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IMPACT ASSESSMENT OF JYS PROJECT ON FIVE VILLAGES

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INTRODUCTION

In the state of Maharashtra, inconsistency of rains in the very times of crop growth and discontinuity of rains create drought-like situation and agriculture field is heavily impacted. Considering irrigation facilities in the state, factors mainly challenging development of state are - limited irrigation facility (according to report of water and irrigation committee, even if entire irrigation capacity is utilized, 44% area will remain dryland), large coverage of drought-prone area (159 Lacs Hectare which means 52% of cultivable area), large proportion of poor and downgraded land (42.20%), increasing uncertainty in the agricultural field due to uneven, unpredictable, and intermittent rainfall. To permanently overcome drought situation, Jalyukta Gaav (waterfull village) campaign was implemented in 5 districts from Pune division in the year 2012-13.Under this, action plan was prepared for water harvesting and increasing groundwater level by implementing various schemes collectively through coordination of all departments. Through all these projects, decentralized water storage of 8.40 TMC capacity has been created. Because of this, groundwater level is increased by 1 to 3 Meter and provision for drinking water and protected irrigation for farming is made. This has helped to permanently overcome drought situation. Considering results of all these projects, the government was thinking of preparing 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.
Keeping these issues in view, the present study, 'Impact Assessment of Jalyukt Shivar Abhiyan for 5 viiages in Ambajogai, Dist. Beed on Water Availability was undertaken.

OBJECTIVE OF THE JALYUKTA SHIVAR YOJANA

- Harvesting maximum rainwater in the surrounding of village itself.
- Increasing level of groundwater.
- Increasing area under irrigation
- Increasing water storage capacity of existing and dysfunctional water sources (small dams / village tanks / percolation tanks / cement dams).
- Extracting sludge from existing water sources through public participation and increasing water storage of water sources.
- Encouraging tree plantation and planting trees.
- To study the effect of water conservation works on water availability.
- To assess the impact of water conservation works on irrigation potential and cropproductivity.

SCOPE OF JALYUKT SHIVAR YOJANA: -

- Increase in Water Storage Capacity
- Recharge of Ground Water Level
- Increase under protective Irrigation Area
- Increase in Cropping intensity
- Increase in the Horticulture Area
- Increase in the Agriculture Produce and productivity
- Increase in Fodder Production
- Increase in area under Soil Moisture Security
- Improvement of Environment through Tree Plantation

- Improving Productivity and Socio-economic Condition of farmers .

DURATION OF JALYUKT SHIVAR YOJANA

Since it is necessary to complete activities planned under campaign before rains, action plan should be prepared by December end. This should be approved by divisional committee and at least 5 activities should be started in each Taluka by first week of January. Actual implementation of this project should be done between January 2015 and January 2016 and after that, evaluation work should be conducted between January 2016 and March 2016. This campaign should be implemented till year 2019 in above manner.

EXPECTED OUTCOMES OF JALYUKT SHIVAR YOJANA

- Increase in availability of drinking water in the village.
- Increase in level of ground water.
- Increase in area under irrigation.
- Increase in crop density.
- Reduction in area under dry land crops and increase in area under irrigated crops.
- Increase in area under fruit production crops
- Increase in agricultural productivity / product quality.
- Value added growth
- Increase in area under fodder crops.
- Increase in moisture protection of land.
- Environmental improvement (tree conservation / plantation)
- Raised social and economic standard of living.
- Public participation.

LITERATURE SURVEY

Sachin Tiwale, Amit Deshmukh (2018) The paper analyses the Manjara River Rejuvenation work implemented in Latur (Maharashtra) under the leadership of Art of Living and RSS JankalyanSamiti in the summer of 2016. The study analyses the contribution of the project towards its intended purpose and proves that the rejuvenation of Manjarariver has not contributed even a single drop to the drinking water supply of Latur city, making all the efforts futile

Firoz Ahmad and Laxmi Goparaju(2017) The present study has attempted to study the upper watershed part of Subarnarekha basin in Jharkhand state of India. Remote sensing satellite data (Landsat 8 OLI/TIRS 2013) was used for delineation of the land use/land cover and vegetation index maps. It delineated high medium and low priority areas within the watershed for soil and water conservation. The high priority area was 16.63% of the total study area. Further, the causes were analysed and conservation measures proposed.

R. T. Pachkor, Dr. D. K. Parbat (2017) studied and proposed the adavntages of JYS yojana.

Manchand Singh, Deepali Kulkarni, S. D. Talegoankar (2017) discussed watershed management techniques for khor village. Khor village is located between north latitude 18.413695 and east longitude 74.3176876 in Daund tehsil of Maharashtra state

Niranjan J. Khillare (2017) studied optimized cycle time by highlighting all areas where substantial delays are occurring and proposing measures to reduce such delays thereby reducing the overall project cycle time for the JYS works. For data collection interview method and field visit approach has been adopted. From the collected data, projects cycle time of JYS works has been grouped under 7 stages and idealistic time cycle has been developed which then compared with case studies, to highlight the delaying events. Results from case studies showed that major portion of project cycle time is being consumed by project initiation, formulation, and approval phases than actual construction phase.

S Vinchurkar (2016) assessed the impact of soil and water conservation treatments on selected watershed area of Dahigaon (Dhawade) in Amravati district of Maharashtra state was undertaken during 1995-2005. The study revealed that additional treatments suggested for the watershed area are Graded bund, Loose boulder structure, Gabian structure, Cement plug, Field trench, Dry land horticulture, Farm pond and Plantation along with new treatments like WANT and Gully plug have been recommended for betterresults.

K Palanisami, Kadiri Mohan, K R Kakumanu, S Raman(2014) The adoption of micro-irrigation projects has resulted in water saving, yield and income enhancement at the farm level. However, the overall impression is that they are capital-intensive and suited to large farms. In this context, a study was undertaken in nine states, mainly to examine the actual area covered compared to the potential area and to understand the adoption level of mi as well as to analyse the cost and returns under different farm categories.

Ullewad Swapnil Ramrao(2013) analysed the changes in land use, cropping pattern, ground water table, irrigation, productivity of crops etc. of watershed development programme in village Mandhwan of District Ahmednagar. The results of study revealed change in land use pattern and showed that there was an increase in net sown area (16 %), gross cropped area, area under irrigation, productivity of crops, ground water level after the implementation of programme. The cultivable land in the watershed area has increased from 38.14 per cent to 55.24 % because of reduction in uncultivable waste and fallow lands was reduced.

MATERIALS AND METHODOLOGY

VILLAGES SELECTED FOR STUDY

MANDAVA VILLAGE

Mandava watershed is situated in Beed district and lies in Ambajogai block. It lies between 18º 76' 45" N latitude and 76º 44' 39" E longitude. It experiences persistent droughts. It covers 2 micro watersheds within vicinity of maximum 20 to 25 km. Total geographical area of watershed is about 1481.92 ha, out of which 1137.46 ha has to treat under LTFS Watershed Management Programme. Government and private transport service is available throughout the watershed area.

Entry Point Activities Planned:

Construction of drinking water tank for livestock total 10 tanks proposed to be constructed.

Natural Resources Management activities Planned:

- Compartment Bunding on 450 ha area.
- Plantation on 40 ha area including horticulture. And afforestation on 35 ha.
- Water harvesting structure like Cement Nala Bunds total 4 structure, Earthen Nala Bund 6 structures have planned under this programme.
- Apart this WADT 250 number, Tubewell rejuvenation 9 are also planned.
- Recharge shaft 8, Disiltation of wells 12, Roof water Harvesting 5.

MAMDAPUR VILLAGE

Mamdapur(parli) watershed is situated in Beed district and lies in Ambajogai block. It lies between 18º 76' 45" N latitude and 76º 44' 39" E longitude. It experiences persistent droughts. It covers 2 micro watersheds within vicinity of maximum 20 to 25km. Total geographical area of watershed is about 453.52 ha, out of which 420.67 ha has to treat under LTFS Watershed Management Programme. Government and private transport service is available throughout the watershed area.

Entry Point Activities Planned:

Construction of drinking water tank for livestock total 6 tanks proposed to be constructed.

Natural Resources Management activities Planned:

- Compartment Bunding on 150 ha area.
- Plantation on 23 ha area including horticulture. And afforestation on 25 ha.
- Water harvesting structure like Cement Nala Bunds total 2 structure, Earthen Nala Bund 5 structures have planned under this programme.
- Apart this WADT 350 number, Tubewell rejuvenation 9 are also planned.
- Recharge shaft 8, Disiltation of wells 8, Roof water Harvesting 5.

YELDA VILLAGE :

Yelda watershed is situated in Beed district and lies in Ambajogai block. It lies between 18º 82' 0" N latitude and 76º 33' 0" E longitude. It experiences persistent droughts. It covers 2 micro watersheds within vicinity of maximum 8 to 10 km. Total geographical area of watershed is about 1912.07 ha, out of which 1437.46 ha has to treat under LTFS Watershed Management Programme. Government and private transport service is available throughout the watershed area.

Entry Point Activities Planned:

Construction of drinking water tank for livestock total 10 tanks proposed to be constructed.

Natural Resources Management activities Planned:

- Compartment Bunding on 350 ha area.
- Plantation on 37 ha area including horticulture. And afforestation on 34 ha.
- Water harvesting structure like Cement Nala Bunds total 4 structure, Earthen Nala Bund 5 structures have planned under this programme.
- Apart this WADT 0 number, Tubewell rejuvenation 12 are also planned.
- Recharge shaft 12, Disiltation of wells 15, Roof water Harvesting 5.

MOHA VILLAGE:

Moha watershed is situated in Beed district and lies in Parli block. It lies between 18º 90' 0" N latitude and 76º 35' 39" E longitude. It experiences persistent droughts. It covers 2 micro watersheds within vicinity of maximum 40 to 42 km. Total geographical area of watershed is about 1970 ha, out of which 1890 ha has to treat under LTFS Watershed Management Programme. Government and private transport service is available throughout the watershed area.

Entry Point Activities Planned:

Construction of drinking water tank for livestock total 12 tanks proposed to be constructed.

Natural Resources Management activities Planned:

- Compartment Bunding on 549 ha area.
- Plantation on 54 ha area including horticulture. And afforestation on 44 ha.
- Water harvesting structure like Cement Nala Bunds total 4 structure, Earthen Nala Bund 3 structures have planned under this programme.
- Apart this WADT 550 number, Tubewell rejuvenation 15 are also planned.
- Recharge shaft 15, Disiltation of wells 10, Roof water Harvesting 5.

BODHEGAV VILLAGE:

Bodhegav watershed is situated in Beed district and lies in Parli block. It lies between 18º 63' 45" N latitude and 76º 44' 39" E longitude. It experiences persistent droughts. It covers 2 micro watersheds within vicinity of maximum 24 to 26 km. Total geographical area of watershed is about 815 ha, out of which 760 ha has to treat under LTFS Watershed Management Programme. Government and private transport service is available throughout the watershed area.

Entry Point Activities Planned:

Construction of drinking water tank for livestock total 5 tanks proposed to be constructed.

Natural Resources Management activities Planned:

- Compartment Bunding on 85 ha area.
- Plantation on 30 ha area including horticulture. And afforestation on 35 ha.
- Water harvesting structure like Cement Nala Bunds total 4 structure, Earthen Nala Bund 3 structures have planned under this programme.
- Apart this WADT 0 number, Tubewell rejuvenation 10 are also planned.

- Recharge shaft 8, Disiltation of wells 10, Roof water Harvesting 5.

RESULT AND DISCUSSION

The impact of water conservation works of "Jalyukt Shivar Abhiyan" at Mandava (Pathan), Mamdapur, Yelda, Moha and Bodhegaon villages was studied with respect to land use pattern, irrigation potential and productivity of different crops of the village. The data was collected by using standard survey format (questionnaire) during personal interview method in the village. This data was compared with previous data to assess the impact of soil and water conservation structures on irrigation and crop productivity.

Table 4.14: Abstract of Expected outcomes in the Project Area

1) Mandava

Sr No.	Item	Unit	Pre project Status	Post project status
1	Status of water table	mtr	0.3	1.8
2	Ground water structures repaired /rejuvenated	nos	8	19
3	Availability of drinking water	month	9	12
4	Increase in irrigation potential	ha	44.5	117
5	Area under Agri-cultural crop			
	i)Area under single crop	ha	578	616
	ii)Area under double crop	ha	346.652	472.44
	iii)Area under multiple crop	ha	44.5	117
6	Increase in net cultivable area	ha	622.2	733.12
7	Increase in area under vegetation	ha	525.71	770.99
8	Increase in area under horticulture	ha	5	38
9	Increase in area under fodder	ha	525.71	730.99
10	Increase in milk production	liters	196560	310395
11	No. of SHGs	no.	9	15
12	Increase in no livelihoods	no.	47	89
13	Increase in income	Rs	33670	61970
14	Change in migration status	no.	432	272
15	No.of school going chilldern	no.	134	268
16	SHGs federations	no.	0	1
17	Credits institutions	no	1	3
18	Cropping intensity	%	156	164

2) Mamdapur

Sr No.	Item	Unit	Pre project Status	Post project status
1	Status of water table	mtr	0.4	2
2	Ground water structures repaired /rejuvenated	nos	8	23
3	Availability of drinking water	month	9	12
4	Increase in irrigation potential	ha	13.6	53.3
5	Area under Agri-cultural crop			
	i)Area under single crop	ha	144	153
	ii)Area under double crop	ha	86.35	117.7
	iii)Area under multiple crop	ha	13.6	53.2
6	Increase in net cultivable area	ha	157.52	206.69
7	Increase in area under vegetation	ha	130.97	208.35
8	Increase in area under horticulture	ha	1	28

9	Increase in area under fodder	ha	130.97	183.35
10	Increase in milk production	liters	51300	72688
11	No. of SHGs	no.	15	18
12	Increase in no livelihoods	no.	47	89
13	Increase in income	Rs	33670	61970
14	Change in migration status	no.	243	153
15	No.of school going chilldern	no.	114	128
16	SHGs federations	no.	0	1
17	Credits institutions	no	1	1
18	Cropping intensity	%	155	157

3) Yelda

Sr No.	Item	Unit	Pre project Status	Post project status
1	Status of water table	mtr	0.3	1.75
2	Ground water structures repaired /rejuvenated	nos	8	36
3	Availability of drinking water	month	9	12
4	Increase in irrigation potential	ha	34.5	100
5	Area under Agri-cultural crop			
	i)Area under single crop	ha	1195	1276
	ii)Area under double crop	ha	527.34	718.76
	iii)Area under multiple crop	ha	34.5	100
6	Increase in net cultivable area	ha	1229.8	1375.99
7	Increase in area under vegetation	ha	1140.81	1631.14
8	Increase in area under horticulture	ha	3	37
9	Increase in area under fodder	ha	1140.81	1597.14
10	Increase in milk production	liters	147600	221184
11	No. of SHGs	no.	20	15
12	Increase in no livelihoods	no.	47	135
13	Increase in income	Rs	33670	61970
14	Change in migration status	no.	1092	688
15	No.of school going chilldern	no.	234	368
16	SHGs federations	no.	0	1
17	Credits institutions	no	1	3
18	Cropping intensity	%	143	152

4) Moha

Sr No.	Item	Unit	Pre project Status	Post project status
1	Status of water table	mtr	0.6	1.9
2	Ground water structures repaired /rejuvenated	nos	8	28
3	Availability of drinking water	month	9	12
4	Increase in irrigation potential	ha	99.1	206.2
5	Area under Agri-cultural crop			
	i)Area under single crop	ha	1131	1204
	ii)Area under double crop	ha	678.84	925.26
	iii)Area under multiple crop	ha	99.1	206.2
6	Increase in net cultivable area	ha	1230.5	1410.35

7	Increase in area under vegetation	ha	927.75	1323.85
8	Increase in area under horticulture	ha	10	28
9	Increase in area under fodder	ha	927.75	1298.85
10	Increase in milk production	liters	371100	552947
11	No. of SHGs	no.	11	15
12	Increase in no livelihoods	no.	77	135
13	Increase in income	Rs	34670	58970
14	Change in migration status	no.	485	306
15	No.of school going chilldern	no.	184	288
16	SHGs federations	no.	0	1
17	Credits institutions	no	1	3
18	Cropping intensity	%	155	166

5) Bodhegaon

Sr No.	Item	Unit	Pre project Status	Post project status
1	Status of water table	mtr	0.6	1.4
2	Ground water structures repaired /rejuvenated	nos	8	19
3	Availability of drinking water	month	9	12
4	Increase in irrigation potential	ha	84.1	186.2
5	Area under Agri-cultural crop			
	i)Area under single crop	ha	454	480
	ii)Area under double crop	ha	317.52	432.78
	iii)Area under multiple crop	ha	84.1	186.2
6	Increase in net cultivable area	ha	537.7	665.79
7	Increase in area under vegetation	ha	224.53	349.34
8	Increase in area under horticulture	ha	10	38
9	Increase in area under fodder	ha	224.53	314.34
10	Increase in milk production	liters	146400	205351
11	No. of SHGs	no.	6	15
12	Increase in no livelihoods	no.	77	135
13	Increase in income	Rs	34670	58970
14	Change in migration status	no.	320	202
15	No.of school going chilldern	no.	84	114
16	SHGs federations	no.	0	1
17	Credits institutions	no	1	3
18	Cropping intensity	%	159	165

CONCLUSIONS

While studding the Jal Yukta Shivar Yojana impact of water conservation works of "Jalyukt Shivar Abhiyan" at Mandava (Pathan), Mamdapur, Yelda, Moha and Bodhegaon villages was studied with respect to rainfall,availability of drinking water, Ground water table, land use pattern, irrigation potential and productivity of different crops of the village. The data was collected by using standard survey format (questionnaire) during personal interview method in the village. This data was compared with previous data to assess the impact of water conservation structures on irrigation and crop productivity. On this information following conclusions are determined:

- Increase in availability of drinking water in the villages
- Increasing level of groundwater.

- Increasing area under irrigation
- Decrease in area under dry land and increase in area under irrigated crops
- Increase in greenry and vegetation cover
- Increase in social and economical standards
- Reduction in migration for employement.

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