and output budget 2022-23.

The Irrigation department has implemented a vast number of schemes pertaining to major and medium irrigation. The present strategy is adopted to focus operation and maintenance of already existing major and medium irrigation systems along with focus in developing various minor irrigation schemes.

Salinity ingress has always been a major issue being addressed by the department. Various flood control works including maintenance and protection of river banks have been carried out. Erosion of coastal areas and tidal attacks are other challenges faced by the department. The works related to construction of new sea-wall and refurbishment of existing sea wall have been completed.

Under Minor Irrigation, various check dams have been constructed for improving water availability in rivers during lean season and to recharge groundwater. Construction of minor irrigation structures was also initiated under MIRPA (Malabar Irrigation and Rehabilitation)

The highlight of the department is the introduction of the SMS Alert system. Initially, a pilot project has been carried out in PVIP (Periyar Valley Irrigation Project). This system will enable the water users to receive the pattern of water distribution in canals.

The scheme wise financial outlay and quantifiable deliverables are explained in **Annexure-I.**

CHAPTER - 4

REFORM MEASURES AND PERFORMANCES

Kerala Sustainable Coastal Protection and Climate Resilience Planning Project (ADB/WB –EAP) (New Scheme)

Kerala has a coastline of 576 kilometers, which forms 10% of the total coastline of the country. Out of the total coastline, stretches of 370 km have been protected. 10 hotspots were identified as highly vulnerable due to climatic variations and influence of repeated cyclones in Arabian Sea. The works proposed under this scheme include coastal protection works for ten identified hotspots namely Shangumugham, Kollamcode, Alappad, Chellanam, Ottamassery, Kodungallur, Ponnani, Kappad, Thalassery and Valiyaparamba. This includes construction/refurbishment of sea walls, groynes, construction of offshore breakwater systems, beach nourishment etc.

The status of coastal studies in the hotspots are given below:

Name of the hotspots (Stretches)	Progress
Shangumugham - Thiruvananthapuram	Design and model study report have been received. DPR is under preparation
Kollamkode - Thiruvananthapuram	Coastal protection measures in Kollamkode (Pozhiyur) : In Principle Sanction has been obtained for KIIFB funding. Construction of seawall using tetrapod from Panathurakkara in Samudra beach to Poonthurapozhi stretches : Proposal has been submitted to Government for KIIFB funding.
Alappad - Kollam	Refurbishment of damaged sea walls using tetrapods-DPR under scrutiny for KIIFB assistance-In Principle Sanction has been obtained.
Ottamassery-Alappuzha	Work is on progress
Chellanam -Ernakulam	Reformation of damaged sunken sea wall at Chellanam-Damaged (coastal protection of 10km stretch) and

Name of the hotspots (Stretches)	Progress
	construction of two groins have been arranged using KIIFB assistance. Proposal for Phase II for Rs 320.00 cr has been submitted to the Government.
Kodungallur-Thrissur	Guidance to be received from NCCR (National Centre for Coastal Reasearch
Ponnani-Malappuram	Design by NCCR is under process
Kappad-Kozhikode	Investigation and data collection have been conducted by NCCR during January 2023
Thalassery-Kannur	Guidance to be received from NCCR
Valiyaparamba-Kasargod	Guidance to be received from NCCR

The total cost for this externally aided project is estimated as ₹350000.00 lakh with a sharing pattern of 70 percent external assistance and 30 percent state plan assistance. An outlay of ₹10000.00 lakh was provided in state budget during the financial year 2022-23 for the project activities. Since the external assistance has not been sanctioned, the amount could not be utilized.

Modernization of Department and E- governance

Department has taken steps to integrate its entire offices with structured LAN connectivity and integration with KSWAN and also to adopt e-filing system. The enhanced use of IT, strengthening of infrastructure, revamping of departmental website and redesigning of incorporated online project monitoring platform [e-monit and Human Resource Mangment Software (HRMS)] have been adopted as a part of modernization.

E-Asset management and Information System includes the interlacing of geotagging of assets of department with cadastral survey map using GIS techniques. Infrastructure facilities such as Laptops, Tabs, Desktops and Printers have been provided for all officers across the state, for the smooth functioning of e office, online services, Aadhaar Based Biometric Attendance system, and submission of Confidential Reports through SCORE, etc.

Pollution Abatement Programme

As per the order of the NGT, an action plan for the mitigation of pollution in all the 21 stretches of rivers has been prepared and the same has been submitted to CPCB. The time frame for the execution of work in the action plan was fixed to be two years w.e.f 01.04.2019. The estimated amount for the purpose was ₹110.81 crore. However, the State couldn't comply the order of the NGT due to adverse climatic conditions and also due to various other reasons. Later, the CPCB through the State Pollution Control Board addressed the department to comply the orders of NGT and also to submit the revised action plan. Based on the revised action plan, the analysis of warter samples has been done. The result of the analysis shows that out of the 21 strecthes, water quality of 10 stretches has improved. As per the present state plan, the department aims to execute specific works to abate pollution in all the rivers with special attention to 21 rivers (stretches).

In Kerala, nearly 35 percent of the total population depends on tap water for their day-to-day use. Rivers are the main source of water for the rural and urban water supply schemes. The improvement in the quality of water in watercourses invariably increases the quality of water distribution. The water supply schemes are managed and operated by KWA and LSGIs. Moreover, the increase in the quality of surface water keeps the quality of subsurface/ground water in a good state. The quality of water in rivers improves the quality as well as increases the quantity of fish in rivers. The animal husbandry sector also gets benefited from the improved quality of water.

Micro Irrigation

As per the study of NCAP (National Centre for Agricultural Economics and Policy), the potential area of micro irrigation in Kerala is 2.7 lakh hectares. The department aims to cover 60000 Ha. in the ayacuts for the micro irrigation projects in the next five years, incorporating assistance with the other stakeholder departments.

The department has started implementing Community Micro Irrigation Projects (CMIP) with the help of Agriculture department. In conventional method about 60 % water is lost due to conveyance, evaporation, percolation and seepage. By adopting CMIP, this loss can be prevented. The micro irrigation method consists

of closed pipe network right from the source to root zone of crops resulting in huge savings of water and also substancial increase in the yield of crops.

Agricultural department and Irrigation department jointly identified 21 projects so far for which CMIP is to be implemented. In the first phase a total of 6 projects in Pathanamthitta, Idukki, Wayanad and Thrissur districts have been taken up and are at different stages of design and implementation. The government also formed a drafting committee for State Micro Irrigation Policy with Chief Agriculture Division (Planning Board) as Chairman and Chief Engineer (I&A) as convenor and members from various stakeholder departments. The draft ToR was prepared by Centre for Water Resources Development and Management (CWRDM), Kozhikode. .

Room for River Projects

Major rivers which drain into Kuttanad i.e Manimala, Pamba and Achankovil have been silted up since 2018 due to flood. A holistic approach to reduce the flooding is to be implemented in Kuttanad for which proposals have been submitted with respect to 'Room for River' concept. The main proposals include improvement of leading channel which has a length of 11 km from Veeyapuram to Thottappally spillway by desilting the channel and protecting the sides.

Veeyapuram is the point of confluence of Pamba river and Achenkovil river. A major portion of water in these rivers flow through a leading channel. After passing the leading channel it bifurcates in two branches. One branch goes to Thottappaly spillway and other to Kuttanad through a network of canals. So flooding in Kuttanad can be prevented to a greater extent by clearing the obstructions and encroachments in the leading channel and also by protecting the two sides of the leading channel thereby preventing overtopping of water to the nearby padasekharams and dry lands.

Hydrodynamic study of the Thottappally Basin

Administrative Sanction has been issued for the preparation of Detailed Project Report for the Room for River project at a cost of ₹4.50 crore vide G.O (Rt) No.918/2019/WRD dated 07.12.2019 under the Rebuild Kerala Initiative. An amount of ₹1.38 crore has been sanctioned for the hydrodynamic study in connection with the Room for River Project vide G.O (Rt) No. 416/2020/WRD dated 25.06.2020. A Memorandum of Understanding has been signed with IIT,

Chennai on 01.03.2021 for the hydrodynamic study. The final draft report was submitted on 04.11.2022. Later, IIT team on 10.01.2023 agreed to submit the final report clearing the apprehensions raised by the field officers pertaining to the hydrodynamic study. The final report has been submitted to Irrigation department. The proposal for obtaining government sanction is in progress.

Capacity Building

The focus of all aspects of this programme is on developing the most superior workforce so that the organization and individual employees can accomplish their work goals in service to customers. It also aims to provide training to new employees which will give them awareness about the department. It is also intended for the quality improvement of the technical and nontechnical employees of the department. Proper quality improvement programs should be given for all officers for carrying out all the above works efficiently.

For this, trainings as per the needs have to be arranged to the Engineers and other officers in consultation with management institutions, IIT's etc. Thus short-term courses conducted in management institutions and IIT's as per requirements of engineers working in the department. Various trainings for the administrative staff will also be conducted in association with the management institutions in the state.

Rejuvenation of Rivers

The responsibility to maintain 44 rivers in the state and also for their rejuvenation have been entrusted to the executive engineers of Irrigation Department vide order No PL1 (B)Mon/ 23349/2021 of CE, I&A, TVM. The main duties assigned to each officer includes ensuring room for river, upkeep, maintenance, fortnightly inspection and data collection. The main aim of the River Rejuvenation is to remove the sediments which were deposited due to the devastating flood happened in the years 2018, 2019, and 2021. With the active participation of field staff the desiltation work were fully completed in 30 rivers and partially completed in the remaining 13 rivers. The total sediments removed so far is 98,35,939 m^3 (32%) against an estimated quantity of 3,01,65,570m^3. The District Collector who is the exoffio chairman of District Disaster Management Authority is entrusted to dispose the desilted sediments through auction.

CHAPTER - 5

REVIEW OF PAST PERFORMANCE

The chapter indicates the performance of the department during the financial year 2021-22 in terms of targets which have already been set. It reviews the scheme wise past performance of various schemes/programmes and activities undertaken by the department. An amount of ₹52869 lakh has been provided in the plan outlay for the Irrigation and Flood Control during 2021-22. The total outlay consists of state plan schemes, state share for CSS, expected central share for CSS, EAP (External Aided Project) and NABARD RIDF. Of the total outlay, an amount of ₹22025 lakh was earmarked for Major and Medium Irrigation, An amount of ₹18304 lakh (including ₹1500 lakh CSS) was provided for Minor Irrigation works, an amount of ₹12340 lakh (including ₹4300 lakh CSS) for Flood Control & Coastal Zone Management and ₹200 lakh (including ₹100 lakh CSS) for Command Area Development. These allocations are juxtaposed with expenditure in Annexure II.

CHAPTER – 6

FINANCIAL REVIEW

The chapter contains a financial review covering overall trends in the expenditure vis-a-vis budget estimate/revised estimate in recent years, which is detailed in Annexure-III

CHAPTER -7

REVIEW OF PERFORMANCE OF AUTONOMOUS BODIES

Kerala Water Authority

Kerala Water Authority was established on 1st April 1984 as an autonomous body of Government of Kerala under the Kerala Water Supply and Waste Water Ordinance 1984 as a successor to the erstwhile Public Health Engineering Department of the Government of Kerala for the development and regulation of water supply and waste water collection and disposal, in the State of Kerala. The Ordinance was replaced by the Kerala Water Supply and Sewerage Act, 1986

Responsibilities

- Design, construction, execution, promotion, operation, maintenance and financing of schemes for the supply of water and for the collection and disposal of waste water.
- Rendering all necessary services to the Government relating to water supply and collection and disposal of the waste water in the State of Kerala.
- Establishment of standards for water supply and waste water services.
- Fixation and revision of rates for water supply and sewerage maintenance with the approval of Government.
- Taking other measures necessary to ensure water supply in times of emergency.

Vision

To provide quality water supply and waste water services in an environmental friendly and sustainable manner.

Mission

To transform ourselves in to a customer friendly organization providing services at the doorstep. To achieve 100% Functional Household Tap Connections and to achieve 100 % networked sewerage all over Kerala.

Organizational structure

Head quarters of Kerala Water Authority is at Thiruvananthapuram. The three regional offices at Thiruvananthapuram, Kochi, and Kozhikode are headed by Chief Engineers. In addition, there are 3 Chief Engineers with Chief Engineer (HRD&GL) looks after the Human Resources Development & general matters, Chief Engineer

(P&O) looks after the Projects and Operations and the Chief Engineer (Sewerage, PPD& WASCON) looks after the Sewerage facilities, Investigation, Planning and Design and also the Consultancy Services. The Finance Manager & Chief Accounts Officer looks after the funds, accounting and related matters of Kerala Water Authority.

Under each region, there are Circle Offices headed by Superintending Engineers, Division Offices by the Executive Engineers, Sub Division Offices by Assistant Executive Engineers and Section Offices by Assistant Engineers. State Referral Institute, Kochi and the Quality Control Divisions look after the quality aspects of the water supplied by KWA.

The activities of the authority are handled in the following offices:

SL No	Offices	Head of the Office	Function
1	Head Office	Managing Director	Chief Executive of the Authority
2	Regional Offices	Chief Engineer	Region Head
3	Circle Offices	Superintending Engineer	Supervision
4	Division Offices	Executive Engineer	Execution (Operation &Maintenance/Projects/Quality Control/Sewerage)
5	Subdivision Offices	Assistant Executive Engineer	-Do-
6	Section Offices	Assistant Engineer	-Do-

FINANCIAL OUTLAY AND QUANTIFIABLE DELIVERABLES

Under State Plan, an amount of ₹85675 lakh was provided as budget outlay during 2022-23 under 22 heads including Jal Jeevan Mission. For Jal Jeevan Mission (Centrally Sponsored Scheme) the total outlay was ₹100000 lakh with 50% sharing of ₹50000 lakh each by Central and State Government.

Annexure I contains head wise details of financial budget 2022-23 and Physical outputs.

REFORM MEASURES AND PERFORMANCE

Kerala Water Authority is the key implementing agency for water supply and sanitation related works in Kerala under the following funding heads.

1. STATE PLAN
2. KIIFB
3. AMRUT
4. JNNURM
5. JJM/NRDWP
6. NWQSM
7. RIDF – NABARD
8. SMART CITY
9. External Aided (JICA/ ADB/ WB)
10. Deposit Works (LSGD/SC&ST/ DD)
11. MPLADS
12. MLA ADF
13. MLA SDF
14. NITI AYOG FUNDS

REVIEW OF PAST PERFORMANCE

The performance of Kerala Water Authority against target set during 2021-22 is given as Annexure II.

FINANCIAL REVIEW

Government of Kerala releases fund to Kerala Water Authority for implementation of water supply schemes throughout the State and can be mainly classified in to three categories:

1. State Plan Schemes.
2. NABARD assisted Water Supply Schemes
3. Jal Jeevan Mission / NRDWP schemes including matching central share.

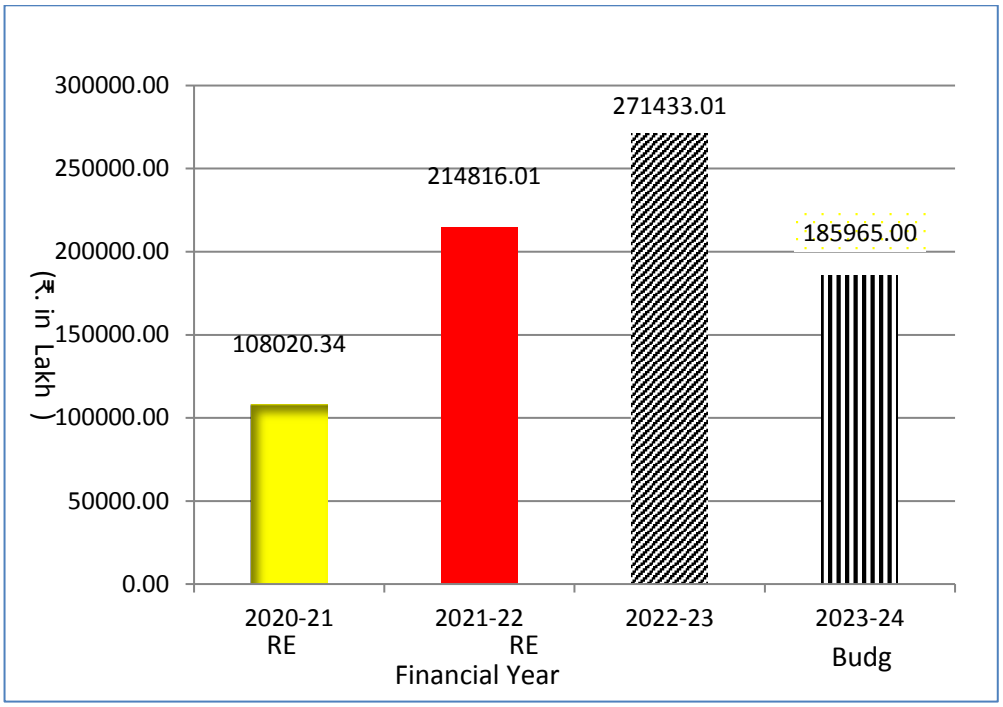
(A) REVISED ESTIMATE / BUDGET ESTIMATE

The details of Revised Estimate for last three years and Budget Estimate for 2023-24 are shown below:

Table 7. 1: Details of Revised estimate/Budget estimate (₹ in lakh)

Category	Revised Estimate			Budget
	2020-21	2021-22	2022-23	2023-24
STATE PLAN	27148.89	26014.22	9906.24	27965.00
NABARD	10371.45	8342.71	3897.66	8000.00
JJM/NRDWP	70500.00	180459.08	257629.11	150000.00
TOTAL	**108020.34**	**214816.01**	**271433.01**	**185965.00**

Figure 7.1: Graphical representation of revised estimate/budget estimate



(B) DETAILS OF FUND RELEASED AGAINST EACH SCHEME

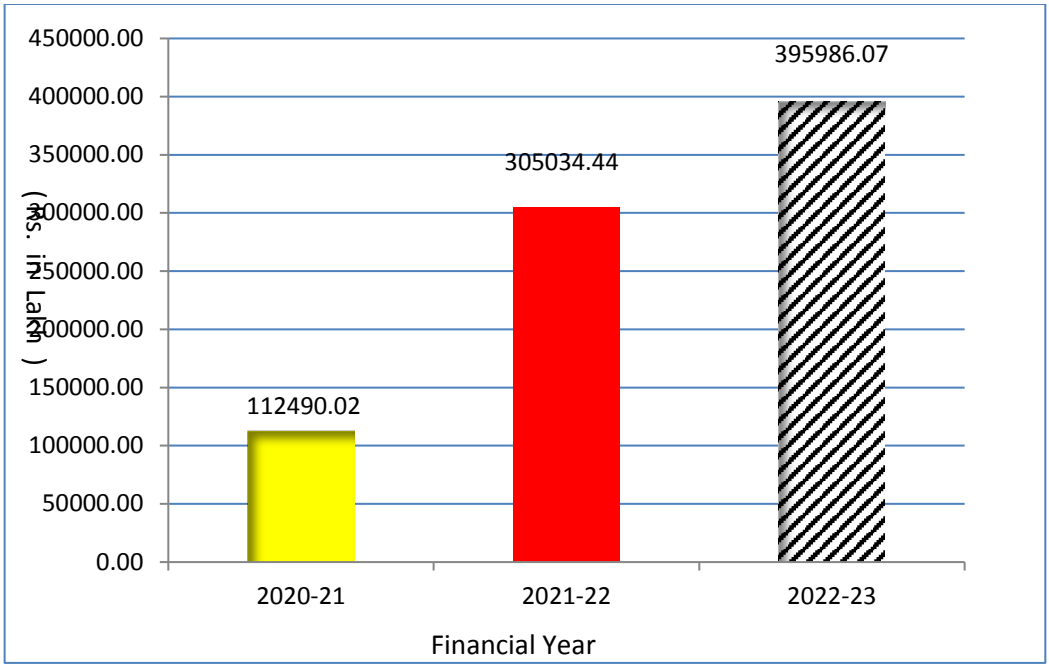
The details of fund released against budget provision by Government of Kerala including central share of JJM to Kerala Water Authority for the last three years are shown below:

Table 7.2: Details of fund released against each scheme

Category	Release (₹ in Lakh)		
	2020-21	2021-22	2022-23
STATE PLAN	26252.54	26003.11	9805.22
NABARD	10343.58	8342.71	3897.66

Category	Release (₹ in Lakh)		
	2020-21	2021-22	2022-23
JJM/NRDWP	75893.90	270688.62	382283.19
TOTAL	**112490.02**	**305034.44**	**395986.07**

Figure 7. 2: Graphical representation of fund released



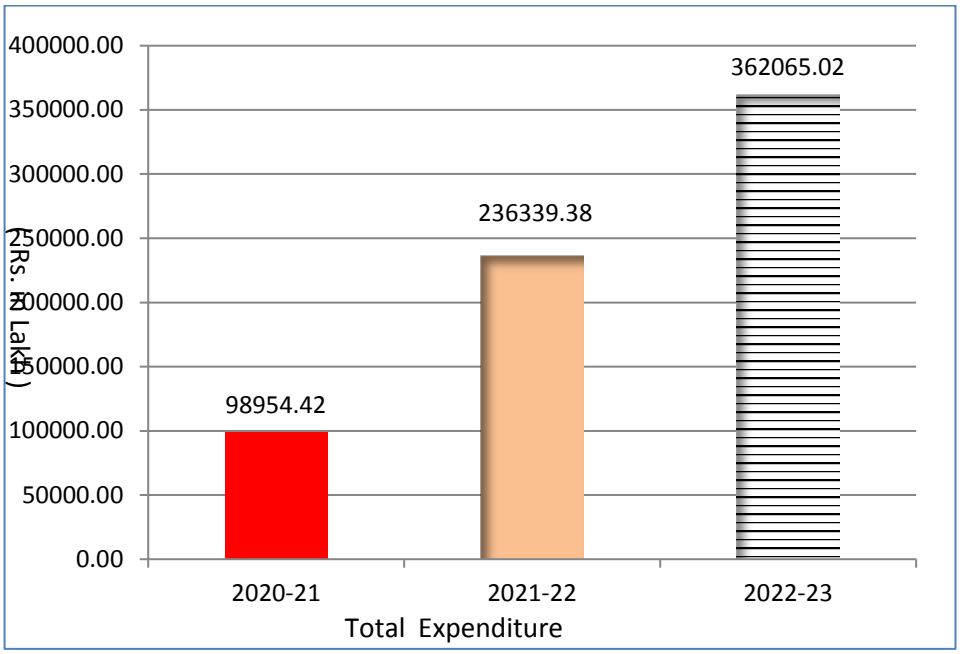
(C) DETAILS OF EXPENDITURE

The category wise details of expenditure booked by Kerala Water Authority for the last three years are shown below:

Table 7.3: Details of expenditure

Category	Expenditure (₹ in Lakh)		
	2020-21	2021-22	2022-23
STATE PLAN	26484.24	26053.57	9805.15
NABARD	10313.13	8526.16	3899.35
JJM/NRDWP	62157.05	201759.65	348360.52
TOTAL	**98954.42**	**236339.38**	**362065.02**

Figure 7.3: Graphical representation of expenditure



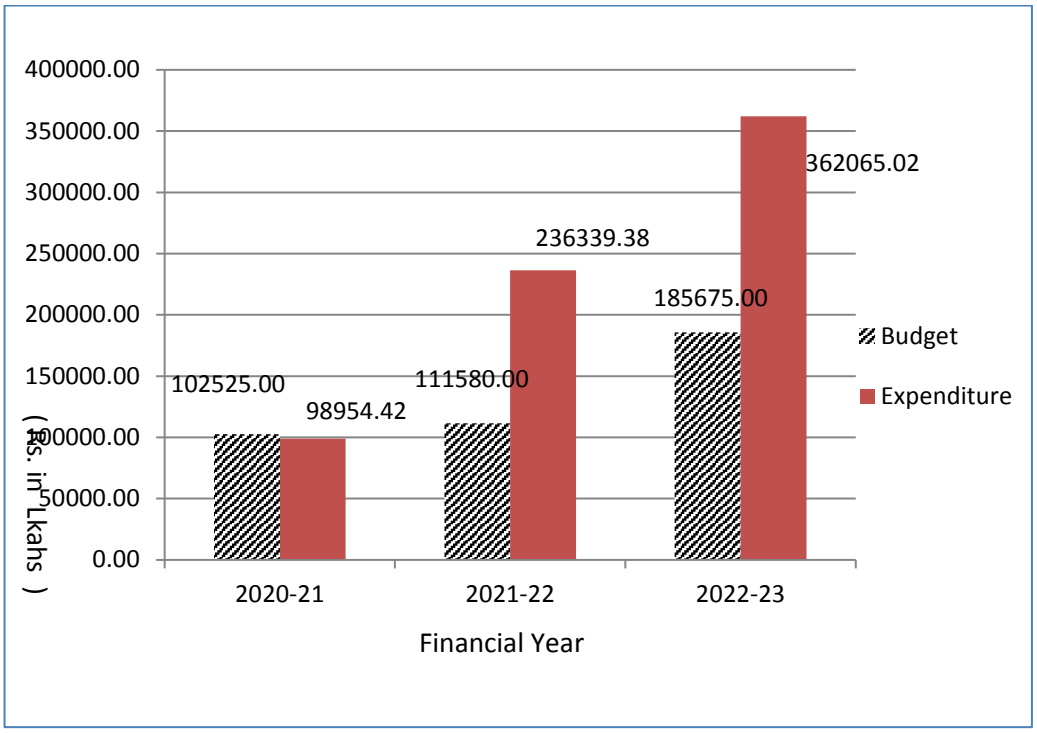
(D) COMPARISON BETWEEN BUDGET AND EXPENDITURE

The comparison between the budget and actual expenditure met by KWA for the past three years is given below:

Table 7.4: Comparison between Budget and Expenditure (₹ in lakh)

Category	2020-21		2021-22		2022-23	
	Budget	Expenditure	Budget	Expenditure	Budget	Expenditure
STATE PLAN	16525.00	26484.24	26400.00	26053.57	27655.00	9805.15
NABARD	6000.00	10313.13	5180.00	8526.16	8020.00	3899.35
JJM/NRDWP	80000.00	62157.05	80000.00	201759.65	150000.00	348360.52
TOTAL	**102525.00**	**98954.42**	**111580.00**	**236339.38**	**185675.00**	**362065.02**

Figure 7.4 : Graphical representation of comparison between budget and expenditure



(E)COMPARISON BETWEEN BUDGET RELEASE AND EXPENDITURE

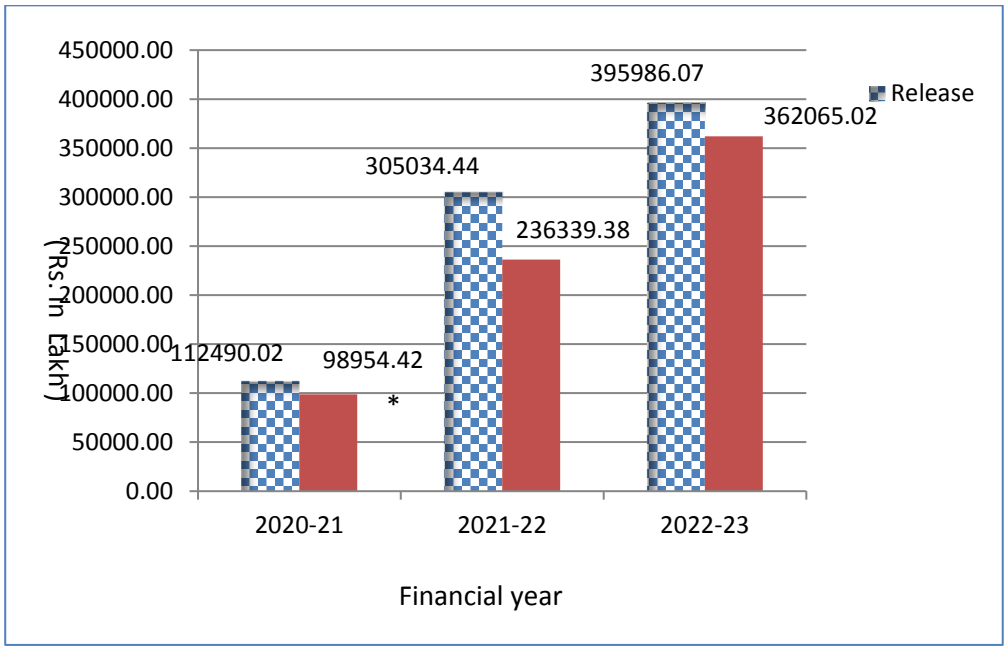
The details of budget release and actual expenditure met by KWA is given below:

Table 7.5: Comparison between budget release and expenditure (₹ in lakh)

Category	2020-21		2021-22		2022-23	
	Release	Expenditure	Release	Expenditure	Release	Expenditure
STATE PLAN	26252.54	26484.24	26003.11	26053.57	9805.22	9805.15
NABARD	10343.58	10313.13	8342.71	8526.16	3897.66	3899.35
JJM/ NRDWP	75893.90	62157.05	270688.62	201759.65	382283.19	348360.52
TOTAL	**112490.02**	**98954.42**	**305034.44**	**236339.38**	**395986.07**	**362065.02**

The Graphic representation is shown below:

Figure 7.5 : Graphical representation of Comparison between budget release and expenditure



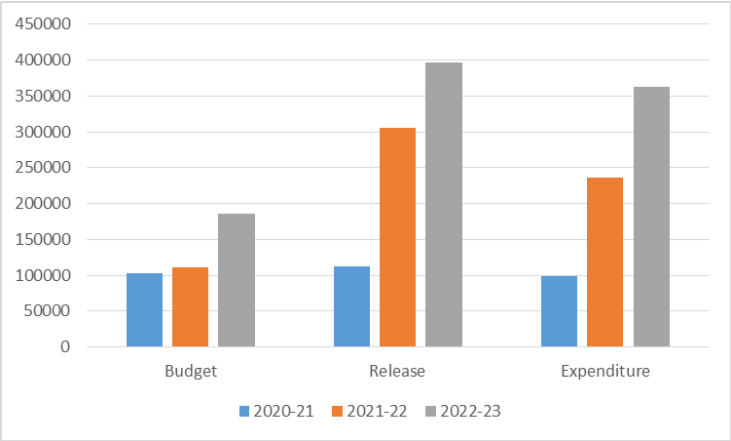
(F)COMPARISON BETWEEN BUDGET ESTIMATE, RELEASE AND EXPENDITURE

The statement of budget estimate, release and actual expenditure met by KWA is given below:

Table 7.6 : Comparison between budget estimate, release and expenditure (₹ In lakh)

Category	2020-21			2021-22			2022-23		
	Budget	Release	Expenditure	Budget	Release	Expenditure	Budget	Release	Expenditure
STATE PLAN	16525	26252.54	26484.24	26400	26003.11	26053.57	27655	9805.22	9805.15
NABARD	6000	10343.58	10313.13	5180	8342.71	8526.16	8020	3897.66	3899.35
JJM/ NRDWP	80000	75893.9	62157.05	80000	270688.62	201759.65	150000	382283.19	348360.52
TOTAL	**102525**	**112490.02**	**98954.42**	**111580**	**305034.44**	**236339.38**	**185675**	**395986.07**	**362065.02**

Figure 7.6: Graphical representation of Comparison between budget estimate, release and expenditure



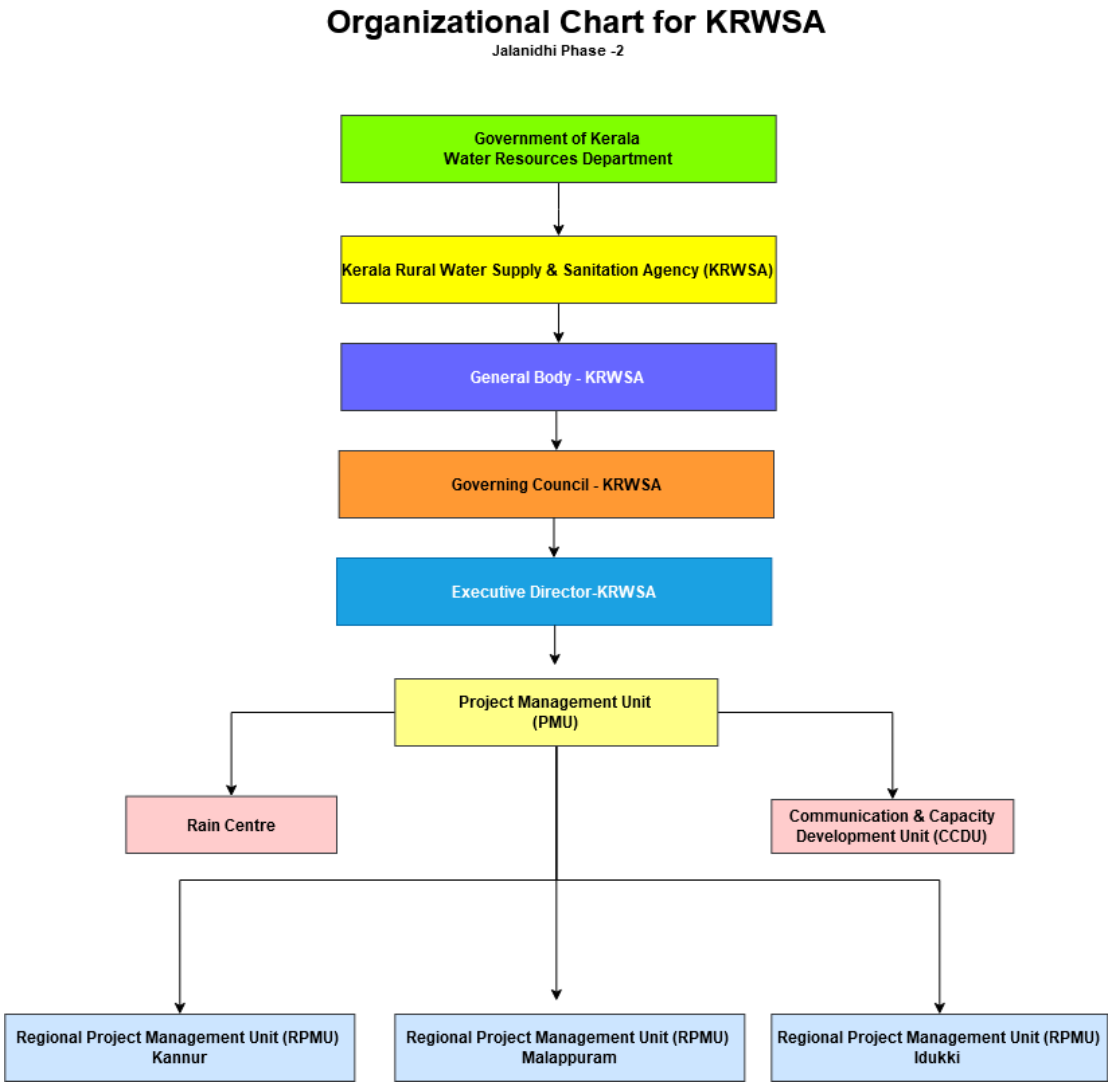
Jalanidhi (Kerala Rural Water Supply and Sanitation Agency)

Government of Kerala was a signatory State on the "Cochin Declaration on Drinking Water Sector" that brought in reforms in rural water supply sector in the Country in 1999, which advocates three key principles, ie changing the role of Government from provider to facilitator, increasing the role and participation of rural communities in the planning and management of their own water supply facilities, increasing cost recovery form user and management of operation and maintenance by users. Subsequent to this, Government of Kerala has created an autonomous institution "Kerala Rural Water Supply and Sanitation Agency (KRWSA)"- as a special purpose vehicle to implement the World Bank aided community managed demand driven water supply and sanitation project named as Jalanidhi project.

KRWSA was registered on 17-11-1999 under Travancore Cochin Literacy, Scientific and Charitable Societies Registration Act 1955 (Act XII of 1955). KRWSA has successfully implemented two phases of Jalanidhi project, i.e Jalanidhi Phase-1 during 2000-2008 & Phase-2 during 2012-2019. Grama panchayats have a pivotal role in implementing community based water supply projects under Jalanidhi. KRWSA has also established a wide network of NGOs in mobilizing communities towards implementing the participatory, community driven water supply & sanitation facilities owned and managed by them. This model of scheme implementation under JALANIDHI has demonstrated successfully an equitable, inclusive and decentralized delivery system mainly benefiting the SC,ST and BPL category of rural households in Kerala.

KRWSA is the nodal Agency of the State Government for the implementation of Rain Water Harvesting Programme. Further, KRWSA is designated as Water and Sanitation Support Organisation (WSSO) of Govt of India to coordinate drinking water related support activities in the State. Government of Kerala has selected KRWSA as one of the implementing agency for the implementation of central flag ship programme of Govt. of India, Jal Jeevan Mission Programme (JJM) in the state during the period 2020-2024.

Organizational chart of KRWSA is given below :



Major Schemes implemented by KRWSA

Popularization of Rain Water Harvesting and GWR measures through KRWSA

As a nodal agency for the implementation of Rain Water Harvesting (RWH) Programme in the State, a separate cell –Rain Centre was functioning under KRWSA for undertaking the activities under RWH Scheme and from 18-12-2021 onwards all activities of the cell have been merged with KRWSA and implementation activities arranged through its RPMUs.

The scheme is being implemented from the year 2012-13 onwards, mainly for providing household and government institutional RWH units in rural areas where scarcity of water is at large. Open well recharge is also being carried out as part of the implementation of the scheme. It is being implemented by utilising the state plan funds allocated in the State Budget annually. The physical achievements made under the scheme, as on 31-03-2023, are as follows:

Setting Up of House Hold RWH Units	10675 Nos
Setting of RWH Units in Aided Schools	840 Nos
Installation of Open Well Recharge System	2133 Nos.

Sustainability support to Community Managed Water Supply Schemes

Kerala Rural Water Supply and Sanitation Agency (KRWSA) has implemented 3710 schemes in phase-1 project covering 112 grama panchayats. Structurally once the schemes are commissioned, the assets created are to be handed over to the Beneficiary Groups (BGs) for Operation and Maintenance (O&M). However, later during the Performance Audit of Jalanidhi-Phase-I schemes by the Accountant General in the year 2016-17, it was observed that nearly 35% of the schemes have become partially or fully defunct. Therefore, post implementation support to the community merged schemes for the sustainability of the project is a critical one.

As such Government have launched a new scheme under State Plan namely - Sustainability support to Community Managed Water Supply Schemes in order to extend technical and financial support to the beneficiaries for rejuvenating the

schemes and make them functional. Accordingly, it is being implemented by providing necessary funds in State Budget – under the State Plan from the year 2018-19 onwards. As on 31-03-2023, a total number of 1145 partially /fully defunct water supply schemes were rehabilitated & restored and made functional.

New Schemes started during the year 2022-23

Government of Kerala started implementing the undermentioned schemes in WATSAN sector through KRWSA as necessary funds provided in the state budget under state plan:

1. Conversion of domestic wells in to protected drinking water sources.

Objective of the scheme is to protect and recharge domestic wells in order to convert as reliable sources of drinking water and to replenish dwindling ground water table.

2. Water Quality Monitoring and Surveillance and Grey Water Management.

The aim of the scheme is to set up regular monitoring and timely mitigation in the case of water quality issues of the community managed small water supply schemes. It has also been proposed to take up grey water management in colonies of vulnerable groups.

3. Research and Development in Rural Water Technologies.

As certain habitations of the under privileged and vulnerable sections of the people are still having no access to large organized water supply schemes, it is necessary to provide them drinking water supply by using appropriate and innovative technologies and O&M models. KRWSA have tried and tested several technology options and management models in the Jalanidhi schemes. It is observed that failure of the scheme is due to the water quality issues developed in the schemes during the continued operations. It is absolutely essential to identify both the success and failure models both in technology and management for developing innovative ideas in the sector. The programme has been launched for research and development in rural water technologies.

4 IEC, Capacity Building & Training and Jalasree Club.

The programme is envisaged Information Education and Communication activities in water sector by building capacities of different stakeholders especially local communities, responsible and responsive leadership to own, manage operate and maintain in village water supply systems. It is also proposed to create awareness among the population, especially the younger generation by establishing Jalashree clubs in schools to inculate the value of water at young age.

Financial outlays and quantifiable deliverables

1. Completion of Jalanihi-II Schemes under State Plan

The World Bank aided Jalanidhi- Phase II project have completed 2173 Water Supply Schemes and provided drinking water to 2.54 lakh households in selected 115 grama panchayats. Even though the credit period of the EAP was over on 31-12-2019, the works related to some Large and Small Water Supply Schemes were spilled over to subsequent periods and the same have been carrying out by utilising the funds provided in the state budget from the financial year 2020-21 onwards and all those works have been completed by 2021-22. Accordingly, an amount of ₹125.00 lakh was provided for the year 2022-23 for the settlement of pending bills in respect of completed works. The entire amount of ₹125.00 lakh was released during the year 2022-23. A total amount of ₹123.37 lakh was incurred as expenditure for implementation of the scheme for the year 2022-23.

2. Popularization of Rain Water Harvesting and GWR measures through KRWSA

Government of Kerala had provided an amount of ₹1000 lakh for the financial year 2022-23 for this scheme. Out of this, an amount of ₹ 580.00 lakh was released. A total amount of ₹576.86 has been expended. Out of the 1617 RWH units &1784 open well recharge structures taken up for construction, 1148 RWH units and 497 open well recharge have been completed as on 31.03.2023.

3. Sustainability support to Community Managed Water Supply Schemes

An amount of ₹3000 lakh was allocated for the scheme in the state budget and ₹1991.82 lakh has been released during the year 2022-23. A total amount of ₹1941.30 lakh has been expended during the financial year 2022-23. Out of the 705 partially /fully defunct schemes taken up for restoration, 484 schemes were

restored as on 31.03.23 and restoration works in respect of 221 schemes have been spilled over to next financial year.

4. Conversion of domestic wells in to protected drinking water sources.

An amount of ₹400 lakh was provided for the scheme and ₹200 lakh was released during the financial year 2022-23. A total amount of ₹25.31 lakh has been expended, during the year 2022-23.Out of the 531 nos of wells taken up conversion, works in respect of 218 nos were completed as on 31.03.23 and works related to 313 nos have been spilled over to the next financial year.

5. Water Quality Monitoring and Surveillance and Grey Water Management

Administrative sanction was issued on 22-09-2022 and works for installation of plants for mitigation of water quality issues- 80 nos, were taken up during the year 2022-23. Out of this, 11 scheme have been completed as on 31-03-2023 and works related to 69 nos have been spilled over to next financial year.

6. Research and Development in Rural Water Technologies.

An amount of ₹6.00 lakh was provided for the scheme and ₹3.72 lakh was released on 21-03-2023 and hence no amount was utilized during on the year 2022-23. As such the entire amount of ₹3.72 lakh was resumed from the PSTSB account on 31-03-2023. The proposal for modification the Administrative Sanction was not approved till 31-03-2023. No achievements have therefore been made during the year 2022-23 in this regard.

7. IEC, Capacity Building & Training and Jalasree Club

An amount of ₹15.00 lakh was provided for the scheme and ₹9.30 lakh was released on 21-03-2023 and ₹5.63 lakh was utilized during on the year 2022-23. The balance amount of ₹3.67 lakh was resumed from the PSTSB account on 31-03-2023. Administrative Sanction was obtained on 22-09-2022. Out of the target in the formation of 560 Nos of Jalasree clubs in schools, achievement made in creating 125 nos of clubs till 31-03-2023.

Reform measures and performances

In Jalanidhi–I and II, there are greater integration in rural water supply at village levels. The up-front setting up of an operating institutional mechanism at the

grama panchayat level will provide sustainable O&M backup support to all rural water supply schemes (not only Jalanidhi schemes) in the grama panchayat.

The schemes -Sustainability Support to Community Managed water Supply Schemes- is highly helpful to the community for synergising the strength of community and local governments in order to build sustainable water supply through appropriate technology and resources. Capacity building measures are also being carried out for the empowerment of the communities for sustainable operation and maintenance of drinking water supply and sanitation assets. It has also been decided, from the year 2022-23 onward, to set up a revolving fund, by depositing the grama panchayats' and Beneficiaries' contributions for O&M expenses of the water supply schemes.

The programme -Popularisation of Rain Water Harvesting and GWR Measures- is well accepted by the people in the State, especially those who are living in hilly, coastal and remote areas with limited access to potable water. Many of the grama panchayats, especially those in the hilly and coastal regions are actively implementing Rain Water Harvesting as a technology option to solve the drinking water issues of their GPs. The need and importance of Rain Water Harvesting programme in view of the severe flood that hit the State has once again accelerated. The rate of beneficiary contribution has been changed during the year by extending exemption for the same to the BPL families.

Conversion of Domestic Wells into protected drinking water sources scheme has been started during the year 2022-23 with prime importance to recharge domestic wells in order to convert as reliable sources of drinking water and to replenish dwindling groundwater table. If properly protected and recharged, the dug wells can serves as a dependable source of drinking water.

One of the major issues facing the community managed water supply schemes is the absence of a mechanism for regularly testing and monitoring of the water quality concerns. Being a public water supply agencies, the beneficiary groups which manage small water supply schemes need regular monitoring and timely mitigation of water quality issues. KRWSA wants to fill up the gap and started to function as a Water Quality Monitoring and Surveillance agency for all rural community managed water supply schemes. KRWSA will impart operators and beneficiaries for field testing and also establish a network of water quality labs by tying up with educational institutions and also set upon IT based monitoring system.

In some measures of Grey Water Management, the agency has started the implementation of a Grey Water Treatment Unit in the tribal hostel of the Rajiv Gandhi Memorial Residential High school at Noolpuzha in Wayanad district. The hostel has been set up by the Government to provide educational aid to the poor tribal students. The hostel has 250 inmates and 600 students are being attended for lunch. Only one tank was being used for collecting water and no waste water treatment system was in place. The new treatment plan will help treat the waste water collected from bath rooms, kitchen sinks and other washing areas.

As part of crating awareness among the population, especially the younger generation, the agency launched a programme for formation of "Jalasree Clubs" in schools to inculcate the value of water at young age.

Being an implementing agency of the JJM project, the agency could provide altogether 7392 Functional Household Tap Connections (FHTCs) in the rural sector all over Kerala during the year 2022-23.

Review of past performance

The Budget Outlay for completion of Jalanidhi –II Project, for the year 2021-22 was ₹839.44 lakh (original estimates ₹125.00 lakh and ₹714.44 lakh through additional authorisation). Out of the total amount, an amount of ₹802.96 lakh was incurred as expenditure. The construction works have been completed and settlement of bills was being made.

For Rain water Harvesting Scheme, the budget provision for the year 2021-22 was ₹1000 lakh. Out of this ₹489.27 lakh was only released and expended in full. The construction of 891 Nos of household RWH units and 1493 Open Well Recharge Systems have been completed.

For Sustainability Support Scheme, the budget provision for the year 2021-22 was ₹3000 lakh. A total amount of ₹1008.18 lakh was incurred as expenditure during the year in respect of the scheme. Restoration works in respect of 376 Nos of small water supply schemes have been completed during the year and works were in progress in the case of other 499 schemes.

Financial Review

The Budget Estimates/Revised Estimates for the financial year 2022-23 was almost same as that in 2021-22. Even though a total amount of ₹4896.00 lakh was provided for the agency altogether, a total amount of ₹2909.84 lakh was only released for implementation. The actual plan expenditure of the agency for the financial year 2022-23 was ₹2663.47 lakh and the balance amount has been resumed on 31-03-2023.

The details are shown as Annexure-III

Annexure I

FORMAT OF TABLES IN CHAPTER 3 OF PERFORMANCE BUDGET 2022-23

Irrigation (I&A) **Rupees in Lakhs**

Sl. No.	Name of the Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables / Physical outputs	Target Fixed		Target achieved		Projected Outcomes	Period of implemenation	Remarks / Risk factors
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4 (i)	4 (ii)	4 (iii)	4 (iv)	5	6		7		8	9	10
1	Coastal Zone Management	The scheme envisaged for the construction of new sea walls in the balance portion of unprotected coastal area, improvements to the damaged sea walls		150			Administrative Sanction accorded for two works amounting to Rs.1174 lakh	100%	150.00	9 Works completed	397.70	For the reformation of vulnerable coast of 12.2 km can be completed.		The budget allocaction for the coastal protection work was insufficient to meet the actual requirements
2	Specialised Training Programme	Under this scheme trainings are being provided to technical and non-technical officers of the department on advanced technologies including computer skills		40			65 Training programs were conducted in the FY 2022-23	65 trainings	40.00	65 training programmes were conducted	13.61	Equipped the officers to use modern technology in formulating schemes and familiarise the officers in the use of design tools in vogue.		Most of the training were in online mode except programmes conducted by IMG.
3	Modernisation and e-governance	Modernization of department and e-governance		80			Implemented E office in district level offices. Integrated PRICE 3.0 software and E-Monit software have been implented. Introduced Biometric attendance system in public office, collectrates, revenue complex kaveri house kozhikode.	100%	80.00	Implemented E office in district level offices. Integrated PRICE 3.0 software and E-Monit software have been implented. Introduced Biometric attendance system in public office, collectorates, Revenue complex, Kaveri house Kozhikode.	71.28	Online delivery of Services mandated under RTI act. E monit software for Management of works and HRMS in the department.		
4	Study on Coastal protection measures..	carrying out studies for implementation of appropriate anti-sea erosion activities		57			46.6 lakh has been sanctioned for carrying out studies for implementation of appropriate anti-sea erosion activities.	100%	57.00		36.78	The Government of Kerala has signed an MoU with NCCR, Chennai an expert body for coastal studies and suggesting suitable coastal protection methods , based on this, studies are going on.		

Annexure I

FORMAT OF TABLES IN CHAPTER 3 OF PERFORMANCE BUDGET 2022-23

Irrigation (I&A) **Rupees in Lakhs**

Sl. No.	Name of the Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables / Physical outputs	Target Fixed		Target achieved		Projected Outcomes	Period of implemenation	Remarks / Risk factors
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4 (i)	4 (ii)	4 (iii)	4 (iv)	5	6		7		8	9	10
5	Thottappally Spillway	To control the flood at Kuttanad area and to ensure the free flow of water into		500			Administrative Sanction accorded for two works with a total estimate cost Rs.70.3crores for the protection on the banks of Thottappally leading channel from Veeyapuram to Kurichickal and Kurichickal to Thottappally.	100%	500.00		0.00	Protection work to the Left & Right Banks of Pampa river from Kurichikkal to Thottappally Spillway and downstream to the Pozhy mouth in Purakkad GP (Rs. 37 crores) is tendered and expenditure will be expected to occur in the FY 2023-24		
6	Kerala Sustainable Coastal Protection and Climate Resilience	This scheme aims to provide sustainable coastal protection measures and Climate Resilience for identified hot spots		10000					10000.00		0.00	Under this scheme coastal protection for identified hotspots has been envisaged.		Assistance of ADB/WB has not been sanctioned. Hence the budget allocation could not be utilised .
7	Repairs and Maintenance of Minor Irrigation Structures	To carry out urgent repair works on the high number of non−functioning schemes under minor irrigation. Maintenance of the canals in the LI Schemes and MI structures are also included in the scheme		250			Administrative Sanction accorded for 11 works amounting to Rs.225 lakhs	100%	250.00	Total work-51 Completed -36 ongoing-15	850.67	By proper maintenance of check dams and other water holding structures will ensure that the ground water table will rise and there by reduces the scarcity of water in near by areas. Increase in crop output which includes paddy, grains and vegetables		

Annexure I

FORMAT OF TABLES IN CHAPTER 3 OF PERFORMANCE BUDGET 2022-23

Irrigation (I&A) **Rupees in Lakhs**

Sl. No.	Name of the Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables / Physical outputs	Target Fixed		Target achieved		Projected Outcomes	Period of implemenation	Remarks / Risk factors
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4 (i)	4 (ii)	4 (iii)	4 (iv)	5	6		7		8	9	10
8	MI Class I	Unde the scheme minor works lilke construction and improvements to tanks and rivulets, construction of check dams, sluice , regulators, bunds,VCB,SWB, lay out of channels and drainage structures are being carried out.		1600			Administrative sanction has been issued for 19 works amounting to Rs. 3537.40 lakhs in the FY 2022-23.	100%	1600.00	39 Works (including spill-over works) have been implemented and 30 have been completed.	1084.07	Improvement in ground water table. Increase in yield. Increase farmers profit and Efficient use of water These projects aim to irrigate small command areas by diverting water from rivers and canals and to implement proper drainage by constructing sidewalls, sluices, cross bars etc.		Works are under different stages of execution
9	MI Class I - Schemes under Haritha Keralam	For the conservation of water and soil , number of works have been identified and prioritized in the plan with the assistance of various departments and of people's representatives and farmers. Also, Infrastructural development of paddy fields and development of irrigation facilities are targeted.		2000			AS was issued for total 19 works for an amount of Rs 1892.50 lakhs	100%	2000.00	Out of 15 works, 10 works have been completed and 5 works are ongoing	436.01	An ayacut of 1160 Ha has been achieved/ stabilised. As the first step of revitalization of rivers through public participation, the Irrigation Department has facilitated grassroots campaign for revitalization of rivers. Watershed projects of 914 panchayats have been completed and implementation of Community Micro irrigation projects under Harita Keralam has been started.		Delay in starting the execution, due to non acceptance of tenders, work can be carried out seasonally only,Protest from public during the execution of already awarded work,Land aquisition problem,termination of executed works due to the lack of interest from the side of Contrator etc.
10	MI CLASS II	The scheme envisages water availablity in rain shadow area of Palakkad, Idukki and Wayanad Districts. Also, for construction of check dams and water harvesting works.		1600			AS issued for 38 works amounting to Rs.2363.87 lakhs.	100%	1600.00	Out of 60 works, 59 works have been completed.	1550.06	Under MI Class II an ayacut of 1485 Ha has been achieved/stabilised.		do

Annexure I

FORMAT OF TABLES IN CHAPTER 3 OF PERFORMANCE BUDGET 2022-23

Irrigation (I&A) **Rupees in Lakhs**

Sl. No.	Name of the Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables / Physical outputs	Target Fixed		Target achieved		Projected Outcomes	Period of implemenation	Remarks / Risk factors
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4 (i)	4 (ii)	4 (iii)	4 (iv)	5	6		7		8	9	10
11	MI Class II Schemes under Haritha Keralam	This scheme envisaged to provide funding for all MI class-II work included in Watershed Plans prepared under Haritha Keralam		650			AS issued for 35 works amounting to Rs.2557.87 lakhs.	100%	650.00	Out of 39 works, 36 works have been completed.	992.32	Implimention of the scheme will benefit an ayacut area of 650 Ha		
12	MI CLASS I NABARD assistance	Aims to Construct RCBs, SWECBs, ponds, VCBs, check dams, storage weirs, cross bars, and protection works etc.		4000			In the year 2021-22 two works costing to Rs 43.28 crores were sanctioned . Technical Sanction have been issued for the two works and PQ evaluation completed The tender process of two works amounting to Rs. 67.54 crores sanctioned	100%	4000.00	121 works under implementation, 17 works have been completed.	1240.85			The low expenditure under NABARD assisted works can be attributed to dropping of some high value projects amounting to Rs. 46.404 crores and to non-grounding of some high value projects in other tranches due to technical problems.
13	Lift Irrigation	Works involving lifting of water by mechanical means with a command area not less than 40 hectares come under this category.		1900			Administrative sanction has been issued for 19 works amounting to Rs. 1939.06 lakhs.	100%	1900.00	Out of 17 Works, 5 works have been completed	625.97	447 Lift Irrigation Schemes covers an area of 40708.93 hectares and 24 new LI Schemes are being worked on in various phases. 6 new LI Projects have been sanctioned and implemented after January 2022.		The works taken up during the Financial Year 2022-23 are progressing and they would be completed in the Financial Year 2023-24.
14	Rehabilitation of LI Scheme	The main works to be carried out under the scheme are repairs/replacement of pumps,electrical installation,repairs to pump houses ,pipe system and the maintenance of fixtures for upkeeping of LI Scheme.		500			Administrative Sanction accorded for 23 works amounting to Rs.409.05 lakhs	100%	500.00	Out of 59 works, 44 works have been completed and 15 works are ongoing	803.89	The renovation & repair of defunct Lift Irrigation schemes will increase the efficiency of Lift irrigation appurtenances and will also stabilize the existing ayacut.		

Annexure I

FORMAT OF TABLES IN CHAPTER 3 OF PERFORMANCE BUDGET 2022-23

Irrigation (I&A) **Rupees in Lakhs**

Sl. No.	Name of the Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables / Physical outputs	Target Fixed		Target achieved		Projected Outcomes	Period of implemenation	Remarks / Risk factors
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4 (i)	4 (ii)	4 (iii)	4 (iv)	5	6		7		8	9	10
15	MI PROJECTS IN CAUVERY BASIN	To utilise a portion of water allocated by cauvery water dispute tribunal to kabani and pambar basins of Kerala and also to store water in kabani river for facing acute drought situations in rainshadow areas.		260			Administrative Sanction accorded for three works amounting to Rs.214.01 lakhs	100%	260.00	22 Works have been implemented and 22 have been completed.	901.48	By implementing the scheme an ayacut of 415 Ha can be achieved. Implementation of the scheme will improve the ground water recharge, drinking water supply.		
16	Pradhan Manthri Krishi Sinchayee Yojana	To achieve convergence of investments in irrigation at the field level by amalgamating different schemes related to irrigation, agriculture, soil conservation, ground water development and rural develpment.		1000				0%	1000.00	The guidelines stipulated by RRR norms and AIBP are difficult to be achieved in the state due to the special geographical condition,terrain features,population density etc.	0.00	Request send to MoWR to revise the guidelines.	1 year	
17	Bhavani Basin	Mi projects such as check dams and LIS are taken up under Bhavani basin for utilising water alloted to Bhavani basin by Cauvery water dispute tribunal.		180			Administrative Sanction accorded for three works amounting to Rs.200 lakhs	100%	180.00	3 Projects have been implemented and 2 have been completed.	217.51	Once the project implented ,it willl create an ayacut of about 100Ha. The project is benfitte to Tribal area.		
18	Renovation of Tanks &Ponds Schemes under Haritha Keralam	Scheme envisages to undertake renovation and revamping of major existing public/ community ponds in the State .		750			Administrative Sanction accorded for 27 works amounting to Rs.994.80 lakhs	100%	750.00	Out of 55 works, 53 have been completed.	1242.59	The revival, conservation and upgradation of the traditional water sources will help to attain self sufficiency in food security, augmentation of food production, .		

Annexure I

FORMAT OF TABLES IN CHAPTER 3 OF PERFORMANCE BUDGET 2022-23

Irrigation (I&A) **Rupees in Lakhs**

Sl. No.	Name of the Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables / Physical outputs	Target Fixed		Target achieved		Projected Outcomes	Period of implemenation	Remarks / Risk factors
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4 (i)	4 (ii)	4 (iii)	4 (iv)	5	6		7		8	9	10
19	Maintenance of buildngs	Most of the buildngs owned by department are in dilapidated condition. This scheme fund is utilised for the urgent maintenance of the office building		200			AS issued for 200 lakhs		200.00	The works are in different stages of implimenation	1.97	Through building maintenance extended lifespan, and the preservation of assets and asset value can be ensured.		
20	Detailed Investigation of MI structures	Scheme is for the deatiled investigation of projects		50				100%	50.00	19 works have been completed .	44.61			
21	Micro Irrigation schemes NABARD RIDF Assistance	Scheme envisaged to use modern irrigation methods like drip and sprinkler irrigation, alternative for efficient use of surface as well as ground water resources and achieve more crop per drop of water.		200				100%	200.00		0.00			Due to lack of proposals for micro-irrigation projects valued below two crores, the implementation of the projects could not be realized.
22	Restoring polluted stretches of rivers based on National Green Tribunal order	This scheme envisaged for the implementation of action plan proposed for rejuvenation and pollution abatement in 21 polluted stretches in rivers of the state based on the Hon'ble NGT order.		200			Administrative Sanction was issued for an amount of Rs 200 lakhs	100%	200.00		0.00			Expenditure for the works arranged during 2022-23 is expected in the current Financial Year 2023-24
	Total			**26167**					**26167.00**		**10511.37**			

Annexure I

FORMAT OF TABLES IN CHAPTER 3 OF PERFORMANCE BUDGET 2022- 23

Irrigation (Project I)

Rupees in lakh

Sl.No.	Name of Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables/Physical output	Target Fixed		Target Achieved		Projected out comes	Period of implementation	Remarks / Risk factors
			Non plan Budget	Plan Budget	Complementary Extra Budgetary resources ry Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4(i)	4(ii)	4(iii)	4(iv)	5	6		7		8	9	10
1	Banasuraagar irrgation project	The project was orginally proposed for an ayacut of 2800Ha. A	0	1200	0	0	Completion of 4.04Km Branch Canal, 5.15Km length of distributaries 0.37Km of Main canal FY 2023-24	22 works	856.96	work in progress	543.37	work in progress		
2	Chittur puzha project	Stabulization of 20440 Ha Ayacut area of Chitturpuzha	300.00	0.00	100.00	0.00	Annual maintaineance of canal 89 works	89	300	0	173.6	20440 Ha Ayacut area Stabilized	4 months	
3	CADA field chanels	Modernisation of CADA Field channel	0	800.00	0	0	Rectification & Renovation of field chanels	68 works	788	47	665.91	47 works have been completed	1 year	Remaining works are under various stages of completion.
4	Walayar	Annual maintaineance of canal	75.00	0.00	0.00	0.00	Annual maintaineance of canal	18	75	0	29.72	3997Ha ayacut area stabilized	4 month	
5	Karapuzha Irrigation Project Division, Kalpetta	To irrigate ayacut area of 5221 Ha. through canal system	0	1700	0	0	Water distribution through total lenghth of RBMC - 8.805 km and LBMC 16.74 km done (100 %). Arragements need to start the formation of 5 distributory canals of taking from RBMC	31 works	1316.85	7	1606.47	5221 Ha. irrigation	Project is proposed to be complete in December 2025	25 works awarded 7 works completed remaining works are in progress

Annexure I

FORMAT OF TABLES IN CHAPTER 3 OF PERFORMANCE BUDGET 2022- 23

Irrigation (Project I)

Rupees in lakh

Sl.No.	Name of Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables/Physical output	Target Fixed		Target Achieved		Projected out comes	Period of implementation	Remarks / Risk factors
			Non plan Budget	Plan Budget	Complementary Extra Budgetary resources ry Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4(i)	4(ii)	4(iii)	4(iv)	5	6		7		8	9	10
6	Kuttiyadi irrigation project	Improvement of Canal	180.5	300	0	0	Completion of 20 works forImprovement of Canal	20 works	300	20	269.38	Improved water distribution through canals	2 years	All canal improvement works completed.
7	Pazhassi Irrigation Project	Introduction of re-commissioning project by the end of december 2025	40	1000	0	0	Re- commissioning project	36 works	1000	9 works	671.59	Water distribution through Mahe branch canal and main canal would be achieved upto the end of December 2023	Recommissioning may be made by end of the december 2025	36 works awarded 9 works completed. Remaining works in progress.
8	NIRA -Scheme Cheramangalam Scheme -	improvement to anicut and its allied structures and improvements of canals	0	250.00	0	0		14 works	250	1 work completed	202.38	0		
9	Kanhirappuzha Irrigation Project	Works relating to Kanhirappuzha Irrigation Projects Canal and others hydrolic structures	150	0	0	0	Works for smooth water distribution & improve (efficience of canal and strengthening related structures)	47 works	100%	47 Works Tendered, 38 work complete, 9 works in progress	113.02	0		

Annexure I

FORMAT OF TABLES IN CHAPTER 3 OF PERFORMANCE BUDGET 2022- 23

Irrigation (Project I)

Rupees in lakh

Sl.No.	Name of Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables/Physical output	Target Fixed		Target Achieved		Projected out comes	Period of implementation	Remarks / Risk factors
			Non plan Budget	Plan Budget	Complementary Extra Budgetary resources ry Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4(i)	4(ii)	4(iii)	4(iv)	5	6		7		8	9	10
10	Attappady Irrigation Project	AIP Construction of protection wall and providing safety measures to Goolikkadavu Chittur road	0	50	0	0	Construction of protection wall and providing safety measures to Goolikkadavu Chittur road work completed	1 work	50	100%	72.02	Construction of protection wall and providing safety measures to Goolikkadavu Chittur road work completed		
11	Chamravattom Project	Routine maintenance and upgradation of office	0	250	700	0	Maintenance of RCB and upgredation of office	100%	100%	1 work completed%	947.29			9 works tendered 7 works awarded 1 work completed
	Total		**745.50**	**6350**							**5294.75**			

Annexure I

FORMAT OF TABLES IN CHAPTER 3 OF PERFORMANCE BUDGET 2022- 23

Irrigation (Project II)

Rupees in lakh

Sl.No.	Name of Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables/Physical output	Target Fixed		Target Achieved		Projected out comes	Period of implementation	Remarks / Risk factors
			Non plan Budget	Plan Budget	Complementary Extra Budgetary resources ry Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4(i)	4(ii)	4(iii)	4(iv)	5	6		7		8	9	10
1	Muvattupuzha valley Irrigation Project	To achieve 18237 Ha		215.75				1121 Ha	215.75	265 Ha.	1796.14			
2	Pambar Basin Projects	Utilization of 3 TMC water allocated as share of Kerala from Pambar basin as per final verdict of Cauvery Water Dispute Tribunal.		1450.00				240 Ha	1450	63%	73.83			Work standstill from 20.06.2022. Contractor demanded rate enhancement for balance works to be done
3	Idamalayar Irrigation Project	For utilising water from Periyar river for irrigating 14394 hecters		1127.33			Fund utilized for the rectification and maintenace of canals and reconstruction works of office building and quarters for acheiving an ayacut of 8393 Ha and construction of 74m LLC and link canal	8393 Ha	1127.33	4270 Ha.	1402.48	Irrigated 8393 Ha ayacut area		
	Total			**2793.08**					**2793.08**		**3272.45**			

Annexure I

FORMAT OF TABLES IN CHAPTER 3 OF PERFORMANCE BUDGET 2022-23

Irrigation (Kuttanad Package) **Rupees in lakh**

SI. No.	Name of Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables / Physical outputs	Target Fixed		Target Achieved		Projected outcomes	Period of Implementation	Remarks/ Risk Factors
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4(i)	4(ii)	4(iii)	4(iv)	5	6		7		8	9	10
1	PMKSY- Kuttanad Flood Management Component - 50% CSS	Flood mitigation and prevention of salinity in 55874 ha paddy field in Kuttanad region	0	1100.00	0	0.00	Construction of outer bund including cross drainage structures.	Nil	Nil	Nil	454.47	The Scheme completed on 31.12.2019.	Upto 2019.	The scheme completed on 31.12.2019. The expenditure incurred is to clear the previous pending payments.
2	Border Area Programme	Flood mitigation of paddy fields by constructing outer bunds.	0	0.00	0	0.00	Construction of outer bund including cross drainage works.	Nil	Nil	Nil	0			Due to non provision of central assistance in Union Budget, the administrative sanction was not issued from the State Govt:
3	Flood Management Programme in Kuttanad	Flood mitigation of paddy fields by constructing the outer bunds of padasekharams for the improvements of agricultural production	0	3300.00	2000	0.00	Construction of outer bund including cross drainage works.	outerbund- 35987 mtr, desilting-7030 mtr.	Nil	8677 mtr length of bund completed	2326.59	Total 8677 mtr. length of bund completed for flood mitigation of paddy fields	2022-23	Work in progress

Annexure I

FORMAT OF TABLES IN CHAPTER 3 OF PERFORMANCE BUDGET 2022-23

Irrigation (Kuttanad Package) **Rupees in lakh**

SI. No.	Name of Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables / Physical outputs	Target Fixed		Target Achieved		Projected outcomes	Period of Implementation	Remarks/ Risk Factors
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4(i)	4(ii)	4(iii)	4(iv)	5	6		7		8	9	10
4	NABARD-RIDF Assistance for kuttanad	Flood mitigation of paddy fields by constructing outer bunds.	0	5400.00	0	0.00	Costurction of outer bund including cross drinage structure	Outerbund protection of 8410 mtr.	Nil	0.00	1244.86	Nil	2022-23	Work in progress
	Total			**9800**	**2000**	**0.00**					**4025.92**			

Annexure I

FORMAT OF TABLES IN CHAPTER 3 OF PERFORMANCE BUDGET 2022-23

Irrigation (IDRB) **Amount in lakh**

Sl. No.	Name of Scheme	Objectives	Outlay 2022-2023				Quantifiable / Deliverable / Physical outputs	Target fixed		Target Achieved		Projected outcomes	Period of implementation	Remarks/Risk factor
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4 (i)	4 (ii)	4 (iii)	4 (iv)	5	6		7		8	9	10
1	Modernisation of hydrology information system		Nil	100.00	Nil	Nil	45.85		100.00	Total 29 works completed	45.85			
2	Modernisation of Design Wing		Nil	200.00	Nil	Nil			200.00		89.38			
3	Investigation and Design		Nil	0.13	Nil	Nil			0.13		0.06			
4	Dam safety Organisation & Dam Safety Measures	Inspection of dams,technical visits, expenditure of training programs,conducting seminars	NIL	10.00		Nil		Nil	10.00	Expenses related to trainings	3.14	Capacity building	2022-23	Major training and inspections are carried out under DRIP, hence expenditure is less.
5	Mullaperiyar Project- Dam and appurtenant works		Nil	50.00	Nil	Nil			50.00		16.05			
6	Investigation of Irrigation Schemes		Nil	220.00	Nil	Nil			220.00		149.00			
7	Dam Safety Organisation & Dam Safety Measures	Rectification of urgent emergency work of Dams	NIL	240.00	-	Nil	Rectification and urgent emergency/ maintenance works for safety of 16 dams were carried out.	Rectification and Urgent maintenance of all dams/ barrages	240.00		236.68	Rectification of urgent emergency works and other safety works of Dams	2022-23	

Annexure I

FORMAT OF TABLES IN CHAPTER 3 OF PERFORMANCE BUDGET 2022-23

Irrigation (IDRB) **Amount in lakh**

Sl. No.	Name of Scheme	Objectives	Outlay 2022-2023				Quantifiable / Deliverable / Physical outputs	Target fixed		Target Achieved		Projected outcomes	Period of implementation	Remarks/Risk factor
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4 (i)	4 (ii)	4 (iii)	4 (iv)	5	6		7		8	9	10
8	Flood Early Warning System		Nil	50.00	Nil	Nil	50		50.00	An amount of Rs.50 lakhs was provided for establishing FEWS. The amount was deposited to PWD Electronics to establish 9 RTDAS stations	50.00			
9	Dam Rehabilitation and Improvement Project (DRIP PHASE II)	DRIP Phase II- Rehabilitation and Improvement of basic facilities of 15 Dam projects	NIL	3000.00	-	NIL		Targeted to achieve expected progress	3000.00		1972.27	Rehabilitation and Improvement of basic facilities of Dam projects	2021-2027	
10	Formation of River Basin Organisation		Nil	100.00	Nil	Nil			100.00		61.89			
11	Post Facto Evaluation Studies		Nil	70.00	Nil	Nil			70.00		65.28			
12	Development of Kerala Engineering Research Institute - Stage II		Nil	136.00	Nil	Nil			136.00					

Annexure I

FORMAT OF TABLES IN CHAPTER 3 OF PERFORMANCE BUDGET 2022-23

Irrigation (IDRB) **Amount in lakh**

Sl. No.	Name of Scheme	Objectives	Outlay 2022-2023				Quantifiable / Deliverable / Physical outputs	Target fixed		Target Achieved		Projected outcomes	Period of implementation	Remarks/Risk factor
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4 (i)	4 (ii)	4 (iii)	4 (iv)	5	6		7		8	9	10
13	Bench marking of Irrigation Systems			40.00					40.00					
	Total			**4216.13**					**4216.13**		**2689.60**			

Annexure -1

FORMAT OF TABLES IN CHAPTER 3 OF PERFORMANCE BUDGET 2022-23

Groundwater Department **Amount in lakh**

Sl. No.	Name of Scheme	Objective	Outlay 2022-23				Quantifiable Deliverables/ Physical outputs	Target fixed		Target achieved		Projected outcomes	Period of impementation	Remarks /Risk Factor
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4(i)	4(ii)	4(iii)	4(iv)	5	6		7		8	9	10
1	Groundwater investigation and development	Estimation of groundwater resource, investigation of groundwater , Construction of groundwater abstraction structures, Preparation of hydrogeological reports, Pumpinjg test analysis, studies of water quality and data analysis are being carried out.	Nil	1500	Nil	Nil	All the programmes are demand based. The physical outputs proposed are Groundwater Investigation , Drilling Well logging Pumping test Analysis, Bore well developing Water sample analysis, Repair and Maintenance of existing machinery, puchase of stores and routine works of the Department	Groundwater Investigation - 12000 Drilling - 1500 Well logging - 50 Pumping test Analysis - 650 Bore well developing -650 Water sample analysis -4500	1500	Groundwater Investigation - 11890 Drilling - 1677 Well logging Geological- 54 Geophysical- 27 Pumping test Analysis - 645 Bore well developing - 651 Water sample analysis - 4076	835.73	The groundwater investigation and drilling help the public to obtain suitable location for constructing bore wells/tube wells and other schemes for acheiving safe drinking water source.	As per the right to service act, 2012 the time frame fixed for groundwater investigation is 1 year.	
2	Scheme for Control & Regulation of Ground Water	The objective of the scheme is to enforce Kerala groundwater (control & regulation) Act 2002 to avoid ground water depletion and to ensure equitable distribution of resources to all section of the society. Issuance of permits, granting NOCs to drinking water bottling plants and other industries which use groundwater as raw material conducting mass awareness programmes on groundwater conservation & management are also included under this scheme.	Nil	50	Nil	Nil	Proper enforcement of ground water act to avoide ground water depletion to ensure equitable distribution of resources to all section of the socity.	Mass awareness programmes- 70 nos	50	permits issued for new well construction in notified areas- 141 nos conversion permits issued- 73 nos Mass awareness programmes conducted - 70 nos world water Day programme conducted on March 2022 @ Mascot Hotel , Trivandrum	32.5	Implementing ground water (control and regulation) act 2002	Through out the year	

Annexure -1

FORMAT OF TABLES IN CHAPTER 3 OF PERFORMANCE BUDGET 2022-23

Groundwater Department **Amount in lakh**

Sl. No.	Name of Scheme	Objective	Outlay 2022-23				Quantifiable Deliverables/ Physical outputs	Target fixed		Target achieved		Projected outcomes	Period of impementation	Remarks /Risk Factor
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4(i)	4(ii)	4(iii)	4(iv)	5	6		7		8	9	10
3	Scheme for Training Personnal	The objectives of the scheme is to provide training to the Scientific, Technical and Administrative personnel in the department and exposed them in advancements in Groundwater investigation, Water well construction, Groundwater conservation and Management Practices, Modern computer application studies etc.	Nil	10	Nil	Nil	To get scientific and administrative skills to Departmental Personnel	Demand based	10	9 nos of Training conducted .	0.99	The trainings helped the officers to expose various modern techniques in groundwater investigation and administration.	Within the financial year.	
4	Scheme for Ground Water Conservation & Recharge	This scheme envisages construction of artificial recharge structures to augment ground water level, Direct Dug well recharge, recharge pit, Bore well recharge, constructionof small check dam & rejuvenation of open ponds are included	Nil	900	Nil	Nil	constuction of different groundwater conservation structures to achieve sustainable groundwater development	Constuction of 252 nos of different groundwater conservation structures to achieve sustainable groundwater development	900	Ring Check dam - 3 Nos Recharge pit scheme - 134 Nos. Direct dug well recharge - 46 Nos Borewell recharge - 2 Nos. Renovation of small open pond - 1 Open well recharge/ Recharge pit scheme- 238 nos. Borewell recharge - 3 nos and small check dam -3 nos completed	540.82	The recharge structures helps to recharge the ground water and there by enhance water table of the area through which aquifer sustainabilty can be attained	Within the financial year.	
5	Groundwater Based Drinking Water Scheme 2702-02-103-99	The main objective of the scheme is to provide drinking water supply to non-covered/partially covered habitats, 25 to 100 families benefited by one scheme. Renovation of Miniwater Supply Schemes, Hand Pump Repair under this scheme.	Nil	158	Nil	Nil	To provide drinking water in non covered or partially covered habitats	Renovation of MWSS- 40 Nos, Hand Pump repair - 500 nos	158	Renovation of MWSS - 43 nos Hand Pump repair - 126	130.51	3596 families, 2 institutions	Within the financial year.	

Annexure -1

FORMAT OF TABLES IN CHAPTER 3 OF PERFORMANCE BUDGET 2022-23

Groundwater Department **Amount in lakh**

Sl. No.	Name of Scheme	Objective	Outlay 2022-23				Quantifiable Deliverables/ Physical outputs	Target fixed		Target achieved		Projected outcomes	Period of impementation	Remarks /Risk Factor
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4(i)	4(ii)	4(iii)	4(iv)	5	6		7		8	9	10
6	Groundwater Based Drinking Water Scheme 4702-00-102-94	The main objective of the scheme is to provide drinking water supply to non-covered/partially covered habitats, 25 to 100 families benefited by one scheme. Mini water supply schemes are implemented where the bore wells drilled have high yield whereas hand pump schemes are implemented in low yielding wells. The schemes are then handed over to the beneficiary committee who in turn operates and maintain the schemes.	Nil	400	Nil	Nil	To provide drinking water in non covered or partially covered habitats	Implementation of MWSS-80 nos, borewell / Tube well construction-210 nos etc...	400	Mini water supply schemes - 32 nos, Bore well construction - 162 nos	396.56	943 families, 5 institution,	Within the financial year.	
		Total		**3018**					**3018**		**1937.11**			

Annexure I

FORMAT OF TABLES IN CHAPTER -7 OF PERFORMANCE BUDGET 2022-23

Kerala Water Authority **Rupees in Lakh**

Sl No	Name of Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables/ Physical outputs	Target Fixed		Target Achieved		Projected outcomes	Period of implementation	Remarks/ Risk Factors
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4 (i)	4 (ii)	4 (iii)	4 (iv)	5	6		7		8	9	10
1	Survey and investigation	Investigation works and preperation of detailed project reports for various water supply schemes, procurement of survey equipments	-	110	-38.56	-	Preparation of Engineering reports based on Survey reports	16	89.88	13	71.44	7 DER prepared	2022-23	
2	NABARD Assisted Rural Water Supply Schemes -Rural Infrastructure Development Fund	For providing piped water supply to rural areas of Kerala by completing the NABARD assistance schemes	-	8020	-4122.34	-	Piped water supply to rural areas with NABARD Assistance	2	3999.35	2	3999.35	2 Schemes Completed / Benifitted population-48000	2022-23	
3	Manufacturing units for bottled water	To set up the bottled water plant at Trivandrum	-	90	-90	-	For Providing good quality packaged/bottled water at a resonable price to public	1		1		The civil and mechanical work are completed. The bottled water Plant at Aruvikkara was handed over to KIIDC on 28/3/2020	2022-23	
4	Renovation of existing Civil Structures owned by KWA	For the renovation of existing civil structures owned by KWA	-	500	-314.46		Ensure civil structures in good condition by timely maintenance	38	500	13	185.53	13 Works completed improving the infrastructure of KWA such as office buildings, guest houses, tanks and pump houses were completed	2022-23	

Annexure I

FORMAT OF TABLES IN CHAPTER -7 OF PERFORMANCE BUDGET 2022-23

Kerala Water Authority **Rupees in Lakh**

Sl No	Name of Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables/ Physical outputs	Target Fixed		Target Achieved		Projected outcomes	Period of implementation	Remarks/ Risk Factors
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4 (i)	4 (ii)	4 (iii)	4 (iv)	5	6		7		8	9	10
5	Innovative Technologies and Modern Mangement Practices	Reduction in wastage of treated water,modernisation of schemes, installing flowmeters, smart metres etc.Also targetted to adopt latest packages in network management, utilisation of solar energy, asset management and pumphouse automation.	-	100	-76.62	-	Improvement of efficiency in water supply schemes	11	97.42	6	23.38	6 works completed, installation of solar pump and flow meters for enhancing energy efficiency and NRW reduction	2022-23	
6	Human Resource Development, Research & Development and Quality Control	Providing HRD and training activities in KWA for resources improvement quality control measures new research activities etc	-	100	-71.88	-	Provide Training for officers for technical competency and socially responsible	2000 persons/year		4187	28.12	4187personals trained for improving competency in giving service to public	2022-23	
7	Sewerage schemes of Kerala Water Authority 4215-02-190-99	To enhance the undersized lines to the desired size, to repair damaged manholes so as to avoid overflow of sewage and to provide sewerge facility to areas where no other source of seweage disposal system exist.	-	3005	-1980.12		Prevention of Pollution of Ground Water, River and other water bodies from sewage.	39	2701	24	928.37	24 Works completed, reducing pollution of surface water, improving infrastructure of sewerage facility.	2022-23	

Annexure I

FORMAT OF TABLES IN CHAPTER -7 OF PERFORMANCE BUDGET 2022-23

Kerala Water Authority **Rupees in Lakh**

Sl No	Name of Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables/ Physical outputs	Target Fixed		Target Achieved		Projected outcomes	Period of implementation	Remarks/ Risk Factors
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4 (i)	4 (ii)	4 (iii)	4 (iv)	5	6		7		8	9	10
8	Rehabilitation/Improvement Works of Urban Water Supply Schemes-UWSS	Improving coverage in Urban areas which included extension of pipelines/replacement of wornout pipelines - pumping mains, gravity mains, distribution lines,repair/ replacement of pumpsets or connected accessories etc	-	4500	-4174.18	-	Improved Coverage and better water supply facilities to Urban Areas	36	4489.34	5	325.8	5 Works completed-Improving water supply to Urban Areas	2022-23	
9	Rural Water Supply Schemes	For providing water supply to rural areas of the state by implementing new schemes/augmenting of existing schemes in unserved and underserved areas.	-	1000	-567.66	-	Improved Coverage and better water supply facilities to Rural Areas	24	995.86	4	432.33	4 Works completed-Improving water supply to Rural Areas	2022-23	
10	Water Supply Scheme to specified institutions/locations	This scheme is intended for providing uninterrupted water supply to some Specified Institutions/ Locations.	-	200	-128.72	-	Ensuring water supply to various institutions	5	177	1	71.27	3 Works completed-Improving water supply to EKNM W & C Govt. Hospital at Mangattuparamba, Agricultural University in Vellayani & Civil Sation Kadakkal.	2022-23	

Annexure I

FORMAT OF TABLES IN CHAPTER -7 OF PERFORMANCE BUDGET 2022-23

Kerala Water Authority **Rupees in Lakh**

Sl No	Name of Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables/ Physical outputs	Target Fixed		Target Achieved		Projected outcomes	Period of implementation	Remarks/ Risk Factors
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4 (i)	4 (ii)	4 (iii)	4 (iv)	5	6		7		8	9	10
11	Optimisation of production and transmission	Pipes need to be replaced/ rehabilitated to ensure smooth and proper supply of drinking water to the public as well as reduce loss to Kerala Water Authority as NRW.	-	5000	-3071.34	-	Administrative Sanction for 114 works has been issued amounting to 4999.86 lakh.	114	4999.86	29	1928.62	29 works have been completed which includes replacement of pipe lines, Pumps and Motors-improving service delivery to water supply connections.	2022-23	
12	Kerala Water Supply Project, JICA (One time sustenance support under the State Plan)	For implementing JICA assisted Kerala Water Supply Project in Thiruvananthapuram, Meenad, Cherthala, Kozhikode and Pattuvam	-	500	-336.59	-	To complete the balance works in Distribution Networks				163.4	All works arranged in JICA has been completed. The balance works in Kozhikode and Meenad Schemes are being arranged through JJM	2022-23	
13	Drinking water - Drought mitigation and Emergency Works	It is proposed to take up works for providing water supply during natural calamities and other emergency situations	-	1000	-372.83	-	Adequate infrastructure has to be ensured for uneven climate change. Besides the natural calamities, emergency situations require immediate interventions	286 Works amounting to Rs 999.58 lakhs were given AS in 2022-23		101	627.15	101 works completed-benifiting people to overcome drought situation.	2022-23	

Annexure I

FORMAT OF TABLES IN CHAPTER -7 OF PERFORMANCE BUDGET 2022-23

Kerala Water Authority **Rupees in Lakh**

Sl No	Name of Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables/ Physical outputs	Target Fixed		Target Achieved		Projected outcomes	Period of implementation	Remarks/ Risk Factors
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4 (i)	4 (ii)	4 (iii)	4 (iv)	5	6		7		8	9	10
14	Modernisation of Aruvikkara Pumping Station	For modernisation of the old scheme functioning according to traditional methods	-	100	-95.72	-	Work Completed, Minor civil works pending	1	4.28	1	4.28	Improved pump[ing efficiency of TWSS and service delivery enhancemnt.	2022-23	
15	E-Governance, GIS and Information Management	Maintenance and Development of IT infrastructure in Kerala Water Authority	-	100	-47.27	-	Implementation of Various Softwares like AQUALOOM, MARCH, O & M Software	JJM Mobile application, Website revamping, Online payment system, PASK softwares updated			52.73	Several IT initiatives have taken up by IT Wing of KWA during the period, JJM Mobile application,AQUAloom, SMS Alert System, Website revamping, revamping of online paying system, PASK, O and M Monitoring,KWA developed GIS based optimal site selection system. KWA Developed online consumer service software etapp	2022-23	
16	Completion of on-going NRDWP schemes	Providing potable drinking water to rural population	-	0	0		All pending works converted to JJM Works				0		2022-23	

Annexure I

FORMAT OF TABLES IN CHAPTER -7 OF PERFORMANCE BUDGET 2022-23

Kerala Water Authority **Rupees in Lakh**

Sl No	Name of Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables/ Physical outputs	Target Fixed		Target Achieved		Projected outcomes	Period of implementation	Remarks/ Risk Factors
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4 (i)	4 (ii)	4 (iii)	4 (iv)	5	6		7		8	9	10
17	Source improvement and water conservation 4215-01-800-92	Enhancement of storage capacity at water sources and thereby improving scheme efficiency so as to bridge the seasonal variations in water level	-	200	-181.59		This ensures water availability in source. Check dams and regulators are needed for this purpose	2		1	18.4	Improved source availability	2022-23	
18	Jal Jeevan Mission (NRDWP) Scheme (50 % CSS) - State share	For providing 50% state share for the ongoing ARWSS.	-	50000	107629.11		To Give Functional House Hold Taps to every Rural Households	10 lakhs Connections	400000	5.29 Lakh Connections	174167.64	26.45 lakhs people benifting by providing water supply connection.	2019-24	
19	Jal Jeevan Mission (NRDWP) Scheme (50 % CSS) - Central share	For providing 50% state share for the ongoing ARWSS.				100000	To Give Functional House Hold Taps to every Rural Households	10 Lakhs Connections		5.29 Lakhs Connections	174192.88		2019-24	

Annexure I

FORMAT OF TABLES IN CHAPTER -7 OF PERFORMANCE BUDGET 2022-23

Kerala Water Authority **Rupees in Lakh**

Sl No	Name of Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables/ Physical outputs	Target Fixed		Target Achieved		Projected outcomes	Period of implementation	Remarks/ Risk Factors
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4 (i)	4 (ii)	4 (iii)	4 (iv)	5	6		7		8	9	10
20	Works for the prevention of river pollution and creating awareness for the compliance of NGT direction	Prevention of sewage pollution in rivers, conducting awareness programmes through public gathering,posters, advertisements in print and visual media regarding the importance of maintaining the water quality of rivers, setting up STP's at feasible locations		250	-172.3		Conducting awareness programmes through public gathering,posters, advertisements in print and visual media regarding the importance of maintaining the water quality of rivers, setting up STP's at feasible locations	5	230.37	3	77.69	Out of 5 works 3 are completed which includes replacing of old sewer lines,Desiltation of wells, Filling of Trenches to protect source-Reduced pollution of water supply sources.	2022-23	
21	Energy, Efficiency, Improvement, Optimisation of Electromechanical Items, Safety Audit and Ensuring Safety in Operation of WTPs and Pump Houses	Energy efficiency when improved. Will lower the cost of energy, which accounts for a significant portion of operating expenses, Annual Power Charges. The power consumption of KWA can also be reduced. This will also help to reduce accidents		500	-438.57		To prevent losses due to electrical fault and old electro mechanical devices by replacing them and provide capacitors, enegy efficient motors and pumps	31	490.85	12	61.42	Implementation of 105 KWp Grid connected Solar Photo Voltaic Power Project, replacement of TOD Meter and CTPT Unit, Replacing Auto Transformers have been carried out-Improved energy efficiency.	2022-23	

Annexure I

FORMAT OF TABLES IN CHAPTER -7 OF PERFORMANCE BUDGET 2022-23

Kerala Water Authority **Rupees in Lakh**

Sl No	Name of Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables/ Physical outputs	Target Fixed		Target Achieved		Projected outcomes	Period of implementation	Remarks/ Risk Factors
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4 (i)	4 (ii)	4 (iii)	4 (iv)	5	6		7		8	9	10
22	Infrastructure Development and Surveilance Activities under Quality Control Wing of KWA	Upgradation of existing labs associated with major Water Treatment Plants for easy access of Testing labs for public. Facility for Testing Water and Sewage samples are to be provided using this fund		300	-287.54		Number of labs set up and Number of labs upgraded	18		7	12.45	Supply Installation & Commissioning, Maintenance of Internet of Things IoT based water monitoring system-Improved quality testing facility.	2022-23	
23	Enterprise Resource Planning	During 2022-23, Network connectivity has been revamped. KWA established KFON and railtel connectivity, revamped internal network and enhanced speed. Various applications are security audited and moved to SDC which improved the Quality of the service		100	-95.58		Development of new inhouse softwares for various wings in KWA. AMC for upkeeping of computers etc. Kmeter app has been developed for KWA Meter Readers. Self reading app is also developed for consumers. Developed online system for Pluming licence Test				4.42	In the online mechanism for registering BPL Connection, people can register in online portal using Ration card and Consumer ID. KWA has implemented the Green bill scheme by which the need for physical bill has been massively reduced. KWA has implemented the IT powered core Banking solution called FAMS.	2022-23	

Annexure I

FORMAT OF TABLES IN CHAPTER -7 OF PERFORMANCE BUDGET 2022-23

Kerala Water Authority **Rupees in Lakh**

Sl No	Name of Scheme	Objectives	Outlay 2022-23				Quantifiable Deliverables/ Physical outputs	Target Fixed		Target Achieved		Projected outcomes	Period of implementation	Remarks/ Risk Factors
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance if any		Physical	Financial	Physical	Financial			
1	2	3	4 (i)	4 (ii)	4 (iii)	4 (iv)	5	6		7		8	9	10
24	Scheme for Special Assistance to states for capital investment - Water Supply Projects				4792.77						4792.77	Enhancement service delivery by implement water supply projects.	2022-23	
25	ADB assisted Kerala Urban Water Supply Improvement Project-KUWSIP (EAP)	ADB Assisted KUWSIP aims at improving the water supply in Kochi and Thiruvananthapuaram Corporations by rehabilitating the old production components and the network, there by achieving 24x7 water supply in the above areas by considerable reduction of Non Revenue water (NRW) and overall improvement of efficiency.	-	10000	-10000	-	Provide 24X7 Water Supply in Kochi and TVPM Corporations.				0	An amount of Rs 10000 lakh was provided for the project during 2022-2023,which has not been utilised yet.Tender Evaluation and negotiation with ADB are in process	2022-23	
	TOTAL			**85675**	**85758.01**	**100000**			**418775.21**		**362169.44**			

Annexure-I

FORMAT OF TABLES IN CHAPTER -7 OF PERFORMANCE BUDGET 2022-23

Kerala Rural Water Supply and Sanitation Agency (Jalanidhi) **Rupees in Lakhs**

Sl. No	Name of Scheme/ Programme	Objectives	Outlay 2022-23				Quantifiable Deliverables/Physical Outputs	Target Fixed		Target Achieved		Projected outcomes	Period of Implementation	Remarks /Risk factor
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance, if any		Physical	Financial	Physical	Financial			
1	2	3	4(i)	4(ii)	4(iii)	4 (iv)	5	6		7		8	9	10
1	Completion of Water Supply Schemes under Jalanidhi-II Project.	Implementation of the project in 115 Grama Panchayats	Nil	125.00	Nil	Nil	Settlement of biil in respect of completed scheme	Nil	125.00	Settlement of bills done partialy	123.37	Settlement bills only	Spill over works of Jalanidhi-II schemes scheduled for completed by 2021-22. Settlement of bills was being done	
2	Scaling up of Rain Water Harvesting and GWR Programme through KRWSA	To sustain the Rain Water Harvesting Activities in the State through KRWSA.	Nil	1000.00	Nil	Nil	Construction of Household RWH Structures and installation of Open Well Recharge Systems	1617 nos of House Hold RWH Structures and installation of 1784 Open Well Recharge Systems	1000.00	Completed 1148 nos of House Hold RWH units and 497 Open Well Recharge Systems	576.86	Construction of 1617 nos of RWH Structures and 1784 nos of Open Well Recharge Systems	2022-23 (one year)	
3	Sustainability Support to Community Managed Water Supply Schemes	to extend financial and technical support for restoration /rehabilitation of partially /fully defunct water supply schemes built under Jalanidhi-I project	Nil	3000.00	Nil	Nil	Restoration and rehabilitation of partially / fully damaged small community managed water supply schemes and made functional .	Restoration of 705 Nos of defunct small water supply schemes	3000.00	Completed the restoration works of 484 Nos of small Water Supply Schemes and works were in progress in respect of 221 Nos of Schemes	1941.30	restoration/rehabilitation of 705 Nos partially /fully damaged water supply schemes	Proposed to complete before 31-03-2023	

Annexure-I

FORMAT OF TABLES IN CHAPTER -7 OF PERFORMANCE BUDGET 2022-23

Kerala Rural Water Supply and Sanitation Agency (Jalanidhi) **Rupees in Lakhs**

Sl. No	Name of Scheme/ Programme	Objectives	Outlay 2022-23				Quantifiable Deliverables/Physical Outputs	Target Fixed		Target Achieved		Projected outcomes	Period of Implementation	Remarks /Risk factor
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance, if any		Physical	Financial	Physical	Financial			
1	2	3	4(i)	4(ii)	4(iii)	4 (iv)	5	6		7		8	9	10
4	Conversion of Domestic Wells in to Protected Drinking Water Sources.	to protect and recharge domestic wells in order to convert as reliable sources of drinking water and to replenish dwindling ground water table	Nil	4000.00	Nil	Nil	Number of recharged domestic wells in to protected drinking water sources	Conversion of 531 domestic wells in reliable source of drinking water	4000.00	Completed the conversion works of 218 Nos of domestic wells and works are in progress in respect of 313 wells	25.31	Conversion of 531 nos of domestic wells in to protected and reliable source of drinking water.	Proposed to complete before 31-03-2023	
5	Water Quality Monitoring and Surveillance and Grey Water Management	to set up regular monitoring and timely mitigation in the case of Water Quality issues of the community managed small water supply schemes and to take up grey water management in colonies of vulnerable groups.	Nil	3500.00	Nil	Nil	setting up of regular monitoring system for mitigating water quality issues and schemes for treating grey water in colonies of vulnerable groups.	setting up 80 water quality monitoring scheme (WQMS)and 4 grey water treatment schemes	3500.00	Completed 11 WQMS schemes. Works related to 69 WQMS schemes and 4 grey water treatment plants are in progress	0.00	setting up 80 water quality monitoring schemes (WQMS)and 4 grey water treatment schemes	Proposed to complete before 31-03-2023	
6	Research and Development in Rural Water Technologies	to provide appropriate and innovative technologies and O&M models to the vulnerable groups for managing small water supply schemes. .	Nil	6.00	Nil	Nil	Creation of innovative development models for management of small water supply schemes.	5 nos of new technology models	6.00	The development of all 5 nos of schemes are in progress	0.00	Creation of 5 nos of innovative development models for management of small water supply schemes.	Proposed to complete before 31-03-2023	

Annexure-I

FORMAT OF TABLES IN CHAPTER -7 OF PERFORMANCE BUDGET 2022-23

Kerala Rural Water Supply and Sanitation Agency (Jalanidhi) **Rupees in Lakhs**

Sl. No	Name of Scheme/ Programme	Objectives	Outlay 2022-23				Quantifiable Deliverables/Physical Outputs	Target Fixed		Target Achieved		Projected outcomes	Period of Implementation	Remarks /Risk factor
			Non Plan Budget	Plan Budget	Complementary Extra Budgetary Resources	Central Assistance, if any		Physical	Financial	Physical	Financial			
1	2	3	4(i)	4(ii)	4(iii)	4 (iv)	5	6		7		8	9	10
7	IEC, Capacity Building & Training and Jalasree Club.	to carry out Information Education and Communication activities by building capacities of different stakeholders of community managed water supply schemes and also proposed to create awareness among younger generation by establishing Jalasree clubs in schools.	Nil	15.00	Nil	Nil	Formation of Jalasree Clubs at schools and conductiong of different IEC activities	Setting up of 560 Nos of Jalasree clubs	15.00	125 Nos of Jalasree cubs and formation of 435 nos of clubs are at different stages	5.63	Formation of 560 Nos Jalasree Clubs at schools and conductiong of different IEC activities	2022-23 (one year)	
	Total			**11646**					**11646**		**2672.47**			

Annexure II
Statement of Outlays/ Outcomes/ Target 2021-22 and Actual Achievement 2021-22
PLAN / MAJOR SCHEMES

Irrigation (I & A) **Rupees in lakh**

Sl. No	Name of the Scheme/Programme	Objective/Outcome	Budget Outlay 2021-22	Expenditure 2021-22	Deliverables /Physical outputs	Achievement	Reason for Variation
1	2	3	4	5	6	7	8
1	Coastal Zone Management	The scheme envisages the construction of new sea walls in the balance portion of unprotected areas.	240	498.58	AS issued for 5 works for an amout of 191 lakhs from the HQ. AS issued from Govt. G.O.(Rt) No. 289/2021/WRD dated 18/05/2021for 497 Lakhs	9 Works are on going and 11 works have been completed.	Actual expenditure including the works sanctioned in previous year
2	Specialised Training Programme	To impart training to the technical and non-technical personnel of the department about the mordern technologies in the relevant field including computer applications .Amount also utilizes for conducting workshops,exhibitions, Conferences etc.	40	8.38	To equip the officers to use modern technology in formulating schemes and familiarise the officers in the use of design tools in vogue.	47 numbers of trainings have been conducted	
3	Modernisation and e-governance	To implement e-GOVERNANCE in Irrigation epartment	90	117.07	Online delivery of Services mandated under RTI act. E monit software for Management of works and HRMS in the department.	Implimented E- Monit, software for Management of works and HRMS in the department.	
4	Study on coastal protection measures		100	0			
5	Repairs and Maintenance of Minor Irrigation Structures	Annual maintenance of Civil-structural ,mechanical and electrical parts is required to be carried out for the proper functioning of Irrigation structures.Many of the canals in LI Schemes are in dilapidated condition and are in urgent need of repair.Inaddition the structures at the headworks including pumphouse also need revamping.The scheme aims the revamping of above structures	300	1126.24	As issued for 15 works 253.63 lakhs	Out of 99 works 66 works have been completed and 33 works are on going.	
6	MI CLASS I	Minor works lilke construction and improvements to tanks and rivulets, construction of check dams, sluice , regulators, bunds,VCB,SWB, lay out of channels and drainage structures etc that serve an area more than 50 ha up to 2000 ha	1500	1161.93	As issued for Rs 1472.5 lakh from the HQ for 25 works. As issued for an amount of Rs 687.0 lakhs from governmet. Rs 2600 Lakhs was givern	Out of 91Works, 32 work have been completed and 59 are ongoing are on going	
7	MI Class I Schemes under Haritha Keralam	To construct new water retaining/conservtion structures	2000	836.47	As issued for 7 works for on amount of Rs 395 Lakhs from HQ and AS issued for 310.00 lakhs on 31-03-2022 .Rs 285 lakhs on dated 07/03/2022 from the government.	out of 159 works, 106 works have been completed and 53 works are on going.	

Annexure II
Statement of Outlays/ Outcomes/ Target 2021-22 and Actual Achievement 2021-22
PLAN / MAJOR SCHEMES

Irrigation (I & A) **Rupees in lakh**

Sl. No	Name of the Scheme/Programme	Objective/Outcome	Budget Outlay 2021-22	Expenditure 2021-22	Deliverables /Physical outputs	Achievement	Reason for Variation
1	2	3	4	5	6	7	8
8	MI CLASS II	Minor Irrigation works which can serve below 50 ha come under the scheme.	1550	1699.55	AS issude for 44 works for an amount of Rs 1564.48 Lakhs from HQ. AS for Rs 386 lakhs on 31/12/2021 , Rs 141 Lakhs on dated 15/01/2022, and Rs 126. lakhs were issued on 11/01/2022 from government	out of 180 works ,72 works have been completed and 108 works are on going.	Actual expenditure including the works sanctioned in previous year
9	MI Class II Schemes under Haritha Keralam	It is intended to have an integrated watershed approach to enhance water availability of both surface and ground water.	600	1199.79	AS issed for an amount of Rs. 440 Lakhs for 16 works From the HQ. AS issued for a total maount of Rs 11852 lakh from the government.	Out of 89 works, 47 works have been completed and 42 works are ongoing	Actual expenditure including the works sanctioned in previous year
10	MI CLASS I NABARD	The minor irrigation works assisted by NABARD include construction of RCBs, SWECBs, ponds, VCBs, check dams, storage weirs, cross bars, and protection works etc.	3700	1952.45	AS received for 2 works amounting to 67.54 crores	Oout of 65 works, 48 works have been completed and rest 17 are in progress	
11	Lift Irrigation	Works involving lifting of water by mechanical means with a command area not less than 40 hectares come under this category	1973	1199.61	AS issued for 590 lakhs for 4 LI Schemes from the HQ. AS issued for a total maount of Rs 1691 lakh from the government.	Out of 26 Works, 5 works have been completed and 21 works are ongoing	
12	Rehabilitation of LI Scheme	The main works to be carried out under the scheme are repairs/replacement of pumps,electrical installation,repairs to pump houses ,pipe system and all the maintenance of fixtures for upkeeping of LI Scheme.	600	1064.24	AS for an amount of Rs.474.8 lakhs issued for 25 LI Schemes Vide G.O (Rt) No.141/2022/WRD dated 25/02/2022- ₹ 79.02 Lakhs and Vide G.O (Rt) No.141/2022/WRD dated 25/02/2022 -₹ 35.00 lakhs AS issued from Govt.	Out of 159 works, 106 works have been completed and 53 works are ongoing	. Actual expenditure including the works sanctioned in the previous year

Annexure II
Statement of Outlays/ Outcomes/ Target 2021-22 and Actual Achievement 2021-22
PLAN / MAJOR SCHEMES

Irrigation (I & A) **Rupees in lakh**

Sl. No	Name of the Scheme/Programme	Objective/Outcome	Budget Outlay 2021-22	Expenditure 2021-22	Deliverables /Physical outputs	Achievement	Reason for Variation
1	2	3	4	5	6	7	8
13	MI Projects in CAUVERY Basin	To utilise a portion of water allocated by cauvery water dispute tribunal to kabani and pambar basinof Kerala and also store water in kabani river for facing acute drought situations in rainshadow areas.	300	1247.73	AS for an amount of Rs.299.50/- lakhs issued for 6 works	Out of 42 Works, 27 works have been completed, 15 works are ongoing	Do
14	Pradhan Manthri Krishi Sinchayee Yojana	To achieve convergence of investments in irrigation at the field level by amalgamating different schemes related to irrigation, agriculture, soil conservation, ground water development and rural develpment.	1000	0.00		The guidelines stipulated by RRR norms and AIBP are difficult to be achieved in the state due to the special geographical condition,terrain features,population density etc.	
15	Bhavani Basin	Mi projects such as check dams and LIS are taken up under Bhavani basin for utilising water alloted to Bhavani basin by Cauvery water dispute tribunal.	200	220.91	AS issued for 3works, 200 lakhs	Out of 17 Works, 11 works have been completed and 6 works are ongoing.	Actual expenditure including the works sanctioned in the previous year
16	Renovation of Tanks &Ponds Schemes under Haritha Keralam	Scheme envisages to undertake renovation and revamping of major existing public/ community ponds in the State .	800	1305.29	AS given for 20 works for an amount of ₹ 660 Lakhs,	Out of 157 Works, 72 Works have been completed and 85 Nos are ongoing	Do
17	Detailed Investigation of MI structures	Scheme is for the deatiled of projects	50	38.42		Out of 24 works, 4 works have been completed and 20 are ongoing	
		Total	**15043**	**13676.66**			

Annexure II

Statement of Outlays/Outcomes/Target 2021-22 and Actual Achievement in 2021-22
PLAN/MAJOR SCHEMES

Irrigation Project (I) **Rupees in lakh**

Sl.No	Name of Scheme/Programme	Objective/ outcome	Budget Outlay 2021-22	Expenditure 2021-22	Deliveravles / Physical outputs	Achievement	Reason for variation
1	2	3	4	5	6	7	8
1	Banasura sagar project	To Irrigate ayacut area of 2800 Ha (original proposal) 840 Ha (Revised proposal) through canal system	1200.00	399.98	The amount used for establishment expenditure and clearing pending work bills. The project is to be commissioned by December 2024	Agreement excecuted for long pending work of main canal from chainage 1130 m to 1500 m and now work in progress, Venniode branch canal 283 m completed, Kappamkunnu distributory 650 m completed	
2	Chitturpuzha project	Rectification of canal	0	0	Irrigation of existing 20240 Ha.	Irrigation of existing 20240 Ha.	
3	CADA field chanels	Rectification & Renovation of field chanels	600	1029.45	Irrigation of existing 20240 Ha.	Irrigation of existing 20240 Ha.	Expenditure incurred including previous year sanctioned works
4	Karapuzha Project	To irrigate ayacut area of 5221 Ha. through canal system	1600	1258.37	Water distributed through LBC and RBC	Nil	Slow progress in land acquisition due to non allotement of fund
5	Renovation of Kuttiyadi Irrigation Project	proposed to irrigate an ayacut area of 14560 hectare, in Kozhikode, Koyilandy and Vadakara taluks.	200	635.98	Work completed	-	Expenditure incurred including previous year sanctioned works
6	NIRA -Scheme Cheramangalam Scheme -	improvement to anicut and its allied structures and improvements of canals	250	494.05			Expenditure incurred including previous year sanctioned works

Annexure II

Statement of Outlays/Outcomes/Target 2021-22 and Actual Achievement in 2021-22
PLAN/MAJOR SCHEMES

Irrigation Project (I) **Rupees in lakh**

Sl.No	Name of Scheme/Programme	Objective/ outcome	Budget Outlay 2021-22	Expenditure 2021-22	Deliveravles / Physical outputs	Achievement	Reason for variation
1	2	3	4	5	6	7	8
7	Attappady Irrigation Project		100	79.17	improving basic facilities for the staff&Boundary demarcation	Project completed	Payment made in 2021-22.No Payment made in 2020-20.
8	Pazhassi Irrigation Project	To rectify the damages of the structure so as so to resume water distribution	500	445.85	0 to 5.5km of main canal completed	test run conducted on 20/04/2022 at Ch:0 to 5.5 km	Slow progress of works due to limited working season in the FY due to rain
9	Chamravattom Project	Routine maintenance and upgradation of office	400	121.8			
	Total		**4850**	**4464.65**			

Annexure II

Statement of Outlays/Outcomes/Target 2021-22 and Actual Achievement in 2021-22
PLAN/MAJOR SCHEMES

Irrigation Project (II) **Rupees in lakh**

Sl.No	Name of Scheme/Programme	Objective/ outcome	Budget Outlay 2021-22	Expenditure 2021-22	Deliveravles / Physical outputs	Achievement	Reason for variation
1	2	3	4	5	6	7	8
1	MUVATTUPUZHA VALLEY IRRIGATION PROJECT	For achieving 35619 Ha. Ayacut	1287.65	1487.92	94%	33905 Ha.	Expenditure incurred including the work sanctioned in the previous years
2	IDAMALAYAR IRRIGATION PROJECT	For achieving 8393 Ha. Ayacut.	1073.65	1707.61	51%	4270 Ha	do
3	PAMBAR BASIN PROJECTS	Utilization of 3 TMC water allocated as share of Kerala from Pambar basin as per finalverdict of Cauvery Water Dispute tribunal.	1600	1353	63.70%	----	do
	Total		**3961.3**	**4548.53**			

Annexure II

Statement of Outlays / Outcomes / Target 2021-22 & Actual Achievement 2021-22

PLAN / MAJOR SCHEMES

Irrigation (Kuttanad Package) **Rupees in lakh**

SI. No.	Name of Scheme / Programme	Objective/ outcome	Budget Outlay 2021-22	Expenditure 2021-22 (including share debit)	Deliverables/Physical outputs	Achievement	Reason for variation
1	2	3	4	5	6	7	8
1	PMKSY-Kuttanad Flood management component- 50% CSS	Flood mitigation and prevention of salinity in 55874 ha paddy field in Kuttanad region	1100.00	1265.16	Construction of outer bund including cross drainage structures	The Scheme was completed.	
2	Border Area Programme - 2020-25	Flood mitigation of paddy fields by constructing outer bunds.	5000.00	0.00	Construction of outer bund for flood mitigation.	Nil.	
3	Kuttanad Flood Management Programme	Flood mitigation of paddy fields by constructing 49.89 Km of outer bunds.	3000.00	3191.48	Construction of outer bund for flood mitigation.	16140 mtr. of bund length completed.	
4	NABARD-RIDF Assistance for Kuttanad	Flood mitigation of paddy fields by constructing 23.843 Km of outer bunds.	2900.00	0.00	Construction of outer bund for flood mitigation.	Nil.	
	Total		**12000.00**	**4456.64**			

Annexure II

Statement of Outlays/Outcomes/Target 2021-2022 and Actual Achievement 2021-2022

PLAN/MAJOR SCHEMES

Irrigation (IDRB) **Rupees in Lakh**

Sl. No.	Name of the Scheme/ Programme	Objective/outcome	Budget outlay 2021-22	Expenditure 2021-22	Deliverables / physical outputs	Achievement	Reason for variation
1	2	3	4	5	6	7	8
1	Modernisation of Hydrology Information System		100.00	98.51			
2	Modernisation of Design Wing		150.00	109.46			
3	Investigation of Design Wing		3.80	3.85			
4	Dam safety Organisation & Dam Safety Measures	Inspection of dams,technical visits, conducting /attending training programs/Conducting seminars	10.00	2.65	Inspection of dams,technical visits, conducting /attending training programs	Expenses related to trainings, Technical visits	Major training and inspections are carried out under DRIP, hence expenditure is less
5	Mullaperiyar Project- Dam and appurtenant works		100.00	3.10			
6	Investigation of Irrigation Schemes		250.00	134.87			
7	Dam Safety Organisation and Dam Safety Measures	Maintenance and Rectification of urgent emergency works and other dam safety worksof Dams	230.00	246.00	Rectification and urgent emergency/ maintenance works for 16 safety of dams were carried out.	Rectification/maintenance works in 16 dams/barrages/regulator were taken up. Financial sanction for Rs. 239.83 lakhs was issued.	

Annexure II

Statement of Outlays/Outcomes/Target 2021-2022 and Actual Achievement 2021-2022

PLAN/MAJOR SCHEMES

Irrigation (IDRB) **Rupees in Lakh**

Sl. No.	Name of the Scheme/ Programme	Objective/outcome	Budget outlay 2021-22	Expenditure 2021-22	Deliverables / physical outputs	Achievement	Reason for variation
1	2	3	4	5	6	7	8
8	DRIP Phase II	Rehabilitation and Improvement of basic facilities of 15 Dam projects	4,000.00	731.84		Works Completed 1. Investigation work of Maniyar Barrage 2. Electrification and Air Conditioning works of Dam Safety Head Quarters building at PMG 3. Spill over works from DRIP Phase I a). Rehabilitation works of Neyyar Dam - Civil work b). Rehabilitation works of Kallada Dam - Electrical works Works Achieved Milestone as per agreement: 1. Stabilisation of Kuttiyadi Dam - Civil Work (52%) 2. Rehabilitation of Karapuzha Dam - Civil Work (33%) 3. Rehabilitation of Maniyar Barrage - Mechanical Work - design work completed. Works awarded: 1. Rehabilitation works of Kallada Dam - Civil works 2. Rehabilitation works of Malankara Dam - Civil & Mechananical works 3. Rehabilitation works of Maniyar Barrage - Electrical Works	Works expected to be completed /awarded could not be done due to the following reasons Spillover work -Kallada (epoxy plastering) Civil works was delayed due to monsoon Kallada-Mechanical could not be awarded due to the high rate quoted in the first tender call.The estimate to be revised in PRICE 3 and re-tendered Kanhirapuzha- Retendered for the 4th time. Technical Bid approved on 6/03/2023 and Financial Bid to be opened.
9	DRIP Phase I		2,500.00	772.00			
10	Bench marking of Irrigation Systems		50.00	0.00			
11	Formation of River Basin Organisation		150.00	100.45			
12	Post Facto Evaluation Studies		105.00	0.00			
13	Development of KERI-Stage -II		150.00	141.38			

Annexure II

Statement of Outlays/Outcomes/Target 2021-2022 and Actual Achievement 2021-2022

PLAN/MAJOR SCHEMES

Irrigation (IDRB) **Rupees in Lakh**

Sl. No.	Name of the Scheme/ Programme	Objective/outcome	Budget outlay 2021-22	Expenditure 2021-22	Deliverables / physical outputs	Achievement	Reason for variation
1	2	3	4	5	6	7	8
14	Flood Early Warning System		100.00	0.00			
	Total		**7,898.80**	**2,344.11**			

Annexure II

Statement of Outlays/Outcomes/Target 2021-22 and Actual Achievement in 2021-22
PLAN/MAJOR SCHEMES

Groundwater Department **Rupees in lakh**

Sl.No	Name of Scheme/Programme	Objective/ outcome	Budget Outlay 2021-22	Expenditure 2021-22	Deliveravles / Physical outputs	Achievement	Reason for variation
1	2	3	4	5	6	7	8
1	Groundwater investigation and development	This scheme aims for the realistic evaluation of the groundwater resources and for providing infrastructural facilities like drilling machines and other materials.	1150	850.71		Groundwater Investigation - 8096 Drilling -1201 Well logging Geological- 41 & Geophysical- 1 Pumping test Analysis - 623 Bore well developing - 805 Water sample analysis -3137	
2	Scheme for Control & Regulation of Groundwater	The objective of the scheme is to enforce Kerala groundwater (control & regulation) Act 2002 to avoid ground water depletion and to ensure equitable distribution of resources to all section of the society.	25	22.2		Permits issued for new well construction in notified areas- 141 nos conversion permits issued- 73 nos Mass awareness programmes conducted - 70 nos world water Day programme conducted in March 2022 in Trivandrum	
3	Scheme for Training Personnal	The objectives of the scheme is to provide training to the officials in the department. Water well construction, Groundwater conservation and Management Practices, Modern computer application studies etc are included in the training.	5	4.99		9 training programmes were conducted .	
4	Scheme for Groundwater Conservation & Recharge	This scheme envisaged to construct artificial recharge structures to augment ground water level, borewell recharge. Small check dams are being construct under this scheme.	897.52	100		Open well recharge/ Recharge pit scheme- 238 nos. Borewell recharge - 3 nos and small check dam -3 nos completed.	

Annexure II

Statement of Outlays/Outcomes/Target 2021-22 and Actual Achievement in 2021-22
PLAN/MAJOR SCHEMES

Groundwater Department **Rupees in lakh**

Sl.No	Name of Scheme/Programme	Objective/ outcome	Budget Outlay 2021-22	Expenditure 2021-22	Deliveravles / Physical outputs	Achievement	Reason for variation
1	2	3	4	5	6	7	8
5	Groundwater Based Drinking Water Scheme 2702-02-103-99	The main objective of the scheme is to provide drinking water supply to non-covered/partially covered habitats, 25 to 100 families benefited by one scheme. Renovation of Miniwater Supply Schemes, Hand Pump Repair under this scheme.	100	475.1		Renovation of MWSS - 31 nos Hand Pump repairation - 413 nos, Hand pump scheme -2 nos	
6	Groundwater Based Drinking Water Scheme 4702-00-102-94	The main objective of the scheme is to provide drinking water supply to non-covered/partially covered habitats, 25 to 100 families benefited by one scheme.	402.48	398.37		Mini water supply schemes - 42 nos, Bore well construction - 140 nos, Hand Pump Scheme - 7 nos, Hand pump repairation- 1	
	Total		**2580**	**1851.37**			

Annexure II

Statement of Outlays/Outcomes/Target 2021-22 and actual achievement 2021-22

PLAN/MAJOR SCHEMES

Kerala Water Authority **Rupees in Lakh**

Sl No	Name of Scheme	Objectives/Outcome	Budget Outlay 2021-22	Expenditure 2021-2022	Deliverables/ Physical outputs	Achievement	Reason for variation
1	2	3	4	5	6	7	8
1	Survey and investigation	Investigation works and preperation of detailed project reports for various water supply schemes, procurement of survey equipments	100	90.9	Preparation of Engineering reports based on Survey reports	11 DER prepared	
2	NABARD Assisted Rural Water Supply Schemes - Rural Infrastructure Development Fund	For providing piped water supply to rural areas of Kerala by completing the NABARD assistance schemes	5180	8526.16	Piped water supply to rural areas with NABARD Assistance	6 Schemes Completed / Benifitted population-48000	Additional Expenditure incurred from own fund of KWA
3	Manufacturing units for bottled water	To set up the bottled water plant at Trivandrum	90	63.34	For Providing good quality packaged/bottled water through KWA at a resonable price to public	The civil and mechanical work are completed. The bottled water Plant at Aruvikkara has been handed over to KIIDC on 28/3/2020	
4	Renovation of existing Civil Structures owned by KWA	For the renovation of existing civil structures owned by KWA	300	767.48	Ensure KWA Buildings, Tank sites in good condition by timely maintenance	16 Works completed improving the infrastructure of KWA such as office buildings, guest houses, tanks and pump houses were completed	
5	Innovative Technologies and Modern Mangement Practices	Reduction in NRW , efficiency improvement of water supply schemes,reduction in wastage of treated water,modernisation of schemes, installing flowmeters, smart metres etc.Also targetted to adopt latest packages in network management, utilisation of solar energy, asset management and pumphouse automation.	100	90.54	Reduction in Non Revenu Water, efficiency improvement of water supply schemes, reduction in wastage of treated water, modernisation of schemes, increased revenue and increased efficiency of pump houses	3 works completed, installation of solar pump and flow meters for enhancing energy efficiency and NRW reduction	Additional Expenditure incurred from own fund of KWA

Annexure II

Statement of Outlays/Outcomes/Target 2021-22 and actual achievement 2021-22

PLAN/MAJOR SCHEMES

Kerala Water Authority **Rupees in Lakh**

Sl No	Name of Scheme	Objectives/Outcome	Budget Outlay 2021-22	Expenditure 2021-2022	Deliverables/ Physical outputs	Achievement	Reason for variation
1	2	3	4	5	6	7	8
6	Human Resource Development, Research & Development and Quality Control 4215-01-800-91	Providing HRD and training activities in KWA for resources improvement quality control measures new research activities etc	100	30.4	Provide Training for officers for technical competency and socially responsible	5197 personals trained for improving competency in giving service to public	
7	Sewerage schemes of Kerala Water Authority 4215-02-190-99	To enhance the undersized lines to the desired size, to repair damaged manholes so as to avoid overflow of sewage and to provide sewerge facility to areas where no other source of seweage disposal system exist.	2460	1758.07	Prevention of Pollution of Ground Water, River and other water bodies from sewage, improved sewerage network coverage thereby preventing environmental and human hazards	37 Works completed, reducing pollution of surface water, improving infrastructure of sewerage facility.	Additional Expenditure incurred from own fund of KWA
8	Rehabilitation/Improvement Works of Urban Water Supply Schemes-UWSS	Improving coverage in Urban areas which included extension of pipelines/replacement of wornout pipelines - pumping mains, gravity mains, distribution lines,repair/ replacement of pumpsets or connected accessories etc	4500	645.44	Improved Coverage and better water supply facilities to Urban Areas	4 Works completed-Improving water supply to Urban Areas	
9	Rural Water Supply Schemes	For providing water supply to rural areas of the state by implementing new schemes/augmenting of existing schemes in unserved and underserved areas.Hence alternate schemes are planned and proposed to be take up new schemes under this annual plan. Completion of ongoing rural schemes is also proposed under this head	1000	5618.96	Improved Coverage and better water supply facilities to Rural Areas	4 Works completed- Improving water supply to Rural Areas	

Annexure II

Statement of Outlays/Outcomes/Target 2021-22 and actual achievement 2021-22

PLAN/MAJOR SCHEMES

Kerala Water Authority **Rupees in Lakh**

Sl No	Name of Scheme	Objectives/Outcome	Budget Outlay 2021-22	Expenditure 2021-2022	Deliverables/ Physical outputs	Achievement	Reason for variation
1	2	3	4	5	6	7	8
10	Water Supply Scheme to specified institutions/locations	This scheme is intended for providing uninterrupted water supply to some Specified Institutions/ Locations.	100	95.58	Ensuring water supply to various institutions	4 Works completed-	
11	Optimisation of production and transmission	Pipes need to be replaced/ rehabilitated to ensure smooth and proper supply of drinking water to the public as well as reduce loss to Kerala Water Authority as NRW. More coverage by pipeline extension. To reduce the gap between the installed capacity and production capacity, WTPs have to be rehabilitated.	5000	14773.64	Administrative Sanction for 114 works has been issued for 4999.86 lakhs.	191 works were completed which includes replacement of pipe lines, Pumps and Motors- improving service delivery to water supply connections.	Additional Expenditure incurred from own fund of KWA
12	Kerala Water Supply Project, JICA (One time sustenance support under the State Plan) 4215-01-800-88	For implementing JICA assisted Kerala Water Supply Project in Thiruvananthapuram, Meenad, Cherthala, Kozhikode and Pattuvam	750	743.95	To complete the balance works in Distribution Networks	All works arranged in JICA has been completed. The balance works in Kozhikkod and Meenad Schemes are being arranged through JJM	
13	Drinking water - Drought mitigation and Emergency Works	It is proposed to take up works for providing water supply during natural calamities and other emergency situations	1000	997.44	Adequate infrastructure has to be ensured for uneven climate change. Besides the natural calamities, emergency situations require immediate interventions	55 works completed-benifiting people to overcome drought situation.	

Annexure II

Statement of Outlays/Outcomes/Target 2021-22 and actual achievement 2021-22

PLAN/MAJOR SCHEMES

Kerala Water Authority **Rupees in Lakh**

Sl No	Name of Scheme	Objectives/Outcome	Budget Outlay 2021-22	Expenditure 2021-2022	Deliverables/ Physical outputs	Achievement	Reason for variation
1	2	3	4	5	6	7	8
14	Modernisation of Aruvikkara Pumping Station	For modernisation of the old scheme functioning according to traditional methods	100	99.09	Work Completed, Minor civil works pending	Work Completed, Minor civil works pending	
15	Enterprise Resource Planning (ERP), E-Governance, GIS and Information Management	Maintenance and Development of IT infrastructure in Kerala Water Authority	100	98.9	Implementation of Various Softwares like AQUALOOM, MARCH, O & M Software	During 2022-23, Kerala Water Authority moved fast forward in e-Governance/GIS and Information Management. Several IT initiatives have taken up by IT Wing during this period, JJM Mobile application,AQUAloom, SMS Alert System, Website revamping, revamping of online paying system, PASK, Oand M Monitoring,KWA developed GIS based optimal site selection system to help select the most	Additional Expenditure incurred from own fund of KWA
16	Source improvement and water conservation	Enhancement of storage capacity at water sources and thereby improving scheme efficiency so as to bridge the seasonal variations in water level	200	179.84	This ensures water availability in source. Check dams and regulators are needed for this purpose	13 works completed and improved source availability	
17(a)	Jal Jeevan Mission (NRDWP) Scheme (50 % CSS) - State share	For providing 50% state share for the ongoing ARWSS.	40000	105975.43	To Give Functional House Hold Taps to every Rural Households	6.64 lakhs people benifting by providing water supply connection.	
17(b)	Jal Jeevan Mission (NRDWP) Scheme (50 % CSS) - Central share	For providing 50% state share for the ongoing ARWSS.		95784.22			

Annexure II

Statement of Outlays/Outcomes/Target 2021-22 and actual achievement 2021-22

PLAN/MAJOR SCHEMES

Kerala Water Authority **Rupees in Lakh**

Sl No	Name of Scheme	Objectives/Outcome	Budget Outlay 2021-22	Expenditure 2021-2022	Deliverables/ Physical outputs	Achievement	Reason for variation
1	2	3	4	5	6	7	8
18	Works for the prevention of river pollution and creating awareness for the compliance of NGT direction	Prevention of sewage pollution in rivers, conducting awareness programmes through public gathering,posters, advertisements in print and visual media regarding the importance of maintaining the water quality of rivers, setting up STP's at feasible locations	500		Prevention of sewage pollution in rivers, conducting awareness programmes through public gathering,posters, advertisements in print and visual media regarding the importance of maintaining the water quality of rivers, setting up STP's at feasible locations	8 works completed which includes replacing of old sewer lines,Desiltation of wells, Filling of Trenches to protect source-Reduced pollution of water supply sources.	
19	ADB Assisted Urban Water Supply Improvement Project-KUWSIP(EAP)	ADB Assisted KUWSIP aims at improving the water supply in Kochi and Thiruvananthapuaram Corporations by rehabilitating the old production components and the network, there by achieving 24x7 water supply in the above areas by considerable reduction of Non Revenue water (NRW) and overall improvement of efficiency.	10000				
	TOTAL		**71580**	**236339.38**			

Annexure-II

Statement of Outlays /Outcomes /Target 2021-22 and Actual Achievement 2021-22

PLAN/MAJOR SCHEMES

Kerala Rural Water Supply and Sanitation Agency (Jalanidhi) **Rupees in lakh**

Sl. No	Name of Scheme/ Programme	Objective/outcome	Outlay 2021-22	Expenditure 2021-22	Deliverables/Physical Outputs	Achievement	Reason for Variation
1	2	3	4	5	6	7	8
1	Completion water Supply schemes under Jalanidhi-II Project	Implementation of the project in 115 Grama Panchayaths	839.44	802.96	Completion of one Large Water Supply Scheme at Munniyur GP at Malappuram District	Completed of the Large Water Supply Scheme at Munniyur GP at Malappuram District	
2	Scaling up of Rain Water Harvesting and GWR Programme through KRWSA	to sustain the Rain Water Harvesting Activities in the State through KRWSA.	1000	489.27	Completion of 1000 Nos of House Hold RWH Structures and installation of 2300 nos of Open Well Recharge Systems	891 Nos of RWH Structures completed . Installed 1493 Nos of Open Well Recharge Systems	
3	Sustainability Support to Community Managed Water Supply Schemes	to extend financial and technical support for restoration /rehabilitation of partially /fully defunct water supply schemes built under Jalanidhi-I project	3000	1500	Rehabilitated of 875 Nos of damaged small and community managed water supply schemes and made functional .	Rehabilitated 376 nos of small water supply schemes and made functional .And the works were in progress with respect to 499 nos of schemes	
	Total		4839.44	2792.23			

Annexure III

Trends in Expenditure vis-a-vis Budget Estimates/Revised Estimates in recent years of Plan schemes

Irrigation (I & A) **Rupees in lakh**

No.	Scheme/Programme	Major Head	Budget Estimates				Revised Estimate			Actual Expenditure		
			2020-21	2021-22	2022-23	2023-24	2020-21	2021-22	2022-23	2020-21	2021-22	2022-23
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Medium Irrigation	2701	130	130	120	120	140	130	85	90.25	125.45	84.87
2	Flood Control and Drainage-Capital Outlay	4711	100	240	10150	1654	960.57	3830.64	4682	960.56	4070.64	4680.73
3	Major Head Flood Control	2711	0	0	57	53	0	0	57	0	0	36.77
4	Medium Irrigation-Capital Outlay	4701	0	0	500	500	0	0	500	0	0	0
5	Minor Irrigation	2702	350	350	700	500	884.73	814.65	900	204.43	1164.65	897.25
6	Minor Irrigation-Capital Outlay	4702	12017	14223	14640	14140	11,867.00	14374	17499	8352.41	13583.5	17287.7
		Total	**12597**	**14943**	**26167**	**16967**	**13,852.30**	**19,149.29**	**23,723.00**	**9607.65**	**18944.24**	**22987.32**

Annexure III

Trends In Expenditure vis-à-vis Budget Estimates/Revised Estimates/Actual Expenditure in recent years of PLAN schemes

Irrigation (Project I) **Rupees in lakh**

Sl.No	Scheme/Programme	Major Head	Budget Estimate				Revised Estimates			Actual Expenditure		
			2020-21	2021-22	2022-23	2023-24	2020-21	2021-22	2022-23	2020-21	2021-22	2022-23
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Banasura sagar project	4700	1100	1200	1200	1800	1100	1200	1200	271.09	399.98	543.37
2	Chittur puzha project	4700	300	0	0	0	0	420	100	195.26	600.34	93.45
3	Karapuzha Project Division	4701	900	1600	1700	2000	930.32	1221.64	1800	889.92	1263.27	1612.91
4	Renovation of KyIP	4700	500	200	300	500	500	400	300	402.98	635.98	269.38
5	Pazhassi Project	4700	500	500	1000	1000			800	28.58	445.85	671.51
6	CADA Works - Modernisation of field channels in Irrigation Projects	4701	1000	600	800	800	727	1000	800	726.97	1029.45	665.91
7	Attappady Irrigation Project	4701	100	100	50	50	0	80	100	0	79.17	72.02
8	Kanhirappuzha Irrigation Project	4700	200	0	0	0	200	150	100	0	162.75	15.68
9	Chamravattom RCB	4701	400	400	250	250	233.3	166	950	55.62	121.8	947.29
Total			**5000**	**4600**	**5300**	**6400**	**3690.62**	**4637.64**	**6150**	**2570.42**	**4738.59**	**4891.52**

Annexure III

Trends In Expenditure vis-à-vis Budget Estimates/Revised Estimates/Actual Expenditure in recent years of PLAN schemes

Irrigation (Project II) **Rupees in lakh**

Sl.No	Scheme/Programme	Major Head	Budget Estimate				Revised Estimates			Actual Expenditure		
			2020-21	2021-22	2022-23	2023-24	2020-21	2021-22	2022-23	2020-21	2021-22	2022-23
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Idamalayar Irrigation Project	4700	1350	2000	2100	536.82	2075.91	0	888.71	1218.32	2421.74	1402.48
2	Muvattupuzha Valley Irrigation Project	4700	5000	2200	380	216	606.41	85.08	1540	927.5	3116.36	1488
3	CADA for MVIP	4700	2000	200	20	400	62.94	13.34	132.36	62.93	213.18	110.3
4	Pambar basin Project	4701	1600	1600	1450	1450	1050	0	817	179.38	1401.73	738.24
Total			**9950**	**6000**	**3950**	**2602.82**	**3795.26**	**98.42**	**3378.07**	**2388.13**	**7153.01**	**3739.02**

Annexure III

Trends in Expenditure vis-a-vis Budget Estimates / Revised Estimates/Actual expenditure in recent years

PLAN SCHEMES

Irrigation (Kuttanad Package)

Amount in lakh

SI. No.	Name of Scheme / Programme	Major Head	Budget Estimates				Revised Estimates			Actual Expenditure		
			2020-21	2021-22	2022-23	2023-24	2020-21	2021-22	2022-23	2020-21	2021-22	2022-23
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Kuttanad Flood management Component-50% CSS	4711	1000	1100	1100	1120	1000	1100	1100	942	1265	454
2	Flood Management Programme in Kuttanad	4711	1740	3000	3300	3700	1740	3000	5300	49	3191	2327
3	Border area programme 2020-25	4711	19676	5000	0	0	19676	5000	0	0	0	0
4	NABARD-RIDF Assistance for kuttanad	4711	2910	2900	5400	10000	2910	0	3226	0	0	1245
	Total		25326	12000	9800	14820	25326	9100	9626	991	4457	4026

Annexure III

Trends in Expenditure vis-a-vis Budget Estimates / Revised Estimates / Actual Expenditure in recent years of PLAN Schemes

Irrigation (IDRB) **Amount in lakh**

No.	Scheme/Programme	Major Head	Budget Estimates				Revised Estimate			Actual Expenditure		
			2020-21	2021-22	2022-23	2023-24	2020-21	2021-22	2022-23	2020-21	2021-22	2022-23
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Modernisation of Hydrology Information System	2701	350	100	100	100	350	100	100	242	99	46
2	Modernisation of Design Wing	2,701	150	150	200	200	150	150	200	163	109	89
3	Investigation and Design	2,701	0	4	0	0	0	0	0	0	4	0
4	Dam safety Organisation & Dam Safety Measures	2,701	10	10	10	10	10	10	10	1	3	3
5	Mullaperiyar Project- Dam and appurtenant works	4,700	100	100	50	50	51	100	50	7	3	16
6	Investigation of Irrigation Schemes	4,700	250	250	220	220	250	250	220	169	135	149
7	Dam safety Organisation & Dam Safety Measures	4,700	230	230	240	240	279	230	240	179	246	237
8	Flood Early Warning System	4,701	0	100	50	50	0	100	50	0	0	50
9	Dam Rehabilitation and Improvement Project Phase II	4,701	0	4000	3000	3000	0	4000	3000	0	732	1972
10	Dam Rehabilitation and Improvement Project-Phase I	4,701	6300	2500	0	0	6300	2500		3931	772	0
11	Bench marking of Irrigation Systems	4,701	50	50	40	40	50	50	40	0	0	0
12	Formation of River Basin Organisation	4,701	100	150	100	100	100	150	100	100	100	62

Annexure III

Trends in Expenditure vis-a-vis Budget Estimates / Revised Estimates / Actual Expenditure in recent years of PLAN Schemes

Irrigation (IDRB) **Amount in lakh**

No.	Scheme/Programme	Major Head	Budget Estimates				Revised Estimate			Actual Expenditure		
			2020-21	2021-22	2022-23	2023-24	2020-21	2021-22	2022-23	2020-21	2021-22	2022-23
1	2	3	4	5	6	7	8	9	10	11	12	13
13	Post Facto Evaluation Studies	4,701	5	105	70	70	5	105	70	3	0	65
14	Development of KERI-Stage -II	4,701	100	150	136	100	100	150	136	91	141	0
	Total		**7645**	**7899**	**4216**	**4180**	**7645**	**7895**	**4216**	**4886**	**2344**	**2690**

Annexure – III

Trends in Expenditure vis-à-vis Budget Estimates / Revised Estimate / Actual Expenditure in recent years of PLAN Schemes

Groundwater Department **Rupees in Lakhs**

Sl No	Scheme / Programme	Major Head	Budget Estimate				Revised Estimate			Actual Expenditure		
			2020-21	2021-22	2022-23	2023-24	2020-21	2021-22	2022-23	2020-21	2021-22	2022-23
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Ground Water Investigation & Development	2702	2000	1150	1500	1500	1100	1150	1500	828	851	836
2	Scheme for Groundwater Control & Regulation	2702	25	25	50	50	25	25	50	19	22	33
3	Scheme for training of personnel	2702	5	5	10	10	5	5	10	0.3	4.99	0.99
4	Groundwater Based Drinking Water Scheme	2702	50	100	158	158	50	100	158	45	100	131
5	Scheme for Groundwataer Conservation and Recharge	4702	350	1000	900	900	1250	898	900	427	475	541
6	Groundwater Based Drinking Water Scheme	4702	150	300	400	400	150	402	400	150	398	397
	Total		**2580**	**2580**	**3018**	**3018**	**2580**	**2580**	**3018**	**1469**	**1851**	**1937**

Trends in Expenditure viz-a-viz Budget Estimates/ Revised Estimates / Actual Expenditure in recent years (PLAN SCHEMES)

Annexure III

Trends in Expenditure vis-a-vis Budget Estimates/ Revised Estimates in recent years of PLAN schemes

Kerala Water Authority

Rupees in lakh

No	Scheme/ Programme	Major Head	Budget Estimates				Revised Estimates			Actual Expenditure		
			2020-21	2021-22	2022-23	2023-24	2020-21	2021-22	2022-23	2020-21	2021-22	2022-23
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Survey & Investigation	2215-	100.00	100.00	110.00	110.00	66.56	90.90	71.44	66.56	90.90	71.44
2	NABARD Assisted RWSS	4215	6000.00	5180.00	8020.00	8000.00	10371.45	8342.71	3897.66	10313.13	8526.16	3999.35
3	Manufacturing units for Bottled water	2215	200.00	90.00	90.00		200.00	63.35	0.00	200.00	63.34	
4	Renovation of Existing Civil structures owned by KWA	2215	300.00	300.00	500.00	500.00	299.79	771.31	185.54	289.08	767.48	185.53
5	Sewerage scheme of Kerala Water Authority	4215	800.00	2460.00	3005.00	3405.00	736.86	1758.03	1024.88	742.13	1758.07	928.37
6	Rehabilitation /Improvement of UWSS	4215	5000.00	4500.00	4500.00	4500.00	1911.32	645.49	325.82	1894.04	645.44	325.80
7	Modernisation of Aruvikkara Pumping Station	4215	100.00	100.00	100.00	100.00	632.08	99.10	4.28	632.08	99.09	4.28
8	Rural Water Supply Scheme	4215	1000.00	1000.00	1000.00	1000.00	8036.43	5619.60	432.34	7143.20	5618.96	432.33
9	E.governance, GIS and information management	2215	100.00	100.00			150.00	90.46		149.99	98.90	
10	Innovative technologies and Modern Management Practices	2215	50.00	100.00	100.00	100.00	19.08	89.92	23.38	19.08	90.54	23.38
11	Drinking water Drought Mitigation	2215	1000.00	1000.00	1000.00	1000.00	938.47	1000.00	627.17	999.90	997.44	627.15
12	Completion of ongoing NRDWP	4215	500.00									
13	Source Improvement and water Conservation	4215	200.00	200.00	200.00	200.00	26.83	190.00	18.41	24.24	179.84	18.40

Annexure III

Trends in Expenditure vis-a-vis Budget Estimates/ Revised Estimates in recent years of PLAN schemes

Kerala Water Authority

Rupees in lakh

No	Scheme/ Programme	Major Head	Budget Estimates				Revised Estimates			Actual Expenditure		
			2020-21	2021-22	2022-23	2023-24	2020-21	2021-22	2022-23	2020-21	2021-22	2022-23
1	2	3	4	5	6	7	8	9	10	11	12	13
14	Jala Jeevan Mission/ NRDWP (including 50% State share)	4215	80000.00				70500.00			62157.05		
15	ADB assisted Kerala Urban Water Supply improvement Project - KUWSIP (EAP)	4215	1000.00	10000.00	10000.00	10000.00	0.00		0.00			
16	Human Resources Devt. Research & Devt & qlty control	4215	100.00	100.00	100.00	100.00	28.41	32.10	28.12	28.40	30.40	28.12
17	Water Supply Scheme to Specified Inst/ locations	4215	75.00	100.00	200.00	200.00	72.36	96.20	71.28	72.36	95.58	71.27
18	Optimisation of production and transmission	4215	5000.00	5000.00	5000.00	5000.00	12464.93	14723.81	1928.66	12623.18	14773.64	1928.62
19	JICA assisted Projects	4215	1000.00	750.00	500.00	500.00	1565.77	743.95	163.41	1600.00	743.95	163.40
20	Works for the prevention of river pollution and creating awareness for the compliance	2215		500.00	250.00	250.00			77.70			77.69
21	E -governance GIS and information management	2215			100.00	100.00			52.73			52.73
22	Energy Efficiency Improvement , Optimisation of Electro-mechanaical items. Safety Audit and Ensuring safety inoperation of WTP and pump house	4215			500.00	500.00			61.43			61.42

Annexure III

Trends in Expenditure vis-a-vis Budget Estimates/ Revised Estimates in recent years of PLAN schemes

Kerala Water Authority

Rupees in lakh

No	Scheme/ Programme	Major Head	Budget Estimates				Revised Estimates			Actual Expenditure		
			2020-21	2021-22	2022-23	2023-24	2020-21	2021-22	2022-23	2020-21	2021-22	2022-23
1	2	3	4	5	6	7	8	9	10	11	12	13
23	Infrastructure development and surveillence activities under quality control wing of KWA	4215			300.00	300.00			12.46			12.45
24	Enterprise Resource Planning (ERP)	2215			100.00	100.00			4.42			4.42
25	Jala Jeevan Mission/ NRDWP - Central share	4215		40000.00	100000.00	100000.00		45114.77	100000.00		105975.43	174192.88
26	Jala Jeevan Mission/ NRDWP - State share	4215		40000.00	50000.00	50000.00		135344.31	157629.11		95784.22	174167.64
27	Scheme for Special Assistance to States for capitral investment - Water Supply Projects	4215							4792.77			4792.77
	TOTAL		**102525.00**	**111580.00**	**185675.00**	**185965.00**	**108020.34**	**214816.01**	**271433.01**	**98954.42**	**236339.38**	**362169.44**

Annexure-III

Trends in Expenditure vis-a-vis Budget Estimates /Revised Estimates /Actual Expenditure in recent years of PLAN Schemes

Kerala Rural Water Supply and Sanitation Agency (Jalanidhi) **Rupees in lakh**

Sl. No	Scheme/ Programme	Major Head	Budget Estimates				Revised Estimates			Actual Expenditure		
			2020-21	2021-22	2022-23	2023-24	2020-21	2021-22	2022-23	2020-21	2021-22	2022-23
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Scaling up of Rain Water Harvesting and GWR Programme through KRWSA	2215	1000	1000	1000	1000	1000	1000	1000	813.02	489.27	576.86
2	Sustainability Support in Community manged Water Supply Schemes	4215	3000	3000	3000	3090	3000	3000	3000	1500	1008.18	1941.30
3	Completion of Schemes under Jalanidhi-II project	4215	1000	125	125	125	1000	839.44	839.44	1000	802.96	123.37
4	Conversion of Homestead Wells into Protected and Sustainable Drinking Water Sources	4215	0	0	400	400	0	0	0	0	0	25.31
5	Water Quality Monitoring and Subservience & Grey Water Management	4215	0	0	350	350	0	0	0	0	0	0
6	R&D in Rural Water Technologies and Management	4215	0	0	6	6	0	0	0	0	0	0
7	IEC , Capacity Building and Training & Jalasree club	2215	0	0	15	15	0	0	0	0	0	5.63
	Total		**5000**	**4125**	**4896**	**4986**	**5000**	**4839.44**	**4839.44**	**3313.02**	**2300.41**	**2672.47**