International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Asset Creation and Management Through Mgnrega: A Case Study of Ganjam District

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Abstract

One of the central features of MGNREGA is its focus on asset creation, benefiting both individuals and communities. The program allows for participatory decision-making, empowering communities to choose works that directly address their needs. The Act's on-going amendments expand the range of permissible activities and grant states flexibility to undertake location-specific projects. However, a key challenge lies in ensuring the completed works transition effectively into sustainable and productive assets. While technical aspects present hurdles, it's ultimately the beneficiaries' use and perception that determine whether a project becomes a true asset. This study investigates the technical quality and agricultural-economic impact of MGNREGA's "Water Conservation and Rejuvenation of Water Bodies" category (category A) in Ganjam district, Odisha, a region prone to both drought and migration.**

1. Introduction

Asset creation is one of the key features of MGNREGA with a significant possibility of asset creation for individuals as well as the community. 100 days wage employment entitlement programme also extends its work as wage entitlement is a crucial aspect of the Act. The selection of works for wages results in productive and sustainable assets. In this context, there is scope for individuals and the community to select works as relevant to their needs and utilities.

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) stands as a cornerstone program for rural development in India. One of its core objectives is to create long-lasting assets that strengthen the resource base for livelihoods in these areas. The Act mandates a 60:40 ratio of wages to material expenditure during asset creation. However, achieving this balance presents a unique challenge. The Act prohibits the use of contractors and labour-displacing machinery. This regulation, while promoting direct employment generation, can clash with the need for skilled labour or heavy machinery in certain projects. Additionally, some job cardholders are hesitant to undertake manual earthwork, potentially hindering project completion. The MGNREGA recognizes the diverse needs of rural communities. The choice of works offered addresses the root causes of chronic poverty, including drought, deforestation, and soil erosion. This fosters sustainable employment generation by tackling these underlying issues. The Act has undergone amendments over time to expand the permissible work categories and grant states the flexibility to undertake location-specific projects.

Initially, the program focused primarily on community assets. However, a significant amendment in 2007 allowed works on land owned by specific demographics, including Scheduled Castes, Scheduled Tribes, Below Poverty Line families, land reform beneficiaries, and Indira Awaas Yojana participants, for purposes like irrigation, horticulture, plantation, and land development. Based on program experience, a substantial revision of the work schedules occurred in 2013-14. This revision expanded

and categorized the list of works into four groups: public assets, assets for poor and vulnerable households, works related to livelihood plans for Self-Help Groups, and rural infrastructure. Notably, recent directives (2014-15) mandate that 60% of MGNREGA works be directly related to agriculture
Studies indicate that water-related assets created under MGNREGA have led to an increase in both the number of days water is available and the overall water quantity accessible for irrigation. This improved water availability has reportedly influenced cropping patterns and expanded cultivated areas. However, the exact impact of MGNREGA on agricultural productivity remains inconclusive. Attributing changes in crop yield, irrigation water access, cultivated area expansion, and agricultural land production solely to MGNREGA interventions is a complex task requiring further research.

2. Rational of the Study

Public concerns have been raised about the quality and effectiveness of MGNREGA projects. Some argue that material use restrictions lead to shoddy workmanship. Research has explored these issues by examining the projects' relevance to communities and their impact on households and livelihoods.
A key challenge lies in ensuring completed works become sustainable and productive assets. While technical aspects are important, it's ultimately the beneficiaries' perception and use that determine an asset's value. MGNREGA projects can have economic, environmental, and financial benefits. However, the meaning of "technical" varies across disciplines. Evaluating all project types by technical experts poses difficulties. Developing user-friendly evaluation formats for non-specialists is crucial.
Despite these challenges, the ultimate measure is beneficiary perception. Government programs aim to improve the lives of citizens, and independent research confirms that well-planned and executed MGNREGA projects are seen as valuable investments by those who benefit from them.
In the above backdrop, it was felt to study the technical quality and agro-economic assessment of category ‘A’ assets of Water Conservation and Rejuvenation of Water Bodies under MGNREGA in drought prone and migration prone Ganjam district of Odisha which has been discussed in the following sections.

3. Review of Literature

Here attempts have been made to review the existing literature relating to the topic covered under the study in order to identify the research problems and to suggest for future policy prescriptions.
Jacob and Varghese (2006) observed that MGNREGA scheme not only helps to rejuvenate the natural resources base through the asset creation such as well, tank, pond, road etc. But also it helps to boost agricultural productivity and rural income. In this process, it helps to reduce rural poverty, increasing the standard of living of socially marginalised groups and arrest the distress migration from rural area.
Hirway et al (2010) observed that importance has given to employment guarantee rather than work guarantee to the poor as guarantee has limited impact on employment creation in the economy. Again, they observed that guarantee can be treated as an end itself only under the assumption of developing economies which generate adequate employment opportunities in the medium term to absorb the surplus manpower including labour force. Thus, they conclude that a well-designed employment guarantee programme can lead the economy toward labour intensive growth path through creation of assets by which poverty can be reduce.
Sambodhi Research and Communications Pvt.Ltd. (2012-13) have carried out a study in the six states such as Andhra Pradesh, Chhatisgarh, Mandhy Pradesh, Odisha, Rajasthan and Uttar Pradesh on

beneficiary perception on MGNREGA. It is observed that MGNREGA works have significant impact on improving the quality of land, generating extra income, extended intensive and extensive cropping pattern and creating alternative livelihood of job card holders.

Bhasker et al. (2015) found that MGNREGA-constructed wells increased crop yields and reduced cultivation costs in Jharkhand.

Aggarwal et al. (2014) studied well construction in Ranchi. While they found a low individual return on investment, they acknowledged this likely underestimates the broader benefits to the community. They also highlighted the importance of well completion and quality.

Narayanan et al. (2014) conducted a large-scale survey in Maharashtra. They found that 87% of MGNREGA works existed and 75% were agriculture-related. Importantly, 92% of respondents perceived the works as helpful, especially marginal and small farmers. This study emphasized the need for inclusive planning processes involving all workers.

The Ministry of Rural Development (MoRD) has taken steps to address these research findings. They promote a "Natural Resource Management" approach for work selection and implemented the Intensive Participatory Planning Exercise (IPPE) to increase participation, particularly by women, in planning MGNREGA projects. The underlying assumption is that social inclusion will lead to better outcomes and implementation.

4. Objectives of the Study

The major objectives of the study are:

- To examine whether assets created under MGNREGS meet the local need of rural poor.
- To assess the potential of assets in improvement of farm productivity resulting in economic growth to farming community in rural areas.
- To assess the sustainability of assets created under MGNREGS and suggest measures for longevity of assets.

5. Methodology

Multi-stage sampling method is adopted to select the sample for the purpose of the study. In the first stage, most migration prone blocks are selected. In the second stage, Gram Panchayats are selected on the basis of creation of category ‘A’ assets. In the third stage, Villages are selected on the basis of their coverage under category ‘A’ assets. In the fourth and final stage, households are selected randomly from the households participated in MGNREGS works and/or land covered under category ‘A’ assets.

It is decided to select Ganjam, district two most migration prone blocks are selected, and from each selected block, two Gram Panchayats are selected. One or two villages have been selected from each Gram Panchayat depending on their coverage under category ‘A’ assets. After selection of villages, a listing of all the householdsiscarried out without missing any household in the selected village. The households are selected on the basis of land holding pattern as well as participation in MGNREGA works that are job card holders and impact of MGNREGA on their livelihood and potential of the assets in improvement of farm production, are taken into consideration. ‘Before’ and ‘After’ method has adopted to assess the impact of category ‘A’ assets as ‘Before’ indicate the before situation of assets and ‘After’ indicates the after situation of assets. The selection of blocks, GPs, Villages and Category ‘A’ Assets are presented in Table 1

Table 1: Selection of Block, Gram Panchayat and Village

Block	GP	No.of HHs	Category 'A' Asset
Kukudakhandi	Baghalati	30	Dug Well
	Ankuspur	30	Dug Well,WHS
Hinjilcatu	Darubhadra	30	Canal
	Makarjhola	30	WHS,Dug Well
Total		120	

Note: **WHS**-Water Harvesting Structure

The MGNREGA scheme is not merely about transferring cash to people in rural India rather it is about creating durable assets that will ultimately lead to a reduced dependence of people on Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA). The Schedule-I of the Act originally provided for "eight categories of permissible works that included works on the land of individuals, namely SC and ST households, IAY households and beneficiaries of land distribution scheme. In 2009, the Rajiv Gandhi Samudayik Vikas Kendra, a kind of Panchayat Bhavan, was included under permissible works under MGNREGA. The Schedule-I of the Act was further revised in 2011-12 to include small and marginal farmers under the individual beneficiary category. In 2013, the Schedule-I was once again amended. The permissible works under MGNREGA were divided into four categories, viz. A. Public Works Relating to Natural Resources, B. Individual Assets for Vulnerable Sections, C. Common Infrastructure for NRLM compliant Self-Help Groups, and D. Rural Infrastructure (MoRD, 2018)."

In the following section, analyses the status of Category 'A' assets by dividing them into three categories, viz, 'completed', 'ongoing/suspended' and 'approved but not in progress'. It attempts to find the share of 'completed' Category-A works in the total MGNREGS works in India, in the state of Odisha and the sample districts under study. The data have been collected from the MGNREGS website of the Ministry of Rural Development.

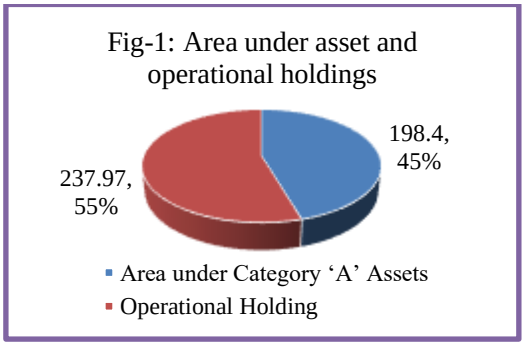
6. Impact analysis

Due to the creation of irrigation assets, the crop area under operation is expected to increase as the irrigation assets provide assured irrigation for cultivation. It is.However, observed that the operated area of the job card holders is 237.97 and has increased marginally in the study area after the creation of irrigation assets under category 'A' of MGNREGA. Land utilization of sample households after implementation has shown in Table 2.1.

Table 2: Land utilization (Area in Acre)

Block	Area Owned	**Area under Category 'A' Assets**	Area Leased Out/ Mortgaged Out/Encroached	Area Leased in/ Mortgaged In/Encroached In	Total Operational Holding (1 +4-3)
	1	**2**	3.00	4	5
Hinjilicatu	130.17	127.50	0.00	32.20	162.37
Kukudakhandi	69.60	70.90	5.00	11.00	75.60
Total	**199.77**	**198.40**	**5.00**	**43.20**	**237.97**

Source: Collected and compiled by the author

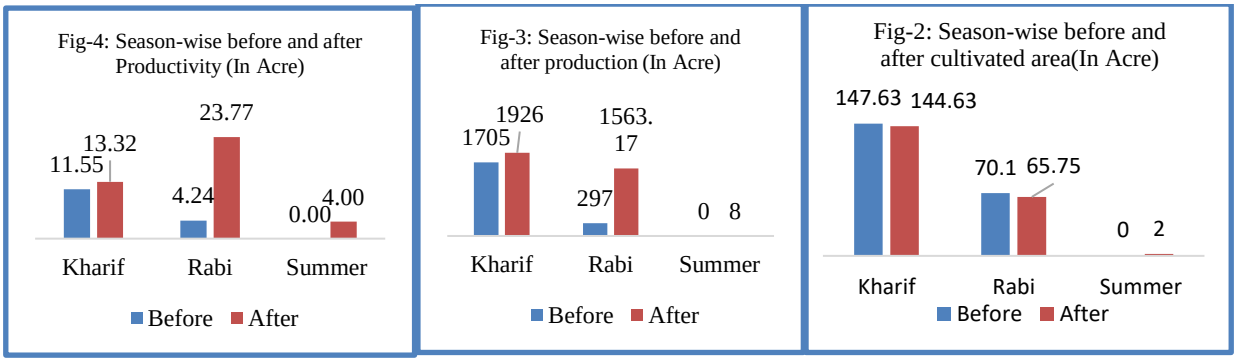


It is observed that area under category 'A' assets is 198.40 which is 83.37 per cent to the operational area and 99.31 per cent to the area owned by them. It indicates that area under asset creation through MGNREGA has increased (Table 2 & Fig 1).

Table 3: Season-wise area cultivated under irrigation Assets in before and after situation of MGNREGS (Area in Acre)

Comparison	No. of Farmer	Kharif	Rabi	Summer	Total
Before	120	147.63	70.10	0.00	217.73
After	120	144.63	65.75	2.00	212.38

Source: Collected and compiled by the author



Season-wise area cultivated under irrigation assets in before and after irrigation reveals that operational area has decreased (Table 3& Fig 2), but production has increased from 2002 qtls to 3497.17 qtls and season-wise also increased. In before situation, farmers were not cultivated in summer season, but after adoption of category 'A' assets, they have started cultivation in summer season (Table 4& Fig 3). Season-wise per acre productivity has increased from 9.19 qtls to 16.47 qtls, which indicates the good impact of category 'A' assets in this district (Table 5& Fig 4).

Table 4: Season-wise Production in before and after situation of MGNREGS (In qtl)

Comparison	No. of Farmer	Kharif	Rabi	Summer	Total
Before	120	1705.00	297.00	0.00	2002.00
After	120	1926.00	1563.17	8.00	3497.17

Source: Collected and compiled by the author

Table 5: Season-wise Productivity in before situation of MGNREGS (In qtl)

Comparison	No. of Farmer	Kharif	Rabi	Summer	Total
Before	120	11.55	4.24	0.00	9.19
After	120	13.32	23.77	4.00	16.47

Source: Collected and compiled by the author

Table 6: Season-wise per household average Income generated from irrigation Assets in before situation of MGNREGS (In Rs)

Comparison	No. of Farmer	Kharif	Rabi	Summer	Total
Before	120	6580.78	4142.44	0.00	10723.22
After	120	20949.83	8613.40	29563.24	59126.47

Source: Collected and compiled by the author

Season-wise per household average income reveals that five times income has increased in after situation (Rs.59126.47) in comparison to before situation (Rs. 10723.22). In kharif season, before income was Rs. 6580.78 which has increased three times as Rs20949.83 in after situation. In rabi season, before income was Rs. 4142.44 which has increased two times as Rs. 8613.40 in after situation.In summer season, before income was nil which has shown as Rs. 29563.24 in after situation.

7. PERCEPTION ON ASSET CREATION

Asset creation without monitor is becomes unproductive. Due to lack of monitoring, most of the assets are being less used. In this regard question asked to job cardholders and officials and they reported that engineers should monitor the assets during its creation. The assets under creation are also monitored by Gram Panchayat members. In case of the individual assets creation, JE, GP Officials, block officials and district officials are monitoring the assets. The land owners also monitor the quality of assets created under MGNREGS. Since the asset is owned by the individual they take care of the asset once it is created. In case of assets created in community land, monitoring happens primarily during the time when assets are created. Despite successful creation of MGNREGA assets, a key challenge lies in their long-term sustainability. Currently, minimal monitoring occurs for assets built on community lands, often leading to neglect after completion. To address this, fostering a sense of ownership among communities is crucial. If villagers view MGNREGA projects as their own, they'll likely be more invested in proper maintenance, leading to better quality works and sustained benefits. Encouragingly, Ganjam district has implemented innovative practices to cultivate this sense of community ownership.

Table 7: Distribution of households involved in agricultural operation under Category 'A' Assets		
Category 'A' Assets	No.	%
RTWB	56	46.22
WHS	10	8.40
CD	54	45.38
MI	0	0.00
Total	120	100.00
Source: Field data		

It is revealed that46.22 per cent households cultivated under Renewable Traditional Water Bodies(RTWB), followed by45.38 per cent households cultivated land under Community Dug well (CD), 8.40 per cent households cultivated under Water Harvesting Structure (WHS) and no land under Minor Irrigation (MI) as there is no minor Irrigation sources.

Table 8: ***Perception of job cardholders on efficacy of Assets***

Perceptions	No.	%
Getting Required water	56	47.06
Sustain livelihood during drought	55	55.46
Beneficial to the villagers	58	57.98
Livelihood status increased	57	57.14
Sustainable water round the year	48	47.90
Total	120	100.00

Source: Field data

On efficacy of category 'A' assets, job card holder households have opined their views as around 58 per cent reported it vis beneficial to the villagers, followed by 57 per cent reported livelihood status has increased, around 55 per cent reported sustain livelihood during drought, around 48 per cent reported sustainable water round the year and 47 per cent reported that they are getting required water for their agricultural operation.

8. PERCEPTION ON PRODUCTION AND PRODUCTIVITY

While many MGNREGA workers are small and marginal farmers with low land productivity, the program ideally aims to empower them to return to full-time farming by improving their land's output. Recognizing the challenges of low agricultural productivity and income instability faced by these demographics, MGNREGA allows works that enhance land productivity. Studies indicate positive beneficiary perceptions, with most reporting moderate to significant increases in agricultural productivity due to MGNREGA interventions. This suggests the program may be achieving its goal of revitalizing small farms and supporting sustainable livelihoods in agriculture-dependent regions.

Table 9: ***Perception of job cardholders on Production & Productivity***

Perceptions	No.	%
Increase of Crop Area	69	57.14
Increase of Productivity	66	54.62
Crop Adequately for sustainable livelihood	107	89.08
Control of Migration	118	98.32
Provide food security	118	98.32
Alternative livelihood adopted	35	29.41
Total	120	100.00

Source: Field data

On production and productivity, perception has drawn from job card holder households that around 98 per cent reported that migration has controlled due to impact of category 'A' assets and also provide food security, followed by 89 per cent households reported crop cultivation through assets gives

adequate sustainable livelihood, 57 per cent reported that their crop area has increased and around 29 per cent reported that alternative livelihood adopted after impact of category 'A' assets.

9. CROPPING PATTERN

Table 10: Perception on *Cropping Pattern after MGNREGA (Fig in %)*		
Crops	Before	After
Paddy	98.32	97.48
Pulses	26.05	94.96
Cereals	0.00	65.55
vegetables	3.36	10.92
Cotton	17.65	22.69
Oilseed	9.24	0.84
Source: Field data		

It is expected to have some impact on the cropping pattern through a shift from low value traditional crops to high values crops through the development of water conservation activities under the MGNREGS. As irrigation facilities increase due to water related works, the possibility of growing short duration high value crops increases. To know whether there has been any change in the cropping pattern of farming in the sample blocks, the responses of the workers were recorded. Most of the job cardholders reported that there is a change in cropping patterns since the implementation of MGNREGS. Observation indicates that most of the respondents agreed that there is a change in cropping patterns after the implementation of MGNREGS. It is observed that cropping pattern has changed extensively due to creation of category 'A' asset through MGNREGS.

10. Impact on cost of Cultivation

Cost of cultivation of before and after situation asset creation through MGNREGA has calculated to draw the impact of assets

Table 11: Cost of Cultivation before and after situation of MGNREGS

Indicators	Before	After	**Percentage Change**
Area (In Acre)	256.32	280.3	9.36
Production (In Qtl.)	3611.85	5667.65	56.92
Gross Value of Crops	2576515	4120682	59.93
Value of by-products	180200	253144	40.48
Gross Value of Outputs (5+6)	2756715	4373826	58.66
Labour Cost (Hiring in)	368020	475900	29.31
Materials cost	265800	333400	25.43
Irrigation charge	19250	31960	66.03
Total Cost (8+9)	653070	841260	28.82
Net Income(In Rs)	2103645	3532566	67.93

Source: Compilation from Field data

It is observed that there is increase in area, production and net income by the creation of category-A assets. Area gas increased to 9.36 per cent, production has increased to 60 per cent and net income has increased to 68 per cent in comparison to before situation of category "A" assets. Before situation data has collected by recall error method.

11. Quality of Assets:

While concerns exist about material limitations impacting quality, water-related projects have demonstrably increased water availability and irrigation capacity according to some studies. However, the exact impact on agricultural productivity remains debated, with challenges in attributing yield changes solely to MGNREGA interventions.

Ganjam district encompasses two broad regions: the eastern coastal plains and the western hills and plateaus. The Eastern Ghats border the western side, with narrow plains between them and the Bay of Bengal. Rivers flowing from the hills are short and prone to flooding. The fertile and irrigated lands are concentrated in the eastern coastal plains, while the central and southern areas are hillier with well-watered valleys. The southeastern portion is fertile, and the northeastern edge includes a section of Chilika Lake. Agriculture forms the backbone of the district's economy, employing roughly 80% of the population. While nearly half the gross cropped area has the potential for irrigation, only 41.54% currently receives it. Rainfed agriculture sustains cultivation in the remaining 58% of the area. Paddy, groundnut, sugarcane, maize, oilseeds, millets, and various pulses are the primary crops grown.

The district enjoys consistent temperatures, particularly along the coast. Average annual rainfall is 129.6 centimeters, increasing towards the interior. High humidity prevails throughout the year, especially in coastal areas. Winds are strongest during summer and monsoon months.

The landscape consists of rolling hills, isolated hillocks, and intermountain valleys. Narrow coastal plains with Quaternary sediments deposited by the Rushikulya River border the hills. Transported laterites form low uplands near the river's delta, and coastal dunes occupy a significant area.

Geologically, the district is dominated by hard crystalline rocks of the Archean age. Recent to sub-recent sediments exist along the narrow coastal tract and the Rushikulya River, while laterite caps older formations. The contrasting water-bearing properties of these formations influence groundwater occurrence and movement. Crystalline rocks cover most of the area, while recent to sub-recent alluvium occupies a limited portion. Weathered and fractured zones in crystalline rocks and porous alluvial deposits are the primary groundwater sources. Hydro geologically, the district can be divided into three units based on water yield: consolidated formations, semi-consolidated formations, and unconsolidated formations.

12. Status of Asset Creation

With the above discussion, for the better efficacy and efficiency of category 'A' assets, need creation of assets with water conservation and sustainability for affirmative impact on production and productivity. As per MGNREGA guideline, different type of assets related to water bodies like water Harvesting Structure, Diversion weir, Check Dam, Renovation of Traditional water bodies, renovation of canals, field Chanel, dug well and ponds are the assets under schedule-1 of category 'A' assets. As Ganjam district is situated in coastal area and closed to Bay of Bengal seashore, there is scope of flow water like rain water and have average rainfall which is congenial to yield good production and productivity in farming operation. But there is problem to get assured irrigation as rain water flows towards down to the

sea which create problem to preserve water for irrigation and also for domestic use. The main factor is surface area downward to sea and rock layer under the surface soils which create problem to conserve water. In this regard, it is observed no. of water bodies like big ponds and dug wells functioning in different area to provide sustainable water for irrigation purposes.

As it is a demand driven aspects of MGNREGA, Odisha government has taken initiative on the permanent structure of assets. In this regard district MGNREGA cell has taken interest to promote the schemes. This district has also declared as Integrated District Plan (IAP) to green through assured irrigation and systematic farming operation.

Dug well of Bijaya Kumar Patra, Fadripalli village, Ankushpur GP of Kukudakhandi block.

The dug well was installed in 2016-17 with the assistance amount of Rs.1,45.000/- through MGNREGS. It is 30 feet depth and 16 feet diameter. The asset has been made with 2 feet wide of stone pieces. The packing of stones seems to be no longer sustaining as there are gaps in the settings and stone sizes are uneven. Interactions have been made with the beneficiary, GRS and JE. It is understood that the asset was designed by an expert group in consultation with JE. The asset has feasibility to irrigate his 4 acres of land for the purpose of vegetables production. The asset is placed near the small hill and has limited water source under the ground. Still the asset recharge more in Kharif season, comparatively less in Rabi season and very less in summer season which affect the desired vegetable cultivation. He is extracting water through 0.5 hp diesel pump. He needs solar system to energize pump set to draw water for the agricultural purposes. Water table is near about 25-40 feet in this region. At present he is cultivating various types of vegetables such as tomato, potato, beans, quail flower, green grams for his livelihood sustenance. Though there is scope of ground water with feasibility, but quality of asset is not satisfactory on the point of longevity.

Dug well of Pradip Goud, Baghalati village, Baghalati GP of Kukudakhandi block

The dug well was installed in 2017-18 with the assistance amount of Rs.63, 000/- through MGNREGS. It is 30 feet depth and 6 feet diameter. The asset has been constructed with 1/2 foot wide of RCC ring and the structure has been beautified with cement plaster. The asset seems to be sustaining and more longevity as there are systematic settings of stones. It is understood from the interaction with the beneficiary, GRS and JE that the asset was designed in consultation with the JE. However, the beneficiary has constructed the RCC rings with his own effort.

Round the year water is being recharged for his vegetable crops and for better management of water, he has made cemented tank and used pipe for drip irrigation. Before the construction of dug well, he had made three bore wells which were unable to recharge water. By the help of MGNREGS, he is able to get sufficient water and generating more than one lakh rupees from vegetable farming. The asset has feasibility to irrigate his 2 acres of land for the purpose of vegetables production. The asset is recharging more in Kharif season, comparatively less in Rabi season and very less in summer season which affects the desired vegetable cultivation. He is extracting water through 0.5 hp electric pump. He needs solar system to energize pump set to draw water for the agricultural purposes and to minimize expenditure. Water table is near about 25-30 feet in this region. At present he is cultivating various types of vegetables round the year such as tomato, potato, beans, cauli flower, green grams for his livelihood. Besides vegetables, he is cultivating mushroom and has a poultry farm. There is scope of ground water feasibility, and the quality of asset is satisfactory on the context of longevity.

Dug well of Padma Charan Goud, Makarjhola village, Makarjhola GP of Hinjilikatu block.

The dug well was installed in 2016-17 with the assistance of Rs.1,45,000 through MGNREGS. It is 30 feet depth and 16 feet diameter. The asset is 2 feet wide with stone packing. The structure is beautified with cement plaster. The asset seems to have longevity and is sustaining as there is systematic settings of stones. It is observed that the asset was designed in consultation with the JE. Round the year water is being recharged for his vegetable crops. For better management of water, he has used pipe for supplying water to the field. By the help of MGNREGS, he is able to get sufficient water and generating more than one lakh rupees from vegetable farming practice. The asset has the feasibility to irrigate his 2 acres of land for the purpose of vegetables production. The asset is recharging more in Kharif season, comparatively less in Rabi season and very less in summer season which affect the desired vegetable cultivation. He is extracting water through 0.5 hp electric pump. He needs solar system to energize pump set to draw water for the agricultural purposes and to minimize expenditure on the cost-benefit analysis. Water table is near about 25-30 feet in this region. At present he is cultivating various types of vegetables such as tomato, potato, beans, Cauli flower, green grams and other vegetables for his livelihood sustenance. There is scope of ground water feasibility, and the quality of asset is satisfactory on the context of longevity.

Dug well of Sala Gopal, Makarjhola village, Makarjhola GP of Hinjilikatu block.

The dug well was installed in 2016-17 with assistance of Rs.1, 45,000/- through MGNREGS. It is 40 feet depth and 16 feet diameter. The asset has been made with 2 feet wide of stone packing. He has beautified the structure with cement plaster. The asset seems to have longevity and is sustainable as there are systematic settings of stones. It is observed that the asset was designed in consultation with the JE. The asset has the capacity to recharge water round the year. By the help of MGNREGS, he has started a poultry farm, but no crops adopted as he has spent the money on daughter's marriage. Though he has land and has the interest to practice vegetable production, he is unable to operate due to lack of finance. He is extracting water through 0.5 hp electric pump. He needs solar system to energize pump set to draw water for the agricultural purposes. Water table is near about 25-30 feet in this region. At present situation, the asset is not used for irrigation purposes. There is scope of feasible ground water recharge and the quality of asset is satisfactory.

The present study deals with the impact of assets created under water conservation and rejuvenation of water bodies on the agricultural performance of the MGNREGS beneficiaries. The works under water conservation and rejuvenation of water bodies of Category-A assets are water conservation and harvesting, watershed management works/ works on individual land, micro irrigation, and renovation of traditional water bodies.

13. FINDINGS

- Considering the different types of assets created under category-A, it is observed that average operational land of job card holders under RTWB is lower than under other types of assets.
- The increase in cultivated area under rabi and summer seasons is observed higher than kharif in after situation.
- Per household average income has increased. This reveals that after the creation of assets under water conservation and rejuvenation of water bodies there is increase in irrigation, which reflected in the increase in income from agriculture.
- There is a major need to create awareness among the villagers to own the works undertaken in MGNREGA scheme for the sustainability of the works.
- There is noticeable perception of improvement in agricultural productivity among the beneficiaries.
- Most of the respondents agreed that there is a change in cropping patterns after the implementation of MGNREGS. It is observed that cropping pattern has changed extensively due to creation of category 'A' asset through MGNREGS.
- District officials opined that Category 'A' assets created through MGNREGS helps to provide sustainable livelihood and increase the production and productivity in the district. All the officials

expressed ‘opinion’ that wherever assets are created under MGNREGS it is observed that sustainable livelihood along with increasing production and productivity has taken place in study area

- The production and productivity has increased and these have become sustainable.
- All the GP officials expressed their opinion that implementation of MGNREGS will create sustainable livelihood and increase their income. To this question the gram Panchayats officials express their opinion that MGNREGA has contributed providing sustainable livelihood which has increased the income of MGNREGS workers.
- According to Sarapanchas, one of the core objectives of the MGNREGS is to create durable assets in the Panchayats area. Category ‘A’ assets were given priority in their locality. Particularly water harvesting structures, renovation of tanks, dug well and ponds were given priority in execution. A question was asked whether such assets created in their gram Panchayats area contributed to production and productivity.

14. Conclusion and suggestions

For sustainability of the category “A” structure and increase in the agricultural productivity needRenovation of assets so as to conserve water for sustainable irrigation which can extend extensive and intensive cropping pattern, yield rate during drought and lean period.To adopt suitable mechanism to extract water with solar system as the electric and diesel pumps are cost effective. Due to this constraint, most of the farmers are being reluctant to cultivate their land.Development of field channel to irrigate more land, Credit support to farmers Supervision of staffs for better efficacy of assets, Solar system should be adopted for the extraction of water as most of the farmer reluctant to use electric /diesel pump as these are cost effective.Need a compressive planning for selection of Category ‘A’ assets in particular area by involving the stakeholders like job card holders, GRS, JE.Need of technical person for the construction of dug well and Revision of labour and material component to create durable assets on the situational analysis basis in the local context.

Given the district's favourable hydrogeology and abundant groundwater resources, large-scale development opportunities exist. A joint effort by state and central government agencies is recommended, involving intensive hydrogeological surveys, exploratory drilling, remote sensing studies, and geophysical investigations. This comprehensive approach will facilitate the precise identification of zones suitable for various groundwater development structures, enabling the design of appropriate extraction systems and pump specifications.

Furthermore, steps should be taken to renovate and improve existing wells. Deepening them to fully tap the saturated zone's thickness is crucial. Additionally, accelerating the energization of constructed wells is essential to optimize their potential.

For canal-irrigated areas, the state government should explore suitable measures for conjunctive use of surface and groundwater. This strategy can serve the dual purpose of preventing waterlogging and supplementing irrigation water supply, particularly in areas facing shortages.

Groundwater resources can be further augmented through artificial recharge techniques such as constructing subsurface dikes and percolation tanks. Public participation is critical not only for groundwater development but also for protecting this vital resource from pollution and over-exploitation.

Financial institutions and banks should provide necessary cooperation to farmers by offering loans for well construction and energization. Implementing a best-suited cropping pattern can also contribute to

improved economic conditions.

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