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भारत में सार्वजनिक प्रणाली में जल का मूल्य निर्धारण

PRICING OF WATER IN PUBLIC SYSTEM IN INDIA

सूचना प्रणाली संगठन
जल विज्ञानीय आंकड़े निदेशालय
जल आयोजन एवं परियोजना स्कन्ध
केन्द्रीय जल आयोग
अप्रैल, 2022

INFORMATION SYSTEM ORGANISATION
HYDROLOGICAL DATA DIRECTORATE
WATER PLANNING & PROJECTS WING
CENTRAL WATER COMMISSION
APRIL, 2022

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GLOSSARY

AIBP	-	Accelerated Irrigation Benefit Programme
BCR	-	Benefit Cost Ratio
BPMO	-	Basin Planning and Management Organization
CACP	-	Commission for Agricultural Costs and Prices
CAD	-	Command Area Development
CGWA	-	Central Ground Water Authority
Cum	-	Cubic Meter
DCB	-	Demand Collection and Balance (Statement)
GHMC	-	The Greater Hyderabad Municipal Corporation
GR	-	Gross Receipt
Ha	-	Hectares
HYV	-	High Yielding Variety
KL	-	Kilo Litre
KLPD	-	Kilo Litre Per Day
LIP	-	Lift Irrigation Project
M^3	-	Cubic Meter
N.A.	-	Not Available
NCIWRD	-	National Commission for Integrated Water Resources Development
NCT	-	National Capital Territory
NTPC	-	National Thermal Power Corporation Limited
O&M	-	Operation and Maintenance
PET	-	Potential Evaporation Transpiration
PM	-	Per Month
SPHED	-	State Public Health Engineering Department
UT	-	Union Territory
w.e.f.	-	With Effect From
WE	-	Working Expenses
WRA	-	Water Regulatory Authorities
WUA	-	Water User Association

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FOREWORD

Central Water Commission is the premier technical organisation of India in the field of water resources and is an attached office to the Ministry of Jal Shakti, Department of Water Resources, River Development and Ganga Rejuvenation, Government of India. The mandate of the Central Water Commission is to promote integrated and sustainable development and management of India's water resources by using state-of-the-art technology and competency by coordinating with all stakeholders.

The declining per capita availability of water for diverse uses has attracted serious concern for regulating the use of this finite but vital natural resources inter alia through a rational price structure by all those involved in water planning, development and management. The Government's concern for a rational and pragmatic approach for levying water charges in respect of irrigation, domestic consumption, industrial consumption etc. for the water supplied to the users. This is made possible by the development and construction of Water Resources Projects involving huge public investments. This is also reflected in the National Water Policy Statements, which not only convey the scarcity value of this resources to the users but also emphasizes the need to ensure realization of at least the Operation and Maintenance Charges of providing the service initially as well as part of the Capital Costs subsequently.

This publication is intended to provide Season-Wise and Crop-Wise data on existing Water Rates in States/UTs. The analysis in Capital Expenditure, Working Expenditure and Gross Receipts over the period 2004-05 to 2018-19have also been presented in this publication. I hope this publication will be useful for all interested in the subject.

I take this opportunity to congratulate all the stakeholders involved, especially the team of ISO for their meticulous work in compiling such a large database and bringing out this publication on time. I hope, this publication would be of great interest and will meet the expectations of the policymakers, planners, researchers and various government organizations/ agencies associated with data related to this subject.

R K Gupta

(R. K. Gupta)

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MESSAGE

The Water Rates play an important role in regulating the water use and in ensuring efficiency of the Irrigation System and its Management. The Pricing of Water has to be such as to earn at least the prescribed return on capital after meeting other recurring costs of maintenance. Various Finance Commissions and Official Committees have emphasised about the need to ensure that the irrigation charges paid by farmers are adequate, at least to cover the operational expenses and part of capital cost.

The basic objective of this publication is to present the basic State-wise data on existing water rates, consideration governing fixation of water rates by the states, system of water rates, system of assessment collection of revenue and financial aspects of Major &Medium Irrigation projects covering Capital Expenditure, Working Expenditure and Gross Receipts from the year 2004-05 to 2018-19.

Efforts made by committee under Dr. Mukesh Kumar Sinha, CE (PMO) and officers of ISO led by Shri S.C. Malik, Advisor (ISO) in finalization of this publication are praise worthy.

While due care has been taken to ensure the accuracy of data, the possibility of some errors and omissions in the publication can't altogether be ruled out. Suggestions/comments, if any, for further improvement of the publication will be highly appreciated.

(Kushvinder Vohra)

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PREFACE

Water resource challenges faced by India are considerable and can only be addressed by adopting an integrated approach that considers all uses and sources of water. This requires sound information and knowledge of the water resource and its uses, coupled with the availability of appropriate tools for collection, compilation, analysis and decision making. Central Water Commission is the nodal agency in the water resources sector for promoting the integrated and sustainable development and management of India's water resources by using state-of-the-art technology and competency. To cater to the ever-growing needs for data on water resources and related aspects, ISO brings out various publications at regular intervals.

The present publication 'Pricing of Water in Public System in India' is a quinquennial publication which presents the basic State-wise data on existing Water Rates, methods adopted for Fixation of Water Rates by the States, System of Assessment for Collection of Revenue, and Financial aspects of Major & Medium Irrigation Projects covering Capital Expenditure, Working Expenditure and Gross Receipts.

I would like to express my deep gratitude to Shri. R. K. Gupta, Chairman, CWC and Shri Kushvinder Vohra, Member (WP&P), CWC for their continuous support, guidance and encouragement to bring out this publication on time. I am also very much thankful to all the Committee members and the data source agencies for their cooperation and support.

I would like to place on my deep appreciation for the sincere efforts made by Shri Jawaid Alam Khan, Joint Director; Ms. Rachna Singh; Deputy Director, Shri Sanjeev Sharan Pandey, Deputy Director; Shri Roshan Lal Meena, Assistant Director; Shri Raj Kumar, SSO; and Ms. Jasmeet Kaur, JSO of ISO in bringing out this publication.

I hope the publication will prove to be a useful document for Policymakers, Planners, Academicians and Researchers. It shall be an endeavour on part of ISO to continuously improve the publication both in content and design with the help of users' feedback.

(Subash Chandra Malik)

EXECUTIVE SUMMARY

Water means Life. Water is a prime natural resource and it is a basic need for humans and a precious asset that living beings have. Water is equally vital for plants, animals and industries including humans. So we need to be judicious and rational, regarding the usage of water. India with an estimated population of more than 139 crore with an agrarian economy, where more than half of the population depend directly or indirectly on agriculture. Therefore the Pricing of Water Rates plays an important role in regulating water use and in ensuring the efficiency of the irrigation system and its management.

Growing water scarcity and the need to use the available water more efficiently among the different sectors, it is always emphasized for pricing of water, so that at least the O&M costs should be recovered from the water users. No rates or low water rates may lead to misuse of water, low revenue collections and ultimately it creates a huge burden of government resources. Continuous efforts are being made to fix the water rates by various states/UTs, which are not uniform. However, given the increasing demand for water and its limited availability, water should not be supplied freely. Therefore water rates may be fixed in respect of domestic, irrigation and industrial use. The Pricing of water has to be such as to earn at least the prescribed return on capital after meeting other recurring costs of maintenance.

The Water rates presently being charged from the users are highly subsidized and have resulted in low revenue realization. The revenue realization from water charges has proved inadequate/ meagre and much less than, even the recurring O & M charges, consequently adversely impacting satisfactory and adequate maintenance.

Although States are giving due considerations to the cost aspects and crop water requirement etc., in the fixation of water rates, in reality, the rates fixed by the States seem to be restricted to the paying capacity of the farmers. No doubt, the paying capacity of the farmers cannot be ignored altogether but the water rates are to ensure full recovery of recurring O&M cost initially and a part of the capital cost subsequently. In the executive summary, an attempt has been made to provide a gist of all the chapters.

2. The Introduction Chapter I consists of various Recommendations like Recommendations of Second Irrigation Commission (1972), Recommendations of Dr. Vaidyanathan Committee

(1991), Recommendations of various Finance Commissions, Guidelines for integrated Water Resources Development and Management-2016, Need for appropriate pricing of water and basis of levying Irrigation Charges. Besides, statistical data are presented for State/UT wise, water rates followed in respect of Lift and Flow irrigation charges (maximum &minimum).In addition, water rates for various crops in respect of State/UT wise, of lift and flow irrigation are presented.

3. Chapter II gives an overall view of the details of season-wise/crop-wise water charges in different States/UTs of India with the date of its applicability. There is no uniformity in the principles being followed by the States for fixation of irrigation charges. However, while fixing the water charges, by and large, due consideration is given by the States to ensure that they provide revenue sufficient to cover the cost of creation of irrigation potential, hike in labour costs, establishment and other related recurrent costs of O&M of the system.

4. Chapter III deals with the state-wise and Crop wise irrigation charges as per inputs of the Commission for Agricultural Costs and Prices (CACP), Ministry of Agriculture & Farmers Welfare. The mandate of the commission is to recommend the price policy and the relative price structure for the rational utilization of land, water and other production resources. The data is available only for 20 major States for a few major crops in each State.

As per CACP, irrigation charges are available for Paddy in almost all States except the State of Rajasthan, where no irrigation charges for Paddy is reported. Similarly, irrigation charges for Wheat are available for 14 major states. The cost of production for the crops is the most important factor that CACP considers while making its recommendations on MSPs to the Government. The field data on various indicators including irrigation are collected through the agricultural/general universities and colleges on a sample basis throughout the year. Subsequently using appropriate statistical methods, DES estimates the cost of various inputs for crops at the village, Tahsil, Agro-climatic zone and finally at the state level.

5. In chapter IV an attempt has been made to provide the water charges by States/UTs for Domestics as well as Industrial/Commercial purposes. Broadly domestic water use includes indoor and outdoor uses at residences uses such as drinking, food preparation, bathing, washing of clothes and dishes, flushing toilets, watering in-house lawns and gardens, and maintaining personal swimming pools.

Commercial/Industrial water use includes water used by commercial facilities such as hotels, motels, restaurants, office buildings, government and military facilities, hospitals, educational institutions, pools, laundries etc. Water Charges for drinking as well as Commercial purpose varies from State to state and details can be seen in the chapter itself.

6. In chapter V more emphasis is given on governing principles for fixation of water rates in respect of groundwater abstraction and restoration for various uses such as drinking, domestic, mining, industrial, bulk water Supply purposes etc. in different States/UTs. The basic principles followed for fixation of water rates based on the type of Crops, area to be irrigated, different seasons, the quantity of water supplied, prevailing of water rates in neighbouring states, demand for irrigation and overall to meet the O&M costs.

7. Chapter VI gives details of the basic principles and mechanisms followed by the states/UTs for Assessment and Collection of Revenue. The rates are worked out based on water requirements for each crop and gross area under irrigation etc. through major and medium projects. Attempts have been made to provide a State-wise summarized mechanism of Assessment and Collection of Revenues and also State-wise statistical analysis on the trend of Capital Outlays, Working Expenses and Gross Receipts, Financial Aspect of Major & Medium Irrigation Projects, Gap in Revenue Assessed and Realized is given for the period 2004-05 to 2018-19. There is considerable diversity in the country and the mechanism for the collection of Irrigation Water Revenue is done either by Irrigation Department or by Revenue Department or by both the departments.

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CHAPTER– I
INTRODUCTION

1.0 Introduction

1.1 The Water Rate is levied for the supply of water from a public or a private system with a view to ensure equitable water distribution, the efficiency of the irrigation system and its management. It has been attracting the attention of Planners, Policy makers and Researchers in view of its important role in regulating water use within the reach and resources of the users. The declining per capita availability of water for diverse uses has generated serious concern all over. The Government's concern for a rational and pragmatic approach for levying Water Rates, in return for the water supplied to the users, made possible by the development and construction of Water Resources Projects involving huge public investment.

1.2 The National Water Policy Statement of 2002 also advocates for "the water charges for various uses and should be fixed in such a way that they cover at least the Maintenance and Operation charges of providing the service initially and a part of the Capital Costs subsequently. These rates should be linked directly to the quality of service provided. The subsidy on Water Rates to the disadvantaged and poorer sections of the society should be well-targeted and transparent". Earlier, the Second Irrigation Commission (1972) had also emphasized the role, importance and necessity of levying water charges in return for water supplied to the users and its adequacy in meeting Operation &Maintenance expenditure for ensuring equitable distribution and its efficient use.

1.3 Tracing back to the past, in the early British days, irrigation works in India were treated as commercial undertakings and only such schemes were sanctioned which could ensure sufficient recovery for Annual Expenses on Operation and Maintenance and also meet the Interest Charges on the loan raised. The post independence period, however, witnessed a remarkable change in the Government's attitude to irrigation investment. The irrigation was viewed more and more as a part of the necessary infrastructure for the agricultural development rather than as a commercial proposition.

1.4 The post independence approach of adoption of Benefit Cost Ratio(BCR) criterion for approval of the projects by the Government has ultimately resulted in decline in collection of Cost Recovery over time. The revenue realized through collection of water charges, which was by and large adequate to meet the Operation &Maintenance expenditure of the irrigation works and also the interest on the Capital cost at the time of independence, has been consistently declining and becoming grossly inadequate to cover up even the recurring Operation and Maintenance expenses.

The present publication, published by Information System Organisation (ISO) Division, more or less once every five years. The first publication was released in 1988, followed by 1993, 1999, 2004, 2010, 2017 and the present publication is due to be released in 2022. The information collected for this publication was from all the States/UTs, the Commission of Agriculture Cost and Price (CACP) Controller &Auditor General (CAG) etc. Most of the States are very cooperative and provide the requisite information. Regular efforts were made by the officers to collect the information in time, which was further compiled, analysed, scrutinised, tabulated, tables generated and presented in this publication uniformly.

As Water rates play an important role in regulating water use and in ensuring the efficiency of the Irrigation System and its management. National Water Policy (NWPS) was formulated by the erstwhile Ministry of Water Resources of the Government to govern the planning and development of water resources and their optimum utilization. The first National Water Policy was adopted in September 1987 which was reviewed and updated in 2002 and later in 2012. NW Polices revised from time to time to envisage that the States also follow the guidelines & had their own State Water Policy for this purpose. Some States had Water Regulatory Commission Act i.e. Andhra Pradesh Water Resources Regulatory Commission Act, 2009, Arunachal Pradesh Water Resources Regulatory Authority Act, 2006, Maharashtra Water Resources Regulatory Authority Act, 2005, Jammu & Kashmir Resources (Regulation &Management) Act, 2010, Kerala State Water Resources Regulatory Authority Bill, 2012, Uttar Pradesh Water Management & Regulation Commission Act, 2008 for fulfilling this objective.

1.5 Summary of Recommendations of Second Irrigation Commission (1972)

Pricing of Water Rates had been viewed in the Second Irrigation Commission (1972) that the user should pay for the basic agriculture input like water and the general tax payer should not be called upon to bear the burden of agriculture. The Commission had also adequately emphasized

the role and the importance of levying water charges in return for the water supplied to the users and its adequacy in meeting O&M cost for ensuring its efficient use. The Commission had also stressed for levying water charges on crop basis considering (i) the adequacy and dependability of water supply, (ii) the need for common policy among the neighbouring States, (iii) the water requirement of the crops and (iv) the revision of Water Rates in every five years.

1.6 Dr. Vaidyanathan Committee (1991)

Dr. Vaidyanathan Committee (1991) expressed serious concern on inadequacy of funds allotted for O&M expenditure. The Committee recommended for an allocation of 10% of plan provision for Major and Medium Projects for renovating the existing systems and for earmarking the recovery of accumulated arrears towards the cost of deferred maintenance/ special repairs in the projects concerned. It also recommended for enhancement of Water Rates to cover O&M Cost and interest on Capital Cost with depreciation. Committee of Officials, subsequently appointed by the Government of India to look into the recommendations of Dr. Vaidyanathan Committee, have suggested that irrigation charges be raised in a phased manner over a period of five years taking into account inflation also to cover full O&M costs.

1.7 Need for Appropriate Pricing of Water

Major and Medium irrigation projects are developed to benefit a large number of farmers of an irrigation command area. They are usually funded by the government. Government funding is from the taxes and other revenues raised from the public. Irrigation projects result in substantial financial benefits to the farmers of the command area. Hence it is necessary that appropriate cost recovery policies are developed by the government to recover the money spent on a project for investment in other projects which will benefit other members of the society.

1.8 Basis of Levying Irrigation Charges

Generally, the water charges imposed by governments comprises one or more of the following elements:

(i) Water rates dependon the kind of crop
(ii) the area required to be irrigated,
(iii) number of irrigations required for each crop
(iv) the total volume of water used by the farmers.

Various Committees / Commissions have been recommending from time to time various principles for fixing irrigation rates. Some of such recommendations are elaborated below:

1.9 Guidelines as suggested by National Commission for Integrated Water Resources Development.

1.9.1 In the context of Legal and Institutional Framework, the National Commission for Integrated Water Resources Development (NCIWRD) in its report 'Integrated Water Resource Development-A Plan for Action(1999)' has *inter-alia* raised basic questions regarding principles of pricing of water and rights and responsibilities of governments, users, communities and individuals that arise during development. There is, thus, need for the adoption of a National Water Code in this context. Economy in the use of this increasingly scarce resource has to be promoted and enforced. In sectorial planning, for big projects or small, whether for resource development or management, the full participation of the people and the NGOs need to be ensured from the earliest stages. To cover all these and other related aspects, a comprehensive National Water Code, that is, not one single law but an integrated set of water laws is needed.

1.9.2 NCIWRD has inter-alia also urged for the adoption of Watershed Development. A watershed should be seen as the lowest unit for development and management. In irrigated areas, this would involve conjunctive use of canal and ground water as well as water from tanks. Maintenance, renovation of tanks and ponds may be done by Water User Associations (WUAs). In order to improve efficiency of water use and system management as well as measures for systemic pricing of water, there is a need of establishment of Water Pricing Authority.

1.9.3 In the context of economic and financial management of the water, NCIWRD in its above report has further states that the availability of water is not equitably distributed over space or time, while the requirements are universal and perennial; efforts have to be made to include space and time utility to the natural supply of water, by investing in storage and conveyance. Thus, water partakes the characteristics of an economic good with an opportunity cost attached to it. Imbalance in the availability and requirement of water compels the methods of regulating the use of water range from pricing of water to its physical allocation for a particular use. The question of 'cost recovery's thus important in this context. If the cost of development is not recouped, long term disadvantages in terms of dwindling supplies and inadequate availability will become manifest.

1.9.4 Regarding pricing of water, NCIWRD in the above report stated that water used for irrigation is an economic good and its logical pricing is a key to improving water allocation and

encouraging conservation. The canal water rates are still area based depending on crops and seasons etc. There is wide variation in the water rates even for the same crop. The water charges are also very low and have not been revised for many decades. There is no similarity in the practice followed by various States. There are some States which provide water on free of cost. In some States, irrigation charges are combined with land revenue. In some States irrigation chargesvary season wise, while in a few others States it depends on land classification, like wet and dry lands. In some States, there are different rates for water supplied by perennial and non-perennial canals. Some States differentiate between classes of projects for charging water rates.

It is thus noted that the main reasons*inter-alia* for low receipts of revenue are

- Very low water tariff and reluctance of State Governments to review and increase the rates periodically to keep pace with rising capital and O&M costs.
- The present method of charging water on area crop basis instead of volumetric basis resulting in substantial wastage. Lack of incentives to the farmers for saving,water which can be utilized to serve a larger areas.
- High level of working expenses.
- Physical and operational inadequacies of created facilities resulting in low and uncertain utility and consequent low collection of water charges
- Inefficiency in revenue collection organizations and inadequacy of the collection system giving rise to larger arrears.

1.9.5 The returns can be increasedby expanding the benefited area by saving water. The working expenses can be reduced by modernizing the system, better water management, organizational reforms and improved infrastructure. There is great scope of reducing O&M costs by curtailing overstaffing by redeployment, providing better communication facilities and establishing participatory management. Water rates are so low that they need to be increased substantially, but one of the important ways to overcome these resistances would be to increase reliability and efficiency through various means. As stated above,an increase in water tariff could be resorted to only along with restructuring measures.

As for the rates themselves, there are three basic approaches to setting charges. Rates can be related to the cost of providing irrigation or to the benefits to be derived from irrigation or to some value judgment on the beneficiaries' ability to pay the rates.

1.9.6 Various Committees on Commissions examined the issue from time to time and have given their recommendations. The Irrigation Commission, 1972 recommended that the water rates should be five percent to twelve percent of the total value of farm produce, the lower percentage being applicable to fodder and food crops and the higher for cash crops.

Several Finance Commissions have been recommending rates linking them to annual O&M costs and some percentage of capital cost. Dr. Vaidyanathan Committee recommended a two part tariff, in the first phase, comprising a fixed charge of Rs. 50/- applicable to the entire command area as a membership charge and a variable charge per ha of irrigation to recover annual O&M cost and one percent interest on capital cost. The objective is to move towards full-cost recovery. The change was to be brought about in three phases, ultimately leading to rates on a volumetric basis with the improvement of existing systems, creation of autonomous, financially self-reliant entities at the system level with participatory management by users.

The Group of Officers appointed by the Government of India to examine the Vaidyanathan Committee's report generally endorsed the recommendations but did not favour the fixed charge part as most of the State Governments did not agree to such a two part tariff.

1.9.7 The logic followed for the recommendations about water rates made by various Committees and Commissions is as follows:

- The irrigation systems in the country should move systematically towards supplying irrigation water volumetrically in the ultimate stage. This will not help the conservation of water but will also improve assessment and collection of the water dues.
- Until physical structural changes and operational procedures are finalized and implemented, the present method of area based tariff will have to be continued though (i) it is complicated due to differentiation in rate structure resulting from varying agro-climatic conditions, (ii) it is not related to supply cost or scarcity value of water; and (iii) it does not provide an incentive to farmers for economical use of water.

With this background, especially those detailed ones made by Dr. Viadyanathan Committee, the general principles recommended by NCIWRD are as:

- There should be rationalization of basic principles of fixing the water tariffs in all the States.
- The irrigation Commission (1972) had recommended a rate structure linked with the value of gross product of irrigated hectares of land irrespective of the working expenses. Dr

Vaidyanathan Committee had tied up the rates with O&M cost and a part of the capital cost without reference to the value of the product.

- The water rates should accordingly cover the entire annual O&M cost plus one percent of the gross value of the produce /ha in respect of cereal crops and a higher percentage in case of cash crops.
- These rates should be levied as a single part variable tariff for the present. However, the scheme of charging a basic fixed rate along with a variable part is quite logical and should be followed up with the State Governments.
- Some States have supplementary levies like betterment charges, Mandi-charges etc. The States may continue these additional charges.
- The revised water pricing structure should be such that the rates are substantially lower for those who accept group volumetric supply than for individual farmers. Also, the Water User Associations (WUAs) should be allowed to collect a little over and above the prescribed water rates to encourage them to improve the system under their charge.
- Though area, crop and season based tariffs are in force in various States at present, they require inter-rationalization to reflect varying degrees of water consumption by various crops and their economic values.
- Realistic O&M costs/ha should be worked out by each State on pilot representative systems by allotting adequate funds. These figures should be used for fixing of rates. However, in working out the cost, the ceiling rates on establishment charges should be invariably followed.
- There should be two distinct components of irrigation water charges, one for O&M and other related to the value of the product. The O&M component should be fully utilized for the operation and maintenance of the respective portions of the system. The second part should be used to modernize the system with supplementation, from budget allocations. Each State will have to decide the natural proportion of the two components based on its figures of O&M and the productivity of the crops. The financial procedure should be modified to make this possible, so that the farmers are encouraged to pay the enhanced rates.
- The rate structure should differentiate between the seasons and also the crops in such a way that production or benefits are optimized per unit of water or at least indicate the intention. Thus the rates should be so rationalized that the water intensive crops are charged proportionately more as compared to less water consuming crops.
- On the basis of hydrological records, the existing surface irrigation projects should be classified into those with performance reliability of (a) 75 percent or above and (b) less than

75 percent. Considering a minimum reliability of 50 percent, the water rates for the latter should be two-thirds of the full rates fixed for the former.

- The objective should be to achieve volumetric measurement ultimately, though gradually, and this should be kept in mind at every stage.
- The change should encourage user group formation and give adequate incentive to group of consumers, who can be supplied water on a volumetric basis, over individual consumers who have to be charged on a crop area basis.
- The pricing for water of lift irrigation scheme should be worked out on the basis of the capital and O&M costs of these schemes. As this water will be easily measurable, the tariff should be fixed on a volumetric basis. The schemes can be categorized according to lift ranges and rates be fixed for different categories. As the conveyance losses will be very low in case of lift irrigation schemes, the gross irrigation requirement will be much less. The capital costs would also be low. Even then, because of high operational costs, the rates/ha may work out to be somewhat higher than those for gravity flow irrigation.
- An important issue in fixing the basis for tariff for irrigation water is equity consideration. It is argued that increasing water charges will adversely affect small and marginal farmers. It is therefore, proposed that farmers with large holdings, say, exceeding 10 ha may be levied a suitable surcharge. While the point is well taken, it may also be argued that small and marginal farmers' interest is taken care of by separate measures under which subsidized inputs and credit at concessional rates are provided to them. It is not feasible nor is there need to provide each and every input at subsidized rates, specially irrigation water which is the scarcest of all inputs. Moreover, there are only a very limited number of large farmers. Any surcharge will, therefore, not yield significant amounts.

1.10 The Working Group on Water Resources for the XI plan also recommends as follows:

(i) Project Authorities should adopt an O&M cost norm of Rs. 600/- per ha for utilised potential and Rs. 300/- per ha for unutilised potential as per the recommendation of the 12th Finance Commission. The subsidy on water rates to the disadvantaged and poorer section of the society should be well-targeted and transparent.

(ii) Full O&M cost of irrigation system taking into account the inflation rate should be recovered in a phased manner at the earliest in XI Plan starting from 2007. Motivation policies like giving concessions and incentives can be considered by the State so as to improve the water use efficiency and recovery of water charges.

(iii) State Governments may also initiate appropriate action to enhance the water rates to cover 1% of capital cost in addition to achieving O&M cost fully. Whenever practically possible, water should be saved to meet the rising demand for non-irrigation purposes like drinking water, industry, thermal power generation, etc. Water rates for non-agricultural use should also be carefully rationalised. For the storage requirement for non-irrigation purposes, the agency demanding water for non-irrigation use should provide full funds enabling the use of such storage. For Lift Irrigation Schemes water charges need to be evolved based on non-subsidised electricity charges.

(iv) The aspect of limiting the establishment costs in O&M needs to be studied along with the possibility of redeployment of surplus staff presently charged to O&M expenses to some other fields like local watershed development programme, etc.

1.11 Likewise the National Water Policy Statement of 2012 regarding Water Pricing advocates the following:

i. Pricing of water should ensure its efficient use and reward conservation. Equitable access to water for all and its fair pricing, for drinking and other uses such as sanitation, agricultural and industrial, should be arrived at through an independent statutory Water Regulatory Authority (WRA), set up by each state, after wide ranging consultation with all stakeholders.

ii. In order to meet equity, efficiency and economic principles, the water charges should preferably/as a rule be determined on a volumetric basis. Such charges should be reviewed periodically.

iii. Recycle and reuse of water, after treatment to specified standards, should also be incentivized through a properly planned tariff system.

iv. The principle of differential pricing may be retained for the pre-emptive uses of water for drinking and sanitation; and high priority allocation for ensuring food security and supporting livelihood for the poor. Available water, after meeting the above needs, should increasingly be subjected to allocation and pricing on economic principles so that water is not wasted in unnecessary uses and could be utilized more gainfully.

v. Water Users Associations (WUAs) should be given statutory powers to collect and retain a portion of water charges, manage the volumetric quantum of water allocated to them and maintain the distribution system in their jurisdiction. WUAs should be given the freedom to fix the rates subject to floor rates determined by WRAs.

vi. The over-drawl of groundwater should be minimized by regulating the use of electricity for its extraction. Separate electric feeders for pumping ground water for agricultural use should be considered.

1.12 Integrated Water Resources Development and Management

As per the Guidelines for **Integrated Water Resources Development and Management,** (BPMO) (CWC), 2016 which strives for effective and reliable delivery of water services by coordinating and balancing the various water-using sectors for sustainable water management envisage as following sectoral issues:

1.12.1 Irrigation

i. Integrated and coordinated development of surface water and groundwater resources and their conjunctive use should be envisaged right from the project planning stage and should form an integral part of optimum utilisation of water resources. Conjunctive use planning can also be implemented in existing commands by way of including it in the scheme for modernisation and improvement.

ii. Over-exploitation of groundwater should be avoided, especially near the coast to prevent ingress of sea water into sweet water aquifers, while implementing the conjunctive use planning in the new projects / existing commands.

iii. Demand management shall be given priority, especially through;

(a) Evolving an agricultural system that economizes on water use and maximizes value from water, and

(b) Bringing in maximum efficiency in the use of water and avoiding wastages.

iv. The water used for irrigation should be free from various toxic elements such as arsenic, fluorides other bio-accumulators etc so that such elements do not end up in the food chain.

v. Considerable saving in water can be achieved by the adoption of sprinkler, drip /micro-sprinkler irrigation systems in water-scarce areas, having conditions conducive to their application. For better water application efficiency, proper design of field application methods, as well as new methods, like drip and sprinkler, need, to be used.

vi. In the planning of water-saving projects, detailed water balance studies should be made to ensure that the water savings are real and do not affect downstream users depending on lost water such as ground water recharge etc. Real water savings may be achieved by reducing non-beneficial evapo-transpiration and losses of water to polluted water bodies/saline ground water.

vii. Awareness should be raised among Agricultural Water users in a command area on economical use of precious water, land planning, integrated farming, crop diversification, harvesting, storage in scientific method and its marketing etc.

viii. There is a need to provide training to farmers in Crop Alignment including diversification as per water availability to increase the productivity for each unit of water

ix. There is a need to provide training and skill development of farmers in enhancing effective rainfall for crop production through various agronomic and mechanical measures like adoption of Resource Conservation Technologies, such as land Leveling, Terracing and contour farming, Mulching, Fertigation, water harvesting etc.

x. Planning and execution of all components of irrigation projects including command area development works shall be carried out in a pari-passu manner with concurrent monitoring of projects with a view to prevent time and cost over-runs.

xi. Project planning and management of water resources shall be on the basis of regional agro-climatic considerations taking into account of possible future scenarios (including climate change) after maximizing water use efficiency and benefits from the locally available water resources.

xii. Since a number of major projects are continuing over the plan period, the costs are increasing and the benefits are delayed, it is essential that a detailed review and evaluation of the ongoing projects is done so that appropriate lessons may be drawn and remedial measures taken in subsequent Plans. Benchmarking for the projects should be given maximum importance for increasing the performance of existing and future projects.

xiii. There is a need for:

(a) instilling discipline in equitable distribution through WUAs participation.

(b) instilling discipline in adopting advisable and designed cropping patterns through the intervention of Agriculture Extension Services of State Agriculture Deptt, and cooperative federations for bringing synergy between market forces and farmers and optimal use of water.

(c) operation of canals / distribution network on demand based rather than supply based distribution.

(d) fixing of water rates on volumetric supply and recovery of water charges through WUAs.

xiv. The gap between potential created and its utilization should be reduced to the minimum. Use of satellite imageries should also be made for assessment of irrigated areas. Appropriate guidelines may be laid down for reporting the figures of potential created and

the utilization achieved so that there is uniformity in the figures reported. The figures of the irrigation/water resources department and land use statistics should also be reconciled.

xv. There is a need for periodical reappraisal of ultimate irrigation potential, created irrigation potential and actual utilisation in irrigation, in order to take measures to accelerate the utilisation of the potential created and make improvements in utilisation.

xvi. There is a need to undertake State / Basin-wise assessment of waterlogged and salt affected areas irrigated command. The status of protected and reclaimed land should be reviewed in every five year plan.

xvii. In order that the area under water-logging does not increase, precautionary measures have to be taken. In areas affected by water-logging, remedial and ameliorative measures have to be undertaken.

xviii. There is a need for a paradigm shift in emphasis towards improving the performance of existing irrigated agriculture. Marginal changes in irrigation practices may not be enough to increase productivity. If growth in irrigated agriculture is to be achieved, efficiency of the existing systems needs to be enhanced and water, so saved, should be utilized to increase irrigation intensive farming practices improved with modern inputs and technologies. Operation and maintenance have to be substantially improved through participatory management.

xix. Heavy subsidies in electricity consumed for agriculture have tended to encourage wasteful use of energy and also wasteful use of water. This has also encouraged farmers to overdraw water from deep aquifers, thus causing water quality deterioration in many areas. It is therefore, necessary to gradually reduce the subsidy on power for agriculture.

xx. Till a system of demand based supply of irrigation is achieved, State Governments should make efforts in introducing Warabandi system of rotational water supply.

xxi. After each modernization project is completed, a performance review should be carried out to assess the benefits and costs. Such a review should be made for all modernization projects which have so far been completed. For new projects to be taken up under this programme, technologies and reforms should be included as components of the projects.

xxii. Canal automation is a new technology, which is being introduced in some projects in our country. The performances require to be watched carefully and the modifications, if any, to be incorporated in the future canal automation project identified.

xxiii. Re-use is an important method of managing drainage water. The options for re-use of drainage water would include direct use for irrigation, blending with canal water, cyclic or

rotational use, saline agriculture, forestry system and solar evaporators, aquaculture and use of saline water through salt tolerant crops.

xxiv. Detailed studies are needed to evaluate the longevity and viability of minor irrigation schemes.

xxv. For field level works in the case of major projects, minor irrigation works, repairs of tanks and other works in rural areas, as much funds as possible should be generated through community involvement.

1.12.2. **Industrial Use**

i. Actual quantity of water utilized by the major industry should be monitored by government agencies. Major water using industries and businesses consuming water more than one Million Cubic Meters in a year shall file annual 'Water returns' containing information, such as, water utilization per unit produced, effluent discharge details, rain water harvested, water reuse details and freshwater consumption.

ii. Waste utilisation technologies/ clean production technologies with emphasis on waste minimization. Recycling and reuse of water, after treatments to specified standards, should be incentivised through a properly planned tariff system.

iii. Instead of allowing the location of hazardous industries and insisting on Zero effluent conditions in semi-arid and arid areas, industrial zoning be done in a manner that in such areas water-intensive industries are not permitted especially those releasing toxic effluents. Even if allowed, such industries may be allowed to either withdraw only the makeup water or have an obligation to return treated effluent to a specified standard back to the hydrologic system.

iv. Private sector participation would be practicable in projects mainly intended for supply for industrial use and urban water supply. The responsibility of the state as a public trustee shall remain even if some of the functions of the state in relation to water are entrusted to any public or private agency.

v. Hazardous waste treatment and disposal need to be so planned and executed so as to protect people and the environment from adverse impacts.

vi. Selection and zoning of industries associated with potential risks especially those releasing toxic waste, need a thorough analysis and planning before they are set up in any basin. The concerned State Government and other local bodies should have a coordinated approach in selecting and locating industries of a specific nature with respect to their water requirement and facilities for wastewater disposal. A policy for zoning the river basins according to the

types of industries, the quantity of water consumed, and effluent discharge need to be laid down.

1.12.3. **Domestic Use**

i. Ideally, water supply and waste water management schemes should be integrated and for this, it is necessary that water supply programmes are not taken up without simultaneous taking up of waste water management schemes.

ii. Urban and rural domestic water supply should preferably be from surface water in conjunction with groundwater and rainwater. Where alternate supplies are available, a source with better reliability and quality needs to be assigned to domestic water supply. Exchange of sources between uses, giving preference to domestic water supply should be possible. Also, reuse of urban water effluents from kitchens and bathrooms, after proper treatment, to flush toilets and other uses should be encouraged.

iii. The artificial difference in quantities of water supplies for urban and rural sectors needs to be rationalized as flushing is not dependent upon the nature of habitation. Hence, water supply quantity may be seen more like a human development index and made uniform in rural and urban areas.

iv. The appropriate Government and local authority shall ensure that urban water supply and sewage treatment schemes are integrated and executed simultaneously with provision of sewerage charges included in the Water supply bills.

v. The problem of drinking water in tribal areas are more acute, therefore, to provide accelerated coverage of drinking water to all habitats in tribal areas, an appropriate mechanism should be devised.

vi. The norms adopted for satisfying the basic human needs of communities (both urban and rural) may be reviewed periodically.

vii. The assigned target of 100% coverage in water supply can be achieved only if impediments like inadequacy of funds are removed and an autonomous system with economic viability is encouraged. The latter has a direct impact on the generation of funds for maintenance and development.

viii. To reduce the gap between demand and supply, water conservation measures be accorded highest priority, especially in areas facing water quality and scarcity problems, with emphasis on recycling/ reuse of treated waste water.

ix. Poor maintenance of the systems by the utilities results in leakage of costly treated waters. The discipline of maintenance should be instilled in the utilities and they should be held

accountable for it. The importance of maintenance should also be impressed upon consumers, since considerable leakage and waste take place in households also.

x. Improved low cost technologies have to be developed and adopted to save cost of construction and maintenance.

xi. Public Awareness needs to be created for reducing water consumption. Women's participation is to be encouraged to the maximum as they are the ones who are the primary and major users at the domestic level.

xii. Wherever feasible, artificial recharge and rain water harvesting have to be encouraged. Instead of looking only for new and distant sources of water supply or tapping fast depleting ground water, local bodies should emphasise on water harvesting also.

xiii. Provided that implementation of rainwater harvesting should include scientific monitoring of parameters like hydrogeology, groundwater contamination, pollution and spring discharges.

xiv. Water resources projects and services shall be managed with community participation. For improved service delivery on a sustainable basis, the State Governments / urban local bodies may associate private sector in public-private partnership mode with penalties for failure, under regulatory control on prices charged and service standards with full accountability to democratically elected local bodies.

1.12.4. **Demand Management, Water Pricing and Participatory Management**

i. An Independent statutory Water Regulatory Authority shall be established by every State for ensuring equitable access to water for all and its fair pricing, for drinking and other uses such as sanitation, agricultural and industrial. The decisions of the Water Regulatory Authority shall be subject to judicial review.

ii. The principle of differential pricing for water for drinking and sanitation; and for ensuring food security and supporting livelihood for the poor may be adopted. The appropriate Government might provide a minimum quantity of water for drinking and sanitation free of cost or at a subsidized price to eligible households, being part of pre-emptive need. The available water, after meeting the pre-emptive needs, shall increasingly be subjected to allocation and pricing on economic principles so that water is not wasted in unnecessary uses and could be utilized more gainfully and water infrastructure projects are made financially viable.

iii. Water charges should be determined on a volumetric basis in order to meet equity, efficiency and economic principles. Such charges should be reviewed periodically. Hence, low cost measurement structures should be installed in the canals.

iv. Free of cost water supply to forest dwelling STs and other Traditional Forest Dwellers for drinking water and farming needs may be considered as they help in maintaining forested watersheds.

v. Water Users Associations (WUAs) should be given statutory powers to collect and retain a portion of water charges, manage the volumetric quantum of water allotted to them and maintain the distribution system in their jurisdiction. WUAs should be given the freedom to fix rates subject to floor rates determined by WRAs. Women should be encouraged for involvement in WUA and also in decision-making activities in the management of canals and command areas. The irrigation system should be planned, developed and managed in consultation with prospective water user groups. Government should progressively transfer management of irrigation command areas to WUAs and support and build their capacity for management.

vi. Urban and rural water supply, as well as supply for all the sectors shall be 100% metered and priced on a volumetric basis. Provided that supply of minimum water to Below Poverty Line populations may be subsidised by the appropriate government.

vii. Water accounts and water audit reports indicating leakages and pilferages, shall be published to sensitize communities for reduction of non-revenue water uses taking into due consideration the associated social issues.

viii. Tariff rates have to be so revised as to cover not only the O&M costs but also part of the capital cost, debt service plus some reserve funds.

ix. Tariff rates have to be prescribed such that the industry feels compelled to look into technological interventions leading to reduced use per unit production. For effecting maximum conservation, production processes have to be improved, to have a lesser generation of effluent water.

x. Pricing of water for industry shall include efficiency costs and capital charges.

xi. Measures should be taken to increase revenue from water rates. For such increases to be accepted, utility and efficiency of the system should be increased through savings of working expenses through modernization, better water management, organisational reforms, improved infrastructure and reorientation in O&M costs by curtailing overstaffing, providing better communications and establishing participatory management.

xii. The subsidy on water rates to the disadvantaged and poorer sections of the society should be well targeted and transparent. The water rates should cover the entire annual O&M cost plus a part (say 1%)of the gross value of the produce/ ha in respect of 22 cereal crops and a higher percentage in case of cash crops. The O&M component should be fully utilized for the operation and maintenance of the respective portions of the system. The second part should be used to modernize the system with supplementation from budget allocations. Each State will have to decide the natural proportion of the two components based on its figures of O&M and the productivity of the crops. The financial procedures should be modified to make this possible, so that the farmers are encouraged to pay the enhanced rates. The rate structure should differentiate between the seasons and also the crops in such a way that production or benefits are optimized per unit of water or at least indicate the intention. Thus the rates should be so rationalized that the water intensive crops are charged proportionately more as compared to less water consuming crops.

xiii. On the basis of previous hydrological records, the existing surface irrigation projects should be classified into those with performance reliability of (a) 75% or above and (b) less than 75%. Considering a minimum reliability of 50%, the water rates for the latter should be two-thirds of the full rates fixed for the former. The objective should be to achieve volumetric measurement ultimately, though gradually, and this should be kept in mind at every stage. The change should encourage user group formation and give adequate incentive to group consumers, who can be supplied water on a volumetric basis, over individual consumers who have to be charged on crop area basis.

xiv. In the case of supplies for industrial purposes, the principle of 'user pays, polluter pays' has to be applied and water charges fixed accordingly, adopting a premium for security, in water scarce regions. In the case of domestic supply, a certain fixed quantity per connection may be fixed, in addition to the public taps, and charges increased progressively for larger use. The principle of seasonal water rates could also be tried.

1.13 Recommendations of various Finance Commissions

The successive Finance Commissions have emphasized the need for making adequate provision for O&M costs and for improving the cost recovery.

As per **11th Finance Commission** Irrigation rates at present were nominal in many cases and cover only a fraction of the operation and maintenance (O & M) expenditure. Ideally, the target should be to fix irrigation rates in such a way that the receipts cover not only the maintenance

expenditure but also leave some surplus as return from capital invested. Hence, it was proposed to moderate the targets for increase in irrigation receipts in the following manner:

Projected Return from Major and Medium Irrigation Projects

Sl. No.	Range of Revenue Receipts from Projected Major and Medium Irrigation Projects per hectare	Projected increase per year (%)	Remarks
1.	Below Rs.150	25	Subject to a minimum of Rs.80 per hectare in 2000-01
2.	Rs.150 to 250	15	-
3.	Above Rs.250	10	-

In computing the admissible expenditure on maintenance of irrigation projects, the Tenth Finance Commission (TFC) had adopted a norm of Rs.300 per hectare for utilised potential and Rs.100 per hectare for the unutilised part. The Commission had also followed the past practice of enhancing the norms by 30 per cent for hill States. It had provided suitable increases in the norms in each year of the forecast period to insulate the expenditure against inflation.

In their memorandum on the subject, the Ministry of Water Resources have suggested a provision of Rs.450 per hectare for major and medium irrigation projects for the maintenance of the utilised potential and a provision of Rs.150 per hectare for maintenance of the unutilised potential. For the maintenance of utilised potential of minor irrigation projects the memorandum suggested a provision of Rs.225 per hectare and a provision of Rs.75 per hectare for unutilised potential. Further, Rs.300 per hectare for special repairs of existing irrigation systems and a step-up by 30 per cent for maintenance of utilised potential of projects located in hill States have been recommended by the Ministry.

Main recommendation of **12th Finance Commission** regarding maintenance of irrigation works emphasized “an O&M cost norm of Rs. 600 per ha for utilized potential and Rs. 300 per ha for unutilized potential may be considered based on normative expenditure requirements for maintenance of irrigation works of major and medium irrigation projects. This norm for minor irrigation works should be half of those for major and medium irrigation projects. For hill States 30% higher rate of O&M expenditure has been suggested on the base year estimates so worked out and 5% annual rate of growth has been suggested to generate projected levels in the forecast period.”

The **13th Finance Commission**, on the advice of the Ministry of Water Resources, has recommended the recovery of revenue from irrigation projects and also suggested to enhance operation and maintenance costs in course of the 11th Five Year Plan. Detailed recommendations of the 13th Finance Commission are as follows:

i) Receipts from irrigation have been estimated on cost-recovery basis. The current level of recovery from irrigation projects is at 23 percent of the non-plan revenue expenditure on irrigation, which is very low and needs to be improved in order to ensure the viability of irrigation projects. The 13th Finance Commission normatively recommended to enhanced receipts from irrigation from 25 per cent of non-plan revenue expenditure on irrigation in 2010-11 to 35 per cent in 2011-12, 45 per cent in 2012-13, 60 per cent in 2013-14 and 75 per cent in 2014-15.

ii) Given the need for adequate provision for maintenance of irrigation schemes, the Commission has adopted the norm of Rs. 1175 per hectare for the utilised potential and Rs. 588 per hectare for the unutilised potential for major and medium irrigation schemes respectively. After adjustment for inflation, with an annual growth of 5 per cent thereafter, these would reach the level of Rs. 1500 per hectare for utilised and Rs. 750 per hectare for unutilised potential in the terminal year.

iii) For minor irrigation works, the Commission has provided the norm of Rs. 588 per hectare in the base year for only the utilised potential. However, the Commission has allowed a 30 per cent step up on these norms for the special category states.

iv) The Commission has used state-wise utilised and unutilised potential, as reported by the Ministry of Water Resources at the end of the Tenth Plan, to work out maintenance expenditure. For each state, the norm-based estimates for 2009-10 have been compared with those of 2009-10 (BE), and the higher of the two has been adopted as the base year estimates to ensure that the current level of expenditure is retained in the case of states that are spending more. An annual growth rate of 5 per cent has been applied over the base year estimates so worked out to generate projected expenditure levels in the forecast period.

14th Finance Commission Recommendations:

i) XIV commission recommended that all States, irrespective of whether Water Regulatory Authorities (WRAs) are in place or not, consider full volumetric measurement of the use of irrigation water. Any investment that may be required to meet this goal should be borne by

the States, as the future cumulative benefits, both in environmental and economic terms, will far exceed the initial costs.

ii) XIV Finance commission also reiterated the recommendations of the FC-XIII and urge States which have not set up WRAs to consider setting up a statutory WRA, so that the pricing of water for domestic, irrigation and other uses can be determined independently and in a judicious manner. However, this may not be practical for the North-eastern states, due to the small size of their irrigation sectors, with Assam being the exception. Further, we recommend that WRAs already established be made fully functional at the earliest.

iii) XIV Commission also recommended that States (urban and rural bodies) should progressively move towards 100 percent metering of individual drinking water connections to households, commercial establishments as well as institutions. All existing individual connections in urban and rural areas should be metered by March 2017 and the cost of this should be borne by the consumers. All new connections should be given only when the functioning meters are installed. While providing protected water supply through community taps is unavoidable for poorer sections of the population, metering of water consumed in such cases also would ensure efficient supply.

15th Finance Commission Recommendations

As per recommendations of Fifteenth Finance Commission:

i) First, replace the free or subsidised power supply for agriculture with direct benefit transfers (DBT) so the power supply to agriculture is adequately charged.

ii) This will lead to judicious use of water and some shift away from water-guzzling crops. Second, encourage and spread new technologies, such as drip, sprinkler, and sensor-based irrigation to get more crops per drop.

iii) Third, conserve and harvest rainwater to increase the availability of surface as well as groundwater. The net effect of all these measures can be captured from changes in the groundwater table which is regularly monitored by the Central Groundwater Board under the Ministry of Jal Shakti. Accordingly, we recommend incentive-based grants to States that maintain and augment groundwater stock and put a check on any fall in the water table.

iv) Out of the total grants earmarked for Panchayati raj institutions, 60 per cent is earmarked for national priorities like drinking water supply and rainwater harvesting and sanitation,

while 40 per cent is untied and is to be utilised at the discretion of the Panchayati raj institutions for improving basic services.

v) Out of the total grant of Rs. 82,859 crore recommended for cities with less than a million populations, 40 per cent of the grants is untied while 60 per cent is tied to the national priorities of drinking water, rainwater harvesting, solid waste management and sanitation.

In spite of strong recommendations, most of the States and Project Authorities / Corporations remained unsuccessful in realising even the O&M costs of irrigation systems despite initiatives taken by the Union Government. With a view to encourage the States for bringing out the reforms in the irrigation sector in particular to increase the water rates so as to meet O&M costs of various irrigation projects, incentives have been provided under Accelerated Irrigation Benefit Programme (AIBP). Under the AIBP, the States which agreed to rationalize water rates in phases over a period of 5 years to recover full O&M costs were termed as the Reforming States. These states were given more attractive offers of assistance under AIBP. Seven states namely Gujarat, Maharashtra, Andhra Pradesh, Madhya Pradesh, Orissa, Rajasthan and Jharkhand were declared reforming States but Gujarat could only meet the requirements. Reforms have also been made for fixing Water Rates to a large extent in Maharashtra. In Maharashtra, Water Regulatory Authority has been created and it is expected that this would help in achieving the desired overall progress in the water sector. It is a better option to recommend instituting Water Regulatory Authorities in all States as Maharashtra has done without giving any special treatment of reforming States under AIBP.

The above are broad guidelines and the details have to be worked out and operationalised in each state, perhaps separately for regions in large states or even for projects. It is believed that suggesting a uniform formula for the entire country would have no practical value. However, a Water Pricing Authority may be constituted in each state by statute, on the analogy of the energy pricing authorities and the general principles, with suitable local modifications, incorporated as guidelines for the Pricing Authority. The pricing structure suggested by the Authority, after hearing all the parties concerned, should be binding on all concerned. Any subsidy proposed to be given by the State Government for any particular use would be transparent and given as such as a subsidy for such time as the government decides. The subsidy should not affect the funds for the water sector.

1.14 State Wise Crop-specific Water Rates in respect of Flow and Lift Irrigation

As per data on water rates received from the concerned departments/authorities of State/UT Governments, the overall water rates alongwith crop-specific rates have been summarized in various tables (viz. Table 1.1, Table 1.2 and Table 1.3) presented below.

Table: 1.1 State/UT-wise Water Rates for Flow and Lift irrigation

(Unit: Rs/ ha)

State/UT	Flow IrrigationRange		Lift IrrigationRange		Date since applicable
	Max	Min	Max	Min	
1	2	3	4	5	6
Andhra Pradesh /Telangana	864.50	148.20	NA		01-07-1996
Arunachal Pradesh	No water rates				
Assam	751.00	150.00	751.00	150.00	30-03-2000
Bihar	370.50	74.10	NA		27-11-2011
Chhattisgarh	741.29	172.97	741.29	172.97	15-06-1999
Delhi	148.20	34.03	148.20	33.35	2009
Goa	360.00	72.00	720.00	144.00	06-04-2016
Gujarat	590.59	314.19	196.86	104.73	16-06-2021
Haryana	296.52	37.06	148.26	18.53	30-11-2018
Himachal Pradesh	66.47	66.47	132.91	132.91	31-03-2019
Jharkhand	370.50	74.10	370.50	74.10	26-11-2001
Karnataka	988.39	37.06	2965.16	74.13	18-09-2018
Kerala	99.00	37.00	148.50	93.00	18-09-1974
Madhya Pradesh	960.00	50.00	960.00	50.00	31-12-2005
Maharashtra	13.50	3.38	10.97	0.47	11-01-2018
Manipur	602.00	184.00	602.00	184.00	24-08-2013
Meghalaya	No water rates				
Mizoram	No water rates				
Nagaland	No water rates				
Orissa	930.00	60.00	NA		05-04-2002
Punjab	123.50	123.50	123.50	123.50	12-11-2014
Rajasthan	286.52	49.40	573.04	24.70	24-05-1999
Sikkim	250.00	10.00	NA		2002
Tamil Nadu	61.78	2.77	NA		06-11-1987
Tripura	312.50	312.50	312.50	312.50	01-10-2003
Uttarakhand	No water rates				
Uttar Pradesh	6148.20	192.92	3075.08	97.44	03-09-2014
West Bengal	123.50	37.06	2015.52	251.94	01-07-2003
A & N Islands	No water rates				
Chandigarh *	NA				
Dadra & Nagar Haveli	830.00	110.00	275.00	75.00	29-01-1996
Daman & Diu	286.00	286.00	286.00	286.00	2007
Jammu/ Kashmir/ Ladakh	523.84	212.50	2614.28	1045.22	01-04-2018
Lakshadweep	No water rates				
Puducherry	NA				

Source: Dept. of Irrigation, Water Resource Department and State Government offices.

*In rural areas of Chandigarh, the water rates for irrigation purpose is Rs 23/- per hour with effect from 01.01.2010.

NA : Not Available

Similarly, the following Table 1.2 presents State-wise crop-specific water rates in respect of Flow Irrigation.

Table: 1.2 Water Rate for Paddy, Wheat, Sugarcane, Cotton, Oilseeds and Pulses utilising Flow Irrigation

(Unit: Rs/ ha)

State/UT	Paddy		Wheat		Sugarcane		Cotton		Oilseeds		Pulses	
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
1	2	3	4	5	6	7	8	9	10	11	12	13
Andhra Pradesh /Telangana	494.00	370.50	NA	NA	864.50	864.50	864.50	864.50	247.00	148.20	NA	NA
Arunachal Pradesh	No water rates											
Assam	751.00	281.24	562.50	562.50	222.00	222.00	NA	NA	562.50	562.50	562.50	562.50
Bihar	247.00	108.68	185.25	138.32	370.50	370.50	NA	NA	98.80	74.10	98.80	74.10
Chhattisgarh	494.19	200.15	200.15	200.15	NA	NA	172.97	172.97	NA	NA	NA	NA
Delhi	148.20	148.20	66.63	66.63	NA	NA	NA	NA	44.46	44.46	NA	NA
Goa	180.00	180.00	NA	NA	360.00	360.00	NA	NA	120.00	120.00	NA	NA
Gujarat	314.19	314.19	314.98	314.98	590.59	590.59	314.19	314.19	NA	NA	NA	NA
Haryana	247.10	247.10	197.68	197.68	296.52	296.52	197.68	197.68	NA	NA	148.26	148.26
Himachal Pradesh	68.47	68.47	68.47	68.47	68.47	68.47	68.47	68.47	68.47	68.47	68.47	68.47
Jharkhand	217.36	108.68	185.25	138.32	370.50	370.50	NA	NA	98.80	74.10	98.80	74.10
Karnataka	247.10	247.10	148.26	148.26	988.39	988.39	148.26	148.26	NA	NA	86.48	86.48
Kerala	99.00	37.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Madhya Pradesh	155.00	85.00	125.00	75.00	960.00	960.00	70.00	70.00	75.00	50.00	75.00	50.00
Maharashtra	476.00	119.00	476.00	476.00	6297.00	6297.00	1924.00	724.00	1438.00	476.00	357.00	357.00
Manipur	602.00	305.00	305.00	305.00	NA	NA	NA	NA	184.00	184.00	184.00	184.00
Meghalaya	No water rates											
Mizoram	No water rates											
Nagaland	No water rates											
Orissa	NA	NA	170.00	170.00	500.00	500.00	280.00	280.00	170.00	60.00	170.00	60.00
Punjab	123.50	123.50	123.50	123.50	123.50	123.50	123.50	123.50	123.50	123.50	123.50	123.50
Rajasthan	197.60	49.40	148.20	64.22	286.52	103.74	177.84	88.92	113.62	64.22	79.04	49.40
Sikkim	100.00	60.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tamil Nadu	49.42	5.56	NA	NA	55.60	5.56	61.78	16.86	8.35	2.77	8.35	2.77
Tripura	312.50	312.50	312.50	312.50	NA	NA	312.50	312.50	312.50	312.50	312.50	312.50
Uttarakhand	NA											
Uttar Pradesh	3722.05	259.18	3722.05	259.18	3071.18	643.08	1479.08	229.95	NA	NA	NA	NA
West Bengal	123.50	37.06	49.40	49.40	NA	NA	NA	NA	NA	NA	NA	NA
Andaman& Nicobar Islands	No water rates											
Chandigarh*	NA											
Dadra & Nagar Haveli	140.00	140.00	NA	NA	830.00	830.00	NA	NA	NA	NA	NA	NA
Daman & Diu	286.00	286.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jammu/ Kashmir/ Ladakh	523.84	523.84	212.50	212.50	523.84	523.84	NA	NA	212.50	212.50	212.50	212.50
Lakshadweep	No water rates											
Puducherry	NA											

Source: Dept. of Irrigation, Water Resource Department and State Government offices.

*In rural areas of Chandigarh, the water rates for irrigation purpose is Rs 23/- per hourwith effect from 01.01.2010.

NA : Not available

Likewise, the following Table 1.3 presents State wise crop-specific water rates in respect of Lift Irrigation.

Table: 1.3 Water Rate for Paddy, Wheat, Sugarcane, Cotton, Oilseeds and Pulses Utilising Lift Irrigation

Unit in Rs / ha

State/UT	Paddy		Wheat		Sugarcane		Cotton		Oilseeds		Pulses	
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
1	2	3	4	5	6	7	8	9	10	11	12	13
Andhra Pradesh /Telangana	NA											
Arunachal Pradesh	No water rates											
Assam	751.00	281.24	562.50	562.50	222.00	222.00	NA	NA	562.50	562.50	562.50	562.50
Bihar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chhattisgarh	494.19	200.15	200.15	200.15	NA	NA	172.97	172.97	NA	NA	NA	NA
Delhi	148.20	148.20	66.69	66.69	NA	NA	NA	NA	44.46	44.46	NA	NA
Goa	360.00	360.00	NA	NA	720.00	720.00	NA	NA	240.00	240.00	NA	NA
Gujarat	104.73	104.73	104.99	104.99	196.86	196.86	104.73	104.73	NA	NA	NA	NA
Haryana	123.55	123.55	98.84	98.84	148.26	148.26	98.84	98.84	NA	NA	74.13	74.13
Himachal Pradesh	132.91	132.91	132.91	132.91	132.91	132.91	132.91	132.91	132.91	132.91	132.91	132.91
Jharkhand	217.36	108.68	185.75	138.32	370.50	370.50	NA	NA	98.80	74.10	98.80	74.10
Karnataka	741.29	741.29	296.52	296.52	2965.16	2965.16	296.52	296.52	NA	NA	172.97	172.97
Kerala	148.50	93.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Madhya Pradesh	155.00	85.00	125.00	75.00	960.00	960.00	70.00	70.00	75.00	50.00	75.00	50.00
Maharashtra	357.00	357.00	535.00	535.00	5405.00	3600.00	843.00	20.00	1200.00	20.00	476.00	476.00
Manipur	602.00	305.00	305.00	305.00	NA	NA	NA	NA	184.00	184.00	184.00	184.00
Meghalaya	No water rates											
Mizoram	No water rates											
Nagaland	No water rates											
Orissa	NA											
Punjab	123.50	123.50	123.50	123.50	123.50	123.50	123.50	123.50	123.50	123.50	123.50	123.50
Rajasthan	395.20	24.70	296.40	32.11	573.04	51.87	355.68	44.46	177.84	32.11	158.08	24.70
Sikkim	NA											
Tamil Nadu	NA											
Tripura	312.50	312.50	312.50	312.50	NA	NA	312.50	312.50	312.50	312.50	312.50	312.50
Uttarakhand	NA											
Uttar Pradesh	1861.02	130.56	1861.02	130.56	1535.59	321.54	740.51	114.97	NA	NA	NA	NA
West Bengal	2015.52	503.88	503.88	503.88	1259.70	1259.70	NA	NA	503.88	251.94	NA	NA
Andaman & Nicobar Islands	No water rates											
Chandigarh*	NA											
Dadra & Nagar Haveli	275.00	75.00	275.00	275.00	100.00	75.00	NA	NA	NA	NA	275.00	275.00
Daman & Diu	286.00	286.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jammu/ Kashmir/ Ladakh	2614.28	2614.28	1045.22	1045.22	2614.28	2614.28	NA	NA	1045.22	1045.22	1045.22	1045.22
Lakshadweep	No water rates											
Puducherry	NA											

Source: Dept. of Irrigation, Water Resource Department and State Government offices.

*In rural areas of Chandigarh, the water rates for irrigation purpose is Rs 23/- per hour with effect from 01.01.2010.

NA : Not Available

CHAPTER – II

STATE WISE - CROP WISE IRRIGATION CHARGES IN STATES/UTs AS PER CACP

2.1 This chapter deals with the state wise and crop wise Irrigation Charges as per inputs of Commission for Agricultural Costs and Prices (CACP), Ministry of Agriculture & Farmers Welfare available on the website (https://cacp.dacnet.nic.in/). As per the website the irrigation data is available for only 20 major States for few major Crops in each State. However, Irrigation Charges are almost available for Paddy in almost all States except the State of Rajasthan (Table 3.21), where no irrigation charges for Paddy reported. Similarly, Irrigation Charges for Wheat is available for 14 States only as per Table 3.22

2.2 Irrigation

One of the mandates of the commission is to recommend the price policy and the relative price structure of the rational utilization of land, water and other production resources. The cost of production of agriculture crops is the most important factor that CACP considers while making its recommendations on MSPs to the Government. The Directorate of Economics & Statistics (DES), Ministry of Agriculture and Farmers Welfare, has been implementing a Comprehensive Scheme for Studying the Cost of Cultivation of Principal Crops in India since 1970-71 to generate estimates of cost of cultivation/production of the principal crops in order to meet cost of cultivation data requirement.

The field data on various indicators including irrigation are being collected through the agricultural/general universities and colleges on a sample basis throughout the year. Subsequently using various statistical methods, DES estimates cost of various inputs at Village, Tehsil, Agro-Climate zone and state level. The design of the Scheme continues to be a three-stage stratified random sampling design with Tehsils as the first stage unit, village/cluster of the village as the second stage unit, and holding as the third and ultimate stage unit.

Each state is demarcated into homogeneous agro-climate zones based on cropping pattern, soil type, rainfall etc. The primary sampling units (tehsils) are allocated to different zones in proportion to the total area of all crops covered in the study. The primary sampling units are

selected in each zone (stratum) with probability proportional to the area under the selected crops, and with replacement.

Within each Tehsil, the village/cluster also selected following the same procedure. In each selected village/cluster, all the operational holdings are enumerated and classified according to the size into 5 sizes classes, the class limits being fixed uniformly for all villages/clusters. In each size class, two holdings are selected by simple random sampling without replacement. However, if in any village/cluster, a particular size class does not contain even in two holdings, more holdings are selected from the adjacent size classes to make up the deficit.

2.3 State wise and crop wise irrigation charges for the States/UT in India are as follows:-

Table: 2.1 Crop Wise Irrigation Charges For The State Of Andhra Pradesh

UNIT- Rs/ha

S.No.	Season	Crop Names	Year				
			2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
1.	Kharif	Paddy	1432	1313	1145	1413	1143
2.		Jowar	308	56	846	399	81
3.		Maize	587	575	681	808	488
4.		Arhar (Tur)	4	158	164	16	1
5.		Moong	246	0	0	0	38
6.		Urad	53	0	0	209	162
7.		Groundnut	561	813	1047	483	356
8.		Soyabean	41	47	0	0	NA
9.		Sunflower	0	252	NA	NA	NA
10.		Sesamum	134	134	292	75	NA
11.		Cotton	501	187	349	46	173
12.	Rabi	Gram	24	0	132	63	27

Source: CACP Price Policy reports on Kharif & Rabi Season

Table: 2.2 Crop Wise Irrigation Charges For The State Of Assam

Unit- Rs/ha

S.No.	Season	Crop Names	Year				
			2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
1.	Kharif	Paddy	651	468	441	119	130
2.	Rabi	Rapeseed & mustard	0	0	0	101	0

Source: CACP Price Policy reports on Kharif & Rabi Season

Table: 2.3 Crop Wise Irrigation Charges For The State Of Bihar

Unit- Rs/ha

S.No.	Season	Crop Names	Year				
			2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
1.	Kharif	Paddy	1703	3625	2954	3760	5044
2.		Maize	3566	4600	5461	4656	5654
3.	Rabi	Wheat	3500	3946	4001	4110	5064
4.		Gram	107	362	306	115	87
5.		Lentil (masur)	47	52	45	32	379
6.		Rapeseed & mustard	1031	1428	1463	2114	2115

Source: CACP Price Policy reports on Kharif & Rabi Season

Table: 2.4 Crop Wise Irrigation Charges For The State Of Chhattisgarh

Unit- Rs/ha

S.No.	Season	Crop Names	Year				
			2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
1.	Kharif	Paddy	486	724	413	1588	1215
2.		Urad	0	0	2611	0	0
3.		Soyabean	0	0	0	259	0
4.	Rabi	Wheat	NA	NA	NA	2982	4362
5.		Gram	1621	1921	1664	2500	2803

Source: CACP Price Policy reports on Kharif & Rabi Season

Table: 2.5 Crop Wise Irrigation Charges For The State Of Gujarat

Unit- Rs/ha

S.No.	Season	Crop Names	Year				
			2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
1.	Kharif	Paddy	3083	3543	2542	2270	3239
2.		Bajra	5372	5710	6226	4324	5425
3.		Maize	1949	2401	2420	979	1156
4.		Arhar (tur)	1547	1317	1371	1440	1578
5.		Moong	1532	791	751	730	1312
6.		Urad	NA	NA	NA	332	689
7.		Groundnut	2379	2808	2084	1728	2407
8.		Sesamum	2504	1704	2313	3772	2732
9.		Cotton	3358	3368	3048	3743	3414
10.	Rabi	Wheat	4753	4512	4439	5072	5887
11.		Gram	NA	NA	3108	2607	NA
12.		Rapeseed & mustard	4992	5832	6663	7156	7930

Source: CACP Price Policy reports on Kharif & Rabi Season

Table: 2.6 Crop Wise Irrigation Charges For The State Of Haryana

Unit- Rs/ha

S.No.	Season	Crop Names	Year				
			2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
1.	Kharif	Paddy	7505	8051	6414	5716	6053
2.		Bajra	1190	1486	209	746	855
3.		Cotton	NA	3638	3223	2860	3244
4.	Rabi	Wheat	3880	4070	4852	4610	4476
5.		Gram	518	926	264	122	59
6.		Rapeseed & mustard	2309	3504	2806	2377	2597

Source: CACP Price Policy reports on Kharif & Rabi Season

Table: 2.7 Crop Wise Irrigation Charges For The State Of Himachal Pradesh

Unit- Rs/ha

S.No.	Season	Crop Names	Year				
			2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
1.	Kharif	Paddy	127	183	55	398	326
2.	Rabi	Wheat	74	433	104	588	523
3.		Barley	NA	NA	831	0	NA

Source: CACP Price Policy reports on Kharif & Rabi Season

Table: 2.8 Crop Wise Irrigation Charges For The State Of Jharkhand

Unit- Rs/ha

S.No.	Season	Crop Names	Year				
			2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
1.	Kharif	Paddy	5	85	18	561	16
2.		Maize	1427	1558	0	5400	4801
3.	Rabi	Wheat	1988	2050	2544	4296	1903
4.		Gram	0	0	0	0	390

Source: CACP Price Policy reports on Kharif & Rabi Season

Table: 2.9 Crop Wise Irrigation Charges For The State Of Karnataka

Unit- Rs/ha

S.No.	Season	Crop Names	Year				
			2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
1.	Kharif	Paddy	NA	1112	1026	658	393
2.		Jowar	NA	82	148	145	157
3.		Maize	NA	597	769	1006	571
4.		Ragi	NA	1139	288	620	361
5.		Arhar (tur)	NA	283	79	73	112
6.		Moong	NA	14	5	128	4
7.		Groundnut	NA	509	378	354	1814
8.		Soyabean	NA	NA	NA	0	1
9.		Sunflower	NA	72	501	104	398
10.		Cotton	NA	174	1786	791	517
11.	Rabi	Wheat	824	862	494	NA	NA
12.		Gram	28	25	17	31	423
13.		Safflower	0	0	NA	0	7085

Source: CACP Price Policy reports on Kharif & Rabi Season

Table: 2.10 Crop Wise Irrigation Charges For The State Of Kerala

Unit- Rs/ha

S.No.	Season	Crop Names	Year				
			2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
1.	Kharif	Paddy	5	89	118	17	110

Source: CACP Price Policy reports on Kharif & Rabi Season

Table: 2.11 Crop Wise Irrigation Charges For The State Of Madhya Pradesh

Unit- Rs/ha

S.No.	Season	Crop Names	Year				
			2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
1.	Kharif	Paddy	330	1062	739	1066	1192
2.		Jowar	0	929	0	250	0
3.		Maize	155	194	0	0	NA
4.		Arhar (tur)	36	217	161	252	325
5.		Urad	0	0	0	1	0
6.		Groundnut	NA	NA	NA	0	211
7.		Soyabean	0	85	0	16	0
8.		Cotton	1657	1519	1576	1459	2490
9.	Rabi	Wheat	3644	3732	3917	5265	4908
10.		Gram	1491	1885	2169	2459	2509
11.		Lentil (masur)	1856	1532	1444	2068	2500
12.		Rapeseed & mustard	1020	1317	1285	2247	1861

Source: CACP Price Policy reports on Kharif & Rabi Season

Table: 2.12 Crop Wise Irrigation Charges For The State Of Maharashtra

Unit- Rs/ha

S.No.	Season	Crop Names	Year				
			2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
1.	Kharif	Paddy	1707	2231	1639	359	322
2.		Jowar	1552	642	825	2828	1262
3.		Bajra	1001	2057	1485	1236	1963
4.		Maize	4014	4495	4102	1451	NA
5.		Ragi	NA	NA	NA	98	0
6.		Arhar (tur)	734	2385	3365	659	802
7.		Moong	75	207	9	116	216
8.		Urad	0	74	164	568	0
9.		Groundnut	2377	1559	4795	2008	1504
10.		Soyabean	203	528	390	184	333
11.		Cotton	NA	2802	2521	2742	2879
12.	Rabi	Wheat	4676	5769	7691	6547	6944
13.		Gram	2792	2122	2872	2100	1913

Source: CACP Price Policy reports on Kharif & Rabi Season

Table: 2.13 Crop Wise Irrigation Charges For The State Of Odisha

Unit- Rs/ha

S.No.	Season	Crop Names	Year				
			2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
1.	Kharif	Paddy	129	164	162	192	181
2.		Maize	490	182	NA	NA	NA
3.		Ragi	NA	NA	NA	0	14
4.		Moong	17	78	1	15	18
5.		Urad	0	0	85	30	32
6.		Groundnut	135	123	174	4	2
7.		Sunflower	NA	NA	NA	NA	3559
8.		Sesamum	585	1234	588	0	77

Source: CACP Price Policy reports on Kharif & Rabi Season

Table: 2.14 Crop Wise Irrigation Charges For The State Of Punjab

Unit- Rs/ha

S.No.	Season	Crop Names	Year				
			2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
1.	Kharif	Paddy	2623	2400	2419	3459	3912
2.		Maize	787	807	408	262	NA
3.		Cotton	615	611	525	1152	587
4.	Rabi	Wheat	498	545	585	661	652
5.		Rapeseed & mustard	NA	NA	NA	793	428

Source: CACP Price Policy reports on Kharif & Rabi Season

Table: 2.15 Crop Wise Irrigation Charges For The State Of Rajasthan

Unit- Rs/ha

S.No.	Season	Crop Names	Year				
			2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
1.	Kharif	Jowar	NA	148	53	303	48
2.		Bajra	NA	288	102	332	231
3.		Maize	NA	1059	2	561	59
4.		Moong	NA	16	184	241	4
5.		Groundnut	NA	4496	4184	4466	4211
6.		Soyabean	NA	262	76	0	0
7.		Sesamum	NA	15	0	0	5
8.		Cotton	NA	2549	1850	4070	2792
9.	Rabi	Wheat	4304	5319	5359	6418	7284
10.		Barley	5444	4142	5887	6133	5786
11.		Gram	1773	2564	2887	3506	2869
12.		Rapeseed & mustard	2896	3265	2842	4791	4498

Source: CACP Price Policy reports on Kharif & Rabi Season

Table: 2.16 Crop Wise Irrigation Charges For The State Of Tamil Nadu

Unit- Rs/ha

S.No.	Season	Crop Names	Year				
			2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
1.	Kharif	Paddy	2181	2978	4011	4011	4004
2.		Jowar	NA	1305	2196	418	2981
3.		Maize	NA	4045	4217	4010	3470
4.		Ragi	NA	NA	NA	830	511
5.		Arhar (tur)	NA	NA	NA	58	1165
6.		Moong	NA	NA	NA	285	315
7.		Urad	NA	887	1293	2321	1997
8.		Groundnut	2807	3202	3244	1989	2312
9.		Sesamum	NA	NA	NA	1700	1266
10.		Cotton	851	622	1638	2733	3926

Source: CACP Price Policy reports on Kharif & Rabi Season

Table: 2.17 Crop Wise Irrigation Charges For The State Of Telangana

Unit- Rs/ha

S.No.	Season	Crop Names	Year				
			2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
1.	Kharif	Paddy	NA	NA	NA	870	1265
2.		Maize	NA	NA	NA	630	223
3.		Arhar (tur)	NA	NA	NA	0	4
4.		Moong	NA	NA	NA	10	75
5.		Groundnut	NA	NA	NA	1715	1455
6.		Soyabean	NA	NA	NA	0	8
7.		Cotton	NA	NA	NA	124	219
8.	Rabi	Gram	NA	NA	1061	31	NA

Source: CACP Price Policy reports on Kharif & Rabi Season

Table: 2.18 Crop Wise Irrigation Charges For The State Of Uttar Pradesh

Unit- Rs/ha

S.No.	Season	Crop Names	Year				
			2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
1.	Kharif	Paddy	5424	5061	4798	6615	5245
2.		Bajra	NA	786	336	978	1331
3.		Maize	578	1963	1737	2563	1446
4.		Arhar (tur)	324	1026	992	1305	1917
5.		Urad	850	570	346	60	NA
6.		Groundnut	NA	NA	NA	780	1859
7.		Sesamum	20	269	0	0	42
8.	Rabi	Wheat	3968	5749	6383	7820	7945
9.		Barley	1626	2646	2978	4456	3987
10.		Gram	961	1308	1494	2227	1816
11.		Lentil (masur)	1706	1746	1276	2213	1914
12.		Rapeseed & mustard	2338	2996	2983	3395	3098

Source: CACP Price Policy reports on Kharif & Rabi Season

Table: 2.19 Crop Wise Irrigation Charges For The State Of Uttarakhand

Unit- Rs/ha

S.No.	Season	Crop Names	Year				
			2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
1.	Kharif	Paddy	585	693	636	1606	1204
2.	Rabi	Wheat	763	1284	1324	1230	928

Source: CACP Price Policy reports on Kharif & Rabi Season

Table: 2.20 Crop Wise Irrigation Charges For The State Of West Bengal

Unit- Rs/ha

S.No.	Season	Crop Names	Year				
			2014-15	2015-16	2016-17	2017-18	2018-19
1	2	3	4	5	6	7	8
1.	Kharif	Paddy	2912	2942	2985	1019	2078
2.		Sesamum	1494	649	1650	2669	1003
3.	Rabi	Wheat	3194	3591	3949	3231	NA
4.		Lentil (masur)	7	66	52	12	0
5.		Rapeseed & mustard	2330	2628	2352	2471	2638

Source: CACP Price Policy reports on Kharif & Rabi Season

2.4 Wheat and Paddy are the two major crops across the India in all the states and a comparison of irrigation charges within and between these two crops among different states is are follows:

If we see average of five years from the year 2014-15 to 2018-19, the maximum irrigation charges for the Paddy is found in Haryana(Rs. 6748/ha) followed by UP (Rs. 5429/ha), Tamil Nadu (Rs. 3437/ha), Bihar (Rs. 3417/ha) and Punjab (Rs. 2963/ha) while minimum charges are in Kerala (Rs. 68/ha).Also a Zig zag like trend of average irrigation charges (for years 2014-2019) is visible in different states of India.

Table: 2.21 State Wise Irrigation Charges For Crop Paddy (Kharif Season)

UNIT- Rs/ha

States	2014-15	2015-16	2016-17	2017-18	2018-19	Average of 2014-15 to 2018-19
1	2	3	4	5	6	7
Andhra Pradesh	1432	1313	1145	1413	1143	1289
Assam	651	468	441	119	130	362
Bihar	1703	3625	2954	3760	5044	3417
Chhattisgarh	486	724	413	1588	1215	885
Gujarat	3083	3543	2542	2270	3239	2935
Haryana	7505	8051	6414	5716	6053	6748
Himachal Pradesh	127	183	55	398	326	218
Jharkhand	5	85	18	561	16	137
Karnataka	NA	1112	1026	658	393	797
Kerala	5	89	118	17	110	68
Madhya Pradesh	330	1062	739	1066	1192	878
Maharashtra	1707	2231	1639	359	322	1252
Odisha	129	164	162	192	181	166
Punjab	2623	2400	2419	3459	3912	2963
Tamil Nadu	2181	2978	4011	4011	4004	3437
Telangana	NA	NA	NA	870	1265	1068
Uttar Pradesh	5424	5061	4798	6615	5245	5429
Uttrakhand	585	693	636	1606	1204	945
West Bengal	2912	2942	2985	1019	2078	2387

Source: CACP Price Policy reports on Kharif & Rabi Season

Chart: 2.1 State Wise Irrigation Charges For Crop Paddy For Kharif Season Year 2014-2019

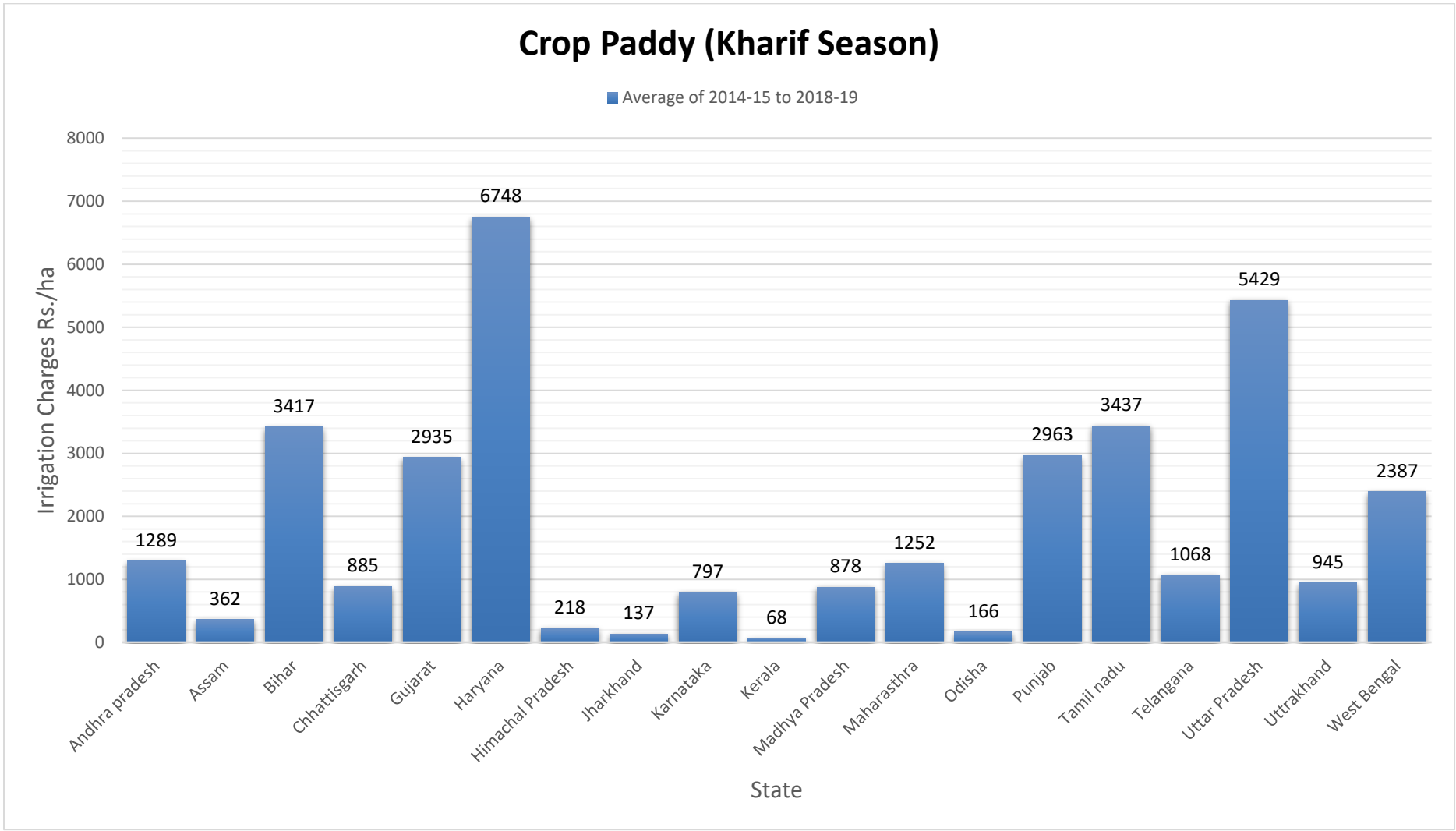
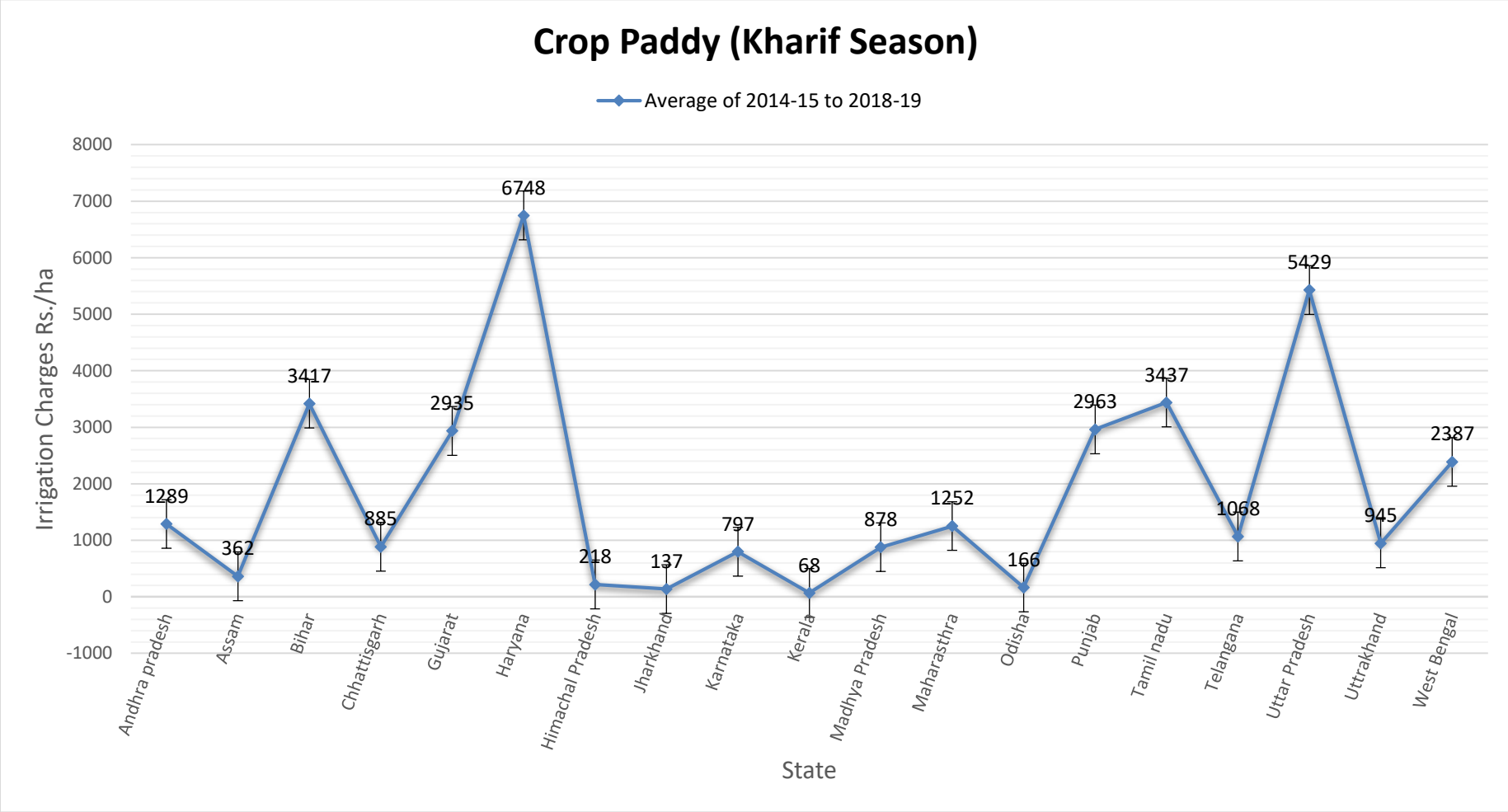


Chart: 2.2 State Wise Irrigation Charges For Crop Paddy For Kharif Season Year 2014-2019



Similarly if we see average of five years from the year 2014-15 to 2018-19, the maximum irrigation charges for the Wheat is found in Uttar Pradesh (Rs. 6373/ha) while minimum charges are in Himachal Pradesh (Rs. 344/ha). Here again a Zig zag like trend of average irrigation charges (for years 2014-2019) for crop wheat is visible in different states of India.

Table: 2.22 State Wise Irrigation Charges For Crop Wheat (Rabi Season)

UNIT- Rs/ha

States	2014-15	2015-16	2016-17	2017-18	2018-19	Average of 2014-15 to 2018-19
1	**2**	**3**	**4**	**5**	**6**	**7**
Bihar	3500	3946	4001	4110	5064	4124
Chhattisgarh	NA	NA	NA	2982	4362	3672
Gujarat	4753	4512	4439	5072	5887	4933
Haryana	3880	4070	4852	4610	4476	4378
Himachal Pradesh	74	433	104	588	523	344
Jharkhand	1988	2050	2544	4296	1903	2556
Karnataka	824	862	494	NA	NA	727
Madhya Pradesh	3644	3732	3917	5265	4908	4293
Maharashtra	4676	5769	7691	6547	6944	6325
Punjab	498	545	585	661	652	588
Rajasthan	4304	5319	5359	6418	7284	5737
Uttar Pradesh	3968	5749	6383	7820	7945	6373
Uttrakhand	763	1284	1324	1230	928	1106
West Bengal	3194	3591	3949	NA	NA	3578

Source: CACP Price Policy reports on Kharif & Rabi Season

Chart: 2.3 State Wise Irrigation Charges For Crop Wheat For Rabi Season Year 2014-2019

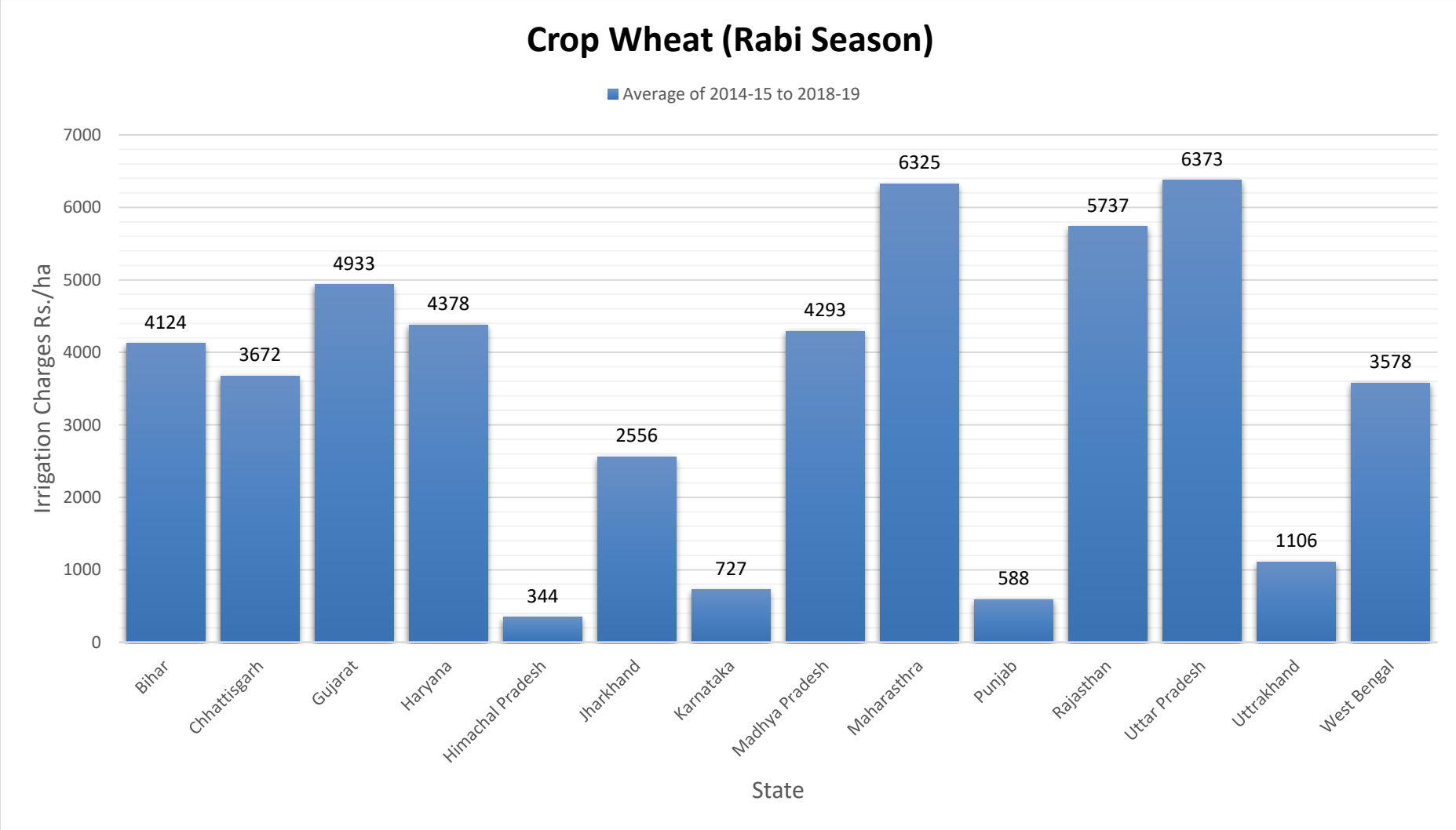


Chart: 2.4 State Wise Irrigation Charges For Crop Wheat For Rabi Season Year 2014-2019

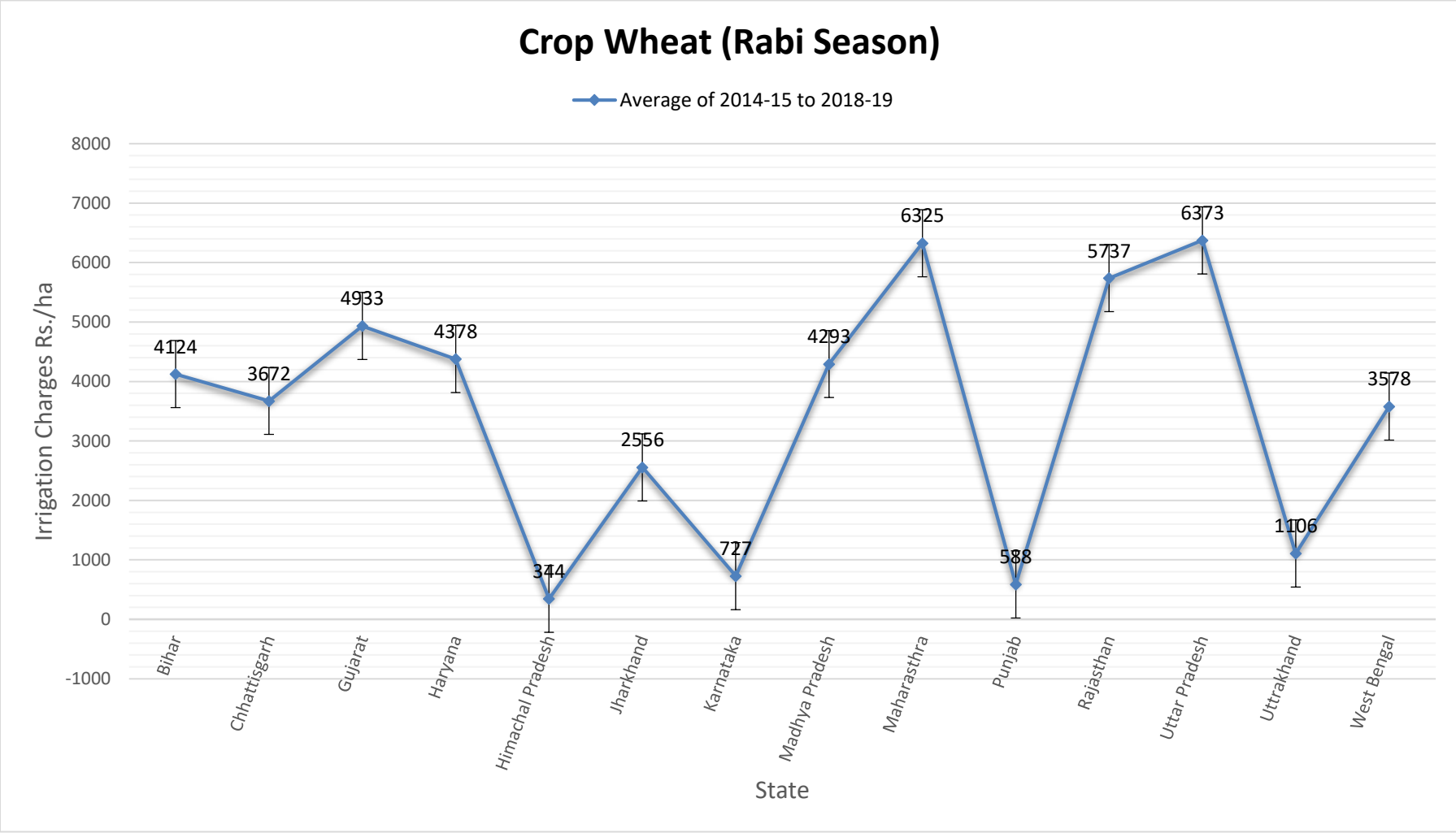


Chart: 2.5 Comparasion Of State Wise Irrigation Charges For Crop Wheat and Paddy For Year 2014-2019

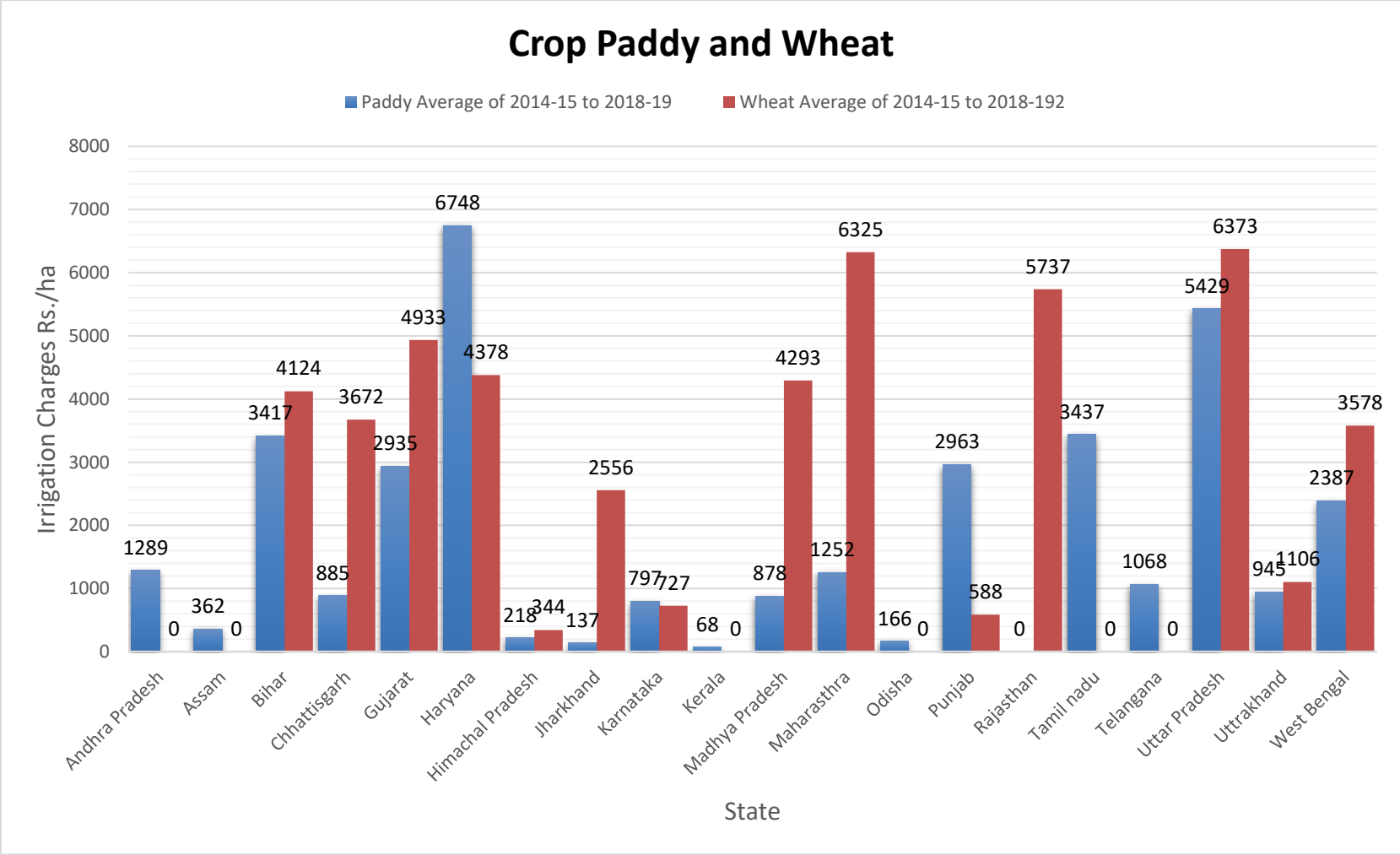
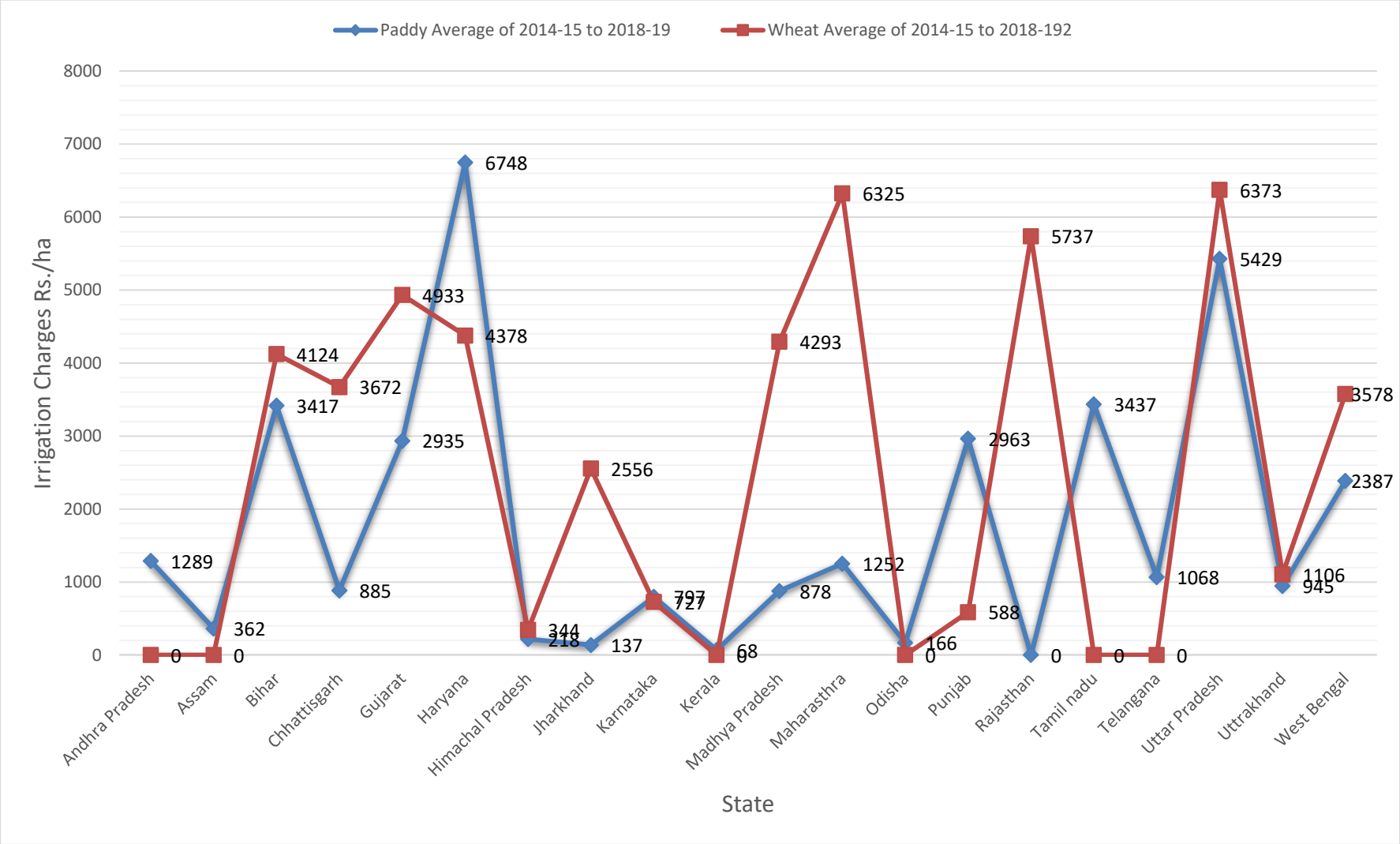


Chart: 2.6 Comparasion Of State Wise Irrigation Charges For Crop Wheat and Paddy For Year 2014-2019



In chart a comparison is made for the two major crops of India namely Paddy and Wheat and it is very clear that the States- Bihar, Karnataka, Uttar Pradesh and Uttrakhand are having comparable near equal irrigation charges for these two crops and in other states there are big differences between these two crops.

CHAPTER – III

CROP WISE IRRIGATION CHARGES IN STATES/UTS

There is no uniformity in the principles being followed by the States for fixation of Water Rates. However, while fixing the Water Rates, by and large due consideration is reportedly being given by the States to ensure that they provide revenue sufficient to cover the cost of creation of irrigation potential, hike in labour costs, establishment and other related recurrent costs of Operation & Maintenance of the system. In the overall process, other factors like crop water requirement, availability of water, support price of agriculture products, net benefits to the farmers from the produce there of, the water rates being followed by the neighbouring States and the paying capacity of the farmers also are taken into account.

Arunachal Pradesh, Andaman & Nicobar Island, Nagaland, Meghalaya, Mizoram, Puducherry and Lakshadweep have not levied any water charges for using water for irrigation purposes. The Government of Punjab which was, however, having specified Water Rates for use of water for irrigation purposes earlier, has abolished the same since February 1997 and again continued since 12th November 2002. On the other hand, the Government of Tripura which was not charging any amount for water used for agriculture is in the process of levying water charges for irrigation purposes. Also, the States like Sikkim and Arunachal Pradesh are in the process of introducing water charges for usage of water for irrigational purposes. Multiplicity of factors contribute to the process of fixation of water rates in States/UTs and its common as well as diverging factor considers forming the basis of the fixation of overall water rates along with the system of water rates prevailing there-in are as under:

3.1.1 Revision of Water Rates by States

There is a considerable time lag in revision of water rates by the States. In many States, no revisions in the water rates have been carried out over several decades. The inordinate delay in the revision of the water rates by the States/UTs can be seen from the facts given table.

S. NO.	States / UTs	Time Elapsed since last revision in water rates
1	2	3
1.	Andhra Pradesh	25 Years
2.	Assam	21 Years
3.	Chhattisgarh	22 Years
4.	Dadra & Nagar Haveli	25 Years
5.	Jharkhand	20 Years
6.	Kerala	47 Years
7.	Orissa	19 Years
8.	Rajasthan	22 Years
9.	Sikkim	19 Years
10.	Tamil Nadu	34 Years
11.	Tripura	18 Years
12.	West Bengal	18 Years

A built in provision for an automatic increase in the irrigation water rates possibly to take care of inflation etc. has been envisaged by some of the States. The Maharashtra Government has adopted a uniform increase @ 15% per annum effective from 13th September 2001. The Himachal Pradesh has been increased by 10% water rates from 2007.

Some states have revised the water rates, like the state of Gujarat had revised the water rates since 16.06.2021, Himachal Pradesh since 31.03.2019, Haryana since 30.11.2018, UT of Jammu & Kashmir since 01.04.2018, Karnataka since 18.09.2018, Punjab since 12.11.2014 and Uttar Pradesh since 03.09.2014

3.2.1 Andhra Pradesh (Erstwhile Andhra Pradesh including Telangana)

The water charges are fixed to ensure that it provides revenue sufficient to cover:

i) The desirable level of maintenance works is required so that the irrigation systems may operate at the optimum level.

ii) The establishment cost and other recurrent costs (e.g. fuel, electricity and overheads), required for operating and maintaining the systems in a reliable, economical, equitable and predictable manner.

iii) Phased introduction of an affordable percentage addendum to water charges, to be placed in a reserved fund for future contingencies and renewal of the infrastructure.

In this State, Rice, Sugarcane, Cotton, Pulses, Sunflower, Jowar and Castor are the principal crops, which are grown by the farmers. The cropping seasons in the State are generally from July to November (Kharif) and from November to February (Rabi).

The State Government has revised the water rates for irrigation purposes with effect from 01.07.1996. Separate water rates are specified for crops under irrigation sources categorized as Category-I and Category-II. For both the categories, distinct water rates are in vogue for various crops, namely First or Single wet crop, second and Third wet crops, First irrigated dry crop, Second and Third irrigated dry crops.

The crop-wise water rates in the State of Andhra Pradesh are given below:

(Unit: Rs/ha)

Season/Type of Source	S. No.	Name of Crop	Water Rates	Date since Applicable
1	2	4	5	6
Category-I source	1.	First and single wet crop	494.00	01-07-1996
	2.	Second and third wet crop	370.50	01-07-1996
	3.	First irrigated dry crop & Second and third irrigated dry crop	247.00	01-07-1996
	4.	Long duration crop	864.50	01-07-1996
Category-II source	5.	First and single wet crop &Second and third wet crop	247.00	01-07-1996
	6.	First irrigated dry crop & Second and third irrigated dry crop	148.20	01-07-1996
	7.	Long duration crop	864.50	01-07-1996

Category I: Any source of irrigation under Major and Medium Irrigation Projects.
Category II: Any source of irrigation under other than Major and Medium Irrigation Projects
Wet Crop: Paddy, Dry Crop: Sunflower, Groundnut, Jowar etc., Long duration crop: Sugar cane
Source: Information vide letter No. ENC(I)/DCE(DW)/OT6/AEE.26/Misc. 2015 dated 01st April 2016 from Office of the Engineer-in- Chief(I), Water Resource Department, Government of Andhra Pradesh.

3.2.2 Arunachal Pradesh

No water charges for irrigation purposes are being charged in the State as informed by the state vide letter No WRD/4/2002-03/10715 dated 22nd March 2013 from O/o the Chief Engineer, Water Resource Department, Government of Arunachal Pradesh.

3.2.3 Assam

In Assam, the water rates are fixed in conformity with the Fiscal Reforms Programme (Reforms in the Non-Tax Revenue) of the State Government. The charges are realized by Irrigation Department through Beneficiary Committees of the Irrigation schemes.

The rates of service charges were refixed vide Notification No. IGN(W)3/2000/pt/28 dated 30.03.2000 with immediate effect.

Principal crops of the state are Paddy i.e. Sali, Sali (HYV), Bao, Ahu, Boro, Jute and Wheat. The Agriculture Seasons of the state are Kharif (July to Sept.), Rabi (Oct. To March) and Summer (April to June).

The crop-wise water rates in the State of Assam are given below:

(Unit: Rs/ha)

Season	S.No.	Name of Crop	Water Rates	Date since Applicable
1	2	4	5	6
KHARIF	1.	Regular Ahu	751.00	30-03-2000
	2.	Sali Traditional	281.24	30-03-2000
	3.	Sali HYV	281.24	30-03-2000
	4.	Bao Paddy	281.24	30-03-2000
	5.	Jute	150.00	30-03-2000
	6.	Sugarcane	222.00	30-03-2000
	7.	Others	281.24	30-03-2000
RABI	8.	Early Ahu	751.00	30-03-2000
	9.	Ahu HYV	751.00	30-03-2000
	10.	Wheat	562.50	30-03-2000
	11.	Boro Paddy	562.50	30-03-2000
	12.	Oil seeds	562.50	30-03-2000
	13.	Pulses	562.50	30-03-2000
	14.	Sugarcane	222.00	30-03-2000
	15.	Others	562.50	30-03-2000

Source: Information received vide letter No. CEI(S)22/2004/Pt-IV/132 dated 29th July, 2021 from Office of the Chief Engineer, Irrigation Department, Government of Assam

3.2.4 Bihar

Water rates in Bihar are fixed keeping in view of the following inputs:

i) Cost of maintenance and repair.

ii) Abnormal rise in labour rate.

iii) Cost of creation of irrigation potential.

iv) Support price of agricultural products.

v) Comparison of water rates vis-à-vis those in other Departments viz., Minor Irrigation Department of the State and the Irrigation Departments of other neighbouring States.

vi) Paying capacity of the farmers.

Water from Major and Medium Projects is utilised for Flow irrigation through perennial and non-perennial canals. Cropping seasons span from 26th October to 25th March for Rabi crops, 25th June to 25th October for Kharif crops and 25th February to 25th June for hot weather crops according to which the irrigation water is required to be regulated in the State. The principal crops grown in the State are Paddy (mid-May to November), Maize (end of May to July), Millet (June to October/November), Wheat (November to April), Barley (November to March/April), Kharif pulses (May/June to March/April) and Rabi pulses (October/mid-November to March/April), Oilseeds (mid-September/October to December/January) and Sugarcane (October/November to when pods turn red).

Crop-wise water rates in the State are specified for irrigation through perennial and non-perennial canals separately. These water rates for irrigation purposes were revised in Nov. 2011.

The crop-wise water rates in the State of Bihar are given below:

(Unit: Rs/ha)

Season	S.No.	Name of Crop	Water Rates	Non-Perennial	Date since Applicable
1	2	4	5	6	7
Kharif	1.	Paddy	217.36	108.68	27-11-2011
Rabi	2.	Wheat	185.25	138.32	27-11-2011
	3.	Barley	148.20	111.15	27-11-2011
	4.	Potato	148.20	111.15	27-11-2011
	5.	Onion	148.20	111.15	27-11-2011

Season	S.No.	Name of Crop	Water Rates	Non-Perennial	Date since Applicable
1	2	4	5	6	7
Rabi	6.	Dalhan	98.80	74.10	27-11-2011
	7.	Tilhan	98.80	74.10	27-11-2011
	8.	Peas	98.80	74.10	27-11-2011
	9.	Gram	98.80	74.10	27-11-2011
Other	10.	Sugarcane	370.50	N.A.	27-11-2011
	11.	Jute	98.80	N.A.	27-11-2011
Hot Season	12.	Litchi	N.A.	296.40	27-11-2011
	13.	Vegetables	N.A.	296.40	27-11-2011
	14.	Banana	N.A.	296.40	27-11-2011
	15.	Mango	N.A.	296.40	27-11-2011
	16.	Paddy	N.A.	247.00	27-11-2011
	17.	Maize	N.A.	247.00	27-11-2011
	18.	Sunflower	N.A.	247.00	27-11-2011
	19.	Chillies	N.A.	98.80	27-11-2011

Source: Received vide letter No. SK-16/2003-718 dated 27th October, 2015 from O/o the Joint Secretary (Engineering) Water Resources Department, Government of Bihar.

3.2.5 Chhattisgarh

The State of Chhattisgarh has been carved out of the earlier unified State of Madhya Pradesh and joined the Union of India as the newly formed State along with Uttaranchal and Jharkhand in the year 2000. There exists a well-established system of water rates that have been adopted from Madhya Pradesh. The system of assessment and collection of Irrigation Revenue in Chhattisgarh is governed by Madhya Pradesh Irrigation Act 1931 and Madhya Pradesh Irrigation Act 1974.

The principal crops grown in the State are paddy (Kharif), tur, vegetables and banana. The current rates towards water charges for irrigation purposes have come into force w.e.f. 15.06.1999.

The crop-wise water rates in the State of Chhattisgarh are given below which was then part of Madhya Pradesh:

(Unit: Rs/ha)

Season	S.No.	Name of Crop	Water Rates	Date since Applicable
1	2	4	5	6
Kharif	1.	Paddy	200.15	15-06-1999
	2.	Banana	741.29	15-06-1999
	3.	Cotton	172.97	15-06-1999
	4.	High Bride (Vipul)	370.64	15-06-1999
	5.	Vegetables	494.19	15-06-1999
	6.	Fodder	370.64	15-06-1999
Rabi	7.	Paddy	494.19	15-06-1999
	8.	Wheat	200.15	15-06-1999
	9.	Gram	247.10	15-06-1999
	10.	Munga	247.10	15-06-1999
	11.	Soyabean	247.10	15-06-1999
	12.	Additional Water	61.77	15-06-1999

Source: Information received vide letter No. 3451289/CWC/2021/6375 dated 11th August, 2021from Office of the Engineer-in-Chief, Water Resources Department, Government of Chhattisgarh

3.2.6 Delhi

Wheat, Barley, Rice, Bajara, Jowar, Maize, Mustard and Vegetables are the principal crops grown by the farmers in the National Capital Territory (NCT) of Delhi. Irrigation & Flood Control Department of the NCT of Delhi deals with the water rates fixed for various crops. The water rates for most of the crops for both Flow and Lift irrigation are effective from 1951 except for revision of water rates for grass in the year 1979. The latest water rates were notified in 2009.

The crop-wise water rates in the State of Delhi are given below:

(Unit: Rs/ha)

Season/ Type of Source	S.No.	Name of Crop	Water Rates		Date since Applicable
			Flow Irrigation	Lift Irrigation	
1	2	3	4	5	6
Kharif	1.	Rice	148.20	148.20	2009
	2.	Vegetables	133.38	133.38	2009
	3.	Jowar	44.46	44.46	2009
	4.	Maize	44.46	44.46	2009
	5.	Bajara	44.46	44.46	2009
Rabi	6.	Vegetables	133.38	133.38	2009
	7.	Wheat	66.63	66.69	2009
	8.	Barley	66.63	66.69	2009
	9.	Fodder grass	34.03	33.35	2009
	10.	Mustard	44.46	44.46	2009

Source: Information vide letter No. CEF/P&D/AE-II/NWR(Water Pricing)/2015-16/3759 18th August 2016 from O/o the Chief Engineer, Irrigation & Flood Control Department, Government of Delhi

3.2.7 Goa

The Irrigation Department in Goa deals with the crop-wise water rates. The canal water is supplied to the irrigators from the irrigation projects constructed and maintained by State Government. In exercise of powers conferred by section 33 of the Goa, Daman and Diu Irrigation Act, 1973 (Act 18 of 1973), the Government of Goa, hereby determines the rates leviable for water supplied for the purpose of irrigation -for all the crops during the dry seasons of the year as under: —

The cropping season of the state are Kharif (June to December), Rabi (November to March) and Summer (March to May). The principal crops of the season are Paddy, Sugarcane, Vegetables, Coconuts, Areca nuts, Betelnuts, Plantations, Nasni, Jowar, Maize, Hill millets, Groundnuts, Onion and Chillies.

Note:

1. The rates as shown above are applicable for irrigated areas Irrespective of the number of crops grown. The rates shall be payable even though a single short duration• crop is grown during the year.
2. For crops other than those mentioned in this Notification, the Government may specify the water rates from time to time taking into consideration the water required for that crop.
3. If two or three crops with different Water rates are grown in one year, the weighted average water rate for these crops will be levied:
4. The irrigation year shall be reckoned from the 15th June to 14th June of the next year:

The crop-wise water rates in the State of Goa are given below:

(Unit: Rs/ha)

S.No.	Name of Crop	Flow Irrigation	Lift Irrigation Scheme including wells	Date since Applicable
1	2	3	4	5
1.	Paddy	180	360	06-04-2016
2.	Sugarcane	360	720	06-04-2016
3.	Areca nuts	180	360	06-04-2016
4.	Banana	180	360	06-04-2016
5.	Papaya	180	360	06-04-2016
6.	Plantation on annual basis	180	360	06-04-2016
7.	Nasni	72	144	06-04-2016
8.	Jowar	72	144	06-04-2016
9.	Maize	72	144	06-04-2016
10.	Hill millets	72	144	06-04-2016
11.	Groundnut	120	240	06-04-2016
12.	Chillies	120	240	06-04-2016
13.	Onions	120	240	06-04-2016
14.	Vegetables	120	240	06-04-2016

Source: Gazette Notification No. 4/4/CE-WRD-EO/10, dated 06th April, 2016; The Government of Goa

3.2.8 Gujarat

Following factors are taken into account while fixing the water rates in the State:

i) Geological Units

ii) System and Type of Irrigation

iii) Seasons and Crops

iv) Concessional Water Rates

v) Location of the project

vi) Agreement Rate

The present structure of water rates in the State has come into force with effect from 16.06.2021.The Agricultural year in the State commences from 16th June. Season-wise, region-wise and crop-wise rates have been specified by the State Government.

The cropping seasons of the state are:

i) Kharif Season (from 16th June to 15th October)

ii) Rabi season (from 16th October to 15th February)

iii) Hot Weather Season (from 16th February to 15th June)

The principal crops in the State are:

i) Kharif: Paddy, Bajari, Bavta, Jowar, Kodri, Maize, Vegetables, Grass, Groundnut, Cotton

ii) Rabi: Wheat, Mustard (Raydo), Chana, val, Cumin (Jeeru), Variali, Isabgul, Vegetable.

iii) Hot Weather: Paddy, Groundnut, Vegetable, Grass

iv) Two Seasonal: Cotton, Bidi, Tobacco, Seed spray, Onion, Transplant Onion.

v) Perennial: Sugarcane, Banana, Alfalfa Seeds (Rajko)

The crop-wise water rates in the State of Gujarat are given below:

(Unit: Rs/ha)

Season	S.No.	Name of Crop	Flow Irrigation	Lift Irrigation	Date since Applicable
1	2	3	4		5
Kharif	1.	Paddy	314.19	104.73	16-06-2021
	2.	Juwar/Bajari	314.19	104.73	16-06-2021
	3.	Other Crops	314.19	104.73	16-06-2021
Rabi	4.	Other Perennial	590.59	196.86	16-06-2021
	5.	Plantain	590.59	196.86	16-06-2021
	6.	Sugarcane	590.59	196.86	16-06-2021

Season	S.No.	Name of Crop	Flow Irrigation	Lift Irrigation	Date since Applicable
1	2	3	4		5
Rabi	7.	Wheat	314.98	104.99	16-06-2021
	8.	Sugarcane	590.59	196.86	16-06-2021
	9.	Juwar/Bajri	314.98	104.99	16-06-2021
	10.	Other Crops	314.98	104.99	16-06-2021
	11.	Other Perennial	590.59	196.86	16-06-2021
	12.	Plantain	590.59	196.86	16-06-2021
Other (Two Seasonal)	13.	Cotton	314.19	104.73	16-06-2021
	14.	Ground Nut	314.19	104.73	16-06-2021
	15.	Vegetables	314.19	104.73	16-06-2021
Other Season (Hot Season)	16.	Other Perennial	590.59	196.86	16-06-2021
	17.	Plantain	590.59	196.86	16-06-2021
	18.	Sugarcane	590.59	196.86	16-06-2021
	19.	Vegetables	314.19	104.73	16-06-2021
	20.	Juwar/ Bajri	314.19	104.73	16-06-2021
	21.	Other Crops	314.19	104.73	16-06-2021

Source: Information received through e-mail dated 20th July, 2021 from Narmada Water Resources, Water Supply and Kalpasar Department, Government of Gujarat.

3.2.9 Haryana

The criterion adopted for fixing water rates broadly depends upon the quantum of water consumed by a particular crop from the time of sowing to maturity and the paying capacity of the irrigator with a view to cover maintenance cost of running of channels. The capacity and assuredness of irrigation are also kept in view while fixing water rates in Haryana.

Requirement of water for drinking, agricultural and commercial purposes in the State is met mainly from Bhakra Canal and Yamuna Canal. The State has specified water rates for irrigation crop-wise for each of these canal systems. Hemp, Indigo, Gaura, Jantar and Arhar ploughed in as green manure before 15th September are not assessable for charging of water rates.

The water rates for various crops grown in Haryana have been revised in 2000 with the promulgation of the State Government Gazette No. 1/15/93-IW dated 27.07.2000. The water rates for the purpose of irrigation from all canals and drains are notified separately for crops grouped in categories "A" to "F". Category ‘A’ encompasses green manure crops for which no water rates are charged.

The water rates charges are 50% of the normal water rates on using water saving devices like drip and sprinkler irrigation by the irrigator on the lift outlets and also for lift maintained and operated by the cultivators (Jallars).

The crop-wise water rates in the State of Haryana are given below:

(Unit: Rs/ha)

Season	S.No.	Name of Crop	Flow Irrigation	Lift Irrigation	Date since Applicable
1	2	3	4	5	6
Kharif	1.	Bajara	123.55	61.77	30-11-2018
	2.	Jawar	123.55	61.77	30-11-2018
	3.	Arhar	123.55	61.77	30-11-2018
	4.	Paddy	247.10	123.55	30-11-2018
	5.	Cotton	197.68	98.84	30-11-2018
	6.	Sugarcane	296.52	148.26	30.11.2018
Rabi	7.	Wheat	197.68	98.84	30-11-2018
	8.	Barley	197.68	98.84	30-11-2018
	9.	Mustard	197.68	98.84	30-11-2018
	10.	Fibres	197.68	98.84	30-11-2018
	11.	Gram	148.26	74.13	30-11-2018
	12.	Masur	148.26	74.13	30-11-2018
	13.	Til	148.26	74.13	30-11-2018
	14.	Barsim	247.10	123.55	30-11-2018
Zaid	15.	Melon	197.68	98.84	30-11-2018
	16.	Vegetable	247.10	123.55	30-11-2018
Other	17.	Groundnut	123.55	61.77	30-11-2018
	18.	Maize	123.55	61.77	30-11-2018
	19.	Urad	148.26	74.13	30-11-2018
	20.	Moong	148.26	74.13	30-11-2018
	21.	Guara	148.26	74.13	30-11-2018
	22.	Soyabean	148.26	74.13	30-11-2018
	23.	Any other Pulses & Peas	148.26	74.13	30-11-2018
	24.	Single Watering for Grass	37.06	18.53	30-11-2018
	25.	Oats	247.10	123.55	30-11-2018
	26.	Potato	247.10	123.55	30-11-2018
	27.	Onion	247.10	123.55	30-11-2018

Season	S.No.	Name of Crop	Flow Irrigation	Lift Irrigation	Date since Applicable
1	2	3	4	5	6
Other	28.	Chillies	247.10	123.55	30-11-2018
	29.	Arvi	247.10	123.55	30-11-2018
	30.	Poppy	247.10	123.55	30-11-2018
	31.	Spices	247.10	123.55	30-11-2018
	32.	Dyes	247.10	123.55	30-11-2018
	33.	Medicinal and Aromatic Plants	247.10	123.55	30-11-2018
	34.	Water nuts	247.10	123.55	30-11-2018
	35.	Tobacco	247.10	123.55	30-11-2018
	36.	Garden and Orchard, Floriculture & Plantation	222.39	111.19	30-11-2018
	37.	Single Watering for Ploughing followed by a crop or not followed by a crop in the same or succeeding harvest	37.06	18.53	30-11-2018
	38.	Grass with more than one watering	123.55	61.77	30-11-2018

Source: Received vide letter No. /DM/R&CR dated 15th July, 2021from Office of the Engineer-in-Chief, Irrigation & Water Resources Department, Government of Haryana

3.2.10 Himachal Pradesh

The basis for fixation of water rates is type of irrigation schemes i.e. whether Lift irrigation or Flow irrigation. Assessment of water rate is made by way of charging Abiana as fixed by the Government. The Abiana rates in the State stand revised with effect from 31.03.2018.

The following factors were taken into account by the State for arriving at revised water rates:

1. O&M costs of the irrigation schemes.
2. Cost of material, labour and Energy charges.

In the State, there are mainly two cropping seasons namely, Rabi and Kharif but as per advancements made in agriculture methods, improved seeds and use of fertilizers, the farmers of this hilly-area-dominated State have started growing Zaid crops in the period between Rabi and

Kharif on lands, where assured irrigation facilities are available. The principal crops grown in the State during Kharif season include maize, paddy, sugarcane, Cotton, Watermelon, Opium, Oilseed, orchards and vegetables. The principal crops grown during the Rabi season are wheat, oilseeds, Grams, pulses, barley, Bajara, Masoor, vegetables and fodder crops. Crops like toria, potatoes and peas are cultivated during Zaid season.

The crop-wise water rates in the State of Himachal Pradesh are given below:

(Unit: Rs/ha)

Season/ Type of Source	S.No.	Name of Crop	Water Rates Flow Irrigation	Water Rates Lift Irrigation	Date since Applicable
1	2	3	4	5	6
Kharif	1.	Sugarcane	66.47	132.91	31-03-2019
	2.	Water Nuts	66.47	132.91	31-03-2019
	3.	Rice	66.47	132.91	31-03-2019
	4.	Melon	66.47	132.91	31-03-2019
	5.	Fibres	66.47	132.91	31-03-2019
	6.	Maize	66.47	132.91	31-03-2019
	7.	Oil seeds	66.47	132.91	31-03-2019
	8.	Garden & Orchards	66.47	132.91	31-03-2019
	9.	Any number of watering	66.47	132.91	31-03-2019
	10.	Two or more watering	66.47	132.91	31-03-2019
	11.	Cotton	66.47	132.91	31-03-2019
	12.	Opium	66.47	132.91	31-03-2019
Rabi	13.	Sugarcane	66.47	132.91	31-03-2019
	14.	Barley	66.47	132.91	31-03-2019
	15.	Oat	66.47	132.91	31-03-2019
	16.	Wheat	66.47	132.91	31-03-2019
	17.	Gram	66.47	132.91	31-03-2019
	18.	Bajra	66.47	132.91	31-03-2019
	19.	Masoor	66.47	132.91	31-03-2019
	20.	Pulses	66.47	132.91	31-03-2019
	21.	Jowar	66.47	132.91	31-03-2019
	22.	Cheena/ Millet	66.47	132.91	31-03-2019
	23.	Grass & fodder crop	66.47	132.91	31-03-2019

Season/ Type of Source	S.No.	Name of Crop	Water Rates Flow Irrigation	Water Rates Lift Irrigation	Date since Applicable
1	2	3	4	5	6
Rabi	24.	Grass single watering	66.47	132.91	31-03-2019
	25.	Indigo	66.47	132.91	31-03-2019
	26.	Dyes	66.47	132.91	31-03-2019
	27.	Tobacco	66.47	132.91	31-03-2019
	28.	Poppy	66.47	132.91	31-03-2019
	29.	Not followed by crops	66.47	132.91	31-03-2019
Zaid	30.	Toria	66.47	132.91	31-03-2019
	31.	Potato	66.47	132.91	31-03-2019
	32.	Peas	66.47	132.91	31-03-2019

Source: The Himachal PradeshGovt. Notification No. IPH-CTR-WATER RATES/2018-3313-86 dated 31st March, 2018 and in continuation to the office letter No. IPH-CJR-Abhiana 2017-9-89 dated 07.04.2017

3.2.11 Jharkhand

After the creation of Jharkhand in 2000, water rates for irrigation use, as effective in unified Bihar, have been adopted by the State. Revision /re-fixation of water rates were made operational w.e.f. 26.11.2001. The Irrigation water rates for Wheat, Paddy and Sugarcane under perennial and Paddy and Wheat under non-perennial sources has also been fixed.

The crop-wise water rates in the State of Jharkhand are given below:

(Unit: Rs/ha)

Season/Type of Source	S.No.	Name of Crop	Water Rates		Date since Applicable
			Flow Irrigation	Lift Irrigation	
1	2	3	4	5	6
Perennial	1.	Wheat	185.25	185.25	26-11-2001
	2.	Barley	185.25	185.25	26-11-2001
	3.	Potato	185.25	185.25	26-11-2001
	4.	Onion	185.25	185.25	26-11-2001
	5.	Pulses	98.80	98.80	26-11-2001

Season/Type of Source	S.No.	Name of Crop	Water Rates		Date since Applicable
			Flow Irrigation	Lift Irrigation	
1	2	3	4	5	6
Perennial	6.	Jute	98.80	98.80	26-11-2001
	7.	Oilseeds	98.80	98.80	26-11-2001
	8.	Peas	98.80	98.80	26-11-2001
	9.	Grams	98.80	98.80	26-11-2001
	10.	Paddy	217.36	217.36	26-11-2001
	11.	Sugarcane	370.50	370.50	26-11-2001
Non-Perennial	12.	Paddy	108.68	108.68	26-11-2001
	13.	Wheat	138.32	138.32	26-11-2001
	14.	Barley	138.32	138.32	26-11-2001
	15.	Potato	138.32	138.32	26-11-2001
	16.	Peas	74.10	74.10	26-11-2001
	17.	Gram	74.10	74.10	26-11-2001
	18.	Pulses	74.10	74.10	26-11-2001
	19.	Oilseeds	74.10	74.10	26-11-2001
	20.	Vegetables	296.46	296.46	26-11-2001
	21.	Banana	296.46	296.46	26-11-2001
	22.	Litchi	296.46	296.46	26-11-2001
	23.	Mango	296.46	296.46	26-11-2001

3.2.12 Karnataka

Water rates are fixed based upon the type of crops grown, whether wet or semi-dry, duration of the crops, number of watering required till crop maturity etc., keeping in view the requirement of water for each crop. The water rates for all seasons viz; Kharif, Rabi is the same. For new irrigation works, no water rates are levied for the first two years, after completion and commissioning. In the third year, 50% of the water rates are levied and from the fourth year onwards full water rates as specified are charged.

In the State, Paddy, Sugarcane and semi-dry crops, Ragi, Wheat, Jowar, Pulses, Oilseeds and Tobacco are the principal crops. Besides, there are garden crops like Banana, Coconut, Pepper, Turmeric etc., which are also grown subject to availability of water and climatic conditions. The principal cropping seasons are Kharif (June to October) followed by Rabi (November to

February). Depending upon water availability, sometimes the hot weather crops are also grown during February to June.

The State Government has revised the water rates with effect from 18.09.2018. Previous revision of water rates was made during 2000, which came into effect from 13.07.2000.

The crop-wise water rates in the State of Karnataka are given below:

(Unit: Rs/ha)

S.No.	Name of Crop	Water Rates		Date since Applicable
		Lift Irrigation	Flow Irrigation	
1	2	3	4	5
1.	Sugarcane	2965.16	988.39	18-09-2018
2.	Paddy	741.29	247.10	18-09-2018
3.	Wheat	296.52	148.26	18-09-2018
4.	Sunflower	296.52	148.26	18-09-2018
5.	Cotton	296.52	148.26	18-09-2018
6.	Groundnut	296.52	148.26	18-09-2018
7.	Jowar	172.97	86.48	18-09-2018
8.	Maize	172.97	86.48	18-09-2018
9.	Navane/ Millet	172.97	86.48	18-09-2018
10.	Ragi	172.97	86.48	18-09-2018
11.	Semi dry Crops	172.97	86.48	18-09-2018
12.	Pulses	172.97	86.48	18-09-2018
13.	Tobacco	172.97	86.48	18-09-2018
14.	Garden Crops	296.52	148.26	18-09-2018
15.	Manurial Crops	74.13	37.06	18-09-2018
16.	Other Crops	172.97	86.48	18-09-2018

Source: The Karnataka Irrigation (Levy of Water Rates) (Amendment) Rules, 2018, No. WRD272 KBN 2017(P-3) Dated: 18thSeptember, 2018.

3.2.13 Kerala

Water rates are levied mainly based on of type of land, area of land and the number of crops getting benefit from irrigation work. The State Government introduced revision in the water rates with effect from 18.09.1974 on the basis of classification of land as (a) benefited by an irrigation work irrigating or useful for the drainage of over 81 hectares, (b) benefited by a Lift irrigation

work, i.e., an irrigation work by which water for irrigation purposes is supplied with the aid of pump-sets and other mechanical devices, and (c) benefited by other Lift irrigation works (not covered in b), irrigating or useful for the drainage of more than 2 hectares but less than 81 hectares.

The crop-wise water rates in the State of Kerala are given below:

(Unit: Rs/ha)

Season/Type of Source	S.No.	Name of Crop	Water Rates Flow Irrigation	Water Rates Lift Irrigation	Date since Applicable
1	2	3	4	5	5
Regd. single wet crop land and Other regd. Wet land	1.	Two paddy crops	62.00	93.00	18-09-1974
	2.	More than two paddy crops	99.00	148.50	18-09-1974
Land made fit for cultivation	3.	Only one Paddy crop	37.00	93.00	18-09-1974
	4.	Two paddy crops	62.00	148.50	18-09-1974
	5.	More than two paddy crops	99.00	93.00	18-09-1974
Others	6.	Other land benefitted	62.00	93.00	18-09-1974

Source: Information vide letter No. PL2-39816/2013 12th October 2015 from O/o the Engineer-in-Chief, Irrigation & Administration, Government of Kerala

3.2.14 Madhya Pradesh

The basis for fixing the water rate is the net additional income earned by the farmers on account of their crops being irrigated subject to the stipulation that it should be limited to the paying capacity of the farmers.

The water rates fixed are based upon:

(1) Geographical unit

(2) System and type of irrigation

(3) Seasons and crops

(4) Confessional water rates

(5) Location of the project

(6) Agreement rates

The State Government has revised the water rates for agricultural purposes with effect from 01.11.2005, through amendment vide Notification No. CR-9-92-Med-XXXI-1931(No. 3 of 1931) dated 31.12.2005. Uniform crop-wise water rates are adopted in the State both for Flow and Lift irrigation schemes.

The crop-wise water rates in the State of Madhya Pradeshare given below:

(Unit: Rs/ha)

Season	S.No.	Name of Crop	Flow irrigation	Lift irrigation	Date since Applicable
1	2	3	4	5	6
Kharif	1.	Paddy	85	85	01-11-2005
	2.	Groundnut	50	50	01-11-2005
	3.	Jowar	50	50	01-11-2005
	4.	Moong	50	50	01-11-2005
	5.	Soyabean	50	50	01-11-2005
	6.	Sesame	50	50	01-11-2005
	7.	Tur	50	50	01-11-2005
	8.	Urd	50	50	01-11-2005
	9.	Cotton	70	70	01-11-2005
	10.	Barley	630	630	01-11-2005
	11.	Brinjal	630	630	01-11-2005
	12.	Carrot	630	630	01-11-2005
	13.	Chilli	630	630	01-11-2005
	14.	Cucumber	630	630	01-11-2005
	15.	Fenugreek	630	630	01-11-2005
	16.	Ginger	630	630	01-11-2005
	17.	Garlic	630	630	01-11-2005
	18.	Guar-pali	630	630	01-11-2005
	19.	Okra	630	630	01-11-2005
	20.	Mulberry	630	630	01-11-2005
	21.	Pea	630	630	01-11-2005
	22.	Poppy Seeds	630	630	01-11-2005
	23.	Pumpkin	630	630	01-11-2005
	24.	Potato	630	630	01-11-2005
	25.	Radish	630	630	01-11-2005
	26.	Spinach	630	630	01-11-2005
	27.	Tobacco	630	630	01-11-2005
	28.	Tomato	630	630	01-11-2005

Season	S.No.	Name of Crop	Flow irrigation	Lift irrigation	Date since Applicable
1	2	3	4	5	6
Kharif	29.	Turmeric	630	630	01-11-2005
	30.	Watermelon	630	630	01-11-2005
	31.	Green Vegetables	630	630	01-11-2005
Rabi	32.	Paddy	155	155	01-11-2005
	33.	Wheat			
	35 (i)	Palewa	125	125	01-11-2005
	35 (ii)	extra water each time	75	75	01-11-2005
	34.	Gram	75	75	01-11-2005
	35.	Coriander	75	75	01-11-2005
	36.	Groundnut	75	75	01-11-2005
	37.	Moong	75	75	01-11-2005
	38.	Mustard	75	75	01-11-2005
	39.	Safflower	75	75	01-11-2005
	40.	Sunflower	75	75	01-11-2005
	41.	Soybean	75	75	01-11-2005
	42.	Tur	75	75	01-11-2005
	43.	Fodder Crops	480	480	01-11-2005
Others	44.	Bananas	960	960	01-11-2005
	45.	Betel	960	960	01-11-2005
	46.	Garden Crops	960	960	01-11-2005
	47.	Rubber Plants	960	960	01-11-2005
	48.	Fodder crops	80	80	01-11-2005
	49.	Cauliflower	630	630	01-11-2005
	50.	Ladies Finger	630	630	01-11-2005
	51.	Sugarcane	960	960	01-11-2005

Source: Information received vide letter No. 3352007/10 dated 26th October, 2021 from Office of the Engineer-in-Chief, Water Resources Department, Government of Madhya Pradesh

3.2.15 Maharashtra

The fixation of the water rates in the State is governed by:

i. Volume of water supplied and capacity of farmer to pay water charges.

ii. Total recoveries to be at least equal to the annual cost incurred in providing services.

iii. Tapping of full potential, and

iv. The level of the average gross income obtained from the crop under the usual conditions and productivity.

The rates for Flow irrigation in respect of non-cash crops are fixed roughly at 6% of the gross income from these crops and about 12% of the gross income from cash crops, as recommended by the Maharashtra State Irrigation Commission. The water rates are fixed to meet the expenditure on maintenance and repairs of irrigation projects and also to ensure 1% return on Capital cost on 01.07.2003.

The crop-wise water rates in the State of Maharashtra in respect of Flow and Lift Irrigation are given below:

Bulk Water Rates for Irrigation Volumetric Rates for Flow Irrigation

(Unit: Paise per Cum)

S. No.	Season	For Registered Water User Associations	For individual beneficiaries
1	2	3	4
1	Kharif	3.38	4.50
2	Rabi	6.75	9.00
3	Hot Weather	10.13	13.50

Volumetric Rates for private Lift Irrigation Scheme

(Unit: Paise per Cum)

S. No.	Classification	Source of Water Supply	Water Rate		
			Kharif	Rabi	H.W.
1	2	3	4	5	6
1	Assured Water Supply	Reservoirs of major projects	3.66	7.31	10.97
2		Reservoirs of medium projects, canals of major and medium projects, storage tanks	2.93	5.85	8.78
3	Regulated Water Supply including conveyance losses	Regulated river reach downstream of dam / K.T. weirs with back up reservoirs on upstream/ tail race water of hydropower stations	2.93	5.85	8.78

S. No.	Classification	Source of Water Supply	Water Rate		
			Kharif	Rabi	H.W.
1	2	3	4	5	6
4	Partly assured water supply	Canals of minor projects, K.T. weirs without back up of reservoirs & arrangement without any regulation in absence of bandhara	1.46	2.93	4.39
5	Reservoir constructed at own cost by water user entity for capacity of at least 8 months water requirement and also maintained at its own cost	Reservoir constructed at own cost by water user entity for capacity of at least 8 months water requirement and also maintained at its own cost	0.47	0.94	1.40

Source: Maharashtra Water Resources Regulatory Authority, Order No.1/2018, Dated 11-01-2018. "Review and Revision of Bulk Water Rates for Domestic, Industrial & Agricultural Irrigation Use in Maharashtra State".

3.2.16 Manipur

No elaborate system for fixing irrigation water rates has been in vogue in the State. The rates for different crops were fixed in 24.08.2013, considering the rates collected by other States like Odisha, Andhra Pradesh, and Karnataka etc having irrigation facilities. For Major and Medium irrigation, flat rates were adopted for Flow and Lift irrigation irrespective of location of the project.

Paddy (paddy I & paddy II), moong, wheat, peas, mustard, potato and cabbage are the principal crops. The principal cropping seasons in the State are Rabi (November to February), Paddy-I (Early Paddy) and Paddy-II (Kharif) which span the periods from February to June and June to October respectively.

Presently, uniform water rates are charged for Flow and Lift irrigation schemes. The Irrigation & Flood Control Department in the State supplies irrigation water to farmers and raw water to the State Public Health Engineering Department (SPHED) from completed projects.

The crop-wise water rates in the State of Manipur are given below:

(Unit: Rs/ha)

Seasons.	S.No.	Name of Crops	Water Rates Flow Irrigation	Water Rates Lift Irrigation	Date since Applicable
1	2	3	4	5	6
Kharif	1.	Paddy II	305.00	305.00	24-08-2013
	2.	Others	184.00	184.00	24-08-2013
Rabi	3.	Wheat	305.00	305.00	24-08-2013
	4.	Paddy (paddy I)	602.00	602.00	24-08-2013
	5.	Mustard	184.00	184.00	24-08-2013
	6.	Moong	184.00	184.00	24-08-2013
	7.	Other	184.00	184.00	24-08-2013
	8.	Peas	184.00	184.00	24-08-2013

Source: Information vide letter No. 3/1/83-IFC(Pt) 27th August 2013 from O/o the Engineer-in-Chief, Irrigation & Flood Control Department, Government of Manipur

3.2.17 Meghalaya

No water rates/ charges for irrigation purposes are in vogue in the State as informed by the state vide letter No CE/IRRI-1141/Pt/2021-22-131 dated 27thSeptember 2021 from O/o the Chief Engineer, Water Resource Department, Government of Meghalaya.

3.2.18 Mizoram

In the State, no water rates/ charges are levied for irrigation purpose as informed by the state vide letter No B.20031/1/2015-CE(MI)/Pt. dated 02nd September 2016 from O/o the Engineer-in-Chief, Irrigation Department, Government of Mizoram.

3.2.19 Nagaland

In the State, no water rates/ charges are levied for irrigation purpose as informed by the state vide letter No IFC/TECH/CWC-1/2009-10/4687 dated 19th March 2015 from O/o the Engineer-in-Chief, Irrigation & Flood Control, Government of Nagaland.

3.2.20 Odisha

In the State, Water Services Wing deals with the Major & Medium Irrigation Projects of Water Resources Department, beside collection of water charges/fees. The water rates for Flow irrigation from Irrigation schemes have been revised vide notification No.494 dated 05-04-2002.

The principal crop grown in the state is paddy. Cropping seasons in the state are:

(1) Kharif (July to December)

(2) Rabi (January to March)

(3) Summer (April to June)

The crop-wise water rates in the State of Odisha are given below:

(Unit: Rs./ha)

Seasons.	S.No.	Name of Crops	Water Rates Flow Irrigation	Date since Applicable
1	2	3	4	5
Rabi	1.	Paddy (Dalua)	450.00	05-04-2002
	2.	Tobacco	420.00	05-04-2002
	3.	Potato, Onion & Cotton	280.00	05-04-2002
	4.	Peas & Vegetables	230.00	05-04-2002
	5.	Wheat	170.00	05-04-2002
	6.	Groundnut	170.00	05-04-2002
	7.	Fodder	170.00	05-04-2002
	8.	Arhar	170.00	05-04-2002
	9.	Chillies	170.00	05-04-2002
	10.	Maize	140.00	05-04-2002
	11.	Orchards	334.00	05-04-2002
	12.	Sugarcane	500.00	05-04-2002
	13.	Jute	84.00	05-04-2002
	14.	Pulses	60.00	05-04-2002
	15.	Oilseeds	60.00	05-04-2002
	16.	Mustard	60.00	05-04-2002
	17.	Betel leaf & Saru	840.00	05-04-2002
	18.	Sun hemp	200.00	05-04-2002
	19.	Ragi	70.00	05-04-2002
	20.	Ganja	930.00	05-04-2002

Source: Information vide letter No. WP-GL-05/15(Part-IV) 39560 dated 15th November, 2015 from Office of the Engineer-in-Chief, Water Resources Department, Government of Odisha.

3.2.21 Punjab

New water rates were introduced in the State for irrigation purpose with effect from 12.11.2014.

The crop-wise water rates in the State of Punjab are given below:

(Unit: Rs/ha)

Season/Type of Source	Name of Crop	Water Rates		Date since Applicable
		Flow Irrigation	Lift Irrigation	
1	3	4	5	6
Kharif	All Crops	123.50	123.50	12-11-2014
Rabi	All Crops	123.50	123.50	12-11-2014

Source: Information received vide memo no. 9785/6C dated 12th November, 2021 from Office of the Chief Engineer-I, Water Resources Department, Government of Punjab.

3.2.22 Rajasthan

The benefit of irrigation reaches to the cultivators of Rajasthan through the following irrigation schemes/projects:

i) Ganga Canal, Bhakra, Ghagger Rajasthan and Chambal Canal (irrigation under perennial channels).

ii) Irrigation works constructed or improved after 01.01.1952 and all works in the former estates of Banswara, Dungarpur and Pratapgarh.

iii) Pre-1952 irrigation works except inundation irrigation work.

iv) Inundation irrigation works.

The State Government has revised the crop-wise water rates vide Notification No. F.13 (4) Irg/79 dated 24.05.1999, by amending 'The Rajasthan Irrigation and Drainage Rules, 1955'.

The principal crops of the state are Bajra, Jowar, Kharif pulses, Til, Groundnut etc. in Kharif season and Wheat, Mustured, gram, barley and Onion in Rabi season. The Principal Seasons of the state are Kharif (May to September), Rabi (October to April) and Zaid (February to June).

The crop-wise water rates in the State of Rajasthan are given below:

(Unit: Rs/ha)

Name of Crops	Water Rates								
	Pre1952 Non inundation Schemes			Perennial & post 1st January 1952 improved schemes			Pre1952 inundation schemes		
	Flow Irrigation	Lift Irrigation (Central Govt.)	Lift Irrigation (State Govt.)	Flow Irrigation	Lift Irrigation (Central Govt.)	Lift Irrigation (State Govt.)	Flow Irrigation	Lift Irrigation (Central Govt.)	Lift Irrigation (State Govt.)
1	2	3	4	5	6	7	8	9	10
Sugarcane	247.00	494.00	123.52	286.52	573.04	143.26	103.74	207.48	51.87
Rice(Paddy)	113.62	227.24	56.81	197.60	395.20	98.80	49.40	98.80	24.70
Cotton	143.26	286.52	71.63	177.84	355.68	88.92	88.92	177.84	44.46
Maize	37.05	74.10	18.53	66.69	133.38	33.35	29.64	59.28	14.82
Bajra	37.05	74.10	18.53	66.69	133.38	33.35	29.64	59.28	14.82
Jowar	37.05	74.10	18.53	66.69	133.38	33.35	29.64	59.28	14.82
Pulses	66.69	133.38	33.35	79.04	158.08	39.52	49.40	98.80	24.70
Guwar	66.69	133.38	33.35	79.04	158.08	39.52	37.05	74.10	18.53
Simmhemp and grass	66.69	133.38	33.35	66.69	133.38	33.35	49.40	98.80	24.70
Vegetables	74.10	148.20	37.05	108.68	217.36	54.34	41.99	83.98	21.00
Other Kharif crops	88.92	177.84	44.46	113.62	227.24	56.81	64.22	128.44	32.11
Wheat	103.74	207.48	51.87	148.20	296.40	74.10	64.22	128.44	32.11
Barley	56.81	113.62	28.41	79.04	158.08	39.52	37.05	74.10	18.53
Gochani and Bajra	79.04	158.08	39.52	108.68	217.36	54.34	56.81	113.62	28.41
Gram first watering	66.69	133.38	33.35	74.10	148.20	37.05	66.69	133.38	33.35
Gram second or more watering	93.86	187.72	46.93	103.68	207.36	51.84	46.93	93.86	23.47
Fodder	88.92	177.84	44.46	88.92	44.46	44.46	49.40	98.80	24.70
Oilseeds	88.92	177.84	44.46	113.62	44.46	56.81	64.22	128.44	32.11
Water nuts	123.50	247.00	61.75	177.84	355.68	88.92	64.22	128.44	32.11
Indigo & other dyes	88.92	177.84	44.46	177.84	355.68	88.92	64.22	128.44	32.11
Tobacco	116.09	232.18	58.05	177.84	355.68	88.92	64.22	128.44	32.11
Lucame and Poppy	103.74	207.48	51.87	177.84	355.68	88.92	54.34	108.68	27.17
Zeera (cumin)	93.86	187.72	46.93	177.84	355.68	88.92	53.34	108.68	26.67
Other crops of Rabi	64.22	128.44	32.11	123.44	246.88	61.72	64.22	128.44	32.11

Source: State reported no change in water rates for Irrigation vide letter no. F.3(18).CEWR/SE(W)/Water Rates/1264 dated 8th July, 2021 from Office of the Chief Engineer, Water Resources Department, Rajasthan, Jaipur.

3.2.23 Sikkim

The Department of Irrigation and Flood control deals with irrigation, cultivable land and surface Flow irrigation channel for water rates in the State. There are three types of land in this State namely Paddy field, Cardamom field and dry field. Similarly, the crops are classified in Class I, Class II and Class III and the water rates are minimum Rs.10/- per hectare and Maximum Rs.250/- per hectare.

The crop-wise water rates in the State of Sikkim are given below:

(Unit: Rs/ha)

Season	S.No.	Name of Crop	Water Rates	Date since Applicable
1	2	3	4	5
Paddy field	1.	Class I	100.00	2002
	2.	Class –II	80.00	2002
	3.	Class III	60.00	2002
Cardamom field	4.	Class I	250.00	2002
	5.	Class –II	200.00	2002
	6.	Class III	150.00	2002
	7.	Class IV	100.00	2002
Dry Field	8.	Class I	30.00	2002
	9.	Class –II	20.00	2002
	10.	Class III	10.00	2002

Source: Information vide letter No. IFC dated 07th March, 2015 from O/o the Additional Secretary, Irrigation & FC Department, Government of Sikkim.

3.2.24 Tamil Nadu

Following systems are taken into account while fixing the water rates for irrigation in the State:

1. Wet Assessment
2. Dry Assessment
3. Special Rates of Water Cess
4. Standard Scales of Water Cess

The system of water rates for irrigation prevalent in the State encompasses Wet Assessment, Dry Assessment, Special Rates of Water Cess and Standard Scales of Water Cess. Wet lands are those, which receive irrigation from a recognized source. The sources of irrigation are classified as class I, II, III, IV and V as per their capacity to irrigate the lands. The basic wet assessment of

these lands ranges from Rs.7.41 to Rs.54.36 per hectare. The lands that do not have any assured irrigation from Government sources are classified as dry lands. The basic assessment ranges from Rs.1.24 to Rs.19.77 per hectare for the dry lands, not getting irrigation from recognized Government sources. Wet lands normally getting assured supply of water from Government sources of irrigation for two crops are registered as double crop-wet lands. The second crop is charged generally at half the rate as that of the first crop assessment. In the case of single crop wet lands, if a second crop is raised, an extra charge is levied which is ordinarily half the assessment.

To augment the revenue from irrigation, the State Government has introduced additional wet assessment with effect from 01.07.1962 as under:

Details of Additional Wet Assessment

(i) Irrigation from Class I and II sources :		
a)	Single Crop Wet Lands	45% of the assessment. Total of wet assessment plus additional assessment not to exceed Rs.44.48 per ha. per crop.
b)	Double Crop Wet Lands	45% of the assessment. Total of wet assessment plus additional assessment not to exceed Rs.66.72 per ha. per crop.
(ii) Irrigation from Class III, IV and V sources :		
a)	Single Crop Wet Lands	30% of the assessment. Total of wet assessment plus additional assessment not to exceed Rs.29.65 per ha. per crop.
b)	Double Crop Wet Lands	30% of the assessment. Total of wet assessment plus additional assessment not to exceed Rs.42 per ha. per crop.

When dry lands are irrigated with water from Government sources of irrigation, water cess is levied in addition to the dry assessment. For normal extension of irrigation to dry lands under the registered sources, standard water rates are levied. The standard water rates have been fixed by dividing the irrigation sources into two categories. The irrigation sources placed in class I and II fall in the first category and the sources in the III, IV and V classes in the second category. The standard water rates range from Rs.3.71 to Rs.9.88 per hectare for first crop, half of it for second crop and one-fourth for third and subsequent crops. For Double Crops, the rates are Rs.11.12 or Rs.14.83 per hectare if the irrigation is from the source in the second category or from the first category. An additional water cess is levied on the above dry lands, at the following rates w.e.f. 06.11.1987.

Details of Additional Dry Land Assessment

Sources of Irrigation		Cess Levied
a)	Irrigation from I and II class sources.	75% of the water cess. Where more than one crop is grown, for the first crop the aggregate of land revenue, water cess and additional water cess should not exceed Rs.37.07 per hectare and in the case of second and subsequent crops water cess and additional water cess at 75% is levied.
b)	Irrigation from III, IV and V class sources	37.5% of the water cess. Where more than one crop is grown, for the first crop the aggregate of land revenue, water cess and additional water cess should not exceed Rs.37.07 per hectare and in the case of second and subsequent crops water cess and additional water cess at 37.5% is levied.

In respect of new irrigation sources taken up as Major or Medium Irrigation Projects, or Minor Irrigation Works catering to new areas, special rates for levying the water cess are prescribed. The usual rates of water cess in respect of new tanks taken up under the S.M.I.P. are Rs. 37.07 per ha for first crop, Rs.18.53 per ha for II or III crop and Rs. 55.60 per ha for double crops

The revenue due to irrigation is settled at the time of Jamabandhi and collected along with Land Revenue. Following are the standard scale of water cess with effect from 6.11.1987 on dry lands getting irrigation from Government sources for which no special water cess are issued:

Description of crop			Rate of levy for lands under different classes of sources (Rs./ha.).			
I.	Long term crops		I Class			
	a) Crops on ground for more than six months but less than ten months. b) Crops on ground for more than ten months.		59.30 69.19			
II.	a) Crops on ground for more than ten months.		II Class	III Class	IV Class	V Class
			51.89	37.07	29.65	22.42
	b) Other Crops	I Class	II Class	III Class	IV Class	V Class
	I. Crop	39.54	34.60	24.71	19.77	14.83
	II. Crop	19.77	17.30	12.36	9.88	7.41
	III. Crop	9.88	-	-	-	-

Besides the above system, crop-wise water rates are levied in respect of lands benefitted by certain projects like Lower Bhawani, Mettur Canal Scheme, ChittarPatankal, Amravathy, Neyyar Irrigation, Villa Thurai irrigation, for which additional water cess is also levied, in addition to the water rates, at the following rates:

I & II Class :	75% of water cess (the levy is subject to aggregate amount of Rs.37.07 per hectare per crop for land revenue, water cess and additional water cess).
III, IV and V Class :	37.5% of water cess (the levy is subject to aggregate amount of Rs.37.07 per hectare per crop for land revenue, water cess and additional water cess).

There is also a provision of special water rates for Flow irrigation for some of the irrigation projects viz. Araniar, Sathanur, Tholudur and Cauvery Mettur varying with the type of land and crop.

The crop-wise water rates in the State of Tamil Nadu in respect of Flow Irrigation are given below:

(Unit: Rs/ha)

Season/Type of Source	S.No.	Name of Crops	Water Rates	Date since Applicable
1	2	3	4	5
Lower Bhawani Project	1.	Rice& Tobacco	37.07	06-11-1987
	2.	Millet	18.53	06-11-1987
	3.	Cotton	49.42	06-11-1987
Mettur Canal Scheme	4.	Vegetables & Rice	37.07	06-11-1987
	5.	Fruit Trees	40.42	06-11-1987
	6.	Millets	18.53	06-11-1987
Chittar Pattankal Project	7.	Cotton	48.42	06-11-1987
	8.	Tobacco	37.07	06-11-1987
	9.	Rice & Tobacco	49.42	06-11-1987
	10.	Millets	42.71	06-11-1987
	11.	Cotton	61.78	06-11-1987
Amaravathi Project	12.	Vegetables & Sugarcane	49.42	06-11-1987
	13.	Fruit Trees	61.78	06-11-1987
	14.	Rice & Tobacco	37.07	06-11-1987
	15.	Millets	18.53	06-11-1987
Neyyar Irrigation Project Stage-II	16.	Vegetables, Tobacco & Rice	37.07	06-11-1987
	17.	Fruit Trees	40.42	06-11-1987
	18.	Millets	18.53	06-11-1987
	19.	Sugarcane	49.42	06-11-1987
Araniar	20.	Vegetables	37.07	06-11-1987
	21.	Fruit Trees	40.42	06-11-1987
	22.	Dry land : I crop (wet)	11.12	06-11-1987
	23.	Dry land : I crop (dry)	8.35	06-11-1987

Season/Type of Source	S.No.	Name of Crops	Water Rates	Date since Applicable
1	2	3	4	5
Araniar	24.	Dry land : II crop (wet)	5.56	06-11-1987
	25.	Dry land :II crop (dry)	5.56	06-11-1987
	26.	Dry land : III crop (wet)	5.56	06-11-1987
Sathanur (North South Arcot)	27.	Dry land : III crop (dry)	2.77	06-11-1987
	28.	Duffasal crop	16.86	06-11-1987
	29.	Dry land : I crop	37.07	06-11-1987
	30.	Dry land : II crop	18.53	06-11-1987
	31.	Dry land : III crop	9.27	06-11-1987
Willington Reservoir (Arcot)	32.	Dry land : I crop	37.07	06-11-1987
	33.	Dry land : II crop	18.53	06-11-1987
	34.	Dry land : III crop	9.27	06-11-1987
	35.	Duffasal crop	55.60	06-11-1987
Cauvery Mettur	36.	Dry land : I crop	24.71	06-11-1987
	37.	Dry land : II crop	12.36	06-11-1987
	38.	Dry land : III crop	6.18	06-11-1987
	39.	Duffasal crop	37.07	06-11-1987

Dry land : 1 Crop (wet) = Paddy, Sugarcane etc.

Dry land : 1 Crop (dry) = Groundnut, Pulses

Duffasal crop = This generally means cash crops such as sugarcane, cotton etc.

Source: Information vide letter No. CMWSSB/Fin/B&C/Spl./11 05th December 2011 from O/o Managing Director, Chennai Metropolitan Water Supply and Sewage Board, Government of Tamil Nadu.

3.2.25 Telangana

The data pertaining to Telangana pertains to erstwhile state of Andhra Pradesh at 2.2.1 in this Chapter.

The crop-wise water rates in the State of Telangana are given below:

(Unit: Rs/ha)

Season/Type of Source	S.No.	Name of Crop	Water Rates	Date since Applicable
1	2	4	5	6
Category-I source	1.	First and single wet crop	494.00	01-07-1996
	2.	Second and third wet crop	370.50	01-07-1996
	3.	First irrigated dry crop & Second and third irrigated dry crop	247.00	01-07-1996
	4.	Long duration crop	864.50	01-07-1996
Category-II source	5.	First and single wet crop &Second and third wet crop	247.00	01-07-1996
	6.	First irrigated dry crop & Second and third irrigated dry crop	148.20	01-07-1996
	7.	Long duration crop	864.50	01-07-1996

Category I: Any source of irrigation under Major and Medium Irrigation Projects.
Category II: Any source of irrigation under other than Major and Medium Irrigation Projects
Wet Crop: Paddy, Dry Crop: Sunflower, Groundnut, Jowar etc., Long duration crop: Sugar cane.
No separate charges for lift irrigation.
Source: Information vide letter No. ENC (I)/DCE IV/OT5/AEE-17/Misc/2015 dated 25th February 2015 from Office of the Engineer-in-Chief (Irrigation), Irrigation & CAD Department, Government of Telangana.

3.2.26 Tripura

In the State, paddy i.e. Aman (June to October) and Aush (March to August) are the principal crops. The benefit of irrigation reaches the irrigators through lift and diversion schemes. The State charges at the rate of Rs.312.50 per hectare per crop as the water charges w.e.f October 2003.

The crop-wise water rates in the State of Tripura are given below:

(Unit: Rs./ha)

Season/Type of Source	S.No.	Name of Crops	Water Rates	Date since Applicable
1	2	3	4	5
Kharif	1.	Paddy	312.50	01-10-2003
	2.	Maize	312.50	01-10-2003
	3.	Groundnut	312.50	01-10-2003
	4.	Cotton	312.50	01-10-2003
	5.	vegetables	312.50	01-10-2003
	6.	Jute	312.50	01-10-2003
	7.	Cashew nut	312.50	01-10-2003
Rabi	8.	Wheat	312.50	01-10-2003
	9.	Pulses	312.50	01-10-2003
	10.	Rapeseed	312.50	01-10-2003
	11.	Mustard	312.50	01-10-2003
	12.	Turmeric	312.50	01-10-2003
	13.	Ginger	312.50	01-10-2003
	14.	Orange	312.50	01-10-2003
	15.	Vegetables	312.50	01-10-2003
Other	16.	Paddy	312.50	01-10-2003
	17.	Groundnut	312.50	01-10-2003
	18.	Jute	312.50	01-10-2003
	19.	Vegetable	312.50	01-10-2003
	20.	Lichi	312.50	01-10-2003
	21.	Mango	312.50	01-10-2003
	22.	Pineapple	312.50	01-10-2003
	23.	Guava	312.50	01-10-2003

Source: Information vide letter No. F.8(129)/CE/WR/W/2009/979 01st March 2016 from O/o the Chief Engineer, Public Works Department (Water Resources), Government of Tripura

3.2.27 Uttar Pradesh

In the State, the water rates for irrigation purposes have been fixed on the basis of the availability of water. On these considerations, the canal system has been classified into four Schedules. The canal system which is fed by perennial rivers having no scarcity of water has been kept in Schedule-I, while Schedule-II includes the canal system which is fed by non-perennial rivers. Schedule-III comprises the canal system of rain-fed reservoirs, lakes or ponds having less assured availability of water while the canal system in hilly terrain or in Tarai region has been kept in Schedule-IV.

The benefit of irrigation reaches the cultivators through a number of canal systems. Schedule-wise coverage of canal systems in the State is as under:

i. Schedule-I: Upper Ganga Canal, Lower Ganga Canal, Eastern Yamuna Canal, Madhya Ganga Canal, Eastern Ganga Canal, Agra Canal, Sharda Canal, Sharda Sahayak Canal, Gandak Canal and all such pump canals on which permanent pump houses have been constructed and all those pump canals which augment water in the other canals included in this Schedule.

ii. Schedule-II: Doon Canal, Ramganga Canal, Afzalgarh Canal, Tumaria Canal, Pili Canal (Lalitpur), Betwa Canal, Urmil Dam Canal, Maudha Dam Canal, Balmiki Canal (Chen Dam), Ken Canal (Paddy only), Gursarai Canal, Bhander Canal, Jamini Canal, Banganga Canal, Ghaghra Canal, Rohini Canal, Danda Canal, Belan Canal, Gularia Canal, Rest pump canals excepting pump canals of Schedule-I, BhagwanpurSarovar (Gonda), KalluwalaBundhi (Bijnore), Jamalpur Tal and Buchera Tal (Lalitpur)

iii. Schedule-III: Bijnor Canal, Kosi, Behalla, Ghunghra and Ganga Nand Canals, Rohilkhand Canals, Lalitpur Canals, Dhasan Canal, Pahuj and Garmau Canal, Barwar Canal, Arjun Canal, Kabrai Canal, Ranipur Canal, Ken Canal (except paddy), Keolari Canal, Barwa Canal, Kamal Kheri and Pindari Canal, Ghori Canal, Garai and Jirgo Canal, Karmnasa and Ghaghar Canals, Nikoya Canal, Patharwa Canal, Beguganj, Canal, Sukhra Tal Canal, Siawari Canal, all other canals fed by rivers, tanks, reservoirs and lakes, except those specifically mentioned in schedules I, II and IV, HimayaBundhi, BhokaBundhi, Majhgawan Reservoir(Hamirpur), JagnerBundhi, Beeder Reservoir, Damoban Reservoir,

Rajkkhour Reservoir, Barwatola Reservoir, Piparadih Reservoir, Khatauli Reservoir, Madwa Reservoir, SemrjMargadha Reservoir, Kota Reservoir, Phulwar Reservoir, Badwadih Reservoir, DhartiDolwa Reservoir, Sagar Reservoir (ShevpatiSagar), Siswa Reservoir, Betwa Reservoir, Majhuli Reservoir, Mekra Nala system, Bajha Reservoir, KosiJheel Reservoir (MotiSagar Reservoir), Mali Reservoir, Masi Reservoir, Semra Reservoir, Marathi Reservoir, Kohargaddi Reservoir, Basehwa Reservoir, Ganeshpur Reservoir, Motipur Reservoir, Srinagar Tal Cadal System, Sanwaha Tank, MelaniLudhiara Tal, Bar Tal, Dhawa Tal, Gundorapur Tal, ArjunKheria Tal, Samoghar Tal, Pabalgaon Tank, Niao Tal, Sar Tal, Nihona Tal, Barwapur Tal, Manpur Tal, RampuraManhanur Tal, Baghaura Tal, Murari Tal, Gangoni Tal, Karila Tal, Panari Tal, Jhakhaura Tal, Gitauli Tal, PuraKalan Tal, Bunt Tal, Bijroutha Tal, GajeraTal, Kalapahar Tal, Kailwara Tal, Kakrai Tal, Bijakhet Tal, BinakaMafi Tank, Sagoli Tal, SarolBisanpura Tal, SekhraDhawn Tal, Pulra Tal, Ghurat Tal, Katera Tal, Phutera Tal, KachneoJheel, MagarpurJheel, Arjar Tal, ItauraBundhi, Dora Bundhi, PandawahaBundhi, GursaraiBundhi, BhandarawaraBundhi No.1, BhandarwaraBundhi No.2, BhandaraBundhi, BakharaBundhi, MarhaBundhi, All lakes, reservoirs and tanks excepting those specifically mentioned in Schedule-II.

iv. Schedule-IV: Rohilkhand Canal not fed by Sarda Canal or Reservoir, Rampur Canals excepting KosiBahails, Ghungha and Gangan Canals, all Gravity Canals in hilly and Tarai region excepting (i) Doon Canals, (ii) Canal systems controlled, by Komaun Water Rules, (iii) Specifically mentioned canals system in Schedule-I, II, II and IV. Bundhies in Districts Allahabad, Varanasi, Mirzapur, Jhansi, Lalitpur, Hamirpur, Jalaun and Banda, excepting those specifically mentioned in Schedule-II and III.

v. Schedule-V: As per Gazette notification no. 1763/XIV-27-L-4-2Rate/92 T.C. dated: September 3, 2014, of the Government of Uttar Pradesh the following crops have been included in Schedule V:

Sugarcane, Paddy, Vegetable, Garden (per fasal) water nuts and poppy, Potato, Tobacco, Wheat, barley and crops mixed with barley or wheat, Cotton, Fodder crop, Green manure, Other Rabi crops, Other Kharif crops, Mentha.

vi. Schedule-VI: As per Gazette notification no. 1763/XIV-27-L-4-2Rate/92 T.C. dated: September 3, 2014, of the Government of Uttar Pradesh the following crops have been included in Schedule VI :

Sugarcane, Paddy, Vegetable, Garden (per fasal) water nuts and poppy, Potato, Tobacco, Wheat, barley and crops mixed with barley or wheat, Cotton, Fodder crop, Green manure, Other Rabi crops, Other Kharif crops, Mentha.

Distinct water rates exist for each schedule of canal systems. The State Government revised the water rates with effect from 03.09.2014.

The crop-wise water rates in the State of Uttar Pradesh are given below:

(Unit: Rs/ha)

Season	S.No.	Name of the Crops	Flow Irrigation	Lift Irrigation	Date since applicable
1	2	3	4	5	6
Schedule-I	1.	Sugarcane	3071.18	1535.59	03-09-2014
	2.	Paddy	1862.97	931.49	03-09-2014
	3.	Vegetable, Garden (per fasal) water nuts and poppy	1862.97	931.49	03-09-2014
	4.	Potato	2309.23	1155.59	03-09-2014
	5.	Tobacco	1981.85	991.90	03-09-2014
	6.	Wheat, barley and crops mixed with barley or wheat	1862.97	931.49	03-09-2014
	7.	Cotton	736.62	368.31	03-09-2014
	8.	Fodder crop	643.08	321.54	03-09-2014
	9.	Green manure	448.20	224.10	03-09-2014
	10.	Other Rabi crops	1373.85	687.90	03-09-2014
	11.	Other Kharif crops	1122.46	561.23	03-09-2014
	12.	Mentha	1862.97	931.49	03-09-2014
Schedule-II	13.	Sugarcane	3071.18	1535.59	03-09-2014
	14.	Paddy	1122.46	561.23	03-09-2014
	15.	Vegetable, Garden (per fasal) water nuts and poppy	1122.46	561.23	03-09-2014
	16.	Potato	2309.23	1155.59	03-09-2014
	17.	Tobacco	1373.85	687.90	03-09-2014

Season	S.No.	Name of the Crops	Flow Irrigation	Lift Irrigation	Date since applicable
1	2	3	4	5	6
Schedule-II	18.	Wheat, barley and crops mixed with barley or wheat	1122.46	561.23	03-09-2014
	19.	Cotton	383.90	192.92	03-09-2014
	20.	Fodder crop	259.18	130.56	03-09-2014
	21.	Green manure	192.92	97.44	03-09-2014
	22.	Other Rabi crops	736.62	368.31	03-09-2014
	23.	Other Kharif crops	643.08	321.54	03-09-2014
	24.	Mentha	1122.46	561.23	03-09-2014
Schedule-III	25.	Sugarcane	1537.54	769.74	03-09-2014
	26.	Paddy	830.15	415.08	03-09-2014
	27.	Vegetable, Garden (per fasal) water nuts and poppy	830.15	415.08	03-09-2014
	28.	Potato	1537.54	769.74	03-09-2014
	29.	Tobacco	736.62	368.31	03-09-2014
	30.	Wheat, barley and crops mixed with barley or wheat	830.15	434.56	03-09-2014
	31.	Cotton	259.18	130.56	03-09-2014
	32.	Fodder crop	192.92	97.44	03-09-2014
	33.	Green manure	192.92	97.44	03-09-2014
	34.	Other Rabi crops	448.20	224.10	03-09-2014
	35.	Other Kharif crops	448.20	224.10	03-09-2014
	36.	Mentha	830.15	434.56	03-09-2014
Schedule-IV	37.	Sugarcane	643.08	321.54	03-09-2014
	38.	Paddy	259.18	130.56	03-09-2014
	39.	Vegetable, Garden (per fasal) water nuts and poppy	259.18	130.56	03-09-2014
	40.	Potato	643.08	321.54	03-09-2014
	41.	Cotton	229.95	114.97	03-09-2014
	42.	Fodder crop	229.95	114.97	03-09-2014
	43.	Green manure	229.95	114.97	03-09-2014
	44.	Other Rabi crops	259.18	130.56	03-09-2014
	45.	Other Kharif crops	259.18	130.56	03-09-2014
	46.	Mentha	259.18	130.56	03-09-2014
	47.	Tobacco	259.18	130.56	03-09-2014
	48.	Wheat	259.18	130.56	03-09-2014
Schedule-V	49.	Sugarcane	6148.20	3075.08	03-09-2014
	50.	Paddy	3722.05	1861.02	03-09-2014

Season	S.No.	Name of the Crops	Flow Irrigation	Lift Irrigation	Date since applicable
1	2	3	4	5	6
Schedule-V	51.	Vegetable, Garden (per fasal) water nuts and poppy	3722.05	1861.02	03-09-2014
	52.	Potato	4616.51	2309.23	03-09-2014
	53.	Tobacco	3967.59	1983.79	03-09-2014
	54.	Wheat, barley and crops mixed with barley or wheat	3722.05	1861.02	03-09-2014
	55.	Cotton	1479.08	740.51	03-09-2014
	56.	Fodder crop	1282.26	641.13	03-09-2014
	57.	Green manure	894.46	448.20	03-09-2014
	58.	Other Rabi crops	2749.64	1375.79	03-09-2014
	59.	Other Kharif crops	2048.10	1025.03	03-09-2014
	60.	Mentha	3722.05	1861.02	03-09-2014
Schedule-VI	61.	Sugarcane	3071.18	1535.59	03-09-2014
	62.	Paddy	1658.36	830.15	03-09-2014
	63.	Vegetable, Garden (per fasal) water nuts and poppy	1658.36	830.15	03-09-2014
	64.	Potato	3071.18	1535.59	03-09-2014
	65.	Tobacco	1479.08	740.51	03-09-2014
	66.	Wheat, barley and crops mixed with barley or wheat	1658.36	830.15	03-09-2014
	67.	Cotton	518.36	259.18	03-09-2014
	68.	Fodder crop	387.79	194.87	03-09-2014
	69.	Green manure	387.79	194.87	03-09-2014
	70.	Other Rabi crops	894.46	448.20	03-09-2014
	71.	Other Kharif crops	894.46	448.20	03-09-2014
	72.	Mentha	1658.36	830.15	03-09-2014

Source: Gazette No. 1763/XIV-27-L-4-2Rate/92 T.C. Dated: September 3, 2014, The Government of Uttar Pradesh

Note: Present water rates has been calculated as per para 3(1), page no. 9 of above mentioned gazette.

3.2.28 Uttarakhand

The State Government has focussed on the land type for the process of fixation of water rates in as much as the rates for hilly regions have been kept different from plain areas. In Uttarakhand, the water rates for irrigation purposes have been fixed on the basis of availability of water in

consideration to U.P. Govt. Notification vide Letter No.2874/ dated 18-09-1995. The canal system has been classified into four schedules:

(i) Schedule -I: Irrigation Block, Upper Ganga canal of Hardwar, thirteen canals of Khatima areas in Rudrapur and four canals in Nanakmatta and all canal systems of increasing water.
(ii) Schedule -II: Dun canal and other than schedule I canal and canal of Kashipur.
(iii) Schedule - III: Canal of Kashipur canal system except in Schedule-II.
(iv) Schedule -IV: All canals of Gurutwa canal excluding Tarai Bhavar and Lift pump canal of schedules I, II, and III.
In this state, proposed water rates for irrigation purposes are also available but there is no water rate other than irrigation purposes.
There are three cropping seasons namely Rabi, Kharif and Zaid in this state. The main crops of the states are Sugarcane, Paddy, Vegetables, Garden, Water nuts, Poppy, Potato, Tobacco, Wheat, Barley, Cotton, Fodder crops, Green manure and other Rabi and Kharif crops.

As per information received through e-mail dated 17th August 2021, **no water rates for irrigation purpose are available at present**.

3.2.29 West Bengal

Presently distinct water rates are in vogue in the State for crops under different irrigation schemes namely, Kongsawati Reservoir Project, Mayurakshi Reservoir Project, Barrage & Irrigation System, Schemes under Purulia and Midnapur District.

Consequent upon a manifold increase in the cost of operation & maintenance of all the Minor Irrigation Installation, a revised Notification vide letter No.1719-MI/9M-23/98(I)/dated 27-6-2003 has been issued from Water Investigation and Development Department with effect from 01.07.2003.

The crop-wise water rates in the State of West Bengal are given below:

(Unit: Rs/ha)

S.No.	Name of Crop	Lift Irrigation	Flow Irrigation	Date since Applicable
1	2	3	4	5
1.	Paddy (Aus) (Transplanted)	1049.78	N.A.	01-07-2003
2.	Paddy (Aus) Direct sown	503.88	N.A.	01-07-2003
3.	Paddy(Amon)	503.88	N.A.	01-07-2003
4.	Jute	503.88	N.A.	01-07-2003
5.	Wheat	503.88	N.A.	01-07-2003
6.	Ground nut	503.88	N.A.	01-07-2003
7.	Paddy (Boro)	2015.52	N.A.	01-07-2003
8.	Potato,	839.80	N.A.	01-07-2003
9.	Maize (Rabi Summer)	839.80	N.A.	01-07-2003
10.	Betel vine	839.80	N.A.	01-07-2003
11.	Vegetable including arum	839.80	N.A.	01-07-2003
12.	Mustard,	251.94	N.A.	01-07-2003
13.	Maize (Kharif)	251.94	N.A.	01-07-2003
14.	Sugarcane (1st year cultivation)	1259.70	N.A.	01-07-2003
15.	Wheat	N.A.	49.40	01-07-2003
16.	Potato & Other crops	N.A.	49.40	01-07-2003
17.	Paddy	N.A.	37.06	01-07-2003
18.	Jowar	N.A.	37.06	01-07-2003
19.	Bajara	N.A.	37.06	01-07-2003
20.	Paddy (Boro)	N.A.	123.50	01-07-2003
21.	Ginger	461.89	N.A.	01-07-2003
22.	Banana	1595.62	N.A.	01-07-2003
23.	Other Crops	N.A.	49.40	01-07-2003

3.2.30 Andaman & Nicobar Islands

As per information received vide letter No 1-20/ANSWSM/2021-22/240 dated 07thOctober 2021, no water charges are available in this Union Territory for irrigation.

3.2.31 Chandigarh

As per information received through e-mail dated 08th July 2021 in rural areas of Chandigarh, the revised water rates for irrigation purposes are @ Rs. 23/-per hour with effect from 01.01.2010.

3.2.32 Dadra and Nagar Haveli

The UT has fixed the uniform water rates throughout. Uniform water rates are charged for different crops grown in a season but the water rates vary from season to season. During the Rabi season, wheat, vegetables, sugarcane, pulses and gram are grown in the UT. The crops of Kharif season include paddy, sugarcane and vegetables while the crops of Hot Weather season are watermelon, vegetables, paddy, sugarcane and pulses. The Irrigation Department of the UT Administration looks after the work of revenue assessment and realization.

The crop-wise water rates in the State/UT of Dadra and Nagar Haveli are given below:

(Unit: Rs/ha)

Season/Type of Sources	S.No.	Name of Crop	Lift Irrigation	Flow Irrigation	Date since Applicable
1	2	3	4	5	6
Kharif	1.	Paddy	75.00	N.A.	29-01-1996
	2.	Sugarcane	75.00	830.00	29-01-1996
	3.	Vegetables	75.00	N.A.	29-01-1996
Rabi	4.	Sugarcane	100.00	N.A.	29-01-1996
	5.	Vegetables	100.00	N.A.	29-01-1996
Hot Season	6.	Paddy	275.00	140.00	29-01-1996
	7.	Sugarcane	275.00	830.00	29-01-1996
	8.	Pulses	275.00	N.A.	29-01-1996
	9.	Vegetables	275.00	N.A.	29-01-1996
Others	10.	Water melon	275.00	N.A.	29-01-1996
	11.	Wheat	275.00	N.A.	29-01-1996
	12.	Pulses	275.00	N.A.	29-01-1996
	13.	Gram	275.00	N.A.	29-01-1996
	14.	Vegetable	N.A.	110.00	29-01-1996

Source: Information vide e-mail dated 28th April 2016 from O/o the Executive Engineer, PW Department, Government of Dadra and Nagar Haveli.
N.A. : Not Applicable

3.2.33 Daman & Diu

Paddy and Bajra are the principal crops grown by the farmers in the Union Territory. The water rates do not vary from crop to crop and season to season

The crop-wise water rates in the State of Daman & Diu are given below:

(Unit: Rs/ha)

Season	S.No.	Name of Crop	Water Rates	Date since Applicable
1	2	3	4	5
Kharif	1.	Rice	286.00	2007
	2.	Bajra	286.00	2007
	3.	Other crops	286.00	2007

Source: Information vide e-mail dated 10th March 2016 from O/o the Assistant Engineer, PW Department, Government of Daman & Diu.

3.2.34 Lakshadweep

The tiniest Union Territory of India, comprises of 10 inhabited islands in the Arabian Sea. The Administration of the UT has not so far fixed any water rate in the Union Territory.

3.2.35 Puducherry

Water rates for the supply of water for irrigation from Government sources are regulated by Puducherry Irrigation Cess Regulation 1976. The basic structure of irrigation rates is akin to that of Tamil Nadu. The water rates for Puducherry, Mahe and Yaman regions were finalised based on the rates prevailing in the adjacent areas of South Arcot District, Tanjore District and Karaikal Region. The water rates levied in these regions were notified on 31.3.1979.

In this Union Territory, dual irrigation systems are adopted. In Puducherry Region, ground water is the main source of irrigation whereas canal irrigation is very popular in Karaikal and Yanam regions. As for as the Mahe region is concerned, neither pattern of irrigation is followed since the availability of land for raising principal food crops is very meagre.

As far as the Puducherry region is concerned for more than two decades, ground water has become the only main source of irrigation carried on by means of bore wells owned by the farming community with which principal food crops are cultivated for three seasons viz. Sornavari, Samba and Navarai during the Agricultural year (July to June). In view of inadequate availability of water in the tank and release thereof through the entire crop season, no cess is levied. The main crops of the state are Paddy, Ragi, Bajara, Cholam (Millets), Black Gram, Green gram and Sugarcane.

3.2.36 U.T. of Jammu / Kashmir / Ladakh

In the U.T., the area being irrigated through Government owned canals/khuls/lifts/tube-wells/tanks etc. is recorded by the Patwaries of the department. Assessment of water rate is made by way of charging Abiana as fixed by the Government. The Abiana rates in the erstwhile State stand revised with effect from 01-04-2018. Separate rates have been specified for Gravity schemes as well as Lift irrigation schemes.

The crop-wise water rates in the U.T. of Jammu / Kashmir / Ladakh are given below:

(Unit: Rs/ha)

S.No.	Name of Crop	Gravity system	Lift/Tube well system	Date since Applicable
1	2	3	4	5
1.	Paddy	523.84	2614.28	01-04-2018
2.	Sugarcane	523.84	2614.28	01-04-2018
3.	Vegetable	326.17	1569.06	01-04-2018
4.	Wheat	212.50	1045.22	01-04-2018
5.	Oil seeds	212.50	1045.22	01-04-2018
6.	Maize	212.50	1045.22	01-04-2018
7.	Pulses	212.50	1045.22	01-04-2018
8.	Orchards	212.50	1045.22	01-04-2018
9.	Fodders	212.50	1045.22	01-04-2018
10.	Other crops	212.50	1045.22	01-04-2018
11.	Floriculture	326.17	1569.06	01-04-2018
12.	Pisciculture	326.17	1569.06	01-04-2018

Source: Order No.: 46/SWRRA/2018 Dated: 28.06.2018; The J&K State Water Resources (Regulation and Management) Act, 20210 imposed by The J&K State Water Resources Regulatory Authority

Water usage charges/tariff for irrigation purposes for the financial year 2020-21 is effective from 01-04-2018.

CHAPTER –IV

STATE WISE WATER RATES FOR DOMESTIC AND COMMERCIAL USE

4.1 Safe and readily available water is important for public health, whether it is used for drinking, domestic use, food production or recreational purposes. Improved water supply and sanitation, and better management of water resources, can boost countries' economic growth and can contribute greatly to poverty reduction.

4.2 New-age India is aspirational. The focus is to improve the quality of life of people and enhance their ease of living by way of access to homes, toilets, gas connections, electricity, digital connect, social security, healthcare, access to financial services, etc. Assured tap water supply to every home under M/o Jal Shakti–Har Ghar Jal is a step towards such a transformation.

4.3 Domestic water use includes indoor and outdoor uses at residences, and includes uses such as drinking, food preparation, bathing, washing clothes and dishes, flushing toilets, watering lawns and gardens, and maintaining pools. Domestic water use includes potable and non-potable water provided to households by a public water supplier (domestic deliveries) and self-supplied water use. Self-supplied domestic water use is typically withdrawn from a private source, such as a well, or captured as rainwater in a cistern.

4.4 Commercial/Industrial water use includes water used by commercial facilities such as hotels, motels, restaurants, office buildings, government and military facilities, hospitals, educational institutions, and retail sales stores. Commercial water use in office buildings primarily is used for sanitation, maintenance, and aesthetic appeal. Specific uses of water include toilet flushing, air-conditioning, washing floors and other surfaces, fountains and lawn watering. Commercial/Industrial activities also take place in institutions, such as hospitals, prisons, and schools; and in resorts; hotels; motels; camp grounds; and restaurants, therefore, commercial uses of water also includes food preparation, pools, and laundries. Water used for snow making at ski resorts and in water parks are potentially large commercial uses. Offstream fish hatcheries primarily engaged in hatching fish for release to public lakes and streams for fishing also are classified as commercial use.

4.5 In this chapter, the prevailing water rates for Domestic/Industrial/Commercial sectors in different states of India are given. The source of data is Government offices and their websites.

Table 4.1: UrbanWater Rates for Drinking Purpose

S. No.	States	Year	Monthly Consumption (in unit)	Water Charges		Data Sources
1	2	3	4	5		6
1	Arunachal Pradesh	2006	per connection/month	Rs. 100		The Arunachal Pradesh Gazette
2	Assam	2016	Up to 15 KL	Rs. 8/ KL		Guwahati Municipal Corporation, Govt. of Assam
			15 KL - 25 KL	Rs 12/KL		
			Above 25 KL	Rs 15/ KL		
3	Chhattisgarh	2015	Up to 11 KL	Rs. 5/KL		Raipur Municipal Corporation
			11KL to 15KL	Rs. 6/KL		
			15KL to 25KL	Rs. 7/KL		
			25KL to 50KL	Rs. 8/KL		
			Exceeding 50 KL	Rs. 9/KL		
4	Delhi	2018	Up to 20 KL	Rs. 5.27		Delhi Jal Board: Govt.
			20KL-30KL	Rs. 26.36		
			exceeding 30KL	Rs. 43.93		
5	Goa	2020	Up to $15m^3$	Rs.2.50 per m^3		Water Resource Department, Government of Goa
			$15m^3$ - $25m^3$	Rs.5.00 per m^3		
			$25m^3$ - $50m^3$	Rs.10.00 per m^3		
			Above $50m^3$	Rs.15.00 per m^3		
6	Gujrat	2021	1KL	Rs. 51.45		Gujarat Water Supply and Sewerage Board
7	Haryana	2006	Domestic Connection	Metered Supply	Un-Metered Supply	Public Health Engineering Department, Haryana
				Rs. 1.00 Per Kilo Litre	Rs. 48 Per Month	
8	Himachal Pradesh	2018	0 -20 KL	Rs. 15.95/KL		Shimla Jal Prabandhan Nigam Limited (SJPNL)
			20KL-30KL	Rs. 27.50/KL		
			Exceeding 30 KL	Rs. 49.50/KL		
9	Karnataka	2014	Up to 8KL	Minimum of Rs 56(at Rs 7/KL)		
	Karnataka		8KL - 25KL	Rs 11/KL		Bangalore Water Supply and Sewerage Board, Bangalore
			25KL - 50KL	Rs 26/KL		
			Above 50KL	Rs 45/KL		

S. No.	States	Year	Monthly Consumption (in unit)	Water Charges	Data Sources
1	2	3	4	5	6
10	Kerala	2021	Up to 5KL	Rs. 4.20/KL with min.Rs.21	Water Resources Department, Kerala Water Authority
			5KL - 10KL	Rs. 21 plus Rs. 4.20/KL in excess of 5KL	
			10KL - 15KL	Rs. 42 plus Rs.5.25 per every 1KL in excess of 10KL	
			15KL - 20KL	Rs. 6.30 per every 1KL for the entire consumption	
			20KL - 25KL	Rs. 7.35 per every 1KL for the entire consumption	
			25KL - 30KL	Rs. 9.45 per every 1KL for the entire consumption	
			30KL - 40KL	Rs. 12.60 per every 1KL for the entire consumption	
			40KL - 50KL	Rs. 14.70 per every 1KL for the entire consumption	
			exceeding 50KL	Rs. 735.00 plus Rs.40.00 per every 1KL in excess of 50KL	
11	Maharashtra	2015	15mm	Rs. 45	Hydraulic Engineer's Department and Chief Engineer's (Sewerage) Department
			20mm	Rs. 90	
			25mm	Rs. 150	
			40mm	Rs. 300	
			50mm	Rs. 350	
			80MM and above	Rs. 500	
12	Manipur	2020	Domestic water connection	Rs. 250 per Month	Public Health and Engineering Department, Gov. of Manipur
13	Meghalaya	2008	Domestic unmetered connections	Rs. 194/month	Public Health and Engineering Department, Government of Meghalaya
			Domestic metered connections	Rs. 8/KL	
14	Mizoram	2016	Up to 5KL	Rs. 200	Public Health and Engineering Department,
			5KL - 10KL	Rs. 245	
			10KL - 20KL	Rs. 320	

S. No.	States	Year	Monthly Consumption (in unit)	Water Charges		Data Sources
1	2	3	4	5		6
			20KL - 30KL	Rs. 410		Government of Mizoram
			Exceeding 30KL	Rs. 515		
15	Nagaland	2010	Category	Unit	Water Rates	Public Health and Engineering Department, Government of Nagaland
			Domestic unmetered connections	1 consumer	Rs. 100	
			Domestic metered connections	1 KL	Rs. 50	
16	Odisha	2010	per tap per month	Rs. 30		The Orissa Gazette
17	Punjab	2019	Slab	Fixed Rate INR per month	Variable Rate INR per KL	Department of Water Supply and Sanitisation, Government of Punjab
			0 – 5 KL	50	3	
			5 to 10 KL	100	6	
			10 KL to 20KL	100	15	
			20KL to 30KL	100	18	
			Exceeding 30KL	100	20	
18	Rajasthan	2018	Up to 8 KL	Rs. 1.89		Public Health Engineering Department, Rajasthan
			8KL - 15KL	Rs. 2.42		
			15KL - 40 KL	Rs. 4.84		
			exceeding 40KL	Rs. 6.05		
19	Sikkim	2014	15 m^3	Rs. 0.08		Public and Health Engineering Dept., Government of Sikkim
			50 m^3	Rs. 0.12		
			100 m^3	Rs. 0.21		
20	Tamil Nadu	2021	1KL	Rs. 10.94		Tamil Nadu Water Supply and Drainage Board
21	Telangana	2011	Up to 15KL(only for slums)	Rs. 7		Hyderabad Metropolitan Water Supply and Sewerage Board
			Up to 15KL	Rs. 10		
			16KL - 30KL	Rs.12		
			31KL - 50KL	Rs. 22		
			51KL - 100KL	Rs. 27		
			101KL - 200KL	Rs. 35		

S. No.	States	Year	Monthly Consumption (in unit)	Water Charges		Data Sources
1	2	3	4	5		6
			Exceeding 200 KL	Rs. 40		
22	Uttar Pradesh	2003	Domestic unmetered connections	Rs. 900/Yr.		Water Supply and Sanitation Board, Uttar Pradesh
			Domestic metered connections	Rs. 2.5/KL		
23	Uttarakhand	2013	Category	Water Charges		Uttarakhand Jal Sansthan
				Rate per sq. m plot area	Minimum Charges	
			Urban Area	Rs. 22	Rs. 2200	
24	West Bengal	2011	1KL	Rs. 5.30		Haldia Development Authority, Gov. of West Bengal
25	Jammu/ Kashmir/ Ladakh	2020	350 lpd	Rs. 18.5		Jammu and Kashmir State Water Resources Regulatory Authority
			700 lpd	Rs. 19.9		
			Beyond 700 lpd	Rs. 21.2		

It is observed that water rates for drinking purpose are varying from state to state. Drinking Water rates, for most of the states, have been taken in Kilo Litres (KL). In some of the states, viz. Assam, Chhattisgarh, Himachal Pradesh, Kerala, Telangana, these rates are between Rs.6/KL (in Chhattisgarh) and Rs.15.95/KL (in Himachal Pradesh) for 15 Kilo Litres (KL).

Table 4.2 : Water Rates for Industrial Purpose

S. No.	States	Year	Description			Data Source
1	2	3	4			5
1	Andhra Pradesh	2021	Industrial Drinking Use	60-140/KL		Department of Water Resource, Andhra Pradesh
2	Arunachal Pradesh	2017	Commercial	Rs. 30 per KL		The Arunachal Pradesh Gazetted Notification
			Bulk Supply through Tanker	Rs. 175 per KL		
			Industrial Drinking Use	Rs. 200 per KL		
3	Assam	2021	Upto 15 KL	Rs.12.00 per KL		Guwahati Municipal Corporation, Assam
			Above 15 KL up to 25 KL	Rs.15.00 per KL		
			Above 25 KL	Rs.20.00 per KL		
4	Bihar	2016	NTPC	18 / KL		Jal Sansadhan Vibhag, Water Resource Department, Government of Bihar
5	Chhattisgarh	2020	Industrial and Electricity Unit	Rs. 10.50 and Rs.15.00/-/cum		Water Resource Department, Chhattisgarh
			Industrial Unit (Who uses water as raw material)	Rs. 250.00 andRs. 375.00 / cum		
6	Delhi	2018	Monthly Consumption (in Kilolitre)	Services Charges(in Rs.)	Volumetric Change (Per KL in Rs.)	Delhi Jal Board, govt. of NCT of Delhi
			Up to 06	146.41	17.57	
			(06-15)	292.82	26.35	
			(15-25)	585.64	35.14	
			(25-50)	1024.87	87.85	
			(50-100)	1171.28	140.56	
			>100	1317.69	175.69	
7	Goa	2021	Student Hostels/Hospitals/Dispensaries and Education Institutions and recognized Charitable Trust Institution	Rs. 9.00 per m3 (flat rate)		Water Resource Department, Government of Goa
			Students Hostels/Hospitals/Dispensaries business profession which are not falling within the purview of Goa, Daman & Diu Shops and Establishment Acts Educational Institution.	Rs. 17.00 per m3 for 1st 250 m3.		
			Commercial/including MPT/Bar/Cinema/Theatres/Construction/Establishments whichever is	Rs. 40.00 per m3 (flat rate). Contract Demand or 20 m3 per month is higher		

S. No.	States	Year	Description		Data Source
1	2	3	4		5
	Goa		registered under the Goa, Daman & is higher. Diu Shops and Establishment Act, 1974 including building construction		Water Resource Department, Government of Goa
			Small scale/medium/large & all type of industries/hotels (registered) other than small hotels/small restaurants/tourist hotels	Rs. 35.00 per m3 (flat rate). Contract Demand or 60 m3 per month is higher	
8	Gujarat	2021	Industrial	4.18/ KL	Narmada Water Resources, Water Supply and Kalpasar Department, Government of Gujarat
9	Haryana	2018	Industrial	Rs. 15/KL	Irrigation & Water Resources Department, Government of Haryana
10	Himachal Pradesh	2019	Industrial/ Commercial	Rs. 27.71/KL	Irrigation and P. H. Department, Government of Himachal Pradesh
11	Jharkhand			No rates found	-
12	Karnataka	2014	Slab wise consumption of Water (in kilo litres)	Tariff/kilolitre	Bangalore Water Supply and Sewerage Board, Government of Karnataka
			0-10 litres	Minimum of Rs 500 (at Rs 50 per kilolitre)	
			10-25	57/KL	
			25-50	65/KL	
			50-75	76/KL	
			75 and above	85/KL	
13	Kerala	2020 -21	Category and consumption level per month	Tariff	Water ResourceDepartment, Government of Kerala
			Upto 15 Kilo litres	Rs. 15/KL with Min Rs.150/-	
			15 to 30 Kilo litres	Rs.225 Plus Rs.21.00 per kilo litres in excess of 15 kilo litres	
			30 to 50 kilo litres	Rs.540 plus Rs.28.00 per kilo litres in excess of 30 kilo litres	

S. No.	States	Year	Description		Data Source
1	2	3	4		5
			above 50 kilo litre	Rs. 1100 plus Rs.40.00 per kilo litres in excess of 50 kilo litres	
14	Madhya Pradesh	2013	Industrial and Commercial	Rs. 1.55- Rs. 5.50/KL	Water Resources Department, Government of Madhya Pradesh
15	Maharashtra	2018	Industrial and Commercial	Rs. 2.40 - Rs. 4.80 / cum	Maharashtra Water Resource Regulatory Authority, Government of Maharashtra
16	Manipur	2011	Hospitals Upto 100 beds	Rs. 1730 per month	Government of Manipur, Secretariat P. H. E. Department
			Hospitals above 100 beds	Rs. 2100 per month	
			Hostel upto 100 rooms	Rs. 1860 per month	
			Restaurant	Rs. 1500 per month	
			Hotels upto 100 rooms	Rs. 3000 per month	
			Cinema / Concert Hall / Theatres	Rs. 760.00 per month	
			Small Scale Industries	Rs. 200.00 per month.	
			Medium & Large Industries	Rs. 1000.00 per month	
			Public Hydrant	Rs. 300.00 per month	
			Tanker Supply		
			(a) 4500 Litres Capacity	Rs. 250.00 Tanker per Trip.	
			(b) 8000 Litres capacity	Rs. 450.00 Tanker per Trip	
			(c) 9000 Litres capacity	Rs. 500.00 Tanker per Trips	
			(d) 10000 Litres Capacity	Rs. 550.00 Tanker per Trips.	
17	Meghalaya	2008	Industrial and Commercial	Rs. 12.00 andRs. 18.00 per KL	Public Health Engineering Department, Government of Meghalaya
18	Mizoram	2014	Industrial/ Commercial	Rs. 515 per month	Public Health Engineering Department, Government of Mizoram
19	Nagaland	2010	Commercial (metered)	Rs. 100 per KL	Public Health Engineering Department, Government of Nagaland
			Commercial (non metered)	Rs. 350 per connection	

S. No.	States	Year	Description				Data Source
1	2	3	4				5
20	Odisha	2018	Industrial/ Commercial	**Industrial Estate/ Area**	**Fixed Charge per KL**	**Wheeling Charges per KL**	IDCO, Government of Odisha
				Khordha	22.64/-	10.88/-	
				Rourkela	4.12/-	10.88/-	
				Mncheshwar, Sambalpur	15.08/-	10.88/	
				KNIC Jajpur	5.45/-	10.88/-	
				Chandaka Industrial Estate, Infocity Chandaka, SEZ Chandaka, Angaragaria, Ganeswarpur, Takatpur, Chancha, Anugul, Talcher, Dhenkanal, Jagatpur IE (Old) and Jagatpur IE (New)	8.23/-	10.88/-	
			Special Water Rates				
		2021	Industrial	Bricks or tile making	42.00/- per 1000 bricks		Department of Water Resource, Government of Odisha
				(i) For water actually drawn or allocated whichever is higher for industrial or commercial purpose			
				Slab-I Consumption not exceeding 5 cusec	Rs. 5.88/- per KL		
				Slab-lI- Consumption of 5 cusecs or more	Rs. 7.84/- per KL		
				(ii) For water used for Hydro Power	Rs. *0.014 per KVH*		

S. No.	States	Year	Description			Data Source
1	2	3	4			5
				For bulk supply to Municipalities and Notified Area Councils and other local authorities for	0.35 per KL	
	Odisha		Industrial	drinking, washing etc.		Department of Water Resource, Government of Odisha
				For bulk supply to Municipalities and Notified Area Councils and other local authorities and cluster of villages by industrial, commercial other 0.50 0.65 0.70 1000 liter or establishments actually drawn or allocated (I m3) whichever is higher for drinking, washing etc.	Rs. 0.70/- per KL	
				Construction of Commercial Buildings	Rs. 9.94/- per KL	
				For filling tanks	Rs. 0.14/- per KL	
				For filling tanks mainly for drinking purposes	Rs. 0.07/- per KL	
21	Punjab	2017	Industrial/ Commercial	Plot Size of land	One time fee for regularization of water and sewerage connection	Local Government Department, Government of Punjab
				Upto 250 Yards	Rs. 1000/- per connection (RS. 500 for water and Rs. 500 for sewerage)	
				Above 250 yards		
22	Rajasthan	2018	Non Domestic	Monthly Consumption	Rate per KL	Public Health Engineering Department, Government of
				For consumption up to first 15 KL	10.89	

S. No.	States	Year	Description			Data Source
1	2	3	4			5
				15 KL TO 40 KL	19.97	Rajasthan
				above 40 KL	26.62	
			Industrial	For consumption up to first 15 KL	Rs. 42.35	
				15 KL TO 40 KL	Rs. 54.45	
				above 40 KL	Rs. 60.5	
23	Sikkim		Industrial/ Commercial	No water rates		-
24	Tamil Nadu	2017	Category	Tariff/Kilolitre in Rs.		Tamil Nadu Water Supply and Drainage Board, Government of Tamil Nadu
			Organisations who have paid Proportion cost of scheme	Rs. 45/-		
			Industries / Commercial	Rs. 150/-		
			Private Education Institute	Rs. 125/-		
			Private Hospital	Rs. 125/-		
			Government Industries and organization	Rs. 80/-		
			Government Hospitals/ Educational Institute	Rs. 30/-		
			Orphanage and Homes	Rs. 30/-		
25	Telangana	2014		Commercial		Hyderabad Metropolitan Water Supply and Sewerage Board, Government of Telangana
				0-15 KL	Rs. 40/-	
				16-100 KL	Rs. 70/-	
				101-200KL	Rs. 100/-	
				Above 200 KL	Rs. 100/-	
				Outside GHMC Area for entire quantity	Rs. 180/-	
				Industrial		
				0-15 KL	Rs. 50/-	
				16-100 KL	Rs. 80/-	
				101-200KL	Rs. 120/-	
				Above 200 KL	Rs. 120/-	
				Outside GHMC Area	Rs. 180/-	
26	Tripura		Industrial/ Commercial	No water rates		-
27	Uttar Pradesh (Greater Noida)	2020	Industrial/Commercial	Plot area	Water Rates	Greater Noida Industrial Development
				Upto 1000 sq. meter	Rs. 584	

<table>
<tr><th>S. No.</th><th>States</th><th>Year</th><th colspan="4">Description</th><th>Data Source</th></tr>
<tr><td>1</td><td>2</td><td>3</td><td colspan="4">4</td><td>5</td></tr>
<tr><td></td><td></td><td></td><td></td><td colspan="2">1000 sq. meter to 2000 meter</td><td>Rs. 1170</td><td>Authority, Government of Uttar Pradesh</td></tr>
<tr><td rowspan="13"></td><td rowspan="13">Uttar Pradesh (Greater Noida)</td><td rowspan="13">2020</td><td rowspan="13">Industrial/Commercial</td><td colspan="2">2000 sq. meter to 3000 meter</td><td>Rs. 1755</td><td rowspan="13">Greater Noida Industrial Development Authority, Government of Uttar Pradesh</td></tr>
<tr><td colspan="2">3000 sq. meter to 4000 meter</td><td>Rs.2339</td></tr>
<tr><td colspan="2">4000 sq. meter to 5000 meter</td><td>Rs.2925</td></tr>
<tr><td colspan="2">5000 sq. meter to 6000 meter</td><td>Rs. 3509</td></tr>
<tr><td colspan="2">6000 sq. meter to 7000 meter</td><td>Rs.4093</td></tr>
<tr><td colspan="2">7000 sq. meter to 8000 meter</td><td>Rs.4677</td></tr>
<tr><td colspan="2">8000 sq. meter to 9000 meter</td><td>Rs.5262</td></tr>
<tr><td colspan="2">9000 sq. meter to 10000 meter</td><td>Rs.5847</td></tr>
<tr><td colspan="2">10001 sq. meter to 5 acre</td><td>Rs.9793</td></tr>
<tr><td colspan="2">5 acre to 15 acre</td><td>Rs.19489</td></tr>
<tr><td colspan="2">15 acre to 25 acre</td><td>Rs.29233/-</td></tr>
<tr><td colspan="2">25 acre to 50 acre</td><td>Rs.38975/-</td></tr>
<tr><td colspan="2">50 acre to 60 acre</td><td>Rs. 48719/-</td></tr>
<tr><td colspan="2">Above 60 acres per acre Rs. 9744/-</td><td>(Rs. 48719 +Rs. 9744/- per acre)</td></tr>
<tr><td rowspan="6">28</td><td rowspan="6">Uttarakhand</td><td rowspan="6">2013</td><td colspan="4">Connection size upto 15 mm</td><td rowspan="6">Uttarakhand Jal Sansthan, Government of Uttarakhand</td></tr>
<tr><td></td><td>Gravity</td><td>Low head</td><td>High head</td></tr>
<tr><td>Industrial</td><td>12.50/-</td><td>15.60/-</td><td>18-75/-</td></tr>
<tr><td>Other Commercial Unit</td><td>11.00/-</td><td>12.50/-</td><td>16.50/-</td></tr>
<tr><td>Government and PSU Sectors</td><td>10.50/-</td><td>12.00/-</td><td>16.50/-</td></tr>
<tr><td>Municipal Area</td><td>10.50/-</td><td>10.50/-</td><td>16.50/-</td></tr>
<tr><td colspan="4">Connection size foe 15mm and above</td></tr>
</table>

S. No.	States	Year	Description				Data Source
1	2	3	4				5
			Industrial	415.00/-	550.00/-	700.00/-	
			Other Commercial Unit	380.00/-	450.00/-	520.00/-	
			Government and PSU Sectors	375.00/-	425.00/-	485.00/-	
			Municipal Area	235.00/-	315.00/-	350.00/-	
29	West Bengal	2011	Commercial	Rs. 10.66/-			Haldia Development Authority, Gov. of West Bengal
			Industrial	Rs. 13.03/-			
30	Andaman and Nicobar	2021	Booths (Trade of fast food/dhabas etc.)	Rs. 60/- per ton			Andaman and Nicobar Administration Secretariat
			Hotels, Cinema, Shopping Malls, Restaurants/Bars/Garages and Wine Liquor shops (with A/C facilities) Commercial/Clinic & other commercial coaching establishment	Rs. 120/- per ton			
			All Hotels, Restaurants, Lodges and Guest Houses with (Non- A/C facilities) Residential building or any part these of being used for professional purpose	Rs. 110/- per ton			
			Under Charitable (Category – A) One ½ dia tap provided at religious institutions will be treated as domestic connection	Rs. 50/- per ton			
			Under Charitable (Category – B) All other connections will be treated as commercial connections as per the quantity measured by the water meter	Rs. 60/- per ton			
			Educational Institutions (per ton) a) Government b) Private	Rs.100/- per ton			
			Ship Supply	Rs.300/- per ton			
			Government Departments	Rs.200/- per ton			
			Tanker Supply				
			Domestic Consumption Tanker Supply (Card	Rs.80/- (per month for 200 liters per day			

S. No.	States	Year	Description			Data Source
1	2	3	4			5
			Casual Supply (Per 200 litres)	Rs. 30/- per 200 litres		
			Commercial Supply (per ton)	Rs.180/- per ton		
			Charitable Supply (per ton)	Rs.60/- per ton		
			Education Purpose (per ton)	Rs.50/- per ton		
			Govt. Department Supply (per ton)	Rs.200/- per ton		
			Ship Supply (per ton)	Rs.300/- per ton		
			Temporary Connection (1/2") per connection subject to Max 1000 lit/day	Rs.450/- per ton		
31	Chandigarh			No water rates		-
32	Dadra & Nagar Haveli			No water rates		-
33	Daman & Diu	2003	Drinking water for Non Domestic Hospital / Dispensaries / Business profession / Education Institute & recognized charitable Trust / Institution and Defence ministry etc.	Rs. 4.00 per cum. and the minimum chargeis Rs. 40.00 per month		Administration of Daman and Diu
			drinking water for shop and commercial establishment / Restaurant / Bar / Hotels lodging boarding, Cinema theatres and connection given for construction purpose.	i) Rs. 10.00 per cumt. upto 10 cumt per month. ii) Rs. 20.00 per cumt. for consumption over 10 cumt. per month. iii) The minimum charge is Rs. 500.00 per month.		
			drinking water for Small Scale, Medium Scale large scale and Major Industries	Rs. 20.00 per cumt. And the minimum charge is Rs. 500.00 per month		
			drinking water for Fishing Jetty and Ports	i) Rs. 7.00 per cumt. upto 10 cumt.. per month. ii) Rs. 12.00 per cumt. for consumption over 10 cumt. per month. iii) The minimum charge is Rs. 250.00 per month.		
34	Jammu/ Kashmir/ Ladakh	2020 -21	Consumption Level per connection	Tariff (Rate Rs. / KL)		Jammu and Kashmir State Water Resources Regulatory Authority
			1.5 KL per day	25.9		
			1.5 to 4 KL per day	36		
			4 to 6 KL per day	38.9		
			above 6 KL per day	43.2		
35	Lakshadweep			No rates found		-
36	Puducherry	2017	Institutional			
			Temple/ Chruch/ Mosque and Social Service Organization	Upto 90 units per quarter	Rs. 3.00 per unit (subject to minimum	Government of Puducherry

S. No.	States	Year	Description			Data Source
1	2	3	4			5
	Puducherry	2017			charges 270.00 Rs. Per quarter)	Government of Puducherry
				Above 90 units per quarter	Rs. 270.00 plus Rs. 5.00 per each additional units)	
			Government offices/ Schools and Hospitals	Upto 90 unit per quarter	Rs. 8.00 per each unit (subject to minimum charges 720.00 Rs. Per quarter	
				Above 90 units per quarter	Rs. 720.00 plus Rs. 10.00 per each unit)	
			Non-Domestic Commercial (Commercial shopping and establishment where water is used for drinking purpose)	Upto 90 unit per quarter	Rs. 10.00 per unit (subject to minimum charges 900.00 Rs. Per quarter	
				Above 90 units per quarter	Rs. 900.00 plus Rs. 12.00 per each additional unit)	
			Commercial (Hotels, Guest House, Resorts, Boarding and Lodging, Commercial Shopping/ Establishment, Marriage Halls, Cinema, Theatres and all other such establishments	Upto 100 unit per quarter	Rs. 15.00 per unit (subject to minimum charges	

S. No.	States	Year	Description			Data Source
1	2	3	4			5
	Puducherry	2017			1500.00 Rs. Per quarter	Government of Puducherry
				Above 100 - 300 units per quarter	Rs. 1500.00 plus Rs. 20.00 per each unit)	
				Above 300 units per quarter	Rs. 5500.00 plus Rs. 25.00 per each additional to excess of 300 unit)	
			Commercial (Coffee, Tea Stalls, Juice Stalls, Soda Company and all other such establishments where water is used as main product)	Upto 45 unit per quarter	Rs. 15.00 per unit (subject to Minimum charges 675.00 rs. Per quarter	
				Above 45 - 200 units per quarter	Rs. 675.00 plus Rs. 20.00 per each additional unit)	
				Above 200 units per quarter	Rs. 3775.00 plus Rs. 25.00 per each additional unit)	

In case of Industrial Water Rates, it is observed that water rates are varying from states to states as like as drinking water rates. Water rates for most of the states have been taken in Kilo Litres (KL) and in Goa, Water Rates have been taken in (M^3) and in Andaman& Nicobar it is taken in ton.In some of states, viz., Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh,

Delhi, Gujarat, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Meghalaya, Mizoram, Maharashtra, Orissa, Tamil Nadu, Telangana are lies between Rs.1.55/KL (Madhya Pradesh) to Rs.200/KL (Arunachal Pradesh). In Uttar Pradesh (Greater Noida) water charges are described based on the owned plot area.

CHAPTER – V

GOVERNING PRINCIPLES FOR FIXATION OF GROUND WATER ABSTRACTION AND RESTORATION CHARGES

5.1 Principles for Fixation of Water Rates/Charges:

From the irrigator's point of view, water rates must be considered in the light of the benefit which irrigation confers rather than from the angle of the cost of irrigation projects. Irrigation is one of the basic inputs used by a farmer and it is difficult to evaluate precisely the contribution it makes to the farmer's net gain.

Water rates are levied on a 'Crop/Area basis', except in the case of irrigation from tube wells. Tube well water is charged on the basis of the quantity of water supplied from the tube well. Of course, there could be some disparity in the amount which irrigators pay for areas located at different distances from the tube well, because of transit losses; but with lined water courses and proper roster of supply, the disparity can be considerably reduced. Within regions with a similar class of supply, there should be minimum disparity, if any, in the rates to be charged. But when there is a marked difference in the quality of service, there is a legitimate ground for differential rates.

Since the irrigation requirements vary not only from crop to crop but also for the same crop grown in different seasons, such as the first, second or third paddy crop, the quantity of water supplied, adequacy and dependability of supply should play a dominating role in fixing water rates. For fixing water rates, the basic tenets of both the quantity and timeliness for the supply of water deserve to be duly considered. In addition, other factors like crop water requirement, extent of meeting O&M cost, prevailing water rates in neighbouring States/UTs etc. also play an important role and have to be given due consideration in fixation of water rates. It becomes difficult for a single State to take measures affecting a large number of its people if there is no corresponding action by neighbouring States/UTs. In raising water rates, therefore, groups of neighbouring States/UTs may decide to have a common policy.

On canals which are under-utilised, a development rebate, which should be progressively reduced, may help to ensure fuller utilisation. Lower rates may be fixed where, on account of good rainfall, the demand for irrigation water is less or where the supply is inadequate and

uncertain. The general level of water rates in a State should be such that, if taken as a whole, the irrigation schemes do not impose any burden on the general revenues.

Where Lift irrigation is performed at the farmer's cost, because of the extra effort or expenditure involved in lifting water, he is expected to use water economically and thereby wastage is reduced to a minimum. In canal commands where the State has to supply water by lifting it, water rates charged have to be kept higher than the rates for gravity flow to take into the account of additional cost of lifting.

Usually the dates of enforcement of water rates on revision by the State Governments and UT Administrations remain the same for all crops cultivated there, but sometimes revision of water rates is not done by the States/UTs for all the crops simultaneously and as such different dates of enforcement prevail in these States/UTs for different crops. For instance, in Bihar different dates of enforcement for water rates exist for wheat, maize, sunflower and chillies.

The wide variety of systems and norms being followed at present in the fixation of the water rates by the States has led to sharp variation in the water charges. The approach adopted by the State Governments and Union Territories for fixing the water rates/ charges is not uniform. By and large due consideration is being given by the States/UTs in fixation of water rates/ charges to ensure that they provide sufficient revenue to cover the cost of creation of irrigation potential. It consists of hike in labour rates, establishment & other related recurrent costs of Operation & Maintenance of the system, the Crop Water requirement, availability of water, support price of agriculture products, net benefit to the farmers from the production thereof and the water rates being charged by the neighbouring States besides the paying capacity of the irrigators/ farmers.

Fixation of water rates is a complex phenomenon. No doubt, recovery of costs and some reasonable share of the accrued benefit earned by the irrigator are required for the purpose of resource mobilization to ensure further development. But the process of providing adequate incentive for raising production through greater utilization of irrigation also cannot be neglected in the light of the fact that the recovery of the cost of supply of water on the premises of earning revenue cannot be sustained. The fixation and rationalisation of water charges have no doubt to be guided by the basic consideration of generating sufficient revenue to cover up recurring O&M costs essential for maintenance of the system initially and a fixed percentage of capital cost subsequently. Nevertheless, a balance has also to be maintained keeping in view the paying

capacity of the farmers. The remedy may lie in adoption of differential water rates as per the paying capacity of the farmers.

As per Central Ground Water Authority (CGWA) Notification no. **CG-DL-E-24092020-221952,** dated September 24, 2020, the rate of Ground Water abstraction/restoration charges are as follows:

A. Rates of Ground Water Abstraction/Restoration Charges:

Drinking and domestic use for residential apartments/ group housing societies/ Government water supply agencies in Urban areas

All residential apartments/Group Housing Societies requiring water only for drinking/domestic use requiring No Objection Certificate would pay ground water abstraction charges as per rates given below in **Table 5.1.**

Table 5.1 Ground Water Abstraction charges for Drinking & Domestic use.

Ground water withdrawal (m^3/month)	Rate of ground water abstraction charges (Rs. Per m^3)
1	**2**
0-25	No charge
26-50	1.00
>50	2.00

Government water supply agencies and Government infrastructure projects shall pay Ground water abstraction Charges @Rs.0.50 per m^3.

I. **Drinking Water units**

Rates of ground water abstraction charges for drinking water units in safe, semi-critical and critical assessment units are given in Table 5.2 and those for ground water restoration charges in over-exploited assessment units are given in Table 5.3.

Table 5.2: Rates of ground water abstraction charges for drinking water

(Unit: Rs per m^3)

S.No.	Category of area / Ground water use	Quantum of ground water withdrawal				
		Up to50m^3/day	51 to <200 m^3/day	200to<1000 m^3/day	1000 to <5000 m^3/day	5000 m^3/day and above
1	2	3	4	5	6	7
1.	Safe	1.00	3.00	5.00	8.00	10.00
2.	Semi- critical	2.00	5.00	10.00	15.00	20.00
3.	Critical	4.00	10.00	20.00	40.00	60.00

Table 5.3: Rates of ground water restoration charges for drinking water

(Unit: Rs per m^3)

S.No.	Category of area / Ground water use	Quantum of ground water withdrawal				
		Up to 50m^3/day	51 to <200 m^3/day	200to<1000 m^3/day	1000 to <5000 m^3/day	5000 m^3/day and above
1	2	3	4	5	6	7
1.	Over-exploited (existing industries only)	8.00	20.00	40.00	80.00	120.00

II. **Other Industries & Infrastructure Projects**

Rates of ground water abstraction charges for other industries and infrastructure projects in safe, semi-critical and critical assessment units are given in Table 2.4 and those for ground water restoration charges in over-exploited assessment units are given in Table 2.5.

Table 5.4: Rates of Ground Water abstraction charges for other industries & infrastructure projects

(Unit: Rs per m^3)

S.No.	Category of area / Ground water use	Quantum of ground water withdrawal			
		< 200 m^3/day	200to<1000 m^3/day	1000 to <5000 m^3/day	5000 m^3/day and above
1	2	3	4	5	6
1.	Safe	1.00	2.00	3.00	5.00
2.	Semi-critical	2.00	3.00	5.00	8.00
3.	Critical	4.00	6.00	8.00	10.00

Table 5.5: Rates of ground water restoration charges for other industries & infrastructure projects

(Unit: Rs per m^3)

S.No.	Category of Area / Ground water use	Quantum of ground water withdrawal			
		< 200 m^3/day	200to<1000 m^3/day	1000 to <5000 m^3/day	5000 m^3/day and above
1	2	3	4	5	6
1.	Over-exploited (existing industries/new Industries as per the present Guidelines)	6.00	10.00	16.00	20.00

III. **Mining projects**

Rates of ground water abstraction charges for mining, which are drawing ground water in safe, semi-critical and critical assessment units are given in Table 5.6 and those for ground water restoration charges in case of projects drawing ground water in over-exploited assessment units are given in Table 5.7.

Table 5.6: Rates of ground water abstraction charges for mining

(Unit: Rs per m^3)

S.No.	Category of area / Ground water use	Quantum of ground water withdrawal			
		< 200 m^3/day	200to<1000 m^3/day	1000 to <5000 m^3/day	5000 m^3/day and above
1	2	3	4	5	6
1.	Safe	1.00	2.00	2.50	3.00
2.	Semi-critical	2.00	2.50	3.00	4.00
3.	Critical	3.00	4.00	5.00	6.00

Table 5.7: Rates of ground water restoration charges for mining

(Unit: Rs per m^3)

S.No.	Category o f area / Ground water use	Quantum of ground water withdrawal			
		< 200 m^3/day	200to<1000 m^3/day	1000 to <5000 m^3/day	5000 m^3/day and above
1	2	3	4	5	6
1.	Over-exploited	4.00	5.00	6.00	7.00

B. Bulk Water Supply

All private tankers abstracting ground water and use it for supply as bulk water suppliers will now mandatorily seek No Objection Certificate for ground water abstraction from the bulk water suppliers through tankers drawing ground water in safe, semi-critical, critical and over-exploited assessment units shall pay ground water abstraction charges as per the **Table-5.8**. All tankers will have to install GPS based system for their monitoring of movement/area of operation.

Modalities for issue of No Objection Certificate for bulk/tanker water supplies shall be worked out in consultation with States/UT's and suitable guidelines in this regard will be framed and issued separately for the same.

Table-5.8: Ground water abstraction charges for Bulk/Tanker water supplies

(Unit: Rs per m^3)

S.No.	Category	Rate per m3 (in Rs.)
1	**2**	**3**
1	Safe	10
2	Semi Critical	20
3	Critical	25
4	Over Exploited	35

CHAPTER – VI

STATE WISE SYSTEM OF ASSESSMENT AND COLLECTION OF REVENUE

6.1 Basic Principle for Assessment

Irrigation water requirements would broadly depend on 5 factors viz. Potential Evaporation Transpiration (PET), Consumptive use co-efficient, Effective rainfall, Duration of crop period and Non-consumptions use. The duration of the crop can be accounted for by treating bi-seasonal crops as two crops and perennial as three or more crops related to relevant cropping seasons. Primarily total irrigation requirements depend on the duration of crop. In general, water requirements for bi-seasonal crops would be more than seasonal crops and water requirements for perennial crop would be more than bi-seasonal crops. The factor of the Consumptive use co-efficient varies with type of crop and the stage of crop growth. The water supplied to the farmers has to be appropriately charged after adequate assessment.

6.1.2 The basic approach followed in the assessment and collection of water charges is to recover the cost of supply of water by the State Governments from the irrigators. The revised rates are worked out on the basis of water requirements for each crop and gross area under irrigation through major and medium projects.

6.2 Mechanism of Assessment and Collection of Revenue

There is considerable diversity in the country and the mechanism for collection of Irrigation Water Revenue. In some States, the assessments as well as collection of Water Revenue are handled by the Irrigation Department. In other states, assessment is done by Irrigation Department whereas collection is in the domain of the Revenue Department. In some other States, assessment as well as collection are the responsibilities of the Revenue Department. There are also States and UTs where no irrigation water rates are levied and consequently no mechanism for collection of water revenue exists. The mechanism of revenue collection is in different states are given below:

Department Responsible for Assessment/Collection.		Mechanism adopted in States/UTs
1.	Irrigation Department does assessment and collection	Assam, Bihar, Chhattisgarh, Gujarat, Goa, UT of Jammu/Kashmir/Ladakh, Jharkhand, Madhya Pradesh, Manipur, Maharashtra, Orissa (for industrial & commercial use) Rajasthan (for irrigation project irrigating more than 2500 acres), West Bengal, Union Territories of Dadra & Nagar Haveli, Daman & Diu.
2.	Irrigation Department does assessment but collection is entrusted to Revenue Department	Haryana, Himachal Pradesh, Punjab, Uttar Pradesh, Uttaranchal and Delhi.
3.	Revenue Department does both assessment & collection	Andhra Pradesh, Chandigarh, Karnataka, Kerala, Orissa (for Major & Medium Schemes). Rajasthan (for Schemes Irrigating less than 2500 acres), Tamil Nadu, Puducherry.
4.	Water Rates but no mechanism available in the State	Sikkim
5.	Panchayat/ Block Advisory Committee	Tripura
6.	No Water rates and its assessment /collection in vogue	Arunachal Pradesh, Mizoram, Meghalaya, Nagaland, Andaman & Nicobar and Lakshadweep.

6.3 The revenue collection mechanism as prevailing in various States/UTs of the country is described in detail as under:

6.3.1 **Andhra Pradesh**

In the State of Andhra Pradesh, the irrigation water revenue collection is under the control of the Revenue Department. The Commissioner (Land Revenue) at State level and District Collectors at District level are responsible for the collection of land revenue as well as irrigation water

revenue. A Village officerincharge of a group of villages or a single big village does the assessment and collection of land revenue and irrigation water revenue at the village level under the supervision of Mandal Revenue Officer/Revenue Divisional Officer.

For levying water rates, the irrigation sources are classified into two categories. Any source of irrigation coming under Major & Medium Irrigation Projects is designated as Category–I source. Sources of irrigation other than Major & Medium Irrigation Projects are classified under Category-II source. Further, the crops are classified as Wet crops, Dry crops and Double crops. Different water rates are charged for (a) first or single Wet crop, (b) second or third Wet crop, (c) first irrigated Dry crops, (d) second or third irrigated Dry crops and (e) Double crops. For each of these types of crops, water rates are different for category-I and category–II sources of irrigation.

Assessment of area irrigated:

i) The particular of areas irrigated to be prepared by the competent authority (Engg.) and President, Water Users Association and furnish it to the Dy. Executive Engineer and Executive Engineer.

ii) The area irrigated particulars to be collected during the standing crop period but not after harvesting depending upon crop season.

iii) Executive Engineer will furnish the water users association/division wise irrigated area particulars to the Tehsildar as well as to the Superintending Engineer concerned. The Superintending Engineer concerned, in turn would furnish the same to the Chief Engineer, Commissioner, CAD and Chief Commissioner land administration. The Executive Engineer shall take into account the real time assessment of area irrigated provided by AP State Remote Sensing Application Centre in arriving at actual area irrigated in his jurisdiction. The area under unauthorised irrigation outside the localization is also to be reported separately so that, total area irrigated in the project is recorded. The Chief Engineer of the project concerned would monitor the same.

Demand and collection:

i) The Tehsildar will fix the demand as per the area assessment furnished by the Executive Engineer.

ii) For raising water tax demand and DCB statements, the prescribed formats may be used.

iii) The Tehsildar shall furnish DCB particulars of water tax and the details of the amounts due from individual ryots (baki-jabitha) including the arrears to the water users association and Executive Engineer concerned for every quarter within one month of the end of the quarter. If a Water Users Association comes into jurisdiction of one or more mandal officers, the baki-jabitha is to be furnished by the respective Tehsildar.

iv) The Managing Committee of the water users association and the competent authority will assist Tehsildar in collection and remittance of the tax amount.

v) The Competent Authority and Water Users Association will also maintain the account of water tax collection at the water users' association level.

vi) The Tehsildar will provide the copies of DCB statement to the water users association and Executive Engineer concerned.

vii) The Tehsildar will credit the water tax collections into "0029 Land Revenue" account.

In 2015 the state of Telangana was carved out of Andhara Pradesh. Hence, there is decrease with Capital Expenditure as well as Working Expense. However, the figures in the Capital Expenditure at the end of the year in column 4 pertains to the cumulative figures of erstwhile State of Andhara Pradesh. The percentage of recovery Working Expense through gross receipt from 2015-16 shows an upward turn as the figure shown corresponds to state of Andhara Pradesh minus Telangana.

There was a gradual increase of Annual Capital Expenditure from Rs. 2924.10 crore to Rs. 10504.75 crore from2004-05 to 2018-19inMajor and Medium Irrigation projects (Table 6.1.1). The Annual Working Expenses decreased from Rs.1772.31 crore in 2004-05 to Rs. 502.23 crore in 2018-19.The working Expense is almost 4.78 of the capital expenditure in 2018-19 as compared to 60.61 in 2004-05 when Telangana & Andhra Pradesh were one State.

The gap between Gross Receipt on account of water charges and Working Expenses is gradually widening and the gross receipts are in the range of 0.90% to 33.71% of Working Expense during 2004-05 to 2018-19.

Table6.1.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS ANDHRA PRADESHDURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	2924.10	15410.78	1772.31	56.27	3.17
2	2005-06	5747.21	21158.00	2470.94	47.82	1.94
3	2006-07	7599.49	28757.48	3026.51	68.81	2.27
4	2007-08	10210.77	38970.77	4541.49	42.03	0.93
5	2008-09	7762.60	46733.37	3797.60	38.33	1.01
6	2009-10	10174.86	56908.24	5116.54	81.88	1.60
7	2010-11	8059.44	64967.67	6092.56	65.32	1.07
8	2011-12	9206.64	74174.31	6349.33	72.27	1.14
9	2012-13	9300.17	83477.20	8394.21	193.25	2.30
10	2013-14	8234.85	91712.05	8370.12	206.82	2.47
11	2014-15	2576.53	94285.86	4529.83	169.19	3.74
12	2015-16	7622.62	101908.4	534.14	147.70	27.65
13	2016-17	7858.82	109767.3	503.11	169.62	33.71
14	2017-18	6605.59	116372.8	535.02	168.60	31.51
15	2018-19	10504.75	126877.6	502.23	125.57	25.00

Source : Combined Finance and Revenue Accounts of erstwhile Andhra Pradesh upto 2013-14 And from 2014-15 onwards data pertaining to Andhra Pradesh.

Remarks: The figures in Col. (3) and (4) in some cases may be incompatible due to accounting adjustment in the State.

Fig 6.1.1 : TREND IN GROWTH OF CAPITAL OUTLAY, WORKING EXPENSES AND GROSS RECEIPTS - ANDHRA PRADESH

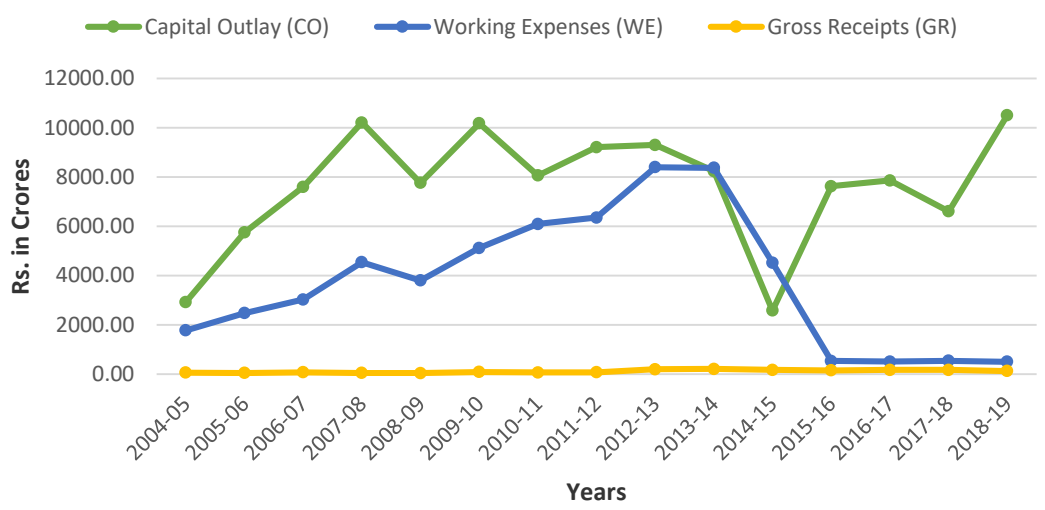
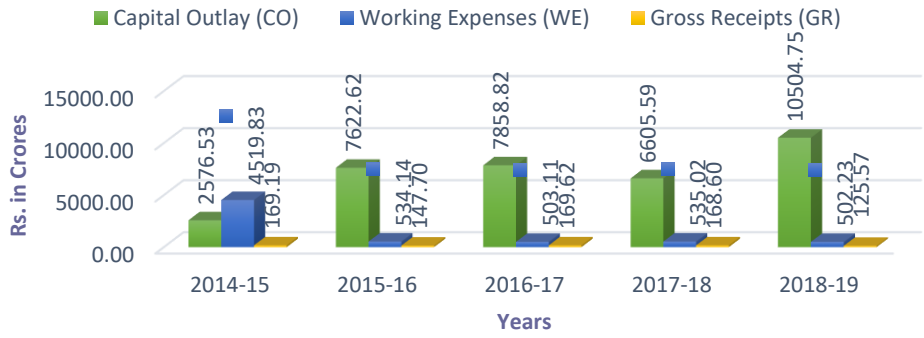


Fig 6.1.2: GAP IN GROSS RECEIPTS VIS A VIS WORKING EXPENSES - ANDHRA PRADESH



6.3.2 **Arunachal Pradesh**

There are no water rates in vogue.Under Major and Medium Irrigation projects, no Annual Capital Expenditure has been incurred during the period from 2004-05 to 2018-19 and the cumulative Capital Expenditure was Rs.1.82 crore till the end of 2004-05 have been repeated every year. However, there were working expenses which was only Rs. 0.40 crore in 2004-05 has increased slightly to Rs. 0.48 crore in 2013-14and then afterwards it is 0.00 till 2018-19 in Major and Medium Irrigation projects (Table 6.2.1).

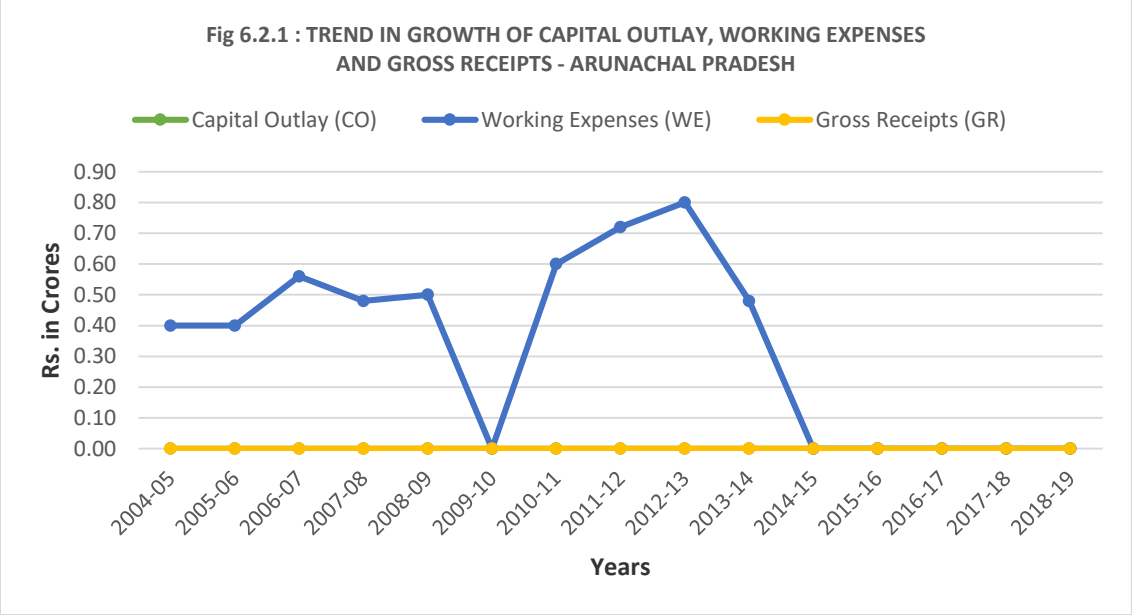
The gap between Gross Receipt on account of levy of water charges and Working Expenses are wide for the interval of years from 2004-2005 to 2013-14 except in the year 2009-10 and are depicted in the chart but no revenue has been collected during 2004-05 to 2018-19.

Table: 6.2.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS ARUNACHAL PRADESHDURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	0.00	1.82	0.40	0.00	0.00
2	2005-06	0.00	1.82	0.40	0.00	0.00
3	2006-07	0.00	1.82	0.56	0.00	0.00
4	2007-08	0.00	1.82	0.48	0.00	0.00
5	2008-09	0.00	1.82	0.50	0.00	0.00
6	2009-10	0.00	1.82	0.00	0.00	0.00
7	2010-11	0.00	1.82	0.60	0.00	0.00
8	2011-12	0.00	1.82	0.72	0.00	0.00
9	2012-13	0.00	1.82	0.80	0.00	0.00
10	2013-14	0.00	1.82	0.48	0.00	0.00
11	2014-15	0.00	1.82	0.00	0.00	0.00
12	2015-16	0.00	1.82	0.00	0.00	0.00
13	2016-17	0.00	1.82	0.00	0.00	0.00
14	2017-18	0.00	1.82	0.00	0.00	0.00
15	2018-19	0.00	1.82	0.00	0.00	0.00

Source : Combined Finance and Revenue Accounts of Arunachal Pradesh.
Remarks: The figures in Col. (3) and (4) in some cases may be incompatible due to accounting adjustment in the State.



6.3.3 **Assam**

In Assam, the water rates are fixed in conformity with the Fiscal Reforms programme of the State Government (Reforms in the Non-Tax Revenue). The present system of collection of Irrigation service charges is that the charges are assessed on the basis of area irrigated to the individual beneficiary cultivators in terms of hectares in a particular crop as per record maintained by the respective offices in the Water Distribution register. The water charges are realized by the Irrigation Department of the State through the beneficiary Committees of the Irrigation Schemes where such committees exist.

There was no definite trend in Capital Expenditure during the period from 2004-05 to 2006-07 in Major and Medium Irrigation projects (Table 6.3.1). It was Rs. 28.46 crore in 2004-05 and reached its peak level in 2015-16 at Rs.113.58 crore and declined to its lowest level in 2018-19 at 10.19 crore. Similarly, Annual Working Expenses is increasing from Rs. 33.49 crore in 2004-05 to Rs. 147.19 crore in 2018-19.

The gap between Gross Receipt on account of levy of water charges and Working Expenses are wider and depicted in the chart. The Gross Receipt on account of the levy of water charges are in the range of 0.22 % to 1.26 % of Working Expense during 2004-05 to 2018-19.

Table: 6.3.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS ASSAMDURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	28.46	684.64	33.49	0.26	0.78
2	2005-06	14.93	699.57	36.53	0.21	0.57
3	2006-07	20.96	720.53	38.56	0.38	0.99
4	2007-08	22.62	743.15	37.39	0.36	0.96
5	2008-09	80.83	823.99	44.46	0.56	1.26
6	2009-10	93.56	917.55	65.37	0.59	0.90
7	2010-11	16.14	933.68	94.40	0.38	0.40
8	2011-12	56.82	990.51	96.67	0.21	0.22
9	2012-13	53.20	1043.71	121.36	0.38	0.31
10	2013-14	63.84	1107.55	117.00	0.43	0.37
11	2014-15	48.18	1155.74	118.32	0.62	0.52
12	2015-16	113.58	1269.31	118.15	0.84	0.71
13	2016-17	16.40	1285.72	125.42	0.47	0.37
14	2017-18	57.11	1342.83	134.13	0.88	0.66
15	2018-19	10.19	1353.02	147.19	1.00	0.68

Source : Combined Finance and Revenue Accounts of Assam.

Remarks: The figures in Col. (3) and (4) in some cases may be incompatible due to accounting adjustment in the State.

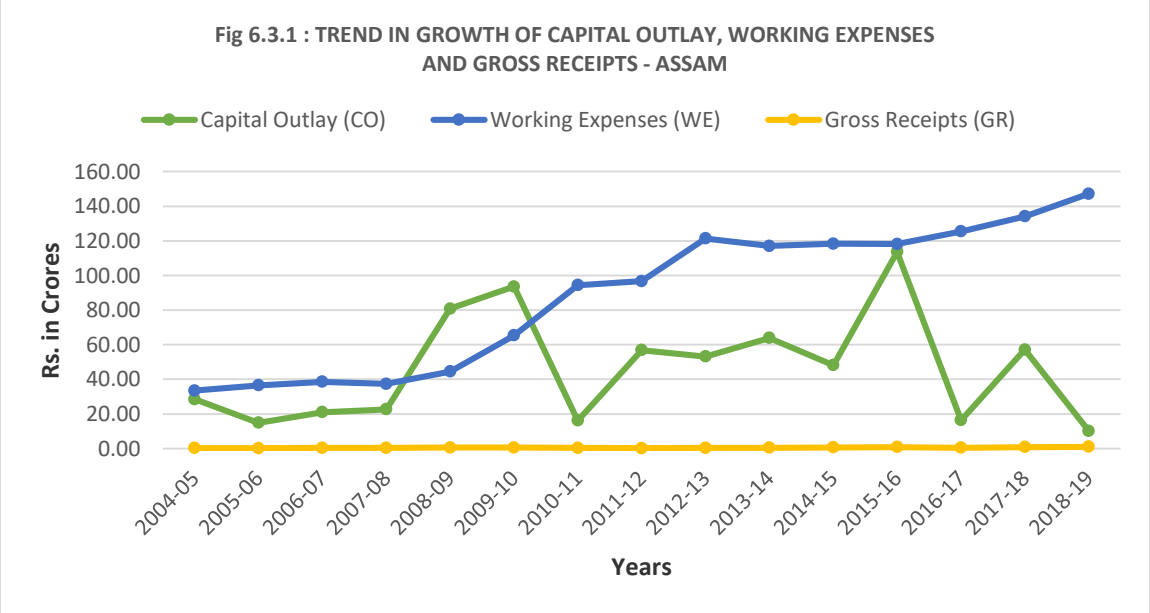
Table 6.3.2 GAP IN REVENUE ASSESSED AND REALIZED DURING 2000-01 TO 2019-20 FOR ASSAM

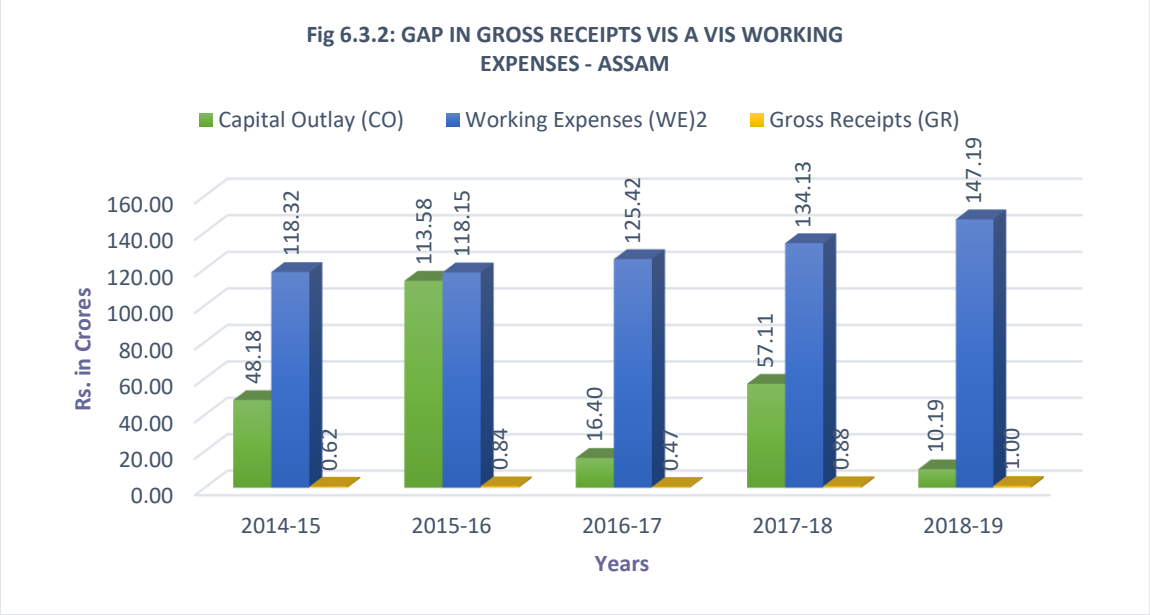
(Rs. in Lakhs)

Year	Revenue assessed	Revenue realized	Percent recovery
1	2	3	4
2000-2001	436.83	0.23	0.05
2001-2002	433.84	0.24	0.06
2002-2003	279.57	1.74	0.62

Year	Revenue assessed	Revenue realized	Percent recovery
1	2	3	4
2003-2004	229.70	2.86	1.25
2004-2005	205.21	4.92	2.30
2005-2006	245.97	3.53	1.44
2006-2007	448.36	2.06	0.57
2007-2008	312.78	1.96	0.57
2008-2009	363.16	2.01	0.70
2009-2010	513.41	3.40	0.66
2010-2011	480.75	4.76	0.99
2011-2012	525.00	12.06	2.30
2012-2013	619.90	7.63	1.25
2013-2014	645.88	7.95	1.23
2014-2015	786.80	7.21	0.92
2015-2016	806.12	7.67	0.95
2016-2017	855.13	11.01	1.28
2017-2018	881.64	11.95	1.36
2018-2019	858.47	7.97	0.93
2019-2020	1055.31	7.85	0.72

Source: Information received vide letter No. CEI(S)22/2004/Pt-IV/132 dated 29th July, 2021 from Office of the Chief Engineer, Irrigation Department, Government of Assam.





6.3.4 **Bihar**

Sudhakar (measurement) for the land to which water is supplied, is taken by the Patrol of the Irrigation Department and measurement of irrigated land, name of the owner and the period of water supplied are recorded in a register. The Patrol sends his weekly report to the Junior Engineer, who forwards the same to the Canal Officer along with his own report.

A Khatiyan for the irrigated area is prepared by the Zilledar/ Junior Engineering charge with the help of Amin. The signature of owner farmer is taken on it. The Khatiyanis updated every year after necessary examination of sale and transfer of land among owners. The responsibility of informing the Canal Officer regarding the transfer is on seller/ transferee.

The demand is prepared on the basis ofKhatiyan. The Patrol gives a certificate that all irrigated area recorded in Sudhakar, has been included in Khasra/ Khatiyan. The Amin also records the Khasra details about crop which has been cultivated, a field in which it has been cultivated and the status of the crop. If any owner farmer raises any objection regarding any land, claiming that no irrigation has been done on that land, the Amin records the same with reason on the Khasra and reports the same to the Canal Officer. Such Khasra prepared by the Amin forms the actual basis for the assessment of irrigation charges.

The Amin after preparing Khasra sends it to the Canal Officer, through Zilledar/ Junior Engineer in-charge. For checking the Sudhakar work and entries of the Khasra register, the Canal Officer, Junior Engineer/Zilledar check 10%, 20% and 30% of the entries respectively.

After checking, the Zilledar/Junior Engineer prepares owner farmer-wise demand slip by comparing the Khasras with the last years KhasrasandKhatiyan. “Birgi” is prepared by compiling owner farmer-wise demand in which total area of an owner farmer is recorded. The Canal Officer sends the Khatiyan to the DivisionalOffice. The Divisional Canal Officer on being satisfied puts his signature on Khatiyan and forwards the same to the Deputy Collector (Revenue) for revenue collection.

Collector sends the demand statement to the Revenue Inspectors through CircleOfficer. Irrigation Revenue Inspector, after recording these demands in the specific register kept for tax collection from farmers, hands it over to the Tax Collector who hands over the demand statement to the concerned farmer and gets his signature on the register. The last date and place of payment is mentioned on the demand statement (Purcha). The last date of payment is after 15 days after handing over the demand statement.

There was a gradual increase of Capital Expenditure from Rs. 264.35 crore to Rs. 1248.27 crore during 2004-05 to 2017-18inMajor and Medium Irrigation projects (Table 6.4.1). Similarly, Annual Working Expenses is increasing from Rs. 150.35 crore to Rs. 501.88 crore from 2004-05 to 2018-19. The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. The Gross Receipt is in the range of 2.93 % to 13.85 % of Working Expense during 2004-05 to 2018-19.

Table: 6.4.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS BIHAR DURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	264.35	6677.22	150.35	20.82	13.85

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
2	2005-06	422.93	7100.14	162.15	12.44	7.67
3	2006-07	450.94	7551.08	186.91	12.90	6.90
4	2007-08	555.41	8106.49	261.96	12.08	4.61
5	2008-09	526.47	8632.96	310.35	13.95	4.49
6	2009-10	513.85	9146.81	373.91	17.83	4.77
7	2010-11	606.73	9753.55	445.30	21.76	4.89
8	2011-12	677.49	10431.04	707.13	20.75	2.93
9	2012-13	816.15	11247.18	399.47	17.06	4.27
10	2013-14	848.70	12095.88	385.25	19.54	5.07
11	2014-15	793.09	12888.98	408.60	18.17	4.45
12	2015-16	833.05	13722.03	515.76	25.78	5.00
13	2016-17	771.94	14493.97	450.52	25.34	5.62
14	2017-18	1248.27	15742.24	500.79	39.49	7.89
15	2018-19	631.91	16374.15	501.88	52.77	10.51

Source : Combined Finance and Revenue Accounts of Bihar.
Remarks: The figures in Col. (3) and (4) in some cases may be incompatible due to accounting adjustment in the State.

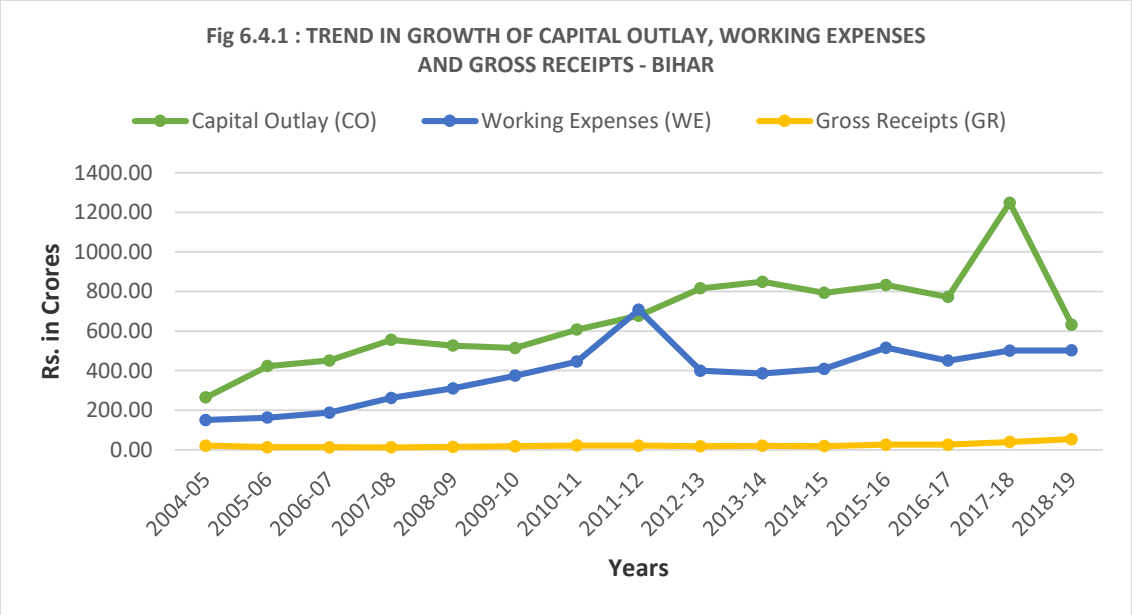
Table 6.4.2GAP IN REVENUE ASSESSED AND REALIZED DURING 2009 10 TO 2019-20 FOR BIHAR

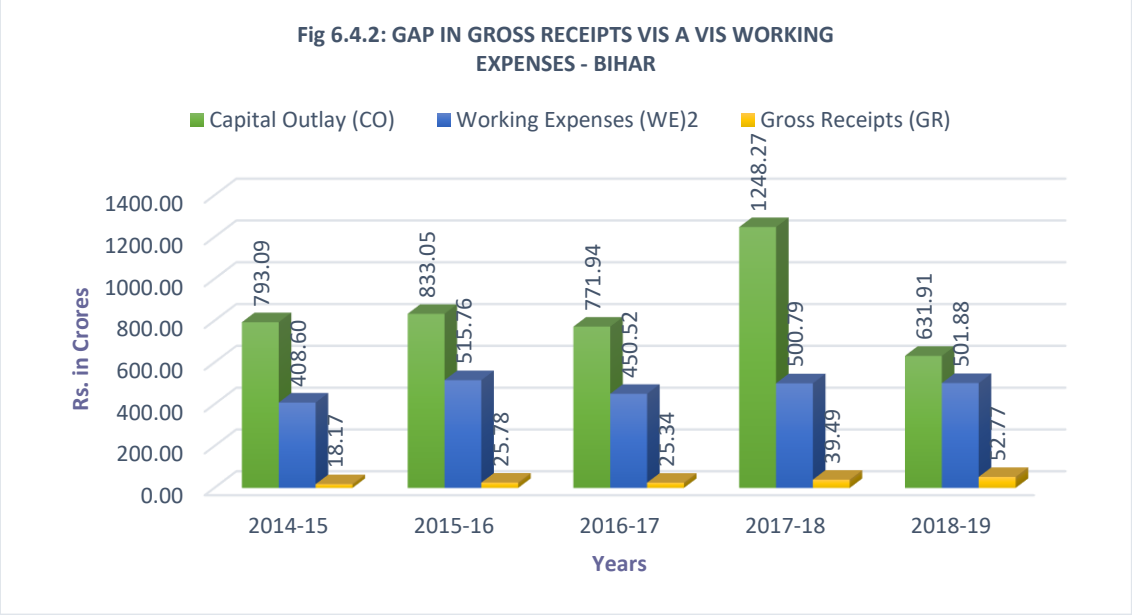
(Rs. in Lakhs)

Year	Revenue assessed	Revenue realized	Percent recovery
1	2	3	4
2009-2010	1958.92	454.13	23.18
2010-2011	949.94	386.86	40.72
2011-2012	722.94	379.03	52.43
2012-2013	879.96	390.26	44.35
2013-2014	783.21	335.90	42.89
2014-2015	630.35	334.23	53.02
2015-2016	828.62	334.91	40.42
2016-2017	574.42	301.52	52.49
2017-2018	741.41	372.51	50.24

Year	Revenue assessed	Revenue realized	Percent recovery
1	2	3	4
2018-2019	637.59	353.55	55.45
2019-2020	471.66	261.01	55.34

Source: Information received vide letter No. COB-103/2006 part V-297/Patna, dated 04th October, 2021 from Office of the Chief Engineer, Water Resource Department, Government of Bihar.





6.3.5 **Chhattisgarh**

Assessment and collection of Irrigation Revenue is governed by Madhya Pradesh Irrigation Act 1931 and Madhya Pradesh Irrigation Act 1974. When Chhattisgarh was part of State of Madhya Pradesh.

System of Assessment: All entries of water supplied for irrigation on demand, under irrigation agreement, unauthorized irrigation on cultivated land and submerged area are made by the Amin in Form 19 called KhasraSudhakar. He records the Irrigation of each village in a separate KhasraSudhakar, tank-wise, and enters therein all fields by making survey and portal (Investigation) of each and every field that appear to him liable to assessment of water rates and completes the entry of Sudhakar for Kharif, Rabi and Zaid season by the 30th September, 28th February, and 14th May respectively in each year and submits the report with a list of fields about the irrigation of which he has reasonable doubts, to his immediate officer on or before the dates mentioned above. The Amin, on completion of the entries in the KhasraSudhakar (final survey and measurements) makes out `Parchas' for each cultivator in Form 20, and the Parcha, signed by the Amin and the Section officer (Sub-Engineer)/Irrigation Inspector is then entered in the ledger. The Amin then delivers the Parcha to the cultivator personally and obtains his signature in Form 21 of M.P. Irrigation Act. With the aid of the KhasraSudhakar and Parchas, the Amin prepares the following papers in the forms prescribed:

(a) Ledger in which all entries concerning each cultivator are brought together and added to total. (Form 22 of M.P. Irrigation Act);

(b) Kistabandi Khatoni, in which only total amount for which purchase have been delivered are entered. (Form 23 of M.P. Irrigation Act) and

(c) Abstract Kistabandi Khatoni in which entries in column no.1 to 5 are completed (Form 24 of M.P. Irrigation Act)

Collection of Revenue: The Collection of Irrigation Revenue is carried out by the Irrigation Department. The government has delegated the powers of Tehsildar to the Sub-Divisional officers and Sub-Engineers for the Tehsils falling in their jurisdiction, for the collection of Irrigation Revenue, which is collected in the same way as the Land Revenue is collected. Similarly, the Canal Deputy Collectors have been conferred the powers of Additional Tehsildar for this very purpose. From the Kistabandi Khatoni a Statement is prepared and handed over to

the Amin. On the receipt of this Statement, he immediately proceeds to collect the canal revenue from occupier concerned and gives acknowledgement in the SinchaiPustika available with the occupiers concerned and after making a receipt statement in duplicate obtains signature of the occupier concerned in token of having received the acknowledgement in SinchaiPustika along with the amount deposited by him. A money receipt is also given, in Form 17, to the cultivator against the payment made by him. The Revenue collected from the cultivator is remitted to Treasury regularly.

Capital Expenditure during the year was gradually increasing from Rs. 342.91crore to Rs. 872.86crore since 2012-13 to 2017-18 in Major and Medium Irrigation projects (Table 6.5.1). Similarly, Annual Working Expenses are consistently increasing from Rs. 89.45 crore to Rs. 487.44 crore from 2004-05 to 2018-19.

The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. Considerably large amounts have been realized as Revenue Receipt from water charge and related activities, which is in the range of 41.41% to 127.14 % of Working Expenses during 2004-05 to 2018-19.

Table: 6.5.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS CHHATTISGARHDURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	421.96	2415.92	89.45	67.26	75.19
2	2005-06	337.15	2753.07	94.13	38.98	41.41
3	2006-07	361.15	3114.22	98.81	104.96	106.22
4	2007-08	385.69	3499.92	107.30	97.62	90.98
5	2008-09	430.54	3930.45	143.85	126.04	87.62
6	2009-10	464.61	4395.07	221.08	105.37	47.66
7	2010-11	453.05	4848.12	230.67	222.00	96.24
8	2011-12	372.92	5221.04	287.03	336.49	117.23
9	2012-13	342.91	5563.95	302.38	357.23	118.14
10	2013-14	376.16	5940.11	337.10	348.64	103.42
11	2014-15	496.66	6436.77	371.35	417.63	112.46

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
12	2015-16	655.62	7092.39	399.77	508.28	127.14
13	2016-17	809.68	7902.07	416.01	443.63	106.64
14	2017-18	872.86	8774.93	459.01	467.15	101.77
15	2018-19	700.81	9475.74	487.44	533.13	109.37

Source : Combined Finance and Revenue Accounts of Chhattisgarh.

Remarks: The figures in Col. (3) and (4) in some cases may be incompatible due to accounting adjustment in the State.

Table 6.5.2GAP IN REVENUE ASSESSED AND REALIZED DURING 2000-01 TO 2019-20 FOR CHHATTISGARH

(Rs. in Lakhs)

Year	Revenue assessed	Revenue realized	Percent recovery
1	2	3	4
2000-2001	13948.22	2424.22	17.38
2001-2002	18347.21	452.55	2.47
2002-2003	12286.84	5736.01	46.68
2003-2004	16074.63	4895.00	30.45
2004-2005	17536.66	5544.00	31.61
2005-2006	17056.92	4348.00	25.49
2006-2007	23002.75	11080.00	48.17
2007-2008	23141.47	11620.00	50.21
2008-2009	24633.05	13308.00	54.02
2009-2010	88556.00	47592.00	53.74
2010-2011	150444.00	65145.00	43.30
2011-2012	118692.00	54108.00	45.59
2012-2013	127864.00	59018.00	46.16
2013-2014	145986.00	81650.00	55.93
2014-2015	155675.00	61820.00	39.71
2015-2016	158084.00	64882.00	41.04
2016-2017	244537.00	64226.00	26.26
2017-2018	277571.00	65892.00	23.74
2018-2019	297871.00	70633.00	23.71
2019-2020	292624.00	77137.00	26.36

Source: Information received vide letter No. 3451289/CWC/2021/6375 dated 11th August, 2021from Office of the Engineer-in-Chief, Water Resources Department, Government of Chhattisgarh

Fig 6.5.1 : TREND IN GROWTH OF CAPITAL OUTLAY, WORKING EXPENSES AND GROSS RECEIPTS - CHHATTISGARH

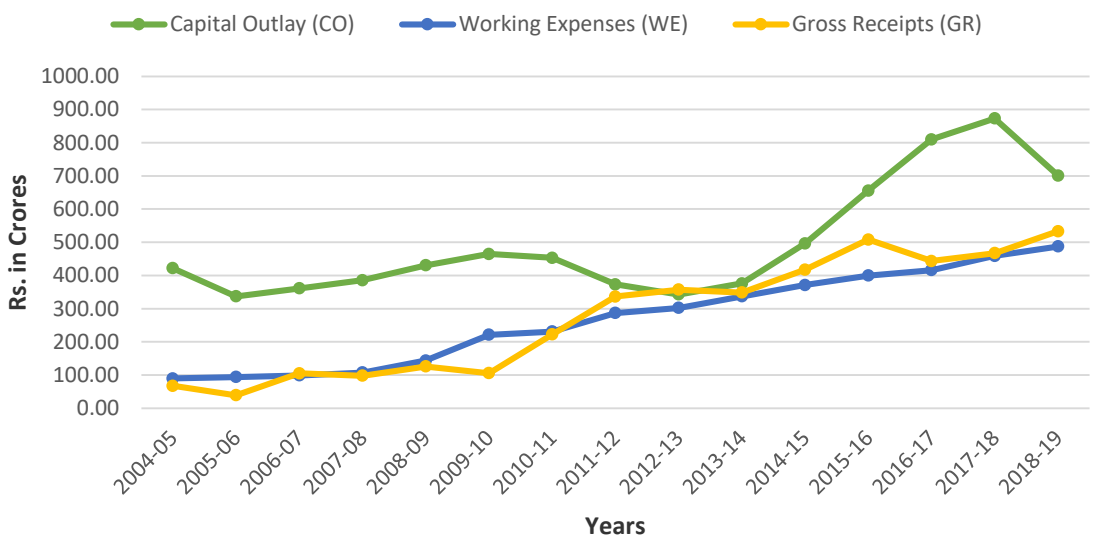
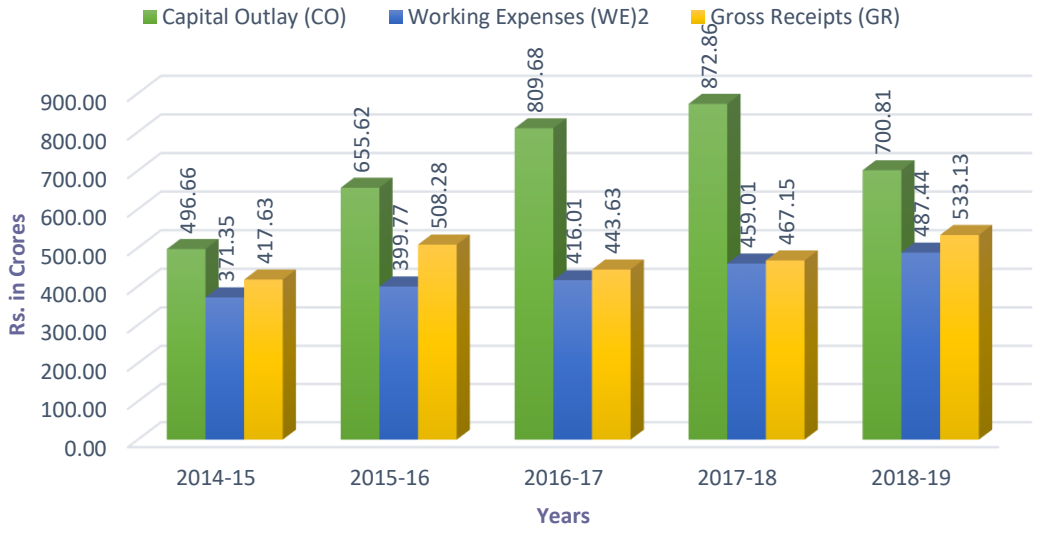


Fig 6.5.2: GAP IN GROSS RECEIPTS VIS A VIS WORKING EXPENSES - CHHATTISGARH



6.3.6 **Delhi**

The Govt. of NCT of Delhi is following the "North India Canal and Drainage Act, 1873" which is being followed by Punjab and Haryana Irrigation Departments. Under this Act, irrigation revenue is recovered from cultivators by the District Collectors. Following the same practice, the irrigation revenue has to be recovered from the cultivators of the NCT of Delhi by the Concerned Deputy Commissioners of various districts, who are working under the control of Divisional

Commissioner, Delhi. Prior to the division of NCT of Delhi into various Districts and the creation of posts of Dy. Commissioners, this job was being done by ADM (Revenue), Tis Hazari.

An amount of Rs.0.65 crore appears in all Finance Accounts of Delhi, as a cumulative Capital Expenditure up to the end of each year. There was neither any annual Capital Expenditure nor corresponding Working Expenses but the Gross Receipt in NCT of Delhi indicated that the State is reaping the fruits of earlier Capital Expenditure under Major and Medium Irrigation projects.

The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. The Gross Receipts have grown from Rs. 1.86 crore to Rs. 8.75crore during the year from 2004-05 to 2018-19inMajor and Medium Irrigation projects (Table 6.6.1). The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart.

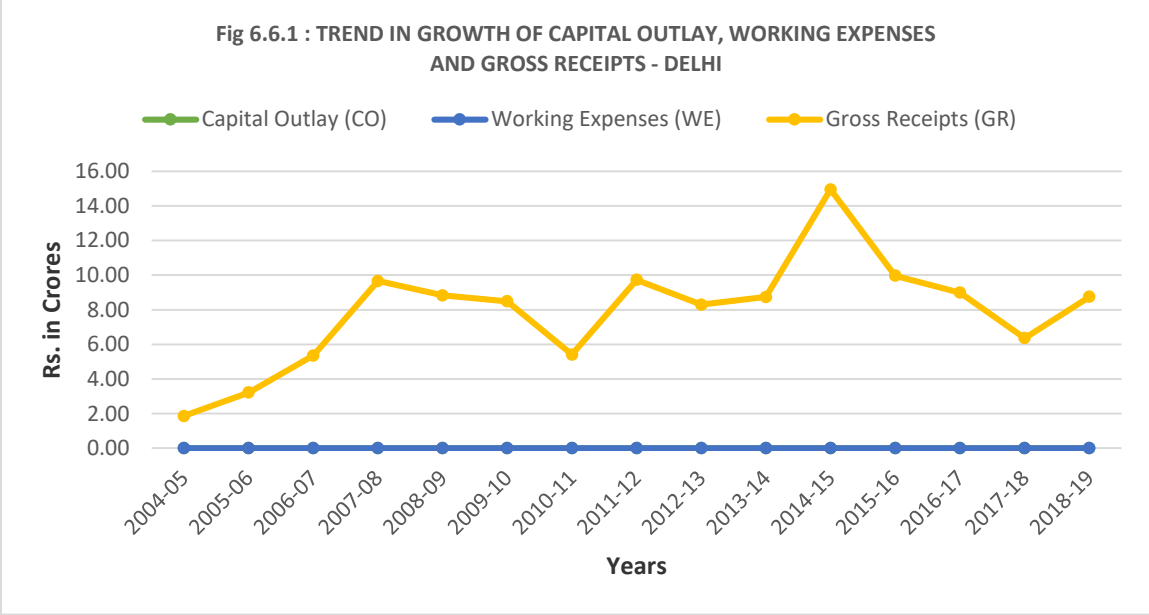
Table: 6.6.1.: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS DELHI DURING 2004-05 TO 2018-19

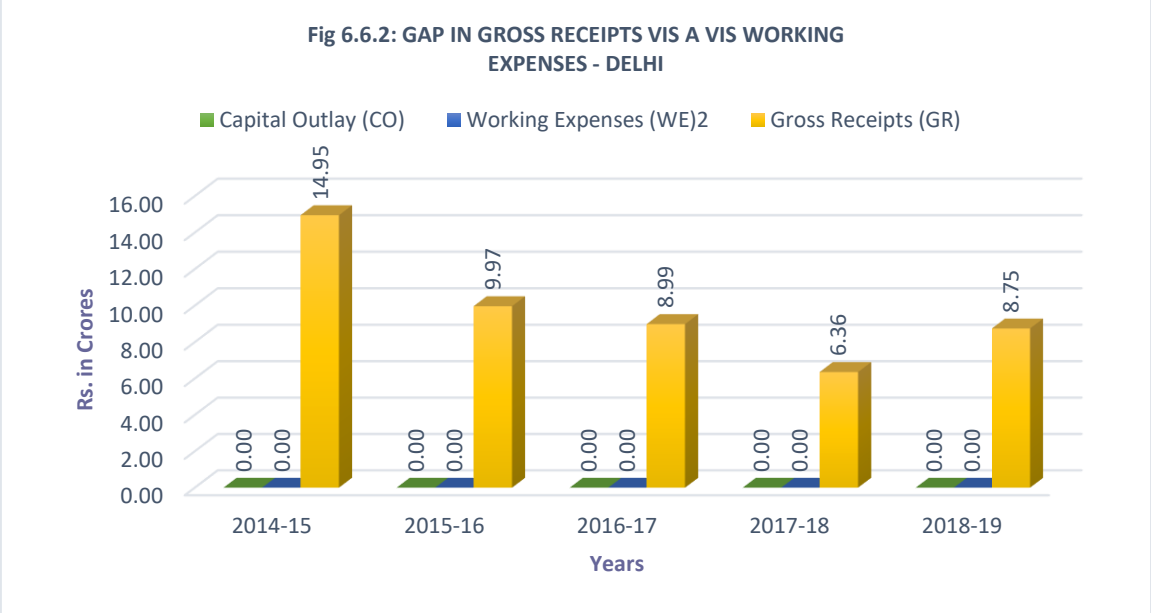
(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	0.00	0.65	0.00	1.86	0.00
2	2005-06	0.00	0.65	0.00	3.22	0.00
3	2006-07	0.00	0.65	0.00	5.35	0.00
4	2007-08	0.00	0.65	0.00	9.66	0.00
5	2008-09	0.00	0.65	0.00	8.83	0.00
6	2009-10	0.00	0.65	0.00	8.49	0.00
7	2010-11	0.00	0.65	0.00	5.41	0.00
8	2011-12	0.00	0.65	0.00	9.73	0.00
9	2012-13	0.00	0.65	0.00	8.29	0.00
10	2013-14	0.00	0.65	0.00	8.74	0.00
11	2014-15	0.00	0.65	0.00	14.95	0.00
12	2015-16	0.00	0.65	0.00	9.97	0.00
13	2016-17	0.00	0.65	0.00	8.99	0.00

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
14	2017-18	0.00	0.65	0.00	6.36	0.00
15	2018-19	0.00	0.65	0.00	8.75	0.00

Source : Combined Finance and Revenue Accounts of Delhi.
Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.





6.3.7 Goa

There are three systems by which water is being supplied to the cultivators in the State of Goa.

(a) Flow Irrigation

(b) Lift Irrigation and

(c) Irrigation from canals which are not constructed and maintained by the Government.

Assessment of levy on account of supply of water from canal for irrigation or other purposes is done as per the provisions of Section 33 of the Goa, Daman and Diu Irrigation Act, 1973 and Rules 18 to 28 of the Goa, Daman and Diu Irrigation Rules, 1975.

Every person desiring to have a supply of water from a canal is required to submit a written application to the Canal Officer in a prescribed form on or before a pre-determined date fixed by the Canal Officer separately for each canal through a published notification. Amongst others, details of area, crop to be irrigated and the period for which water supply is required have to be clearly mentioned by the cultivator in his application.

The Canal officer may reject the application for supply of water or sanction the supply applied for wholly or in part with modification as the case may be. It is the duty of the Canal Officer to notify/determine the areas of land or portions of the wet lands in the irrigation command of a canal and crops to be cultivated thereon two months before the commencement of sowing operations for the cultivation of such crops.

The assessment and collection of revenue are done by the Canal Officer with the help of village Panchayat at village level and Mamlatdar at Taluka level.

The Capital Expenditure was fluctuating over the period from Rs. 9.06 crore to 130.26 crore during the years 2004-05 to 2018-19 with a sudden high decrease in the year 2012-13 and a gradual decrease since 2013-14 afterwards in Major and Medium Irrigation projects (Table 6.7.1). The Annual Working Expenses has consistent increase from 7.38crore to 86.28croresduring 2004-05 to 2017-18 except a minor decrease from 40.26 crores to 49.11crores in year2015-16. The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. The Gross Receipt on account of water charges and other revenue was ranging from 123.74% to 11.39% of Working Expenses during 2004-05 to 2018-19.

Table: 6.7.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS GOA DURING 2004-05 TO 2018-19

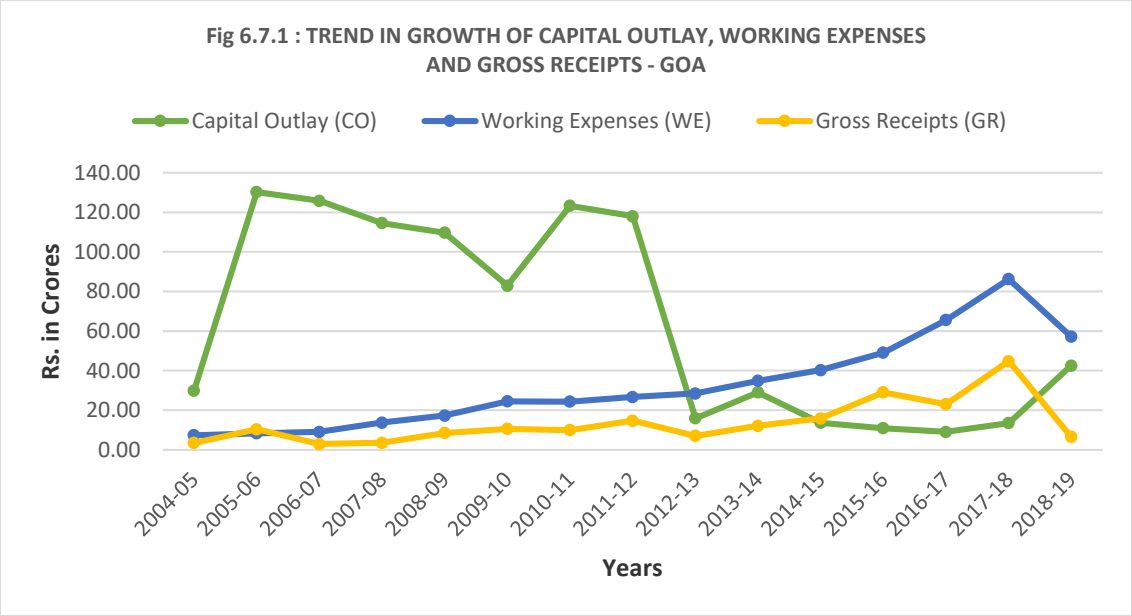
(Rs. In Crore)

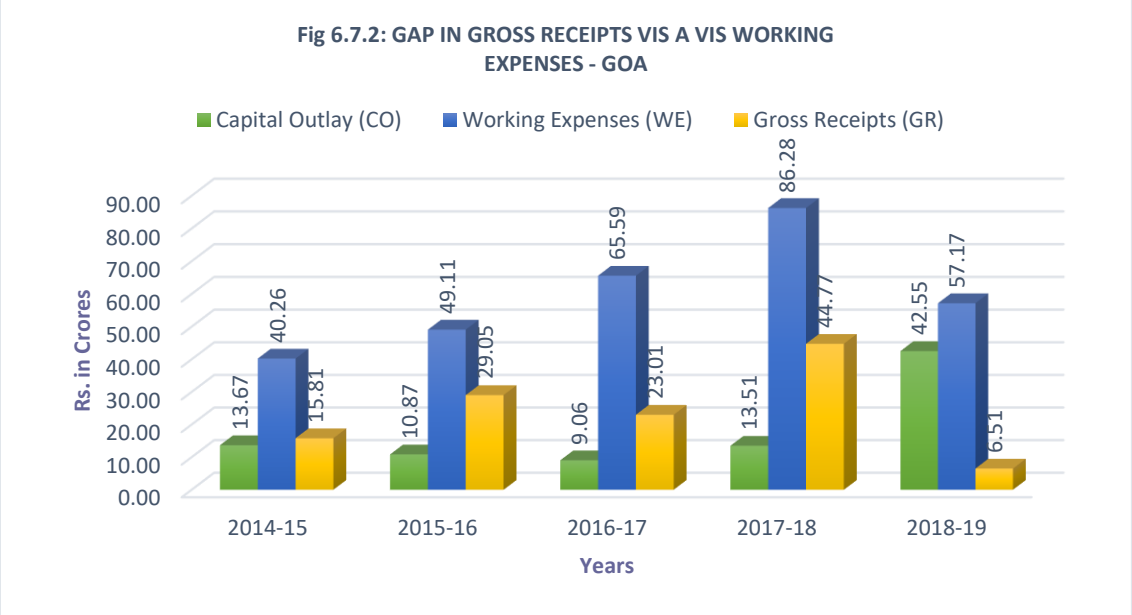
S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	29.92	500.85	7.38	3.49	47.29
2	2005-06	130.26	631.11	8.34	10.32	123.74
3	2006-07	125.83	756.94	9.00	2.93	32.56
4	2007-08	114.58	871.52	13.72	3.56	25.95
5	2008-09	109.71	981.23	17.26	8.51	49.30
6	2009-10	83.00	1064.23	24.45	10.57	43.23
7	2010-11	123.35	1187.58	24.33	9.91	40.73
8	2011-12	118.07	1305.65	26.70	14.70	55.06
9	2012-13	15.92	1321.57	28.46	7.04	24.74
10	2013-14	29.01	1350.58	34.85	12.11	34.75
11	2014-15	13.67	1364.24	40.26	15.81	39.27
12	2015-16	10.87	1375.12	49.11	29.05	59.15
13	2016-17	9.06	1384.18	65.59	23.01	35.08

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
14	2017-18	13.51	1397.69	86.28	44.77	51.89
15	2018-19	42.55	1440.24	57.17	6.51	11.39

Source : Combined Finance and Revenue Accounts of

Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.





6.3.8 **Gujarat**

The system of assessment and collection of Irrigation water revenue followed in the state are mentioned below:

- Depending upon the availability of water in the Reservoir, a notice is published for supply of irrigation water for a particular season.
- Application for the supply of water for irrigation purpose shall be submitted in the office of Deputy Executive Engineer/Section officer/Authorized officer. The application can be submitted before scheduled date through post and receipt for which should also be obtained.
- Thus the dates for receiving application, sanctioning application, paying water charges and date of recovery are fixed.
- To facilitate irrigators, some divisional offices are having Mamlatdar for recovery of irrigation charges and Talaties are allotted to some sub – divisional offices for recovery of irrigation charges. Irrigators are required to approach the Talaties for payment of irrigation recoveries.
- Penalties are charged for unauthorized irrigation. Panchnamas are carried out for such unauthorized irrigation. Agreements are made as per the prevailing rules and penalties levied. Demand statements thus are prepared.
- Demand statements so prepared are sent to the recovery units. The demand statements are read before the concerned irrigators on scheduled dates, to take care of any discrepancy in

preparation of statements. Those irrigators who could not remain present on such scheduled date can approach concerned irrigation offices.

- Outlet wise and crop wise registers are maintained. Based on Demand Statements, irrigators wise bills are prepared taking into consideration the survey number, crop area, number of watering and applicable rates. Concerned section officer verifies the demand statement. Objection if any is resolved on the spot.
- Demand statements are submitted to the concerned Deputy Executive Engineer. They are approved after due verification by the Deputy Executive Engineer. Demand statements are further submitted to the Executive Engineer. After necessary verification, they are sent to the Mamalatdar for affecting recovery.

The allocation of Capital Expenditure was fluctuating between1066.53 to 8947.78 during 2004-05 to 2018-19 with major spurts in the year 2008-09inMajor and Medium Irrigation projects (Table 6.8.1). Similarly Annual Working Expenses are fluctuating from Rs. 255.72 crores to Rs. 430.56crores from 2004-05 to 2009-10 and then a consistent rise from 430.56crores to 559.18 crores from the year 2009-10 to 2012-13 and after that an abnormal decline in 2013-14 again it was increasing trend from 526.20 crores to 599.44 crores during 2013-14 to 2015-16 and thereafter a consistent decline from 599.44 crores to 519.34 crore during 2015-16 to 2018-19.

The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. The Gross Receipt on account of water charges and other revenues was ranging from 80.98% to 255.51% of Working Expenses during 2004-05 to 2018-19. Gross receipt is consistently increasing from 207.09 croresto 1326.95during the year 2004-05 to 2018-19.

Table6.8.1 : FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS GUJARAT DURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	1066.53	14145.38	255.72	207.09	80.98
2	2005-06	1415.60	15560.98	241.56	248.62	102.92
3	2006-07	3556.57	19117.55	325.56	330.62	101.55

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
4	2007-08	2652.84	21770.39	310.02	452.82	146.06
5	2008-09	5827.78	27598.17	343.13	455.77	132.83
6	2009-10	2868.18	30466.35	430.56	504.61	117.20
7	2010-11	2842.84	33309.19	481.07	618.14	128.49
8	2011-12	3881.29	37190.48	496.23	684.16	137.87
9	2012-13	5956.42	43146.91	559.18	714.13	127.71
10	2013-14	5496.40	48643.30	526.20	897.51	170.56
11	2014-15	6726.02	55369.33	580.44	1034.91	178.30
12	2015-16	7223.96	62593.29	599.44	1028.42	171.56
13	2016-17	6689.50	69282.79	588.66	1086.11	184.51
14	2017-18	7953.58	77236.37	541.72	1211.52	223.64
15	2018-19	8947.78	86184.14	519.34	1326.95	255.51

Source : Combined Finance and Revenue Accounts of Gujarat.

Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.

Table 6.8.2GAP IN REVENUE ASSESSED AND REALIZED DURING 2000-01 TO 2019-20 FOR GUJARAT

(Rs. in Lakhs)

Year	Revenue assessed	Revenue realized	Percent recovery
1	2	3	4
2009-2010	57089.00	46454.00	81.37
2010-2011	69049.00	5688.00	8.237
2011-2012	89051.00	63467.00	71.27
2012-2013	86075.00	65339.00	75.91
2013-2014	86617.00	8116.00	9.37
2014-2015	100549.00	90477.00	89.99
2015-2016	110076.00	94137.00	85.52
2016-2017	117179.00	99007.00	84.50
2017-2018	141044.00	98645.00	69.94
2018-2019	148456.00	122456.00	82.49
2019-2020	162080.00	127753.00	78.82

Source: Information received through e-mail dated 20th July, 2021 from Narmada Water Resources, Water Supply and Kalpasar Department, Government of Gujarat.

Fig 6.8.1 : TREND IN GROWTH OF CAPITAL OUTLAY, WORKING EXPENSES AND GROSS RECEIPTS - GUJARAT

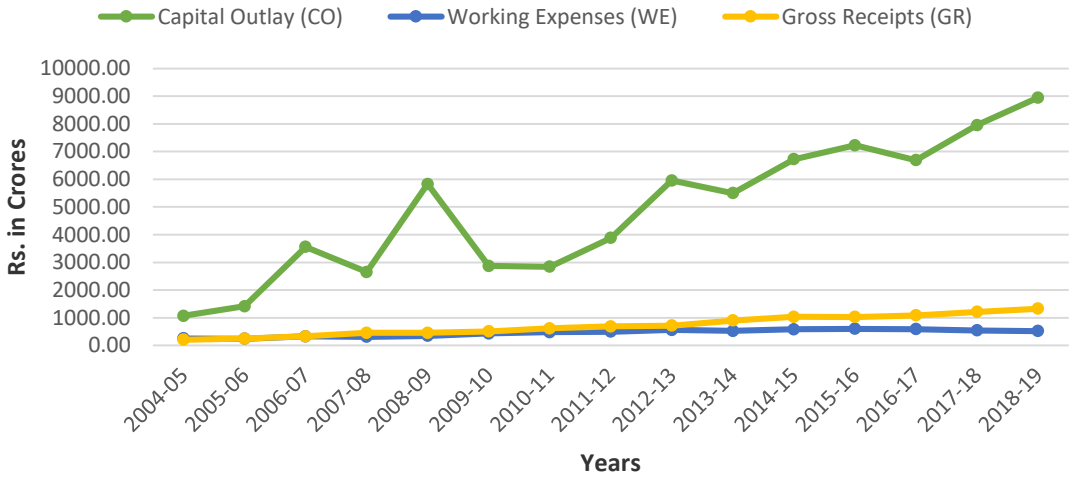
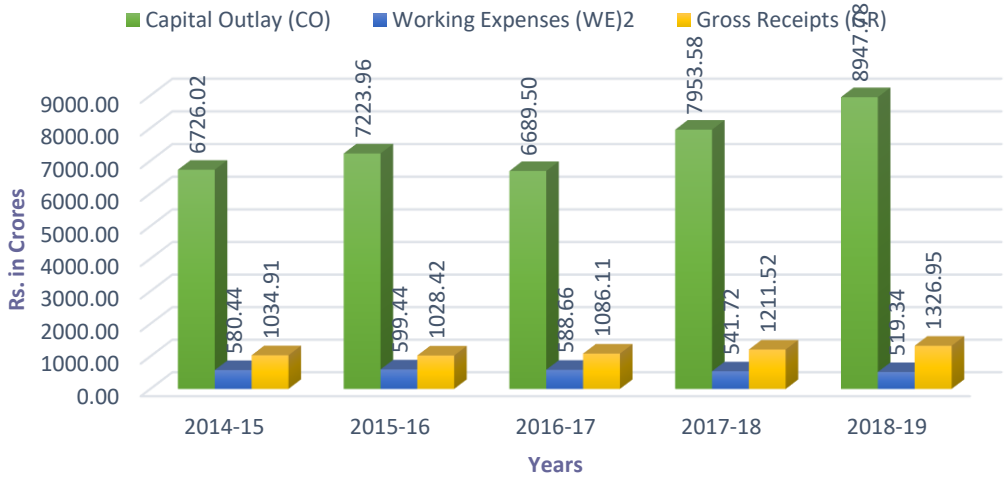


Fig 6.8.2: GAP IN GROSS RECEIPTS VIS A VIS WORKING EXPENSES - GUJARAT



6.3.9 Haryana

In Haryana, collection of irrigation revenue is the duty of the office of Collector/ Deputy Commissioner. The Irrigation Department prepares Khatonies for each beneficiary and consolidates them District-wise. The office collects the irrigation revenue through Tehsildar. The receipts are remitted to the appropriate Head of Account of the State Government.

At the village level, Lambardar or other designated persons render their assistance in distribution and control of irrigation water, assessment of irrigation charges and collection of water revenue from each cultivator. Receipt is given by the Lambardar to each cultivator on the payment of water charges. The proceeds of water charges collected by the Lambardar, after deduction of 3% are credited to the general revenue under a specified Head of Account. The Collector may forfeit the whole or any other portion of the sum payable to the Lambardar if revenue realisation is not made by him in time or if he has failed to render proper assistance for distribution and control of irrigation water or in the assessment of irrigation charges.

There was a gradual increase of 222.72 to822.96 in allocation of Capital Expenditure during 2004-05 to 2007-08 and then there were fluctuations between 639.30to 1087.59 in the Capital Expenditure during the year 2008-09 and 2014-15and then again consistent rise from 671.02crore to 1087.59 during the year 2015-16 to 2018-19inMajor and Medium Irrigation projects (Table 6.9.1). Annual Working Expenses has increased from Rs. 387.90 crore to Rs. 1334.13 crore from 2004-05 to 2018-19. The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. The Gross Receipt on account of water charges has fluctuated in the range from Rs.9.07 crore to Rs. 68.68 crore.

Table: 6.9.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS HARYANA DURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	222.72	3370.40	387.90	103.32	26.64
2	2005-06	407.97	3778.37	401.31	64.13	15.98
3	2006-07	497.92	4276.29	492.97	87.19	17.69
4	2007-08	822.96	5099.25	613.34	72.27	11.78
5	2008-09	730.35	5829.60	661.32	74.01	11.19
6	2009-10	677.38	6506.98	729.34	218.56	29.97
7	2010-11	639.30	7146.28	758.46	202.26	26.67
8	2011-12	754.02	7900.29	849.10	583.16	68.68
9	2012-13	724.17	8624.46	922.71	139.12	15.08
10	2013-14	689.20	9313.66	990.22	95.04	9.60

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
11	2014-15	743.80	10057.46	1035.40	129.27	12.49
12	2015-16	671.02	10728.48	1185.67	110.49	9.32
13	2016-17	705.09	11433.58	1250.20	113.43	9.07
14	2017-18	773.93	12207.50	1297.80	132.32	10.20
15	2018-19	1087.59	13295.10	1334.13	164.19	12.31

Source : Combined Finance and Revenue Accounts of Haryana

Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.

Table 6.9.2GAP IN REVENUE ASSESSED AND REALIZED DURING 2000-01 TO 2019-2020 FOR HARYANA

(Rs. in Lakhs)

Year	Revenue assessed	Revenue realized	Percent recovery
1	2	3	4
2000-2001	2543.14	2671.78	105.06
2001-2002	2702.51	2406.49	89.05
2002-2003	2205.97	2135.67	96.81
2003-2004	3548.48	2965.57	83.57
2004-2005	1662.02	1907.66	114.78
2005-2006	4527.13	2676.78	59.13
2006-2007	3311.20	3475.21	104.95
2007-2008	3140.26	2630.19	83.76
2008-2009	3434.98	2507.27	72.99
2009-2010	3310.10	2958.09	89.36
2010-2011	3456.15	2593.27	75.03
2011-2012	3391.33	3430.92	101.16
2012-2013	3184.69	2936.13	92.19
2013-2014	2736.70	2733.66	99.89
2014-2015	3063.80	2674.54	87.29
2015-2016	3143.50	2493.61	79.33
2016-2017	3406.95	2969.73	87.17
2017-2018	3234.15	2813.03	86.98
2018-2019	4117.02	3904.60	94.84
2019-2020	5489.89	4297.82	78.29

Source: Received vide letter No. /DM/R&CR dated 15th July, 2021from Office of the Engineer-in-Chief, Irrigation & Water Resources Department, Government of Haryana

Fig 6.9.1 : TREND IN GROWTH OF CAPITAL OUTLAY, WORKING EXPENSES AND GROSS RECEIPTS - HARYANA

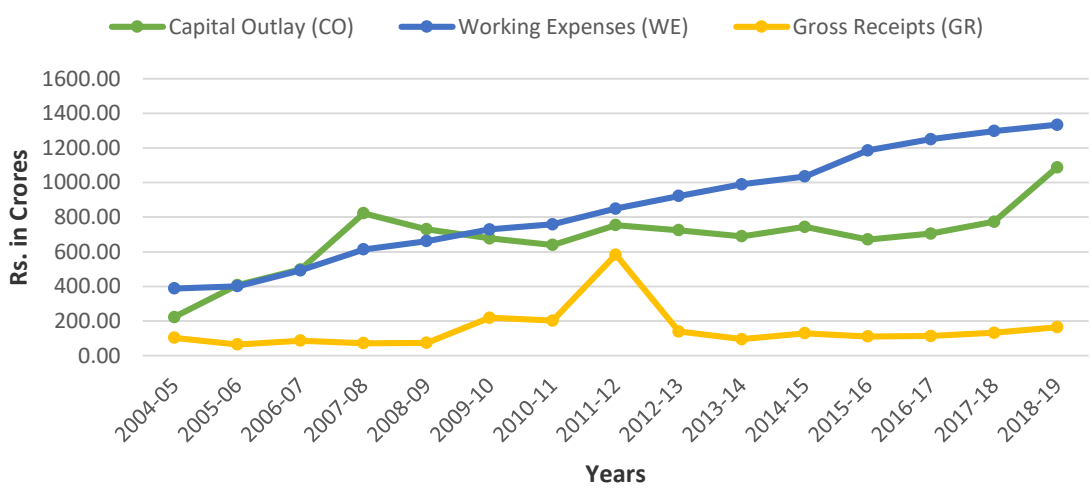
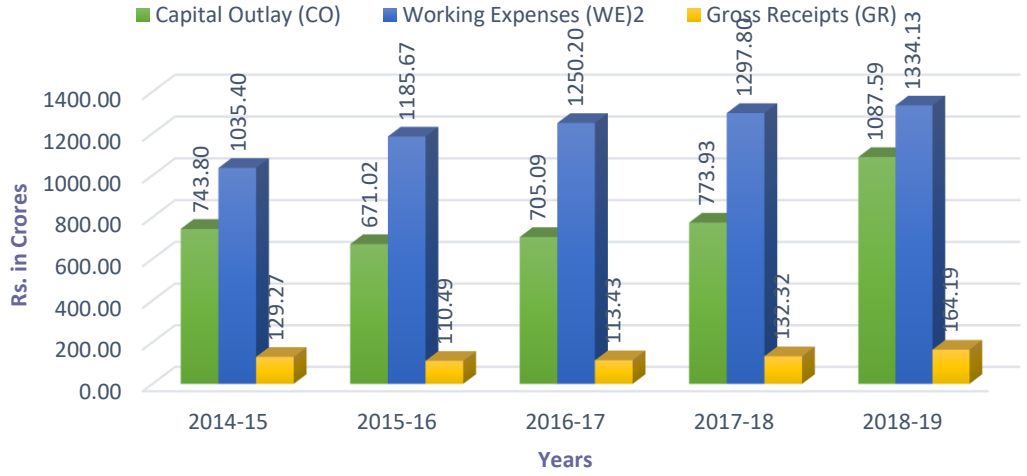


Fig 6.9.2: GAP IN GROSS RECEIPTS VIS A VIS WORKING EXPENSES - HARYANA



6.3.10 Himachal Pradesh

The abiana papers are prepared by the Patwari of the Irrigation and Public Health (IPH) Department on the basis of crop-wise and owner-wise irrigation measurements recorded in the Khasra /Girdawari Register. These papers are checked at the Sub-divisional level and forwarded through Division and Circle Offices to the Zilledar posted in each Administrative Zone of IPH Department. The abiana papers are again checked/ verified at site by the Kanungo/ Zilledar and returned to the respective Divisional Offices for realization of abiana charges. The verified abiana amount's statement is then sent to the District Collector by the Divisional Engineer for realization of abiana from the farmers.

The Capital Expenditure is fluctuating from Rs. 8.46 crore to Rs.127.30 crore during 2004-05 to 2018-19inMajor and Medium Irrigation projects (Table 6.10.1). Similarly, Annual Working Expenses is consistently increasing from Rs. 5.16crore to Rs. 17.88crore from 2005-06to 2011-12 and then it is fluctuating till 2018-19.

The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in the chart. Although gross receipt is negligible but an abnormal realization of Revenue Receipt has been reported in the year 2010-11.

Table: 6.10.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS HIMACHAL PRADESH DURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	14.68	117.65	5.48	0.09	1.64
2	2005-06	20.87	138.71	5.16	0.44	8.53
3	2006-07	39.21	177.72	5.50	0.21	3.82
4	2007-08	98.66	276.38	7.34	0.22	3.00
5	2008-09	78.98	355.36	9.64	0.17	1.76
6	2009-10	85.66	441.01	10.38	0.14	1.35
7	2010-11	62.46	503.47	12.82	6.84	53.35
8	2011-12	127.30	630.48	17.88	0.36	2.01
9	2012-13	48.85	679.33	14.50	0.33	2.28
10	2013-14	38.40	717.73	24.73	0.37	1.50
11	2014-15	69.00	786.73	20.46	0.17	0.83
12	2015-16	0.00	786.73	19.06	0.21	1.10
13	2016-17	30.16	816.89	50.39	0.39	0.77
14	2017-18	8.46	825.35	41.95	0.08	0.19
15	2018-19	59.00	884.35	22.05	0.19	0.86

Source : Combined Finance and Revenue Accounts of Himachal Pradesh

Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.

Fig 6.10.1 : TREND IN GROWTH OF CAPITAL OUTLAY, WORKING EXPENSES AND GROSS RECEIPTS - HIMACHAL PRADESH

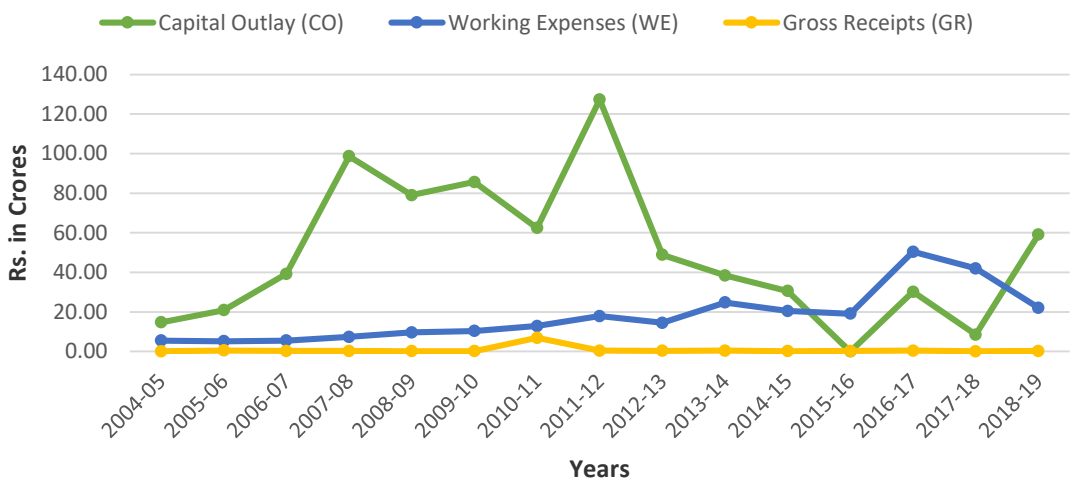
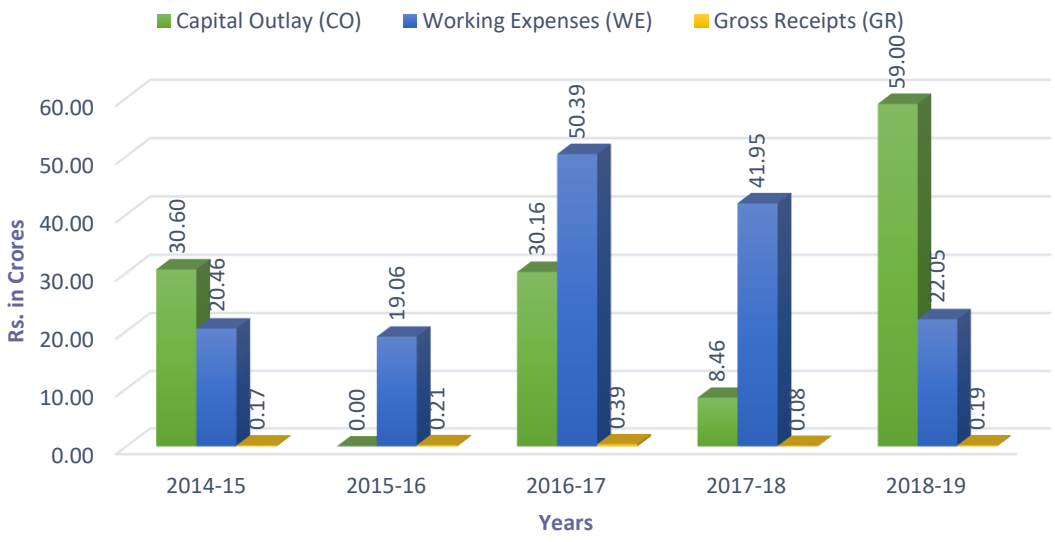


Fig 6.10.2: GAP IN GROSS RECEIPTS VIS A VIS WORKING EXPENSES - HIMACHAL PRADESH



6.3.11 **Jharkhand**

After the creation of Jharkhand on 14-11-2000 the Canal Officer who exercises control over a sub-division of any irrigation work or portion thereof, prepares an assessment of the water charges for the purposes in respect of which water was supplied, made available or used from an irrigation work and serves the same on the owner or occupier.

The Capital Expenditure has fluctuations in the range from Rs. 147.55 crore to Rs. 1220.75 crore during 2004-05 to 2018-19inMajor and Medium Irrigation projects (Table 6.11.1). Similarly, Annual Working Expenses has increased from Rs. 12.85 crore to Rs. 316.03 crore during 2004-05 to 2018-19 with two minor decreases in the year 2010-11 and 2015-16.

The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in the chart. The Gross Receipt on account of water charges was in the range of 12.76% to 131.26% of Working Expenses during 2005-06 to 2018-19.

Table: 6.11.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS JHARKHAND DURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	228.59	924.03	12.85	15.53	120.86
2	2005-06	296.27	1220.31	86.91	11.09	12.76
3	2006-07	171.54	1391.84	126.50	51.09	40.39
4	2007-08	595.03	1986.87	129.89	170.50	131.26
5	2008-09	159.63	2146.50	171.97	48.13	27.99
6	2009-10	147.55	2294.05	204.01	52.86	25.91
7	2010-11	163.83	2457.88	203.19	36.60	18.01
8	2011-12	165.68	2623.56	219.90	40.53	18.43
9	2012-13	378.69	3002.25	220.39	43.29	19.64
10	2013-14	318.94	3321.20	240.36	86.89	36.15
11	2014-15	209.09	3530.29	254.07	215.20	84.70
12	2015-16	1058.56	4588.85	250.45	61.28	24.47
13	2016-17	1105.60	5694.45	252.46	78.79	31.21
14	2017-18	1220.75	6915.20	309.10	274.14	88.69
15	2018-19	1146.27	8061.47	316.03	341.57	108.08

Source : Combined Finance and Revenue Accounts of Jharkhand.

Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.

Fig 6.11.1 : TREND IN GROWTH OF CAPITAL OUTLAY, WORKING EXPENSES AND GROSS RECEIPTS - JHARKHAND

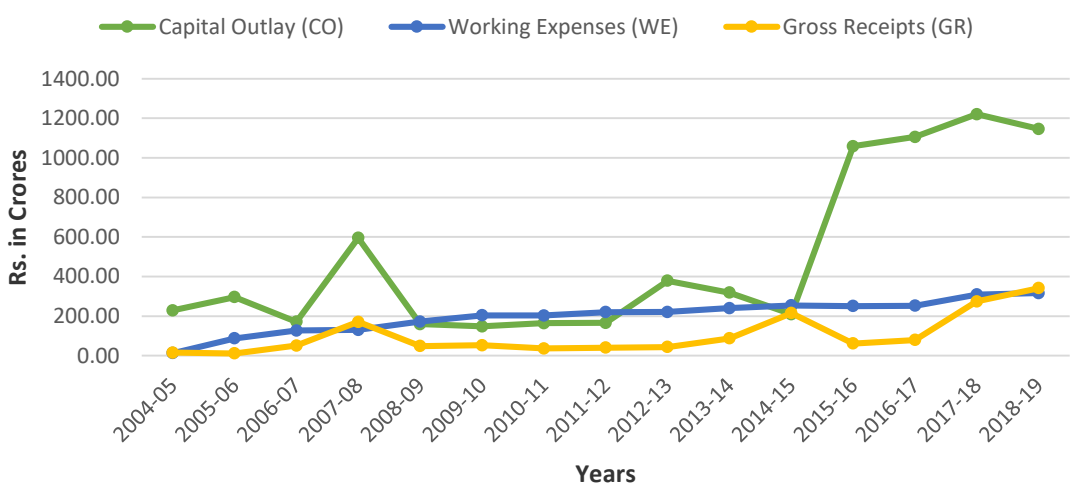
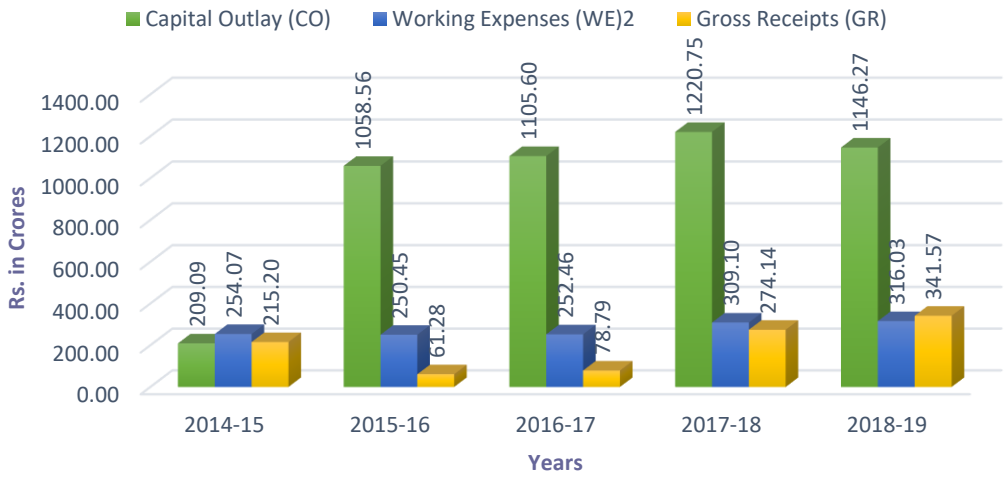


Fig 6.11.2: GAP IN GROSS RECEIPTS VIS A VIS WORKING EXPENSES - JHARKHAND



6.3.12 **Karnataka**

In Karnataka, the assessment of water rate is based on the joint inspection done by the concerned officers of Irrigation and Revenue Departments for the water supplied and the type of crop grown. In determining water rates levied in respect of each crop, an officer of water resources department nominated by the Assistant Executive Engineer shall inspect and prepare a statement of each survey number to which water was supplied, made available or used for irrigation and crop raised therein. The Assistant Executive Engineer shall, after satisfying himself of the

correctness of statement, prepare a statement of water rates payable by each land holder. The statement so prepared shall be notified in the village chavadi and the office of the Assistant Executive Engineer, inviting objections if any, in the writing by the concerned land holders. If no objections are received the Assistant Executive Engineer shall send the statement to the Tehsildar for collection of water rates specified therein. If any objection is received by the Assistant Executive Engineer, in respect of any land, he shall, after giving the land holder concerned an opportunity of being heard, revise the statement if he thinks fits to do so. The revised statement shall be forwarded to the Tehsildar for collection of water rates specified therein.

Collection of Water Rates for water supplied to water users societies on a volumetric basis.

- In respect of water made available to water users societies for the purpose of irrigation by the government, Nigam water rates shall be levied on a volumetric basis @ Rs.12/- thousand cu.
- The Assistant Executive Engineer in charge of the irrigation work shall calculate the amount of water rate levied in accordance with an agreement entered with the water user association(s) and shall issue a notice of demand to the water users' association(s). The amount of water rates so demanded shall be recovered in accordance with such agreement.
- The Water users' association(s) objecting to the levied water rate within 30 days from the date of service of such notice, as specified in the notice of the demand issued, may appeal to the Ex. Engineer in-charge of the irrigation work who shall, after given the appellant an opportunity of being heard, pass such order as he deems fit.

Collection of water charges by the association(s):

- Water users' association(s) shall collect water charges from the members of the society and also from non members holding lands within the jurisdiction of the society which shall include apart from the water rates payable to the government by the society but also the operation and maintenance cost of sub system/ parts of the systems for irrigation that are handed over by the government to the society, the administrative and other related costs incurred by the society as well as a reasonable surplus that shall be decided by the general body of the society from time to time.
- The government may give to water users' association(s) such amount in the form of subsidy or set off against water rate payable by it for such period as may be notified from

time to time, except where water is used from any irrigation work from any purpose other than agriculture or fixed for the issue of notice of demand of water rates by the government namely:

- The amount of water rate specified in the notice of demand shall be paid within two months from the date of service of notice of demand. Such notice of demand of the amount of water rate is payable in accordance with the decision of appeal and shall be paid within 15 days from the date of appellate order.

With few fluctuations Capital Expenditure has increased from Rs. 2804.93 crore to Rs. 9970.12 crore during 2004-05 to 2018-19inMajor and Medium Irrigation projects (Table 6.12.1). Similarly, Annual Working Expenses has increased from Rs. 60.60 crore to Rs.1636.76 crore from 2004-05 to 2018-19 and a sudden increase has been noticed in the year2016-17.

The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. The Gross Receipt on account of water charges was in the range of 1.04% to 32.64 % of Working Expenses during 2004-05 to 2018-19.

Table: 6.12.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS KARNATAKA DURING 2004-05 TO 2018-19

(Rs. In Crore)

S. No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	2804.93	17793.85	60.60	13.35	22.03
2	2005-06	3143.21	20937.06	68.32	22.30	32.64
3	2006-07	3734.14	24671.20	79.79	21.48	26.92
4	2007-08	3077.18	27748.38	70.66	19.69	27.87
5	2008-09	2514.57	30262.94	69.23	22.11	31.94
6	2009-10	3380.19	33643.13	129.53	16.57	12.79
7	2010-11	4035.34	37678.47	175.55	21.85	12.45
8	2011-12	4419.49	42097.96	213.60	30.60	14.33
9	2012-13	3972.16	46070.13	337.77	23.79	7.04
10	2013-14	5271.39	51341.52	336.47	37.66	11.19

S. No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
11	2014-15	6659.07	58000.58	520.88	31.50	6.05
12	2015-16	5670.39	63670.97	799.97	14.71	1.84
13	2016-17	7242.84	70913.80	1115.52	20.11	1.80
14	2017-18	7948.75	78862.55	1379.47	14.42	1.05
15	2018-19	9970.12	88832.68	1636.76	17.08	1.04

Source : Combined Finance and Revenue Accounts of Karnataka

Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.

Table 6.12.2 GAP IN REVENUE ASSESSED AND REALIZED DURING 2003-04 TO 2010-11 FOR KARNATAKA

(Rs. in Lakhs)

Year	Revenue assessed	Revenue realized	Percent recovery
1	2	3	4
2003-2004	Cauvery Neeravari Nigama was formed on 03.06.2003. Details of revenue Assessed & Realised are collected from 2005-06		
2004-2005			
2005-2006	1854.28	758.23	40.89
2006-2007	1920.70	666.15	34.68
2007-2008	2008.69	345.76	17.21
2008-2009	1827.19	433.79	23.74
2009-2010	1985.07	476.44	24.00
2010-2011	1868.62	NA	NA

Source: Information vide letter No. CNN/Tech-6/471/Levy/2013-14 dated 06th May, 2013 from O/o Managing Director, Cauvery Neeravari Nigama Limited, Government of Karnataka

Fig 6.12.1 : TREND IN GROWTH OF CAPITAL OUTLAY, WORKING EXPENSES AND GROSS RECEIPTS - KARNATAKA

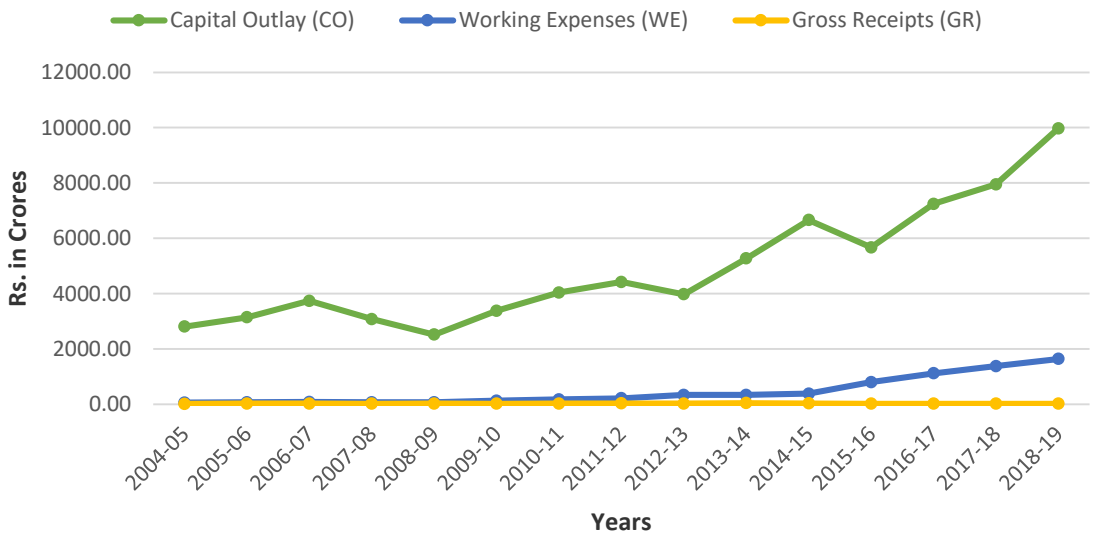
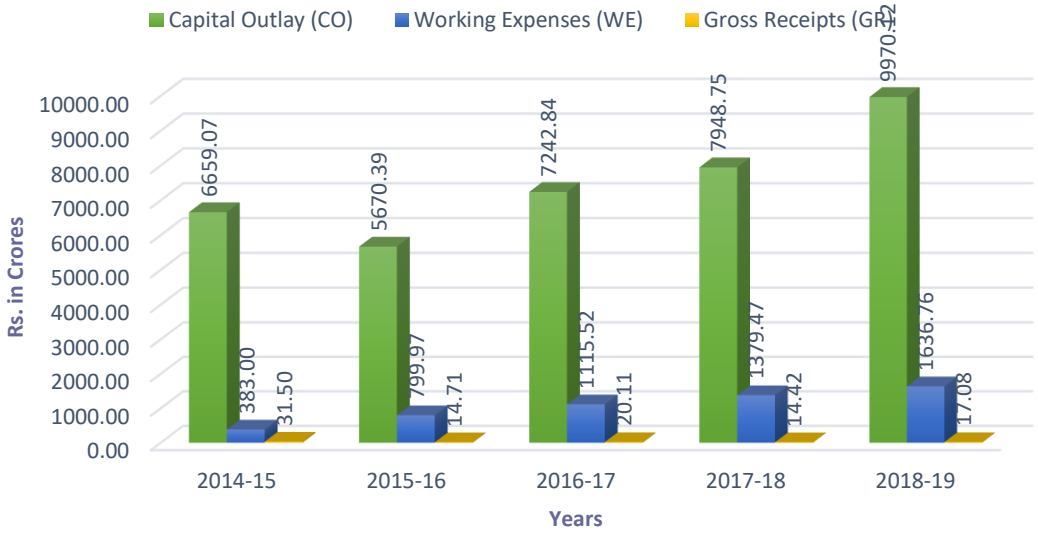


Fig 6.12.2: GAP IN GROSS RECEIPTS VIS A VIS WORKING EXPENSES - KARNATKA



6.3.13 Kerala

In Kerala, the Government revised the irrigation water rates in the entire State uniformly with effect from 1.7.1974 by amending the Acts applicable to erstwhile Travancore – Cochin Area, Malabar Area and South Canara District. No season-wise water rates are levied in Kerala. Irrigation revenue is collected annually on the basis of gross area irrigated during the year. After

an irrigation scheme is commissioned, the area list pertaining to ayacut benefited is furnished to the Revenue Department by the Irrigation Department. The assessment and collection of irrigation water revenue are the responsibility of the Revenue Department, as is the case in other Southern States of Andhra Pradesh, Karnataka and Tamil Nadu.

The Capital Expenditure was fluctuating in the range of Rs. 59.72crore to Rs. 193.16crore during 2004-05 to 2017-18. Annual Working Expenses has increased from Rs. 99.70 crore to Rs.313.29crore from 2004-05 to 2017-18inMajor and Medium Irrigation projects (Table 6.13.1).

The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. The Gross Receipton account of water charges was in the range of 4.78% to 19.66% to Working Expenses during 2004-05 to 2018-19.

Table: 6.13.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS KERALA DURING 2004-05 TO 2018-19

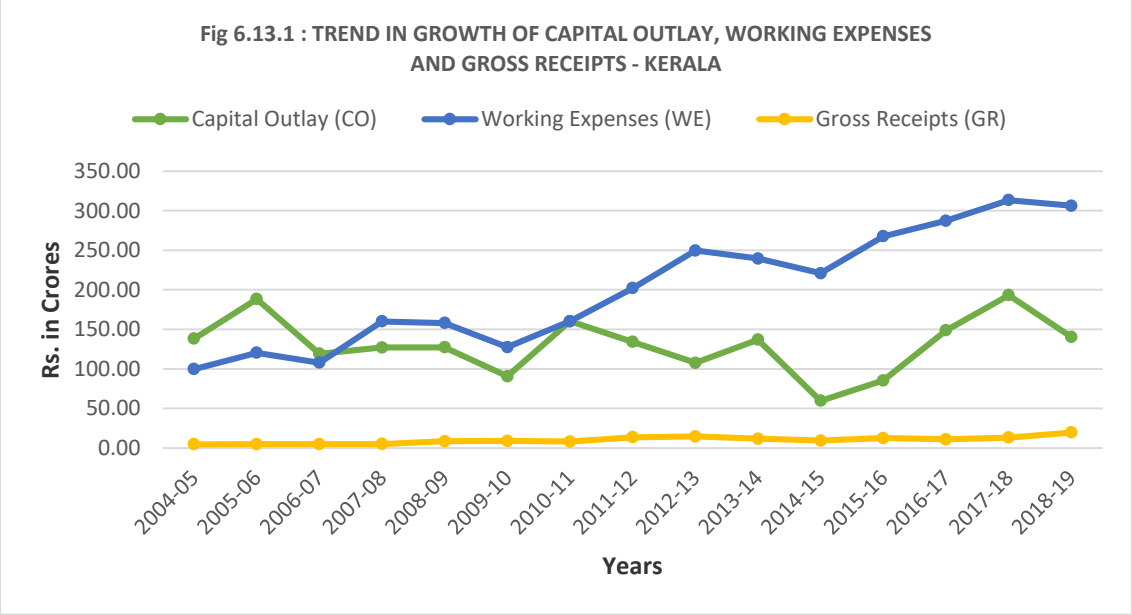
(Rs. In Crore)

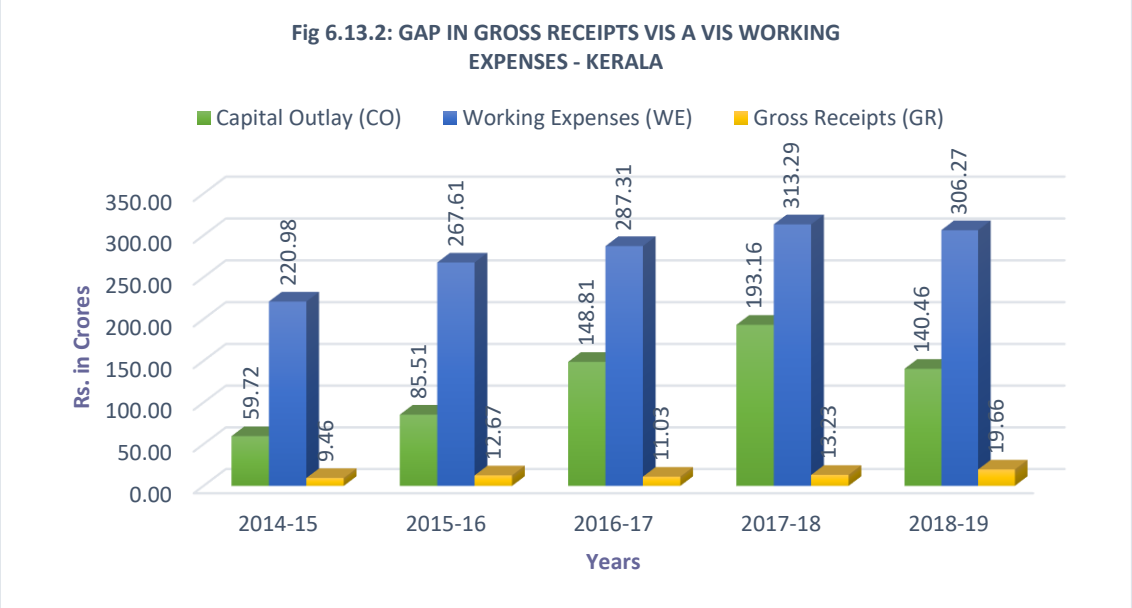
S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	138.17	2488.46	99.70	4.78	4.79
2	2005-06	188.41	2676.87	120.36	4.87	4.05
3	2006-07	119.28	2796.16	107.96	4.87	4.51
4	2007-08	127.04	2923.20	160.14	5.13	3.20
5	2008-09	127.33	3050.53	158.10	8.50	5.38
6	2009-10	90.65	3141.17	127.43	8.97	7.04
7	2010-11	160.35	3301.53	160.27	8.27	5.16
8	2011-12	134.25	3435.78	202.21	13.74	6.79
9	2012-13	107.63	3543.41	249.60	14.74	5.91
10	2013-14	137.10	3680.51	239.53	11.88	4.96
11	2014-15	59.72	3740.23	220.98	9.46	4.28
12	2015-16	85.51	3825.74	267.61	12.67	4.73
13	2016-17	148.81	3974.55	287.31	11.03	3.84
14	2017-18	193.16	4167.71	313.29	13.23	4.22

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
15	2018-19	140.46	4308.17	306.27	19.66	6.42

Source : Combined Finance and Revenue Accounts of Kerala

Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.





6.3.14 **Madhya Pradesh**

In Madhya Pradesh, there are three agencies for collection of water revenue:

(i) Revenue Branch

(ii) Technical Officers of the Water Resources Department, and

(iii) Irrigation Panchayats.

Revenue Branch of the Water Resources Department is mainly responsible for collection of water revenue. Head of Revenue Branch is Canal Deputy Collector and Irrigation Inspectors work under him. The last and important link of this set-up is Amin who inspects the irrigated areas under various crops during Kharif and Rabi seasons and fixed water charges accordingly. Irrigation Inspector supervises his work and Canal Deputy Collector is responsible for overall supervision work and their numbers in Division and Sub-Divisions depend on the extent of irrigated area. At the Division level, the Executive Engineer is responsible for whole mechanism of revenue collection.

Where there is a shortage of revenue staff, this work is looked after by Technical Branch. In this Branch, there are Deputy Engineers under whom Amins are working in the fields. Amins are responsible for fixation and collection of water revenue. At the Sub-divisional level, their work is supervised by Section Officers of the Department. At the Division level, the Executive Engineer is responsible for the work of the Technical Branch.

Wherever, there is irrigation Panchayats, they are responsible for water distribution system and prevention of any damage and sabotage to Irrigation systems. They also co-operate with the officers of Irrigation Department for collection of water revenue. Panch of irrigation Panchayats are duly elected and they in turn elect Sarpanch. Irrigation Panchayats collect the water charges and deposit in the State Treasury and are paid honorarium at the rate of 3% for the first Rs.1000/- and 2% for an amount more than Rs. 1000/- which is distributed amongst Panch of Panchayat. The water rates are different for different crops but the rate is uniform for a particular crop throughout the State.

The Capital Expenditure was consistently increasing from Rs.1004.87 crore to Rs.1658.12crore during 2005-06 to 2008-09then there was a fluctuation of figures in year 2009-11 and then again it was a consistent rise of 2462.02 crores to 7343.93 crores during the year 2011-12 to 2018-19.

Similarly, Annual Working Expenses has consistently increased from Rs.250.37 crore to Rs.708.64crore from 2004-05 to 2014-15inMajor and Medium Irrigation projects (Table 6.14.1).

The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. The Gross Receipton account of water charges was in the range of 10.25% to 46.50% to Working Expenses during 2004-05 to 2018-19.

Table: 6.14.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS MADHYA PRADESH DURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	1500.14	7001.71	250.37	37.92	15.15
2	2005-06	1004.87	8006.58	269.84	29.57	10.96
3	2006-07	1060.47	9067.06	280.59	29.82	10.63
4	2007-08	1468.20	10535.26	313.73	37.42	11.93
5	2008-09	1658.12	12193.38	361.82	37.08	10.25
6	2009-10	1600.99	13793.62	431.80	56.75	13.14
7	2010-11	2503.07	16297.42	527.51	194.89	36.95
8	2011-12	2462.02	18759.44	565.90	263.15	46.50
9	2012-13	3202.52	21961.96	622.75	137.74	22.12
10	2013-14	3242.95	25204.91	659.19	138.48	21.01
11	2014-15	3084.40	28289.31	708.64	137.56	19.41
12	2015-16	5302.50	33591.81	493.19	156.16	31.66
13	2016-17	7035.41	40627.22	529.46	238.12	44.97
14	2017-18	6507.26	47134.48	468.18	169.70	36.25
15	2018-19	7343.93	54478.42	880.90	263.48	29.91

Source : Combined Finance and Revenue Accounts of Madhya Pradesh

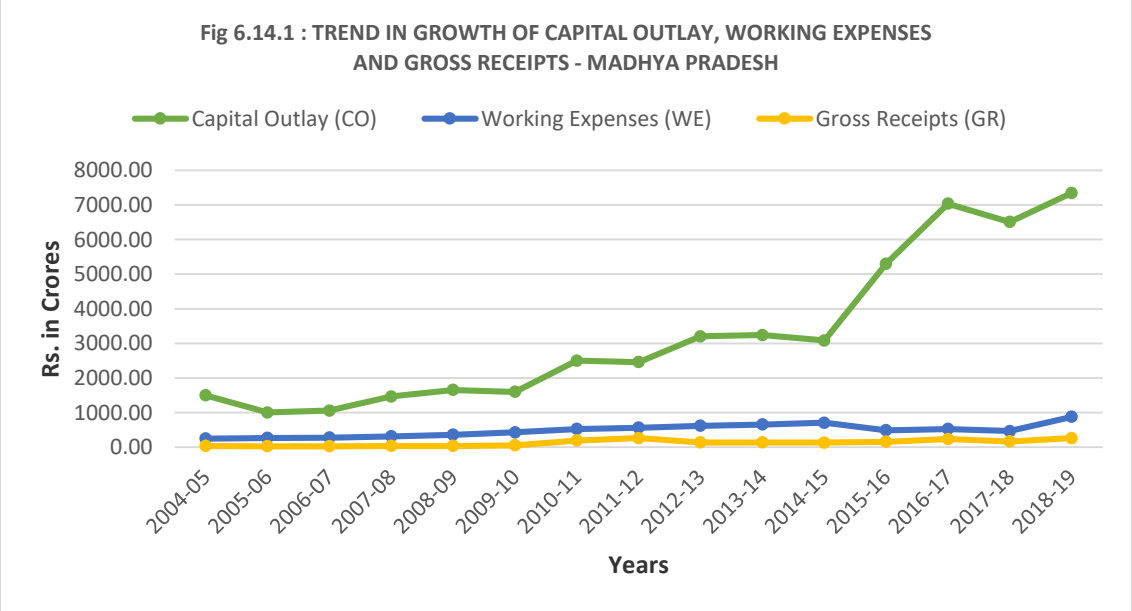
Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.

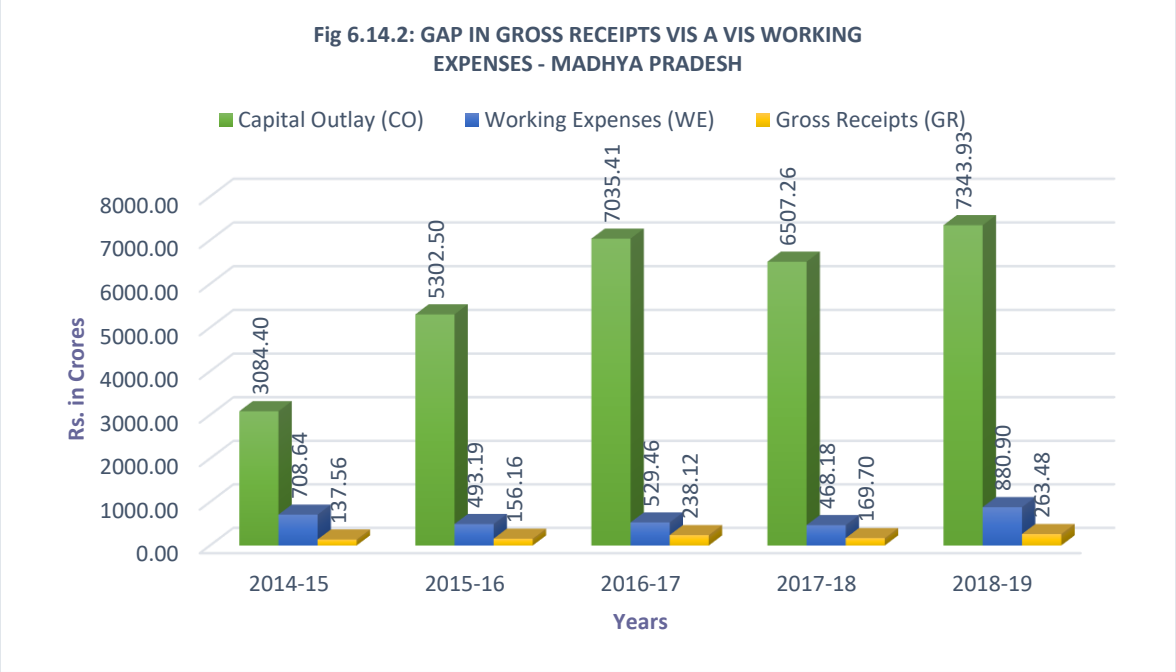
Table 6.14.2 GAP IN REVENUE ASSESSED AND REALIZED DURING 2009-10 TO 2019-20 FOR MADHYA PRADESH

(Rs. in Lakhs)

Year	Revenue assessed	Revenue realized	Percent recovery
1	2	3	4
2009-2010	10000.00	6233.13	62.3313
2010-2011	16000.00	16004.92	100.0308
2011-2012	23000.00	23120.97	100.526
2012-2013	40000.00	31821.35	79.55338
2013-2014	35000.00	24220.40	69.20114
2014-2015	35000.00	28219.19	80.62626
2015-2016	50000.00	29086.53	58.17306
2016-2017	50000.00	39545.21	79.09042
2017-2018	60000.00	31738.29	52.89715
2018-2019	65000.00	63450.65	97.61638
2019-2020	14000.00	36256.10	25.89721

Source: Information received vide letter No. 3352007/10 dated 26th October, 2021 from Office of the Engineer-in-Chief, Water Resources Department, Government of Madhya Pradesh





6.3.15 **Maharashtra**

Irrigation Department collects irrigation water revenue in the State. Organisation for water revenue recovery is under the administrative control of the Superintending Engineer of each Irrigation Management Circles, assisted by Accounts Officer, and Executive Engineer at Divisional level, Deputy Engineer at Sub-divisional level and Section Officer at the Section level. The demand statements are prepared after completion of the particular season for the seasonal crop i.e. by 1st February for Kharif, by 1st May for Rabi and by 1st October for Hot Weather Season. For each block and perennial crop, the statements are prepared during the Kharif season of irrigation year.

Sectional Office is the basic unit for payment of irrigation dues by the irrigators. The demand statements approved by the Executive Engineers are sent to each section. After receipt of the statements, the Section Officer prepares the irrigation bill for each individual farmer and issues this bill to the farmer for payment within 30 days.

After completion of the irrigation year (i.e. after 30th June), the work of preparation of defaulters' list is taken up and completed up to 31st December. Such list is prepared at the Section level. Defaulter's water is blocked for a further period and the water is not sanctioned to him nor is he allowed to draw canal water. For the facility of the irrigators, specific days like weekly bazaar

days are observed as routine working days. On such days, the irrigation dues are accepted through Co-operative Societies, Sugar Factories and District Co-operative Banks as beneficiaries are generally a member of those Factories, Societies or Banks.

When the irrigator makes the payment of irrigation dues, a receipt is issued to him by the Section Officer and a copy of it is endorsed to the Sub-division for incorporation in the Sub-divisional monthly accounts. It is prescribed that the amount collected as dues is required to be credited by the Section Officers in the State Bank of India/ Government Treasury within three days.

In the office of the Superintending Engineer in-charge of the irrigation management circle, there is a unit headed by an Accounts Officer who carries out inspections of irrigation accounts maintained at the Section, Sub-divisional and Divisional Office level. Thus, the accounts of irrigation revenue recovery right from the Section up to the Circle Office are linked up. This ensures proper maintenance of accounts and proper watch thereon.

The Capital Expenditure has shown fluctuations from Rs. 5034.82crore to Rs. 10993.14crore during 2004-05 to 2018-19 in Major and Medium Irrigation projects (Table 6.15.1). Annual Working Expenses has a constant trend with minor fluctuations from Rs. 580.80 crore to Rs. 2057.66 crore from 2004-05 to 2018-19.The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. The Gross Receipt on account of water charges and other economical activities was in the range of 14.40-57.80% of Working Expenses during 2004-05 to 2018-19.

Table: 6.15.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS MAHARASHTRADURING 2004-05 TO 2018-19

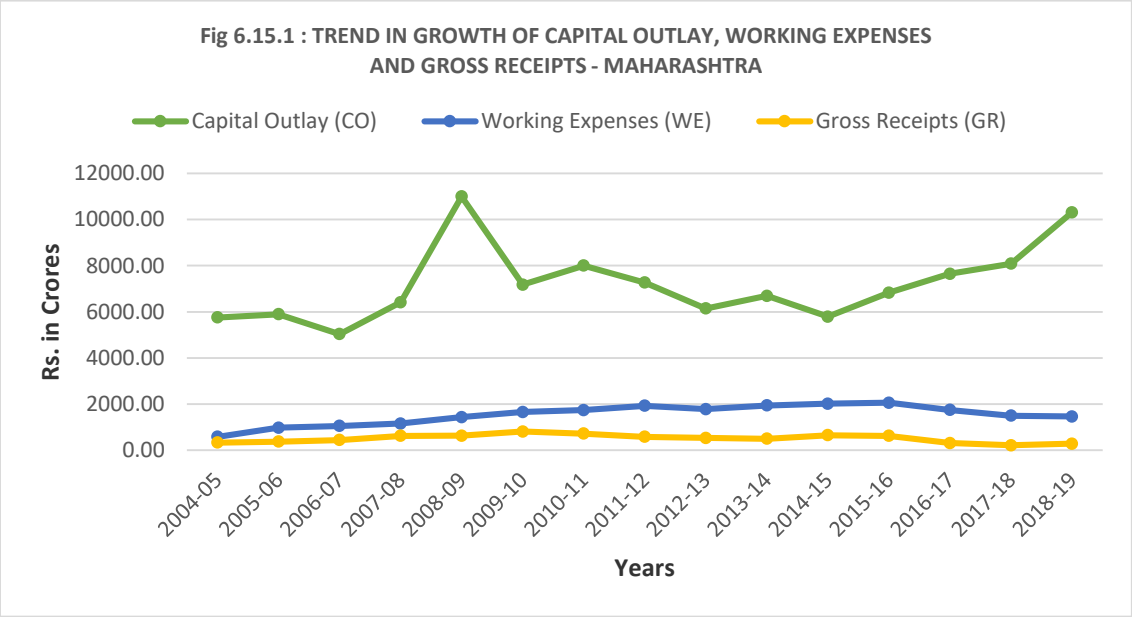
(Rs. In Crore)

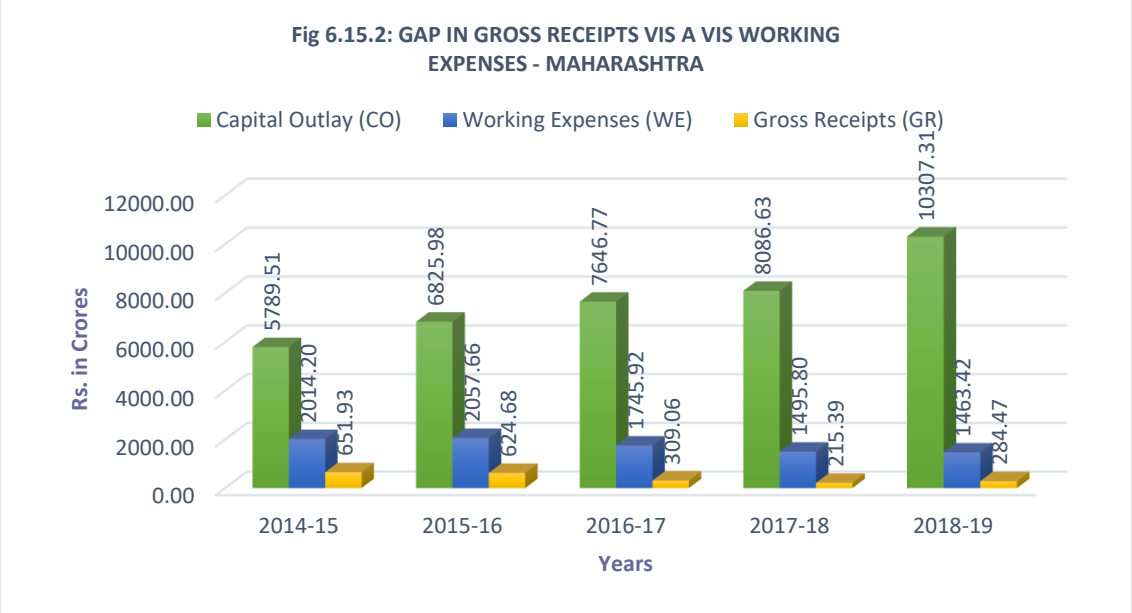
S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	5754.70	29243.76	580.80	335.68	57.80
2	2005-06	5892.47	35136.23	979.17	372.39	38.03
3	2006-07	5034.82	32199.15	1053.76	444.93	42.22
4	2007-08	6414.53	38613.68	1160.17	626.41	53.99
5	2008-09	10993.14	49606.82	1432.02	631.76	44.12

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
6	2009-10	7172.73	56779.55	1659.64	812.58	48.96
7	2010-11	8000.92	64780.47	1742.87	719.13	41.26
8	2011-12	7266.10	72046.57	1927.68	583.05	30.25
9	2012-13	6145.69	78192.26	1783.98	531.89	29.81
10	2013-14	6693.25	84885.51	1941.79	496.91	25.59
11	2014-15	5789.51	90675.02	1714.20	657.93	38.38
12	2015-16	6825.98	97501.00	1794.85	624.68	34.80
13	2016-17	7646.77	105147.77	1745.92	309.06	17.70
14	2017-18	8086.63	113234.40	1495.80	215.39	14.40
15	2018-19	10307.31	123541.71	1463.42	284.47	19.44

Source : Combined Finance and Revenue Accounts of Maharashtra

Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.





6.3.16 **Manipur**

Assessment of irrigation water revenue is made as per actual area irrigated, crop-wise and season-wise. Information on crop-wise areas to be irrigated is collected from the farmers in prescribed format prior to supply of irrigation water. Revenue is collected from the farmers either in cash or in kind after harvesting by the Irrigation & Flood Control Department without involving any other Department of the state.

The Capital Expenditure has fluctuated from Rs.26.17 crore to Rs. 424.07 crore during 2004-05 to 2018-19inMajor and Medium Irrigation projects (Table 6.16.1). Similarly, Annual Working Expenses has also increased from Rs.18.27 crore to Rs.39.86 crore from 2004-05 to 2018-19.

The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. The Gross Receipt on account of water charges and other economical activities were in the range of0.64 to 49.57% of Working Expenses during 2004-05 to 2018-19.

Table: 6.16.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS MANIPUR DURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	27.70	564.06	18.27	1.13	6.19
2	2005-06	114.59	678.65	20.89	1.97	9.43
3	2006-07	220.07	898.73	19.31	7.85	40.65
4	2007-08	89.38	988.10	18.02	5.26	29.19
5	2008-09	181.43	1169.53	16.14	8.00	49.57
6	2009-10	108.15	1277.68	29.36	7.00	23.84
7	2010-11	168.22	1445.90	34.16	10.49	30.71
8	2011-12	90.51	1536.41	39.92	8.61	21.57
9	2012-13	424.07	1960.48	35.96	3.75	10.43
10	2013-14	26.17	1986.65	37.65	2.42	6.43
11	2014-15	112.62	2099.27	51.34	2.04	3.97
12	2015-16	83.25	2182.52	43.31	0.64	1.48
13	2016-17	220.35	2402.87	42.65	1.58	3.70
14	2017-18	79.37	2482.24	42.18	0.27	0.64
15	2018-19	175.71	2657.95	39.86	2.68	6.72

Source : Combined Finance and Revenue Accounts of Manipur.

Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.

Fig 6.16.1 : TREND IN GROWTH OF CAPITAL OUTLAY, WORKING EXPENSES AND GROSS RECEIPTS - MANIPUR

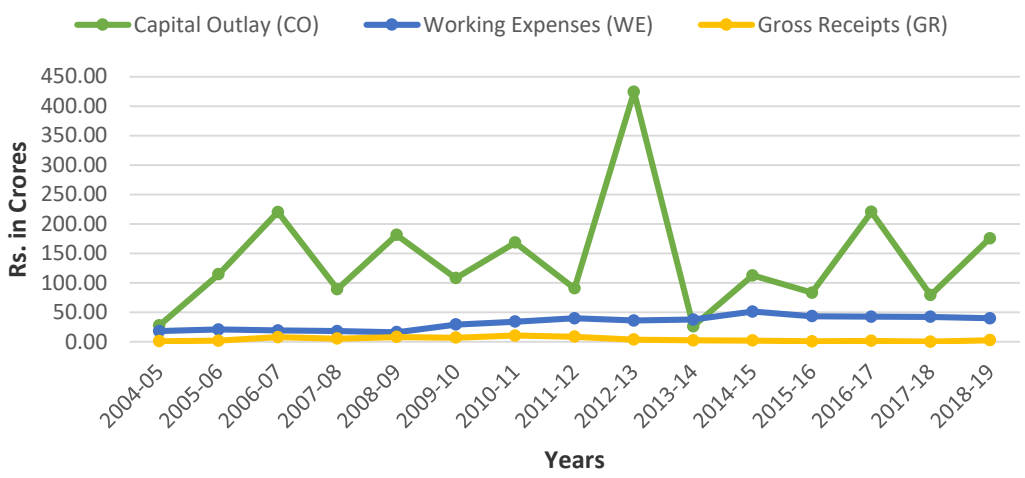
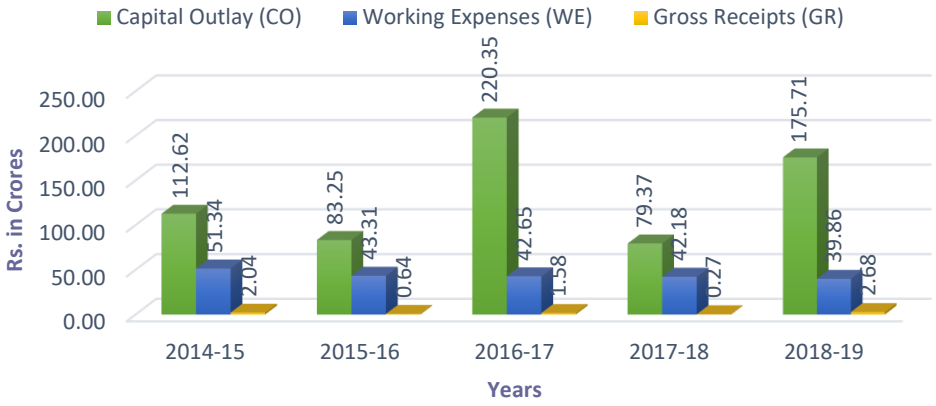


Fig 6.16.2: GAP IN GROSS RECEIPTS VIS A VIS WORKING EXPENSES - MANIPUR



6.3.17 **Meghalaya**

There are no water rates in vogue. The Capital Expenditure has increased from (-)0.28 to 0.18 crore during 2004-05 to 2005-06 and thereafter no expenditure has been incurred till 2018-19 in Major and Medium Irrigation projects (Table 6.17.1). Annual Working Expenses is 0.02 for the years 2004-05 to 2005-06and Rs.0.55consistently increased from Rs.0.02 crore to Rs.0.55 crore from 2011-12to 2012-13 and for rest of the period between the year 2005-06 to 2018-19, it is zero only.

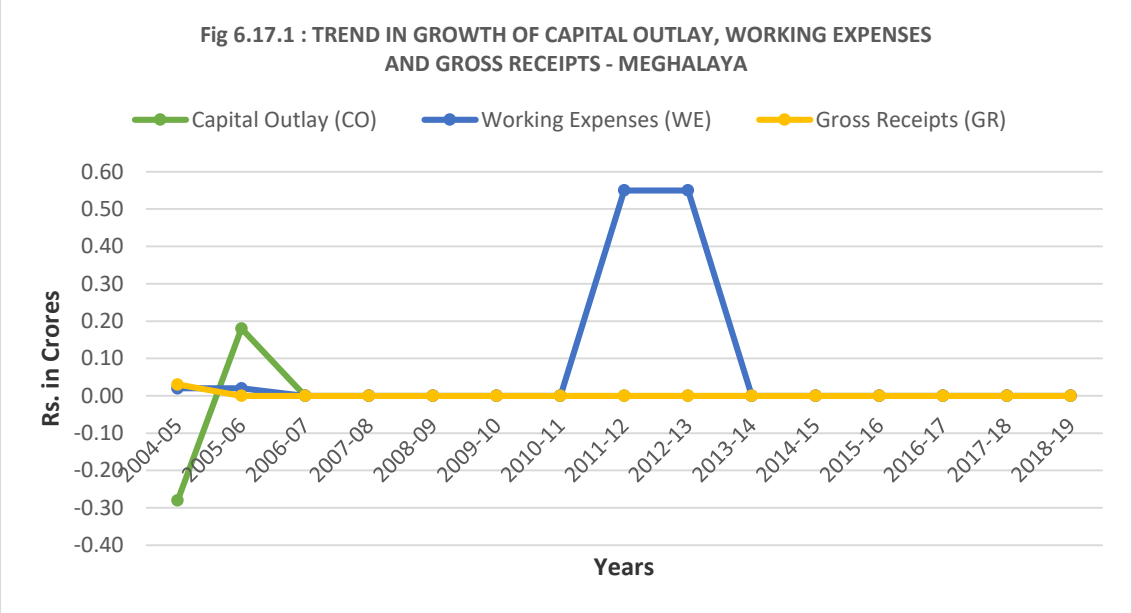
The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. Insignificant values have been realized in the Gross Receipts through Major and Medium Irrigation projects from the year 2004-05 to 2018-19.

Table: 6.17.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS MEGHALAYA DURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	-0.28	18.55	0.02	0.03	150.00
2	2005-06	0.18	18.73	0.02	0.00	0.00
3	2006-07	0.00	18.73	0.00	0.00	0.00
4	2007-08	0.00	18.73	0.00	0.00	0.00
5	2008-09	0.00	18.73	0.00	0.00	0.00
6	2009-10	0.00	18.73	0.00	0.00	0.00
7	2010-11	0.00	18.73	0.00	0.00	0.00
8	2011-12	0.00	18.73	0.55	0.00	0.00
9	2012-13	0.00	18.73	0.55	0.00	0.00
10	2013-14	0.00	18.73	0.00	0.00	0.00
11	2014-15	0.00	18.73	0.00	0.00	0.00
12	2015-16	0.00	18.73	0.00	0.00	0.00
13	2016-17	0.00	18.73	0.00	0.00	0.00
14	2017-18	0.00	18.73	0.00	0.00	0.00
15	2018-19	0.00	18.73	0.00	0.00	0.00

Source : Combined Finance and Revenue Accounts of Meghalaya.
Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.



6.3.18 **Mizoram**

There are no water rates in vogue. No Annual Capital Expenditure was incurred during 2004-05 18-19. Similarly, Annual Working Expenses were also quite low during 2004-05 to 2018-19in Major and Medium Irrigation projects (Table 6.18.1). The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. and, there was no Gross Receipts during that period.

Table: 6.18.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS MIZORAMDURING 2004-05 TO 2018-19

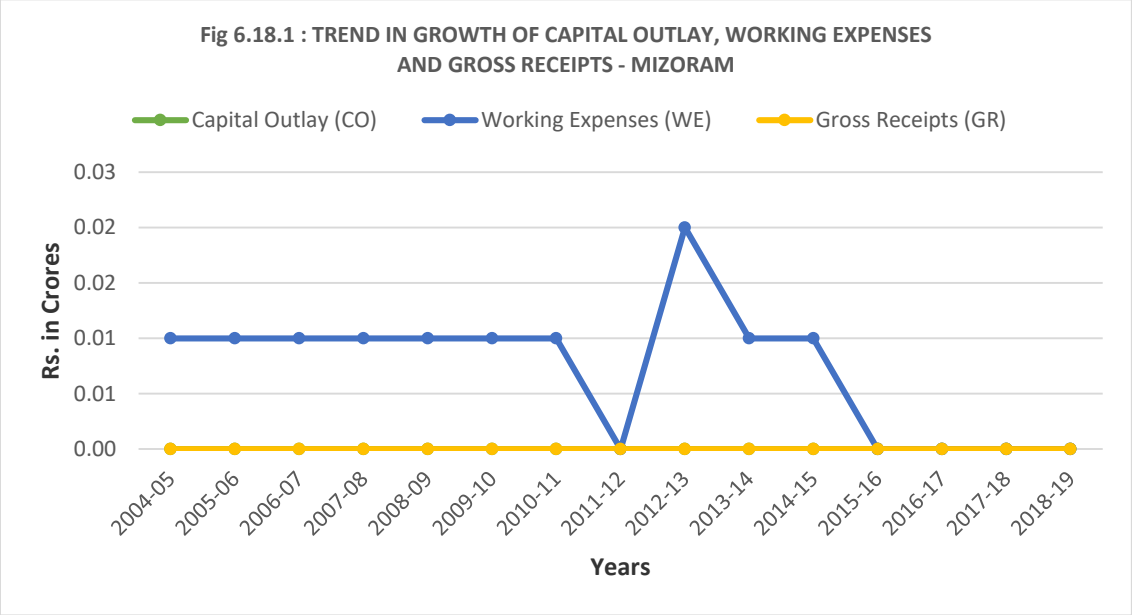
(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	0.00	0.96	0.01	0.00	0.00
2	2005-06	0.00	0.96	0.01	0.00	0.00
3	2006-07	0.00	0.96	0.01	0.00	0.00
4	2007-08	0.00	0.96	0.01	0.00	0.00
5	2008-09	0.00	0.96	0.01	0.00	0.00
6	2009-10	0.00	0.96	0.01	0.00	0.00
7	2010-11	0.00	0.96	0.01	0.00	0.00
8	2011-12	0.00	0.96	0.00	0.00	0.00

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
9	2012-13	0.00	0.96	0.02	0.00	0.00
10	2013-14	0.00	0.96	0.01	0.00	0.00
11	2014-15	0.00	0.96	0.01	0.00	0.00
12	2015-16	0.00	0.96	0.00	0.00	0.00
13	2016-17	0.00	0.96	0.00	0.00	0.00
14	2017-18	0.00	0.96	0.00	0.00	0.00
15	2018-19	0.00	0.96	0.00	0.00	0.00

Source : Combined Finance and Revenue Accounts of Mizoram

Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.



6.3.19 **Nagaland**

There are no water rates in vogueas informed by the state vide letter No WRD/TECH/MISCELLANEOUS/2019-20/2015 dated 17th August 2021.

6.3.20 **Odisha**

The work of assessment and collection of water revenue (both for agricultural sector as well as industrial/commercial use) was earlier used to be done by the Revenue Department of the Government of Odisha. But as per the revenue and excise Department Notification dated 29-9-1999 and 11-10-1999 published in Odisha Gazette No. 1423 dated 30-9-1999 and No. 1466

dated 13-10-1999 respectively, the Government of Odisha has empowered the Executive Engineer of Water Resources Department for collection of water revenue for industrial/ commercial use only. For Kharif season, the rates are based on the classification of irrigation work. The classification is made on the basis of the depth of supply of irrigation. For Rabi season, the rate is based on the type of crop.

With minor fluctuations, the Capital Expenditure has increased from442.85crore to 2890.81 crore during 2004-05 to 2018-19in Major and Medium Irrigation projects (Table 6.20.1). Similarly, Annual Working Expenses has steadily increased from Rs.82.22 crore to Rs. 647.72 crore from 2004-05 to 2015-16 and thereafter with minor decrease it has reached to 627.92crore in the year 2018-19.

The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. The Gross Receipt on account of water charges and other economic activities are in the range of 21.98– 112.44% of Working Expenses during 2004-05 to 2018-19. There is a significant increase in the Gross Receipt from 36.42 to 722.29from the year 2004-05 to 2018-2019 with a high spurt in the year2010-11.

Table 6.20.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS ODISHA DURING 2004-05 TO 2018-19

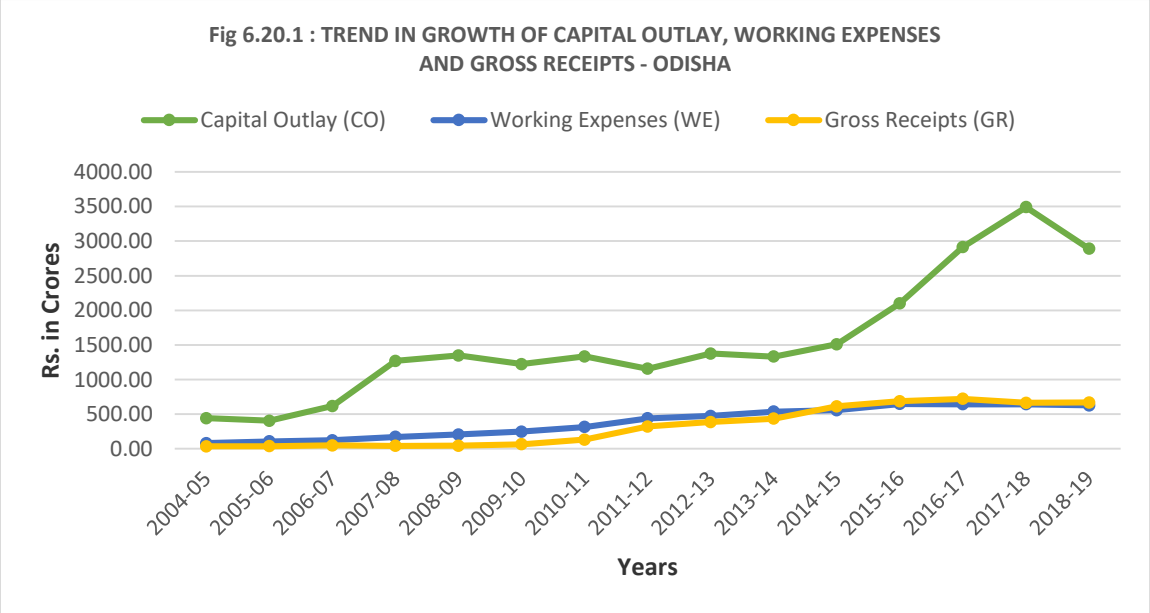
(Rs. In Crore)

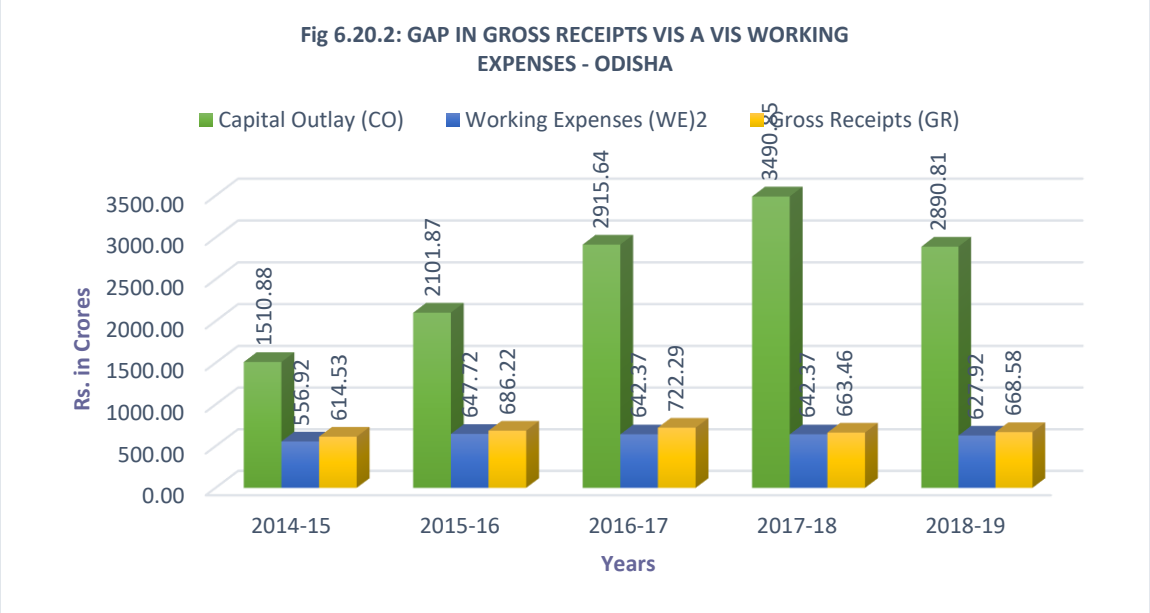
S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	442.85	6694.08	82.22	36.42	44.30
2	2005-06	406.25	7100.33	106.62	39.02	36.60
3	2006-07	617.74	7718.07	123.91	49.75	40.15
4	2007-08	1269.28	8987.36	171.48	43.73	25.50
5	2008-09	1347.63	10334.98	207.25	45.56	21.98
6	2009-10	1222.80	11557.79	247.65	65.46	26.43
7	2010-11	1333.82	12887.11	315.84	133.70	42.33
8	2011-12	1156.66	14043.77	440.59	322.99	73.31

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
9	2012-13	1376.45	15420.22	475.68	387.59	81.48
10	2013-14	1332.55	16752.78	538.18	436.31	81.07
11	2014-15	1530.88	18283.65	556.92	615.52	110.52
12	2015-16	2101.87	20385.52	647.72	686.22	105.94
13	2016-17	2915.64	23301.16	642.37	722.29	112.44
14	2017-18	3490.85	26792.01	699.26	663.46	94.88
15	2018-19	2890.81	29682.82	627.92	668.58	106.48

Source : Combined Finance and Revenue Accounts of Odisha

Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.





6.3.21 **Punjab**

Water rates for agricultural use had been abolished by the Government of Punjab since 14-2-1997. Again since 12-11-2002 water rates for agriculture use has been started. The rate for supply of canal water shall be Rs. 10/-per canal year payable by all the share holders of the chak of the canal outlet, applicable on the culturable commended area of the outlet chak recoverable in two equal six monthly instalments payable by 31st May and 30th November respectively every year. A new water rates has been adopted since 28-01-2010 vide Notification no.14/22/94-IW(2)/264/dated 28-1-2010.The new water rates shall be applicable to chak of command or Lift irrigation scheme of the government and area irrigated by the farmers by making their own arrangements for lifting water from rivers, drains, chaks etc. The water charges so levied shall be collected through the Department of Revenue (i.e. District Collector).

Partial modification in Para I of Notification no.14/22/94-IW(2)/264/dated 28-1-2010 for canal waters rates and the same is substituted as under with immediate effect.

Canal Water Rates for all Canal System in Punjab

That the rate for supply of canal water shall be Rs. 150/-per acre per year payable by the actual users of canal water to the extent of their actual irrigated area for all types of crops. It is recoverable in two equal instalments of Rs 75 per acre payable by 31st May and 30th November respectively every year.

The Capital Expenditure during the year is fluctuating from 117.67crore to 453.87crore during

2004-05 to 2018-19 in Major and Medium Irrigation projects (Table 6.21.1). The Annual Working Expenses has increased from Rs.333.99 crore to Rs.934.38 crore from 2004-05 to 2018-19.

The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. The Gross Receipt on account of water charges and other economic activities are in the range of 2.38% to 27.23% of Working Expenses during 2004-05 to 2018-19.

Table: 6.21.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS PUNJAB DURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	120.72	4976.93	333.99	90.96	27.23
2	2005-06	173.00	5149.93	467.09	26.17	5.60
3	2006-07	263.86	5413.79	427.86	20.14	4.71
4	2007-08	198.23	5612.02	464.63	20.02	4.31
5	2008-09	291.58	5903.60	498.61	11.85	2.38
6	2009-10	314.46	6218.06	614.56	34.62	5.63
7	2010-11	251.33	6469.39	745.58	29.60	3.97
8	2011-12	228.70	6698.08	760.25	25.20	3.31
9	2012-13	238.51	6936.59	821.17	50.97	6.21
10	2013-14	117.67	7054.26	1073.53	65.93	6.14
11	2014-15	188.84	7243.11	946.46	72.81	7.69
12	2015-16	259.01	7502.12	1028.69	142.66	13.87
13	2016-17	453.87	7955.99	988.74	93.61	9.47
14	2017-18	234.55	8190.54	921.91	71.37	7.74
15	2018-19	162.41	8352.95	934.38	24.22	2.59

Source : Combined Finance and Revenue Accounts of Punjab.

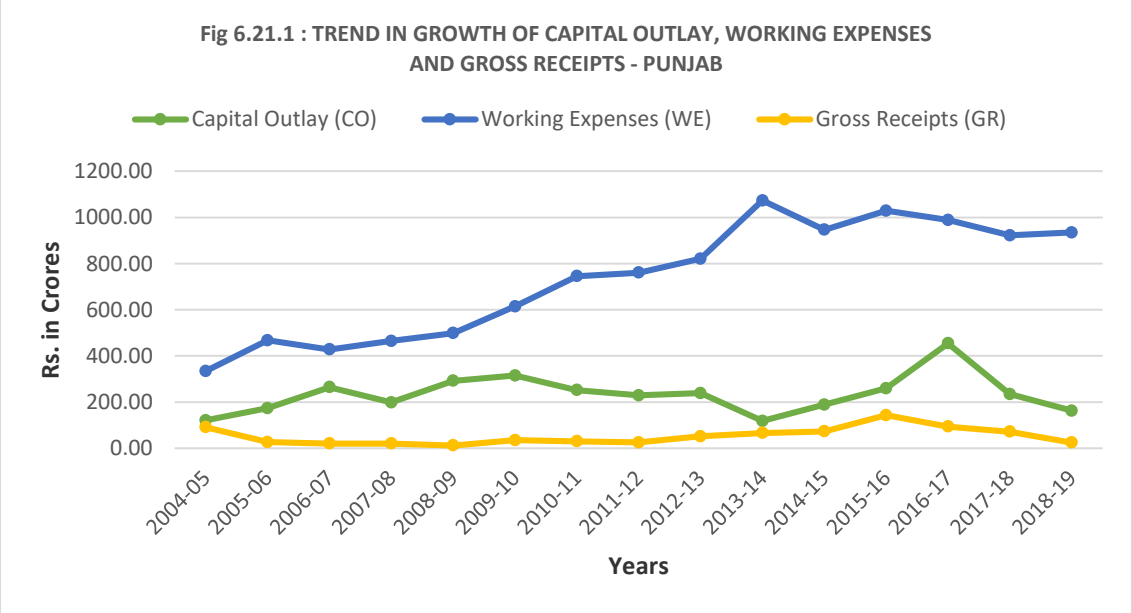
Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.

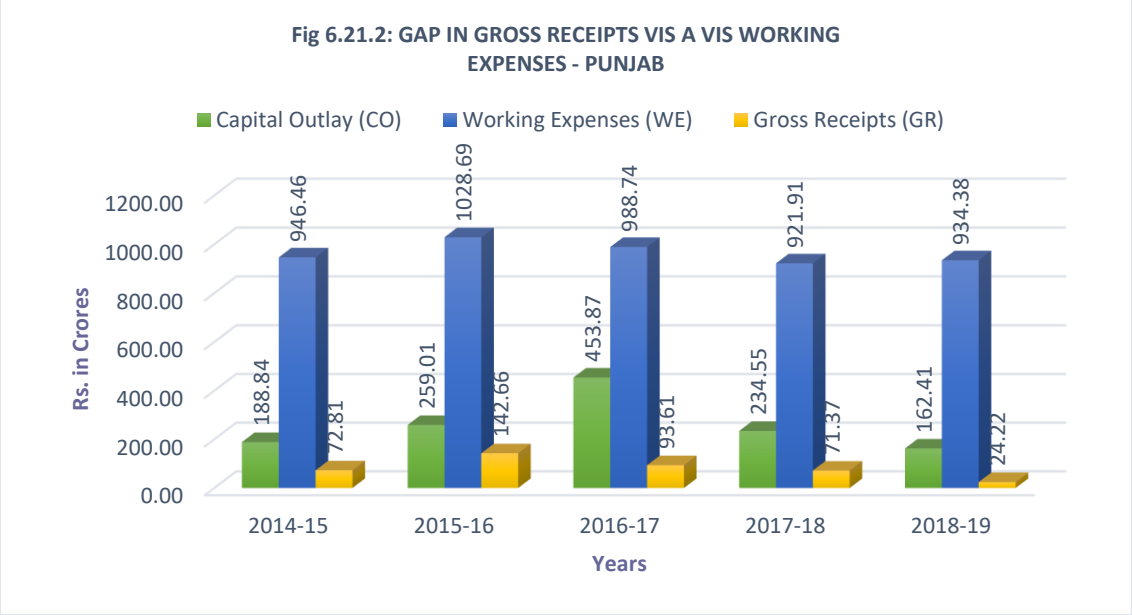
Table 6.21.2GAP IN REVENUE ASSESSED AND REALIZED DURING 2009-10 TO 2018-19 FOR PUNJAB

(Rs. in Lakhs)

Year	Revenue assessed	Revenue realized	Percent recovery
1	2	3	4
2009-2010	6291.03	15.78	0.25
2010-2011	7505.39	33.72	0.45
2011-2012	7501.81	146.25	1.95
2012-2013	7707.95	21.44	0.28
2013-2014	5865.84	197.28	3.36
2014-2015	2821.12	698.93	24.77
2015-2016	3808.35	391.69	10.29
2016-2017	3919.51	141.66	3.61
2017-2018	4111.56	206.08	5.01
2018-2019	4819.41	287.99	5.98

Source: Information received vide memo no. 9785/6C dated 12th November, 2021 from Office of the Chief Engineer-I, Water Resources Department, Government of Punjab.





6.3.22 **Rajasthan**

In Rajasthan, assessment and collection of water revenue for Major and Medium Projects for irrigating more than 2,500 acres (1011.72 hectares) of land is being done by the Irrigation Department and that of Minor Irrigation Schemes for irrigating less than 2500 acres of land is being done by the Revenue Department.

Revenue establishment of the Irrigation Department comprising Patwaries, Zilledars and Deputy Collectors does the work of booking of Irrigation, Irrigated areas, as well as assessment and recovery of water revenue. Patwari covers canal command area of about 4,000 acres (1618.74 hectare) in perennial channels and about 3,000 acres (1214.06 Hectare) in non-perennial channels. One Zilledar supervises all revenue work of about 10 Patwaries and one Deputy Collector exercises control over about five Zilledars.

The Patwari (Irrigation) enters the crop-wise area of the fields irrigated and the number of watering in prescribed form. He submits weekly and monthly reports of area irrigated to his senior officers. The Patwari also records the approximate irrigation on account of Palewa, first, second, third or more crops i.e. number of watering given besides other details such as name of tenants, cultivators etc. in the prescribed form.

Before the end of Rabi or Kharif irrigation season, the Patwari informs the cultivators, Panch and

Sarpanch about the date of final measurement of the area irrigated in Chaks or villages under his charge so that they may present themselves at the time of final measurement and can ascertain the correctness of all entries in the prescribed form. The work of final measurement is performed and completed by the Patwari in the months of February and March for the Rabi crops and in the months of September and October for the Kharif crops. On completion of final measurement, the Patwari calculates the water charges and there after he prepares the Khatoni. The Khatoni in a prescribed form is a consolidated record of each Khatedar which shows Khasra numbers, arrears as well as current demand and penal charges, if any. This is sent to the Divisional Irrigation Officer through Zilledar.

The Divisional Irrigation Officer sanctions the demand and sends the same to the Irrigation Patwaries through Zilledar before the stipulated date i.e. 15th May for Rabi and 15th December for Kharif for effecting the recoveries. Penal water charges are levied and recovered for unauthorized use of water. Also, as per rule, penal rate of 12% per annum is charged from cultivators who do not pay the irrigation dues in scheduled time. After penal water charges are approved by the competent authorities, demand slips are prepared by the Patwari in prescribed form from the Khatoni of the village/ chak and are distributed to each cultivator indicating therein details like area irrigated, crops sown by the cultivator and amount payable by him.

The Patwari realizes the water charges assessed as per demand sanction by the Divisional Officer and in consonance with the approved recovery procedure. The periods of recovery from 16th May to 13th December for Rabi and from16$^{\mathbf{th}}$ December to 31st March for Kharif are fixed. The work of irrigation booking, assessment and recoveries is checked by the Zilledar, Deputy Collector, Assistant Engineer and Executive Engineer as per norms.

Receipt is given by the Patwari to every cultivator on payment of dues. He maintains the account of realization in the cash book and deposits the collected amount in the treasury/bank through challans daily, if the recovered amount is more than Rs.2,000/- and in case of lesser amount he has to deposit the recovered amount weekly. He has to submit the account of collected amount weekly and monthly to the Zilledar.

On the basis of this information, the Zilledar submits the consolidated monthly Demand, Collection and Balance (DCB) statement to the Divisional Office and maintains all records and

registers in his office. The Divisional Office submits the consolidated DCB statement to the higher authorities and also reconciles the figures of deposits with treasury and A.G office. Executive Engineer also submits returns regarding crop pattern, Jinswara, other than water rate receipts, water utilization dates, target and budget etc. to the higher authorities and Chief Engineer.

There is almost three times increase in Capital Expenditure from Rs.689.99 crore to Rs. 1855.57 crore during 2004-05 to 2018-19 in Major and Medium Irrigation projects (Table 6.22.1). Similarly, Annual Working Expenses has increased consistently from Rs. 763.70 crore to Rs. 1535.83 crore from 2004-05 to 2018-19.

The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. The Gross Receipt on account of water charges and other economical activities are in the range of 4.23to 14.65% of Working Expenses during 2004-05 to 2018-19.

Table: 6.22.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS RAJASTHANDURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	689.99	6792.44	763.70	56.50	7.40
2	2005-06	718.14	7510.58	822.90	46.79	5.69
3	2006-07	529.88	8040.46	881.53	60.56	6.87
4	2007-08	590.58	8631.04	928.94	57.92	6.24
5	2008-09	622.57	9253.61	1016.81	54.16	5.33
6	2009-10	581.87	9835.48	1090.13	48.83	4.48
7	2010-11	480.35	10315.83	1167.11	86.04	7.37
8	2011-12	441.87	10757.69	1231.39	91.83	7.46
9	2012-13	542.22	11299.91	1373.67	87.21	6.35
10	2013-14	618.95	11918.86	1477.73	80.62	5.46
11	2014-15	754.52	12537.81	1523.27	67.08	4.40

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
12	2015-16	632.95	13170.76	1626.06	68.73	4.23
13	2016-17	1305.17	14475.93	1790.55	112.78	6.30
14	2017-18	1581.88	16057.81	1895.14	277.71	14.65
15	2018-19	1855.57	17913.37	1535.83	179.32	11.68

Source : Combined Finance and Revenue Accounts of Rajasthan

Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.

Table 6.22.2GAP IN REVENUE ASSESSED AND REALIZED DURING 2000-01 TO 2019-20 FOR RAJASTHAN

(Rs. in Lakhs)

Year	Revenue assessed	Revenue realized	Percent recovery
1	2	3	4
2000-2001	2934.36	2038.63	69.47
2001-2002	2267.89	411.69	18.15
2002-2003	2385.00	403.00	16.90
2003-2004	2356.86	1374.55	58.32
2004-2005	4417.10	4086.68	92.52
2005-2006	4106.80	3955.33	96.31
2006-2007	3468.92	5342.30	154.00
2007-2008	4672.90	3828.30	81.93
2008-2009	4856.58	3844.99	79.17
2009-2010	5324.10	3447.29	64.75
2010-2011	5352.49	4208.98	78.64
2011-2012	6916.50	6809.22	98.45
2012-2013	9945.51	8237.25	82.82
2013-2014	6584.18	6514.03	98.93
2014-2015	7851.72	6485.54	82.60
2015-2016	11042.50	6596.71	59.74
2016-2017	12772.76	7044.78	55.15
2017-2018	8822.82	5929.50	67.21
2018-2019	11530.00	7491.60	64.97
2019-2020	12738.85	7824.17	61.42

Source: Information received vide letter no. F.3(18).CEWR/SE(W)/Water Rates/1264 dated 8th July, 2021 from Office of the Chief Engineer, Water Resources Department, Rajasthan, Jaipur.

Fig 6.22.1 : TREND IN GROWTH OF CAPITAL OUTLAY, WORKING EXPENSES AND GROSS RECEIPTS - RAJASTHAN

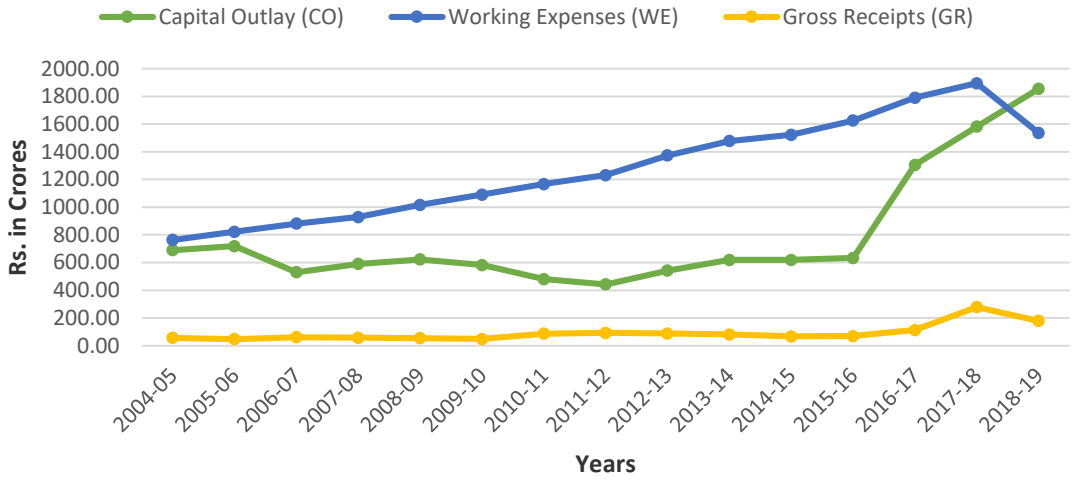
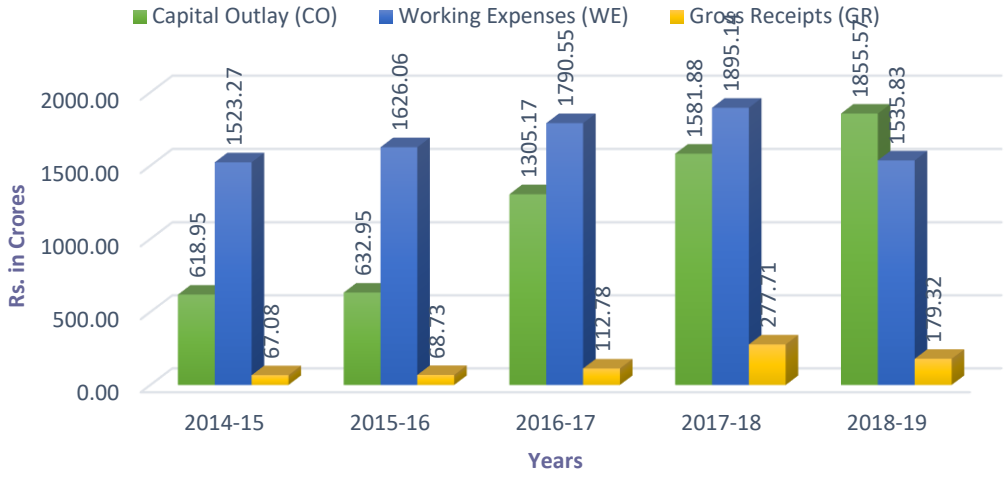


Fig 6.22.2: GAP IN GROSS RECEIPTS VIS A VIS WORKING EXPENSES - RAJASTHAN



6.3.23 **Sikkim**

Water Rates are available but no mechanism for collection of Water Rates has been reported for the State.

6.3.24 **Tamil Nadu**

The Revenue Department in the State collects water revenue for supply of water for irrigation purposes. The regular revenue staff viz., the village administrative officers attend to the land revenue and water cess collection work, under the direct supervision and control of the Revenue Inspectors, Tehsildars and Deputy Collectors (District Revenue Officers). The revenue collection work by the Revenue Staff is reviewed by the Collectors, Special Commissioners and Commissioner of Land Administration.

The Capital Expenditure during the year has increased from Rs. 153.93 crores to Rs. 1553.05 crore during 2004-05 to 2018-19 in Major and Medium Irrigation projects (Table 6.24.1). Similarly, Annual Working Expenses has increased from Rs.468.35 crore to Rs.1345.43 crore from 2004-05 to 2018-19.

The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. The Gross Receipt on account of water charges and other economic activities are in the range of 2.32% to 5.31% of Working Expenses during 2005-06 to 2018-19.

Table: 6.24.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS TAMIL NADU DURING 2004-05 TO 2018-19

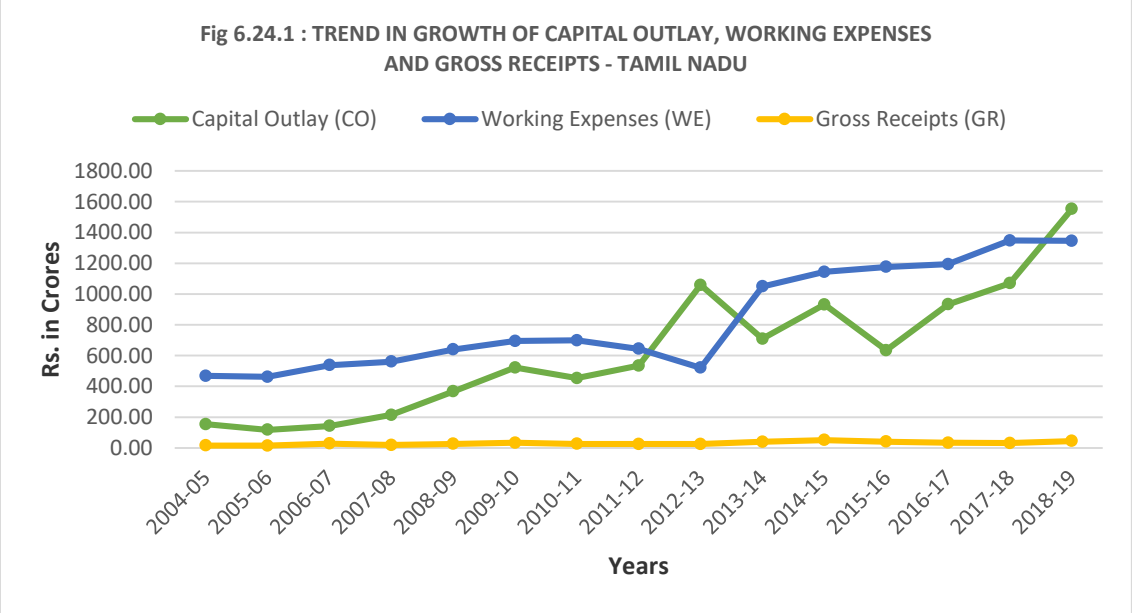
(Rs. In Crore)

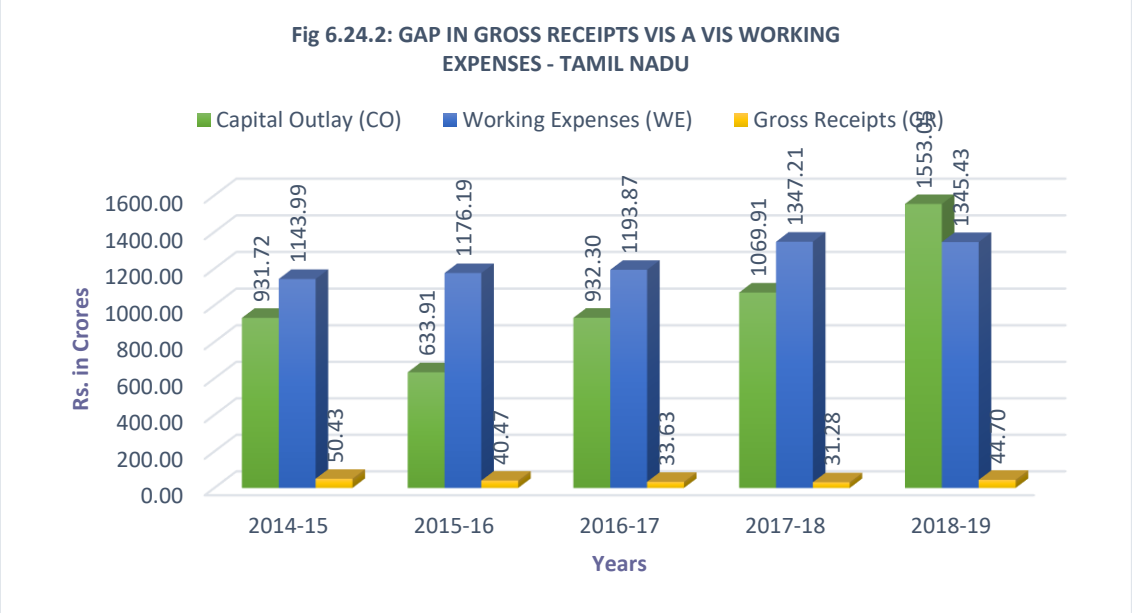
S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	153.93	2759.67	468.35	15.63	3.34
2	2005-06	117.88	2877.55	461.64	14.90	3.23
3	2006-07	142.77	3020.31	537.09	28.51	5.31
4	2007-08	213.88	3234.19	560.56	19.14	3.41
5	2008-09	366.95	3601.15	639.88	25.47	3.98
6	2009-10	521.77	4120.95	694.83	33.17	4.77
7	2010-11	452.99	4573.94	698.68	26.32	3.77
8	2011-12	534.15	5108.09	643.97	25.27	3.92
9	2012-13	1058.24	6166.33	521.02	25.38	4.87

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
10	2013-14	709.67	6876.00	1049.53	39.06	3.72
11	2014-15	931.72	7807.72	1143.99	50.43	4.41
12	2015-16	633.91	8441.63	1176.19	40.47	3.44
13	2016-17	932.30	9373.93	1193.87	33.63	2.82
14	2017-18	1089.39	10463.32	1347.21	31.28	2.32
15	2018-19	1553.05	12016.37	1345.43	44.70	3.32

Source : Combined Finance and Revenue Accounts of Tamil Nadu.

Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.





6.3.25 **Telangana**

On 2 June 2014, Telangana as State was separated from the north western part of Andhra Pradesh as the newly formed state with Hyderabad as its capital. The Telangana government has focus to complete the 33 No of Major & Medium Irrigation ongoing and proposed projects on River Godavari on top most priority and also restoration of Minor Irrigation tanks.

Financial aspect of major & medium irrigation projects of Telangana is available only after 2014-15 and here it is taken upto to 2018-19.Annual Capital Expenditure is fluctuating between 4606.18 crore to 8018.38crore for the financial years 2014-15 to 2018-19inMajor and Medium Irrigation projects (Table: 6.25.1). The Annual Working Expenses decreased from Rs. 2781.25 crore in 2014-15 to Rs. 346.35 crore in 2018-19.

The gap between Gross Receipt on account of water charges and Working Expenses is gradually widening and the gross receipts are in the range of 0.88% to 437.55% of Working Expense during 2014-15 to 2018-19.

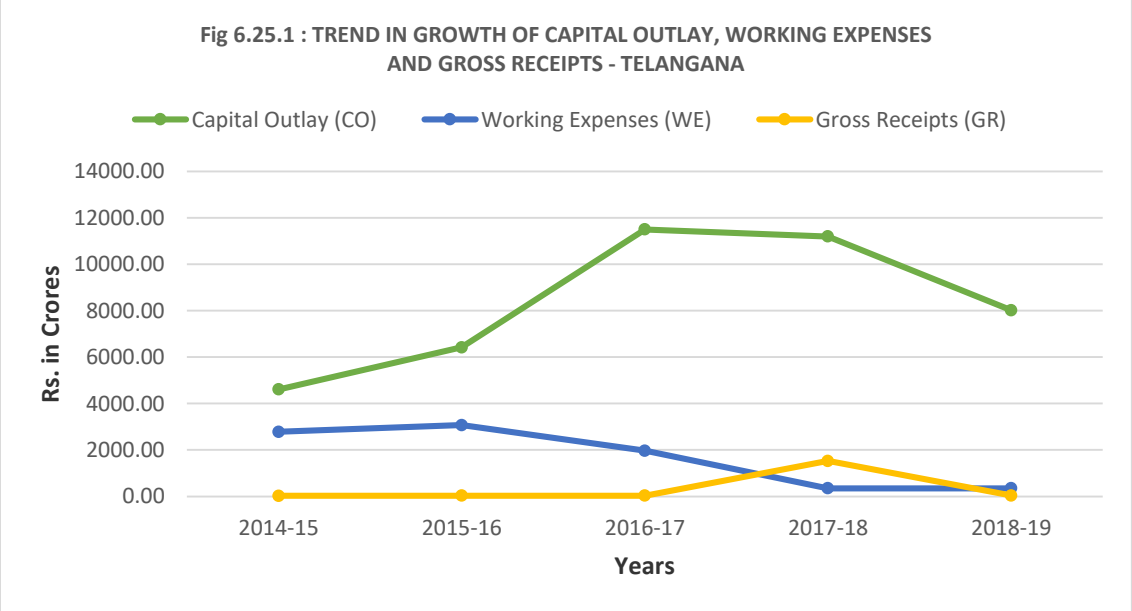
Table: 6.25.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS TELANGANA DURING 2014-15 TO 2018-19

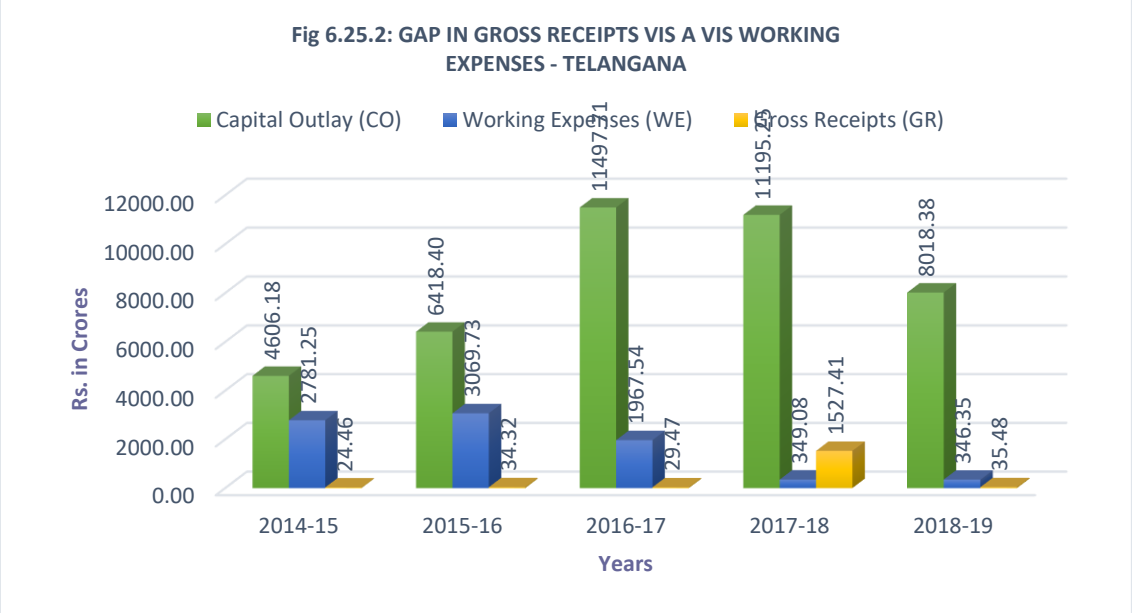
(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1.	2014-15	4606.18	4606.18	2781.25	24.46	0.88
2.	2015-16	6418.40	11024.59	3069.73	34.32	1.12
3.	2016-17	11497.71	22522.30	1967.54	29.47	1.50
4.	2017-18	11195.25	33717.55	349.08	1527.41	437.55
5.	2018-19	8018.38	41735.93	346.35	35.48	10.24

Source : Finance and Revenue Accounts of Telangana only.

Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.





6.3.26 **Tripura**

There are no water rates in vogue. However, Water Revenue is collected through Panchayats/ Block Advisory Committee for the Minor Irrigation Schemes, which shall not be less than Rs. 312.50 per hectare/ per crop for operation and maintenance including payment of power consumption bill. The Net Income generated by way of a collection of water tax on minor irrigation schemes for the project were calculated after deducting the expenditure and commission for collection of revenue. If there is a shortfall of funds for operation and maintenance of the project the amount of shortfall is born by the PWD, Water Resource Deptt.

The Block Advisory Committee is headed by the Chairman who is the Chairman of Panchayat Samiti. The Assistant Engineer, PWD (WR), Asstt. Engineer (Power), Superintendent of Agriculture and President of Block Standing Committee of Agriculture and Poverty Alleviation are the members of the Block Advisory Committee. The Panchayat Level Committee collects Water Tax from the cultivators/ individual farmers. The Panchayat Level Committee is headed by Panchayat Pradhan and Members of Gaon Panchayat, one Government employee from local beneficiaries, pump operators and two members from the beneficiaries of the scheme are members of the Committee. The village level worker (VLW) is the Member Secretary. The Committee collects Water Tax and submits the account to the Government.

The Annual Capital Expenditure was fluctuating between Rs. 1.30crore to Rs. 27.58 crore

during the year 2004-05 to 2018-19 in Major and Medium Irrigation projects (Table 6.26.1).Annual Working Expenses has negligible values so we may say that no significant working expense has been incurred in the during2004-05 to 2018-19 in Major and Medium Irrigation projects (Table 6.26.1).

The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in the chart.

Table: 6.26.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS TRIPURA DURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	5.96	139.38	0.00	0.03	0.00
2	2005-06	10.50	149.87	0.00	0.00	0.00
3	2006-07	17.74	167.61	0.00	0.00	0.00
4	2007-08	6.07	173.68	0.00	0.00	0.00
5	2008-09	9.65	183.34	0.00	0.00	0.00
6	2009-10	15.61	198.95	0.00	0.00	0.00
7	2010-11	5.45	204.40	0.06	0.00	0.00
8	2011-12	27.58	231.97	0.05	0.00	0.00
9	2012-13	9.84	241.81	0.10	0.00	0.00
10	2013-14	8.57	250.38	0.14	0.00	0.00
11	2014-15	9.52	259.90	0.14	0.00	0.00
12	2015-16	7.93	267.83	0.08	0.00	0.00
13	2016-17	1.30	269.14	0.07	0.00	0.00
14	2017-18	3.16	272.29	0.09	0.00	0.00
15	2018-19	2.56	274.85	0.08	0.00	0.00

Source : Combined Finance and Revenue Accounts of Tripura.

Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.

Fig 6.26.1 : TREND IN GROWTH OF CAPITAL OUTLAY, WORKING EXPENSES AND GROSS RECEIPTS - TRIPURA

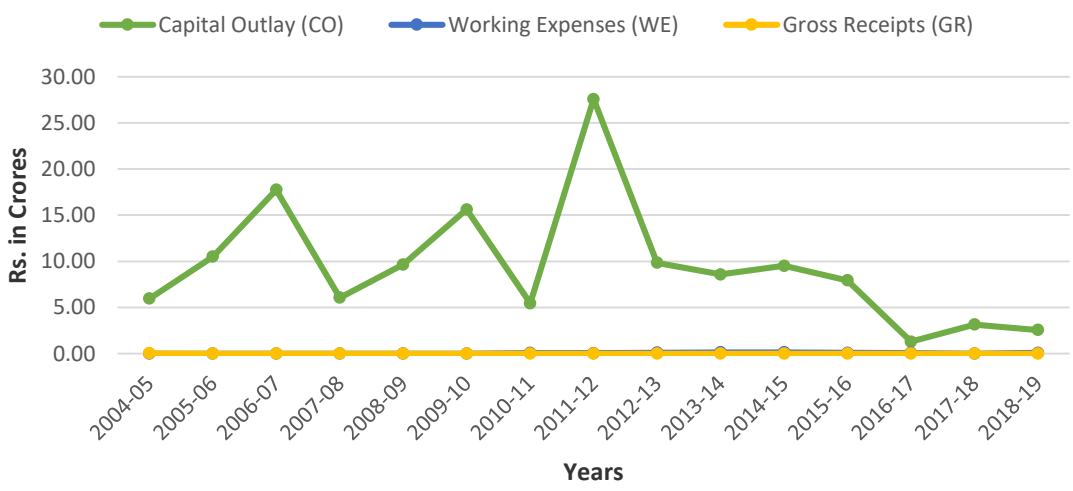
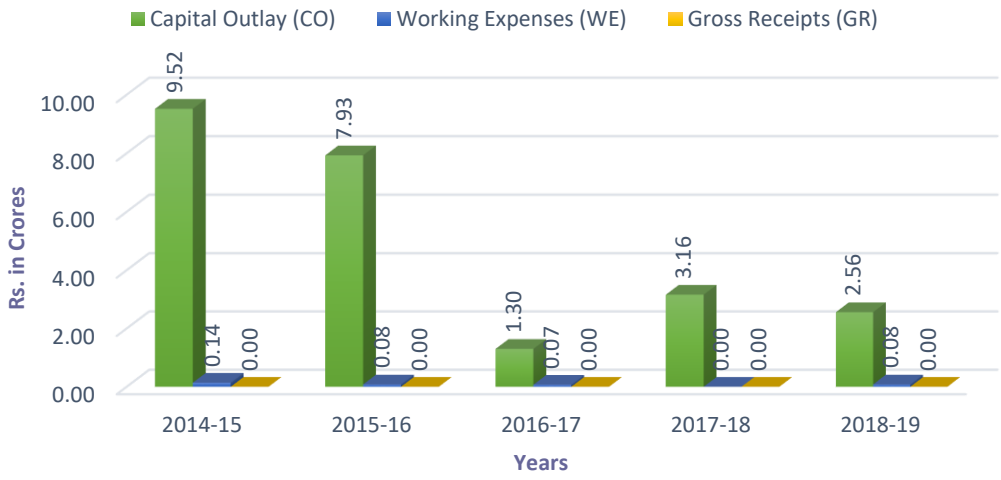


Fig 6.26.2: GAP IN GROSS RECEIPTS VIS A VIS WORKING EXPENSES - TRIPURA



6.3.27 **Uttar Pradesh**

The function of Irrigation Department in Uttar Pradesh is performed by its two branches viz; (i) Engineering Branch and (ii) Revenue Branch. The construction of canals, maintenance and supply of canal water to cultivators for their fields is the main work carried out by Engineering Branch while the work of recording the irrigation details and preparing papers for realization of irrigation charges is carried out by the Revenue Staff.

The process of recording irrigation is as follows:

(i) The Seenchpal/ Tubewell Operator with the help of ShajraKishtwar enters in his KhasraSudhakar, the details about extent of irrigation done by the cultivators. He enters the name of cultivator, father's name, religion, name of village, field numbers, the full area of the field (with the help of Khasra Settlement), the irrigated area of the field, name of the crop and tod (Lift) or dal (Flow) irrigation measurement of area. The Amin checks 75% of irrigated area while the Zilledar, Deputy Revenue Officer, Junior Engineer, Assistant Engineer and Executive Engineer are required to check the irrigated areas to the extent prescribed under rules and according to month-wise roster of Portal. The Superintending Engineers are also required to do checking for which minimum areas have also been prescribed. This checking of areas is called Portal. There are two kinds of Portal namely; Portal Kham and Portal Pukhta. The Portal Kham is conducted before seasonal closure of KhasraSudhakar and commencement of final measurement for the purpose of assessment of revenue. The CheckingOfficer takes a certificate from the Seenchpal/ Tube-well Operator regarding magnitude of variances between actual measurement and Khasra entries. The Seenchpal is responsible for differences found, if any. The Portal Pukhtais was conducted after the final entries in the KhasraSudhakar and after the checking by the Amin. For this Amin is solely responsible for any difference, if found.

(ii) The Amin starts the final measurement of the irrigated areas as per the programme intimated to the District Revenue Officer. At the time of final measurement, the Lekhpals are present in the villages and render all possible assistance to the Amin in connection with the details like names of the proprietor, tenants, etc., in order to enable the Amin to complete his records and to help him in settling any doubtful point by a joint local inquiry. Lekhpalis paid fees as per rules for services rendered by him. While inspecting Amin's work by his superior officers, it is looked into whether Lekhpal was absent at the time of final measurement. If he failed to take a copy of Jamabandi, then no fees are entered for him in the Jamabandi. The final measurement of irrigation is started from the second week of August for Kharif and the last week of January for Rabi crop. The Amin and Seenchpal stay in the village and carry out the final measurement of irrigation, complete the entries in the KhasraSudhakar, make the cultivator-wiseParchas in the prescribed form and distribute the same amongst the cultivators as per programme, prior information for which has been given to cultivators.

(iii) With the aid of KhasraSudhakar and final Parchas, the Amin shall prepare the Jamabandi or the demand statement in the prescribed form bringing together all entries regarding each cultivator and giving the total for each entry separately. It also contains the details regarding remission and penalties if any. The Jamabandi is made mahal-wise. For villages in which canal dues are collected by Revenue Department, Jamabandi should be prepared village-wise instead of mahal-wise. When the Amin has completed the Jamabandi, the Lekhpal shall prepare an abstract of it in the prescribed form which is signed by the Amin. The Lekhpal shall be responsible to ensure that the abstract of the Jamabandi is at all times access to any person who pays the water revenue. Jamabandi of Kharif and Rabi are completed and got signed by Seenchpal, Amin, Zilledar, Deputy Revenue Officer and the Executive Engineer Before submitting them to the respective Tehsils. The KharifJamabandies are submitted on 4th December and Rabi Jamabandies on 1st of May every year. Before submitting the Jamabandi to the Tehsildar, errors as may be detected after the measurement and objections of cultivators, if any, are taken care of and they are corrected accordingly. No modification in Jamabandi can be carried out once it has been submitted to the Tehsildar.

(iv) The District Magistrate is informed separately after Jamabandi has been submitted to the Tehsils. The District Magistrate realizes the irrigation charges through Tehsils and informs the Irrigation Department from time to time about the realization of irrigation charges and also in forms periodically to the Accountant General, Uttar Pradesh. At the village level, Lambardar collects the revenue. However, in some villages Revenue Department can also collect it directly.

The Annual Capital Expenditure has increased from Rs. 664.20 crore to Rs. 4266.27 crore from 2004-05 to 2018-19 in Major and Medium Irrigation projects (Table 6.27.1). Similarly, Annual Working Expenses has increased from Rs.1156.59 crore to Rs. 4334.25 crore during 2004-05 to 2018-19.

The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. The Gross Receipt on account of water charges and other economical activities were in the range of 5.57 to 22.17% of Working Expenses during 2004-05 to 2018-19.

Fig 6.27.1 : TREND IN GROWTH OF CAPITAL OUTLAY, WORKING EXPENSES AND GROSS RECEIPTS - UTTAR PRADESH

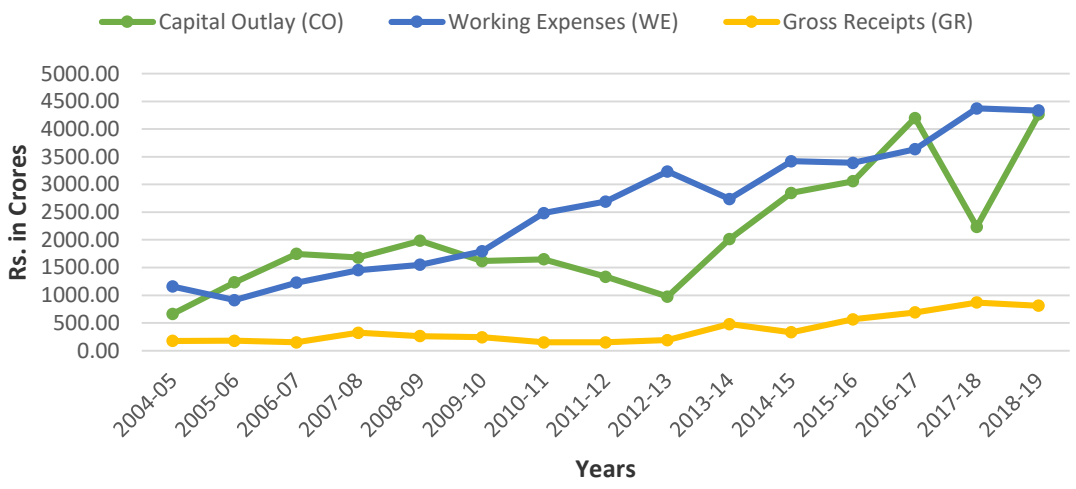


Fig 6.27.2: GAP IN GROSS RECEIPTS VIS A VIS WORKING EXPENSES - UTTAR PRADESH

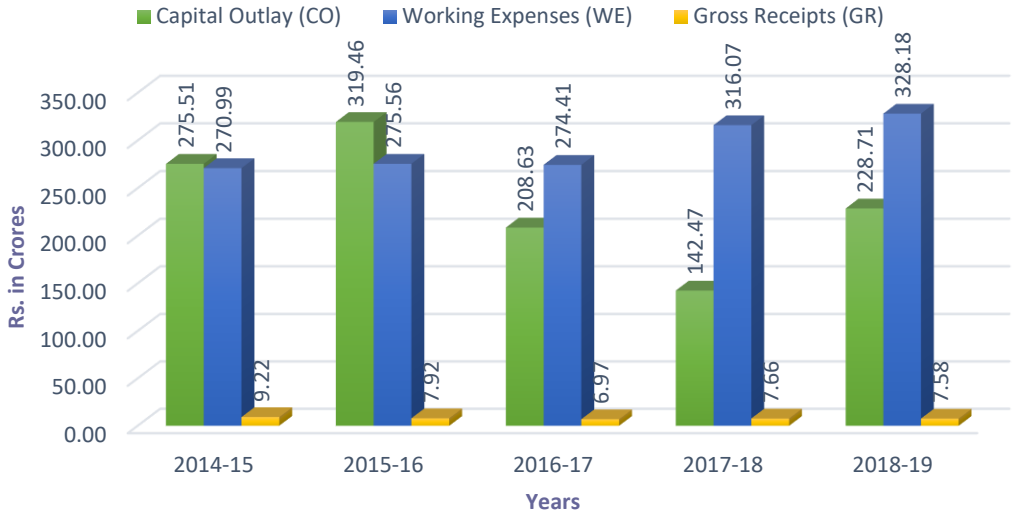


Table: 6.27.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS UTTAR PRADESHDURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	664.20	3226.19	1156.59	176.60	15.27
2	2005-06	1232.11	4458.30	911.27	177.50	19.48
3	2006-07	1748.47	6206.77	1226.17	148.63	12.12
4	2007-08	1681.86	7888.63	1451.36	321.81	22.17
5	2008-09	1985.35	9873.98	1551.30	263.27	16.97
6	2009-10	1616.01	11489.99	1792.29	241.55	13.48
7	2010-11	1648.23	13138.22	2484.32	150.45	6.06
8	2011-12	1335.18	14473.39	2690.46	149.97	5.57
9	2012-13	976.77	15899.11	3234.15	191.43	5.92
10	2013-14	2013.60	17912.70	2737.82	479.63	17.52
11	2014-15	2848.84	20761.54	3421.00	330.75	9.67
12	2015-16	3670.75	24432.29	3392.14	564.89	16.65
13	2016-17	4200.27	28632.56	3637.15	689.24	18.95
14	2017-18	2236.73	30869.29	4373.63	869.20	19.87
15	2018-19	4266.27	35135.56	4334.25	812.13	18.74

Source : Combined Finance and Revenue Accounts of Uttar Pradesh.

Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.

6.3.28 **Uttarakhand**

Therecoveryof water revenue is done by Revenue Department. The State has come into being from the year 2000 having been carved out from the erstwhile Uttar Pradesh. An amount of Rs.262.32 crore and Rs.6718.93 crore remain as un-apportioned Capital Expenditure between Uttar Pradesh and Uttaranchal in the year 2000-01 for Major and Medium Irrigation projects.

The Annual Capital Expenditure has increased from Rs.47.47 crore to Rs. 228.71 crore during 2004-05 to 2018-19 in Major and Medium Irrigation projects (Table 6.28.1). Similarly, Annual

Working Expenses has increased from Rs. 104.52 crore to Rs.328.18 crore from 2004-05 to 2018-19.

The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. The Gross Receipt on account of water charges and other economical activities were in the range of 0.00 to 6.20% of Working Expenses during 2004-05 to 2018-19.

Table: 6.28.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS UTTARAKHANDDURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	47.47	138.04	104.52	0.00	0.00
2	2005-06	70.22	208.27	108.23	6.21	5.74
3	2006-07	127.91	336.17	115.20	5.69	4.94
4	2007-08	130.60	466.77	124.11	7.70	6.20
5	2008-09	218.33	685.09	153.56	7.64	4.98
6	2009-10	205.43	890.52	187.23	7.08	3.78
7	2010-11	191.73	1082.25	219.01	5.11	2.33
8	2011-12	238.72	1320.96	232.17	8.07	3.48
9	2012-13	258.56	1579.52	235.99	7.65	3.24
10	2013-14	299.05	1878.57	239.75	6.75	2.82
11	2014-15	275.51	2154.07	270.99	9.22	3.40
12	2015-16	319.46	2473.53	275.56	7.92	2.87
13	2016-17	208.63	2682.16	274.41	6.97	2.54
14	2017-18	142.47	2824.63	316.07	7.66	2.42
15	2018-19	228.71	3053.34	328.18	7.58	2.31

Source : Combined Finance and Revenue Accounts of Uttarakhand.

Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.

Fig 6.28.1 : TREND IN GROWTH OF CAPITAL OUTLAY, WORKING EXPENSES AND GROSS RECEIPTS - UTTARAKHAND

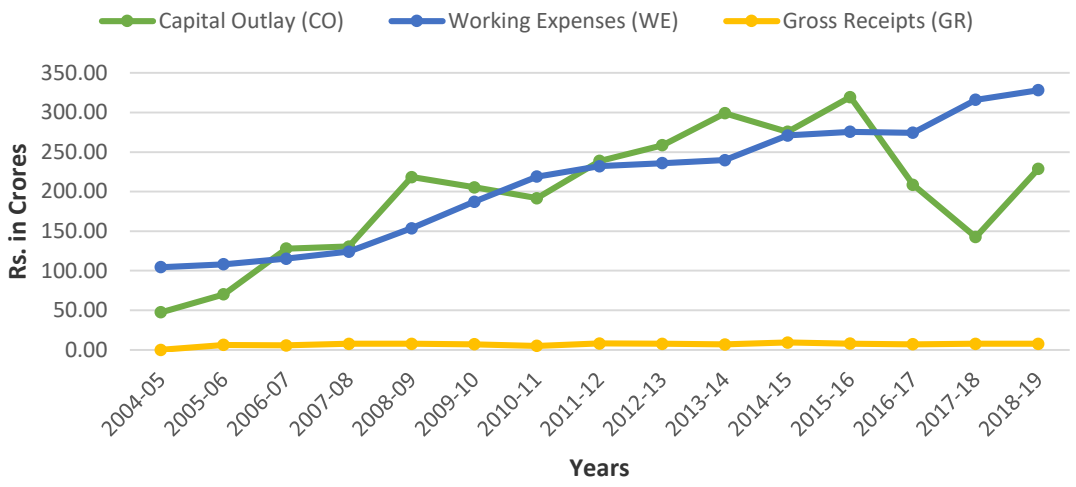
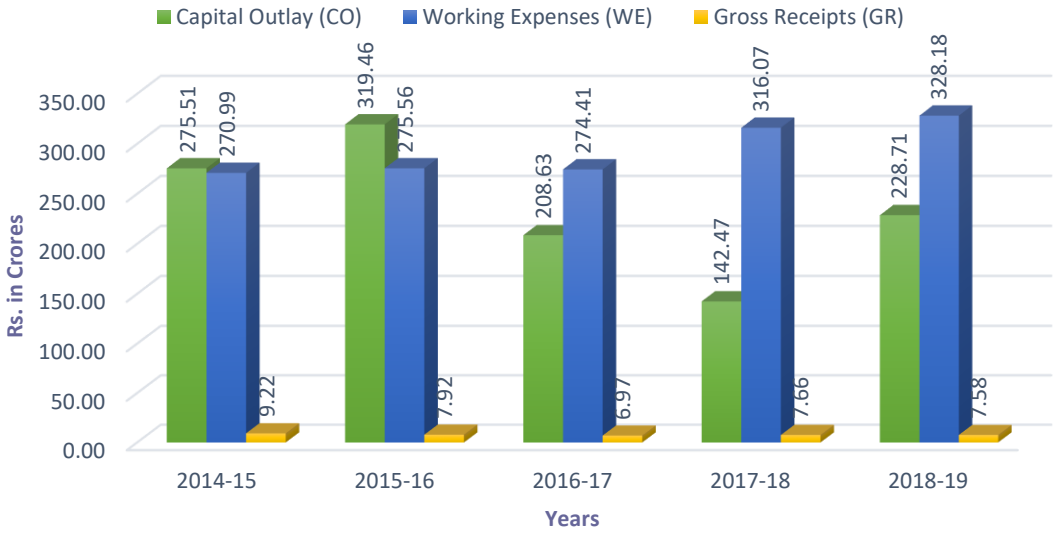


Fig 6.28.2: GAP IN GROSS RECEIPTS VIS A VIS WORKING EXPENSES - UTTARAKHAND



6.3.29 **West Bengal**

In West Bengal, there is a difference between revenue collection mechanisms for Major / Medium and Minor Irrigation Schemes. In case of minor irrigation schemes the system stresses that the water rates should be pre-paid but for Major &Medium irrigation projects/schemes, the lands, in any area, getting benefits or likely to be benefited by irrigation have to be notified, showing clear boundaries of the area, for imposing the water rates.

Any person whose land is likely to be affected by the imposition of water rates may, within a period of 30 days from the publication of the notification, lodge an objection against it. The State Government publishes the notification for imposing water rates in the notified area after giving due consideration to the objections, if any. The concerned Executive Engineer prepares test note in each year according to the water supplied from the canal for irrigation purposes, mentioning therein the area benefited. He submits it to the Canal Revenue Officer who is in-charge of collecting the water revenue. The Canal Revenue Officer prepares an assessment list showing names of all persons liable to pay the water revenue and the amount payable for each season. This list is also published and placed on the notice board of different Tehsils so that the beneficiaries may lodge their complaints, if any, regarding assessment of water charges. After due consideration to the objections, the Canal Revenue Officer prepares a final assessment list that cannot be altered or modified except in the case when water rates are revised.

The Canal Revenue Officer of a Division is assisted by Assistant Canal Revenue Officer, Zilledar, Tehsildar/ Revenue Mohurror and Barkandaz (a grade IV staff). Tehsildar/ Revenue Mohurror collects water revenue and Zilledar supervises the collection of the revenue.

An assessee becomes liable to pay the water revenue first time within 3 months from the publication of the final assessment list and thereafter within 15 days from the date of commencement of the particular season for which water revenue is payable. In respect of Minor Schemes, the water is supplied on pre-payment of water rates. The Minor Irrigation Schemes are looked after by the State Agriculture Department.

In West Bengal, Capital Expenditure has increased from 54.90 crores to 296.92 crores during

the period 2004-05 to 2018-19 in Major and Medium Irrigation projects (Table 6.29.1). Likewise Annual Working Expenses has increased from Rs. 169.24crore to Rs.302.92crore from 2004-05 to 2017-18 then there was an abnormal decrease in the year 2018-19 and value has reached to 76.45crore, so the percentage of recovery made a quantum jump from 2.92% in 2017-18 to 21.57% in 2018-19.

The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. The Gross Receipt on account of water charges and other economic activities are in the range of 1.76 to 5.38% of Working Expenses during 2004-05 to 2018-19.

Table: 6.29.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS WEST BENGALDURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	54.90	1734.92	169.24	4.06	2.40
2	2005-06	44.12	1779.03	184.76	5.15	2.79
3	2006-07	62.48	1841.52	241.87	6.95	2.87
4	2007-08	92.25	1933.77	210.20	6.91	3.29
5	2008-09	107.99	2041.75	247.36	6.93	2.80
6	2009-10	59.80	2101.55	330.80	5.82	1.76
7	2010-11	31.35	2132.91	337.87	6.82	2.02
8	2011-12	121.83	2254.74	276.52	9.03	3.27
9	2012-13	86.07	2340.81	240.26	9.92	4.13
10	2013-14	69.06	2409.88	273.68	12.31	4.50
11	2014-15	147.79	2557.67	239.25	11.26	4.71
12	2015-16	137.30	2694.97	272.79	9.46	3.47
13	2016-17	133.75	2828.71	292.55	7.29	2.49
14	2017-18	128.42	2957.13	302.92	8.84	2.92
15	2018-19	296.92	3254.05	306.45	16.49	5.38

Source : Combined Finance and Revenue Accounts of West Bengal.

Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.

Fig 6.29.1 : TREND IN GROWTH OF CAPITAL OUTLAY, WORKING EXPENSES AND GROSS RECEIPTS - WEST BENGAL

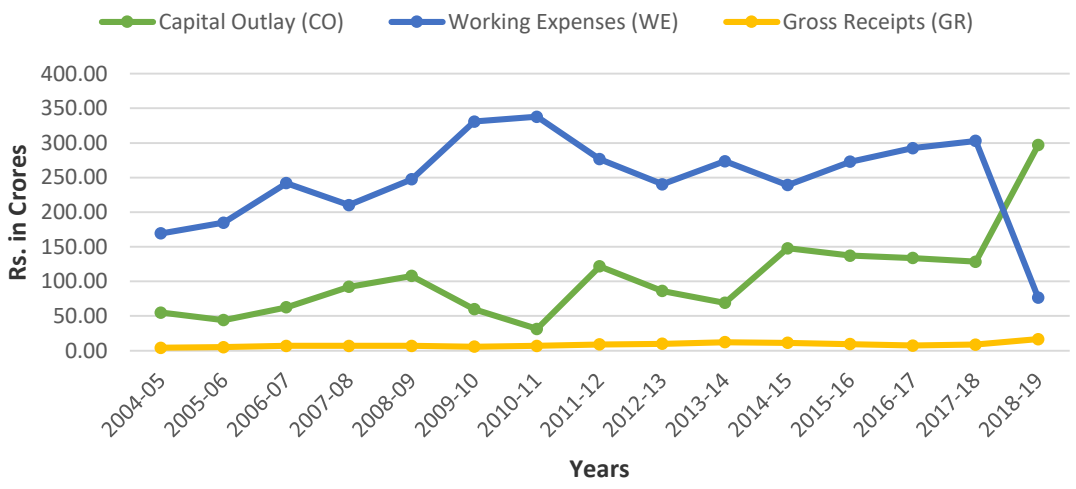
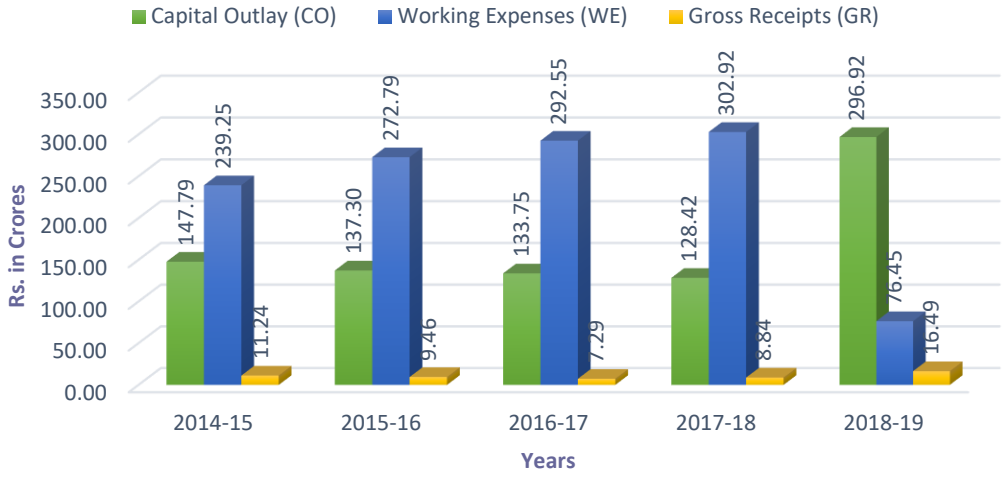


Fig 6.29.2: GAP IN GROSS RECEIPTS VIS A VIS WORKING EXPENSES - WEST BENGAL



6.3.30 **Andaman& Nicobar Island**

As per information received vide letter No 1-20/ANSWSM/2021-22/240 dated 07thOctober 2021 no water charges are levied in this Union Territory for irrigation.

6.3.31 **Chandigarh**

Revenue Department does both assessment & collection of Water Rates but system of assessment and Collection of Revenue has not been reported clearly as per information received through e-mail dated 08thJuly 2021.

6.3.32 **Dadra & Nagar Haveli**

In Dadra & Nagar Haveli, demand statements in respect of irrigation water rates for different crops/seasons/sources are prepared by Irrigation Department. After preparation of the demand statement, it is submitted to the Mamlatdar for collection of revenue from farmers/ users of the Irrigation schemes.

6.3.33 **Daman& Diu**

In the UT of Daman & Diu, payment on account of water rates is made as per the actual areas irrigated at the counters set up by the Irrigation Department.

6.3.34 **UT of Jammu/ Kashmir/Ladakh**

The area irrigated in the erstwhile State of J&K through Government owned canals/ khuls/ lifts/ tube-wells/ tanks etc., is recorded by the Patwari. The basic revenue record for the purpose is prepared from the record of the State. After the complete recording of irrigation figures on the prescribed revenue forms by the Patwaries, the assessment is made by way of charging the Abiana fixed by the Government. The whole work of Patwariesis supervised/ checked by the Zilledars.

The recovery of the Abianais made by the village Lamberdars who are paid remuneration at the rate of 5% as sanctioned by the Government. The Government has also created the posts of Canal Daroga (Assistant Collector Class I) for speedy recovery of Abiana as well as other Government dues of the Canal Department. Besides this, Canal Daroga is responsible for collection of the whole revenue.

Village Lamberdarshave already been engaged by Revenue Department and are being paid for the purpose. Further, the government vide Order No.109-PW of 1997 dated: 4-3-1997 is paying an incentive of 10% of the amount recovered in respect of arrears of Abiana up to 31-3-1996 in addition to 5% provided for the entire Abiana they recover during the whole year.

The Capital Expenditure has fluctuated from Rs. 14.58 crore to Rs. 99.11crore during 2004-05 to 2018-19 inMajor and Medium Irrigation projects (Table 6.34.1). The Annual Working Expenses has consistently increased from Rs. 28.53 crore to Rs.49.52crore from 2005-06 to 2009-10and then a minor decline was seen in 2010-11 and again there was a consistent increase from 49.35crores to 74.97 crores during the year 2010-11 to 2015-16.

The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. The Gross Receipt was in the range of 1.44% to 977.09%of Working Expenses during 2004-05 to 2018-19.

Table: 6.34:.1 FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS UT OF JAMMU/ KASHMIR/LADAKHDURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	44.88	473.36	58.34	0.97	1.66
2	2005-06	54.68	528.04	28.53	0.88	3.08
3	2006-07	38.43	566.47	34.87	1.01	2.90
4	2007-08	61.09	627.56	45.38	0.86	1.90
5	2008-09	98.95	726.51	46.59	0.67	1.44
6	2009-10	73.15	799.66	49.52	1.37	2.77
7	2010-11	72.22	871.89	49.35	1.02	2.07
8	2011-12	75.29	947.18	57.91	565.83	977.09
9	2012-13	60.44	1007.62	60.26	160.49	266.33
10	2013-14	29.54	1037.16	62.89	844.16	0.00
11	2014-15	52.29	1089.45	67.03	108.74	162.23
12	2015-16	99.11	1188.56	74.97	1915.42	0.00
13	2016-17	50.09	1238.65	73.26	794.30	0.00
14	2017-18	60.23	1298.88	72.62	761.08	0.00
15	2018-19	14.58	1313.46	84.57	674.97	798.12

Source : Combined Finance and Revenue Accounts of UT of Jammu/ Kashmir/Ladakh (Erstwhile State of Jammu & Kashmir)

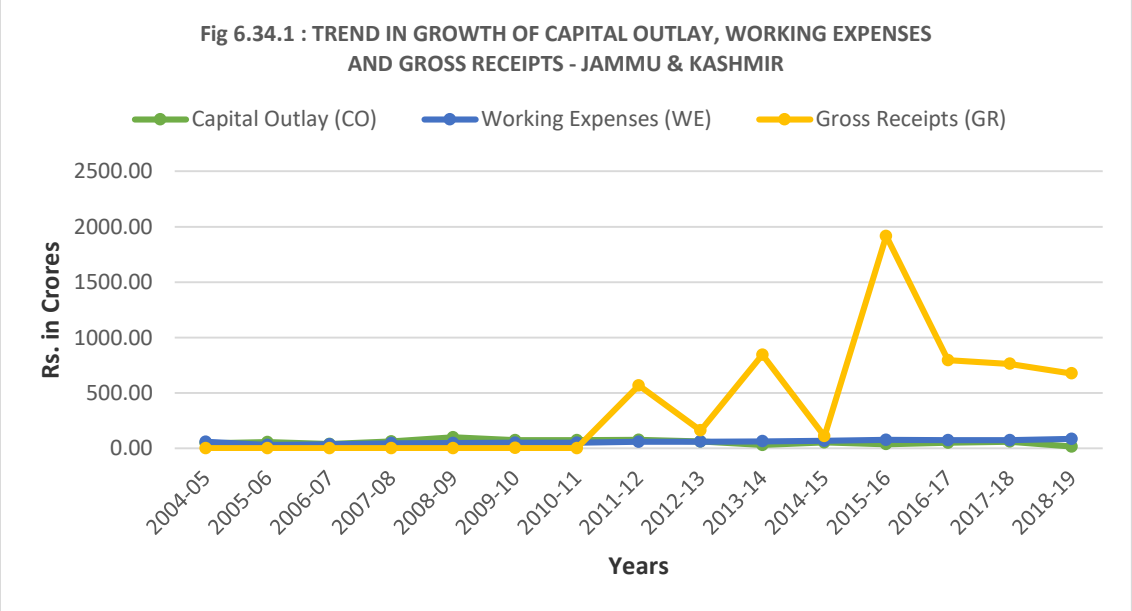
Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.

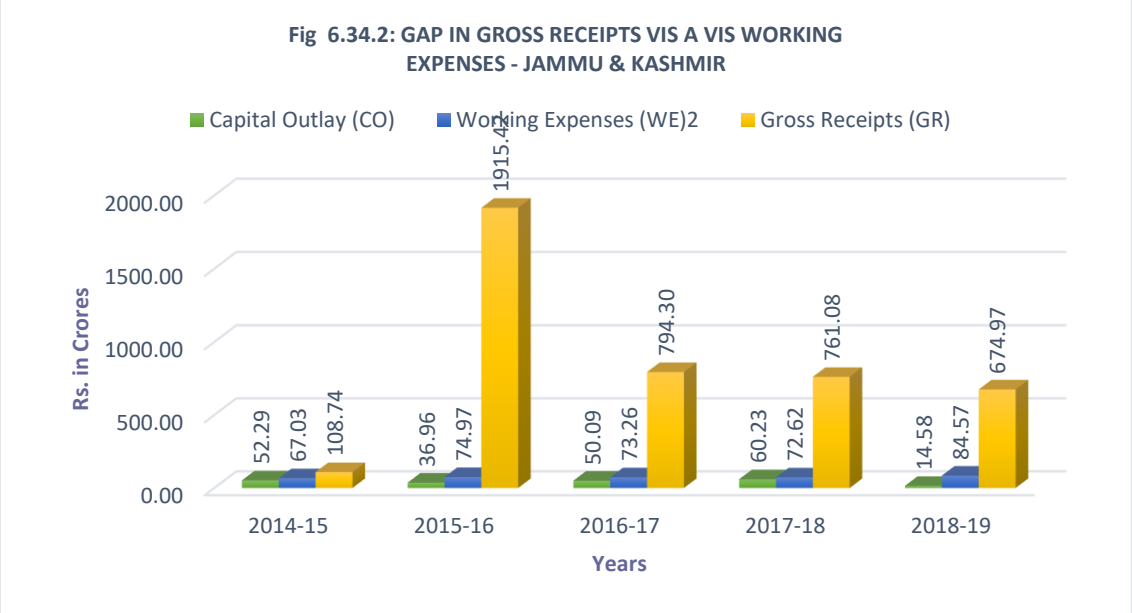
Table 6.34.2GAP IN REVENUE ASSESSED AND REALIZED DURING 2009-10 TO 2010-11 FOR UT OF JAMMU/ KASHMIR/LADAKH

(Rs. in Lakhs)

Year	Revenue assessed	Revenue realized	Percent recovery
1	2	3	4
2000-2001	62.38	7.00	11.22
2001-2002	52.19	22.27	42.67
2002-2003	57.78	23.73	41.07
2003-2004	61.04	26.63	43.46
2004-2005	59.83	35.03	58.55
2005-2006	97.78	75.48	84.31
2006-2007	78.78	63.30	76.01
2007-2008	99.08	83.45	94.38
2008-2009	99.31	79.00	83.70
2009-2010	100.70	104.16	103.44
2010-2011	101.41	91.44	90.17

Source: Information vide letter No. DB/20466 14th February 2014 from O/o the Chief Engineer, KMR. Irrigation &Flood Control Department, Government of Jammu/ Kashmir/Ladakh (Erstwhile State of Jammu & Kashmir)





6.3.35 **Lakshadweep**

There are no water rates in vogue.

6.3.36 **Puducherry**

The system of water rates for agriculture purposes in the UT of Puducherry is similar to that of Tamil Nadu. Wet assessment has the portion of water rate inherent in it. Assessment and collection are done by Revenue Department. The Water supply system is maintained by the Public Works Department. Under this system, the ground water sources are mainly tapped by sinking bore wells.

Though the maintenance of water supply system in rural areas is looked after by the Municipality/ Panchayats, the water revenue collection is vested in the Public Works Department. The billing system is on quarterly basis. The Meter Reader inspects every house/ commercial institution and takes down the meter reading and thereafter issues bills on the spot to the consumers based on the actual consumption. The consumers are given a period of one month time to pay the bill either in cash or cheque and in cases of default, disconnection of water supply is resorted to enforcing payment after giving 24 hours' notice to the consumers. If no clearance of arrears is made within the time of 60 days from the date of disconnection the final notice is served to the consumer and legal action is taken for recovery of dues. The Revenue Department is, thereafter, addressed for the recovery of dues under the Revenue Recovery Act. Regarding the water tax on public taps, the Municipalities/ Panchayats pay the same at a flat rate in respect of their regions.

No Capital Expenditure and Annual Working Expenses have been reported during 2004-05 to 2018-19 in Major and Medium Irrigation projects (Table 6.36.1).

The gap between Gross Receipt on account of levy of water charges and Working Expenses is depicted in chart. The Gross Receipt on account of water charges and other economical activities has not been observed for the duration of the year 2004-05 to 2018-19.

Table: 6.36.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS PUDUCHERRY DURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	0.00	11.15	0.00	0.00	0.00
2	2005-06	0.00	11.15	0.00	0.00	0.00
3	2006-07	0.00	11.15	0.00	0.00	0.00
4	2007-08	0.00	11.15	0.00	0.00	0.00
5	2008-09	0.00	11.15	0.00	0.00	0.00
6	2009-10	0.00	11.15	0.00	0.00	0.00
7	2010-11	0.00	11.15	0.00	0.00	0.00
8	2011-12	0.00	11.15	0.00	0.00	0.00
9	2012-13	0.00	11.15	0.00	0.00	0.00
10	2013-14	0.00	11.15	0.00	0.00	0.00
11	2014-15	0.00	11.15	0.00	0.00	0.00
12	2015-16	0.00	11.15	0.00	0.00	0.00
13	2016-17	0.00	11.15	0.00	0.00	0.00
14	2017-18	0.00	11.15	0.00	0.00	0.00
15	2018-19	0.00	11.15	0.00	0.00	0.00

Source : Combined Finance and Revenue Accounts of Puducherry.
Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.

6.3.37 **Union Government**

Table: 6.37.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS UNION GOVERNMENT DURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1	2004-05	0.67	137.79	156.27	14.09	9.02
2	2005-06	0.99	138.78	158.99	9.72	6.11
3	2006-07	0.55	139.33	163.62	10.02	6.12
4	2007-08	0.51	139.84	196.55	11.81	6.01
5	2008-09	0.08	139.91	298.10	6.64	2.23
6	2009-10	2.60	142.51	360.53	10.42	2.89
7	2010-11	1.11	143.62	362.00	15.23	4.21
8	2011-12	2.69	146.31	386.25	33.16	8.59
9	2012-13	2.00	148.31	392.47	15.64	3.99
10	2013-14	1.16	149.47	432.58	20.52	4.74
11	2014-15	2.36	151.83	720.58	17.43	2.42
12	2015-16	17.51	169.34	848.83	17.35	2.04
13	2016-17	25.77	195.11	721.93	19.00	2.63
14	2017-18	50.03	245.14	1383.37	34.44	2.49
15	2018-19	35.31	280.44	2165.49	27.48	1.27

Source : Combined Finance and Revenue Accounts of Union Government.

Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.

6.3.38 **All India**

Table: 6.38.1: FINANCIAL ASPECT OF MAJOR & MEDIUM IRRIGATION PROJECTS ALL INDIA DURING 2004-05 TO 2018-19

(Rs. In Crore)

S.No.	Year	Capital Expenditure		Working Expenses (WE)	Gross Receipts (GR)	% Recovery of WE through GR (Col.6/Col.5*100)
		During the year	at the end of the year			
1	**2**	**3**	**4**	**5**	**6**	**7**
1.	2004-05	17652.23	128444.65	7018.31	1264.15	18.01
2.	2005-06	21964.79	150409.65	8216.06	1194.70	14.54
3.	2006-07	26542.23	168979.77	9604.43	1504.66	15.67
4.	2007-08	30879.23	199861.52	11898.88	2044.92	17.19
5.	2008-09	36230.56	236092.07	12196.86	1903.97	15.61
6.	2009-10	32074.86	268164.22	14920.92	2351.11	15.76
7.	2010-11	32303.61	300464.06	17363.58	2597.52	14.96
8.	2011-12	33895.28	334359.04	18720.10	3892.87	20.80
9.	2012-13	36097.64	370908.34	21348.87	3128.30	14.65
10.	2013-14	36597.13	405164.66	21853.08	4336.43	19.84
11.	2014-15	38729.80	443894.46	22245.73	4162.11	18.71
12.	2015-16	50458.03	494352.49	19483.23	6218.30	31.92
13.	2016-17	62015.20	556367.69	19005.66	5038.25	26.51
14.	2017-18	61782.18	618149.87	19265.04	7010.89	36.39
15.	2018-19	70392.94	688542.81	20223.62	5638.97	27.88

Source : Combined Finance and Revenue Accounts of All India.

Remarks : The figures in Col.(3) and (4) in some cases may be incompatible due to accounting adjustment in the State.