



# महाराष्ट्र जलसंपत्ती नियमन प्राधिकरण

Maharashtra Water Resources Regulatory Authority  
(MWRRA)

9th Floor, Centre-1, World Trade Centre, Cuffie Parade, Mumbai - 400005. Tel.: 2215 2019 Fax.: 2215 3765 E-mail: mwrwa@mwrwa.org

No. MWRRA/legal/2015/Case No 13 of 2015/5

Date: 05/01/2016

CASE NO.13 OF 2015

In the Matter of

Releasing Water from Kukadi Complex into Ghod Reservoir as per  
Sections 11 and 12 of the MWRRA Act, 2005 and Carrying Out  
Equitable Distribution.

Please find herewith a copy of MWRRA Order dated 05/01/2016 in the  
matter.

Encl : As above

  
(Dr. Suresh Kulkarni)  
Secretary

Copy for information and necessary action to:

1. Secretary, (WRM & CAD) Water Resources Department, Madam Kama Marg, Hutatma Rajguru Chawk, Mantralaya, Mumbai - 400032.
2. Executive Director, Maharashtra Krishna Valley Development Corporation, Sinchan Bhavan, Barane Road, Mangalwar Peth, Pune 411 011.
3. Chief Engineer, (Specified Project), Water Resources Department, Sinchan Bhavan, Barne Road, Mangalwar Peth, Pune - 411 011.
4. Superintending Engineer & Administrator, CADA, Sinchan Bhavan, Barne Road, Mangalwar Peth, Pune 411 011.
5. The Collector, Collectorate Office, Vidhan Bhavan, New Building, Bund Garden, Pune - 411001.
6. The Collector, Collectorate Office, College Area, Ahmednagar - 414001.

Copy for information to:

1. Shri. Rajendra Shivaji Rao Nagawade, At Post Wangdari, Taluka Shrigonda, District – Ahmednagar & Shri. Shrinivas Baburao Ghadge, At Post Inamgaon, Taluka Shirur, District – Pune through Advocate S R Palande, Lawyers Chamber No A-1, District Court Campus, Shivajinagar, Pune 411005.
2. Shri. Babanrao Pachpute, Ex. Minister, Mauli Nivas, Shringonda, District Ahmednagar 413701.
3. Shri. Vijay Bhaskarrao Auti, MLA, Parner. At Post Parner, District Ahmednagar 414302.
4. Shri. Sharaddada Sonavane, MLA, Junnar, Raigad, Chalakwadi (Pimpalvandi), Taluka Junnar, District Pune 412412.
5. Shri. Dilip Dattaraya Valse Patil, MLA, Ambegaon, 14 River View Apartment II, Pune Nagar Road, Yervada, Pune 411006.
6. Shri Devdatta Jayantrao Nikam, Chairman, Bhimashankar Sahakari Sakhar Karkhana Ltd, Pargaon, Taluka Aambegaon, District Pune – 410504. Through Advocate Samarat Shinde and Adv. Tejas Deshmukh.
7. Shri. Narayan Govindrao Patil, MLA: Karmala, Jeur, Taluka Karmala, District Solapur 413202.
8. Shri. Rahul Jagtap MLA, Shrigonda, At Post Pimpalgaon Pisa, Taluka Shrigonda, District Ahmednagar – 413703.
9. Adv. U. B. Nighot for Shri. Raosahebdada Ghodganga Sahakari Sakhar Karkhana, Raosaheb Nagar, At Post Nahvare, Taluka Shirur District – Pune – 412210.



# महाराष्ट्र जलसंपत्ती नियामन प्राधिकरण

## Maharashtra Water Resources Regulatory Authority (MWRRA)

9th Floor, Centre-1, World Trade Centre, Cuffe Parade, Mumbai - 400005. Tel.: 2215 2019 Fax.: 2215 3765 E-mail: mwrta@mwrta.org

CASE NO.13 OF 2015

In the Matter of

Releasing Water from Kukadi Complex into Ghod Reservoir as per  
Sections 11 and 12 of the MWRRA Act, 2005 and Carrying Out  
Equitable Distribution.

1. The Executive Director,  
Maharashtra Krishna Valley Development Corporation,  
Sinchan Bhavan, Barane Road, Mangalwar Peth, Pune 411 011.
2. Shri Devdatta Jayantrao Nikam,  
Chairman, Bhimashankar Sahakari Sakhar Karkhana Ltd,  
Pargaon, Taluka Aambegaon, District Pune 410504

..... Petitioner

Versus

1. Shri. Rajendra Shivaji Rao Nagawade, At Post Wangdari, Taluka Shrigonda, District - Ahmednagar & Shri. Shrinivas Baburao Ghadge, At Post Inamgaon, Taluka Shirur, District - Pune through Advocate S R Palande, Lawyers Chamber No A-1, District Court Campus, Shivajinagar, Pune 411005.
2. Shri. Babanrao Pachpute, Ex. Minister, Mauli Nivas, Shringonda, District Ahmednagar 413701.
3. Shri. Vijay Bhaskarrao Auti, MLA, Parner. At Post Parner, District Ahmednagar 414302.
4. Shri. Sharaddada Sonavane, MLA, Junnar, Raigad, Chalakwadi (Pimpalvandi), Taluka Junnar, District Pune 412412.
5. Shri. Dilip Dattaraya Valse Patil, MLA, Ambegaon, 14 River View Apartment II, Pune Nagar Road, Yervada, Pune 411006.

..... Respondents



## ORDER

CORAM : Shri RAVI B.BUDHIRAJA, Chairman  
Smt. CHITKALA ZUTSHI, MEMBER (Economy)

Date: 5<sup>th</sup> January 2016

Earlier a petition was filed by Shri. Rajendra Shivajirao Nagawade at post Wangdari, Taluka: Shrigonda, Distric: Ahmednagar, and Shri. Shrinivas Baburao Ghadge at post Inamgaon, Taluka: Shirur, District: Pune through Advocate Palande dated 04/09/2015. The prayers of the petitioners in brief were as under:

- a) Water quota for irrigation and drinking water be fixed for the Ghod project and the water rotation program be fixed for distribution of water in the Ghod command for irrigation.
- b) Equitable distribution for Ghod sub-basin be carried out by releasing water from Kukadi Complex and upstream K T Weirs into the Ghod dam as per Section 12 (6) (c) of the MWRRA Act, 2005 and water quota for Ghod be decided
- c) Program for distribution of water in the Ghod command be prepared as per provision of Section 12 (6) (b) of the MWRRA Act, 2005.

The matter was listed as Case no.7 of 2015 and the hearings were conducted on 01/10/2015 and 09/10/2015. An Order was issued by MWRRA on 27/10/2015.

Shri Devdatta Nikam has challenged the above order in High court vide petition number 11664/2015. Hon. High Court has passed an Order on 5/11/2015 to the effect that water shall not be released as per the SE and Administrator CADA, Pune's letter of 31/10/15. The matter was then kept on 17/11/2015 when it was heard and next hearing was scheduled on 16/3/16 in the Hon. High Court. However, on the request of the Petitioners the Writ petition was heard by the Hon. High Court and directed through its Order dated 4/12/2015 as follows:



*"2.The order is accordingly modified and clarified in the following terms;*

- (i) Time granted to the Petitioner to apply for review/ recall/modification of the order dated 27<sup>th</sup> October 2015 is extended till the 7<sup>th</sup> December 2015;*
- (ii) The parties to the Petition shall remain present before the Regulatory Authority on Monday the 7<sup>th</sup> December 2015 at 11:00 a.m."*

Meanwhile, ED MKVDC, Pune had challenged the Order vide his review petition dated 10/11/2015 submitted to MWRRA. His petition was not entertained vide MWRRA Order 25/11/2015. Now his review petition and that of Petitioner No. 2 are being heard together.

As per the Hon. High Court's direction stated above, MWRRA conducted the hearings on 7/12/2015 and 9/12/2015. As the Member (Engineering) has tendered his resignation, MWRRA appointed Consultants Shri. M. S. Mundhe and Dr. D. N. More as per Section 8(9) of the Act read with the Regulation 26(1) MWRRA (Conduct of Business) Regulations, 2013 to assist the Members.

## **2.0 Hearing held on 07/12/2015 and / or 09/12/2015**

The following were present during the hearings,

### **Review Petitioners**

1. Shri. R. B. Ghote, Executive Director, Maharashtra Krishna Valley Development Corporation (MKVDC), Pune
2. Shri. Devdatta Nikam, through Advocate Samarat Shinde and Adv. Tejas Deshmukh,

### **Intervenors**

1. Shri D.B. Mokashi, Director, for Shri. Raosahebada Ghodganga Sahakari Sakhar Karkhana through Adv. U. B. Nighot.
2. Shri. Babanrao Pachpute, Ex.MLA

### **Respondents**

1. Shri. Rajendra Nagavade, through S.R.Palande
2. Shri. Shrinivas Ghadge, Inamgaon
3. Shri. K. M. Shah, CE (SP) Pune



4. Shri. K. B. Kulkarni, SE & Adm. CADA, Pune
5. Adv. D. D. Shinde, Legal Advisor of MKVDC, Pune
6. Shri. Pradeep Patil, Addl. Collector, Pune
7. Shri Vikrant Chavan, Dy. Collector, Pune
8. Shri R. B. Galiyal, Under Secretary, WRD, Mantralaya

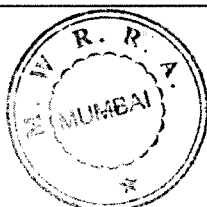
**Consultant to the MWRRA**

Shri. M. S. Mundhe, Technical Expert

**3.0 Issues that Emerged During the Hearings:**

After hearing the parties and considering all material placed on record, the following issues emerged in the present matter:

1. The basis and logic of using 65% as the upper limit for deciding the distressed condition of the lower reservoir is not explained in the order.
2. Kukadi project, 66 KT Weirs and Ghod Project each have individual existence and these should not be clubbed together
3. While deciding the available percentage of utilizable water as on 15/10/2015 in the MWRRA's Order on page 17 dated 27/10/2015, the drinking water use was erroneously included in Kharif utilization and should be omitted.
4. Yedgaon dam functions as a pickup reservoir. While transferring water from Dimbhe dam to Yedgaon Dam, there are heavy conveyance losses. Releasing water from Yedgaon will ultimately result in unnecessary wastage of water. This needs to be reviewed.
5. The conclusion of MWRRA that the water availability in Ghod project is affected due to upstream storages of Kukadi complex is not acceptable.
6. The stipulation in the MWRRA Order that the dead storage should not be utilized is not practical.
7. The MWRRA Order prohibits diversion of monsoon flows through canals, flood canals, rivers and streams for Kharif use outside the project command or filling tank and farm ponds until Ghod reservoir reaches its full capacity.



8. The percentage of storage in Kukadi project is less than the percentage of storage in Ghod project, diverting of water from Kukadi complex to Ghod project may not be appropriate.
9. Diversion of water from Kukadi to Ghod will add severity of drought in drought prone areas of Ahmednagar and Solapur.
10. Higher water use in Ghod command (14,300 cum /ha) and relatively lower water use in Kukadi command (7410 cum / ha) as also the effect of hot weather use of water should also be looked into while carrying out equitable distribution.
11. Whether the last year's (2014-15) 2.4 TMC carryover water in Kukadi complex, which has been utilised this year should be considered and be provided this year also?
12. Whether KT Weirs upstream of Ghod dam be considered as part of Kukadi complex?
13. The award stipulates 20% cut to Rabi irrigation and drinking water use in Kukadi project, whereas no such cut is applied to Ghod project and such cut will be difficult to implement in practice.
14. MKVDC is the implementing Authority. Objection by implementing Authority is improper. MKVDC is acting with bias.

#### 4.0 Analysis of the Issues:

1. **The basis and logic of using 65% as the upper limit for deciding the distressed condition of the lower reservoir is not explained in the order.**

The basis of upper limit prescribed in MWRRRA's Order dated 27/10/15 for carrying out equitable distribution is explained in Part A of the Annex. However, this upper limit is now lowered down to 60%, the reasoning of which is also explained in Part B of the same Annex.

2. **Kukadi project, 66 KT Weirs and Ghod project each have individual existence and these should not be clubbed together.**

As per the administratively approved water planning of K T weirs, there is no provision for Kharif use from KT Weirs. There is only a provision for



Rabi use. Therefore the storing of water in these K T weirs by the insertion of needles is not to be carried out until the end of the Kharif season. K T weirs are planned to be filled from the run-off of free catchment below Kukadi complex and not planned to be filled from Kukadi releases.

There is a use of about 17.338 Mm<sup>3</sup> on K T Weirs during the Kharif season. As per the project planning, this was not expected to be done. Water is not to be used from KT weir during the Kharif season. It is also observed that there was no Kharif use for irrigation in Ghod Project command as there was no live storage at the time of submitting this application by the Petitioner. The water use during Kharif season of 2015 has adversely impacted the live storage of the Ghod project to the extent of 17.338 Mm<sup>3</sup>. In view of the above facts, water used from the KT weirs during Kharif season is to be accounted for against the upstream storages.

3. While deciding the available percentage of utilizable water as on 15/10/2015 MWRRA erroneously included drinking water use in the Kharif utilization (page 17 of the MWRRA Order dated 27/10/2015) and should be omitted.

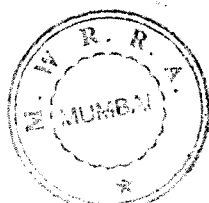
The use of water during the Kharif season includes both irrigation as well as non-irrigation water and hence needs to be accounted for.

4. Yedgaon dam functions as a pickup reservoir. While transferring water from Dimbhe dam to Yedgaon Dam there are heavy conveyance losses. Releasing water from Yedgaon will ultimately result in unnecessary wastage of water. This needs to be reviewed.

Transfer of water upstream to downstream reservoirs should be done in such a way that the conveyance losses are minimum.

5. The conclusion of MWRRA that the water availability in Ghod project is affected due to upstream storages of Kukadi complex is not acceptable.

Water available at Ghod is affected due to 66 K T Weirs upstream of Ghod as can be seen from issue No 2 above.





6. **The stipulation in the MWRRA Order that the dead storage should not be utilized is not practical.**

In exceptional circumstances, the drawal from dead storage, exclusively for drinking purposes, preferably through closed conduit, may be resorted to with the permission of the competent authority.

7. **The MWRRA Order prohibits diversion of monsoon flows through canals, flood canals, rivers and streams for Kharif use outside the project command or filling tank and farm ponds until Ghod reservoir reaches its full capacity.**

The MWRRA Order prohibits diversion of the monsoon flows outside the sanctioned project command. Only after Ghod reaches its full capacity should the projects outside the command be filled.

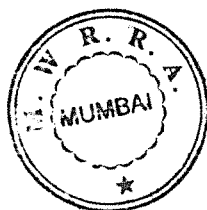
8. **The percentage of storage in Kukadi project is less than the percentage of storage in Ghod project, diverting of water from Kukadi complex to Ghod project may not be appropriate.**

As per clause 12 (6) (c) of MWRRA Act 2005, the percentages are to be worked out with respect to the utilizable water, including the Kharif uses, and hence the conclusion drawn by MKVDC is not tenable.

9. **Diversion of water from Kukadi to Ghod will add severity of drought in drought prone areas of Ahmednagar and Solapur.**

The transfer of water from upstream to downstream is governed by the equity principle as laid down in Section 12(6) (c) of the MWRRA Act 2005.

10. **Higher water use in Ghod command (14,300 cum /ha) and relatively lower water use in Kukadi command (7410 cum / ha) as also the effect of hot weather use of water should also be looked into while carrying out equitable distribution?**



The quantity of water availability per ha is not a criterion laid down in Section 12 (6) (c) of MWRRA Act.

- 11. Whether the last year's (2014-15) 2.4 TMC carry over water in Kukadi complex, which has been utilised this year should be considered and be provided this year also?**

Carry over is a part of live storage. It has to be considered as utilisation of the year as per provision in Section 12 (6) (c) of the MWRRA Act.

- 12. Whether KT Weirs upstream of Ghod dam be considered as part of Kukadi complex?**

The live storages impounded against the series of KT weirs is a part of utilizable water of the system.

- 13. The award stipulates 20% cut to Rabi irrigation and drinking water use in Kukadi project whereas no such cut is applied to Ghod project and such cut will be difficult to implement in practice**

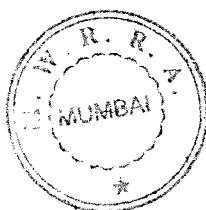
Cuts are to be applied to both upstream and downstream projects.

- 14. MKVDC is the implementing Authority. Objection by implementing Authority is improper. MKVDC is acting with bias.**

The ED, MKVDC made it clear during his pleading that his jurisdiction encompasses whole Krishna basin within Maharashtra. As such he cannot entertain any bias in respect of any sub-basin or project complex. He has to observe the directions of the MWRRA.

**5.0 Operating Direction for Equitable Distribution in Ghod Sub-Basin:**

The Tables below show the values of percentages of utilizable water both in respect of Kukdi Complex (including 66 KT weirs and Ghod reservoir downstream). The information as was received from SE, CADA, Pune on 19/10/2015 regarding storage position as on 15/10/2015 for Kukadi Complex, 66 K T weirs and Ghod Project is given below.



(All Mm<sup>3</sup>)

Storage	Design live storage	Live storage as on 15.10.15	Kharif use (2015)		Drinking Water Requirement Dependent on storage / canal from 1.10.15 to 15.7.16		Total evaporation loss (1.10.15 to 15.7.16)	Conveyance loss, if any (1.10.15 to 15.7.16)	Water use [Col 4a+4b+5 +6]	Balance storage [Col 2b-7]	Total Rabi requirement as per project planning
			Drinking	Irrigation	Drinking	Industry					
1	2a	2b	3(a)	3(b)	4a	4b	5	6	7	8	9
A) Kukadi Complex	864.396	430.206	60.930	72.840	70.761	2.233	78.250	128.494	279.738	150.468	519.530
B) 66 K T Weirs	69.966	46.280	0.000	17.338	1.290	0.172	10.495	0.000	11.957	34.323	90.200
<b>Total (A+B)</b>	<b>934.362</b>	<b>476.486</b>	<b>60.930</b>	<b>90.178</b>	<b>72.051</b>	<b>2.405</b>	<b>88.745</b>	<b>128.494</b>	<b>291.695</b>	<b>184.791</b>	<b>609.730</b>
Ghod	154.800	83.310	3.040	1.750	7.673	3.496	23.210	0.000	34.379	48.931	115.460

The utilizable water in case of Ghod project was as follows:

$$\begin{aligned} \text{Utilizable water} &= \text{Live storage as on 15/10/2015} + \text{Kharif use in 2015} \\ &= 83.31 + (3.04 + 1.75) = 88.10 \text{ Mm}^3 \end{aligned}$$

Available percentage of utilizable water including Kharif use as on 15/10/2015 in upstream complex as well as downstream was as under;

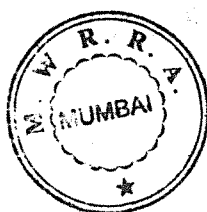
#### Calculations

Storages	Available % of utilizable water including Kharif use as on 15/10/2015
Upstream : Kukadi Complex and 66 K T weirs	$(476.486 + 60.93 + 90.178) / (1082.27^{\#} + 91.42^{\textcircled{a}}) = 53.47\%$
Downstream : Ghod Project	$(83.31 + 3.04 + 1.75) / 294.48^{\#\#} = 29.92\%$

The design water use is as per the project planning.

#### # Gross annual utilization of Kukadi Project (Mm<sup>3</sup>)

Irrigation Requirement	873.72
Evaporation losses at storages	98.68
Conveyance losses for release to Yedgaon	31.15
Non-irrigation use	78.72
<b>Total</b>	<b>1082.27</b>



@ Gross annual utilization of 66 KT Weirs (Mm3)

Rabi use	90.20
Drinking water use	1.22
<b>Total</b>	<b>91.42</b>

## Gross annual utilization of Ghod project (Mm<sup>3</sup>)

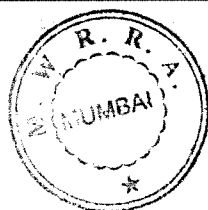
Irrigation	232.85
Evaporation losses	44.08
Drinking	8.49
Industrial	9.06
<b>Total</b>	<b>294.48</b>

The percentage of utilizable water available in Ghod project was 29.92% as on 15<sup>th</sup> October, that is less than 60%, as prescribed above and also the difference between the utilizable percentage between upstream and downstream reservoirs was more than 15%. Hence, the case warrants equitable distribution by virtue of Section 12 (6) (c) of the MWRRA Act, 2005.

As per provision of Section 12 (6) (c), the percentage of utilizable water has to be approximately the same by end of October. It was therefore required to release 45 Mm<sup>3</sup> (1.6 TMC) water from the Kukadi Complex and 66 K T weirs to bring Ghod reservoir to  $83.31 + 0.75 \times 45 = 117.06$  Mm<sup>3</sup> (4.13 TMC) storage mark after considering transmission losses about 25%, if the Order had been issued in October 2015. This would have resulted in percentage of utilizable water in Kukadi Complex and the 66 K T weirs to be about 50% and that in Ghod reservoir to be about 42%, which would have been reasonably approximate equitable distribution as meant in Section 12 (6) (c).

However, whatever is now to be released, will have to be as per the current available storage. The position as on 31/12/2015 is given below;

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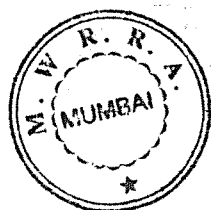
(All in Mm<sup>3</sup>)

Name of Dam	Live Storage as on 15/10/2015			Live Storage as on 31/12/2015			Water use (15/10/2015 to 31/12/2015)				Evaporation loss	Yedgaon Feeding releases	losses of Feeding to Yedgaon Dam	Other losses (leakages from Dam)	Total Other losses a-6b+6c)	Total 4+5+6d	Balance Storage that should be on 31/12/2015 (ie.Col.2 -Col.7)
	Below spillway crest	Above spillway crest	Total	Below spillway crest	Above spillway crest	Total	Drinking	Industrial	Irrigation	Total							
1	2a	2b	2	3a	3b	3	4a	4b	4c	4	5	6a	6 b	6 c	6d	7	8
Dimbhe	219.38	0.00	219.38	168.61	0.00	168.61	0.06	0.00	0.13	0.19	3.05	41.64		5.89	47.53	50.77	168.61
Wadaj	14.37	18.85	33.22	14.37	14.12	28.49	0.17	0.00	2.40	2.57	1.94			0.22	0.22	4.73	28.49
Manikdoh	56.72	0.00	56.72	12.62	0.00	12.62	0.00	0.00	0.15	0.15	3.02	29.11		11.82	40.93	44.10	12.62
Pimpalgaon Joge	16.79	24.93	41.72	16.79	9.93	26.71	0.03	0.00	5.88	5.91	7.99			1.10	1.10	15.01	26.71
Yedgaon	8.49	70.78	79.28	6.80	0.00	6.80	0.61	0.05	103.67	104.33	2.96		35.38	0.57	-34.81	72.48	6.80
<b>Total</b>	<b>315.75</b>	<b>114.57</b>	<b>430.32</b>	<b>219.18</b>	<b>24.05</b>	<b>243.24</b>	<b>0.87</b>	<b>0.05</b>	<b>112.22</b>	<b>113.14</b>	<b>18.96</b>		<b>35.38</b>	<b>19.60</b>	<b>-15.77</b>	<b>187.08</b>	<b>243.24</b>

It will be seen that the water available now, above the spillway crest is only 24 Mm<sup>3</sup>, a major part of the balance having been used for irrigation upstream in Kukadi Complex. So there is no other go now than to direct a release of only 24 Mm<sup>3</sup> water which is impounded above the spillway crest.

It has been brought to out notice that the Rabi rotation in the command of Pimpalgaon Joge is in progress and about 10 Mm<sup>3</sup> water will be utilized. To compensate for this, we understand that in Dimbhe project, water can be released through irrigation-cum-power outlet, the discharging capacity of which is 650 cusec i.e. 1.59 Mm<sup>3</sup> per day. We therefore direct that water to the extent of 10 Mm<sup>3</sup> be released from Dimbhe outlet into Ghod reservoir through Ghod River.

This situation has arisen because ED MKVDC, Pune has not kept 45 Mm<sup>3</sup> in reserve as the matter was subjudice (vide letter dated 25/11/2015 issued by the Authority on the request of SE, CADA, Pune vide letter dated 18/11/2015). He should now ensure the release directed as above immediately.



## 6.0 Directions:

In view of the above background and the lateness of the reason, we are of the view that the following directions are required to be given:

- (a) An approximate equitable distribution has to be resorted to in the sub-basin when the lower reservoir (i.e. Ghod) has utilizable water storage (including Kharif use) of less than 60 percent of the designed water use. However, if the actual difference between the percentage of utilizable water in the upstream reservoirs and the lower reservoir is less than 15 percent, then it will not be desirable to make any re-distribution.
- (b) Release 24 Mm<sup>3</sup> of water from the upstream storages of Kukadi Complex as explained above in Para 5.0.
- (c) Water shall not be supplied to new Sugarcane plantation and other water intensive crops.
- (d) No unauthorized irrigation be permitted even on penal water charges and Panchanamas.
- (e) Water shall be supplied on volumetric basis by resorting to participatory irrigation management.
- (f) Use of drip and sprinkler irrigation for all types of crops be promoted for increasing productivity and water saving.
- (g) The Executive Director, Maharashtra Krishna Valley Development Corporation, Pune should implement the decision of the Authority.

With the above findings and directions, the Review Petition and the applications stand disposed of.

Sd/-

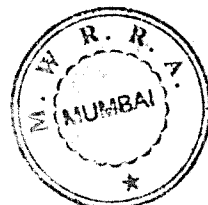
(Ravi B. Budhiraja)  
Chairman

Sd/-

(Chitkala Zutshi)  
Member (Economy)



(Dr. Suresh Kulkarni)  
Secretary



## Annex

### Explanation for Deciding the Upper limit of Equitable Distribution

#### A) Upper limit as 65% MWRRRA Order dated 27/10/2015

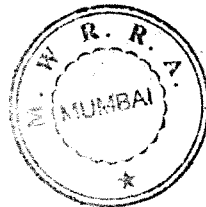
It has been observed in Maharashtra over the last 30 years that during drought situation, the lower reservoir in a sub-basin is invariably affected in the Kharif season whereas the upper reservoirs are in a better position to carry out Kharif irrigation. As per the provision in Para 2.8 of the State Water Policy on DROUGHT MANAGEMENT, the distress in a sub basin/ basin is to be shared between upstream users & downstream users within ALL SECTORS OF WATER. The equitable distribution is therefore necessary to give justice to ALL SECTORS OF WATER in the beneficiary area of the lower reservoir.

For practical considerations there should be an upper limit to the utilizable % of water during distress condition in the lower reservoir. An appropriate cut in the drinking and industrial requirement as per Para 2.8 of the State Water Policy is to be applied while sharing the deficit in water availability in the sub-basin.

The Utilisable % is defined as the percentage of use proposed to be made (and already made i.e. Kharif use) to the design water use.

The annual design water use of the Ghod Project is as below:

	TMC
Drinking	0.3
Industrial	0.32
Irrigation	
a. Kharif	3.7
b. Rabi (4 rotations)	4.08
c. Hot Weather	2.00
Total for irrigation	9.78
<b>Grand Total</b>	<b>10.40</b>



The upper limit for distress condition can be worked out in the following two ways for the Ghod Reservoir.	
(1) Use proposed to be made in the Rabi season (and already made in the Kharif season) can be calculated proposing a 20% cut in drinking and industrial use plus a 25% cut in Rabi use and 100% cut in Hot Weather use.	$(0.3*0.8)+(0.32*0.8)+[3.7+(4.08*0.75)+2*0]$ $=7.256$  Utilisable % with 3 Rabi rotations comes to  $7.256/10.40=0.70.....(1)$
(2) Use proposed to be made in the Rabi season (and already made in the Kharif season) can be calculated proposing a 20% cut in drinking and industrial use plus a 50% cut in Rabi use and 100% cut in Hot Weather use.	$(0.3*0.8)+(0.32*0.8)+[3.7+(4.08*0.50)+2*0]$ $=6.236$  Utilisable % with 2 Rabi rotations comes to  $6.236/10.4$ $=0.60.....(2)$
Therefore the mean value of the upper limit comes to $(60+70)/2 = 65\%$	

**B) Upper limit of equitable distribution as 60% now prescribed in place of 65%**

During the distress situation, it might not be feasible to provide three Rabi rotations in the command of the downstream project. We, therefore, now prescribe a maximum of 2 Rabi rotations while deciding the upper limit of utilizable percentage of water. From the above calculation, the upper limit for releasing water from the upstream storages to downstream storage works out to be 60% (as on 15<sup>th</sup> October).

There is no necessity of placing an upper limit on the utilizable percentage of the upstream storages as the actual difference between the percentage of utilizable water in the upstream reservoirs and the downstream reservoir is limited to 15%. This takes care of the issue.

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