



Study of Water Conservation Work

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ABSTRACT:

Water crisis or drought is not a new concept for India but there are very few examples of villages who tried to overcome this crisis. Village "Ghadgewadi" from Maharashtra state is one of them. The village "Ghadgewadi" participated in 'Satyamev Jayate Water Cup Competition-2018' organized by a NGO named "Paani Foundation" in Maharashtra and done a work of water conservation. As a result of this work the village "Ghadgewadi" succeeded to overcome water crisis. Our aim is to study the work done by this village and impact of this work quantitatively.

KEYWORDS: Water conservation, "Ghadgewadi", Paani Foundation, Satyamev Jayate Water Cup Competition, Water level

Data Collection:

Secondary data collected from Grampanchayat office and volunteer people of the village is used for the study.

Nature of 'Satyamev Jayate Water Cup Competition-2018':

This competition was open for all the villages which are willing to work for water conservation for their own villages. This competition was of 45 days during 8th April 2018 to 22nd May 2018.

To work in this competition 'Paani Foundation' provides training of water conservation to volunteers of villages which have taken part in the competition. Experts of Paani Foundation fix targets of work for every village as per population, total area, total No. of farmers, No. of households, total irrigated land in the village. There are various criterions according to which work of water conservation has to be done.

Criterions are as follows:

- 1] Nursery (for Plantation)
- 2] Recharge pits
- 3] Soil testing
- 4] Fire free farm
- 5] Water saving technology
- 6] Survey of old structures
- 7] Renovation of old structures
- 8] Work by using man power
- 9] Work by using machinery
- 10] Area treatment

Here we can see little idea of each criterion.

[1] Nursery (for plantation):

In this criteria village should prepare nursery of trees which are easily find in their area. The number of trees grown in the nursery should be two times of the population of village. After evaluation these trees should be planted.

[2] Recharge pits:

These pits are created to conserve water which goes in vain after use for household purposes. The number of recharge pits should be 40% of number of households in the village.

I. INTRODUCTION:

"Ghadgewadi" is the village belonging to Maharashtra situated in Khanapur tehsil of Sangli district. East region of Sangli district is drought prone area. Khanapur tehsil belonging to that region. This region comes in 'Mahadeo' hill ranges of western Maharashtra. Village "Ghadgewadi" was facing water crisis in summer season every year. This water crisis not only concerned with irrigation but also for household purposes. According to Water budget of every year the village had scarcity of water

Total area of Village: 469 hector

Population: 489

Livestock Population: 510

There were some old structures of water conservation in the village but they are not sufficient to trap all rain water which was going in vain. People from the village were worried and thinking to a long term solution for this problem.

At the same time Paani Foundation announced the "Satyamev Jayate Water Cup Competition-2018" to do villages drought free. People of "Ghadgewadi" village decided to take part in this competition to overcome the water crisis.



[3] Soil testing:

50% of total number of farmers from the village should test soil of their farms. Farmers should know organic content (OC) of the soil of their farms. The farmers having less OC of their soil should take some steps like organic farming to increase O.C. because soil with large or sufficient OC has more capacity of conservation of water.

[4] Fire free farm:

Residuals of crops should not be burned. These residuals of crops should be used to form compost or some other organic fertilizers. 50% of total number of farmers should use this technique.

[5] Water saving technology:

Optimal use of water is the one type of water conservation. For optimal use of water farmer should use water saving technology like drip irrigation, sprinklers, mulching papers etc. For this competition villages should develop at least 50% irrigated land with the use of water saving technology out of total irrigated land in the village.

[6] Survey of old structures:

Village should prepare a survey of old structures of water conservation available in the village before competition starts.

[7] Renovation of old structures:

By the survey of old structures of water conservation the people can understand which structures are needs to renovate so that it will be a long lasting. During competition village should renovate at least 2 old structures.

[8] Work by using man power:

This is the compulsory task for the villages participating in the competition. In this criterion various structures can be made by using man power. These structures of water conservation includes continuous contour trenches (CCT), Deep CCT, contour bonding, farm bonding, inlet outlet farm pound, plastic coated farm pound, earthen gully plug (EGP), loose bolder structure (LBS),

stone gully plug (SGP), sludge extraction, Mati Bandhara, cement bandhara etc.

[9] Work by using machinery:

All the structures of water conservation mentioned above are made up by using machinery like JCB, Poklan or some other machinery.

[10] Area treatment:

Area treatment means doing water conservation work in the manner from top to bottom. Work done over water streams like Mati Bandhara, cement bandhara etc. is not included in area treatment. At least 50% of total work of water conservation should be area treatment.

Evaluation of competition:

Work done by the villages within stipulated period of 45 days is evaluated according to quantity as well as quality of work. This evaluation can be done by the experts appointed by the Paani Foundation.

Working procedure of “Ghadgewadi” village:

[1] Training:

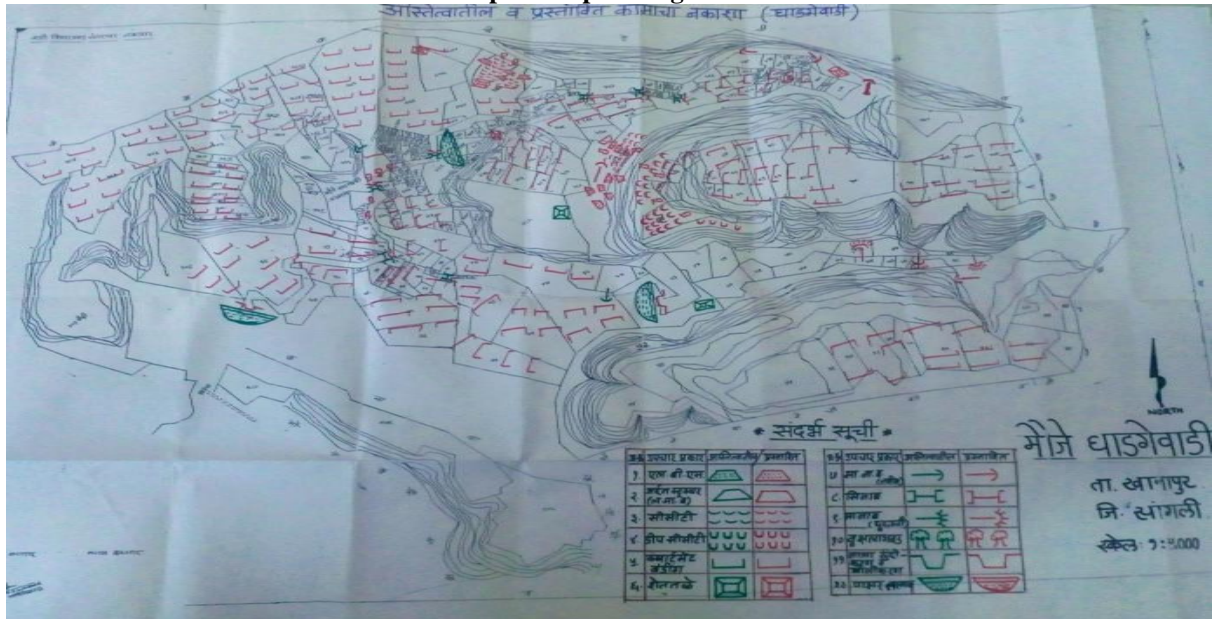
Volunteers were selected for training by the villagers in ‘Gramsabha’. Selected volunteers attended 4 days training workshop organized by ‘Paani Foundation’. After completion of training program these volunteers trained other people of their own village.

[2] Planning:

There was some work like Nursery, Recharge pits, soil testing etc. has to be done before starting the competition. Actual work of water conservation during the completion was needed a proper planning and allocation of various structures of water conservation as per requirement of catchment area of village. People from village organized tour of catchment area called “Shivarferi” with the help of experts of water conservation and prepared a blue print of planning of work as shown in following image.



Blue print of planning of work



Press note of Planning tour i.e. "Shivarferi"

लोकमत



धाडगेवाडी (ता. खानापूर) येथे जलसंधारण कामाबाबत नियोजन करण्यात आले. यावेळी विलास पवार, सौ. कविता धाडगे, ग्रामस्थ उपस्थित होते.

धाडगेवाडी येथे पानी फौंडेशनची शिवार फेरी

लोकमत न्यूज नेटवर्क

विटा : खानापूर तालुक्यातील स्वतंत्र महसुली गाव अस्तित्वात आलेल्या धाडगेवाडी येथे पानी फौंडेशनच्या 'सत्यमेव जयते वॉटर कप' स्पर्धेत सहभाग घेण्याचा निर्णय घेतला असून, सोमवारी ग्रामस्थानी जलसंधारणाच्या कामाचे नियोजन करण्यासाठी शिवार फेरी काढली. तालुका कृषी विभागाचे कृषी सहाय्यक विलास पवार यांनी या शिवार फेरीचे नियोजन केले.

दुष्काळाशी सामना करणाऱ्या खानापूर तालुक्यातील अनेक गावांना पावसाचे पाणी अडवून जमिनीत जिरविण्याचे महत्व पटले आहे. त्या पार्श्वभूमीवर पानी फौंडेशनने खानापूर तालुक्यात सत्यमेव जयते

वॉटर कप स्पर्धेच्या माध्यमातून लोकसहभागातून जलसंधारणाची कामे हाती घेतली आहेत.

यावर्षीपासून तालुक्यातील स्वतंत्र महसुली गाव म्हणून अस्तित्वात आलेल्या धाडगेवाडी गावातील ग्रामस्थांनीही सत्यमेव जयते वॉटर कप स्पर्धेत सहभाग घेण्याचा निर्णय घेतला. त्यानुसार सोमवारी दुपारी कृषी सहाय्यक विलास पवार व राष्ट्रवादी काँग्रेसच्या महिला जिल्हा उपाध्यक्षा सौ. कविता धाडगे यांच्या मार्गदर्शनाखाली शिवार फेरी काढण्यात आली. या शिवार फेरीत गावाच्या सर्व पाणलोट क्षेत्राचे सर्वेक्षण करण्यात आले. कोणत्या ठिकाणी जलसंधारणाच्या कामातून पाणी अडविले जाईल, याची माहिती यावेळी घेतली.

[3] Implementation:

Implementations of planned work were needed high precision and better quality on the field. Villagers distributed their responsibilities within themselves

and started implementations. Various structures were built by the villages with help of man power as well as machine power. As shown in following images.



Recharge pits

Work in progress



after work done



Nursery





Continuous Contour trenches (CCT)

Work in progress



After Work done



Deep CCT

Work in Progress



After work done





Loose bolder structure (LBS)

Work in progress



after work done



Renovation of old structures (Mati Bandhara)

Before renovation



after renovation





Compartment/Contour bonding

Work in progress



after work done



“Mati Bandhara”

Work in progress



after work done





Sludge extraction

Work in progress



Work in progress



Inlet outlet farm pound

Work in progress



after work done





Plastic coated farm pond

Work in progress



after work done



Total Work done by the Village as per criterion

While working in competition targets of work were set by the experts of Paani Foundation for “Ghadgewadi” village. It was necessary to complete the given targets. Village “Ghadgewadi” not only

completed the targets but also work over the targets to conserve more and more water. We can see quantitative measurement of work according to each criterion as shown in following table.

Criterion	Target Work	Work done
Recharge Pits	50	54
Nursery	979	1200
Soil Testing	207	215
Fire Free Farm	207	211
Survey of old Structures	-	14
Renovation of old Structures	2	3
Water Saving Technology	95 hectares	103 hectares
Work by using man power	2934 m ³	5453 m ³
Work by using Machinery	70350 m ³	121762 m ³
Area Treatment	36642 m ³	46798 m ³

From table it is seen that the Village under study has worked more than the given targets.

Total water conservation capacity created according to various structures:

Each structure of water conservation has its own water conservation capacity. The village

“Ghadgewadi” created total 11.9657 crore liters water conservation capacity which is distributed according to each structure as shown in following table

Structure	Capacity (in crore liters)
CCT	0.03161
Deep CCT	0.1171
Compartment Bonding	3.7975
Inlet Outlet farm ponds	0.3030
Plastic Coated farm ponds	0.4194



LBS/EGP	0.008865
Mati bandhara	3.8177
Sludge Extraction	3.4682
Total	11.9657

From table it is seen that Village “Ghadgewadi” has created huge water conservation capacity.

➤ **Study area i.e. “Ghadgewadi” village after rainfall:**

Various structures after rainfall are looks as shown in following images

Mati Bandhara



Inlet outlet farm pond



Compartment Bonding



Deep CCT





CCT



Sludge Extraction



➤ Appreciation:

लोकमत

जलसंधारणामुळे दुष्काळावर मात शक्य

रंजना उबरहंडे : घाडगेवाडी येथे कामांची पाहणी

लोकमत न्यूज नेटवर्क

विटा : कायम दुष्काळी भागातील पाण्याचे दुर्भिक्ष्य संपविण्यासाठी जलसंधारणाची कामे करणे हा सर्वात मोठा व चांगला पर्याय आहे. गावपातळीवरील गट-तट, भाऊबंदकीचा याद सर्व विसरून एकजूटीने काम केल्यास यश निश्चित मिळू शकते. घाडगेवाडी येथील गावकऱ्यांनी ही एकजूट अशीच ठेवावी, असे आवाहन करून, दुष्काळी भागात पानी फौंडेशन व नाम फौंडेशनच्या माध्यमातून सुरु असलेल्या जलसंधारण कामामुळे दुष्काळावर सहज मात करू शकतो, असे प्रतिपादन खानापूरच्या तहसीलदार सी. रंजना उबरहंडे यांनी केले.

घाडगेवाडी (ता. खानापूर) येथे पानी फौंडेशनच्यावतीने लोकसहभागानुत सुरु असलेल्या जलसंधारण कामांची पाहणी तहसीलदार रंजना उबरहंडे यांनी केली. यावेळी सांगली जिल्हा राष्ट्रवादी काँग्रेसच्या महिला उपाध्यक्षा कविता घाडगे, कृषी सहाय्यक विलास पवार, गावकामगार तलाठी धनश्री कदम, पानी फौंडेशनचे समन्वयक अभिजित जाधव उपस्थित होते.



घाडगेवाडी (ता. खानापूर) येथे लोकसहभागानुत सुरु असलेल्या जलसंधारण कामांची पाहणी तहसीलदार रंजना उबरहंडे यांनी केली. यावेळी कविता घाडगे, धनश्री कदम, अभिजित जाधव, विलास पवार उपस्थित होते.

उबरहंडे म्हणाल्या, खानापूर तालुक्यात पानी व नाम फौंडेशनच्या माध्यमातून मोठ्या प्रमाणात जलसंधारणाची कामे हाती घेण्यात आली आहेत. दुष्काळ हटविण्यासाठी पुढाकार घेतलेले पानी व नाम फौंडेशन, लोकसहभाग आणि शासनयंत्रणा यांचा सुरेख संगम झाल्यास पाणी समस्या कायमस्वरूपी सुटू शकते. दुष्काळावर मात करण्यासाठी एकजूटीने व लोकसहभागाच्या माध्यमातून चांगले काम करता येते. या कामांसाठी निधीची आवश्यकता असते. मात्र समाजातील चांगल्या व्यक्तींकडून

तीही कमतरता भरून निघत आहे. घाडगेवाडी येथे सुरु असलेले जलसंधारणाचे काम कौतुकास्पद आहे.

कविता घाडगे म्हणाल्या, घाडगेवाडी येथे पानी फौंडेशनच्या माध्यमातून समचल चर, नालाबांध यासह अनेक जलसंधारणाची कामे सुरु आहेत. या कामांना लोकसहभागही मोठ्या प्रमाणात मिळत आहे. त्यामुळे आगामी काळात घाडगेवाडी व परिसरात पाणी टंचाईला लोकांना सामोरे जावे लागणार नाही, असा विश्वास त्यांनी व्यक्त केला.



► **Felicitation:**



Impact:

Though the village “Ghadgewadi” has done huge amount of work for water conservation, the crucial thing is that are they benefited by it? Is there significant increase in water level? To answer

these questions we selected 7 wells which are in good condition. We studied water levels of these 7 wells in January 2018 (i.e. before work) and January 2020 (i.e. after work done) as shown in following table.

Well No.	Water Level (in meters) (Before work)	Water Level(in meters) (After work)
1	5.66	2.32
2	6.15	3.96
3	3.71	2.13
4	6.90	5.82
5	7.37	1.83
6	5.32	2.61
7	4.87	2.76

(Note: Water levels has measured from ground surface of well to water of well)

For statistical analysis we formulated following hypothesis,

Null Hypothesis (H_0):

There is no significant increase in water level i.e. there is no significant and positive impact of water conservation.

Alternative (i.e. Research) Hypothesis (H_1):

There is significant increase in water level i.e. there is significant and positive impact of water conservation.

Since data of water levels of wells is small, ‘Paired t-test’ is used for testing above hypothesis.

From MS-EXCEL output we get,

Calculated value of ‘t statistic’ is 4.7739

Critical value of ‘t statistic’ is 1.943 at 5% level of significance and 6 d.f.

Since Calculated $t >$ Critical t

We reject H_0 i.e. accept H_1 and conclude that there is significant increase in water level of wells i.e. there is significant and positive impact of water conservation in the village.

II. CONCLUSION:

Working according to criterions suggested by ‘Paani Foundation’ is beneficial for increasing water level. Drought prone Villages should work for water conservation according to these criterions to become drought free.



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