

(Draft)

# Criteria for Determination of Bulk Water

## Tariff in the State of Maharashtra

### VOLUME - III

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*Preparation of Criteria for Bulk Water  
Pricing in the State of Maharashtra -  
Volume-III*

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## **CRITERIA FOR DETERMINATION OF BULK WATER TARIFF IN MAHARASHTRA**

### **1 BACKGROUND**

- 1.1. The Maharashtra Water Resources Regulatory 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. As required under the Act, the State government vide notification no. 2005/(72/05)/1/WRI dt. 8-6-2005, brought the Act into force on that date and vide notification 2005/78/05 dt. 12-8-2005 established the Authority to carry out the purposes of 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 task, the Authority with the help of consultant prepared and circulated in October 2008 a draft Approach Paper on developing Criteria for Bulk Water Tariff (henceforth referred to as CBWT) among stake holders, line departments / water utilities and NGOs seeking their suggestions and comments. As a part of the consultation process, the Authority thereafter conducted public consultation at nine different places in the State between February and June 2009. Based on the comments received and views expressed in the public hearings, the Authority has



revised the Approach Paper and has circulated this paper under the title 'Preparation of Criteria for Bulk Water Pricing in the State of Maharashtra'. Based on this revised Approach Paper, the Authority has prepared the draft CBWT and is also circulated for eliciting comments / suggestions.

- 1.4. After finalization, the CBWT will be forwarded to the State government for preparing and submitting tariff proposals for the three year period 2010-2013.

## **2 SCOPE OF THE CBWT**

- 2.1. The scope of the CBWT is limited to determination of bulk water tariffs within the State for the three categories of users viz. agriculture, domestic drinking water and industries, as envisaged in the preamble of the Act.

## **3 DEFINITIONS**

- a) *'Act'* means the Maharashtra Water Resources Regulatory Authority Act 2005.
- b) *'Agricultural User'* means any user (individual farmers or Water User Associations) within the State who use water from reservoirs/ canals/ distributaries/ minors or from tapped rivers or tributaries flowing within the State by flow or lift primarily for growing crops
- c) *'Authority'* means the Maharashtra Water Resources Regulatory Authority
- d) *'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 lifted or obtained by flow by such user from tapped rivers and their tributaries flowing in the State or from reservoirs constructed and operated by water utilities/industries



- e) *'Bulk Water Tariff'* means the tariff levied on bulk water users by the Water Resources Department, as per the tariff order issued by the Authority in force on the date of levy.
- f) *'Collection Efficiency'* means the ratio of revenue realized from bulk water users to the tariff billed, excluding arrears.
- g) *'Control Period'* for the purposes of the applicability of tariffs shall be the three consecutive water years starting from 1<sup>st</sup> July 2010 to 30<sup>th</sup> June 2011, 1<sup>st</sup> July 2011 to 30<sup>th</sup> June 2012 and 1<sup>st</sup> July 2012 to 30<sup>th</sup> June 2013.
- h) *'Culturable Command Area (CCA)'* of an irrigation project is the area which can be irrigated by that scheme and is fit for cultivation
- i) *'Domestic User'* means any body (Gram Panchayat, Urban Local Body, Municipal Corporation, Maharashtra Jeevan Pradhikaran etc.) who obtain water by lift or by flow from reservoirs/canal systems constructed and operated by WRD or from tapped rivers and their tributaries flowing in the State or from reservoirs constructed by the body themselves for its distribution, with or without treatment to domestic users.
- j) *'Drought'* means a period so declared 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. Rainfall deficiency in the range of -20% to -59% of the long term mean represents moderate drought while deviation of more than -60% represents severe drought.
- k) *'Energy Charges'* means the electricity supply charges levied on various category of bulk water users by the electricity distribution licensee for use of water.
- l) *'Hot Weather'* means season March to June.
- m) *'Industrial User'* means any industry or industrial development Corporation who obtain water by flow or by lift from reservoirs/canal systems constructed and operated by the WRD or from tapped river and



their tributaries flowing within the State or from the reservoirs constructed by the user himself for use as raw material (e.g. beverages) or in process (cooling, washing etc.)

- n) '*kharif*' means the season from July to October.
- o) '*Major*', '*Medium*', '*Minor Irrigation Project*' means project with CCA greater than 10,000 ha, between 2000 & 10000 ha and less than 2000 ha respectively.
- p) '*Modern Irrigation Method*' means micro-irrigation (drip & sprinkler) or any other method specified by the Authority from time to time.
- q) '*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
- r) '*Rabi*' means season from October to February.
- s) '*State*' means the State government of Maharashtra

#### **4 GUIDING PRINCIPLES**

In preparing the CBWT, the Authority shall be guided 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 and guidelines brought out by international organisations like the World Bank, UNESCO may also be referred where relevant.

#### **5 PROCEDURE TO BE FOLLOWED FOR ISSUE OF TARIFF ORDER**

- 5.1. After the CBWT is finalized by the Authority, the WRD will submit the tariff proposal for the three year period July 2010 to June 2013 projecting, in the format prescribed by the Authority, the annual O&M cost and user category wise tariff proposed to be levied based on the provisions in the CBWT.





- 5.2. The draft tariff proposal shall be submitted by 31<sup>st</sup> March 2010 to Authority.
- 5.3. After vetting the draft, the Authority may seek such clarification from the WRD and also follow such consultative process with stake holders as considered necessary and issue the tariff order by 30<sup>th</sup> June 2010.
- 5.4. Stake holders / WRD will have the right to appeal to the Authority against any provision in the tariff order as per procedure to be laid down by the Authority.

## **6 ADHERENCE TO TARIFF ORDER**

Provisions under Section 26 and Section 27 of the Act shall be applicable for non-compliance of the tariff order.

## **7 COST ELEMENTS TO BE CONSIDERED IN O&M COST**

- 7.1. The cost elements to be considered for annual O&M cost shall include
  - (a) M&R works on the canal systems and headworks of WRD projects to be incurred during the year
  - (b) Project establishment cost comprising salaries of WRD 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
  
- 7.2. O&M shall not include
  - (a) All capital costs of irrigation projects including depreciation, interest on loans, special repairs
  - (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.



## **8 NORMS FOR MAINTENANCE & REPAIRS**

- 8.1. The State Government shall prescribe norms for the M&R of canal system, headworks and appurtenant works based on the studies carried out in this regard by Water & Land Management Institute, Aurangabad and recommendations of various State & Central Committees. The Authority may on scrutiny of the norms, direct the State government for their review and revision if in its opinion; the norms are inadequate for proper upkeep of the assets created. The projection of funds for M&R should be as per the norms.
- 8.2. For proper asset management, the WRD shall follow the principles laid down in Annex 5 to this CBWT.

## **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 be included while projecting O&M cost for recovery through tariffs

## **10 GOVERNMENT SUBSIDY**

- 10.1. Revenue gap if any i.e. arithmetical difference between the project O&M cost and projected tariff realization shall be provided as State government subsidy and WRD shall confirm availability of required subsidy. Income derived by RBAs i.e. non tariff income as per para 9 above, may be adjusted against subsidy, if necessary.

## **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, actual M&R costs and establishment cost and subsidy provided, if any. In case of revenue surplus, its adjustment in tariff for the next water year should be submitted for approval of the Authority.



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

## **12 APPORTIONMENT OF O&M COST**

12.1. The total O&M cost 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.

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

<u>Parameter</u>	-	<u>Weightage</u>
(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 be

	Agriculture	Drinking Water	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	Drinking Water	Industry
Affordability	$15 \times 0.6 = 9$	$10 \times 0.6 = 6$	$75 \times 0.6 = 45$
Accessibility	$30 \times 0.2 = 6$	$25 \times 0.2 = 5$	$45 \times 0.2 = 9$



Q & T	30x0.2 = 6	25x0.2 = 5	45x0.2 = 9
	21	16	63

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

$$= 0.16 \times 0.85 + 0.63 \times 0.15$$

$$= 0.136 + 0.095 = 0.231$$

Effective industrial water allocation of O&M cost

$$= 0.63 \times 0.85 + 0.16 \times 0.15$$

$$= 0.536 + 0.024 = 0.560$$

12.6. Thus the allocation of O&M cost to the three categories of users shall be

Agriculture	-	21%
Domestic	-	23%
Industry	-	56%

### **13 PRINCIPLES / INCENTIVES / CONCESSIONS / DISINCENTIVES TO BE ADOPTED IN TARIFF FIXATION**

#### **13.1. Agriculture**

##### **13.1.1. Principles**

- (i) While fixing the basic rate 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.\*



- (ii) In area based tariff, season-wise grouping of crops will be done for tariff purposes keeping in view crop water requirement and gross value to reduce the number of items to about 20 - 25 supplemented by clarificatory notes.
- (iii) The above basic rate will be for rabi crops. For Kharif crops 80% of the basic rate will be levied and for hot weather crops 120% of the basic rate will be levied.
- (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 fixation between normal and scarcity period. However, the State may consider remission in water charges in scarcity period by providing subsidy.

\* Note: For reckoning gross value, the Agricultural Produce Marketing Committee's yearly average price for each crop may be considered except for sugarcane where the farm harvest price obtained from Maharashtra State Cooperative Sugar Factories Federation shall form the basis.

#### 13.1.2. Concessions :

- (i) In area based tariff, small and marginal farmers shall be levied concessional tariff as under
  - a. Marginal farmer (< 1 ha holding) - 50% of basic rate
  - b. Small farmer (1 - 2 ha) - 75% of basic rate
  - c. Medium and large farmers - basic rate
- (ii) For projects implemented under tribal sub plan, no tariff shall be levied for all tribal farmers.



(iii) Since horticultural crops take 3 - 5 years to yield, area based tariff for this period will be 50% of basic rate

(iv) Volumetric rate for paddy will not be more than area based rate.

#### 13.1.3. Incentives

(i) For adoption of micro irrigation in area based supply - 50% of applicable rate

#### 13.1.4. Disincentives / Penalty

(i) Family size - Farmers having more than two children born after one year of enactment of the Act, 1.5 times rate applicable will be charged. Provisions of Section 12 (11) (a) & (b) of the Act shall apply.

(ii) Minimum charge for not taking water - As per Section 26 (3) of the MMISF Act 2005, the Authority shall have the power to levy minimum charges as prescribed to the WUAs if water is not demanded or used for irrigation by the WUA in a season as per Applicable Water Entitlement.

- In regard to areas where WUA has not been formed, as per Section 46 (3) of the MI Act 1976, farmers in an irrigated command of a canal who have demanded and got sanctioned water in Kharif and rabi season and who do not avail of the facility of water supply, a rate of 50% of the applicable seasonal rate will be levied. Provided that no such water rate will be levied if water is demanded and not made available.

### 13.2. Domestic Water

#### 13.2.1. Principles

(i) Basic rate will be linked to source of supply as indicated in Annex 3.

(ii) Basic rate will be applicable for rabi season. For kharif, 80% of basic rate will be charged and for hot weather, 120% of basic rate.



- (iii) While entering into bulk water supply agreement with municipalities, commercial use will be separately identified and charged appropriate industrial rate.

#### 13.2.2. Incentives

- (i) rebate for effluent treatment - If municipality makes available treated sewage effluent for irrigation/gardening, tariff for volume of water used to produce such treated effluent will be 50% of water supply tariff and also the municipality will be allowed to retain the revenue from sale of treated effluent.

#### 13.2.3. Concessions

- (i) stepped tariff - tariff for rural and urban users will be different as under
- (i) GP using upto 40 lpcd - 75% of applicable water
  - (ii) ULB using upto 70 lpcd - 90% of applicable rate
  - (iii) Municipalities/Corporations using 130 lpcd or more - 1.25 times basic 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) | Polluter pays principle                     |   | Higher rate of water tariff by way of penalty may be considered for Municipal Corporations / Municipalities who do not show adequate progress in setting up of STPS. |

### 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 process industries. For kharif season, 80% of basic rate will be charged and for hot weather 120% pf basic rate
- (iii) For industries using water as raw material, higher basic rate (500% of above) will be charged.

#### 13.3.2. Concessions

- |      |   |   |   |
|------|---|---|---|
| (i)  | Agro industries<br>(poultry, canning,<br>sugarcane) | - | 75% of applicable rate will be charged  |
| (ii) | Rebate for recycling                                | - | If industry reduces its demand to 75% by recycling (utilization reduced by 25%), 80% 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 - 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.
- (i) principle

### 13.4. GENERAL (for all Categories)

- (i) 10% rebate will be given for advance payment (within 15 days of sanction of water demand) and 10% penal interest rate per year for delayed payments beyond permissible limit.
- (ii) Present norms for rebate in sharing of cost of headworks as per circular no. Non Irrigation WS-1003 (421/2003)/IMCP) dt. 21-2-2004 will continue.
- (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<sup>3</sup>/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) If any non irrigation user entity does not utilize its applicable entitlement in a year, 50% of tariff as minimum charges will be levied.

## **14 DUTIES OF SERVICE PROVIDER**

### 14.1. Improvement of Collection Efficiency

- (i) WRD shall improve collection efficiency of agriculture water tariff to atleast 75% by the end of the control period.



- (ii) WRD shall submit circle-wise information on collection efficiency in the format as per directives of the Authority

14.2. Improvement of Water Use Efficiency.

- (i) WRD should strive to achieve state average water use efficiency for the control period as below

<u>Year</u>	<u>Target ha / Mm<sup>3</sup></u>
2010-11	120
2011-12	125
2012-13	130

- (ii) WRD shall submit circle-wise information for each major & medium irrigation project giving area irrigated in rabi & hot weather per Mm<sup>3</sup> of stored water as per format to be specified by the Authority.



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**List of Annex**

<b><u>Annex No.</u></b>	<b><u>Subject</u></b>
1	Methodology for Computing Volumetric Bulk Water Tariff
2 2-A 2-B	Methodology for Computation of tariff for Lift Irrigation Schemes Operated by State and Private Entities.
3	Determination of Basic Tariff for Domestic Users Depending on Source of Supply
4	Determination of Basic Tariff for Industrial Users Depending on Source of supply
5	Asset Management



### Annex-1

[See Criteria 13.1.1 (iv)]

#### Methodology for computing Volumetric Bulk Water Tariff

1. WRD, GoM shall compute average volumetric tariff separately for Major Irrigation Projects, Medium Irrigation Project and Minor Irrigation Projects for each of the three seasons namely Kharif, Rabi and Hot Weather. Thus there shall be nine (9) set of volumetric tariffs as shown in the Table below:

(Rs. / m<sup>3</sup>)

PARTICULARS	MAJOR	MEDIUM	MINOR
Kharif			
Rabi			
Hot Weather			

2. The area irrigated at source (dam, weir etc.) will be considered as 150 ha for 1 million cubic metres of water (Mm<sup>3</sup>)
3. Efficiency at 64% (80% x 80%) will be considered for Major and Medium projects and 80% for minor irrigation projects. Thus, for Major and Medium projects, the actual area irrigated per Mm<sup>3</sup> will be 150 x 64% = 96 ha and for minor projects, 150 x 80% = 120 ha.
4. The last three (3) year average cropping pattern for irrigated areas (for the State) shall be computed as a percentage of total crop area for a Crop A to the Irrigated Command Area (ICA), for each of the season.

For e.g. the percentage for various crops for Kharif is shown below:

(%)

Season	Kharif
Crop A	P <sub>1</sub>
Crop B	P <sub>2</sub>
Crop C	P <sub>3</sub>
...	...

5. Water requirement at field level in m<sup>3</sup>/ha, season wise for each of the crops in the average crop pattern, will be worked out based on modified Penman/duty delta method (for Kharif crops, let this be V<sub>1</sub>, V<sub>2</sub>, V<sub>3</sub>) as shown below:



(m<sup>3</sup>/ha)

Season	Kharif
Crop A	V <sub>1</sub>
Crop B	V <sub>2</sub>
Crop C	V <sub>3</sub>
...	...

6. The total water required for a Minor Irrigation Project for 120 ha irrigated area for Kharif season shall be

$$V = 120 \times \sum_{i=1}^n P_i V_i$$

Where

$V$  is the volume of water required for irrigation 120 ha in m<sup>3</sup>.

$P_i$  is the percentage area of  $i^{\text{th}}$  crop to total ICA of the State.

$V_i$  is the water requirement of  $i^{\text{th}}$  crop in m<sup>3</sup>/ha.

$i$  varies from 1 to  $n$ , which accounts for number of principal crops considered for arriving at average volumetric tariffs for Kharif season.

7. The area based tariff for each crop in for Kharif be T<sub>1</sub>, T<sub>2</sub>, T<sub>3</sub> ..... (Rs. / ha) as shown below:

(Rs./ha)

Season	Kharif
Crop A	T <sub>1</sub>
Crop B	T <sub>2</sub>
Crop C	T <sub>3</sub>
...	...

8. The total tariff levied (in Rs.) collected from 120 ha of a Minor Project in Kharif would be:

$$T = 120 \times \sum_{i=1}^n P_i T_i$$

Where

$T$  is the total tariff levied for irrigation 120 ha in Rs.

$P_i$  is the percentage area of  $i^{\text{th}}$  crop to total ICA of the State.



$T_i$  is the area basis tariffs on *flow* irrigation applicable for  $i^{\text{th}}$  crop in Rs./ha.

$i$  varies from 1 to  $n$ , which accounts for number of principal crops considered for arriving at average volumetric tariffs for Kharif season.

9. Average volumetric tariff at *minor* level for Kharif for a Minor Project shall be computed as

$$V_{avg} = \frac{T}{V}$$

Where  $V_{avg}$  is the average volumetric tariff in Rs. /m<sup>3</sup>;

10. Similar exercise shall be carried out for Major and Medium and for Rabi and Hot Weather.
11. Final volumetric tariff may be kept at 75% of average volumetric tariff in order to encourage formation of WUAs.
12. For paddy areas in the State, the volumetric rate should not be greater than the area based tariff rate keeping in view that paddy, although high water consuming, unlike cash crops is not a very remunerative crop and farmers may be discouraged from forming WUAs and switching over to volumetric supply. The volumetric rate for paddy may therefore be kept at 50% of gross volumetric tariff estimated for the State as a whole on the basis of average cropping pattern as discussed above.
13. 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.



**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	Average seasonal volumetric rate fixed for flow areas.  For water supplied on area basis, tariff will be based on location of lift and type and season of crops as per <b>Annex-2A</b>
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 initially by WRD, GoM as per actual and to be subsequently recovered from beneficiaries as per procedure laid down in Annexure-2B. However, if State Government feels need for subsidizing partly energizing charges, it may do so.	As per <b>Annex-2B</b> .



**Annex-2A**

Table: Bulk Water Tariffs for Private Lift Irrigation Schemes

Sr No.	Location of Lift Irrigation Scheme	Rs./Ha						
		Sugarcane and banana		Other perennials ( Horticulture )		Kharif Crops	Rabi Crops	Hot Weather Crops
		Flow	Drip Irrigation	Flow	Drip Irrigation			
1	2	3	4	5	6	7	8	9
1	Reservoir (Major & Medium) OR Storage tank without canal / Kolhapur Type (K.T.) Weir with backup reservoir OR Tail race water.							
2	Reservoir Minor Project with canal OR K. T. Weir without backup reservoir and all canal lifts.							
3	Plain rivers without K.T weir and in river portion within boundaries of command area where there is no bandhara or K. T. Weir and water is not released from u/s dam.							
4	Kucha diversion bandhara constructed by farmers in Kharif at their own cost every year and there is no backup storage							





### **Annex-2B**

Methodology for computation of Project wise tariffs (including energy charge) for Lift Irrigation operated by GoM.

1. At the beginning of the season, project authorities estimate the likely irrigation demand, 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).
2. 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 then 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 hectore 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 prorate energy charges per ha as per actual area irrigated under WUA.



**Annex-3**

**[See criteria 13.2.1. (i)]**

The base tariffs shall be proposed by WRD, GoM based on the source of bulk water supply to the Domestic Users shall be as shown in the Table below:

Rs. / 10,000 litre			
Sl. No.	Source of Supply	Water Tariff	Designation
<b>1.</b>	<b>Assured Water Supply</b>		<b>Source A</b>
	Major/Medium reservoir/storage tank without canal/	Basic Rate (BR)	
<b>2.</b>	<b>Regulated Water Supply</b>		<b>Source B</b>
	Regulated river portion below dam/canal lift / K.T. weir with back up reservoir / tail race from reservoir	150% x BR	
<b>3.</b>	<b>Partly Assured Water Supply</b>		<b>Source C</b>
	(a) Minor reservoir with canal / K.T. weir without back up reservoir/canal lifts 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	75% x BR	
	(b) Water user agency has shared proportional cost of infrastructure (viz. head works or lining of canal) or constructed dam/bandhara/K.T. weir at own cost	75% x BR	

In addition to differentiation in bulk water tariff based on source of supply there shall be difference in tariffs based on season of supply as given below:

1. The basic rate will be applicable in 'Rabi' season i.e. 15<sup>th</sup> Oct. to 28<sup>th</sup> Feb.
  - a. In rainy season (Kharif) i.e. from 1<sup>st</sup> July to 14<sup>th</sup> October, 20% rebate on applicable Basic rate will be given taking into account monsoon run off.
  - b. In hot weather season i.e. 31<sup>st</sup> April to 30<sup>th</sup> June, 20% additional rate will be charged to applicable Basic rate to take into account scarcity value of available/stored water in hot season.
2. For Municipalities/Corporations/Cantonment Boards, following a norm of 130 lpcd & above, 1.25 times applicable Basic rate will be charged.



3. For Nagar Parishads / ULB following a norm of 70 lpcd, 0.9 times applicable Basic rate will be charged.
4. For Grampanchayats following a norm of 40 lpcd, 0.75 times applicable Basic rate be charged.
5. If municipality makes available treated sewage effluent for irrigation / gardening, tariff for the volume such treated effluent will be 50% of water supply tariff and also the municipality will be allowed to retain the revenue earned from sale of treated effluent.
6. Water rates are to be rounded to nearest value of Rs. 10.
7. Thus the grossed up rates that shall become applicable for the Domestic User based on differentiation of source of supply, season of supply and lpcd norm is give below in the example

**Example:** Water Rate for Gram Panchayat (40 lpcd norm of supply) drawing water from unregulated river (Source C) in hot weather season will be charged basic rate  $\times 0.75 \times 1.20 \times 0.75$ . (i.e., 68%)

8. Thus the Table showing applicable tariffs for Domestic User having a Basic rate BR (in Rs./ 10,000 litre) for source A is shown in the Table below:

	SOURCE A			SOURCE B			SOURCE C		
	40 LPCD	70 LPCD	130 LPCD	40 LPCD	70 LPCD	130 LPCD	40 LPCD	70 LPCD	130 LPCD
KHARIF	60% x BR	72% x BR	100% x BR	90% x BR	108% x BR	150% x BR	45% x BR	54% x BR	75% x BR
RABI	75% x BR	90% x BR	125% x BR	113% x BR	135% x BR	188% x BR	56% x BR	68% x BR	94% x BR
HOT WEATHER	90% x BR	108% x BR	150% x BR	135% x BR	162% x BR	225% x BR	68% x BR	81% x BR	113% x BR



**Annex-4**

**[See Criteria 13.3.1. (i)]**

The base tariffs to be proposed by WRD, GoM, based on the source of bulk water supply to the Industrial Users shall be as shown in the Table below:

Rs./10,000 litres				
Sl. No.	Source of Supply	Water Tariff for Industries (water used in processing)	Water Tariff for Industries (water used Raw material )	Source Designation
<b>1</b>	<b>Assured Water Supply</b>			<b>Source A</b>
	Major/Medium reservoir/storage tank without canal	Basic Rate (BR)	500% x BR	
<b>2</b>	<b>Water Supply- with transmission loss</b>			<b>Source B</b>
	Regulated river portion below dam / canal lift / K.T. weir with back up reservoir/tail race from reservoir.	200% x BR	1000% x BR	
<b>3</b>	<b>Partly Assured Water Supply</b>			<b>Source C</b>
	(a) 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	33% x BR	165% x BR	
	(b) Water user agency has shared proportional cost of infrastructure (viz. head works or lining of canal) or constructed dam/bandhara/K.T. weir at own cost	33% x BR	165% x BR	

In addition to differentiation in bulk water tariff based on source of supply there shall be difference in tariffs based of the nature of use of water by the industries as given below:



- The Basic rates (BR) to be proposed by WRD, GoM shall be applicable for industries where water is being used for processing of products (for e.g. Steel Industries, Paper Industries etc.).
- In case of water being used as on of the raw material for manufacturing products (for e.g., cold drinks, beverages, mineral water, alcoholic drinks etc.) water tariff shall be charged 500% of times Basic rate.

The Basic rate shall be applicable in 'Rabi' season i.e. 15<sup>th</sup> Oct. to 28<sup>th</sup> Feb.

- There will be incentive to tune of 20% in water rates for the water supply during the rainy season i.e. from 1<sup>st</sup> July to 14<sup>th</sup> October.
- The water rate will be 20% more during the summer i.e. 31<sup>st</sup> March to 30<sup>th</sup> June,

The Bulk Water Purchase Agreement to indicate the water demand for drinking water (retail) for residential quarters of the industries and should have separate pipe lines and water meters for drinking and industrial water use. Differential tariff for drinking water use and industrial use shall be charged as per the tariffs applicable. 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.

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

Thus the Table showing applicable tariffs for Industrial User (where water is used for processing) having a Basic rate BR (in Rs./ 10,000 litre) along with tariffs applicable for various categories and sources is shown in the Table below:

PARTICULARS	SOURCE A		SOURCE B		SOURCE C	
	For Processing	As raw material	For Processing	As raw material	For Processing	As raw material
KHARIF	80% x BR	400% x BR	160% x BR	800% x BR	26% x BR	132% x BR
RABI	100% x BR	500% x BR	200% x BR	1000% x BR	33% x BR	165% x BR
HOT WEATHER	120% x BR	600% x BR	240% x BR	1200% x BR	40% x BR	198% x BR



**Annex-5**

(See Criteria 8.1)

**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 atleast 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 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.