APPROACH PAPER

ON

CRITERIA

FOR

DETERMINATION OF

BULK WATER TARIFF

2013-16

MAHARASHTRA WATER RESOURCES REGULATORY AUTHORITY, Mumbai (India)

MARCH 2012

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FOREWORD

1. The Maharashtra Water Resources Regulatory Authority, established in August 2005 by the State government under an Act of the Legislature, completed its first tariff exercise in May 2011. The exercise ended with the issue of a Tariff Order conveying water charges for volumetric use by various categories of users for the period 2010-2013. The Order was preceded by the finalisation of the Criteria for Bulk Water Tariff in June 2010 through an elaborate process of public consultation as prescribed by section 11 (d) of the Act. Under another section of the Act {Section 11(u)} the Authority is required to review and revise the water charges every three years. Thus the first revision in water charges becomes due from 2013 for the period 2013-16.

2. The first tariff exercise, spread over two years, was a learning experience for the Authority. Based on this experience the Authority has prepared a set of Regulations outlining the procedures to be followed in the tariff fixation exercise. These Regulations are now being adopted for the new tariff exercise. The exercise begins with the preparation and circulation of this Approach Paper on Criteria for determination of Bulk Water Tariff for the period 2013-16. Before taking up this work, the Authority invited suggestions from line Departments, Water Utilities, NGOs, Experts and other stakeholders. A number of suggestions were received and the same were given due consideration in drafting the Approach Paper. The draft is now put out for public consultation, which is the next step in the exercise as per the Regulations.

3. Some of the new features of the paper are the inclusion of a separate chapter on transmission losses in the irrigation systems, a revision in the weightages attached to the matrix parameters and a revised approach to the costing exercise. For estimating the transmission losses all available data on efficiency assessment has been collated and applied. The revision in weightages are based on the Authority's perception of the demand supply dynamics and in the costing exercise the issue of establishment charges, which constitutes a major chunk of the cost of irrigation management, has been addressed. Most of the concessions of the earlier Criteria have been retained. The M & R norms have been reviewed by WALMI through an Expert Committee. The allocation of O & M cost to irrigation has been reviewed and the burden slightly brought down.

4. Needless to say that much still needs to be done in the State on water quality preservation and enhancement and on water conservation. Though tariff as a tool to promote these has limited effectiveness, efforts need to continue in this direction. In regard to irrigation management, it has to be recognised that the formation of User Associations and handing over of the systems to them for management is the solution of choice for many problems in the long term. A modest beginning has been made in the State but given the constraint of funds needed for system rehabilitation, it is unfortunately a fact that even by the end of this decade, only about 20% of the irrigated area will be managed by farmers themselves. Issues like low water use efficiency and system losses due to pilferage and leakage, have to be viewed in this backdrop.

5. This Approach Paper is being widely circulated and also made available at all the taluka headquarters in the State. Based on the comments / suggestions received, the draft Criteria will be finalised and thrown open for public consultation. I would urge all stakeholders to critically examine the paper and come up with pertinent suggestions relating to tariff fixation for bulk water users in the State.. This will enable the Authority to proceed with the process of issuing tariff orders based on Criteria determined after the widest possible consultation with the beneficiary public and in a transparent manner.

(A.K.D. Jadhav)
Chairman & Member (Econ)

Mumbai
Dated : 6/15 March 2012

CHAPTER - I

BACKGROUND

BRIEF DETAILS OF EARLIER PROCESS (2010-13) AND OVER VIEW OF PROPOSED APPROACH FOR 2013-16

1.1. The Maharashtra Water Resources Regulatory authority (MWRRA) Act, 2005, which came into force on 8/6/2005, provides for the establishment of the Maharashtra Water Resources Regulatory Authority (MWRRA) to regulate the water resources within the State, facilitate and ensure judicious, equitable and sustainable management, allocation and utilization of water resources, fix the rates for use of water for agriculture, industrial and drinking and other purposes and matters connected therewith and incidental thereto. The State government of Maharashtra accordingly established the MWRRA on 12/8/2005. It is the first State in the country to establish a regulatory BODy in the water sector.

1.2. In regard to bulk water tariff, Sections 11 (d), 11 (r) and 11 (u) deal with the powers, duties and functions of the Authority in this regard.

Section 11 (d) - *to establish a water tariff system and to fix the criteria for water charges at sub-basin, river basin and State level after ascertaining the views of the beneficiary public, based on the principle that the water charges shall reflect the full recovery of the cost of the irrigation management, administration, operation and maintenance of water resources project.*

Section 11 (r) - *to determine and ensure that cross-subsidies between the Categories of Use, if any, being given by the Government are totally offset by stable funding from such cross-subsidies or Government payments to assure that the sustainable operation and maintenance of the water management and delivery systems within the State are not jeopardized in any way.*

Section 11 (u) - *The Authority shall review and revise the water charges after every three years.*

The MWRRA (Amendment & Continuance) Act, 2011, published on 22/4/ 2011 has not made any changes in the above Sections relating to tariff.

1.3. In Sept. 2007, the Authority embarked on its first tariff exercise for the first Control Period 2010-13. An elaborate public consultation process was undertaken to discuss the draft Approach Paper. The revised paper and draft Criteria and finally the draft tariff proposal were also finalised after exhaustive public consultations. The first tariff orders were issued by the Authority on 30-5-2011 (volumetric bulk water rates for industry, domestic and agriculture) and on 29-6-2011 (by Water Resources Dept. after approval of the Authority for area based rates for agriculture). **Annexure 1.1** gives the detailed calendar of events for the first tariff order.

1.4. The Criteria for Bulk Water Tariff for 2010-13, which was finalised in June 2010 and which formed the basis for the tariff proposal prepared by WRD and subsequently the tariff orders, is at **Annexure 1.2.** As per Section 3 of this Criteria, the validity of the Criteria is for 3 years i.e. till the end of June 2013. Further, before taking up review and revision of the water tariff for the subsequent Control Periods, the Authority is required to review and revise the Criteria by following the procedure determined in the relevant Regulations.

1.5. The earlier drill was for finalizing the tariff for 2010-13 was used by the Authority as guidance for preparing draft Regulations for Fixing Criteria for and Issuance of Tariff Orders for Bulk Water. These Regulations which have been submitted to the WRD for conveying approval of the State government, are being adopted in this new tariff exercise for 2013-16. The identified steps in the Regulations are

(i) preparation of draft Approach Paper (DAP) through Consultant/ Committee of Experts/or by Authority itself.

(ii) circulation of the DAP to line departments, utilities, NGOs and experts and hosting on Authority's web site making available the DAP at all taluka headquarters.

(iii) preparation of draft Bulk Water Criteria based on comments received on DAP and its circulation for public consultation.

(iv) holding of public hearings on the draft Criteria at all the revenue divisional headquarters in the State.

(v) finalising Criteria and directing WRD to submit draft tariff proposal

(vi) scrutinizing the tariff proposal and directing WRD to make it available at all taluka headquarters and publish abridged form in newspaper.

(vii) based on suggestions received, finalise and issue tariff orders.

1.6. The Authority decided to prepare the DAP after inviting suggestions from line departments, utilities, NGOs & Experts. This '*stage gate'* method of preparation of the paper is in conformity with the suggestion of an NGO. In the present case, involvement of stakeholders is being ensured at preparation stage itself, thus resulting in a better acceptability of the end product. A letter was accordingly issued on 6/7/2011 to all concerned inviting suggestions for the DAP. An advertisement was also placed on 13/7/2011 in one English and 35 Marathi papers covering every district inviting suggestions on issues that could be included in the paper. Time was given till 31/8/2011 for sending suggestions.

1.7. Response was received from some experts, municipalities & NGOs. **Annexure 1.3** gives a list of persons / organizations who have offered suggestions. A meeting was held at Pune on 15/11/2011 with select CEs & SEs of WRD when many suggestions were made. While discussion on these suggestions have been made as appropriate in the relevant Chapters of this DAP, it is necessary to respond here to one suggestion of an NGO that the new tariff exercise be deferred to 2015-16 by which time an impact evaluation of the first tariff order be carried. The Act requires that the water charges be reviewed and revised every three years. Thus the revision becomes due in 2013. Postponing this to 2016 would be violative of the Act. While there is merit in the argument that evaluation of the first tariff order is required to be done, efforts will be made to accomplish this along with the new tariff exercise. In any case, the total picture for 2010-11 and perhaps 2011-12 also would be available before the next tariff order effect 2013 is issued. The impact of various concessions, mainly in agriculture, would need time before they are properly assessed and operation of these concessions for 3-4 years is a *sine-qua-non* for such an assessment. Issues like transmission loss have received coverage in this DAP.

1.8. Section 11 (d) of the Act requires the Authority to fix Criteria for water charges at sub-basin, river basin and State level. The Criteria for 2010-13 was fixed at State level rather than at river basin / sub-basin level i.e. an uniform tariff structure for the State as a whole was adopted. The main reason for this was that the Irrigation Development Corporations

were yet to be converted as River Basin Agencies i.e. as independent financial entities with basin based revenue sources. Since this position has not changed now also, the Authority proposes to develop an uniform tariff across the State for 2013-16 also. The Criteria for 2013-16 is accordingly being formulated also at State level.

1.9. Besides this introductory Chapter I, the DAP has six other Chapters. Chapter-wise contents in brief are as below :

Chapter - II - **Transmissions Losses in Irrigation Systems and Water Use Efficiency** in the State based on data compiled from various sources.

Chapter – III - **The Operation & Maintenance Cost of Irrigation Management** with M&R norms as per revised WALMI study and establishment norms as per extant Government orders.

Chapter – IV - The various relevant **Suggestions Received & Issues Identified** from line departments, utilities, NGOs and experts together with issues identified by the Authority also.

Chapter – V - Gives **Data Base** for agriculture, irrigation, domestic and industrial use relevant for the tariff exercise for 2013-16.

Chapter – VI - The methodology for **Data Projection for 2013-16** of water use and other data like irrigation potential, establishment costs with actual projection for 2013-14, 2014-15, 2015-16.

Chapter - VII - **Proposed Methodology for Working out Bulk Water Tariff (2013-16)** with allocation of O&M cost among the three categories of users and working out of volumetric and area based tariff (for agriculture).

1.10. In the earlier Approach Paper for 2010-13 exhaustive coverage was given to topics like international experiences in bulk water pricing, recommendations of various Water Pricing Committees, legal frame work for bulk water sector in the State, water conservation and recycling technologies and water rates in other States. No suggestions were received on these topics warranting a reference to them in the present Approach Paper. Hence these topics have not been repeated in the present paper.

Annexure 1.1
(Refer Para 1.3)

Criteria for Bulk Water Tariff
&
Issue of Tariff Order for 2010-13
Calendar of Events

1.	Circulation of draft TOR for Consultancy for Bulk Water Tariff to Line Departments, Utilities, NGOs	Sept. – Nov. 2007
2.	Notice Inviting Expression of Interest from Consultants for preparing Criteria for Bulk Water Tariff.	28th Jan. 2008
3.	Processing of tenders & finalization of Award	Feb. – March 2008
4.	Award of work to ABPS	31st March 2008
5.	Receipt of WALMI report on M&R norms	July 2008
6.	Draft Approach Paper submitted by Consultant	19th Sept. 2008
7.	Draft paper circulated to Line Depts., Utilities, NGOs, experts	Oct 2008 – Jan. 2009
8.	Nine meetings with Public held as under to discuss draft Approach Paper	
	(i) Mumbai	05-02-2009
	(ii) Pune	12-02-2009
	(iii) Pen	17-02-2009
	(iv) Aurangabad	20-02-2009
	(v) Amravati	25-02-2009
	(vi) Nagpur	26-02-2009
	(vii) Kolhapur	25-05-2009
	(viii) Oros	26-05-2009
	(ix) Nashik	15-06-2009
9.	Revision of Approach Paper by Consultant and preparation of draft Criteria	July – August 2009
10.	Submission of revised Approach Paper by ABPS and finalization of draft Criteria by Authority	Sept. 2009
11.	Circulation of revised drafts to Line departments, Utilities, NGOs, Experts and placing Marathi copies at taluka levels.	Oct. – Dec. 2009

12.	State Level Workshop at Pune on revised Approach Paper & draft Criteria	21st Jan. 2010
13.	Six meetings with public held at revenue divisional headquarters to discuss revised drafts	
	(i) Amravati	16-02-2010
	(ii) Aurangabad	22-02-2010
	(iii) Nashik	23-02-2010
	(iv) Navi Mumbai	02-03-2010
	(v) Pune	03-03-2010
	(vi) Nagpur	02-04-2010
14.	Finalization of Criteria for Bulk Water Tariff by Authority and forwarding to WRD for tariff proposal	June 2010
15.	Receipt of draft Tariff Proposal from WRD	Dec. 2010
16.	Vetting of Tariff Proposal in Authority and sending to WRD for public consultation	Jan. 2011
17.	Publication of tariff proposal in press and making available copies in talukas	Mar. 2011
18.	Receipt from WRD of comments of public on draft tariff proposal and holding of meeting with few NGOs	May 2011.
19.	Issue of Tariff orders by Authority - Volumetric	30 May 2011
20.	Issue of Tariff orders by WRD - Area Based	29 June 2011

Annexure 1.2
(Refer Para 1.4)

Final Criteria (2010-13)

for

Determination of Bulk Water Tariff in the State of Maharashtra

MAHARASHTRA WATER RESOURCES REGULATORY AUTHORITY
JUNE 2010

CRITERIA FOR DETERMINATION OF BULK WATER TARIFF IN MAHARASHTRA

1. BACKGROUND

1.1. The Maharashtra Water Resources Regulatory Authority Act (MWRRA), 2005, was enacted inter-alia for the purpose of regulating water resources in the State of Maharashtra and for facilitating and ensuring judicious, equitable and sustainable management and allocation of water resources in the state. The Act was brought into force by the State government by Gazette no. 2005/(72/05)/1/WRI dt. 8-6-2005. Subsequently vide notification no. 2005/78/05 dt. 12-8-2005 the Maharashtra Water Resources Regulatory Authority was established to carry out the tasks specified in the Act.

1.2. Under Section 11 (d) of the Act, one of the duties of the Authority is to establish a water tariff system and to fix the criteria for water charges after ascertaining the views of the beneficiary public based on the principle that the water charges shall reflect the full recovery of the cost of irrigation management, administration, operation and maintenance of the water resources project.

1.3. In pursuance of this duty, the Authority first engaged a Consultant to prepare a draft Approach Paper on “Developing Criteria for Bulk Water Tariff”. Initiating the consultation process, this draft Paper of the Consultant was circulated by the Authority in October 2008 among stake-holders, line departments, water utilities and prominent NGOs seeking their suggestions and comments. The Authority thereafter conducted public consultations at nine places in the State between February and June 2009. Based on the comments received and views expressed in the public consultations, the Authority revised the draft Approach Paper and also prepared a draft Criteria for Bulk Water Tariff (CBWT) based on the revised paper. These documents were again circulated in October – November 2009 to stakeholders, line departments, water utilities and prominent NGOs inviting their views. The Authority thereafter conducted a State level workshop at Pune on 21st January 2010. The workshop was in panel format where panelists interacted with representatives of major stake holders, NGOs and other experts who gave their views and suggestions on the Approach Paper. Thereafter the

Authority also conducted public hearings in February – April 2010 at the six revenue divisional headquarters of the State to ascertain the views of the beneficiary public from the region on the revised Approach Paper and draft CBWT. Prior to the hearings, the revised approach paper and the draft CBWT were made available to the general public by keeping them at the taluka level offices of the WRD. Based on the inputs received in this consultation process, the Authority has finalized the CBWT. The finalized CBWT will be forwarded to the Water Resources Department (WRD) for submitting the draft tariff proposal for the three year period 2010-2013 in conformity with the CBWT.

2. SCOPE OF THE CBWT

2.1. The scope of these Criteria is limited to determination of bulk water tariffs for the State as a whole for the three categories of users viz. agriculture, domestic and industries, as envisaged in the preamble of the Act. For agriculture, the Criteria will cover principles of determination of area based tariff also.

3. VALIDITY OF THE CBWT

The validity of these Criteria is for three years till the end of the control period i.e. 30th June 2013. Before taking up review and revision of the bulk water tariff for the subsequent Control Periods, the Authority shall take up review and revision of the CBWT by following the procedure determined in the relevant Regulations.

4. DEFINITIONS

a) ***"Act'*** means the Maharashtra Water Resources Regulatory Authority Act 2005.

b) ***'Agricultural User'*** means any Water User Association, where formed, at minor level, distributary level, canal level or project level, which is supplied bulk water for distribution among its members, or an individual farmer, where Water User Association has not been formed or formed but not become operational, who is supplied water directly by the project authority, primarily for growing crops

c) ***'Authority'*** means the Maharashtra Water Resources Regulatory Authority

d) '***Basic Rate'*** for any category of user means the volumetric rate applicable for rabi season.

e) ***'Bulk Water'*** means any water supplied by flow or lift to Agricultural/ Domestic/Industrial Users from reservoirs/canal systems in the State constructed and operated by the Water Resources Department (WRD) or Irrigation Development Corporation (IDC) or made available to these users by WRD / IDC by flow or lift from regulated rivers and their tributaries flowing in the State or from natural BODies or lakes . It also includes supplies drawn by water utilities / entities/ for its / their own use from dams / storages constructed and operated by them or obtained for its / their own use by flow or lift from natural BODies or lakes through structures constructed and operated by them

f) ***'Bulk Water Tariff'*** means the tariff levied on bulk water users by the Water Resources Department on volumetric basis, as per the tariff order issued and in force on the date of levy.

g) ***'Collection Efficiency'*** in relation to any category of user means the ratio of revenue realized from that user to the tariff billed to that user in any water year, excluding arrears.

h) ***'Control Period'*** for the purposes of the applicability of tariffs shall be the three consecutive water years starting from 1st July 2010 to 30th June 2011, 1st July 2011 to 30th June 2012 and 1st July 2012 to 30th June 2013.

i) ***'Culturable Command Area (CCA)'*** means the area under an irrigation project which is cultivable and can get irrigation facility through the canal system.

j) ***'Domestic User'*** means any public body or organisation (Gram Panchayat, Urban Local Body Municipal Corporation, Maharashtra Jeevan Pradhikaran) to whom bulk water is made available by the Water Resources Department / IDC for distribution to domestic and other users, with or without treatment.

k) ***'Drought'*** means a period declared as 'Scarcity" by the State when soil moisture and rainfall are inadequate to support healthy crop growth during the crop growing season causing crop stress and wilting.

l) ***'Energy Charges'*** means the electricity supply charges levied on various category of bulk water users by the electricity distribution licensee for lifting of water.

m) ***'Hot Weather'*** *for* purposes of water tariff means season from 1st March to 30th June or as notified by the State except for Konkan & Vidarbha regions, the season will be from 1st April to 30th June.

n) ***'Industrial User***' means any industry (including industrial development Corporations) to whom bulk water is made available by the WRD or IDC for use as raw material or in process.

o) ***'kharif'*** for purposes of water tariff means the season from July to October except in Konkan and Vidarbha where it will extend to 15th November.

p) ***'Major'. 'Medium', 'Minor Irrigation Project'*** means project with CCA greater than 10,000 ha, between 2,000 & 10,000 ha and less than 2,000 ha respectively

q) ***'Modern Irrigation Method'*** means micro-irrigation (drip & sprinkler) or any other method specified by the Authority from time to time.

r) ***'Operation & Maintenance (O&M) Cost'*** means the sum of establishment cost and the cost of maintenance and repairs (M&R) of the irrigation system of water resources projects worked out as per norms.

s) ***'Rabi'*** for purposes of water tariff means season from November to February except for Konkan & Vidarbha where the season will be reckoned from 15th November to 31st March.

t) ***'State'*** means the State Government of Maharashtra

u) ***'Stakeholder'*** means any bulk water user or Entitlement holder or any registered organisation representing officially the interests of either of them.

5. GUIDING PRINCIPLES

In preparing the CBWT, the Authority has kept in view by the provisions in the MWRRA Act 2005, Maharashtra Management of Irrigation Systems by Farmers (MMISF) Act, 2005, the State Water Policy 2003 and the

Maharashtra Irrigation Act (MIA), 1976. The recommendations of various Central and State committees set up in the past on the subject of water tariff were also considered where relevant.

6. PROCEDURE TO BE FOLLOWED FOR ISSUE OF TARIFF ORDER AND ITS REVIEW

6.1. .After the CBWT is finalized by the Authority, the WRD will submit the Draft Tariff Proposal in the format prescribed by the Authority for the three year period July 2010 to June 2013. The proposal wills, inter-alia, project the annual O&M cost and specify user category wise tariff proposed to be levied in accordance with the CBWT.

6.2. The draft tariff proposal shall be submitted by the Water Resources Department within four weeks of the receipt of the CBWT from the Authority.

6.3. On receipt of the draft tariff proposal from the WRD, the Authority shall undertake a technical scrutiny of the proposal with reference to its conformity with the CBWT and validity of the data used. It may seek such clarification from WRD and follow such consultation with stake holders as considered necessary so as to finalize and approve the tariff proposal.

6.4. The Authority shall issue the tariff orders for the volumetric rates for bulk water consumers in agriculture, domestic & industry. The tariff orders for the area based rates for crops in agriculture will be issued by WRD.

6.5. Stake holders / WRD will have the right to approach the Authority for a review of any provision in the tariff order, as per procedure to be laid down by the Authority.

7. COST ELEMENTS TO BE CONSIDERED IN O&M COST

7.1. The cost elements to be considered for annual O&M cost likely to be incurred shall include

(a) M&R works on the canal systems and head works of WRD / IDC projects and also on allied infrastructure relevant to water supply to be incurred during the year

(b) Project establishment cost comprising salaries of WRD / IDC employees deployed in maintenance of irrigation projects including basic pay, DA, bonus, other allowances etc. as approved by the State government.

Establishment cost will also include travelling and other related allowances, rent, legal charges, auditor fees as related to water management. It may be ensured that staff strength is as per norms prescribed by the State government.

7.2. O&M cost shall not include
(a) All Capital costs of irrigation projects including depreciation, interest on loans, special repairs, cost of rehabilitation

(b) Impact of increase in salaries on account of acceptance of recommendations of the Sixth Pay Commission

(c) M&R costs of hydro power components

(d) Establishment cost of staff which is over and above the norms of the State government.

8 NORMS FOR MAINTENANCE & REPAIRS & RESPONSIBILITIES OF SERVICE PROVIDER

8.1. The State Government shall prescribe norms for the M&R of canal system, head works and appurtenant works which are adequate for their routine maintenance. The Authority may on scrutiny of the norms, direct the State government to review and or revise the norms if in its opinion; the norms are inadequate for proper upkeep of the assets created. The projection of funds required for M&R should be as per these prescribed norms.

8.2. The WRD as a service provider has some responsibilities for proper maintenance of created assets, improvement in water use efficiency and making available adequate funds to the WUA for maintenance of the system below the minor. For proper assessment of the transmission losses in canal systems, WRD is required to take up installation and periodical calibration of measuring devices in the system. Procedure to be followed by service provider for above responsibilities is given in Annex 5 & 6 and should be strictly observed.

9. NON TARIFF AND OTHER INCOME

9.1. Non tariff income (i.e. income from sale of tenders, scrap, royalty for hydro power, pisciculture, recreation, tourism in reservoirs) shall not be considered while assessing likely revenue from tariff.

10. GOVERNMENT SUBSIDY

10.1. The State government shall make the required budget provision for meeting

the estimated annual O&M cost. Revenue gap, if any, between the estimated O&M cost and estimated tariff realization based on the tariff order will be treated as State government subsidy.

11. REVENUE GAP / SURPLUS

11.1. At the end of each water year in the control period, WRD shall furnish to the Authority details of category wise and source wise water drawals, tariff levied, revenue realized, M&R costs required as per norms for the irrigated & unirrigated potential, actual M&R costs, establishment cost and subsidy provided, if any.

Arrears of tariff (levy & collection) for previous years shall not form a part of assessment of revenue gap / surplus.

12. APPORTIONMENT OF O&M COST

12.1. The total O&M cost as specified in Para 7.1 (a) & (b) shall be apportioned among each of the three category of users viz. agriculture, domestic and industry based on three fundamental parameters viz. (i) Affordability, (ii) Accessibility and (iii) Quantity & Timeliness of Supply. This will be done in three stages. As mentioned in Para 12.2 to 12.6 below.

12.2. Firstly a percentage weight shall be assigned to each of the three parameters which shall be common to all users. The values thus assigned shall be

Parameter Weightage
(i) Affordability - 60%
(ii) Accessibility - 20%
(iii) Quantity & Timeliness of Supply (Q&T) - 20%

12.3. Secondly, a percentage weightage shall be assigned to each category of user for each of three parameters. The weightages thus assigned shall

	Agriculture	Domestic	Industry	Total
Affordability	15	10	75	100
Accessibility	30	25	45	100
Q & T	30	25	45	100

12.4. The Application of parameters values to the above percentages shall result in the following

	Agriculture	Domestic	Industry
Affordability	15x0.6 = 9	10x0.6 = 6	75x0.6 = 45
Accessibility	30x0.2 = 6	25x0.2 = 5	45x0.2 = 9
Q&T	30x0.2 = 6	25x02. = 5	45x0.2 = 9
	21	16	63
The above percentages shall be used for allocation of O&M cost to each category of user for working out basic rate.			

12.5. Assuming 15% of domestic water drawal is used for industry and 15% of industrial water demand is used for domestic supply

Effective drinking water allocation of O&M cost

= 0.16 x 0.85 + 0.63 x 0.15

= 0.136 + 0.095 = 0.231

Effective industrial water allocation of O&M cost

= 0.63 x 0.85 + 0.16 x 0.15

= 0.536 + 0.024 = 0.560

12.6. Thus the effective allocation of O&M cost to the above two categories of users based on billing to water utilities would be

Domestic - 23%
Industry - 56%

12.7. The allocation of 21% of O&M cost to agriculture considers revenue both from canal flow areas and well irrigation areas in the command since substantial recharge in these wells occurs from canal water seepage and infiltration. The contribution to revenue by these two sub users is 16% from canal flow areas and 5% from well areas. Since well irrigation has now been made free of charge by State government as policy, flow irrigation areas will share only 16% of the O&M cost. The shortfall in revenue of 5% due to well irrigation being made free of charge and has to be made good by the State government as subsidy. Thus the tariff rates for area based and volumetric flow irrigated areas will aim to recover only 16% of the O&M cost from agriculture.

13. PRINCIPLES / INCENTIVES / CONCESSIONS / DISINCENTIVES / PENALTIES TO BE ADOPTED IN TARIFF FIXATION

13.1. Agriculture

13.1.1. Principles

(i) While fixing the basic rate in rabi season for crop wise area based tariff, it may be ensured that the tariff does not exceed 3 to 5% of the gross value of produce in case of food crops and 8 to 10% of the gross value in case of cash crops (viz sugarcane, banana, horticulture)* For horticultural crops, provisions of 13.1.2. (iv) will also apply and it needs to be also ensured that area based rate for horticultural crop is not more than 75% of the rate for sugarcane & banana from water use considerations.

(ii) With a view to reduce the number of crop categories in area based tariff, grouping of crops shall be done under three heads viz. seasonal crops, perennial crops and paddy. Sub-grouping within seasonal crops may be broadly done keeping in view crop water requirement and gross value of produce..

(iii) The above basic rate will be for rabi crops. Where the crop nomenclature is same in kharif or hot weather as in rabi, 50% of basic rate will be charged for the crop in kharif and 150% of basic rate in hot weather. Where the crop in these two seasons is different from the rabi crop criterion 13.1.1. (i) will be followed. The same will apply to two seasonal and perennial crops.

(iv) After fixing area based rates, volumetric rate for bulk water will be fixed following the procedure given in Annex 1.

(v) Bulk water tariff for government operated and private lift schemes will be as per format in Annex 2.

(vi) No distinction will be made in tariff rates between normal and scarcity period. However, the State may consider remission in / waiver of water charges in scarcity period by providing subsidy.

* Note: For reckoning gross value of produce for each crop, published state average data will be considered (e.g. Report of Committee on Agricultural Costs & Prices) except for sugarcane where the farm harvest price obtained from Maharashtra State Cooperative Sugar Factories Federation shall form the basis. The source of such data will be intimated in tariff order.

13.1.2. Concessions :

(i) In area based tariff, farmers in the State with holding size less than 2 ha will be levied concessional tariff of 75% of basic rate, while for districts in Vidarbha included in the Prime Minister's package and in naxalite affected areas as declared by the State government, farmers with holding size less than 4 ha will be charged 50% of basic rate. Both concessions will be excluding cash crops viz. sugarcane, banana and horticulture.

(ii) For projects implemented in areas under tribal sub plan, no tariff shall be levied for all tribal farmers

(iii) For project affected people, tariff will be levied at 75% of basic rate for all crops.

(iv) Since some horticultural crops like mango, orange, grapes, chickkoo, tamarind, gooseberry (amla), coconut take time to yield, area based tariff for the crops and period specified below will be 25% of the basic rate.

(a) grapes - 3 years
(b) orange - 4 years
(c) mango/coconut/amla/tamarind/chickkoo - 5 years

However, if inter crop is taken in this period, tariff to be charged as per relevant crop and no separate tariff will be charged for the horticultural crop.

((v) Volumetric rate for paddy will be 50% of area based rate (see para 10 of Annex 1).

13.1.3. Incentives

(i) For adoption of modern irrigation methods in area based supply - 75% of applicable rate will be charged

Provided that the concession will not be available to horticultural farmers who are covered in 13.1.2. (iv) above and will become applicable only when full basic rate is paid.

13.1.4. Disincentives / Penalty

(i) Family size

Farmers having more than two children born after one year of enactment of the Act, tariff at 1.5 times rate applicable will be charged in the light of the provisions of Section 12 (11) (a) & (b) of the Act

13.2. Domestic Water

13.2.1. Principles

(i) Basic rate will be linked to source of supply as indicated in Annex 3 and will remain same in kharif, rabi and hot weather.

(ii) While entering into bulk water supply agreement with municipalities / ULBs / Metro Corporations, industrial use, including commercial use, will be separately identified and charged appropriate industrial rate.

13.2.2. Incentives

(i) rebate for effluent treatment

If Metro Corporations / municipality/utility / any domestic bulk user treats sewage effluent to required standard, as certified by MPCB, for enabling use of such treated effluent for irrigation/gardening, the tariff for the quantum of water used to produce such treated effluent will be 75% of the applicable water tariff.

13.2.3. Concessions

stepped tariff - tariff for rural and urban users will be different as under

(i) GP - 75% of applicable rate
(ii) ULB - 90% of applicable rate
(iii) Municipalities/Corporations - 1.25 times applicable rate.

13.2.4 Penalty / Disincentives

(i) additional requirement of municipalities

Such additional requirement is to be met where possible by recycling. However it will be considered only after review of norms of supply and water audit and progress in setting up of STPs

(ii) reservation on reservoirs in drought period

Full levy will be charged for reservation made for drinking water use including evaporation and transmission losses.

(iii) Municipal Corporations/Municipalities shall within two years of the issue of the tariff order prepare an implementation programme for setting up new/additional STPs of required capacity to treat the sewage effluent to required standards. Penal tariff of one and half times basic rate will be charged thereafter for Municipal Corporations/Municipalities who do not submit the programme to MPCB and the Authority.

13.3. Industrial Use

13.3.1. Principles

(i) Basic rate will be linked to source of supply as indicated in Annex 4.

(ii) Basic rate will be applicable for rabi season for industrial use. For kharif season, 50% of basic rate will be charged and for hot weather 1.5 times of basic rate.

(iii) For industries using water as **raw material**, 5 times basic rate will be charged.

(iv) While entering into bulk water supply agreement with industrial users, domestic use will be separately identified and charged appropriate domestic rate. (Refer Note No. 4 of Annex 4)

13.3.2. Concessions

Agro industries - (poultry, canning, sugarcane processing, dairying)
75% of applicable rate will be charged

Rebate for recycling -
If industry reduces its demand to 75% by recycling (utilization reduced by a minimum of 25%), 75% of applicable rate will be charged for reduced demand. Mechanism to be developed by WRD to verify the reduction.

13.3.3. Penalties / Disincentives

"Polluter pays" principle
Every industry is expected to treat effluent to desired standard before release into natural water course. In such case, applicable rate will be charged. If effluent is not treated to required standard of MPCB, rate equal to twice the applicable rate will be charged. This will be in addition to any other action that the MPCB may separately take.

13.4. General (for all Categories)

(i) Penal rate at 1% per month or 12% per year will be levied for delayed payments beyond permissible limit.

(ii) For advance payment before start of season, 5% rebate in tariff will be given only for agriculture.

(iii) All future agreements for non-irrigation use will include justification for demand with norms (lpcd for drinking water depending on urban/rural use and m^3/unit production depending on type of industry.

(iv) Any withdrawal for non-irrigation use beyond ± 10% of prescribed quantity in the agreement will be charged penal rate of 1.5 times of applicable rate.

(v) While entering into an agreement with WRD, non irrigation users will indicate the phasing planned for reaching the ultimate requirement. Till such time, the non irrigation user will be levied tariff as under each year

(a) applicable rate for quantum for the year indicated in the phasing.

(b) penal rate of 1.5 times applicable rate for deviation of ± 10% more/less from the above quantum.

(c) a commitment charge of 5% of applicable tariff for balance quantum i.e. ultimate requirement minus present use.

WRD will be free to divert the balance quantity for that year to any category of user. But such user will not derive any entitlement right over such use.

14. **Fixing of Basic Volumetric Tariff for Non-irrigation, Crop wise Area Based Tariff and Basic Volumetric Tariff for Agriculture for State as a whole.**

(i) For domestic and industrial bulk user entities the Basic Volumetric Rate will be worked out by applying the percentage cost allocable as per Criteria (16% to domestic and 63% to industry). to the volume of water likely to be used.

(ii) Detailed tariff will be calculated from this rate depending on source of supply (vide Annex 3 and 4) and concessions applicable , if any, as proposed in the Criteria.

(iii) Total revenue from each category will be assessed as above after accounting for dual use by Domestic /and industrial users if any. If the revenue is more than the O&M allocation, the basic rate will be reduced and the exercise done again. If it is less, the basic rate will be increased. This exercise will be repeated till O & M allocation and revenue realized match.

(iv) For agriculture, fixation of crop-wise and basic volumetric tariff will be an iterative exercise involving the following steps.

(a) As per Criteria 12.4, 21% of O & M cost is to be allocated to agriculture.

(b) As per Criteria 12.7, 5% of the allocation is to be treated as direct State Government subsidy on account of the fact

that groundwater use from canal percolation is now being made available free of cost.

(c) Thus only 16% of O & M cost is to be allocated to agriculture for recovery through tariff.

(d) As per Criteria 13.1.1. (i) crop-wise area based rates are to worked out. While doing this it has to be ensured that the rate for any crop does not exceed extant tariff of 1-7-2003.

(v) The basic volumetric rate based on area rate is to be worked out as per procedure in Annex-I of Criteria. The Revenue Realization (RR) from Agriculture should be assessed on the basis of area to be irrigated and volume to be supplied. If RR is more than allocation of O & M, then the area rates should be revised downwards and the exercise repeated. If RR is less than the O&M allocation, which is expected to be the case, the difference between O&M allocation and RR will be attributable to the growth-cum-equity related subsidies proposed by the Authority and accepted by the government.

(vi) The aggregate of RR from Agriculture, ground water subsidy and growth-cum-equity subsidies should be equal to the O&M cost allocation of 21% to Agriculture as per Criteria no. 12.4.

List of Annex

Annex No.	Subject
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2 2-A 2-B	Methodology for Computation of tariff for Lift Irrigation Schemes Operated by Government and Private Entities.
3	Non-irrigation Use for Domestic Water - Water Supply for Domestic Use (Drinking) from Various Sources -Parameters for Fixing Water Rates.
4	Non-irrigation Use for Industry - Water Supply for Industries (Industrial use)) from Various Sources - Parameters for Fixing Water Rates ..
5	Responsibilities of the Service Provider (WRD) in Relation to Water Tariff.
6.	Assessment of Transit Losses in Canal Systems

Annex-1

Methodology for Computing Bulk Water Tariff in Agriculture

[See Criteria 13.1.1. (iv)]

1. Water Resources Department, Government of Maharashtra shall compute average volumetric tariff for rabi season separately for Major/Medium and Minor Projects adopting following procedure.

2. Ideal situation

The ideal situation is on completion of rehabilitation works under MWSIP projects when irrigation norm as state average reaches 150 ha/Mm^3 with efficiency of 0.64 for major and medium project upto minor head and 0.80 for minor project.

3. Today's situation

Till above is achieved, an irrigation norm of 110 ha/Mm^3 of storage as presently obtained will be considered for major, medium and minor projects corresponding to an efficiency of 47% upto minor head.

4. Water Use Efficiency

Presently, as per water diverted annually for flow irrigation at source (head works, point of lift etc.) and area of canal irrigation, the norm for irrigation achieved is 110 ha/Mm^3. As per the Project Performance Indicators set out in the Maharashtra Water Sector Improvement Project, the end of project target value is about 150 ha/Mm^3 . As per the Entitlement Manual issued by the Authority Jan. 2007, the norm for efficiency adopted in the pilot projects under the Entitlement programme is 0.8 in unlined main / branch canal and 0.8 in unlined distributary i.e. 0.64 upto head of minor. Since this is post rehabilitation, the present efficiency level upto minor level can be taken as $0.64 \times \frac{110}{150} = 0.47$.

5. Procedure for assessing crop water requirement volume in Major/Medium project in rabi season.

(a) Today's situation

(i) The 3 year average rabi irrigated crop pattern in the state for major/medium projects will be assessed as percentage area of each crop to ICA. Let this be P_1, P_2, P_3…. P_n for crops A, B, C, ….. N.

(ii) Crop water requirement for rabi will be assessed as follows :

Area irrigated for 1 Mm^3 storage = 110 ha.

Water utilized at minor head for rabi will be calculated taking kharif : rabi + hot weather use as 10:90 and rabi use as 85% of rabi + H.W. use and efficiency of 47% upto minor head.

Thus 1Mm^3 at storage annual use

= 1,000,000 x 0.9 x 0.85 x 0.47

= 3,59,550 Cum (m^3)

This is for 110 ha. For a block of 100 ha ICA water required

= $3,59,550 \times \frac{100}{110} = 3,26,864\ m^3$

(b) <u>Ideal situation</u>

In ideal situation, irrigation intensity will improve in ratio $\frac{150}{110}$ due to increase in efficiency.

For each rabi crop, assess crop water requirement per ha in m3 by modified Penman/duty delta method.

Let this be V1, V2, V3 …. Vn

Total volume of water required at field level for a block of 100 ha. ICA

$$V\ field\ (m3) = 100\left(\frac{\mathrm{P1}}{100}\times\frac{150}{110}\times \mathrm{V1} + \frac{\mathrm{P2}}{100}\times\frac{150}{110}\times \mathrm{V2} + \ldots\ldots \frac{\mathrm{Pn}}{100}\times\frac{150}{110}\times \mathrm{Vn}\right)$$

$$V\ Minor = \frac{\mathrm{V\ field}}{0.75}$$

<u>Note :</u> For perennial and two seasonal crops, crop water requirement will be for the season only.

6. <u>Procedure for assessing tariff levied</u>

(a) Today's situation

Let T_1, T_2, T_3…. be the area based tariff in Rs./ha for crops A, B, C …..derived as per Criteria.

Total tariff from a ICA block of 100 ha.

$$\mathrm{T}_{\mathrm{Today}}\ \mathrm{Rs} = 100\left(\frac{\mathrm{P1}}{100}\times \mathrm{T1} + \frac{\mathrm{P2}}{100}\times \mathrm{T2} + \cdots\right)$$

(b) Ideal situation

$$T_{\mathrm{Ideal}}\ Rs = 100\left(\frac{\mathrm{P1}}{100}\times\frac{150}{110}\times \mathrm{T1} + \frac{\mathrm{P2}}{100}\times\frac{150}{110}\times \mathrm{T2} + \cdots\right)$$

<u>Note :</u> For perennial and two seasonal crops, part tariff for season only will be considered by reducing total annual tariff prorata based on seasonal to total water requirement.

7. Average Volumetric Tariff

Today's situation

Volumetric Tariff Rs/m^3 = $\frac{T_{Today}}{3,26,864}$

Ideal situation

Volumetric Tariff Rs/m^3 = $\frac{T_{ideal}}{V_{Minor}}$

8. Actual volumetric tariff will be 0.75 times above.

9. Volumetric tariff for crops other than paddy in Kharif will be 50% of actual tariff calculated at 7 above and hot weather 150%.

10. For paddy areas in the State, volumetric rate should not be greater than the area based rate keeping in view that paddy, although a high water consuming crop, is not very remunerative like a cash crop and hence farmers may be discouraged from forming WUAs and switching over to volumetric rate in paddy areas. Volumetric rate for paddy may therefore be kept at 50% of rate derived by considering area rate & volume of water required i.e.

Paddy rate in volumetric terms in Rs/m^3 will be $\frac{0.5 \times \text{area rate in Rs/ha}}{\text{volume of water in } m^3 \text{ required at field level to irrigate 1 ha paddy}}$

11. If with above exercise, the volumetric rates exceed the extant tariff levels fixed in July 2003, State Govt. may consider required subsidy in order not to give tariff shock to farmers.

12. The above methodology is only for working out volumetric rate for WUA at minor level. For WUAs at project level, canal level and distributary level (PLA, CLA, DLA) in major and medium projects, volumetric tariff calculations project-wise considering actual efficiencies obtaining in the project will be submitted to the Authority for approval.

Annex -2

[See criteria 13.1.1. (v)]

Methodology for computation of tariff for Lift Irrigation Schemes operated by Government and private entities

Sr. No.	Type of Lift Irrigation Scheme	Energy charges	Bulk Water Tariffs
1	Private operated	Payable by private operator	For water supplied on area basis, tariff will be based on location of lift and type and season of crops as per **Annex-2A** Average Seasonal Volumetric rate will be 0.75 times volumetric rate derived from above area rates as per procedure in Annex 1.
2	Government operated (Head works, pump house and other appurtenant works to be maintained by WRD, GoM even after WUAs are formed in the command area)	Payable by beneficiaries. However, if State Government feels need for subsidizing partly energizing charges, it may do so. Procedure laid down in Annexure 2B shall be followed for recovery of water charges.	As per **Annex-2B**.

Annex-2A

Annexure to Water Rates

Water Rates for Lift Irrigation Schemes from (Rs. / ha)

Sr no.	Source of supply	Sugarcane and banana		Other perennials (Horticulture)		Kharif crops	Rabi crops	Hot crops
		Flow	Drip irrigation	Flow	Drip irrigation			
1	2	3	4	5	6	7	8	9
1	**Assured Water Supply** Major/Medium reservoir/storage tank without canal/							
2	**Regulated Water Supply with Transmission Loss** Regulated river portion below dam/canal lift / K.T. weir with back up reservoir / tail race from reservoir							
3	**Partly Assured Water Supply** Minor reservoir with canal / K.T. weir without back up reservoir/ unregulated rivers without even any K.T. weir or in unregulated river portion flowing within a command area where there is no bandhara or K.T. weir							
4	**Reservoir Constructed by the Water User Entity / User Entity Shared Proportional cost** Water user agency has shared proportional cost of infrastructure or constructed dam/bandhara/ katcha bndhara/ K.T. weir at own cost							

Annex-2B

Procedure for Fixing Project-wise Tariff, Including Energy Charges, for Lift Irrigation Schemes owned by Government.

1. This procedure has been evolved from the experience gained from three lift schemes with varying heads under operation since 2005-06 viz. Mahisal, Takari and Sina-Madha in Krishna basin. For each of these schemes the project authorities have furnished actual operational data. Authority has taken one sample year comprising energy charges, area irrigated, revenue assessed per ha. Based on this data, the following procedure for non-WUA areas is prescribed till WUAs are formed.

2. At the beginning of the season, project authorities estimate the likely irrigation demand and likely energy charges to be levied (on the basis of energy bills received). The combined rate, (i) energy charges, (ii) crop wise irrigation charges [based on prevailing Govt. approved rates with 20% local cess and other miscellaneous cess/charges] per ha per rotation is worked out and this rate is got approved from the concerned Chief Engineer. The farmers are apprised of this rate (advance payment based on this rates is also received to field officer from some of these schemes).

3. Procedure to be followed for working out actual water charges.

   - energy rate per ha of irrigation is to be assessed on the basis of total energy charges of the schemes based on actual consumption as received by the concerned project officer from MSEB.
   - irrigation charges per ha with 20% local cess, as fixed by the State govt. to be levied season-wise, crop-wise on the basis of actual area irrigated is assessed based on number of rotations.
   - the water charges per ha including energy rate per ha and irrigation charges including 20% local cess per ha is worked out and this rate is then converted into per rotation for recovery purposes.
   - for sustainability, maximum area under scheme should be brought under irrigation so that there will be minimum energy charges per ha to the user. It should be aimed so as to have full recovery of electricity charges from all water users.
   - water rates for govt. operated Lift schemes will be schemes-wise and hence there will be separate rate for each scheme which will depend on type of lift and energy consumed.

   As and when WUAs are formed in command area, the tariff will be levied for volumetric supply at the volumetric rate fixed for flow areas by Authority

and prorata energy charges per ha as per actual area irrigated under WUA.

4. Procedure to be followed for recovery of energy charges from beneficiaries for government operated Lift Irrigation Scheme where water is lifted and fed into Tanks/Percolation Tanks.

Energy rate per ha of irrigation is to be assessed on the basis of total energy charges of the scheme based on actual consumption, as received by the concerned project officer from MSEB, and total area in ha getting benefit of irrigation from such tanks.

Annex-3

Non-Irrigation Use for domestic water

Water Supply for Domestic Use (Drinking)

from various sources

Parameters for Fixing Water Rates

[See Criteria 13.2.1.(i)]

Rs./10000 litres (10 cu.m)

Sl. No.	Source of Supply	Water Rate
1.	**Assured Water Supply** Major/Medium reservoir/storage tank without canal/	Basic rate
2.	**Regulated Water Supply with Transmission Loss** Regulated river portion below dam/canal lift / K.T. weir with back up reservoir / tail race from reservoir	Two times of basic rate
3.	**Partly Assured Water Supply** Minor reservoir with canal / K.T. weir without back up reservoir/ unregulated rivers without even any K.T. weir or in unregulated river portion flowing within a command area where there is no bandhara or K.T. weir	50% of basic rate
4.	**Reservoir Constructed by the Water User Entity / User Entity Shared Proportional cost** Water user agency (Gram Panchayats, ULBs, Municipal Corporations and other such utilities) has shared proportional cost of infrastructure or constructed dam/bandhara/katcha bandhara/K.T. weir at own cost	33% of basic rate

Note :

1. Different water rates will be applicable as per the source of supply as mentioned above.
2. The above basic rate will be applicable in all the three seasons uniformly.
3. For Municipalities/Corporations/Cantonment Boards, 1.25 times applicable basic rate will be charged.
4. For Nagar Parishads / ULB, 90% of applicable basic rate will be charged.
5. For Grampanchayats, 75% of applicable basic rate be charged.

6. If a Metro Corporation / municipality / utility / any domestic bulk user treats sewage effluent to required standard, as certified by MPCB, for enabling use of such treated effluent for irrigation / gardening, the tariff for the quantum of water used to produce such treated effluent will be 75% of the applicable water tariff.

7. Water rates are to be rounded to nearest value of Rs. 10.

Sample Example : Water Rate for a Gram Panchayat drawing water from an unregulated river will be charged basic rate x 0.75 x 0.5

Annex-4

Non-Irrigation Use for Industry

Water Supply for Industries (Industrial Use)

from various sources

Parameters for Fixing Basic Water Rates

[See Criteria 13.3.1. (i)]

Rs./10,000 litres (10 cu.m)

Sl. No.	Source of Supply	Water Rate
1.	**Assured Water Supply** Major/Medium reservoir/storage tank without canal/	Basic rate
2.	**Regulated Water Supply with Transmission Loss** Regulated river portion below dam / canal lift / K.T. weir with back up reservoir/tail race from reservoir.	Twice of basic rate
3.	**Partly Assured Water Supply** Minor reservoir with canal/K.T. weir without back up reservoir / unregulated river without even any KT weir or in unregulated river portion flowing within a command area where there is no bandhara or K.T. weir	50% of basic rate
4.	**Reservoir Constructed by the Water User Entity / User Entity Shared Proportional cost** Water user agency has shared proportional cost of infrastructure or constructed dam/bandhara/ katcha bandhara/K.T. weir at own cost	33% of basic rate

Note :

1. Different water rates will be applicable as per the source of supply as mentioned above.
2. The above rates are for industries using water for industrial use. Where water is used as raw material, water rate will be charged 5 times of appropriate basic rate applicable to source of supply.
3. (a) The above basic rate will be applicable in 'rabi' season.
   (b) There will be incentive to tune of 50% in water rates for the water supply during the kharif season.
   (c) The water rate will be 50% more during the hot weather season.
4. At the time of agreement (Please refer 13.3.1. (iv) industries will have to clearly indicate the drinking water demand for residential complexes under their industry. Such use should have separate pipe lines and water meters. In such cases,

differential tariff for drinking water use and industrial use will be charged as fixed for these categories of uses. In the absence separate pipelines and water meters for domestic supply or if domestic supply exceeds the quantum as per agreement, industrial tariff will be levied for such use/ over use.

5. (a) Every industry is expected to treat effluent to desired standard before release into the natural water course. In such case, basic rate will be charged. If effluent

is not treated to required MPCB standard, rate will be **twice basic rate**.

(b) Agro industries (canning, poultry, sugarcane, dairying)…75% of basic rate will be charged.

(c) If industry reduces its demand by minimum of 25% by recycling, tariff will be 75% of basic

rate for reduced demand.

6 Water rates are to be rounded to nearest value of Rs. 10.

Example : Process industry drawing water in hot weather from partly assured water supply sources will be charged basic rate x 0.5 x 1.50.

Annex-5
(See Criteria 8.2.)

Responsibilities of the Service Provider (WRD) in Relation to Water Tariff

1) Improvement in Collection Efficiency

The issue of collection efficiency of water tariff has been discussed in Chapter 2. The collection efficiency for industry is in the range of 90% while for drinking water it is in the range of 60% to 70%. The collection efficiency for irrigation has however remained very low in the range of 25% to 46%. Maharashtra Irrigation Act 1976 vide Section 88 (2) has stringent provision for recovery of water tariff as arrears of land revenue. The criteria now developed has provision for incentives for advance or timely payments by users. Efforts need to be made to improve collection efficiency of irrigation water tariff to atleast 75% in the next 3 years. To enable the Authority to monitor this closely, Circle wise information may be submitted annually for each irrigation project, the agricultural tariff levied and tariff realized both current and arrears, separately.

2) Ensuring water to tail end farmers

As per Section 12 (7) of the MWRRA Act, the Authority is to ensure that the principle of 'tail to head' irrigation is implemented by the River Basin Agency. As per Section 18 of the MMISF Act Rules, it is the responsibility of the Canal Officer to monitor and ensure that every member of the Water User Association receives the quantum of water as per applicable water entitlement. The issue of equity and timeliness of supplies was stressed by the stake holders during public consultation. Since about 90% of the irrigated area in the State still is supplied water on area basis, a special responsibility devolves on the Department to ensure equity and timeliness in supplies to individual farmers. The percentage of area irrigated in head, middle and tail areas of canal command should nearly be the same. The information on this issue shall be included in Irrigation Status Report to be published every year. To enable the Authority to monitor this closely, Circle wise information may be submitted to it at the end of each season for each major & medium project, giving the percentage of area irrigated in the head, middle and tail reach of each project. In volumetric supply to WUA, the Department has to ensure that the supplies out of the Applicable Entitlement are made as demanded by WUA in each rotation.

3) Improvement in Water Use Efficiency

While at the project planning stage, an overall efficiency of 47% to 50% is assumed, in actual practice, the efficiencies obtaining on the ground are 25 to 35% implying that significant quantum of the released water is lost in seepage and as application losses in the field. Improvement in water use efficiency not only improves productivity but also more area can be irrigated with saved water. This will lead to more revenue collection from irrigation sub sector and can justify reduction in tariff rates for agriculture at time of review and revision of tariff.

From the water audit reports published annually by WRD, it is seen that the average water use efficiency for the projects in the state in terms of area irrigated in ha per Mm^3 of water drawn has increased from 94 to 110. This trend should be maintained and the WRD should aim to achieve the following targets in the 3 years.

Year	Target ha/Mm^3
2010-11	120
2011-12	125
2012-13	130

While submitting tariff proposals in future, WRD should report progress in above with reasons for shortfall, if any, and remedial steps proposed. To enable the Authority to monitor this closely, Circle wise annual information may be submitted for each of the irrigation project (major & medium), the season wise area irrigated per Mm^3 of stored water.

4) Asset Management

(a) For systems not handed over to WUA

WRD should assess the annual requirement of funds for works component of maintenance based on approved norms for irrigated areas and un-irrigated areas and requirement for other ancillary components (dam, outlets & gates etc.) and project this in their budget requirement along with requirement for special repairs separately. On allocation of budget, WRD & field SEs should ensure funds are not allocated in an adhoc manner but to each project as per maintenance requirement depending on norms, irrigated area and un-irrigated area. Utilization of funds for maintenance should be done by field officers after prioritizing the works from safety considerations.

(b) For systems handed over to WUA

The MMISF Act 2005 envisages that once minor level WUAs are formed, the system below the minor will be handed over to the WUA for operation & maintenance. Volumetric supply as per Entitlement will be done by WRD to the WUA at the minor head and volumetric rate charged. The Act further envisaged that WUA may levy water rates from its members as may be approved by the General Body of the WUA.

WALMI in their study on O&M have recommended a maintenance a grant of Rs. 380/ha of irrigated area and Rs. 190/ha for balance CCA. The distribution of this grant has been apportioned by WALMI as 40% for main & branch canal, 25% for distributaries and 35% for minor.

Vide GR dated 23-7-2001, WRD has conveyed norms for sanction of grants to WUA for maintenance. After recovering water charges from the members and depositing it with the government, WUA is entitled to receive maintenance grants (excluding cess) as per percentages in table below

Share of WUA in grant

Project	Functional Association Minor level WUA	Upper level association			Total
		Distributary level WUA	Canal level WUA	Project level WUA	
Minor	75%	-	-	-	75%
Medium	50%	15%	10%	3%	78%
Major	50%	20%	20%	3%	93%

The above norms were checked by the Authority for the adequacy to meet the M&R norms recommended by WALMI for irrigated and un-irrigated areas. It is seen that at least 95% of the water charges deposited by WUA at minor level need to be ploughed back to the WUA for proper maintenance against 75% decided in the GR for minor projects and 50% for major and medium. Otherwise it is apprehended that the systems will gradually deteriorate with impact on equity and productivity. The balance 5% could be retained by State government as a royalty charge. However there is need for WRD to develop a mechanism to ensure that

- Water charges as due are first collected from members by WUA as per provisions in the MMISF Act 2005.
- 95% of above amount collected by WUA, less cess, is returned immediately to the WUA to be utilized for maintenance of system handed over to WUA. A certificate to this effect is required to be kept on record, signed jointly by WUA and WRD official in-charge.

WRD will have to continue maintaining the system above minor till higher level associations are formed. Thereafter the required maintenance funds for main canal, branch canal and distributary as per norms are to be provided as grants to these upper level associations as water charges collected are almost fully to be given back to minor level associations. Grants given by WRD to maintain main canal, branch canals and distributaries should be properly utilized by concerned upper level association and should be verified / cross checked by WRD officials and certified accordingly. Such certificates will be a pre-requisite for further releases.

Dams and appurtenant works should however be continued to be maintained by WRD by making required budget provision as per norms even after higher level associations have been formed.

Annex-6

(See Criteria 8.2)

Assessment of Transit Losses in Canal Systems

1. Assessment of transit losses both for non-irrigation and irrigation uses in the State has an important linkage to improvement in overall water use efficiency and water tariff both at bulk and retail levels. In irrigation, transit losses due to seepage in canals, leakages in gates, thefts and pilferages, reduces the area that can be potentially irrigated in a project and also reduces the reliability of supply, both in respect of timeliness and quantity especially to the tail enders. In domestic supply, unaccounted for water comprising transit losses and pilferages reduces not only the potential revenue from retail tariff to water utilities but also the per capita availability to consumers forcing them to supplement the supply from private sources at an exorbitant cost.

2. For a proper assessment of Transit losses in Canal Systems, WRD should give due importance to precise measuring and accurate accounting of water. For agricultural withdrawals, WRD should install suitable measuring devices in the open channels starting from head regulator of main canal, branch canal, distributaries and minors. These devices should be properly installed and calibrated. Concerned project authorities should periodically note the readings at these devices work out the discharge from the relevant rating curves and assess the transit losses in the reaches between the measuring devices. A project wise study on the transit losses in each major and medium irrigation project in the State, in each season, should be carried out by the SE in charge of the project. For minor irrigation projects, a few projects in each district may be taken. The WRD should within 3 months evolve standard format for working out transit losses for guidance of field staff. The study should form a part of the Irrigation Status Report as a separate chapter.

3. To enable WUAs to supply water equitably to all farmers, measuring devices like V – notches should be installed in field channels.

4. While field SEs would be responsible for installation of measuring devices, the organisation under Chief Engineer, Maharashtra Water Resources Development Centre / WALMI, Aurangabad and MERI Nashik should be entrusted by WRD with the additional responsibility of calibration, periodical inspection and checking of performance of measuring devices for irrigation and non irrigation uses in the State. The organisation under this Chief Engineer should be suitably strengthened

to carry out this responsibility by Government within 6 months. Detailed guidelines need to be issued by WRD for this purpose within 3 months. The Chief Engineer should submit a yearly report on the activities of his organisation in this respect to the Authority.

5. Industrial and domestic bulk users should install standard meters which are properly calibrated to handle a wide variation in discharge at their supply points. Such meters should also be installed at effluent discharge points to account for water returned by these units after treatment.

Annexure 1.3
(Refer Para 1.4)

List of Departments/Utilities/Entities/NGOs/Experts who submitted suggestions for the Approach Paper (2013-16)

Experts

1. Shri Ramaswamy R. Iyer, former Secretary (WR), GoI
2. Mr. Graeme Turner (World Bank Consultant)
3. Mr. Larry D. Simpson (World Bank Consultant)
4. Shri S. N. Sahasrabudhe, former E.D., WRD
5. Dr. S.S. Magar, former Special Invitee, MWRRA
6. Shri Manohar Mungekar

Utilities

1. Pune Municipal Corporation
2. Solapur Municipal Corporation

NGOs

1. PRAYAS
2. SOPPECOM
3. Lokabhimukh Pani Dhoran Sangharsh Manch
4. Shramik Mukti Dal

Line Departments

1. Meeting held at Pune on 15-10-2011 with select CEs & SEs of WRD to elicit suggestions. Written comments received subsequently.

CHAPTEER – II

TRANSMISSION LOSSES IN IRRIGATION SYSTEMS & WATER USE EFFICIENCY

2.1. Transmission loss in irrigation systems is a natural phenomenon and all water released at canal head does not reach the root zone of the crop for consumptive use – by the plant. Transmission loss is mainly due to seepage and evaporation and in cases due to pilferage or unauthorized drawal en-route. The quantum of loss depends on various factors like the length of the canal system, size of the canal, type of soil strata, whether canal is lined or unlined, quality and condition of lining, condition of unlined canal (rain cuts, burrons etc.) and so on.

2.2. The term overall irrigation efficiency is used to convey the quantum of losses and is the ratio between the volume of water delivered at the root zone of the crop for its consumptive use to volume of water delivered at the source. The overall irrigation efficiency comprises two parts viz. conveyance efficiency and field application efficiency. The conveyance efficiency again has two parts viz. conveyance efficiency from canal head to outlet head and from the outlet head to the field. The terms can be mathematically represented as :

$$\text{Conveyance efficiency Ec1 in Main and Branch Canal} = \frac{\text{Volume of water made available at outlet head}}{\text{Volume of water released at canal head}}$$

$$\text{Conveyance efficiency Ec2 in distribution system} = \frac{\text{Volume of water delivered to field}}{\text{Volume of water drawn from outlet}}$$

$$\text{Field application efficiency Ea} = \frac{\text{Volume of water delivered to root zone}}{\text{Volume of water drawn at field head}}$$

The field application efficiency depends on preparation of the field, type of soil, stream size, method of water application etc. Overall efficiency E = Ec1 x Ec2 x Ea.

2.3. Generally, measurement of discharge upto the outlet are made at various types of measuring devices (MD) installed in the canal system like Parshall Flume, Cut Throat Flume or at gated Cross Regulator. Measurement of discharge below outlet can be done by say a V-notch but is usually not done. Thus there is no water account in the micro level distribution system. Field application efficiency is even more difficult to measure. Efficiency below outlet (Ec2 x Ea) is usually

assumed as 0.75 for all crops except paddy where a lower value of 0.65 – 0.60 is taken as the practice of ponding for paddy cultivation entails more losses. However, since bulk of the transmission loss occurs in the main branch and distributary canals, a proper assessment of this loss will lead to a reasonably good estimate of overall project efficiency.

2.4. In Maharashtra, there are about 210 major & medium completed projects and about 310 ongoing projects. Together with about 5400 completed and ongoing minor projects, an ICA of 38 – 40 lakh ha has been created. Out of the 33 billion cubic metres (BCM) of storage created in the State, the diversion for irrigation is 18 – 20 BCM. There are thousands of kilometers of canals in the State and hence transmission loss is bound to be high i.e. upto two thirds of the water released from storage, although at planning stage only about half of the released water is assumed as lost.

2.5. In the earlier Approach Paper for Criteria for Bulk Water Tariff (2010-13), there was not much coverage on the issue of transmission losses. Although water conservation in agriculture was discussed, actual data on transmission loss in canals was not included. In the Criteria, the following efficiencies were assumed in major & medium projects for arriving at volumetric tariff for agriculture (Annex I of the Criteria).

		Before canal system rehabilitation	**After canal system rehabilitation**
1	Efficiency in main canal branch & distributary upto outlet	0.47	0.64
2	Efficiency below outlet	0.75	0.75
3	Overall efficiency	0.35	048

It was also mentioned in 2010-13 Criteria that presently 110 ha were being irrigated in the State on an average per Mm^3 of surface water.

2.6. Transmission Losses in Canal System

In the Approach Paper for the tariff exercise for 2010-13, data on existing transmission losses in the canal systems could not be compiled and presented. During the public consultation that was held to discuss the Approach Paper and draft Criteria, agriculturists and some NGOs expressed concern about the lack of data on transmission losses. It was

also argued that the theft and pilferage component of such losses was significant and if checked and prevented, more area could be brought under irrigation, thus reducing the tariff burden on farmers.

2.7. Under Section 11 (d) of the MWRRA Act, the Authority is required to establish a water tariff system and fix the Criteria for water charges on the principle that full recovery of the cost of irrigation management actually incurred is reflected. However the Authority is also required, under other provisions in the Act not related to tariff, to promote efficient water use and to minimize wastage of water {Section 11 (q)} and to promote sound water conservation and management practices {Section 12 (4)}. In deference to the concern of the stakeholders and keeping in view the provisions in the Act relating to water use efficiency, the Authority has collected and presented in this Chapter transmission loss data as available with WRD. While efforts need to be made to minimize losses thereby increasing the irrigated area and thus reducing the agricultural tariff, the tariff fixation exercise had to be based on recovery of actual O&M costs. In so far as losses due to pilferage are concerned, as the area under Participatory Irrigation Management is expanded by formation of Upper Level Associations (Project, Main Canal & Distributary) and minor level Water User Associations and systems handed over to them, this is expected to significantly reduce progressively in the future.

2.8. In the tariff Criteria for 2010-13, the Authority vide Annex 6 has placed some responsibility on the service provider, WRD, for systematic assessment of transmission losses in the State. This exercise has been started by WRD. The Authority has also vide Annex 5 of the Criteria set targets for WRD to report progressive water use efficiency improvement in terms of area irrigated per unit of storage. Data presented now shows an improving trend as shown in Para 2.17.

2.9. <u>Conveyance Efficiency of Main Canal</u>

WRD is conducting study on conveyance efficiency in main canal in 35 major projects in the State. This efficiency is defined as the ratio of water released in the main canal to the sum of water supplied to

distributaries and lift schemes. The results are published in the Water Auditing Reports brought out annually. Data for 2007-08, 2008-09, and 2009-10 are given in **Annexure 2.2**.

2.10. WRD Norms for Transit Losses

In 1992,WRD issued revised norms for transit losses in lined and unlined canals to be assumed at design stage. These norms are tabulated below

Channel discharge	Loss in cumec/Mm^2	
	Lined canal	Unlined canal
Upto 7 m^3/sec	1.25	7
Above 7 m^3/sec.	0.9	4.5

2.11. Field Studies on Conveyance Loss Itiadoh Project (Godavari basin)

2.11.1 As a part of the CWC sponsored study on Post Project Performance Evaluation, WRD had in 2005 carried out a detailed study of the conveyance loss in the Itiadoh project. The entire canal system comprising 72.5 km main canal, 40.23 km Wainganga branch and minors is unlined. Conveyance losses on main and branch canal were worked out by observation of water released and water accounts delivery into various off takes. Conveyance losses in selected minors were worked out by installing flumes and using inflow-outflow method. The results are presented below :

Canal	Chainage/length	Conveyance loss Cumec/Mm^2	Conveyance loss in %	Efficiency in %
Main	Head reach 0 – 40 km Tail reach 40 – 72.5 km.	7.83 6.95	21.0 22.4	78.3
Branch	Head reach 0 – 19 km Middle reach 19 – 35 km Tail reach 35 – 43.2 km.	10.75 8.76 11.03	20.0 21.3 22.2	78.84
Minor 2A	Off taking at chainage 5910 m of main canal and 1150 m long	12.2	26.7	73.84
Arjuni minor	Off taking at chainage 25100 m of main canal and 876 m long.	11.73	23.53	
Borgaon minor	Off taking at chainage 66180 m of main canal and 3948 m long	6.47	28.25	

2.11.2. Field application efficiency by ponding method was carried out in select plots of 9 minor and the efficiency varied from 0.80 to 0.91 (average 0.85) for paddy. The overall project efficiency is thus 0.783 x 0.7884 x 0.7384 x 0.85 = 39%

2.12. Irrigation Efficiencies in Five Projects

Data on irrigation efficiencies in five projects in the State was obtained from the IWRS Publication 'Efficiency of Water Resources System' (2004). The results reported are

	Project & Basin	**Conveyance Efficiency (%)**			**Overall**	**Field application efficiency**	**Project efficiency**
		Main	**Branch**	**Field Channel**			
i)	Nazare (medium) Krishna basin, Pune district	92	79	68	49	77	38
ii)	Manyad (medium) Tapi basin, Jalgaon district	84	83	64	44	69	31
iii)	Nirguna (medium) Tapi basin, Akola district	85	75	72	46	83	38
iv)	Asola Mendha (major), Godawari basin, Chandrapur district	94	75	*	70	58	41
v)	Kalote Mokashi (minor) West flowing, Raigad district	86	89	67	51	59	30

* No field channel

2.13. In 2006-07, Akola Irrigation Division carried out efficiency studies for the rabi season for the Nirguna medium project. Water account was maintained in the efficient canal reaches for a total water drawn of 18.25 Mm3 irrigating 1410.38 ha. The results were

Canal	Efficiency
Main canal	0.85
Digras distributary	0.86
Deulgaon minor	0.88
Field channel	0.75
Overall conveyance	0.49
Field application	0.75
Overall efficiency	0.37

This is consistent with the efficiency of 0.38 reported in the CWC report.

2.14. Loni Minor Irrigation Project

WALMI, Aurangabad, between 1991 & 1994 carried out an Adaptive Research Study of the Loni Minor Irrigation Project in Khultabad taluka of Aurangabad district. The project is located on a 'nala' which is a tributary of Gun 'nala' joining Shivna River. This study included an assessment of conveyance losses in the project's canal system. The project has a live storage of 0.773 Mm^3 and irrigable area of 170 ha. The main canal is 2.52 km long with a design discharge of 0.164 m^3/sec. The conveyance losses were measured by inflow – outflow method for each rotation for all the 3 years.

	1991-92	1992-93	1993-94
Conveyance efficiency in main canal (%)	81	87	74
Conveyance efficiency in field channel (%)	72	70	70
Field application efficiency (%)	86	85	85
Overall project efficiency (%)	50	51	44

Average project efficiency 48%.

2.15. New Projects Identified for Study of Losses

At the instance of the Authority, WRD has identified the following 8 major & 4 medium projects in the State for study of transmission losses. The work has been entrusted to WALMI who are presently collecting necessary data on design features of the measuring devices in these projects.

Major

(i) Nira canal (Krishna)
(ii) Khadakwasla (Krishna)
(iii) Jayakwadi (Paithan LBC) (Godawari)
(iv) Pravara canal (Godawari)
(v) Kukadi (Krishna)
(vi) Upper Wardha (Godawari)
(vii) Pench (including Ramtek) (Godawari)
(viii) Itiadoh (Godawari)

Medium

(i) Ner (Krishna)
(ii) Bembla (Godawari)
(iii) Chargaon (Godawari)
(iv) Pakadi guddam (Godawari)

2.16. Water Use Efficiency

The Criteria (2010-13) has the following stipulations for WRD to comply with

(i) Vide Annex 5, Para 3 of the Criteria, targets were fixed for water use efficiency improvement in terms of area irrigated per Mm^3 of water. The following year-wise targets were fixed.

Year	Target ha/Mm^3 (State average)
2010-11	120
2011-12	125
2012-13	130

To monitor the above targets, Circle-wise information was required to be submitted to the Authority.

(ii) Vide Annex 6, project-wise study in each major & medium project in the State should be carried out by the SE in charge of the project. For minor projects, a few in each district were to be taken.

2.17 Circle-wise Monitoring of Water-use efficiency

The Benchmarking Reports of WRD brought out every year, contain project-wise information for 48 major and 164 medium projects in the State on area irrigated per unit of water. The Reports of the years 2007-08, 2008-09 and 2009-10 were scrutinized and projects having

unacceptably high or low values were not considered treating the data as erroneous which will vitiate the average values. Only projects having irrigated area in the range of 60 ha to 250 ha per Mm^3 were considered. In Thane Circle, where paddy is predominant crop, projects with 25 ha per Mm^3 & above only were considered. 43 major and 134 medium projects were accordingly selected and the results presented in **Annexure 2.1.** The abstract values are given below, year-wise.

Year	Annual Irrigation Water Use (Mm^3)	Annual irrigated Area (ha)	Area Irrigated per Mm^3
2007-08	13212	13,49,327	102
2008-09	12842	12,65,410	99
2009-10	9520	10,46,189	110

For 2010-11, the Benchmark & Water Audit Reports will be available only by middle of 2012. However, the Irrigation Status Report for 2010-11 has reported the following State average figures for all projects in the State.

Year	Annual Irrigation Water Use (Mm^3)	Annual irrigated Area (ha)	Area Irrigated per Mm^3
2010-11	15,407 Mm^3	18,41,000 ha	119 ha/Mm^3

Thus an increasing trend in water use efficiency is visible.

Annexure 2.1

(Refer para 2.17)

Annual Area Irrigated per Unit of Water Supplied (ha/Mm^3) in the Year 2007-08 to 2009-10

(Reference:- Report on Benchmarking of Irrigation Systems in Maharashtra State and Water Auditing of Irrigation Systems in Maharashtra State Year 2007-08 to 2009-10)

Sr. No.	Circle	Category of Project	Name of Project		Designed live storage Mm3	ICA ha	Area irrigated per unit water used ha/ Mm3			
							2007-08	2008-09	2009-10	Average
1	*2*	*3*	*4*	*5*	*6*	*7*	*16*	*17*	*18*	*19*
1	**Akola Irrigation Circle Akola**	**Major**	1	Nalganga	69.32	8604	159	144	-	152
			2	Pus	91.26	8215	126	70	108	101
		Medium	1	Gyanganga	33.93	4249	225	159	-	192
			2	Koradi	20.70	4061	222	228	-	225
			3	Lowerpus	59.63	6600	113	133	150	132
			4	Mas	22.04	4415	168	214	-	191
			5	Morna	41.46	4633	108	220	116	148
			6	Nirguna	28.85	5836	190	145	88	141
			7	Paldhag	7.51	1932	166	127	182	158
			8	Saikheda	27.18	3116	129	94	-	112
			9	Shahanoor	46.04	7466	162	166	-	164
			10	Sonal	16.92	2447	216	-	143	180
		Average					***146***	***116***	***113***	***125***
2	**Buldhana Irrigation Project Circle Buldhana**	**Major**	1	Wan (Buldhana)	81.96	15100	122	73	86	94
		Medium	1	Mun	36.83	7804	95	117	164	125
			2	Torna	7.90	1465	-	110	113	112
		Average					**118**	**84**	**113**	**105**
3	**Command Area Development Authority Aurangabad**	**Major**	1	***Jayakwadi(stg I)****	2171.00	183322	107	67	94	89
		Medium	1	Ambadi	11.53	2147	-	188	165	177
			2	Gadadgad	4.64	1180	161	238	-	200
			3	Galhati	13.84	2200	-	70	123	97

Sr. No.	Circle	Category of Project	Name of Project		Designed live storage Mm3	ICA ha	Area irrigated per unit water used ha/ Mm3			
							2007-08	2008-09	2009-10	Average
1	*2*	*3*	*4*	*5*	*6*	*7*	*16*	*17*	*18*	*19*
			4	Girja	21.25	3443	198	146	119	154
			5	Jivrekha	6.13	1064	144	136	-	140
			6	Kalyan Girja	8.47	1377	192	99	-	146
			7	Karpara	24.90	2151	84	-	154	119
			8	Kolhi	3.23	472	-	93	245	169
			9	Masoli	27.13	2591	78	107	-	93
			10	Sukhna	18.49	2511	235	135	-	185
			11	Khelna	11.07	2429	150	-	229	190
			12	Jui	6.03	2206	200	-	130	165
			13	Anjana Palashi			-	174	188	181
			14	Tembhapuri			-	145	184	165
		Average					***108***	***69***	***100***	***92***
4	**Command Area Development Authority Beed**	**Major**	1	Jayakwadi(stg II) Majalgaon	312.00	54737	78	66	89	78
			2	Manjra	173.32	18223	122	105	109	112
			3	Lower Terna	113.95	11610	151	139	249	180
		Medium	1	Banganga	4.96	906	177	113	156	149
			2	Chandani	21.58	2024	114	87	151	117
			3	Devarjan	10.68	1882	179	196	-	188
			4	Gharni	22.46	2234	124	129	-	127
			5	Kada	8.56	1214	91	105	184	127
			6	Kadi	5.47	1084	100	77	99	92
			7	Khandala	5.24	830	235	189	210	211
			8	Khandeshwar	8.78	1471	166	157	159	161
			9	Khasapur	13.04	2146	177	172	154	168
			10	Kundlika	37.69	2964	105	144	110	120
			11	Kurnoor	32.28	3644	87	90	91	89

Sr. No.	Circle	Category of Project	Name of Project		Designed live storage Mm3	ICA ha	Area irrigated per unit water used ha/ Mm3			
							2007-08	2008-09	2009-10	Average
1	*2*	*3*	*4*	*5*	*6*	*7*	*16*	*17*	*18*	*19*
			12	Masalga	13.59	1364	126	190	-	158
			13	Mehakari	12.98	4048	86	97	82	88
			14	Raigavan	11.26	1700	-	139	111	125
			15	Ramganga	5.34	963	131	-	146	139
			16	Rooty	6.57	1862	-	145	134	140
			17	Sakat	13.48	2355	196	-	139	168
			18	Sakol	10.95	2064	190	200	-	195
			19	Talwar	3.23	668	158	108	112	126
			20	Tawarja	20.34	3603	139	76	-	108
			21	Terna	19.66	1652	169	150	-	160
			22	Tiru	15.29	2348	148	185	-	167
			23	Turori	6.20	830	222	125	-	174
			24	Vati	8.27	1760	117	157	-	137
			25	Wan(Beed)	19.34	5262	101	81	113	98
			26	Benitura	11.47	2293	96	90	86	91
			27	Bindusara	7.11	1288	124	94	118	112
			28	BODhegaon	3.65	990	69	163	116	116
			29	Borna	8.97	1376	92	79	146	106
			30	Harni	11.17	1680	143	135	147	142
			31	Mahasangvi	5.88	1943	102	140	148	130
			32	Renapur	20.55	2445	132	105	95	111
			33	Sangameshwar	15.04	3350	181	175	129	162
			34	Saraswati	6.21	1230	163	129	108	133
			35	Sindphana	7.35	1782	168	225	178	190
		Average					***111***	***97***	***119***	***109***
5	**Command Area Development**	**Major**	1	Girna	525.06	69350	72	69	115	85
			2	Hatnur	255.00	37838	82	118	104	101

Sr. No.	Circle	Category of Project	Name of Project		Designed live storage Mm3	ICA ha	Area irrigated per unit water used ha/ Mm3			
							2007-08	2008-09	2009-10	Average
1	*2*	*3*	*4*	*5*	*6*	*7*	*16*	*17*	*18*	*19*
	Authority Jalgaon	**Medium**	1	Abhora	6.02	1115	170	108	165	148
			2	Agnavati	2.76	605	-	116	162	139
			3	Aner	59.21	7180	95	67	151	104
			4	Bhokarbari	6.54	1205	85	94	160	113
			5	Bori	25.15	4553	105	111	152	123
			6	Burai	14.21	2760	-	188	135	162
			7	Hiwara	9.60	2231	179	128	121	143
			8	Kanoli	8.45	1363	107	146	-	127
			9	Karwand	21.39	4534	166	211	119	165
			10	Malangaon	11.33	1587	131	125	128	128
			11	Manyad	40.27	4864	112	98	123	111
			12	Panzra	35.63	6868	137	136	111	128
			13	Rangavali	12.89	3124	169	173	127	156
		Average					***86***	***91***	***119***	***99***
6	**Command Area Development Authority Nagpur**	**Major**	1	***Pench ****	1374.00	101200	76	96	79	84
			2	Bagh	268.00	23740	124	155	-	140
			3	***Itiadoh ****	318.86	17500	97	98	142	112
		Medium	1	Chandrabhaga	8.26	3181	92	89	95	92
			2	Chulband	21.46	3167	199	231	246	225
			3	Kanholibara	20.49	3371	128	128	164	140
			4	Kesarnala	3.93	780	95	79	-	87
			5	Kolar	31.32	5940	118	154	62	111
			6	Makardhokda	25.90	5477	110	167	151	143
			7	Mordham	4.95	1315	96	148	148	131
			8	Umri	5.14	12	80	126	155	120
			9	Wunna	21.64	1214	68	244	-	156
			10	PandhraBODi	13.14	862	188	-	151	170

Sr. No.	Circle	Category of Project	Name of Project		Designed live storage Mm3	ICA ha	Area irrigated per unit water used ha/ Mm3			
							2007-08	2008-09	2009-10	Average
1	*2*	*3*	*4*	*5*	*6*	*7*	*16*	*17*	*18*	*19*
		Average					***90***	***110***	***89***	***96***
7	**Command Area Development Authority Nasik**	**Major**	1	Chanakapur	76.85	14042	163	172	168	168
			2	***Bhandardara****	304.10	23077	83	77	87	82
			3	Mula	608.82	82920	83	74	111	89
			4	Gangapur	159.42	15960	144	143	-	144
			5	Ozarkhed	60.32	10400	96	107	-	102
			6	Palkhed	21.24	43154	80	61	147	96
			7	Waghad	72.20	6750	113	98	156	122
		Medium	1	Adhala	27.60	3914	102	73	109	95
			2	Alandi	27.46	6296	106	103	128	112
			3	Bhojapur	10.21	4500	87	-	126	107
			4	Ghatshil Pargaon	8.50	1660	182	170	208	187
			5	Haranbari	33.02	9726	176	162	215	184
			6	Kelzar	16.20	3394	-	177	225	201
			7	Mand Ohal	8.78	2266	78	76	68	74
			8	Nagyasakya	11.24	2400	181	119	153	151
		Average					***90***	***82***	***111***	***94***
8	**Command Area Development Authority Pune**	**Major**	1	***Kukadi ****	864.39	119166	95	84	97	92
			2	Ghod	154.80	20500	118	105	117	113
			3	Krishna	602.73	69269	86	60	68	71
		Average					***95***	***76***	***86***	***86***
9	**Command Area Development Authority Solapur**	**Major**	1	Bhima	1688.41	205277	106	126	125	119
		Medium	1	Ekrukh	61.16	6944	203	152	151	169
			2	Hingani(p)	31.97	6592	143	131	155	143
			3	Jawalgaon	25.21	6192	160	140	145	148
			4	Mangi	30.53	4646	140	140	163	148
		Average					***107***	***127***	***126***	***120***

Sr. No.	Circle	Category of Project	Name of Project		Designed live storage Mm3	ICA ha	Area irrigated per unit water used ha/ Mm3			
							2007-08	2008-09	2009-10	Average
1	*2*	*3*	*4*	*5*	*6*	*7*	*16*	*17*	*18*	*19*
10	**Chandrapur Irrigation Project Circle Chandrapur**	**Major**	1	Asola Mendha	56.38	9919	154	139	-	147
			2	Dina	68.30	7826	224	188	202	205
		Medium	1	Amalnala	24.48	2962	162	177	-	170
			2	Chandai	10.69	2056	183	241	-	212
			3	***Chargaon ****	19.87	1500	-	73	185	129
			4	Dongargaon (Chandrapur)	4.44	631	75	65	121	87
			5	Ghorazari	43.16	3846	170	-	241	206
			6	Labhansarad	7.35	2024	144	227	-	186
			7	Naleshwar	10.23	1888	202	242	-	222
			8	Pothra	34.72	8948	84	106	89	93
		Average					***167***	***159***	***189***	***172***
11	**Nagpur Irrigation Circle Nagpur**	**Major**	1	Lower Wunna	189.18	19500	-	104	85	95
		Average					**-**	***104***	***85***	***95***
12	**Nanded Irrigation Circle Nanded**	**Major**	1	Vishnupuri	80.79	28340	125	128	128	127
			2	Manar	138.21	23310	116	109	-	113
			3	Purna	890.22	57988	64	92	166	107
			4	Upper Penganga	964.09	125495	-	77	188	133
		Medium	1	Dongargaon (Nanded)	8.81	830	113	136	-	125
			2	Karadkhed	11.01	1780	166	130	-	148
			3	Kudala	4.35	567	167	128	142	146
			4	Kundrala	10.41	1012	167	199	-	183
			5	Loni	8.38	1377	127	102	-	115
			6	Mahalingi	4.78	784	171	149	-	160
			7	Nagzari	6.56	960	100	96	-	98
			8	Pethwadaj	9.04	1478	112	159	-	136

Sr. No.	Circle	Category of Project	Name of Project		Designed live storage Mm3	ICA ha	Area irrigated per unit water used ha/ Mm3			
							2007-08	2008-09	2009-10	Average
1	*2*	*3*	*4*	*5*	*6*	*7*	*16*	*17*	*18*	*19*
		Average					***86***	***92***	***155***	***111***
13	**Pune Irrigation Circle Pune**	**Major**	1	***Neera(Complex)****	932.01	102576	99	110	124	111
			2	***Khadakwasla****	793.47	62146	107	125	136	123
			3	Pawana	241.11	5304	166	-	153	160
			4	Chaskaman	214.50	44170	113	149	130	131
		Medium	1	Khairy	13.74	2318	156	135	199	163
			2	Mhaswad	46.22	4049	148	177	130	152
			3	Ranand	6.42	1093	187	180	186	184
			4	Sina	52.30	8445	81	93	112	95
			5	Tisangi	24.46	4049	116	104	145	122
			6	Vadiwale	30.39	4468	155	206	-	181
			7	Andhali	7.42	1498	147	-	155	151
			8	Kasarsai	16.25	4119	163	214	206	194
			9	Nazare	16.65	3195	141	181	151	158
		Average					***103***	***118***	***128***	***116***
14	**Sangli Irrigation Circle Sangli**	**Major**	1	Radhanagari	219.97	26560	137	124	129	130
			2	Tulashi	91.92	4720	-	68	106	87
			3	Warna	779.35	137254	148	131	111	130
			4	Dudhganga	679.11	73340	113	78	86	92
		Medium	1	Chikotra	43.05	6863	161	144	169	158
			2	Chitri	52.48	9160	215	210	187	204
			3	Jangamhatti	33.21	4457	181	132	171	161
			4	Kadavi	70.56	9908	129	106	109	115
			5	Kambli	3.10	972	94	123	85	101
			6	Kasari	77.96	9995	114	109	148	124
			7	Kumbhi	76.50	9170	81	86	91	86
			8	Patgaon	104.80	10000	101	76	104	94

Sr. No.	Circle	Category of Project	Name of Project		Designed live storage Mm3	ICA ha	Area irrigated per unit water used ha/ Mm3			
							2007-08	2008-09	2009-10	Average
1	*2*	*3*	*4*	*5*	*6*	*7*	*16*	*17*	*18*	*19*
			9	***Nher****	11.79	2636	143	-	137	140
		Average					***133***	***111***	***115***	***120***
15	**Thane Irrigation Circle Thane**	**Major**	1	Kal	528.19	12731	39	33	32	***35***
			2	Bhatsa	942.10	47860	38	42	50	43
			3	Surya	286.31	8988	57	39	33	43
		Medium	1	Wandri	35.94	4088	-	26	26	26
		Average					***43***	***37***	***35***	***38***
16	**Upper Wardha Project Circle Amravati**	**Major**	1	***Upper Wardha ****	548.14	75000	-	98	76	87
		Average					***-***	***98***	***76***	***87***
17	**Yavatmal Irrigation Circle Yavatmal**	**Major**	1	Arunavati	169.92	20515	84	103	-	94
		Medium	1	Adan	67.25	7804	104	243	-	174
			2	Navargaon	12.47	2056	111	125	-	118
		Average					***92***	***155***	***-***	***124***
18	**Aurangabad Irrigation Circle Aurangabad**	**Medium**	1	Shivana Takli			194	71	79	115
		Average					***194***	***71***	***79***	***115***

Major	***43***
Medium	***134***

Annexure 2.2
(Refer para 2.9)

Conveyance Efficiency of Main Canals

(Reference:- Report on Water Auditing of Irrigation Systemes in Maharashtra State, Year 2007-08 to 2009-10)

Sr. No.	Circle	Category of Project	Name of Project		Designed live storage Mm^3	ICA ha	Conveyance Efficiency of Main Canal for Rabi ** %							
							2007-08		2008-09		2009-10		Average	
							LBC	RBC	LBC	RBC	LBC	RBC	LBC	RBC
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*15*	*16*
1	**Akola Irrigation Circle Akola**	**Major**	1	Nalganga	69.32	8604	-	74	-	69	-	-	**-**	**72**
			2	Pus	91.26	8215	67	69	73	72	-	-	**70**	**71**
2	**Buldhana Irrigation Project Circle Buldhana**	**Major**	3	Wan (Buldhana)	81.96	15100	94	-	94	-	94	-	**94**	-
3	**Command Area Development Authority Aurangabad**	**Major**	4	***Jayakwadi(stg I)****	2171.00	183322	81	65	91	61	86	43	**86**	**56**
4	**Command Area Development Authority Beed**	**Major**	5	Jayakwadi(stg II) Majalgaon	312.00	54737	-	70	-	-	-	-		**70**
			6	Manjra	173.32	18223	75	75	44	51	-	-	**60**	**63**
			7	Lower Terna	113.95	11610	65	64	-	-	-	-	**65**	**64**
5	**Command Area Development Authority Jalgaon**	**Major**	8	Girna	525.06	69350	60	72	59	77	56	-	**58**	**75**
			9	Hatnur	255.00	37838	-	60	-	56	-	53	**-**	**56**
6	**Command Area Development Authority Nagpur**		10	Bagh	268.00	23740	57	58	-	-	-	81	**57**	**70**
			11	***Itiadoh ****	318.86	17500	-	65	-	-	-	-	**-**	**65**
7	**Command Area Development Authority Nasik**	**Major**	12	Chanakapur	76.85	14042	70	76	73	77	71	70	**71**	**74**
			13	Kadva	52.91	10117	-	45	-	-	-	30	**-**	**38**
			14	***Bhandardara****	304.10	23077	45	53	38	51	33	46	**39**	**50**
			15	Mula	608.82	82920	65	73	58	67	53	66	**59**	**69**
			16	Gangapur	159.42	15960	60	-	67	-	55	-	**61**	**-**

Sr. No.	Circle	Category of Project	Name of Project		Designed live storage Mm^3	ICA ha	Conveyance Efficiency of Main Canal for Rabi ** %							
							2007-08		2008-09		2009-10		Average	
							LBC	RBC	LBC	RBC	LBC	RBC	LBC	RBC
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*15*	*16*
			17	Upper Godavari			56	62	50	46	-	89	**53**	**66**
			18	NM Weir			70	16	31	12	47	35	**49**	**21**
8	**Command Area Development Authority Pune**	**Major**	19	***Kukadi ****	864.39	119166	53	59	51	48	0	64	**35**	**57**
			20	Ghod	154.80	20500	66	47	75	56	60	47	**67**	**50**
			21	Dhom			48	52	61	54	56	50	**55**	**52**
			22	Kanher			58	66	55	42	43	38	**52**	**49**
9	**Command Area Development Authority Solapur**	**Major**	23	Bhima	1688.41	205277	34	45	71	55	49	47	**51**	**49**
10	**Chandrapur Irrigation Project Circle Chandrapur**		24	Bor	127.42	13360	70	-	37	-	65	-	**57**	-
11	**Nanded Irrigation Circle Nanded**	**Major**	25	Vishnupuri	80.79	28340	-	67					**-**	**67**
			26	Manar	138.21	23310	86	82	-	-	-	-	**86**	**82**
			27	Purna	890.22	57988	85	-	-	-	-	-	**85**	-
			28	Upper Penganga	964.09	125495	87	83	86	84	-	-	**87**	**84**
12	**Pune Irrigation Circle Pune**	**Major**	29	***Neera(Complex)****	932.01	102576	51	54	51	53	49	53	**50**	**53**
			30	***Khadakwasla****	793.47	62146	-	34	-	33	-	63	-	**43**
			31	Chaskaman	214.50	44170	71	-	42	-	46	-	**53**	-
13	**Thane Irrigation Circle Thane**	**Major**	32	Kal	528.19	12731	29	40	-	-	25	60	**27**	**50**
			33	Bhatsa	942.10	47860	-	46	-	-	-	92	**-**	**69**
			34	Surya	286.31	8988	-	40	-	-	46	61	**46**	**51**
14	**Aurangabad Irrigation Circle Aurangabad**	**Major**	35	NMC Expr Canal	0.00	34203	-	-	81	-	-	-	81	-

Note:- * Projects selected by WRD for Efficiency Study

***** Conveyance efficiency of main canal is the ratio of the sum of water supplied to distributaries and lifts to water released in the main canal***

CHAPTER – III

OPERATION & MAINTENANCE COST OF IRRIGATION MANAGEMENT

3.1. Operation & Maintenance (O&M) cost of irrigation management means the sum of cost of establishment deployed for irrigation management and the cost of maintenance & repairs (M&R) of the irrigation system (comprising bead works, appurtenant works and canal system) of water resources projects. As per Section 11 (d) of the MWRRA Act, the water charges are to reflect the full recovery of the cost of irrigation management, administration and maintenance of water resources projects. Therefore the full O&M cost is to be recovered from bulk water charges to the various categories of users.

3,2, In Section 11 (r) of the Act, cross subsidies between categories of use and government payments (subsidy) are envisaged to assure that the sustainable operation and maintenance of the water management and delivery systems within the State are not jeopardized in any way. The issue of subsidy and cross-subsidy was discussed in detailed in Para 8.6 of Chapter VIII of the Revised Approach Paper for CBWT 2010-13. Subsidy is a government payment and can be either an identified quantum or an amount beyond the pale of reasonable estimate at tariff proposal stage. For example, by making ground water free of water charges, the government implicitly agreed to meet the shortfall in O&M requirement by a subsidy. This amount can be quantified from area under groundwater irrigation, crops grown and tariff levied for each crop prior to the decision. However, by providing concessions for water conservation (recycling, adoption of drip & sprinkler etc.), no estimate can be made at tariff proposal stage as to how much revenue shortfall will occur as it depends on the response of the users to the concessions. At revenue collection stage, subsidy will be required to off-set the short fall in revenue collection against billed amount. This amount is again depends on the collection efficiency. Part of this shortfall will get covered by collections of past arrear in tariff. The Authority is however concerned only with subsidy at tariff fixation stage. Other than the ground water issue, which has a bearing on allocation of O&M cost to canal flow users, it is thus not considered necessary at tariff fixation stage to estimate other subsidies.

3.3. It was also emphasized in the previous Approach Paper (2010—13) that as long as each user is charged as per its ability to pay, no cross subsidy is said to exist. The common myth that industry cross subsidies domestic and agricultural users thus gets dispelled as the Authority's objective in tariff fixation is that every user should be charged as per ability to pay. Ideally the tariff structure should be such that cross subsidy should be absent and government subsidy is kept to minimum. The Authority's objective is thus to move as near as possible to this tariff structure.

Establishment cost

3.4. There are mainly 15 irrigation management circles in the State. In 2003, WRD, in consultation with Finance Department, fixed norms for regular temporary establishment (RT) and issued a GR for the same on 6/2/2003 **(Annexure 3.1**). 23754 posts were sanctioned starting at the level of SE and upto the level of Sectional Engineer together with supporting administrative staff. These posts are a part of the 45297 posts sanctioned in the GR for the Department as a whole.

3.5. In respect of Converted Regular Temporary Establishment (CRT) , the State government in August 2003 accepted the recommendations of a Committee set up in Sept. 2001 to finalise the norms for this category and vide GR dt. 20/8/2003 **(Annexure 3.2)**, 21243 posts were sanctioned for the 15 management Circles. CRT is a dying cadre and vacancies due to retirements etc. are not filled but the posts are allowed to lapse. Hence, since 2003, a number of posts have got abolished with attendant progressive decline in establishment strength of CRT cadre.

3.6. The full cost of establishment of the 15 Circles including RT & CRT, has to be considered for bulk water tariff purposes. Consequent upon formation of WUAs and handing over of irrigation systems below the minor to them, many CRT posts like canal inspector and labourer would not be required as responsibility for operation & maintenance of the system below the minor will vest in the WUAs. A Committee under Director General, WALMI had in 2008 studied this aspect and their report is now under consideration of the WRD for revision in norms for establishment. Even in the RT cadre, all sanctioned posts are not filled. Only the actual costs of establishment based on posts filled is considered for recovery through water tariff.

3.7. The establishment costs have increased since 2008-09 due to acceptance and implementation of the recommendations of the Sixth Pay Commission. Sanction of additional DA also leads to annual increase in

establishment costs. The grievance of the stake holders that the proportion of establishment component is higher than that of M&R works component and the State government should reduce the burden on this account on water charges, has to be therefore viewed in this backdrop.

Maintenance & Repairs (M&R)

3.8. While finalizing the CBWT (2010-13), the M&R norms were got reviewed by a Committee of Experts under WALMI, Aurangabad. The recommendation of WALMI made in their report of July 2008 formed the basis for M&R norms for fixing the tariff for 2010-13. The norms proposed by WALMI in their report is at **Annexure 3.3.**

3.9. As a part of the Criteria exercise for 2013-16, MWRRA suggested to WRD that the norms of 2008 be got reviewed again by WALMI. Accordingly WRD requested WALMI in July 2011 to take up this work using data of the following projects

	Major		**Minor**
(i)	Kal-Amba	(i)	Paradgaon
(ii)	Palkhed	(ii)	Loni
(iii)	Bhandardara	(iii)	Machnoor (KT Weir)
(iv)	Katepurna	(iv)	KT weirs in Kolhapur
(v)	Ujani	(v)	Junoni storage tank
(vi)	Takari-Mhaisal (lift)		
(vii)	Jayakwadi		

3.10. WALMI constituted a 3 member expert team of retired Executive Directors of WRD and Chairman, SOPPECOM. A feature of this revised study was association of representatives of Water User Associations in the team. The following were associated from WUAs.

(i) Shri Bharat Kawale, Samaj Parivartan Kendra, Ozar, Nashik

Chairman of

(ii) Vignahar WUA No. 110 Sirigonda
(iii) Jaikisan WUA, Shendu, Amravati
(iiii) Sidheswar WUA, Paithan, Aurangabad
(ivi) Gadhavi WUA, Madeghat, Bhandara
(vi) Deokop WUA, Tal. Palghar, Thane

3.11. The Committee sought data from field officers for the years 2007-08 to 2009-10. A meeting of all SEs was also convened at Aurangabad on

7/9/2011 to discuss the furnished data. A meeting of the Committee was again held at Pune on 6/1/2012. Based on this meeting, WALMI has submitted an interim report suggesting that the existing norms be retained for another 2-3 years and based on the implementation experience, a decision of their adequacy can thereafter be taken.

3.12. WALMI in their report of 2008 on Revision of Maintenance & Repairs Norms for Irrigation Projects in the State had *inter-alia* recommended that the proposed norms may be increased by 10% automatically every year to account for price escalation. This recommendation of WALMI was based mainly on price escalation in M&R requirements of old projects while in fact the projects to be maintained are a mix of old as well as new projects for which maintenance expenditure is lower. Thus while averaging out the M&R requirement for the State as a whole, the escalation factor will be about 5% and not 10%. While processing the WALMI report for approval of norms, WRD have accordingly opined that the norms be increased by 5% annually instead of the recommended 10% to cope with inflation and price rise. This decision is considered acceptable and the Authority therefore proposes a 5% annual increase in the earlier norms of 2008 for the period 2013-16. Since tariff is worked out considering the O&M requirements of the mid-year of the control period i.e. 2014-15, the resultant increase will be 10% over the earlier norms.

Annexure 3.1
(Refer Para 3.4)

पाटबंधारे विभागाच्या अधिपत्याखालील क्षेत्रिय आस्थापनेचा आढावा - आकृतीबंध निश्चित करणे.

महाराष्ट्र शासन
पाटबंधारे विभाग,
शासन निर्णय, क्रमांक आढावा-१००२/(३३५/२००२) आ (प्रशि).
मंत्रालय, मुंबई-४०० ०३२,
दिनांक :-६/२/२००३.

वाचा :- १) शासन निर्णय वित्त विभाग क्र. असंक-१००१/प्र.क्र.२९/ २००१, वित्तीय सुधारणा, दिनांक १०/९/२००१.

२) वित्त विभागाचे पत्र क्र. पदनि-१०.०२/प्र.क्र.११६/२००२ वित्तीय सुधारणा, दिनांक १९/१२/२००२.

शासन निर्णय :

वित्त विभागाच्या उपरोक्त दिनांक १०/९/२००१ च्या शासन निर्णयान्वये पदनिर्मिती, पद भरती व पदांचे पुनरुज्जिवन याबाबतचे निर्बंध व अनुषंगिक आढावे आणि अतिरिक्त संवर्ग योजनेअंतर्गत कक्षाची स्थापना व त्यांचे व्यवस्थापन या संदर्भात सविस्तर आदेश निर्गमित करण्यात आले आहेत. या आदेशानुसार पाटबंधारे विभागाच्या क्षेत्रिय कार्यालयांमध्ये मंजूर करण्यात आलेल्या पदांचा सर्वकष आढावा घेण्यात आला असून या आढाव्यास मा. मुख्य सचिव यांच्या अध्यक्षतेखालील उच्चस्तरीय सचिव समितीने दिनांक २/१२/२००२ रोजी झालेल्या बैठकीत मंजूरी दिली असल्याबाबत, वित्त विभागाने त्यांचे संदर्भ क्रमांक २ च्या पत्रान्वये कळविले आहे. उच्चस्तरीय सचिव समितीने या विभागाच्या अधिपत्याखालील विविध क्षेत्रिय कार्यालयांसाठी एकूण ४५२९७ पदे मंजूर केली आहेत. त्यानुसार वर नमूद पदसंख्येच्या मर्यादेत पाटबंधारे विभागाच्या अधिपत्याखालील क्षेत्रिय कार्यालयातील बांधकाम कार्यप्रकार, सिंचन कार्यप्रकार, यांत्रिकी संघटना, मेरी, नाशिक व अभियांत्रिकी अधिकारी महाविद्यालय, नाशिक या कार्यालयांकरीता अनुक्रमे "अ", "ब", "क", "ड" आणि "इ" प्रपत्रामध्ये

दर्शविल्याप्रमाणे आकृतीबंध निश्चित करण्यात येत आहे. आकृतीबंधानुसार आस्थापना मुदतवाढीचे प्रस्ताव सादर करण्याची कार्यवाही सर्व क्षेत्रिय अधिका-यांनी करावी. तसेच, वर नमूद विवरणपत्रातील कार्यालये वगळता इतर कार्यालयातील मंजूर पदांची संख्या एकंदर ४५२९७ पदांमध्ये अंतर्भूत आहे. सबब सदर कार्यालयातील पदांचे मुदतवाढीचे प्रस्ताव त्यांचेकडे अस्तित्वात असलेल्या मंजूर पदांच्या आकृतीबंधाप्रमाणे सादर करावेत. सदर शासन निर्णय वित्त विभागाच्या अनौपचारिक संदर्भ क्र. १०७/०३ वित्तीय सुधारणा-१ दिनांक ३/२/२००३ अन्वये मिळालेल्या सहमतीने निर्गमित करण्यात येत आहे. महाराष्ट्राचे राज्यपाल यांचे आदेशानुसार व नांवाने,

सही/-

(द. ल.थोरात)
शासनाचे सह सचिव

प्रति,
मा. मुख्य सचिव
मा. राज्यपालांचे सचिव
मा. मुख्यमंत्र्यांचे प्रधान सचिव
मा. उपमुख्यमंत्र्यांचे सचिव
सर्व मंत्री / राज्यमंत्री यांचे खाजगी सचिव
प्रधान सचिव (व्यय)/ (वित्त), वित्त विभाग, मंत्रालय, मुंबई
प्रधान सचिव (प्र. सु. व रवका), सामान्य प्रशासन विभाग, मंत्रालय, मुंबई
सचिव (पा), पाटबंधारे विभाग, मंत्रालय, मुंबई
सचिव (लाक्षेवि), पाटबंधारे विभाग, मंत्रालय, मुंबई
सर्व विभागीय आयुक्त
संचालक, लेखा व कोषागरे, मुंबई
सर्व जिल्हयांचे कोषागार अधिकारी
अधिदान व लेखाधिकारी, मुंबई
संचालक, लेखा व कोषागारे, मुंबई
महालेखापाल, (लेखा परीक्षा/ लेखा व अनुज्ञेयता), महाराष्ट्र १ /२, मुंबई / नागपूर
कार्यकारी संचालक, गोदावरी मराठवाडा पाटबंधारे विकास महामंडळ, औरंगाबाद
कार्यकारी संचालक, विदर्भ पाटबंधारे विकास महामंडळ, नागपूर
कार्यकारी संचालक, तापी पाटबंधारे विकास महामंडळ, जळगांव

कार्यकारी संचालक, कोकण पाटबंधारे विकास महामंडळ, ठाणे
कार्यकारी संचालक, महाराष्ट्र कृष्णा खोरे विकास महामंडळ, पुणे
महासंचालक, महाराष्ट्र अभियांत्रिकी संशोधन संस्था, नाशिक आणि अभियांत्रिकी अधिकारी महाविद्यालय, नाशिक
महासंचालक, जल व भूमी व्यवस्थापन संस्था, औरंगाबाद
पाटबंधारे विभागाच्या तसेच महामंडळाच्या अधिपत्याखालील सर्व मुख्य अभियंते/ अधीक्षक अभियंते/
कार्यकारी अभियंते
अधीक्षक अभियंता व संचालक तथा परिमंडळीय अधिकारी, पुणे परिमंडळ, पाटबंधारे संशोधन व विकास संचालनालय, पुणे
अधीक्षक अभियंता व परिमंडळीय अधिकारी, कोल्हापूर परिमंडळ, कोयना बांधकाम मंडळ, सातारा अधीक्षक अभियंता व परिमंडळीय अधिकारी, औरंगाबाद परिमंडळ, दक्षत पथक, औरंगाबाद अधीक्षक अभियंता व परिमंडळीय अधिकारी, नाशिक परिमंडळ, घाटघर जलविद्युत प्रकल्प मंडळ, नाशिक अधीक्षक अभियंता व परिमंडळीय अधिकारी, मुंबई परिमंडळ, ठाणे पाटबंधारे मंडळ, ठाणे अधीक्षक अभियंता व प्रशासक तथा परिमंडळीय अधिकारी, नागपूर परिमंडळ, लाभक्षेत्र विकास प्राधिकरण, नागपूर अधीक्षक अभियंता व परिमंडळीय अधिकारी, अमरावती परिमंडळ, अकोला पाटबंधारे मंडळ, अकोला
उप सचिव, वित्त विभाग, (वित्तिय सुधारणा-१/ व्यय-१२) मंत्रालय, मुंबई.
सर्व मंत्रालयीन विभाग
सर्व अधिकारी व कार्यासने, पाटबंधारे विभाग, मंत्रालय, मुंबई
आस्थापना (प्रशिक्षण) निवडनस्ती.
आस्थापना (प्रशिक्षण) कार्यासन संग्रहार्थ.

शासन निर्णय क्रमांक आढावा-१००२/(३३५/२००२) आ (प्रशि), दि. ६/२/२००३ चे सहपत्र.

प्रपत्र -"अ"

बांधकाम प्रकारातील प्रादेशिक कार्यालयाचा आकृतीबंध

मु. अ. / मंडळ / विभाग / उपविभागातील पदांचा आकृतीबंध दर्शविणारे विवरणपत्र.

अ. क्र.	पदनाम	मु. अ. कार्यालयासाठी मंजूर आकृतीबंध	मंडळ कार्यालयासाठी मंजूर आकृतीबंध	विभागीय कार्यालयासाठी मंजूर आकृतीबंध	उपविभागीय कार्यालयासाठी मंजूर आकृतीबंध
१	मुख्य अभियंता	१	-	-	-
२	अधीक्षक अभियंता	-	१	-	-
३	उप अधीक्षक अभियंता अथवा सहायक अधीक्षक अभियंता	-	१	-	-
४	सहा. मुख्य अभियंता (का.अ.)	२	-	-	-
५	कार्यकारी अभियंता	-	-	१	-
६	उप अभियंता	३	-	१	१
७	क.अ./सहा.अभिं.श्रेणी-२/ शा.अ.	३	३	४	४
८	विभागीय लेखापाल	-	-	१	-
९	मुख्य आरेखक/ किंवा आरेखक	१	-	-	-
१०	सहा. आरेखक / किंवा आरेखक	-	१	१	-
११	अनुरेखक	-	१	१	१
१२	विशेष अधीक्षक	१	-	-	-
१३	स्थापत्य अभि. सहायक	-	-	-	४
१४	अधीक्षक	१	१	-	-
१५	मुख्य दप्तर कारकून	१	-	-	-
१६	प्रथम लिपिक	१	१	१	-
१७	वरिष्ठ लिपिक	२	४	५	१
१८	कनिष्ठ लिपिक	२	४	४	२
१९	उ.श्रेणी लघुलेख्क अथवा निम्नश्रेणी लघुलेखक	१	१	-	-
२०	टंकलेखक	३	३	३	१
२१	भांडारपाल	-	-	१	-
२२	सहायक भांडारपाल	-	-	१	-
२३	लघु टंकलेखक/ किंवा निम्नश्रेणी लघुलेखक	-	-	१	-
२४	संगणक	-	१	१	-
२५	दूरध्वनी चालक (आवश्यकतेनुसार)	१	-	-	-
२६	वाहन चालक	१	१	१	१
२७	दप्तरी	१	-	-	-
२८	नाईक	१	१	१	-
२९	शिपाई	३	३	५	२
३०	चौकीदार	१	१	१	१
	एकूण	३०	२८	३४	१८

(द. ल. थोरात)
शासनाचे सह सचिव

शासन निर्णय क्रमांक आढावा-१००२/(३३५/२००२) आ (प्रशि), दि. ६/२/२००३ चे सहपत्र.

प्रपत्र -" ब "

सिंचन व्यवस्थापन प्रकारातील प्रादेशिक कार्यालयाचा आकृतीबधं

अ. क्र.	पदनाम	मंडळ कार्यालयासाठी मंजूर आकृतीबंध	विभागीय कार्यालयासाठी मंजूर आकृतीबंध	उप विभागीय कार्यालयासाठी मंजूर आकृतीबंध	शाखा कार्यालयासाठी मंजूर आकृतीबंध
१	अधीक्षक अभियंता	१	-	-	-
२	कार्यकारी अभियंता (उप अ. अ.)	-	१	-	-
३	उ.वि.अभियंता/ उ.वि.अधिकारी (सहायक अधीक्षक अभियंता)	१	१	१	-
४	शाखा अभियंता/क.अ./स.अ.श्रेणी-२	३	४	१	१
५	विभागीय लेखापाल	-	१	-	-
६	अधीक्षक	१	-	-	-
७	प्रथम लिपिक	१	१	-	-
८	सहा. आरेखक किंवा आरेखक	१	१	-	-
९	उच्चश्रेणी लघुलेखक/ निम्नश्रेणी लघुलेखक	१	-	-	-
१०	वरिष्ठ लिपिक	४	५	१	-
११	अनुरेखक	१	१	१	-
१२	कनिष्ठ लिपिक	४	४	२	-
१३	लेखाधिकारी	१	-	-	-
१४	प्रमुख दप्तर कारकून	१	-	-	-
१५	दप्तर कारकून	-	३	२	२
१६	वरिष्ठ दप्तर कारकून	१	१	-	-
१७	टंकलेखक	३	३	१	-
१८	संगणक कार्यक्रम चालक	१	-	-	-
१९	भांडारपाल	-	१	-	-
२०	सहायक भांडारपाल	-	१	-	-
२१	वाहन चालक	१	१	१	-
२२	मोजणीदार	-	-	-	४
२३	कालवा निरीक्षक	-	-	-	८
२४	संदेशक	-	-	-	१
२५	कालवे चौकीदार	-	-	-	३
२६	कालवे टपाली	-	-	-	१
२७	नाईक	१	१	-	-
२८	स्थापत्य अभियांत्रिकी सहायक	-	-	-	१
२९	शिपाई	३	५	२	१
३०	चौकीदार	१	१	१	-
	एकूण	३१	३६	१३	२२

(द. ल. थोरात)
शासनाचे सह सचिव

शासन निर्णय क्रमांक आढावा-१००२/(३३५/२००२) आ (प्रशि), दि. ६/२/२००३ चे सहपत्र.

प्रपत्र "क" - १

यांत्रिकी संघटनेअंतर्गत विविध कार्य प्रकारातील प्रादेशिक कार्यालयाचा आकृतिबंध

मु.अ./मंडळ/विभाग/उपविभागातील पदांचा आकृतिबंध दर्शविणारे विवरणपत्र-

अ.क्र	पदनाम	मु.अ. कार्यालयासाठी मंजूर आकृतिबंध	मंडळ कार्यालयासाठी मंजूर आकृतिबंध	विभागीय कार्यालयासाठी मंजूर आकृतिबंध	उप विभागीय कार्यालयासाठी मंजूर आकृतिबंध
१	२	३	४	५	६
१.	मुख्य अभियंता (यांत्रिकी)	१	-	-	-
२.	अधीक्षक अभियंता	-	१	-	-
३.	सहा. मुख्य अभियंता(यांत्रिकी)/ कार्यकारी अभियंता	१	-	-	-
४.	उप अधीक्षक अभियंता/ कार्यकारी अभियंता	-	१	-	-
५	सहा. अधीक्षक अभियंता/ उप अभियंता	-	१	-	-
६.	कार्यकारी अभियंता	-	-	१	-
७.	उप कार्यकारी अभियंता	-	-	१	-
८.	उप अभियंता	३	-	-	१
९.	सहा./शाखा/क.अ.(यांत्रिकी)	३	३	३	४
१०	विभागीय लेखापाल	-	-	१	-
११.	प्रमुख आरेखक	-	१	-	-
१२.	सहा. आरेखक	-	-	१	-
१३.	अनुरेखक	१	१	१	-
१४.	विशेष अधीक्षक	१	-	-	-
१५.	अधीक्षक	१	१	-	-
१६.	प्रथम लिपिक	१	१	१	-
१७.	वरिष्ठ लिपिक	३	५	५	१
१८.	कनिष्ठ लिपिक	३	५	५	२
१९.	उ. श्रेणी लघूलेखक	१	-	-	-
२०	लघू टंकलेखक	-	१	-	-
२१.	भांडारपाल	-	-	१	-
२२.	सहा. भांडारपाल	-	१	-	-
२३.	वाहनचालक	१	१	१	१
२४.	दप्तरी	-	१	१	-
२५.	नाईक	१	१	१	-
२६.	शिपाई/चपराशी	४	४	४	२
२७.	चौकीदार/पहारेकरी	१	१	१	१
२८	कामगार अधिकारी	१	१	-	-
२९	लेखा अधिकारी	१	-	-	-
३०.	भांडार अधिक्षक	१	-	-	-
३१.	लिपिक नि टंकलेखक	२	२	२	१
३२.	सुरक्षा अधिकारी	-	१	-	-
३३.	आरेखक	-	-	१	-
३४.	उपअवेक्षक	-	-	-	१
	एकूण	**३१**	**३४**	**३१**	**१४**

शासन निर्णय क्रमांक आढावा-१००२/(३३५/२००२) आ (प्रशि), दि. ६/२/२००३ चे सहपत्र.

प्रपत्र "क" - २

द्वारे निरिक्षण पथक / संनियंत्रण व किंमत नियंत्रण पथक या कार्यालयातील पदांचा आकृतीबंध दर्शविणारे विवरणपत्र.

अ.क्र.	पदनाम	पदसंख्या
१.	कार्यकारी अभियंता	१
२.	उप कार्यकारी अभियंता	१
३.	सहा./शाखा/क.अ.(यांत्रिकी)	३
४.	प्रथम लिपिक	१
५.	वरीष्ठ लिपिक	५
६.	अनुरेखक	१
७.	लिपिक नी टंकलेखक	२
८.	कनिष्ठ लिपिक	५
९.	वाहनचालक	१
१०.	दप्तरी	१
११.	नाईक	१
१२.	शिपाई/चपराशी	४
१३.	चौकीदार/पहारेकरी	१
	एकूण	**२७**

शासन निर्णय क्रमांक आढावा-१००२/(३३५/२००२) आ (प्रशि), दि. ६/२/२००३ चे सहपत्र.

प्रपत्र "इ"

अभियांत्रिकी अधिकारी महाविद्यालय, नाशिक. आकृतीबंधानुसार प्रस्तावित पदे

अ. क्र.	पदांचे नांव	अ.अ.म. नाशिक	प्रादेशिक प्रशिक्षण केंद्र पुणे	प्रादेशिक प्रशिक्षण केंद्र, नागपूर	प्रादेशिक प्रशिक्षण केंद्र, औरंगाबाद	एकूण
१	**२**	**३**	**४**	**५**	**६**	**७**
१	मुख्य अभियंता व प्राचार्य	१	०	०	०	१
२	अधीक्षक अभियंता व प्राचार्य	१	०	०	०	१
३	उप संचालक (प्रशासन) (का.अ. दर्जाचे)	१	०	०	०	१
४	कार्यकारी अभियंता व प्राचार्य	०	१	१	१	३
५	उप संचालक (व्या.प.) (का.अ. दर्जाचे)	१	०	०	०	१
६	प्रपाठक (का. अ. दर्जाचे)	१	०	०	०	१
७	सहायक प्राध्यापक (का.अ. दर्जाचे)	१	०	०	०	१
८	उप अभियंता	१	०	१	१	३
९	उप अभियंता (यांत्रिकी)	०	२	०	०	२
१०	सहायक संचालक (प्रशासन-१)	१	०	०	०	१
११	सहायक संचालक (व्या.प.)	१	०	०	०	१
१२	पाठयनिर्देशक (उप अभियंता दर्जाचे)	३	०	१	१	५
१३	उच्च श्रेणी लघुलेखक	१	०	०	०	१
१४	कनिष्ठ अभियंता	३	२	१	१	७
१५	प्रथम लिपिक	१	०	०	०	१
१६	भांडारपाल	१	०	०	०	१
१७	आरेखक	१	०	०	०	१
१८	वरिष्ठ लिपिक	४	१	१	१	७
१९	लघु टंकलेखक	३	०	०	०	३
२०	सहायक आरेखक	१	०	०	०	१
२१	कनिष्ठ लिपिक	५	०	१	१	७
२२	संगणक	४	१	०	०	५
२३	अनुरेखक	२	१	१	१	५
२४	अधीक्षक	१	०	०	०	१
२५	वरिष्ठ वैज्ञानिक सहायक	१	०	०	०	१
२६	सहायक ग्रंथपाल	१	०	०	०	१
२७	टंकलेखक	४	१	१	१	७
२८	वाहन चालक	३	१	१	१	६
२९	नाईक	१	०	०	०	१
३०	चक्रमुद्रक चालक	१	०	०	०	१
३१	शिपाई	१६	३	३	३	२५
३२	चौकीदार	३	१	१	१	६
	एकूण पदे	**६९**	**१४**	**१३**	**१३**	**१०९**

(द. ल. थोरात)

शासनाचे सह सचिव

शासन निर्णय क्रमांक आढावा-१००२/(३३५/२००२) आ (प्रशि), दि. ६/२/२००३ चे सहपत्र.

प्रपत्र "ड" ----- महाराष्ट्र अभियांत्रिकी संशोधन संस्था, नाशिक यांचे अंतर्गत असलेल्या विभागातील पदांचा आकृतीबंध दर्शविणारे विवरणपत्र.

अ. क्र.	पदनाम	संचालनालय	सामुग्री चाचणी विभाग	जलगती सं.वि.क्र.१	जलगती सं.वि.क्र.२	मृद यांत्रिकी विभाग क्र.१	परिसर अभि.सं.वि	संरचनात्मक सं. व प.वि.वि.	भूकंप व कंपन	यांत्रिकी आणि उपकरणे विभाग	प्रस्तावित आकृतीबंध किनारा व महामार्ग विभाग	एकूण
१	२	३	४	५	६	७	८	९	१०	११	१२	१३
१	महासंचालक	१	०	०	०	०	०	०	०	०	०	१
२	मुख्य अभियंता व संचालक	१	०	०	०	०	०	०	०	०	०	१
३	अधीक्षक अभियंता व सहसंचालक	१	०	०	०	०	०	०	०	०	०	१
४	कार्यकारी अभियंता/ संशोधन अधिकारी/ प्रशासन अधिकारी	१	०	१	१	०	१	०	१	१	१	७
५	वैज्ञानिक संशोधन अधिकारी	०	१	०	०	१	०	१	०	०	०	३
६	उप अभियंता/ सहा. संशोधन अधिकारी	२	१	२	४	१	१	४	४	४	४	२७
७	शास्त्रिय अधिकारी	०	२	२	२	३	१	१	०	२	२	१५
८	स्वीय सहायक	१	०	०	०	०	०	०	०	०	०	१
९	सहा. अभि.श्रे-२/ शा.अ./क.अ.	०	०	१६	१७	४	१	४	८	११	१०	७१
१०	वरिष्ठ वैज्ञानिक सहायक	०	३	१	२	०	०	०	१	०	१	८
११	संशोधन सहायक/कनिष्ठ वै. सहायक	०	६	६	२	१४	५	२	०	०	७	४२
१२	अधीक्षक	१	०	०	०	०	०	०	०	०	०	१
१३	प्रथम लिपिक	०	०	०	१	०	०	०	१	१	०	३
१४	वरिष्ठ लिपिक	४	०	०	१	१	०	०	४	७	१	१८
१५	कनिष्ठ लिपिक/कार्य. कारकून/भा.लि./ सहा.भां.पा.	८	२	२	५	३	३	३	५	११	३	४५
१६	भांडारपाल	०	०	०	०	०	०	०	१	२	०	३

अ. क्र.	पदनाम	संचालनालय	सामुग्री चाचणी विभाग	जलगती सं.वि.क्र.१	जलगती सं.वि.क्र.२	मृद यांत्रिकी विभाग क्र.१	परिसर अभि.सं.वि	संरचनात्मक सं. व प.वि.वि.	भूकंप व कंपन	यांत्रिकी आणि उपकरणे विभाग	प्रस्तावित आकृतीबंध किनारा व महामार्ग विभाग	एकूण
१७	लघुलेखक (उच्चश्रेणी)	१	०	०	०	०	०	०	०	०	०	१
१८	लघुटंकलेखक	०	१	१	०	१	१	०	१	१	१	७
१९	टंकलेखक	१	०	०	१	०	०	०	२	३	०	७
२०	ग्रंथपाल	१	०	०	०	०	०	०	०	०	०	१
२१	सहायक ग्रंथपाल	२	०	०	०	०	०	०	०	०	०	२
२२	प्रमुख आरेखक	१	०	०	०	०	०	०	०	०	०	१
२३	आरेखक	०	०	१	१	०	०	०	०	०	०	२
२४	सहायक आरेखक	१	०	०	०	०	०	०	०	१	०	२
२५	अनुरेखक	०	०	०	२	०	०	०	३	०	१	६
२६	छायाचित्रकार	०	०	०	०	०	०	०	०	०	०	०
२७	प्रतिगाकार	०	०	०	०	०	०	०	०	०	०	०
२८	वाहनचालक	०	०	०	०	०	०	०	१	१	२	४
२९	जोडारी/ का. व. १/२/कातारी/साचेकार	०	०	०	०	०	०	०	०	१	१	२
३०	यांत्रिकी	०	०	०	०	०	०	०	०	०	०	०
३१	विभागीय लेखापाल	०	०	०	०	०	०	०	१	१	०	२
३२	नाईक/दप्तरी/लोहमुद्रक	३	०	०	०	०	०	०	०	०	०	३
३३	शिपाई/चौकीदार/हमाल/मदतनीस/स्वच्छक	४	६	६	११	५	६	४	६	८	४	६०
	एकूण	**३४**	**२२**	**३८**	**५०**	**३३**	**१९**	**१९**	**३९**	**५५**	**३८**	**३४७**

Annexure 3.2
Para 3.5

पाटबंधारे विभागाअंतर्गत बांधकाम व सिंचन व्यवस्थापन कार्यप्रकारामध्ये काम करणा-या रुपांतरित अस्थायी आस्थापनेवरील कर्मचा-यांसाठी आकृतीबंध निश्चित करणेबाबत.

महाराष्ट्र शासन
पाटबंधारे विभाग
शासन निर्णय क्रमांकः आढावा १००१/२७९४/७१५/०१/आ. (प्रशि.)
मंत्रालय, मुंबई - ४०० ०३२.
दिनांक : २० ऑगस्ट, २००३.

संदर्भः शासन निर्णय, पाटबंधारे विभाग, समक्रमांक दिनांक ७.९.२००१

प्रस्तावना :

पाटबंधारे विभागांतर्गत सिंचन व्यवस्थापन व बांधकाम कार्यप्रकाराअंतर्गत, प्रकल्पाच्या कामाच्या आवश्यकतेनुसार व गरजेप्रमाणे रुपांतरीत अस्थायी आस्थापनेवरील कार्यरत कर्मचाऱ्यांची संख्या **सिंचन व्यवस्थापन शाखा** व **बांधकाम उपविभागामध्ये** वेगवेगळी असल्याचे दिसून आले आहे. पाटबंधारे विभागांतर्गत सिंचन व्यवस्थापन व बांधकाम प्रकारासाठी निरनिराळया कार्यालयामध्ये रुपांतरीत अस्थायी आस्थापनेवरील कर्मचाऱ्यांच्या संख्येत शक्यतो एकसुत्रीपणा व समानता असावी यासाठी रुपांतरीत अस्थायी आस्थापनेवरील कर्मचाऱ्यांसाठी आकृतीबंध निश्चित करण्याची बाब शासनाच्या विचाराधीन होती.

शासन निर्णय :

उपरोक्त बाब विचारात घेऊन, पाटबंधारे विभागाच्या अधिपत्याखालील बांधकाम व सिंचन व्यवस्थापन कार्यप्रकारातील रुपांतरित अस्थायी आस्थापनेवरील पदांचा आढावा घेऊन मापदंड/ आकृतीबंध निश्चित करण्यासाठी तत्कालिन अधीक्षक अभियंता, पुणे पाटबंधारे मंडळ, पुणे यांचे अध्यक्षतेखाली समितीची स्थापना संदर्भाधीन शासन निर्णय दिनांक ७.९.२००१ अन्वये करण्यात आली होती. सदर समितीने सादर केलेल्या अहवालाबाबत शासन स्तरावर सखोल/सविस्तर व सर्वंकष विचार करण्यात आला. त्याअनुषंगाने **सिंचन व्यवस्थापन व देखभाल दुरुस्ती शाखेसाठी लागणाऱ्या रुपांतरित अस्थायी आस्थापनेचा आकृतीबंध सोबतच्या "प्रपत्र १" प्रमाणे राहिल. सिंचन व्यवस्थापन शाखेकडे धरण व इतर बाबी परिरक्षणासाठी असल्यास लागणा-या रुपांतरित अस्थायी आस्थापनेचा आकृतीबंध "प्रपत्र २" प्रमाणे ठरविण्यांत आला आहे. त्याचप्रमाणे बांधकाम कार्यप्रकारातील उप विभागासाठी लागणा-या रुपांतरित अस्थायी आस्थापनेचा आकृतीबंध "प्रपत्र ३" प्रमाणे राहिल. त्याशिवाय बांधकाम उप विभागाकडे धरण व इतर बाबी परिरक्षणासाठी असल्यास लागणा-**

या रुपांतरित अस्थायी आस्थापनेचा आकृतीबंध "प्रपत्र ४" प्रमाणे निश्चित करण्यात आला आहे.

तसेच सध्या अस्तित्वात असलेल्या रुपांतररित अस्थायी आस्थापनेवरील कार्यरत असलेल्या मोठया प्रमाणातील संवर्ग व त्याचे नामाभिधानामधील विलिष्टता दूर होऊन, रुपांतरित अस्थायी आस्थापनेरील कर्मचारीवर्गाच्या संवर्गात सुटसुटीतपणा येण्यासाठी रुपांतरित अस्थायी आस्थापनेवरील सध्या अस्तित्वात असलेल्या विविध १७३ तांत्रिक व अतांत्रिक संवर्गातील कर्मचा-यांचे वेतनश्रेणीनुरुप आवश्यक अशा २७ संवर्गात **"प्रपत्र ५"** प्रमाणे समावेशन/ वर्गीकरण करण्यात आले आहे.

तरी आता सिंचन व्यवस्थापन शाखा कार्यालय व बांधकाम उपविभाग कार्यालयात वरील **प्रपत्र-१ ते प्रपत्र- ४** प्रमाणे ठरविलेल्या आकृतीबंधानुसार रुपांतरीत अस्थायी आस्थापनेवरील पदे राहतील. या आकृतीबंधानुसार क्षेत्रिय कार्यालयांनी अतिरिक्त ठरणारी पदे निश्चित करण्याबाबतची कार्यवाही तात्काळ करावी. तसेच, शासन परिपत्रक, पाटबंधारे विभाग, क्र.एलएबी १०८२/१७९९/४६९/आ.१४, दिनांक १८.८.१९८२ मधील रुपांतरित नियत स्थायी/ अस्थायी आस्थापनेवरील कर्मचाऱ्यांच्या बदल्यांविषयक मार्गदर्शक सूचनांनुसार संबंधित सक्षम अधिकाऱ्यांनी आकृतीबंधानुसार अतिरिक्त ठरलेल्या कर्मचाऱ्यांचे दिनांक ३१.१०.२००३ पर्यंत आवश्यक तेथे प्रकल्प व सिंचन कार्यप्रकारातील कामाच्या ठिकाणी समावेशन करावे. सदर समावेशनाची कार्यवाही करीत असतांना कर्मचा-यांची समान वेतनश्रेणी, शैक्षणिक अर्हता व योग्यता विचारात घेऊन आवश्यक त्या ठिकाणी प्रशिक्षण देऊन नियुक्ती करावी. सदर नियुक्ती करण्यापूर्वी अतिरिक्त ठरलेल्या कर्मचा-याकडून **सदर समकक्ष पदावर स्वखुशीने व विना अट समावेशन** करण्याबाबतचे बंधपत्र घेण्यात यावे. जे अतिरिक्त कर्मचारी असे बंधपत्र देण्यास नकार दर्शवितील अशा कर्मचा-यांची नावे अतिरिक्त कर्मचा-यांच्या यादीत समाविष्ठ करावित. वरीलप्रमाणे समकक्ष पदावर समावेशन/वर्गीकरण केलेल्या कर्मचा-याचे पदनाम व वेतनश्रेणी पूर्वीप्रमाणेच राहील. सदर कर्मचाऱ्यास मुदतवाढ देताना मुळ पदावरच मुदतवाढ घेण्यात यावी. **उदाहरणार्थ "सुतार"** या पदावर सध्या काम करणाऱ्या अतिरिक्त कर्मचा-याचे **"मिस्त्री"** या पदावर वेतनश्रेणीनुरुप समावेशन केल्यावर त्याचे पदनाम **"सुतार (मिस्त्री) "** असेच राहील. परंतु, तो आवश्यकतेनुसार **मिस्त्री / सुतार** हया कोणत्याही पदाची कर्तव्ये व जबाबदाऱ्या पार पाडील. तसेच समजा सुतार पदाचे मिस्त्री पदावर समावेशन झाले तर त्यास मिस्त्री पदावरुन मिळणारे इतर सेवाविषयक फायदे उदा.पदोन्नती, विशेष वेतन, किंवा इतर संवर्गात वर्गीकरण करणे इ. फायदे देय होणार नाहीत. हेच सुत्र इतर सर्व पदांना लागू होईल. सदर समावेशन करताना प्रकल्पावरील कामाची गरज लक्षात घेऊन त्या त्या विभागामध्ये किंवा शेजारील जवळच्या प्रादेशिक विभागांतर्गत बांधकामावरील प्रकल्प किंवा सिंचन

व्यवस्थापन विषयक संबंधित कामावर वर नमूद १९८२ च्या शासन निर्णयानुसार दिनांक ३१.१०.२००३ पर्यंत सामावून घ्यावे.

वरीलप्रमाणे कार्यवाही पूर्ण झाल्यावर सुधारीत आकृतीबंधानुसार जी पदे अतिरिक्त ठरतील त्याबाबतचा सविस्तर तपशील संबंधित कार्यकारी संचालक व प्रादेशिक मुख्य अभियंता यांनी संबधित परिमंडळीय अधिकारी यांना दिनांक ३०.११.२००३ पर्यत सादर करावा. परिमंडळीय कार्यालयाने शासन निर्णय, पाटबंधारे विभाग, क्र.एलएबी १०८९/१५१/८९ आरथा.(काम) दि.१० जून १९९३ मधील मार्गदर्शक सूचनांनुसार अतिरिक्त ठरलेल्या कर्मचाऱ्यांची ज्येष्ठता पाहून **"प्रपत्र ५"** मधील २७ संवर्गातील कनिष्ठतम अतिरिक्त कर्मचाऱ्यांची नांवे वित्त विभागाच्या अतिरिक्त संवर्ग कक्षाकडे पाठविण्यासाठी वित्त विभागाच्या क्र. असंक १००१/प्र.क्र.२९/२००१/वित्तीय सुधारणा, दिनांक १०.९.२००१ च्या शासन निर्णयासोबतच्या **"परिशिष्ट ३ अ व ३ ब"** मध्ये शासनास दिनांक ३१.१२.२००३ पर्यंत निश्चितपणे सादर करावीत. सदर कर्मचा-यांना अतिरिक्त संवर्ग कक्षाकडे वर्ग करुन त्यांना सामावून घेईपर्यंतची कार्यवाही पूर्ण होईपर्यंत सदर अतिरिक्त कर्मचारी मुळ आरथापनेवरच रहातील. जेणेकरुन अतिरिक्त ठरणा-या पदांवर कार्यरत कर्मचा-यांचे वेतन व भत्ते अदा करण्यास अडचण निर्माण होणार नाही.

सदर शासन निर्णय वित्त विभागाच्या अनौपचारिक संदर्भ क्रमांक
दिनांक अन्वये मिळालेल्या सहमतीने निर्गमित करण्यात येत आहे.

महाराष्ट्राचे राज्यपाल यांच्या आदेशानुसार व नावाने.

(द. ल. थोरात)
शासनाचे सह सचिव.

सहपत्र : प्रपत्र १, २, ३, ४, ५.

प्रत :-
मा. मुख्य सचिव, मंत्रालय, मुंबई.
मा. प्रधान सचिव (सेवा) सामान्य प्रशासन विभाग, मंत्रालय, मुंबई.
मा. प्रधान सचिव(व्यय), वित्त विभाग, मंत्रालय, मुंबई.
मुख्यमंत्र्यांचे सचिव/ उपमुख्यमंत्र्यांचे सचिव, मंत्रालय, मुंबई.
मा. मंत्री (पा. व ला.) यांचे खाजगी सचिव, मंत्रालय, मुंबई.
मा.राज्यमंत्री (पा. व ला.) यांचे खाजगी सचिव, मंत्रालय, मुंबई.
मा.मंत्री (कृ.खो. व को.पा.महामंडळे) यांचे खाजगी सचिव, मंत्रालय, मुंबई.
मा. राज्यमंत्री, (कृ.खो. व को.पा.महामंडळे) यांचे खाजगी सचिव, मंत्रालय, मुंबई.

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महालेखापाल (लेखा व अनुज्ञेयता) महाराष्ट्र राज्य १, मुंबई.

महालेखापाल (लेखा व अनुज्ञेयता) महाराष्ट्र राज्य २, नागपूर.

महालेखापाल (लेखा परिक्षा) महाराष्ट्र राज्य १, मुंबई.

महालेखापाल (लेखा परिक्षा) महाराष्ट्र राज्य २, नागपूर.

कार्यकारी संचालक, गोदावरी मराठवाडा पाटबंधारे विकास महामंडळ, औरंगाबाद.

कार्यकारी संचालक, विदर्भ पाटबंधारे विकास महामंडळ, नागपूर.

कार्यकारी संचालक, कोकण पाटबंधारे विकास महामंडळ, ठाणे.

कार्यकारी संचालक, तापी पाटबंधारे विकास महामंडळ, जळगाव

कार्यकारी संचालक, महाराष्ट्र कृष्णा खोरे विकास महामंडळ, पुणे.

महासंचालक, जल व भूमी व्यवस्थापन संस्था, औरंगाबाद.

पाटबंधारे भिागाच्या तसेच महामंडळाच्या अधिपत्याखालील सर्व मुख्य अभियंते/ अधीक्षक अभियंते.

२. अधीक्षक अभियंता यांनी या शासन निर्णयाच्या प्रती आपल्या अधिपत्याखालील सर्व कार्यकारी अभियंता यांना कृपया पाठवाव्यात.

अधीक्षक अभियंता व परिमंडळीय अधिकारी, पुणे परिमंडळ, पाटबंधारे संशोधन व विकास संचलनालय, पुणे.

अधीक्षक अभियंता व परिमंडळीय अधिकारी, कोल्हापूर परिमंडळ, कोयना बांधकाम मंडळ, सातारा.

अधीक्षक अभियंता व परिमंडळीय अधिकारी, औरंगाबाद परिमंडळ, दक्षता पथक, औरंगाबाद.

अधीक्षक अभियंता व परिमंडळीय अधिकारी, नाशिक परिमंडळ, घाटघर जलविद्युत प्रकल्प मंडळ, नाशिक.

अधीक्षक अभियंता व परिमंडळीय अधिकारी, मुंबई परिमंडळ, ठाणे पाटबंधारे मंडळ, ठाणे.

अधीक्षक अभियंता व परिमंडळीय अधिकारी, नागपूर परिमंडळ, नागपूर पाटबंधारे प्रकल्प अन्वेषण मंडळ, नागपूर.

अधीक्षक अभियंता व परिमंडळीय अधिकारी, अमरावती परिमंडळ, अकोला पाटबंधारे मंडळ, अकोला.

आ. (प्रशि.) कार्यासन संग्रहार्थ.

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प्रपत्र - १

सिंचन व्यवस्थापन व देखभाल दुरुस्ती शाखेसाठी लागणा-या अस्थायी आस्थापनेचा मापदंड

अ. क्र.	पदनाम	कालवे / वितरिका (विसर्ग क्युसेक्स)				उपसा सिंचन योजना			
		१०० पर्यंत	१०० ते १०००	१००० ते २०००	२००० पेक्षा जास्त	पंपगृह	उर्ध्वनलिका	सबस्टेशन	डिस्ट्रीब्युशन चेंबर
१	२	३	४	५	६	७	८	९	१०
१	मिस्त्री / मुकादम	१ (२० ते ३० कि. मी. साठी)	१ (१० ते १५ कि. मी. साठी)	१ (प्रति १० कि. मी. साठी)	१ (प्रति ५ कि. मी. साठी)	१			
२	मजूर	१ (प्रति १० कि. मी. साठी)	१ (प्रति ५ कि. मी. साठी)	१ (प्रति २ कि. मी. साठी)	१ (प्रति १ कि. मी. साठी)	--	--	--	--
३	चौकीदार / मजूर	--	२ / प्रति काट नियामक	२ / प्रति काट नियामक	२ / प्रति काट नियामक	२	२ (प्रति १० कि. मी. साठी)	२	२
४	मेकॅनिक / फोरमन	--	--	--	--	१ फोरमन २ मेकॅनिक	--	१ मेकॅनिक	--
५	इलेक्ट्रीशियन / वायरमन	--	--	--	--	१ इलेक्ट्रीशियन २ वायरमन	--	१ इलेक्ट्रीशियन २ वायरमन	--

टिप : - १) स्तंभ ३ मध्ये कालवा / वितरिकाची एकत्रित लांबी २० कि.मी. पेक्षा कमी असेल किंवा वहनक्षमता १० घ. फू./ सेकंदापेक्षा कमी असलेल्या वितरण प्रणालीला मिस्त्री / मुकादम अनुज्ञेय नाही.

२) या प्रपत्रातील मापदंड हे बारमाही सिंचन व्यवस्थापनासाठी असून बिगर बारमाही सिंचन प्रणालीसाठी वरील मापदंडाच्या ५० टक्के मापदंड अनुज्ञेय आहेत.

प्रपत्र - २

सिंचन व्यवस्थापन शाखेकडे धरण व इतर बाबी परिरक्षणासाठी असल्यास लागणा-या रुपांतरित अस्थायी आस्थापनेचा मापदंड

अ. क्र.	पदनाम	मोठे धरण	मध्यम धरण	लघु पाटबंधारे प्रकल्प		शेरा
		माती / दगडी / संमिश्र	माती / दगडी / संमिश्र	लघु पाटबंधारे तलाव	कौ. प. बंधारा	
१	२	३	४	५	६	७
१	मुकादम / मिस्त्री	३	२	१ (२ ल.पा.)	१ (४ कौ.प.बं)	
२	मजूर / चौकीदार / मदतनीस	९ / ६	७ / ५	१	१	द्वारे बिगर स्वयंचलित / स्वयंचलित
३	माळी (बगीचा असल्यास)	१	१	---	---	
४	बोटचालक (बोट असल्यास)	१	---	---	---	
५	पंप ऑपरेटर (गॅलरी असल्यास)	२	१	---	---	
६	प्रयोग शाळा सहाय्यक (उपकरणे असल्यास)	१	१	---	---	
७	द्वारे (असल्यास)					
	१) यांत्रिकी / मेकॅनिक	२	१	---	---	
	२) वीजतंत्री / इलेक्ट्रीशियन	२	१	---	---	

अ. क्र.	पदनाम	विश्रामगृह		वसाहत (सदनिका)			भांडार	बिनतारी संदेश योजना	चालू वाहनांसाठी प्रत्येकी	सिंचन भवन
		कक्ष १ ते ४	कक्ष ४ पेक्षा जास्त	२० पेक्षा कमी	२० ते १००	१०० पेक्षा जास्त				
१	२	३	४	५	६	७	८	९	१०	११
१	खानसामा	१	१	---	---	---	---	---	---	---
२	चौकीदार /मजूर / मदतनीस/परिचर	३	४	३	३	३	३	१	---	४
३	माळी (धरणस्थळ नसेल तेथे)	१	१	---	---	---	---	---	---	१
४	वायरमन / पंप ऑपरेटर	---	---	---	१	१	---	---	---	२
५	सफाई कामगार	१	१	---	१	२	---	---	---	३
६	प्लंबर / गवंडी / सुतार	---	---	---	१	१	---	---	---	१
७	मिस्त्री/मुकादम/कारकून/बिनतारी संदेशक	---	---	---	१	१	---	२	---	१
८	वाहनचालक	---	---	---	---	---	---	---	१	---
९	मदतनीस (टँकर/टिपर/कॉम्प्रेसर रोलरसाठी)	---	---	---	---	---	---	---	१	---

(द.ग. घोरात)

प्रपत्र-३

बांधकाम कार्यप्रकारातील उपविभागांसाठी लागणाऱ्या रुपांतरित अस्थायी आस्थापना प्रस्तावित मापदंड

अ क्र.	पदनाम	मोठे धरण/मध्यम धरण		ल.पा.तलाव, को.प.बंधारे व इतर कामे	कालवे		वितरिका	लाभक्षेत्र	उपसा सिंचन योजना	
		दगडी	माती		मोठे	मध्यम			पंपगृह सबस्टेशन एकत्रित	ऊर्ध्वनलिका
१	२	३	४	५	६	७	८	९	१०	११
१)	मिस्त्री/मुकादम	१ (२ मोनोलिथसाठी)	१ (३०००० ते ५०००० घ.मी. वार्षिक)	१	१ (६ कि.मी. साठी)	१ (१२ कि.मी. साठी)	१ (१००० हे.)	१ (१००० हे.)	१	१ (१० कि.मी. साठी)
२)	मजूर/चौकीदार	२* (मोनोलिथ)	२* (१००००० घ.मी. वार्षिक)	२	१ (३ कि.मी. साठी)	१ (६ कि.मी. साठी)	१ (५०० हे.)	१ (५०० हे.)	३	१ (५ कि.मी. साठी)

टीप : १) मोठे पोहोच रस्ते, वसाहत बांधकामे, पुनर्वसन गांवठाण बांधकामे व ३ कोटींपेक्षा मोठ्या किंमतीची कालव्यावरील बांधकामे यासाठी स्तंभ ५ मधील लघु पाटबंधारे तलावाचे मापदंड वापरावेत.

२) *मोठ्या धरणांवर कमाल ३० मजूर/चौकीदार संख्या व मध्यम धरणांवर कमाल २० मजूर/चौकीदार संख्या.

(द.ल. ओरात)
शासनाचे सह सचिव

प्रपत्र - ४

बांधकाम उपविभागाकडे धरण व इतर बाबी परिरक्षणासाठी असल्यास लागणा-या रुपातंरित अस्थायी आस्थापनेचा मापदंड

अ.क्र.	पदनाम	मोठे धरण	मध्यम धरण	लघु पाटबंधारे प्रकल्प		शेरा
		माती / दगडी / सँमिश्र	माती / दगडी / सँमिश्र	लघु पाटबंधारे तलाव	को. प. बंधारा	
१	२	३	४	५	६	७
१	मुकादम / मिस्त्री	३	२	१ (२ ल.पा.)	१ (४ को.प.बं)	
२	मजूर / चौकीदार / मदतनीस	९ ६	७ ५	१	१	द्वारे बिगर स्वयंचलित / स्वयंचलित
३	माळी (बगीचा असल्यास)	१	१	---	---	
४	बोटचालक (बोट असल्यास)	१	---	---	---	
५	पंप ऑपरेटर (गॅलरी असल्यास)	२	१	---	---	
६	प्रयोग शाळा सहाय्यक (उपकरणे असल्यास)	१	१	---	---	
७	द्वारे (असल्यास)					
	१) यांत्रिकी / मेकॅनिक	२	१	---	---	
	२) वीजतंत्री / इलेक्ट्रीशियन	२	१	---	---	

अ. क्र.	पदनाम	विश्रामगृह		वसाहत (सदनिका)			भांडार	बिनतारी संदेश योजना	चालू वाहनांसाठी प्रत्येकी	सिंचन भवन
		कक्ष १ ते ४	कक्ष ४ पेक्षा जास्त	२० पेक्षा कमी	२० ते १००	१०० पेक्षा जास्त				
१	२	३	४	५	६	७	८	९	१०	११
१	खानसामा	१	१	---	---	---	---	---	---	---
२	चौकीदार /मजूर / मदतनीस/परिचर	३	४	३	३	३	३	१	---	४
३	माळी (धरणस्थळ नसेल तेथे)	१	१	---	---	---	---	---	---	१
४	वायरमन / पंप ऑपरेटर	---	---	---	१	१	---	---	---	२
५	सफाई कामगार	१	१	---	१	२	---	---	---	३
६	प्लंबर / गवंडी / सुतार	---	---	---	१	१	---	---	---	१
७	मिस्त्री/मुकादम/कारकून/बिनतारी संदेशक	---	---	---	१	१	---	२	---	१
८	वाहनचालक	---	---	---	---	---	---	---	१	---
९	मदतनीस (टँकर/टिपर/कॉंप्रेसर रोलरसाठी)	---	---	---	---	---	---	---	१	---

प्रपत्र - ५

रुपांतरित अस्थायी आस्थापनेवरील समकक्ष पदे

अ. क्र.	पदाचे नांव	वेतनश्रेणी	समकक्ष पदे
१	फोरमन (कार्यदेशक)	४५००-७०००	फोरमन / कार्यदेशक वेतनश्रेणी ४५००-७००० मध्ये येणारी इतर पदे
२	१) इलेक्ट्रीशियन २) विजतंत्री ३) बिनतारी यंत्रचालक	४०००-६०००	इलेक्ट्रीशियन / विजतंत्री / उपआवेक्षक / सर्वेक्षक / हिवताप संनियंत्रण निरीक्षक / जडयंत्रचालक श्रेणी-१ / सहा.कार्यदेशक / प्रमुख प्रयोगशाळा सहा. / वरिष्ठ सांधाता / वरिष्ठ सहा. सांधाता / वरिष्ठ यांत्रिकी / वरिष्ठ सहा. यांत्रिकी / जडयंत्रचालक श्रेणी-२ व ३ / विजतंत्री नि यांत्रिकी / विद्युत यांत्रिकी स्वयंचल यांत्रिकी / विजतंत्री नि जोडारी / वरिष्ठ सहा.लोहार / वरिष्ठ यंत्र कारागिर / सुरुंगवाला / कृषी सहाय्यक / बिनतारी यंत्रचालक / वेतनश्रेणी रु.४०००-६००० मध्ये येणारी इतर पदे.
३	१) प्रयोगशाळासहाय्यक २) मेकॅनिक ३) यांत्रिकी ४) बोटचालक	३२००-४९००	प्रयोगशाळा सहाय्यक / बोटवाला / सहाय्यक ग्रंथपाल / वेधशाळा सहाय्यक / दूरध्वनी -चालक / तांत्रिक सहाय्यक यांत्रिकी / रस्तारुळ चालक / यांत्रिकी सांधाता / संदेशक / कनिष्ठ सहाय्यक यांत्रिकी / यांत्रिकी सहाय्यक / जडयंत्र चालक श्रेणी-४ / अनुरेखक / डिझेल रस्तारुळ चालक / हिवताप संनियंत्रण कर्मचारी / गतीयंत्र चालक / गाळणी परिचर वेतनश्रेणी रु.३२००-४९०० मध्ये येणारी इतर पदे.
४	१) मिस्त्री २) वायरमन ३) पंप ऑपरेटर (पंपचालक) ४) प्लंबर ५) गवंडी ६) सुतार	३०५०-४५९०	मिस्त्री / कनिष्ठ सर्व्हेक्षण सहाय्यक / वाहन चालक / जडवाहन चालक / विद्युत जनित्र चालक / क्षेत्रिय सहाय्यक / जोडारी (सांधाता) / यंत्रकारागीर / तारतंत्री नि जोडारी / सुतार / गवंडी / लोहार / तारतंत्री (वायरमन) / रंगारी / कातारी / नळ कारागीर / डिझेल यांत्रिकी / कनिष्ठ (विजतंत्री) चालक / सुरुंगवाला / मोजणीकार / सहाय्यक वाहन चालक / पंपचालक / हवादाब यंत्रचालक / मिश्रक / मोजणीदार / लाईनमन / हलके यंत्रचालक / कनिष्ठ सहाय्यक यांत्रिकी / यंत्रचालक / क्षेत्रिय सहाय्यक / विद्युत जनित्र चालक / कनिष्ठ विजतंत्री / घणकारी / भराव निरीक्षक / साचेकार / आवेधक / बंधकार / पत्त यंत्रचालक / गंधकी / कथिलगार वेतनश्रेणी ३०५०-४५९० मध्ये येणारी इतर तांत्रिक पदे

अ. क्र.	पदाचे नांव	वेतनश्रेणी	समकक्ष पदे
५	कारकून	३०५०-४५९०	कारकून / खेपा मोजक / कनिष्ठ दप्तर कारकून / दप्तर कारकून / अभिलेखापाल / रोजवहीपाल / दूरध्वनीचालक / भांडार कारकून / भांडार परिचर / खणपत्र लिपिक / हजेरीपट कारकून / भांडार लिपिक / वैळमापक / मिटर रिडर / मार्गदर्शक / हत्यारपाल /कार्यनोंद यहीणार /फॉटलर / व्दारचालक / विंधनचालक / इंजिनचालक / दगड चरक यंत्रचालक / ऑगर मोजणीकार / कालवा निरीक्षक / रेंजर / जलपातळी निरीक्षक वेतनश्रेणी रु.३०५०-४५९० मध्ये येणारी इतर अतांत्रिक पदे
६	वाहन चालक	३०५०-४५९०	वाहनचालक / सहाय्यक वाहनचालक / [illegible] /हवादाब यंत्र चालक / हलके यंत्रचालक / जड वाहनचालक
७	पंप ऑपरेटर	३०५०-४५९०	विद्युत जनित्रचालक / तारतंत्री-नि-जोडारी / कनिष्ठ विजतंत्री चालक / यंत्रचालक / यंत्र कारागिर / डिझेल यांत्रिकी / कनिष्ठ विजतंत्री / कनिष्ठ सहाय्यक यांत्रिकी वेतनश्रेणी रु.३०५०-४५९० मध्ये येणारी इतर पदे
८	१) माळी २) खानसामा	२७५०-४४००	माळी / खानसामा / सुरक्षा गार्ड वेतनश्रेणी रु.२७५०-४४०० मध्ये येणारी इतर पदे
९	मुकादम	२६१०-४०००	मुकादम / सहाय्यक स्वयंचल जोडारी / सहाय्यक सांधाता / सहाय्यक कातारी / [illegible]य्यक नळ कारागिर / पंपपरिचर / निश्रण [illegible] / नालाकिपर / चावीवाला / बोटवाला / तेलवाला / मापीवाचक / पाटकरी / उद्याहकचालक / स्वयंपाकी / कार्यशाळा हस्तक / सहाय्यक विजतंत्री / मोची / दप्तरी वेतनश्रेणी रु.२६१०-४००० मध्ये येणारी इतर पदे
१०	१) मजूर २) चौकीदार ३) मदतनीस ४) परिचर ५) सफाई कामगार (मेहतर)	२५५०-३२००	मदतनीस / जलव्दाररक्षक / स्वच्छक / सहाय्यक जोडारी / सहाय्यक लोहार / सहाय्यक सायेकार / सहाय्यक तारतंत्री / सहाय्यक तारमार्गतंत्री / खलाशी / संदेशवाहक / काळजीवाहक / चौकीदार / परिचर / प्रयोगशाळा परिचर / आगार चालक / मजूर / मेहतर (सफाई कामगार) / हमाल / पाणीवाला / टपाली / हिवताप कर्मचारी / झडपवाला / सहाय्यक माळी वेतनश्रेणी रु.२५५०-३२०० मध्ये येणारी इतर पदे

(द. ल. शोरात)
शासनाचे सह सचिव

Annexure 3.3
(Refer para 3.8)

A Study of Revision of Maintenance & Repairs Norms
For State Sector Irrigation Projects in Maharashtra

Proposed Norms for M & R for 2010-13
Abstract of WALMI Report of 2008

1. Basic Norms

1.1. Headworks : Rs. 11,000/Mm^3 of Design Live Storage

- *Irrespective of good or bad year*
- *Provision for M & R of gates shall be additional as suggested by Chief Engineer, Mechanical, Nashik.*

1.2. Canals :

1.3. (a) Rs. 380/ha of actual irrigated area.
- Actual irrigated area as per average of previous 3 years
- Perennials, other perennials and two seasonal counted once
- Area irrigated on wells not to be considered
- In a project, if steps for levying 50% of water fees on the kharif crops are taken and guarantee of supply of water provided, the kharif irrigation may be included in the irrigated area

(b) Rs. 190/ha of balance area
- Balance Area = CCA - Actual area irrigated

(c) Total amount worked out as per (a) & (b) above may further be allocated component wise as given below
- Main / Branch Canal : 40%
- Distributaries ` : 25%
- Minors : 35%

1.4. K.T. Weirs

(a) Rs. 2300 / sq. meter of gate area for K.T. weirs with reservoir backup

(b) Rs. 1450/ sq. meter of gate area for K.T. weirs without reservoir backup

1.5. Govt. LIS :

(a) Electricity charges & maintenance of pump house & rising main : as per actual.

(b) For canals of LIS : as per item 1.2 above.

1.6. Storage Tanks :

As per Head works (Refer item 1.1.)

2. Adjustment for specific conditions

(i.e. increase over & above basic norms, if and as applicable)

2.1. Age of the Project

Age (Years)	Add for Head works & Main/Branch Canals
35 to 70	7.5%
Above 70	15%

N.B. : If any modernization or rehabilitation of the concerned component has been carried out within last 35 years, then the additional provision indicated above shall not be admissible.

2.2. Black Cotton Soils

(Applicable if dominant soil type in the command of the project is B.C. Soil. Dominant means percentage greater than 50%)

Project	Add in respect	Add to basic norms worked out as per 1.2 (c) above
Major	Minors only	To the extent of percentage of command area of the project covered by B.C. soil as per soil survey
Medium	Distributaries & minors	100%
Minor	Main / Branch canal, distributary minors	100%

2.3. Project situated in hilly areas / high rainfall zone
(Average rainfall > 2000 mm / year)

Add 100% to basic norms on all components of the project i.e.

- Add 100% to the amount worked out as per (1.1) for Head works. (Not applicable if dam is fully masonry / concrete dam)
- Add 100% to the amount worked out as per {1.2 (c)} for Main Branch Canals, Distributaries & Minors

(N.B. : Item 2.2 & 2.3 not applicable to KT weirs).

CHAPTER – IV

SUGGESTIONS RECEIVED & ISSUES IDENTIFIED

4.1. AGRICULTURE

Dates of Seasons

4.1.1. In the Criteria for Bulk Water Tariff (CBWT) (2010-13), the dates for the three seasons viz. kharif, rabi & hot weather in Konkan & Vidarbha and in the remaining part of the State were defined as under

Season	Regions other than Konkan & Vidarbha	Konkan & Vidarbha
Kharif	July to October	July to 15th November
Rabi	November to February	November to 31st March
Hot weather	1st March to 30th June	1st April to 30th June

While issuing the area based tariff order for agriculture for 2010-13, vide order dt. 29/6/2011, WRD has further clarified the above with specific dates as under

Season	Regions other than Konkan & Vidarbha	Konkan & Vidarbha
Kharif	1st July to 14th October	1st July to 14th November
Rabi	15th October to 28th February	15th November to 31st March
Hot weather	1st March to 30th June	1st April to 30th June

It is proposed to adopt the above dates as decided by WRD for the period 2013-16 also.

Grouping of Crops

4.1.2. As recommended in Section 13.1.1. (ii) of CBWT (2010-13), the following sub grouping of crops was proposed in the tariff proposal and subsequent tariff orders for 2010-13.

Kharif

3. Cereals & other crops
4. Groundnut
5. Vegetables & onions
6. Paddy

Rabi

7. Vegetables
8. Wheat
9. Other rabi

Two seasonal

10. Chilli, Ginger, Tur
11. Cotton.

Hot weather

12. Vegetable
13. Groundnut
14. Paddy

Perennial

15. Sugarcane, banana
16. Horticulture

While no changes in the above groups is proposed for 2013-16, as proposed by WRD also the following minor changes are however proposed to be included

Present Nomenclature	Proposed Nomenclature
Rabi 7. Other rabi	7. Other rabi & jowar, onion
Two seasonal 8. Chilli, ginger, tur	8. Chilli, ginger, tur etc.

Concessions

4.1.3. Under Section 13.1.2. of CBWT (2010-13), the following concessions were proposed for agriculture

(i) 75% of basic rate in tariff for farmers with holding size less than 2 ha (excluding sugarcane, banana, horticulture)

(ii) 50% of basic rate in tariff for farmers in districts included in Prime Minister's package and in naxalite affected areas declared by the State (excluding sugarcane, banana, horticulture).

(iii) No tariff for tribal farmers in projects under tribal sub plan

(iv) 75% of basic rate for all crops for project affected people.

(v) 25% of basic rate for horticultural crops for first 3 to 5 years, depending on type of crop. However, if inter-crop is taken, relevant tariff only for inter-crop will be charged. Further area rate

for horticulture will not be more than 75% of sugarcane & banana rate.

(vi) 50% of area rate for volumetric rate for paddy.

4.1.4. WRD has expressed a view that the concessions in para 4.1.3 are difficult to implement and their numbers should be reduced. If the onus of submitting required documentary proof for availing the concessions along with the application for water is placed on the farmer, the difficulty expressed can be tackled. WRD while calling application for water sanction shall specifically mention in "PRAGATAN" of such details to be furnished by farmer in his application. It is therefore proposed that we may continue the area concessions and the concessions for tribal farmers & project affected persons for 2013-16 also.

4.1.5. Regarding concessions for horticultural crops, a suggestion has been received that the stipulation that area rate should not exceed 75% of rate for sugarcane & banana should be dropped and also if inter-crop is taken, higher of the two rates (viz. horticultural rate or inter-crop rate) should be considered. There is need to promote horticulture in the State to improve the earnings of farmers and also to increase the nutritional level of food consumption in the State. It is proposed that we may continue with both the concessions for horticultural crops.

Incentives

4.1.6. In the CBWT (2010-13), an incentive was given for adoption of modern irrigation methods in area based supply by making the tariff rate as 75% of the applicable rate. There is need to promote adoption of drip & sprinkler for perennial crops in flow areas. Under Section 14 (4) of the Act, the Authority has a mandate to promote this. With a view to further accelerate the pace of adoption of drip & sprinkler irrigation technologies and to tackle the likely scarcity of fresh water in coming years, it is proposed to further reduce the tariff from 75% to 60% of applicable rate in CBWT (2013-16) if modern irrigation methods are adopted. This will require separate incentives for encouraging construction of farm ponds.

Disincentives / Penalty

4.1.7. The MWRRA Act, under Section 12 (11) has prescribed a penal rate of one and half times the normal tariff for a person having more than two children. This is applicable only to agricultural entitlement. In CBWT (2010-13), this penalty was indicated accordingly in agricultural area based tariff. There have been demands that the Authority should not

operate this provision. Keeping in view that the statute requires this penalty in tariff be linked to family size, the Authority is required to continue this penalty in 2013-16 also as it is for the State government to take a view on need for amending or deleting this provision.

Private Lift Schemes

4.1.8. The CBWT (2010-13) did not spell out the methodology for working out water rates for private lift schemes for the various crops. The procedure was detailed in the tariff proposal of WRD which was circulated for public consultation. In a nutshell, the procedure earlier finalised is

(i) Rates will depend on source of supply (Annex 2A of CBWT – 2010-13). While basic rate will be charged for assured water supply, the rates will reduce to 0.75 of basic rate for regulated water supply, 0.5 for partly assured water supply and 0.33 for sharing in cost of infrastructure like dam, bandhara or KT weir.

(ii) For area based supply to perennial & horticulture crops, the relevant area based tariff rate will be first considered. A concession of 35% will be given on this rate for investment made by farmers in pump equipment etc.

(iii) The annual energy charge for a 5 hp pump to irrigate 1 ha was taken as Rs. 1500 and a lumpsum O&M cost of Rs. 1000/year was taken for maintenance of assets.

(iv) Thus the basic applicable rate is 0.65 (flow rate) - O&M cost - energy cost. (0.65 because 35% concession is given for investment).

(v) The basic rate will be reduced by 25% for perennial and horticultural crops for adoption of drip and sprinkler.

(vi) For other crops in kharif, rabi & hot weather, the present rates of 2003 were retained.

(vii) For volumetric supply, the volumetric rate fixed for WUAs at minor level will be applicable.

4.1.9. No suggestion has been received from any private lift operator with supporting data to warrant any change in the above approach. The Authority has collected latest energy rates on private lift schemes from MERC which are given in **Annexure 4.1**. For other crops in kharif, rabi & hot weather, a nominal increase in tariff as appropriate will be prescribed.

Government Lift Schemes

4.1.10. Annex 2-B of CBWT (2010-13) gives the procedure for fixing project-wise tariff, including energy chares for Lift Irrigation schemes owned by Government. As per this procedure, energy charges are fully borne by the beneficiaries as also tariff at rates fixed for each crop for area based supply and at volumetric rate for volumetric supply.

4.1.11. One of the comments now received on the above methodology is that this perpetrates inequity between upland farmers and lowland farmers as the former will end up paying more tariffs. Government lift schemes usually cater to drought prone regions of the State. The suggestion is that the O&M cost for government operated lift and flow irrigation schemes should be added together and included in total O&M cost of the irrigation system in the State for recovery through water tariff. It has also been suggested that volumetric supply at rates same as flow rates should be the basis for operating government lift schemes. This suggestion needs in-depth examination by WRD.

4.2. DOMESTIC

Principles

4.2.1. In CBWT (2010-13), the water rate was linked to source of supply (refer Annex 3 of the Criteria). The basic rate was for assured water supply. Since transmission losses are to be borne by the Water User Entity, if the source was regulated water supply with transmission loss, the water rate was fixed at twice the basic rate. If the source was partly assured, the rate was 50% of the basic rate and if the Entity shares in the proportional cost of the infrastructure, then the concessional rate was fixed as 33% of the basic rate. No comments/suggestions have been received on this categorization and hence it is proposed to retain this in CBWT (2013-16) subject to the new proposal in para 4.4.3. on entities sharing cost of infrastructure. Solapur Municipality has proposed that since they are maintaining some weirs, they should be given concessional tariff. Since the weirs have been constructed by WRD and no sharing in construction cost has been done by the Municipality, maintenance of weirs cannot be considered for concessional tariff. It is for the Municipality to recover the maintenance cost from retail tariff charged to consumers.

4.2.2. The basic rate was kept uniform for all the three seasons in the CBWT (2010-13) and it is proposed that we may continue with this approach in the new Criteria also. Also commercial use will be continued to be treated as industrial use.

Concession

4.2.3. In CBWT (2010-13), a stepped tariff was proposed to differentiate rural and urban uses. While Gram Panchayats (GP) were levied 75% of applicable rate, urban local bolides (ULB) i.e. Nagar Palikas / Nagar Parishads were levied 90% and Municipal Corporations 1.25 times applicable rate. While stepped tariff at above rates will be continued in 2013-16, it is clarified that the rate of 1.25 times basic rate will be applicable only to the following 23 A, B, C & D class Municipal Corporations

A		B		C		D	
i.	Greater Mumbai	i.	Pune	i.	Thane	i.	Kalyan- Dombivli
ii.	Navi Mumbai	ii.	Nagpur	ii.	Nashik	ii.	Ulhasnagar
				iii.	Pimpri - Chinchwad	iii.	Bhiwandi– Nizampur
						iv.	Mira-Bhayander
						v.	Malegaon
						vi.	Sangli-Miraj-Kupwad
						vii.	Solapur
						viii.	Kolhapur
						ix.	Aurangabad
						x.	Nanded-Waghala
						xi.	Amravati
						xii.	Jalgaon
						xiii.	Ahmednagar
						xiv.	Dhule
						xv.	Vasai-Virar
						xvi,	Akola

All other municipalities will be treated on par with ULBs (Nagar Parishads) and will be charged 90% of basic rate.

Incentive

4.2.4. In Section 13.2.2. of CBWT (2010-13), a rebate was provided to domestic bulk user entities for treating sewage to required MPCB

standards and enabling use of such treated effluent for irrigation/gardening. The quantum of water to produce such treated effluent was levied only 75% of applicable tariff. It has come to the notice of the Authority that in all agreements entered into by WRD with domestic user entities, a stipulation is always included that the effluent must be treated to required MPCB standards. In most cases, such treated effluent are either discharged into canals or rivers for identified irrigation uses downstream. It is therefore proposed to do away with this concession.

4.2.5. Municipal Corporations and Municipalities (Nagar Palikas) do find it difficult to fund STPs and meet the running costs of the treatment plants. On 15/10/2010, Urban Development Dept. has issued a GR (enclosed as **Annexure 4.2**) to promote recycling and reuse of sewage in urban areas. All ULBs are required to ensure that 20% of the total sewage of the town is recycled and reused. The reuse can be for agricultural, commercial or industrial purposes. WRD, in all their agreements with domestic water user entities, should take note of this circular and permit the ULB to recycle and reuse upto 20% of the total sewage for the purposes envisaged in the GR of UDD without insisting for its release after treatment into a natural water courses provided there are no prior irrigation or other commitments downstream. Further, in such cases, if any Municipal Corporation/Nagar Palika desires to treat and reuse more than 20% of its sewage effluent, it can be permitted by WRD to do so provided there is no downstream commitment in their original bulk water sanctions. Municipal Corporations / Nagar Palikas should levy the tariff for bulk water as fixed by the Authority for each category of user for sale of treated sewage to any entity. This approach will not only improve the river water quality but also reduce the burden on fresh water.

<u>Penalty/Disincentives</u>

4.2.6. Vide Section 13.2.4. of the CBWT (2010-13) municipalities were required to meet their additional requirement by recycling. The National Water Mission has an objective of 20% increase in water use efficiency. Municipalities can contribute in this effort by adopting recycling. Singapore is an example where 20% recycling is being done to meet industrial needs and this is progressively being increased to 50%. It is also reviewing the per capita norms with the objective of progressively bringing it down. Instead of conserving water, there have been

demands that allocation should be automatically increased by 10% each year.

4.2.7. With a view to promote recycling, all Municipalities should by 2016 either make 20% of treated sewage available for other industrial user or reduce their demand by 20% by meeting the industrial component of their sanctioned use with recycled water. They should also carry out water audit to assess per capita norms and identify and quantify non revenue water including line losses. Beyond 2016, WRD would insist for this when existing agreements come up for review. To start with, Metros like Mumbai, Pune, Nagpur and Aurangabad should take the lead.

4.2.8. Vide Section 13.2.4. (iii) in CBWT (2010-13), Municipal Corporations were enjoined to submit within 2 years an implementation programme for new STPs. It is clarified that this is applicable to the 23 Municipal Corporations listed in Para 4.2.3. of this Chapter. Since tariff orders were issued in May 2011, the plans are required to be submitted by May 2013. Otherwise from kharif 2013, penal tariff of 1½ times applicable rate will be charged.

4.3. INDUSTRIAL USE

Principles

4.3.1. In CBWT (2010-13), the water rates were linked to source of supply (Annex 4 of Criteria). The categorization of source of supply and the applicable rates for the various sources are similar to domestic. The basic rate was not uniform in all seasons - while the basic rate was applicable to 'rabi', the rate in kharif was 50% of this rate and the hot weather it was 150%. Since no comments/suggestions have been received on this, it is proposed that we may continue the same for 2013-16.

4.3.2. Two categories of industries were earlier identified viz. industries using water for process (cooling, washing etc.) and industries using water as raw material (beverages). The basic rate for industries using water as raw material was fixed at five times the basic rate.

Three Tier Tariff for Industries

4.3.3. The extant industrial tariff is a two tier tariff differentiating only between process industries and industries using water for beverage. The rate for

the latter is 5 times the rate for former. Industries causing heavy chemical pollution like chemical industries, dyeing, viscose, paper, electroplating, galvanizing, tanneries, bleaching, degreasing etc. are treated on par with thermal plants, food processing, chilling & cold storage, who do not cause any chemical pollution. The cost of bulk water for process industries is Rs. 32/10 cu.m or Rs. 64/10 cu.m depending on source of supply (dam or canal / river). The treatment costs to remove chemical pollutants can be as high as Rs. 60 – 100/10 cu.m. Thus the industries have no incentive to recycle & reuse since raw water is cheaper than treated water. To promote recycle & reuse and improve water quality in rivers, it is proposed to introduce a three tier tariff structure for industries from 2013-16 viz..

(i) Basic rate for thermal, food processing plants Agro Industries who do not cause any pollution in COD terms

(ii) Twice basic rate for chemical & other industries who cause chemical pollution measured as COD.

(iii) Five times basic rate for beverage industries.

Grouping of industries into above 3 categories will be done in consultation with MPCB.

Concession

4.3.4. In CBWT (2010-13), (Section 13.3.2.) agro industries (poultry, canning, sugarcane processing, dairying) were given a rebate in water tariff and only 75% of applicable rate was charged. One more type of agro industry has now come to the Authority's notice, viz. corn processing. It is proposed that we may continue the concession to agro industries in 2013-16 and include corn processing also as an agro industry.

4.3.5. A concession was also provided in the same Section of the CBWT to incentivize recycling by industries i.e. if an industry reduces its demand by atleast 25% by recycling, 75% of applicable tariff will be charged for reduced demand. It is proposed that we may continue this concession in 2013-16 also.

Zero Discharge Industries

4.3.6. The concept of zero discharge is being promoted in developing countries where an entity treats and reuses the whole of the effluent and the

chemical & organic sludge is disposed off as per accepted practice. The entity draws thus only a small fraction of its allocation (10 – 15%) to cover evaporation and line losses plus any use in the process itself. To promote this, it is proposed that zero discharge industries be charged in 2013-16 only 25% of the applicable tariff for topping water drawn by them.

Separate Category for Industries drawing untreated/partially treated sewage water from GPs/ULBs/Municipalities/Corporations and treating it for process industries.

4.3.7. (1) If a process industry desires to be allocated untreated sewage effluent of GPs/Nagarpalikas let into any natural water course and applies to WRD for allocation out of this and treats it at its cost (primary, secondary, tertiary) for use in process industries, no bulk water tariff or royalty will be levied and the untreated sewage effluent will be allocated free of cost to the industry. WRD have however suggested levying of a royalty charge for such use instead of not charging anything.

(2) If a process industry is allocated secondary treated sewage effluent of a Municipal Corporation treated to prescribed MPCB standard and which has an agreement with WRD to return a part of the allocated water after treatment and if the Bio-chemical Oxygen Demand (BOD) of such effluent is higher than the normal BOD level of stored reservoir water requiring the industry to further incur cost on tertiary treatment to bring down the BOD to the level of stored reservoir water, then such category of use will be treated on a separate footing. Keeping in view that quality of water allotted is inferior to stored water in terms of BOD and investment has been made by the entity for tertiary treatment, the tariff will be 25% of basic rate.

4.3.8. In CBWT (2010-13) under Section 13.3.3., the ‘Polluter Pays’ principle was enunciated. While all industries are supposed to treat the effluent to required MPCB standards before they discharge it into natural water courses, those failing to do so were charged penal tariff of twice basic rate. This penal provision is suggested to be continued in 2013-16.

4.3.9. Commitment charge proposed in earlier Criteria for non-irrigation users is also suggested to be continued.

4.4. Other Issues

Equity Issues in Agriculture

4.4.1. Though not raised by any one for this Approach Paper, NGOs had raised the issue in the past of introducing equity principles in water viz. ensuring minimum needs for drinking and subsistence agriculture at no cost and minimum cost. The Authority while determining the Criteria for 2010-13 has loaded about one third of the O&M cost to domestic and agriculture while about two thirds is borne by industry. Further Gram Panchayats enjoy concessional tariff compared to urban areas. The tariff for cereal crops is fixed considering 3-5% of Gross Value of Produce while for cash crops, it is 8-10%. Concessions are also given to small marginal farmers based on land holding. If further dispensations are to be given then the provisions have to be first introduced by the State govt. in the State Water Policy and also in the MMISF & MWRRA Acts. In the absence of this, it would not be possible for the Authority to link this with water tariff.

Irrigation Restoration Charges

4.4.2. Vide GR dt. 5/3/2009, the State government has fixed the revised rate for irrigation restoration charges w.e.f. 1/4/2009 as Rs. 1 lakh/ha. of irrigation foregone as a result of water diverted to non irrigation. However, this amount is rarely used by WRD to actually carry out rehabilitation works like lining to save water and restore irrigation and the amount is usually credited into Government account. Also the user entity paying the restoration cost does not get any tariff concessions as this is not treated as sharing in infrastructure cost. It is proposed to replace this practice with the following revised norm

i) Whenever irrigation is affected due to diversion of water to non-irrigation, the restoration cost will be estimated by WRD on a case-by-case basis considering rehabilitation actually required (lining, additional storage etc.) to save the diverted water. This amount shall be paid by the beneficiary entity to the concerned Irrigation Development Corporation (IDC) before allocation sanction is issued and the amount shall be used by the IDC for actual restoration of the system as intended.

Entities sharing cost of dam and enjoying tariff rebate in perpetuity

4.4.3. Presently, a non-irrigation entity which shares cost in dam, KT weir and barrage pays only 1/3rd basic rate. An entity may share 10% of project cost and may recover this in some years due to reduced tariff. But the entity continues to enjoy the reduced tariff benefit for the whole agreement period. This is a loss of revenue to State Govt. It is therefore proposed to do away with the concept of sharing a cost of dam and all such sharing will be called payment of advance tariff. Once this payment gets adjusted, the number of years to be calculated by NPV method with 10% interest, tariff rebate will cease as and when advance tariff s extinguished.

However this will not apply to entities who fully bear the cost of the dam / barrage / weir and thus fully own the structure for whom royalty at prescribed rate will be charged.

Charging for Evaporation Loss

4.4.4. Entities allocated water from reservoir, are also allocated prorata evaporation quantum. WRD charges the entity not only for the quantity pumped but also the evaporation component. This is not done for entities who draw water from river/canal downstream of dam who are charged double normal tariff for water released from dam. To streamline this aspect, it is proposed that since evaporation is a natural phenomenon it should be treated as a system loss due to human intervention and thus no one should be liable to pay for this. Thus for dam users, tariff will be levied on quantum lifted. For downstream users, since tariff is already doubled to account for transmission losses, it would be fair to charge this tariff only on quantum lifted from river/weir and not water released from dam.

Revenue from Penalties

4.4.5. Additional revenue from penalties imposed on various categories of users would accrue to the State govt. over and above the revenue from normal water charges. While at tariff fixation stage, it will be planned to

recover the full O&M costs from water charges, the additionality from penalties cannot be estimated at tariff stage. It is proposed that such additional revenue be set off against shortfall in revenue collection and loss in revenue due to incentives offered for recycling etc. and will not be considered as a part of tariff for recovering O&M cost.

Fixed Charges for Private L.I. Schemes

4.4.6. WRD has suggested introduction of a fixed charge in addition to area based tariff payable by all farmers under a private lift scheme. The justification for this proposal put forward by WRD is that if only a few farmers irrigate, then full energy costs are shareable by them and thus the burden on them is increased. This may discourage them from taking a crop in next season leading to closure of the scheme.

Annexure 4.1
(Refer Para 4.1.9)

NORMS FOR PRIVATE LIFT SCHEMES

ENERGY CHARGES

1. Effective monthly tariff for agriculture category (5 HP pump).
(Ref. MERC Order dt. 12/9/2010, 2/12/2010, 31/10/2011)

Metered Connection

			Rs. /month
(i)	Fixed charges at Rs./HP/month for 5 HP	=	75
(ii)	Energy charges in Rs/kwh at Rs. 1.75/kwh considering consumption of 1318 hrs/HP/year	=	706
	Total	=	781

Unmetered Connection

(i)	For Bhandup, Pune, Nashik zones with consumption norm above 1318 hrs/HP/year where base tariff is Rs. 234/HP/month	=	1170
(ii)	For other zones in State with consumption norm below 1318 hrs/HP/year where base tariff is Rs. 200/HP/month	=	1000
	Average	=	1085

2. Considering 75% as unmetered connections and 25% as ,metered connection
weighted average tariff = Rs. 781 x 0.25 + Rs. 1085 x 0.75
= Rs. 1000/month
or Rs. 12000/year.
With 50% Govt. subsidy on energy charges
weighted average tariff = Rs. 6000/year

Considering 3.6 ha irrigated area with 5 HP pump
(1 ha sugarcane, 2.6 ha other crops) tariff per ha = $\frac{6000}{3.6}$ = Rs. 1670/ha

O&M Costs

3.

Cost of 5 HP pump	=	Rs. 30000
Annual Maintenance at 12%	=	Rs. 3600
Cost per ha $\frac{3600}{3.6}$	=	Rs. 1000

Hence for 2013-16, the energy charges for private lift schemes will be taken as Rs. 1670/ha for 5 HP pump and O&M cost at Rs. 1000/ha

Annexure 4.2
(Refer Para 4.2.5)

Recycling and reuse of sewage in urban area

Government of Maharashtra
Urban Development department
GR No. Misc- 2010/1015/ Case No. 121/ UD-20
Mantralaya Mumbai- 32
Dated: 15th October 2010

Preface: As per the norm set for the urban area by the Central Government, for treatment of sewage, it's recycling and reuse, minimum 20% of total sewage should have to be available for reuse. While commencing the "Maharashtra Suvarn Jayanti Nagaroththan Mahaabhiyan" in the state, the Govt. has accepted this norm for recycling and reuse of sewage. The issue of establishing methodology for taking well planned action so as to bring minimum 20% of the total sewage in the town under reuse, as per this norm, was under consideration of Government. After overall thinking, Government is taking following decision.

Government Resolution:

1. All urban local bodies by their own efforts or by inducing the residents should ensure that minimum 20% of total sewage in the town is recycled and reused.
2. To encourage the reuse of the sewage available in urban area, it is essential to carry out the study for identification of categories of use, wherein such reuse is possible. As the possibility of reuse of sewage depends on the local circumstances of the town, the ULBs should carry out prior study of the following purposes, in which there is a possibility of reuse of water that would be available from recycling of sewage.
    1) Reuse for Agriculture purpose. e.g. gardening, agriculture etc.
    2) Reuse for commercial purpose. e.g. use for purposes other than drinking. e.g. vehicles washing garages, brick kilns, major constructions etc.
    3) Reuse for industrial purpose. e. g. factories, power projects etc.

    All ULBs should carry out study as above and should finalize the possible and feasible purposes of reuse of sewage available in the town for which it will be possible & feasible and should prepare a DPR, for recycling and reuse of sewage, with the help of expert consultants.
3. To help the ULBs in the issue of recycling and reuse of sewage and to prepare DPRs, the expert consultants will be identified and list of panel of such approved expert consultants is being published

separately. Also the model tender documents and model agreements will be prepared and circulated to all ULBs separately, for making the ULBs possible to take up the projects of recycling and reuse of sewage, under Private Participatory Project Principle.

4. Within first stage of “Maharashtra Suvarna Jayanti Nagaroththan Mahaabhiyan” of the state government, financial assistance is made applicable, for development of infrastructure facilities as per government approved standards or enhance in their standard, in the field of water supply, drainage and urban sanitation, and to take up pollution control and environment protection measures to improve environment of urban areas for all “D” category municipal corporations, towns of regional and district headquarters and the towns of second rank as far as population is concerned. Accordingly, while submitting the drainage projects for sanction during this *Mahaabhiyan*, proper measures should be proposed on the basis of prior study, so as to make available 20 % sewage for reuse after recycling.
5. While, attempts are being made by ULBs for recycling and reuse of minimum 20% of sewage as stated above, it is essential to have recycling and reuse of sewage water on the large residential/ commercial/ industrial projects in the cities vital. For this, regulations should be prepared and made applicable by all ULBs. In this context, for guidance, model regulations will be circulated by the Government to all ULBs separately.

By order and in the name of Governor of Maharashtra.

Sd/-
(Manu Kumar Shrivastav)
Secretary, UDD

CHAPTER – V

DATA BASE

Agricultural Data

Yield of Crops

5.1. In the tariff proposal 2010-13 (Annexure 4.1), the following irrigated yields of various crops were adopted.

	Crop	Yield (Qtl/Ha)
	Kharif	
(I)	Cereals & Other Kharif	12
(Ii)	Groundnut	18
(Iii)	Vegetables, Onion	50
(Iv)	Paddy	20
	Rabi	
(V)	Vegetables	50
(Vi)	Wheat	20
(Vii)	Other Rabi (Gram, Oilseeds)	15
	Two Seasonal	
(Viii)	Chili, Ginger, Tur	15
(Ix)	Cotton	20
	Hot Weather	
(X)	Vegetables	50
(Xi)	Groundnut	25
(Xii)	Paddy	25
	Perennial	
(Xiii)	Sugarcane	800

5.2. A review of the above irrigated yields was done referring to the CWC report 'Water & Related Statistics' (Dec. 2010)' where yearly irrigated yields of various crops of Maharashtra from 1999 to 2006 are given. Taking the maximum yield for each crop in any year, the values are presented below along with irrigated yield data from other sources like Mahatma Phule Agricultural University, Rahuri, Report of Commission for Agricultural Costs & Prices (CACP) titled 'Pricing Crisis in Cotton' of

Oct. 2011, Dept. of Agriculture & Cooperation, Govt. of India's publication 'Agricultural Statistics at a Glance 2011'.

	Crop	Yield in Qtls/ha (CWC report)	Yield in Qtls/ha (other sources)
	Kharif		
(i)	Cereals & other kharif	12 (bajra)	
(ii)	Groundnut	17	
(iii)	Paddy	24	
	Rabi		
(iv)	Wheat	16	
(v)	Gram	7.4	25 to 30 (as per Agri. University, Rahuri)
	Two Seasonal		
(vi)	Cotton	3.1	5.1 for Punjab for 100% irrigation (CACP report)
(vii)	Tur	-	15-16 (as per Agri. University, Rahuri)
	Perennial		
(viii)	Sugarcane	900	790 (as per Dept. of Agri., GoI)

5.3. It is therefore proposed to adopt following yields for the tariff proposal (2013-16).

	Crop	Yield (Qtl/ha)
(i)	Cereals	12
(ii)	Groundnut	17
(iii)	Paddy	24
(iv)	Wheat	15
(v)	Gram, oilseeds	15
(vi)	Cotton	5
(vii)	Tur	15
(viii)	Sugarcane	800

5.4. For vegetables, data from the various Agricultural Universities in the State shows the following yields for different vegetables. However these yields are in controlled conditions.

	Vegetable	**Yield (t/ha.)**
(i)	Tomato	50 - 60
(ii)	Onion	15 - 20 in kharif
		25 - 30 in rabi
(iii)	Brinjal	25 35
(iv)	Leafy	8

The yield earlier adopted for onion of 5 t/ha per season is being increased to 15 t/ha.

Minimum Support Price (MP)

5.5. In the tariff proposal for 2010-13, the MSP fixed by the Govt. of India for 2010-11 were considered. The support prices for 2011-12 have now become available and are as under

		Rs. /Qtl.
(i)	Kharif cereals (Jowar, Bajra)	1000
(ii)	Paddy	1110
(iii)	Tur	3200
(iv)	Wheat	1170
(v)	Oilseeds	2800
(vi)	Gram	2100
(vii)	Sugarcane	145
(viii)	Cotton	3300

5.6. For other crops where no MSP is fixed like vegetables, horticulture, the market prices at the time of formulating the tariff proposal as per rates of the Agriculture Produce Marketing Committee will be considered.

Irrigation data

5.7. In the tariff proposal for 2010-13 (para 4.1), the following data was presented on irrigation potential, ICA, irrigated and unirrigated area.

Figures in lakh ha

Year	Potential created	ICA (80% of potential)	Irrigated area	Unirrigated area
2008-09	44.86	35.88	27.32	8.56
2009-10	46.46	37.16	27.82	9.34
2010-11	48.21	38.56	28.32	10.24
2011-12	50.24	40.19	28.82	11.87
2012-13	52.84	42.27	29.32	12.85

The projection for 2010-11 to 2012-13 was done at 2 to 2.5 lakh per year for potential creation and 0.5 lakh ha for actual area irrigated.

5.8. For 2009-10 & 2010-11, the Irrigation Status reports have now become available and the data reported in these publications are as under

Figures in lakh ha

Year	Potential creation	Irrigation are
2009-10	46.34	25.43
2010-11	47.37	29.55

5.9. For the period 2013-16, it is therefore proposed to consider an annual increase of 1 lakh ha only in irrigation potential and 0.5 lakh ha in irrigated area over 2012-13 figures.

Volumetric Water Use

Agriculture

5.10. The volumetric use of water (by WUAs) by agriculture during 2008-09 and 2009-10 was as under

2008-09 1818.62 Mm^3 (11.8% of total)

2009-10 919.50 Mm^3 (7.4% of total)

5.11. The total water use for agriculture from 2010-13 in tariff proposal was projected as under

2010-11 18200 Mm^3

2011-12 18600 Mm^3

2012-13 19000 Mm^3

5.12. In the absence of 2010-11 data, for 2013-16, an increase of 400 Mm^3 per year over 2012-13 values is proposed in total use on the basis of earlier assumption and volumetric use will be similarly assumed as 10% of total use.

Domestic & Industry

5.13. The actual domestic water use for 2008-09 and 2009-10 were as under (as per tariff levied by 21 Irrigation Circles)

Figures in Mm^3

Sub category	**2008-09**	**2009-10**
Rural / GP	607.06	565.69
ULB (Municipality)	647.88	525.60
Municipal Corporation	2659.64	2953.21
Fishery & others	7.10	0.09
	3921.68	4044.49

5.14. The projected domestic water use for 2010-13 given in tariff proposal was

2010-11	4000 Mm^3
2011-12	4200 Mm^3
2012-13	4400 Mm^3

5.15. The actual industrial water use for 2008-09 and 2009-10 were as under

Figures in Mm^3

Sub category	**2008-09**	**2009-10**
Water use as raw material	3.88	4.15
Water use for process	715.48	866.60
Sugar factory, thermal	31.73	11.17
	750.99	881.92

5.16. In the tariff proposal for 2010-13, the industrial use was projected as under

2010-11	725 Mm^3
2011-12	750 Mm^3
2012-13	775 Mm^3

5.17. Circle-wise billing data is for both industrial & domestic use. Although appropriate rates are levied for each category of use, the actual levy shown under domestic or industry is a mixture of both levies. For 2013-16, it is proposed to combine both uses under a category of non-irrigation use for projection purposes. The basic data to be used for this would be as under.

Year	Non-irrigation use (Mm3)	
2008-09	4672.67	as per actual use
2009-10	4926.41	
2010-11	4725.00	
2011-12	4950.00	as per tariff proposal
2012-13	5175.00	2010-13

5.18. After non irrigation projection for 2013-16 is done, as discussed in next Chapter, the domestic use would be taken as 85% of the projected non irrigation use and balance 15% for industry.

Establishment Costs

5.19 The actual establishment cost for irrigation management for 2008-09 & 2009-10 were as under

Year	Cost in Rs. Crores
2008-09	400.97
2009-10	544.81

5.20. The projected total establishment cost inclusive of Sixth Pay Commission component for 2010-13 as per tariff proposal 2010-13 was as under

Year	Cost in Rs. Crores
2010-01	555.10
2011-12	655.01
2012-13	772.91

5.21 It is proposed to keep 2010-11 as base year and consider 10% per year increase thereafter to estimate the likely establishment cost for 2013-16. This is against 20 to 25% increase projected earlier which seems to be at higher side. However, this has no impact on earlier tariff rates for 2010-13 as Pay Commission component was not considered at all.

CHAPTER – VI

DATA PROJECTIONS FOR 2013-16

Irrigation Data

6.1. As stated in Para 5.7 of Chapter V, the increase in creation of irrigation potential will be assumed as 1 lakh ha per year and increase in irrigated area at 0.5 lakh ha per year both over 2012-13 figures. Accordingly the projected figures will be

in lakh ha.

Year	Potential created	ICA (80% of potential)	Irrigated area	Unirrigated area
2013-14	53.84	43.07	29.82	13.25
2014-15	54.84	43.87	30.32	13.55
2015-16	55.84	44.67	30.82	13.85

6.2. The revised M&R norms of WALMI (as per Para 3.11 of Chapter III) will be applied on the projected data for 2014-15 to arrive at total M&R requirement.

Establishment Costs

6.3. As discussed in Para 5.19 of Chapter V, the projections of total establishment cost will be done at 10% increase per year over 2010-11 data (Rs. 551.10 crores). The figures would accordingly be

Year	Total Establishment cost (Rs. Crores)
2010-11	555.10
2011-12	610.61
2012-13	671.67
2013-14	738.83
2014-15	812.72
2015-16	894.00

6.4. M&R Costs

As discussed in para 3.12 of Chapter III 'Operation & Maintenance Cost of Irrigation Management', the projections of M&R cost for the mid year of the new control period 2013-16 i.e. 2014-15 will be a 10% increase over the M&R norms adopted for 2010-13.

Water Use

Non-irrigation

6.5. The data at Para 5.15 of Chapter V of total water use has been plotted at **Graph 6.1** and the projections for the new control period 2013-16 of total non irrigation water use are as under

Year	Total Non-irrigation water use (Mm^3)	Rounding off to nearest of 1000 Mm^3
2013-14	5175	5200
2014-15	5275	5300
2015-16	5360	5400

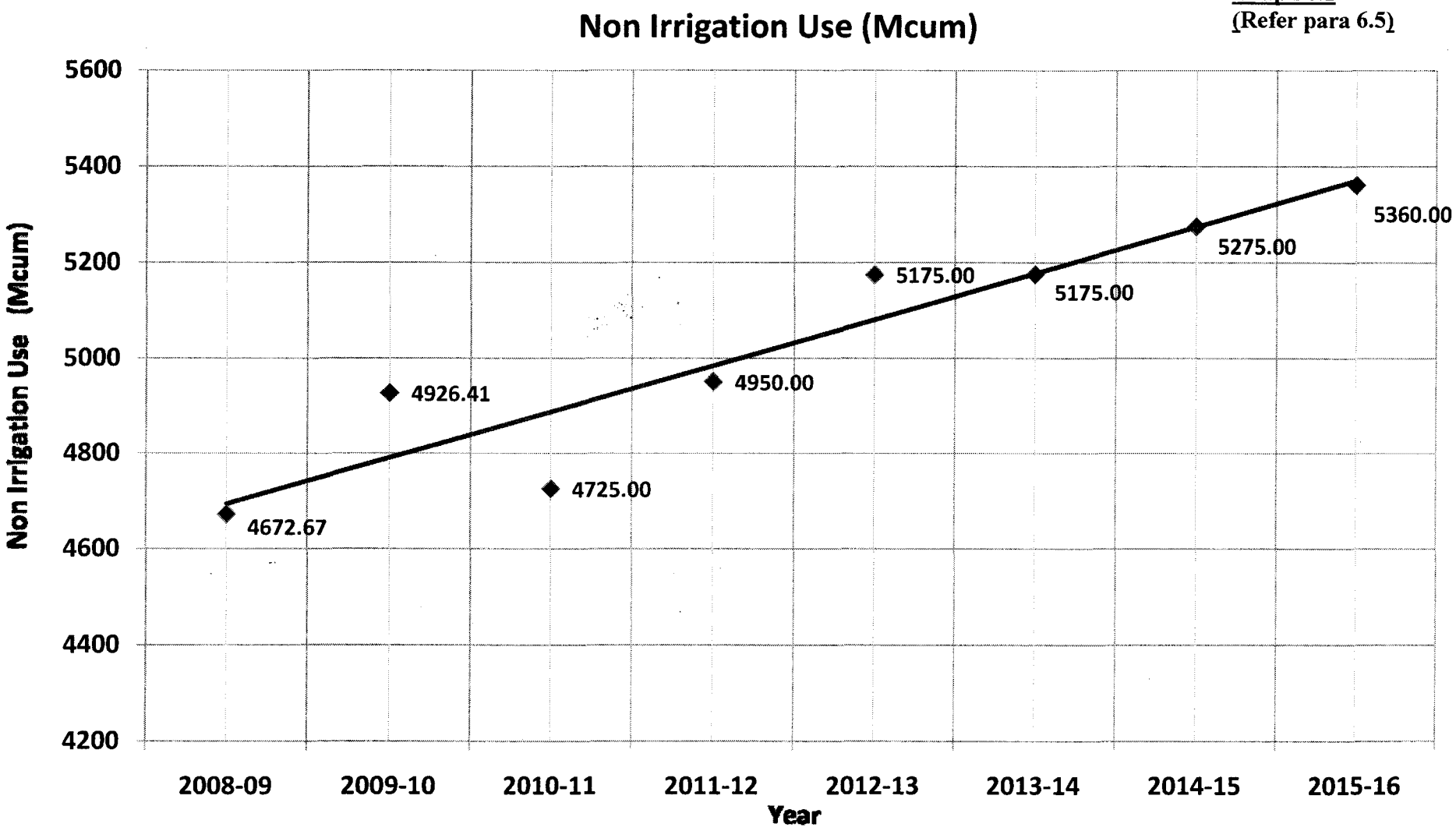
The mid-value of 2014-15 would be considered for tariff purposes with 85% of this as domestic use (4500 Mm^3) and 15% as industrial use (800 Mm^3)

Irrigation

6.6. As stated in Para 5.10 of Chapter V, the total irrigation use and volumetric use projections for the control period 2013-16 are as under

Year	Total irrigation use (Mm^3)	Volumetric use at 10% (Mm^3)
2013-14	19400	1940
2014-15	19800	1980
2015-16	20200	2020

Graph 6.1
(Refer para 6.5)



CHAPTER - VII

PROPOSED METHODOLOGY FOR WORKING OUT BULK WATER TARIFF (2013-16)

7.1. As per the MWRRA Act, bulk water tariffs in the State are required to recover only the full cost of irrigation management, administration, operation and maintenance of water resources project. Thus tariff cannot recover even a part of the capital cost or the cost of any environmental damage. The users are, however, not absolved from the responsibility of ensuring efficient use of water and discharging, after use, water of a prescribed quality. These objectives are to be enforced through a system of penalties and incentives in the tariff structure.

7.2. In the CBWT (2010-13), the allocation of O&M cost was done considering three parameters viz. Affordability, Accessibility and Quantity & Timeliness. A matrix was constructed by allocating weightages to each of these parameters representing the relative importance of each of these to the three bulk user categories viz. agriculture, domestic and industry. Further, since the main concern of stake holders is ability of farmers to pay and agriculture being the largest user of water, affordability was ascribed a value of 0.6 on a scale of 1 followed by accessibility and quantity, timeliness with 0.2 each.

7.3. Before discussing the actual matrix developed earlier, a brief discussion for sake of recapitulation is made on the three identified parameters and the basis for the weights assigned.

Affordability : as distinct from willingness to pay, affordability is related to consumer's ability to pay. Willingness to pay includes coping costs and is the upper limit of tariff. As per Organisation for Economic Cooperation and Development (OECD) literature, rule of thumb for affordable water service expenditure for households is 3 to 5% of disposable incomes. However, while this could apply directly to domestic water at the retail level, it can be applied only indirectly to agriculture and industry where water is an input to an economic activity. Further, as an input cost, water charge is substantially a higher component of total cost in agriculture than in industry. In agriculture, various Committees in the past have recommended that water tariff should not be more than 3 to 5% of the gross value of produce in case of cereal crops and 8 to 10% in the case of cash crops. For industry, water

charges for most industries are less than 1% of the production cost. Keeping these in view, the allocation of weight to affordability was taken as highest for industry (Rs. 75 out of Rs. 100 allocable O&M cost) followed by agriculture Rs. 15 and drinking water Rs. 10.

Accessibility : Like affordability, accessibility is a significant factor which directly impacts pricing. Accessibility is defined here as 'reach' rather than mere availability, or in other words 'ease of access' rather than 'access' itself. Domestic use for drinking is accessed from the storage or distribution canal by lift, transported by pipes and stored in tanks of various sizes. All these costs are borne by the water use entity. The weightage for accessibility for domestic use has to therefore very low. For agriculture, the canal system is already constructed by the State. Unlike domestic use, distances are not great and distribution is among a smaller number of users. Hence weightage for accessibility for agriculture have to be higher than for domestic use. Unlike agriculture & domestic, industry has a choice of selecting location prior to the unit being set up. Industrial estates, SEZs, MIDC establish locations only after a dam come up and water allocation is assured. Hence these parameters will carry a higher weightage for industry. According the allocation of Rs. 100 O&M cost from accessibility consideration was decided as Rs. 45 for industry, Rs. 30 for agriculture and Rs. 25 for domestic.

Quantity & Timeliness : Despite being offshoots of accessibility, these three parameters affect the three categories of users differently. For domestic use, once quantity is decided based on per capita norms, upto this level quantity is important as it is required for survival. However, timeliness in supply is ensured by on-line storages created by the entity. Hence, upto saturation level, domestic use carries lowest weightage. For agriculture, volume is vital but compared to domestic use, it is less acute as irrigation is support to rain water and ground water. Irrigation does not have on-line storages but some time delay in supplies does not affect yields significantly. However, required supplies of right quantity and at the right time will ensure dual cropping, cash cropping and adoption of modern agricultural practices. For industry, both quantity & timeliness are important. All manufacturing processes require water in some form and no industry can survive without this minimum quantity. For industries using water as raw material, quantity at all time will carry a greater weightage. Timeliness is however less importance as industries do have storages or can resort to tanker supplies. Considering quantity

and timeliness together, the lowest weightage is for domestic, followed by agriculture and industry. Hence the allocation of Rs. 100 O&M cost was taken as Rs. 45 for industry, Rs. 30 for agriculture and Rs. 25 for domestic.

7.4. Based on the above arguments, the allocable O&M cost of Rs. 100 for each of the three parameters was distributed as under to the three categories of users

Parameter	Agriculture	Domestic	Industry	Total
Affordability	15	10	75	100
Accessibility	30	25	45	100
Quantity & Timeliness	30	25	45	100

The allocation of O&M with a weightage of 0.6 to affordability and 0.2 each to the other two parameters gave the allocation matrix as under

Parameter	Agriculture	Domestic	Industry
Affordability	15 x 0.6 = 9	10 x 0.6 = 6	75 x 0.6 = 45
Accessibility	30 x 0.2 = 6	25 x 0.2 = 5	45 x 0.2 = 9
Quantity & Timeliness	30 x 0.2 = 6	25 x 0.2 = 5	45 x 0.2 = 9
Total	21	16	63

Thus, the last tariff rates were fixed considering allocation of total O&M cost as 63% to industry, 16% to domestic and 21% to agriculture. Since agriculture included canal flow areas and ground water areas and since ground water was made free of tariff by State govt., the tariff for canal flow was fixed as 16% of O&M cost with 5% being State government subsidy for loss in revenue from ground water use.

Review of Matrix for CBWT 2013-16

7.5. The only suggestion received was that the methodology adopted of assigning weights was subjective and weights could be arbitrarily changed by planners. Hence the Gross State Domestic Produce (GSDP) method was suggested implying that the contribution of each category of use to GSDP should form the basis. While it cannot be denied that a matrix allocating weightages of this type cannot altogether

eliminate the subjective element, the Authority had gone substantially by the views expressed by stakeholders in the public hearings during the earlier tariff exercise. As regards arbitrary changing of weights by Govt./Planner, it is clarified that once the Criteria is determined by the Authority following the procedure laid down in Section 11 (d) of the Act, it becomes final and binding and only the Authority can review the Criteria for the subsequent tariff exercise.

7.6. On a study of the GSDP of the State for 2010-11 (reference Economic Survey of Maharashtra), it is seen that the contributors to the GSDP of Rs. 9,01,330 crores are agriculture and allied activities (10.69%), industry (30.42%) and service sector comprising railways, transport, communications, trade, hotels, banking, insurance, public administration etc. (58.89%). Perhaps the suggestions has been made keeping in view the contribution to GSDP by agriculture is only 10.69% and hence the O&M cost allocation should also be accordingly done.

7.7. Considering GSDP for O&M cost allocation throws up following issues

(i) GSDP considers all capital costs (cost of dams etc.) which are not to be considered in O&M

(ii) Domestic water does not contribute to GSDP as it is a social need (life saving) and it follows that it will have to be fully subsidized by State Govt.

(iii) Service sector, although contributing nearly 60% to GSDP is not a direct bulk consumer except that water use by commercial establishments is treated as industrial use in tariff.

It therefore follows that while agriculture & industry would get substantial tariff relief, the State government subsidy would be nearly 60%. This vitiates the spirit of Section 11 (d).

7.8. This leads to the conclusion that the basic approach decided earlier for allocation of O&M cost still holds water. A number of suggestions were received in the earlier tariff exercise from experts / NGOs and these are worth going over again for the new exercise.

7.9. (i) <u>Shri Y.R. Jadhav (former Special Invitee to the Authority)</u>

Agriculture should get lower weightage both for accessibility and quantity & timeliness compared to other two users (20 instead of 30) as agriculture does not get timely and sufficient water. The weights for domestic and industry can be increased to 30 & 50 respectively accordingly.

(ii) SOPPECOM

While the fundamental parameters are agreeable, quality could be added. Farmers are unorganized with no control over market prices. Hence affordability should be on par with drinking (10 each and 80 for industry). Similarly, agriculture depends on earthen channels and subject to theft & losses. Hence accessibility should be 20-20-60 for agriculture, domestic & industry instead of 30-25-45. In quantity & timeliness, agriculture gets water at lower dependability and hence weightage of 25-25-50 would be appropriate instead of 30-25-45 for agriculture, domestic, industry.

(iii) Dr. R.P. Kurulkar

Agriculture should be allocated only 13% considering rate of growth of the sector is less than 4%, low productivity, low per capita income. Considering commercial component in domestic, it can bear 22% of O&M cost.

(iv) Shri R.T. Pokharkar

Allocation for agriculture of O&M cost should be 13% to 15%.

Review of Matrix

7.10. While assigning of weights for Accessibility and Quantity & Timeliness does not call for a review, weights assigned for affordability have been reviewed from the following considerations "

(i) 44% of the farmers in the State are marginal farmers having less than 1 ha holding. The small holding size precludes them from going in for higher income cash crops and are thus forced into lower productivity and lower agricultural income (from cereal crops) even after irrigation is made available. The incremental income is not substantial.

(ii) if affordable domestic water is 3 to 5% of disposable income, water charges for cereal crops are also recommended in the earlier Criteria for 2010-13 as 3 to 5% of gross value of produce. Therefore there is a case for narrowing down the disparity in weights assigned to agriculture (15) and domestic (10).

7.11. It is therefore proposed to revise the assignment of weights for Affordability as Agriculture 12, domestic 10 and industry 78. With this revision, the revised allocation matrix will now be

Parameter	Agriculture	Domestic	Industry
Affordability	12 x 0.6 = 7.2	10 x 0.6 = 6	78 x 0.6 = 46.8
Accessibility	30 x 0.2 = 6	25 x 0.2 = 5	45 x 0.2 = 9
Q & T	30 x 0.2 = 6	25 x 0.2 = 5	45 x 0.2 = 9
Total	19.2	16	64.8
Say	19	16	65

7.12. With 5% subsidy for ground water, the actual allocation of O&M cost to canal users will be 14% (19 – 5) against earlier value of 16%.

Proposed Methodology for fixing of Tariff

Non-irrigation

7.13. The methodology earlier discussed in Section 14 of CBWT (2010-13) will undergo a slight change as discussed below

(i) for domestic and industrial bulk user entities, the basic volumetric rate will be worked out applying percent cost allocable (16% to domestic and 65% to industry) to the volume of water estimated to be used in 2014-15 i.e. middle year of the 3 year Control Period 2013-16.

(ii) Detailed tariff to be estimated for sub categories of users viz. GP, Nagar Parishads & Municipalities in Domestic and process industries (non-polluting and polluting separately) and industries using water as raw material (beverages), depending on source of supply, as already discussed in Chapter IV.

(iii) Total revenue realized will be estimated for each category of use and if it is more or less than the O&M cost allocation, the basic rate will be revised downwards or upwards till revenue realized matches with the allocation.

(iv) Due to concessions and penalties, there would be loss or gains in revenue to the State govt. At tariff fixing stage, it will be very difficult to assess this realistically. Hence the basic rate will be fixed for matching revenue realized with O&M allocation. Shortfall in revenue due to availing of concessions for water saving will be reckoned as State government subsidy for promoting water use efficiency. In any case, the State government will no doubt earn additional revenue by allocation of saved water to other new users.

7.14. It is hypothetically possible that the revenue earnings in a category of use are more than the allocation due to higher water drawal than estimated or due to realization of penalties which are more than loss in revenue due to concessions. However, it needs to be kept in view that the tariff cycle is 3 years and the total picture from all categories of users needs to be considered, including collection efficiency before jumping to any conclusion that the tariff fixed is higher or lesser than required.

Agriculture

7.15. The principle to be adopted for area based tariff for various crops for agriculture would be the same as in CBWT (2010-13) viz. tariff should not exceed 3 to 5% of the gross value of produce in case of food crops and 8 to 10% of the gross value in case of sugarcane, banana an horticulture. This basic rate will be for rabi. Where the crop nomenclature is same in hot weather or kharif as in rabi, the rate will be 150% or 50% of the rabi crop rate. This norm will be applied also to fix seasonal rates for perennial crops. However, if extended rabi watering is taken for a kharif crop or extended hot weather, watering is taken for a rabi crop, the rates will not be charged to the disadvantage of the farmer. This means that if for a kharif crop, 2 waterings are taken in kharif and 1 in rabi, the area rate for the crop will be charged only at the relevant kharif rate. This clarification was not given in CBWT 2010-13 and was raised by some stakeholders during the capacity building workshops convened by the Authority & WALMI prior to the Entitlement season.

7.16. WRD have suggested that while the norm of 50% of rabi basic rate in kharif and 150% in hot weather could be adopted for volumetric tariff, for area tariff, the hot weather rate should be increased to 200% from 150%. This needs discussion.

7.17 For calculating gross value of produce, the Minimum Support Price for each crop, as fixed by GoI based on the recommendations of the Committee on Agricultural Costs & Prices, for the latest year available will be considered.

7.18. The methodology for calculating volumetric tariff for WUAs at minor level, given in Annex 1 of CBWT 2010-13 has been reviewed. The earlier approach was to work out volumetric rate considering the area rates and volume of water. Suggestions were received that the calculation can be simplified and made easier to understand by re-allocating the O&M cost allocation to canal flow between the area users and volumetric users. Since the volumetric supply data is available for

each year, the calculation methodology has been revised and is now given in **Annexure 7.1.**

7.19. Since upper level associations (PLA, CLA, DLA) have not been formed in most projects, the maintenance of the system above the minor would continue to vest with the WRD. Budget grants are being provided to WRD for this purpose. The water charges received from WUAs would be returned to them for maintaining the system below the minor, as per norms fixed from time to time by the State government. As and when upper level associations are formed, they would receive budget grants from the State government for system maintenance.

7.20. Since the method of calculating area based tariff for each crop is not linked to O&M cost allocation, unlike in non-irrigation, the total revenue realized after the tariff for each crop is decided has to be estimated based on irrigated area and cropping pattern in the State. This has to match with the O&M allocation made to canal flow areas after excluding the allocation to volumetric areas. In this assessment, the concessions linked to holding size have to be considered as they involve a sizable revenue loss. If the revenue realized is more, then it calls for downward revision in the tariff. Similarly, if the revenue realized is less, then it calls for upward revision in the tariff, subject to the ceilings adopted linking tariff to gross value of produce.

Annexure 7.1
(Refer Para 7.18)

Methodology for Working Out Volumetric Rate for Agriculture for Minor Level WUA

(Calculations to be done with 2014–15 projected data)

1. Assumption - Since system rehabilitation in most projects under Maharashtra Water Sector Improvement Project (MWSIP) will be completed by 2014-15, an overall efficiency of 0.48 is adopted with efficiency of 0.64 upto minor.

2. Let O&M cost allocation to canal irrigation be C

3. Let total volumetric drawal by irrigation be V_1

4. Let total volumetric drawal by minor canal WUAs be V_2 (at minor head)

5. Volumetric drawal by WUAs at canal head.

$$= \frac{V_2}{0.64} = V_3$$

6. O&M cost allocable to WUAs

$$= C \times \frac{V_3}{V_1} = C_1$$

7. Unit rate of volumetric supply to WUA

$$= \frac{C_1}{V_3}$$

Note : A concession of 25% in above rate will be considered, if required.

8. This will be rate in rabi. Volumetric rate in kharif is proposed as 50% of this rate and rate in hot weather will be 150%. This actual range will be finalised after discussion.

महाराष्ट्र जलसंपत्ती नियमन प्राधिकरण

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