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Jalyukta Shivar – Is Really Needful in Osmanabad

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Abstract: ***Water is one of the earth's most precious resources. Though, 70% of Earth's surface is water a major 97.5% of this is salt water and only 2.5% is freshwater. Moreover, less than 1% out of this 2.5% amount of freshwater is accessible (the majority is frozen in ice caps or as soil moisture) with growing population this amount of water is becoming insufficient. Moreover, India and other developing countries are the worst affected by fresh water crisis mainly because of comparatively lack of better planning to manage their respective fresh water reserves both on surface and in the aquifers. Therefore, sometimes we can say that water crisis is manmade problem up to some extent. And this is a long term problem. A combination of measures is required to tackle the issue. Water related problems are not new to the state but there have been some rapid changes in recent years.***
In Maharashtra state, Osmanabad is a district where is acute shortage of drinking water not only in rural areas but also in urban and semi urban areas. The water is being supplied through water tankers. To make water available for assured farming and for drinking, Government has launched water Conservation scheme named 'Jalyukta Shivar' so as to permanently overcome drought situation. JYS promotes an integration and coordination between various government agencies and program during planning and implementation levels and stresses on people's participation as one of the key objective. with coordination of all departments and with scientific approach and with unique initiative like Jalyukta Shivar, water scarcity will surely be a thing of the Past!
Keywords: Jalyukta Shivar, Water Crisis, Water Scarcity.

I. INTRODUCTION

One of the most important natural resources which are extremely crucial for our daily life is water. We know that, water is life. There are the two types of sources of this essential resources VIZ. surface water and Ground water. Maharashtra the second largest state in India, both in area as well as in population, has very limited assured irrigation. Osmanabad is a district in Maharashtra where is in absence of precipitation and Non-availability of surface water, the dependence on ground water has increased many folds. A large part of region of Osmanabad is occupied by rocks of the Deccan trap formation, which are found almost in horizontal lava flows of basaltic composition, thought to have been emplaced from fissures towards the close of the Mesozoic era on the lower territory area. There is shortage of drinking water not only in rural areas but also in urban and semi urban areas. The water is being supplied through water tankers. In order avoid this Distress sale of cattle, people have started cattle camps with the help of state government but they are facing so many problems like, Infrastructure facility at the camps. Insufficient water and inequitable distribution of water is the main cause behind the quarrels and conflicts in these sites. Here we have to follow the principle of equity which is proposed by Henry Fayol. So as to we can avoid conflicts and quarrel in these sites.

Water crisis affects water, fodder, crop availability but it also affects people life. Drought situation is uncomforting and de-motivating farmers' in agricultural economy and therefore may result in migration. By analyzing all these situations there is need arises to make a scheme which is aimed at solving water woes of drought-prone regions. That's why Government has prepared organized action plan to make 'water for all-drought- free Maharashtra and to permanently overcome drought situation and implementing 'Jalyukta Shivar' (waterful surrounding) campaign to increase water availability.JYS Campaign involves activities like deepening and widening of streams, construction of cement and earthen stop dams, work on lakes and digging of farm ponds.

II. AIMS AND OBJECTIVES OF JYS CAMPAIGN

Flagship program of the Government of Maharashtra to make 5000 Villages water Scarcity free every year.

1) To arrest maximum runoff in the village area.
2) To create decentralized water bodies.
3) To increase the Groundwater level in Drought areas.
4) To create new structure of water conservations.
5) Rejuvenation of the water storage capacity of various existing structure like Village tank, Percolation tank, CNB through repairs and renovations.
6) To increase storage capacity of water bodies by removing silt through people's Participations.

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7) To sensitize the concept of water Budgeting.
8) To encourage tree plantation.
9) To create awareness and encourage people of efficient use of water for farming.

III. STRATEGY OF JYS CAMPAIGN

JYS Campaign integrates and converges 14 water conservation programmes Integrated Watershed Management is core component of the Campaign. Village plans are drawn up based on Village plan Funded by the government and private sector, and more significantly, by the communities themselves through voluntary contributions. Increased engagement of corporate sector- corporate extended financial assistance and adopted 400 villages State-level co-ordinations and monitoring with Chief Minister Transformation Officer (CMTO) periodically reviewing the programme

IV. NECESSITY OF JALYUKTA SHIVAR IN OSMANABAD

A. Comparative Statement Of Water Levels Of Observation Wells In Osmanabad District

We can find out need of Jalyukta Shivar in Osmanabad by analyzing water levels in wells**.** Following are the observations of well reading in the month of October. Therefore, here Comparative statement of water levels of observation wells for the month of October of last five years (October-2013 to October- 2017)

TABLE I
Villagewise Water Levels Of Observation Wells In Osmanabad District (In 'M')

Village	Watershed No.	Sub Mo. Zone	Depth of well	Observation well reading					Average OCT 2013-2017	SWL OCT 2018
				OCT-13	OCT-14	OCT-15	OCT-16	OCT-17		
Dhoki	MR-12	Bb	13.70	9.40	8.30	8.60	3.70	2.20	6.44	11.40
Goverdhanwadi	MR-12	Bc	14.40	3	2.80	3.30	2.90	2.00	2.80	14.40
Khed	MR-13	Aa	8.90	3.25	3.30	4.20	3.40	2.40	3.31	4.50
Khamgaon	MR-13	Ab	9.00	0.60	1.00	2.80	2.10	1.70	1.64	7.50
Tugaon	MR-13	Ac	10.0	4.00	3.80	4.90	3.20	1.80	3.54	5.00
Jagji	MR-17	Ba	13.40	8.00	6.90	11.10	2.40	2.50	6.18	10.00
Arni	MR-17	Bb	14.00	14.0	12.60	13.00	3.50	4.00	9.42	7.00
Bhandarwadi	MR-17	Bc	12.60	6.00	4.85	5.40	3.80	2.70	4.55	6.80
Sarola(B)	MR-18	Aa	10.50	4.20	4.10	5.10	4.10	2.60	4.02	10.50
Rajuri	MR-18	Ab	9.00	2.00	2.25	3.30	2.20	1.80	2.31	5.40
Wanewadi	MR-18	Ac	15.60	5.20	4.65	5.70	3.90	1.80	4.25	15.60
Kond	MR-20	Bb	17.00	3.00	2.80	3.90	2.60	1.60	2.78	10.30
Nitali	MR-21	Ba	10.10	3.00	3.20	4.10	2.80	1.90	3.00	5.10
Lasona	MR-21	Bb	10.00	6.00	5.80	6.70	3.50	2.20	4.84	10.00
Padoli(A)	MR-21	Bc	17.80	17.80	15.50	16.00	4.20	1.40	10.98	17.80
Wadgaon(S)	MR-22	Ba	13.40	13.40	1.20	3.20	0.80	1.60	1.56	5.30
Ruibhar	MR-22	Bb	10.50	10.5	1.00	2.90	1.90	1.70	1.70	10.50
Kangara	MR-22	Bc	20.10	20.10	1.50	3.20	2.10	1.80	1.92	4.60
Takwiki	MR-23	Ba	11.90	11.90	2.10	3.70	2.40	1.60	2.26	9.90
Patoda	MR-23	Bb	10.35	10.35	9.30	10.00	2.30	2.00	6.79	11.10
Osmanabad	SA-37A	Aa	17.60	3.15	3.85	4.40	3.20	1.80	3.28	8.60
Chilwadi	SA-37A	Ab	9.50	3.50	3.40	5.20	3.50	2.20	3.56	4.50
Ghantgri	SA-37A	Ac	15.00	2.00	2.20	3.60	1.90	1.00	2.14	3.60
Kaudgaon	SA-33B	Aa	18.50	2.20	2.00	3.10	2.20	1.20	2.14	18.50

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Table I shows that,villagewise water levels of observation wells in osmanabad district(in 'm')

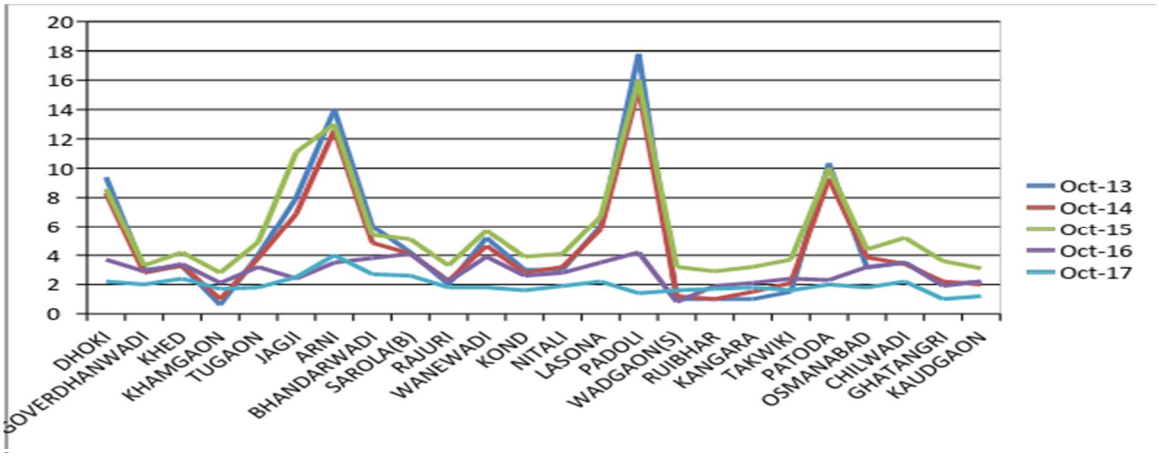


TABLE II

Villagewise Water Levels Of Observation Wells In Osmanabad District (In 'M')

Sr.no	Village	DIFFERENCE (OCT 13 TO OCT 17)
1.	Dhoki	-4.96
2.	Goverdhanwadi	-11.60
3	Khed	-1.19
4.	Khamgaon	-5.86
5.	Tugaon	-1.46
6.	Jagji	-3.82
7.	Arni	2.42
8.	Bhandarwadi	-2.25
9.	Sarola(B)	-6.48
10.	Rajuri	-3.09
11.	Wanewadi	-11.35
12.	Kond	-7.52
13.	Nitali	-2.10
14.	Lasona	-5.16
15.	Padoli(A)	-6.82
16.	Wadgaon(S)	-3.74
17.	Ruibhar	-8.80
18.	Kangara	-2.68
19.	Takwiki	-7.64
20.	Patoda	-4.31
21.	Osmanabad	-5.32
22.	Chilwadi	-0.94
23.	Ghantgri	-1.46
24.	Kaudgaon	-16.36

Table II showing difference in water levels of wells. Negative sign indicates that, decrease in water levels of wells. So, it indicates that, highly drought prone regions.

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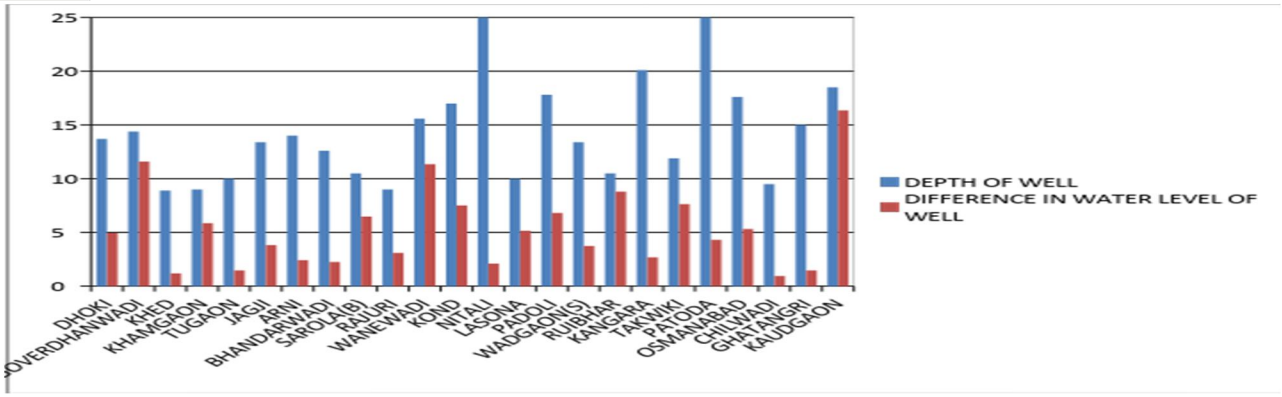


Figure 3 Graph Showing difference in water levels of Wells.

Here, from the analysis of wells we can conclude that, -ve sign indicates that, highly decreased water levels in wells of all mentioned villages of Osmanabad Except Arni village.So, For Implementation of water schemes Priority should be given for these villages of Osmanabad.

B. Comparative Statement of water levels of Observation wells for the month of May of last five years in Osmanabad (May 2013 to May 2017)

Following are the observations of well reading in the month of Octobeber. Therefore, here Comparative statement of water levels of observation wells for the month of October of last five years (October-2013 to October- 2017

Village	Watershed No.	Sub Mo. Zone	Depth of well	Observation well reading					Average May 2013-2017	SWL MAY 2018
				May-13	May-14	May-15	May-16	May-17		
Dhoki	MR-12	Bb	13.70	13.70	11.65	13.70	13.70	12.10	12.97	12.00
Goverdhanwadi	MR-12	Bc	14.40	14.40	11.30	12.30	13.20	11.60	12.56	11.50
Khed	MR-13	Aa	8.90	8.90	6.80	8.90	8.90	6.60	8.02	6.50
Khamgaon	MR-13	Ab	9.00	9.00	7.00	9.00	9.00	8.75	8.55	8.40
Tugaon	MR-13	Ac	10.0	10.0	8.35	10.00	10.00	8.10	9.29	8.00
Jagji	MR-17	Ba	13.40	13.40	13.00	13.40	13.40	13.10	13.26	8.00
Arni	MR-17	Bb	14.00	14.00	14.00	14.00	14.00	12.50	13.70	12.30
Bhandarwadi	MR-17	Bc	12.60	12.60	12.10	12.60	12.60	8.40	11.66	8.20
Sarola(B)	MR-18	Aa	10.50	10.50	10.50	10.50	10.50	8.20	10.04	8.00
Rajuri	MR-18	Ab	9.00	9.00	6.30	9.00	9.00	7.80	8.22	7.70
Wanewadi	MR-18	Ac	15.60	15.60	14.00	14.20	15.00	11.80	14.12	11.60
Kond	MR-20	Bb	17.00	17.00	17.00	12.40	14.80	13.80	15.00	13.60
Nitali	MR-21	Ba	10.10	10.10	10.10	10.10	10.10	8.80	9.84	9.00
Lasona	MR-21	Bb	10.00	10.00	9.50	10.00	10.00	7.90	9.48	8.00
Padoli(A)	MR-21	Bc	17.80	17.80	17.80	17.80	17.80	16.40	17.52	16.50
Wadgaon(S)	MR-22	Ba	13.40	13.40	7.80	11.30	13.10	7.40	10.60	60.00
Ruibhar	MR-22	Bb	10.50	10.50	8.80	9.40	10.50	10.20	9.88	10.00
Kangara	MR-22	Bc	20.10	18.60	12.60	13.90	20.10	9.70	14.98	9.60
Takwiki	MR-23	Ba	11.90	11.90	8.45	11.20	11.50	11.30	10.87	11.00
Patoda	MR-23	Bb	10.35	10.35	10.35	10.35	10.35	10.35	10.35	10.20
Osmanabad	SA-37A	Aa	17.60	16.60	11.30	12.10	15.30	12.10	13.48	12.00
Chilwadi	SA-37A	Ab	9.50	9.50	8.30	9.50	9.50	8.20	9.00	8.40
Ghantgri	SA-37A	Ac	15.00	13.50	5.30	9.40	11.80	7.50	9.50	7.40
Kaudgaon	SA-33B	Aa	18.50	14.60	6.70	11.60	12.10	9.40	10.88	9.50

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C. Line Analysis

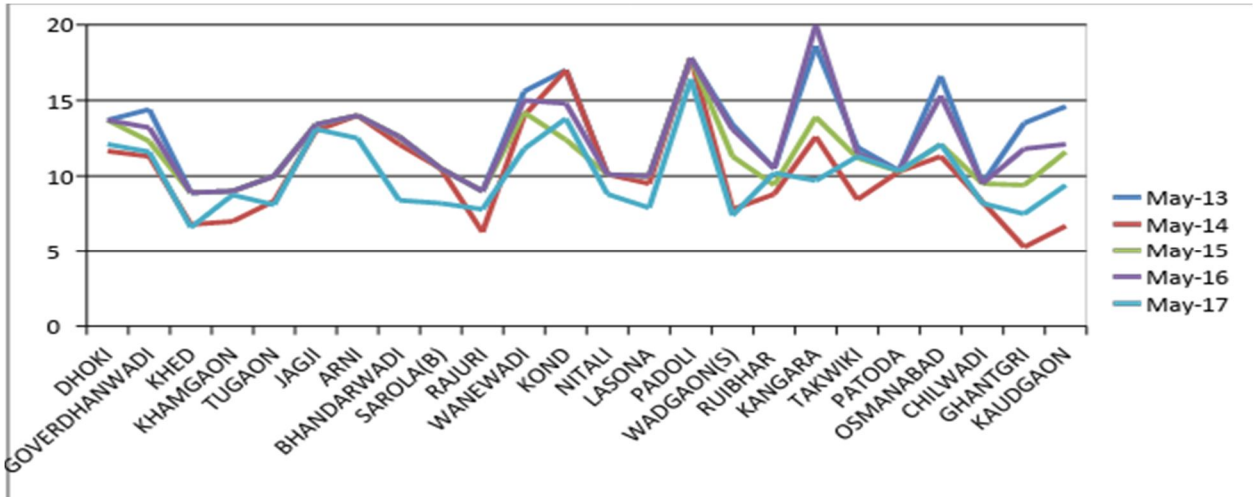


Figure 4 Comparative analysis of water levels in villages of Osmanabad.

Line Analysis shows that, water levels in wells from 2013 to 2017.

TABLE III
Villagewise Difference In Water Levels Of Wells

Sr.no	Village	DIFFERENCE (MAY13 TO MAY 17)
1.	Dhoki	0.97
2.	Goverdhanwadi	1.06
3	Khed	1.52
4.	Khamgaon	0.15
5.	Tugaon	1.29
6.	Jagji	5.26
7.	Arni	1.40
8.	Bhandarwadi	3.46
9.	Sarola(B)	2.04
10.	Rajuri	0.52
11.	Wanewadi	2.52
12.	Kond	1.40
13.	Nitali	0.84
14.	Lasona	1.48
15.	Padoli(A)	1.02
16.	Wadgaon(S)	3.60
17.	Ruibhar	**-0.12**
18.	Kangara	5.38
19.	Takwiki	**-0.13**
20.	Patoda	0.15
21.	Osmanabad	1.48
22.	Chilwadi	0.60
23.	Ghantgri	2.10
24.	Kaudgaon	1.38

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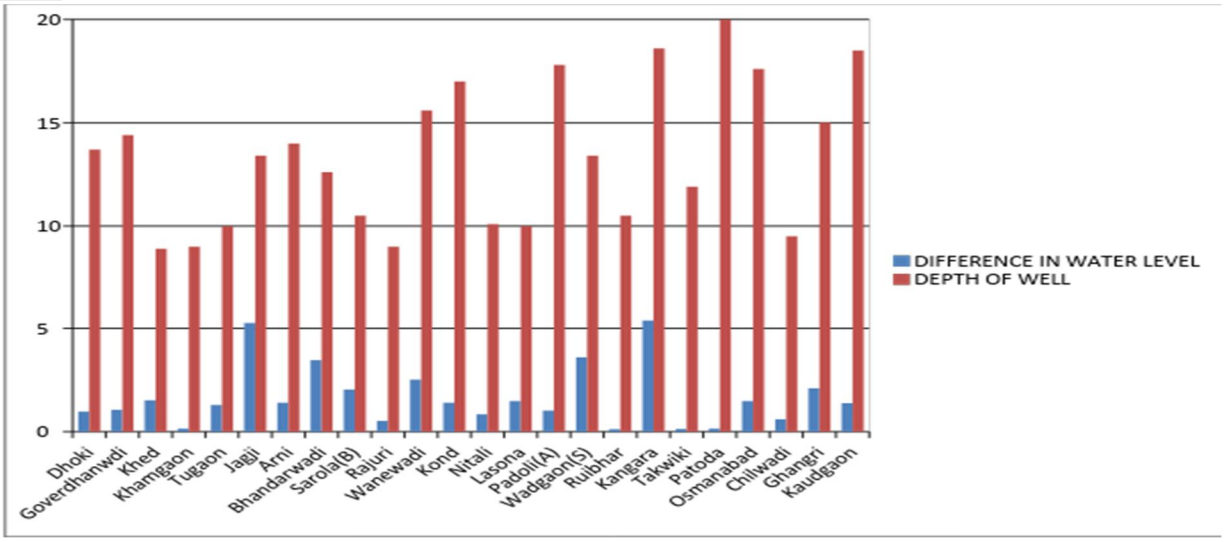


Figure 5 Graphical representation of difference in water level of wells.

Here, from the analysis of wells we can conclude that, -ve sign indicates that, highly decreased water levels in wells of Ruibhar, Takwiki villages of Osmanabad.So, For Implementation of water schemes Priority should be given for these villages of Osmanabad. This Comparative statement is from G. S. D.A. Osmanabad. From this Comparative statement of water levels of observation wells in Osmanabad district, we can conclude that, -ve sign indicates that, water level in the well is so much less. That's why from this comparative statement we can understand that, really there is need arises for a scheme which must be designed strategically and implemented in integrated manner with coordination of all departments. Therefore, Government has launched a scheme named Jalyukta Shivar Which make whole Maharashtra from water scarce to water sufficient including all drought regions in Maharashtra.

V. GROUND WATER INFORMATION OF OSMANABAD DISTRICT.

Osmanabad is one of the Districts of Marathwada regions of Maharashtra.The district headquarter is located at Osmanabad City. Osmanabad has 8 talukas i.e., Osmanabad, Tuljapur, Omerga, Lohara in Osmanabad subdivision and Kalamb, Bhoom, Paranda, Washi in Bhoom subdivision.The district forms part of Manjra Subbasin as well as Godavari basin.In Osmanabad district depth of the wells varies from 30 to 204.15 meteres below ground level.

Table IV (Ground Water Exploration Levels)

S. No.	Taluka	Forma-tion	Wells			Depth (mbgl)	SWL (mbgl)	Discharge (lps)	Draw-Down (m)	Zones (mbgl)
			EW	OW	Pz					
1	Osmanabad	Basalt	8	6	2	30.00-200.00	6.2-97.80	0.14-12.00	10.53-14.71	4.06-162.20
2	Tuljapur	Basalt	9	--	5	75.00-204.15	8.9-74.05	0.38-2.8	NA	5.00-141.40
3	Omerga	Basalt	12	1	1	39.00-200.00	7.72-98.1	0.02-14.89	NA	9.00-120.00
4	Kallam	Basalt	6	1	2	30.00-200.00	5.60-54.85	0.14-14.88	NA	9.00-118.00
5	Bhoom	Basalt	4	--	1	69.00-158.50	17.30-27.05	0.38-4.24	0.75	11.00-99.20
6	Paranda	Basalt	5	3	1	105.30-145.05	3.11-23.40	1.03-8.70	12.51-47.42	9.80-98.85
7	Lohara	Basalt	3	--	--	117.20-130.00	45.77-53.80	0.79-13.7	NA	56.00-114.00
8	Washi	Basalt	1	--	--	200.00	Dry	-	-	-
	Total		48	11	12	30.00-204.15	3.11-98.10	0.02-14.88	0.75-47.42	4.06-162.20

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VI. NECESSITY OF JYS IN OSMANABAD

A. In Osmanabad, there are 184 Talukas with on average more than 20% drop in the rainfall in the year2014, while there are 72 Talukas with more than 3 Meter drop in groundwater level, 116Talukas with more than 2 to 3 Meter drop, and 190 Talukas with more than 1 to 2 Meter drop. This means that, there are 188 Talukas (2234 villages) where level of groundwater has dropped for more than 2 Meter.

B. From above information we can conclude that, JYS will acts as solution of water scarcity problem and if it implement properly, it will make osmanabad from water scarce to water sufficient.

C. There is need to recharge ground water and create decentralized water bodies to overcome the water scarcity problem. That's why need arises to implement JYS Campaign effectively and efficiently.

D. In some cases, young man had borrowed heavily to drill bore-wells that rapidly ran dry and many of them failed. The general failure leads to distress, hopelessness and finally is a leading reason for farmer suicides. Less availability of water is one of the major factors responsible for this situation. To, make water available for assured farming and for drinking, solutions underwater conservation if strategically designed and implemented in integrated manner with coordination of department in the form of JYS Campaign, then water scarcity will surely be a thing of the past!

VII. FUTURE SCOPE OF JYS CAMPAIGN IN OSMANABAD

A. Increase in Water storage capacity.
B. Recharge of Ground water level.
C. Increase under Protective Irrigation area of osmanabad.
D. Increase in Cropping Intensity in Osmanabad.
E. Increase in Horticulture area.
F. Increase in Agriculture produce and productivity.
G. Increase in Fodder Production.
H. Increase in area under Soil Moisture Security.
I. Improvement of Environment through Tree Plantation.
J. Improving Productivity and Socio- economic Condition of farmers.

VIII. CONCLUSION

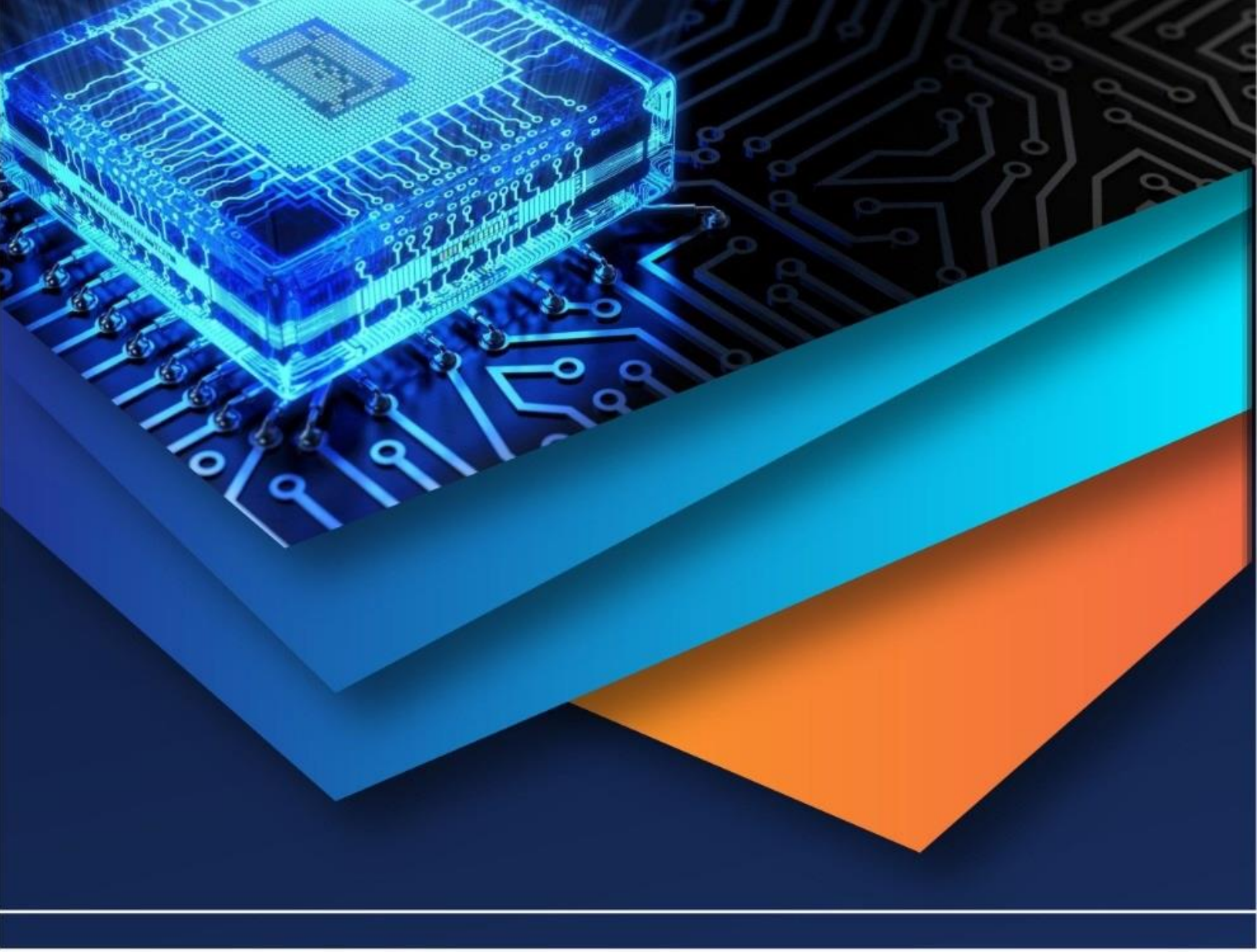
This Jalyukta Shivar Campaign helped in soil Conservation. But due to absence of rainfall at Osmanabad; water couldn't be stored in the JYS construction so it resulted into decreased water level. This affected not only Farmers' economy but common people also suffered due to market strategy of "high demand and low availability principle".

The Constructions which come under JYS helped to store water. This stored water further used for farm irrigation purpose and found to be useful in the increased water level.

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