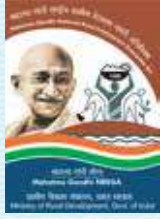


Jal Sangraha



Stories of Water Conservation under Mahatma Gandhi NREGA

Volume 1



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Volume  1

Mahatma Gandhi NREGA Division
Department of Rural Development
Ministry of Rural Development
Government of India



कृषि एवं किसान कल्याण,
ग्रामीण विकास तथा पंचायती राज मंत्री
भारत सरकार
कृषि भवन, नयी दिल्ली

Ministry of Agriculture & Farmer Welfare,
Rural Development and Panchayati Raj
GOVERNMENT OF INDIA
Krishi Bhawan, New Delhi

नरेंद्र सिंह तोमर

NARENDRA SINGH TOMAR

Message

वर्ष 2014 से भारत सरकार देश में घरेलू, आर्थिक और पारिस्थितिकीय जल सुरक्षा बढ़ाने के उद्देश्य से जल संरक्षण में काफ़ी निवेश कर रही है। महात्मा गांधी राष्ट्रीय ग्रामीण रोजगार गारंटी (मनरेगा) योजना के माध्यम से ग्रामीण विकास मंत्रालय की जल संरक्षण पहल का मुख्य उद्देश्य घटते जा रहे परंपरागत जलाशयों में फिर से पानी भरना, भूजल पुर्नभरण संरचनाओं का निर्माण, नदियों का पुनरुद्धार, वर्षा जल संचयन और अपशिष्ट जल का पुनः उपयोग करना है। मनरेगा के अन्तर्गत ग्राम स्तर पर जल संरक्षण की स्थायी संरचनाओं के निर्माण से करोड़ों ग्रामीण परिवारों के लिए जल संसाधनों की समान और सतत उपलब्धता सुनिश्चित हुई है।

जल संग्रह पुस्तक में समाहित विभिन्न अध्ययन में वर्ष 2014 से हासिल की गई हमारी उपलब्धियों की झलक मिलती है। पुस्तक में उल्लिखित जल-संरक्षण गतिविधियों के माध्यम से ग्राम पंचायतों द्वारा ऐसी परियोजनाओं के कार्यान्वयन में विकेन्द्रीकृत शासन-व्यवस्था की अहम भूमिका का पता चलता है। मैं इस अवसर पर देश की ग्राम पंचायतों के प्रति आभार व्यक्त करना चाहूंगा, जिन्होंने अनेक भारतीय गांवों को गंभीर जल संकट से उबारने में मदद दी है। दरअसल, ये पंचायतें संयुक्त राष्ट्र के सतत विकास लक्ष्यों (एसडीजी) को प्राप्त करने की हमारी प्रतिबद्धताओं को पूरा करने में योगदान करती रही हैं। वर्तमान में जल सुरक्षा सुनिश्चित करना और सभी नागरिकों को सुरक्षित पेयजल उपलब्ध कराना भारत सरकार की सर्वोच्च प्राथमिकताओं में शामिल है। मनरेगा योजना इस अभियान को पूरा करने की दिशा में अहम भूमिका निभाती रहेगी। मैं इस पुस्तक के प्रकाशन के लिए ग्रामीण विकास मंत्रालय के मनरेगा प्रभाग, राष्ट्रीय ग्रामीण विकास एवं पंचायती राज संस्थान के मजदूरी रोजगार केंद्र और अन्य सहभागी संस्थाओं को बधाई देता हूं। मुझे पूरा विश्वास है कि इन मामलों के अध्ययन से सम्पूर्ण भारत में अन्य पंचायतों और राज्यों को भी इसी प्रकार के सफल प्रयोग एवं अनुभव दोहराने की प्रेरणा मिलेगी।

(नरेंद्र सिंह तोमर)





ग्रामीण विकास राज्य मंत्री
भारत सरकार

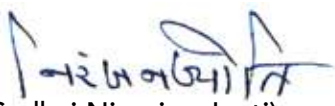
MINISTER OF STATE
FOR
RURAL DEVELOPMENT
GOVERNMENT OF INDIA

साध्वी निरंजन ज्योति
SADHVI NIRANJAN JYOTI

Message

In the recent past, improved water conservation works under the Mahatma Gandhi NREGS have played a vital role in the rural landscapes by ensuring drinking water, sanitation and increased food production. It has also supported sustainable management of land and water resources. Through employment generation, the Mahatma Gandhi NREGS has created assets for water conservation in convergence with many other government initiatives like Integrated Watershed Management Programme, Pradhan Mantri Krishi Sinchayee Yojana, Forestry, Horticulture etc. The creation of individual assets like the farm ponds, open wells and irrigation channels for small and marginal farmers particularly among the socially marginalized communities has helped them enhance their livelihoods.

The case studies reported in this document highlight some of the best practices in water conservation and farm land management and how they have helped farmers increase their income through extensive cultivation and crop diversification. It may be pointed out that active stakeholder in the water conservation works have been women. For example, the Women Self Help Groups created structures for water recharge in the hilly tracks of Himalayas to create perennial drinking water sources in the valleys. Examples from Uttarakhand show,, that these initiatives have reduced the time and effort women generally spend in fetching water from the valley. I am delighted to learn that the water conservation works under Mahatma Gandhi NREGS have significantly benefited the small and marginal farming communities and rural women who really struggle to eke out a living from agriculture. I congratulate the Mahatma Gandhi NREGA Division at the Ministry of Rural Development and the Centre for Wage Employment at the National Institute of Rural Development and Panchayati Raj and other partner institutions for bringing out these insightful case studies.


(Sadhvi Niranjana Jyoti)

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अमरजीत सिन्हा
AMARJEET SINHA



Message

सचिव
भारत सरकार
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Water security can be achieved only when we effectively manage our water resources. Almost a decade ago, it was reported that around 63.4 million rural people faced water stress in India. Issues like pollution of water bodies due to the indiscriminate discharge of wastewater from the industry, agriculture, and household sectors have been reported. The government of India has initiated various policies and programmes to address these issues, in which the contributions of the Ministry of Rural Development through Mahatma Gandhi NREGS in conserving water resources are very significant. It has helped us revive the traditional water bodies and replenish degraded river systems through river rejuvenation activities. Water harvesting and recycling structures were created in many states to improve the adaptive capacity of villagers to the vagaries of rainfall and frequent drought. Large numbers of individual and community soak pits created under the programme have made villages' clean and protected people from various water borne diseases. Today, as a policy, the Ministry spent significant amount of budget for water conservation activities under Mahatma Gandhi NREGS. The best practices of water conservation documented in this book reveals that our effort and resources have generated highly innovative and diversified water structures across the country since 2014.

The case studies also reveal that the water conservation works have not only improved livelihoods but also contributed in augmenting rural ecosystem functions. I congratulate the Mahatma Gandhi NREGS Division of the Ministry of Rural Development and the Centre for Wage Employment at the National Institute of Rural Development and Panchayati Raj for bringing out the case studies in coordination with Indian Institute of Technologies (Kargpur, Delhi, Mandi), Council for Social Development, New Delhi, Gujarat Institute of Development Research, Centre for Women Development Studies, New Delhi, State Institute of Rural Development, (Mizoram, Tripura, Sikkim), NERC Guwahati and Kerala Institute of Local Administration. I am sure that these case studies on water conservation would not only help us learn and develop new strategies but also help in replicating them in similar contexts.

(Amarjeet Sinha)



Introduction

This book deals with many water conservation initiatives under Mahatma Gandhi NREGS after 2014. The Government of India allocates significant amount of financial resources for creating water conservation structures for improving water availability and providing access to potable drinking water in rural India. The case studies presented here are a small subset of our initiatives, which throw light on how we addressed the issue of acute water scarcity in many parts of the country. The stories also tell us how it helped augment livelihoods of millions of rural families. Indirect impacts like improved vegetation, retaining of soil moisture, and arresting of soil erosion are also highlighted in these stories.

Approach

The case studies narrated in this book are originally selected by the state rural development departments. Out of the total 500 case studies and photographs, we have selected 145 case studies for final detailed study. The selected case studies fall into different themes such as water conservation initiatives at individual farms and collective initiatives in common property resources like river rejuvenation, watershed development, check dams and waste water recycling for irrigation. From a spatial point of view, representation of all states, union territories and an alignment with the major agro climatic regions of India also received due attention while selecting case studies. These stories were verified by a team of experts

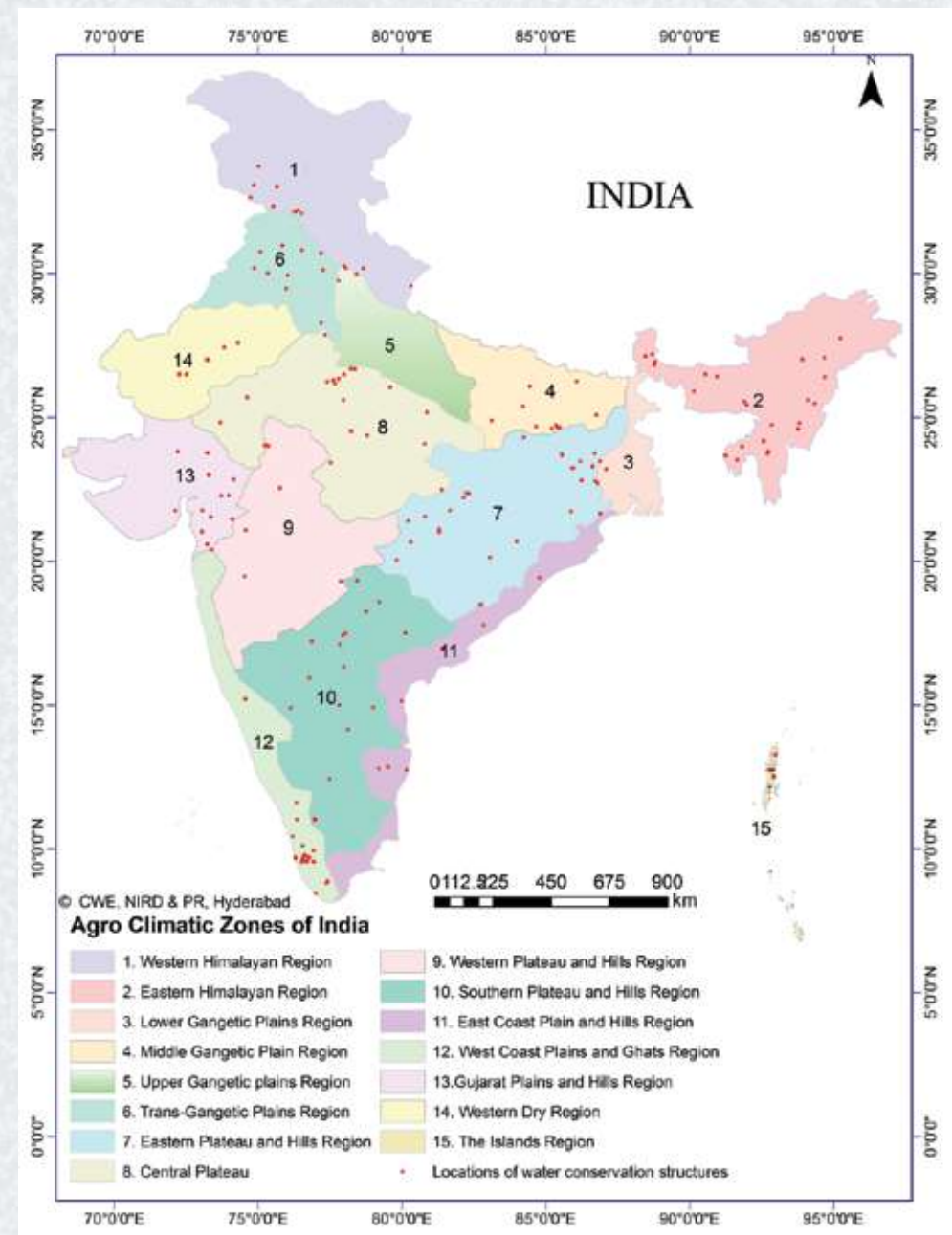


Figure: Locations of Case study across agro climatic regions of India.

for finalisation. The team consisted of technical experts, social scientists and administrators. The final selection and the spread of case studies across agro climatic regions of India is provided in Figure.

Three important criteria were adopted to examine these case studies. First, its relevance and significance in terms of water conservation for addressing domestic, economic and ecological water security, its role in augmenting livelihoods of the people and finally its role in sustaining natural resources of the locality. All water conservation projects are examined in terms of their role in addressing domestic, economic and ecological water security of the locality. The domestic water security includes accessibility and availability of potable water for drinking and other domestic purposes. It is expected that domestic water security ensures not only the drinking needs but also cleanliness and hygiene at household level. It can also have an indirect impact on the nutritional level of the households. The second aspect that was brought into sharper focus is livelihood implication of water conservation particularly by improving farm productivity. For example, extended irrigation facilities by creating farm ponds, introduction of new crops, diversifying agriculture crops, protecting crops at the critical phase of their growth etc. Water conservation also added an economic value to these households by generating supplementary income through fish farming, duck farming etc. It generated scale economy through combo approach in agriculture sector. Finally, the study provided attention on ecological water security while doing these case studies. The role of water conservation in

retaining soil moisture, sustaining vegetation in the area, and also regulating various other ecological functions is also discussed. Raising plantation is an integral part of the water conservation works that directly contributes to the local economy and indirectly to the climate change.

Implementation of Water Conservation Project and Impact

The stories also touch up on the implementation process of the project, issues faced by villages, factors that triggered water conservation works, and challenges faced during the implementation. It is also important to note that the context of the case studies varies across India depending up on the agro climatic characteristics and topography. As a result, large diversity on creating structures was observed in different parts of the country. For example, when revival of traditional water bodies and watershed works received much attention in the semi arid part of the country, structures for flood control and rainwater harvesting received attention in flood plains and coastal area.

The impact of water conservation works narrated in these case studies brought out both direct and indirect impacts through people's voices. The direct impacts were examined in terms of improved income, employment, hygiene etc, while the discussion on indirect impact is mostly in terms of improved ecosystem functions, individual and social wellbeing etc. As a message, people's voices provided in these case studies reflect the way they perceived these water conservation projects.



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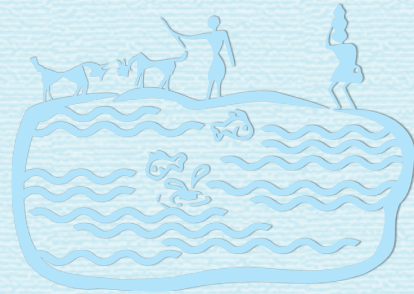






RAJASTHAN

POND RENOVATED— WATER SECURITY RESTORED

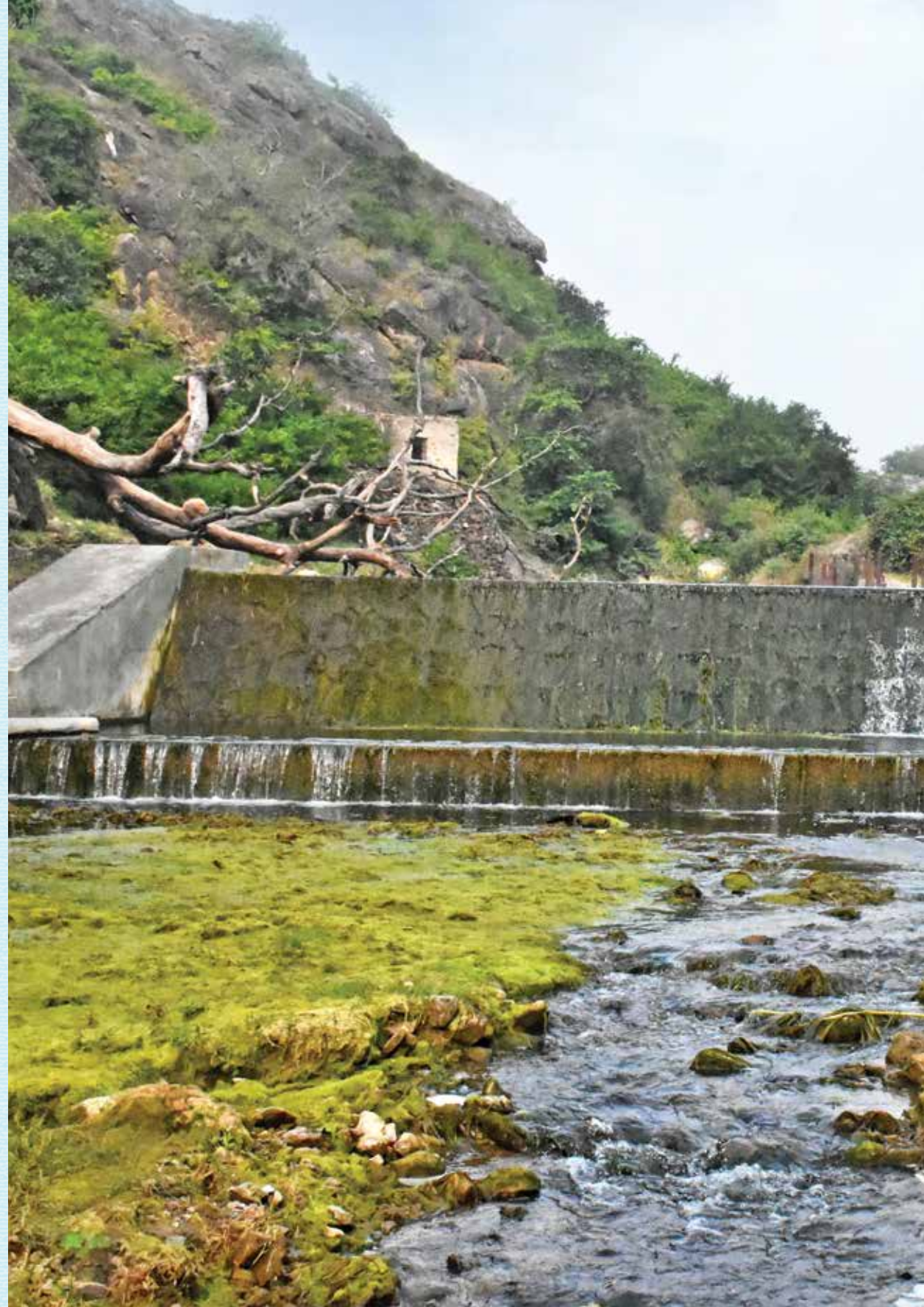


Introduction

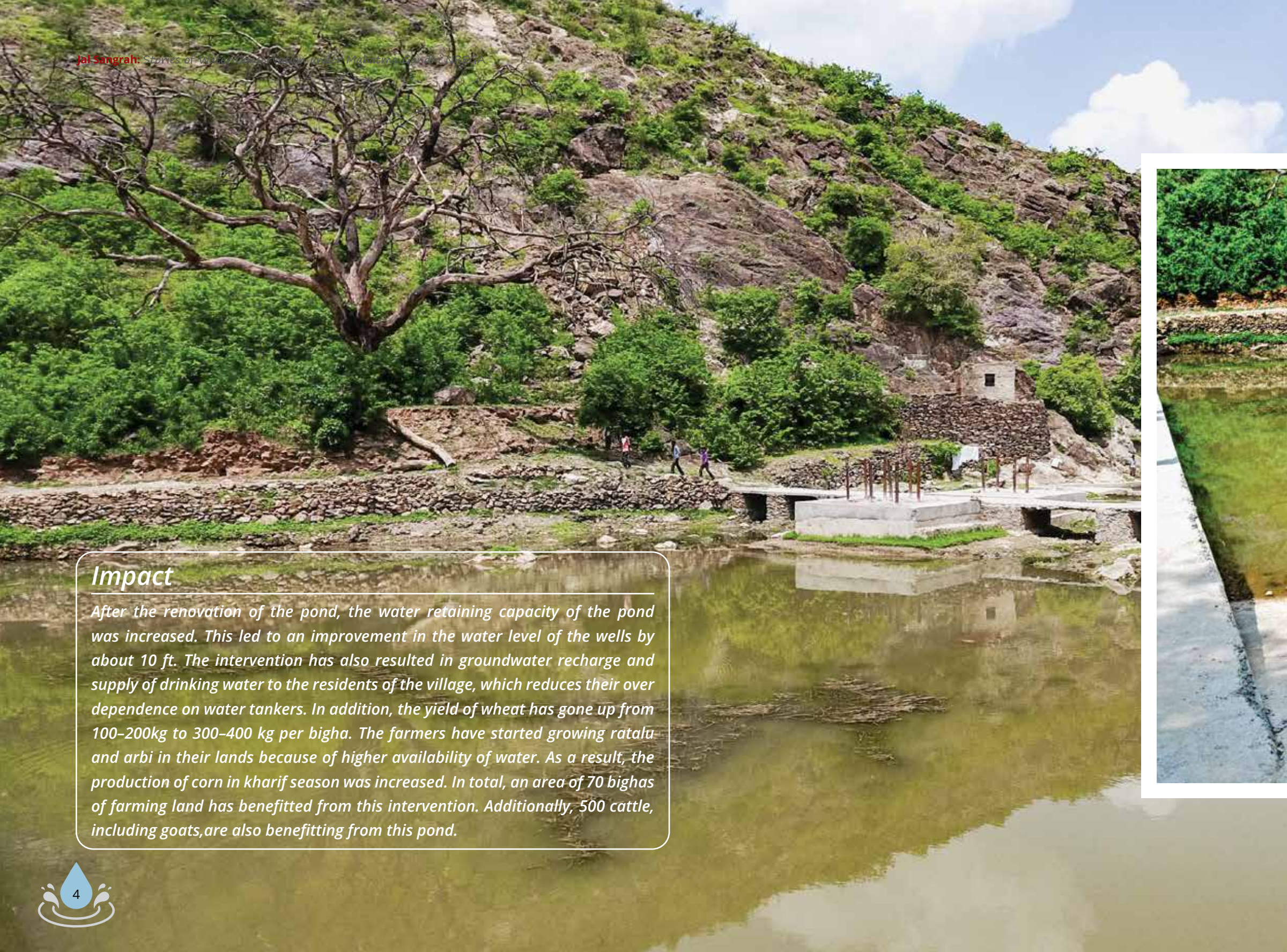
Shivsingh ka Guda, a village in Nedach Panchayat, is situated in Rajsamand District near a hillock in the Aravali Range. A natural stream that flows through the village from the upper reaches of the Aravali Range brings water to the village pond. This pond is spread over an area of 54,000 sq. ft., and it is the only source of surface water for this village. Over the years, the pond was silted, and because of the steep slope of the hill, the run-off water was not properly stored in the pond. Due to this, the pond remained scantily filled, and it could not provide sufficient water for farming and domestic requirements. In order to improve the water retention capacity of the pond, the villagers proposed to take up the renovation work.

Implementation

In 2016, the Gram Panchayat decided to renovate the pond under Mahatma Gandhi NREGS at a cost of Rs. 25.64 lakhs (Rs.15.36 lakhs for wages and Rs.10.28 lakhs for material). The solid rocky structure of the pond's surface area posed a significant challenge in implementation of the renovation work. Apart from deepening the pond, a ramp was laid to provide access to water for domestic and livestock consumption.







Impact

After the renovation of the pond, the water retaining capacity of the pond was increased. This led to an improvement in the water level of the wells by about 10 ft. The intervention has also resulted in groundwater recharge and supply of drinking water to the residents of the village, which reduces their over dependence on water tankers. In addition, the yield of wheat has gone up from 100–200kg to 300–400 kg per bigha. The farmers have started growing ratalu and arbi in their lands because of higher availability of water. As a result, the production of corn in kharif season was increased. In total, an area of 70 bighas of farming land has benefitted from this intervention. Additionally, 500 cattle, including goats, are also benefitting from this pond.



“After the pond got renovated, my goats have easy access to drinking water. The water level in the handpump has also come up”.

**—Smt. Dakudibai Beheliya (35),
Mahatma Gandhi NREGS Worker**

“The water problem in our village is now resolved after the deepening of the pond. The drudgery of collecting drinking water for the women of this village has reduced as our wells are recharged. We can irrigate our farms too. I have 2 bighas of land below the pond. In addition to earning Rs. 20,000 as wages, I have also earned profits from agricultural activity on my land”.

**—Shri. Uday Singh Beheliya (40),
Marginal Farmer**



REVAMPING THE VILLAGE POND STABILIZES THE WATER SCARCITY



Introduction

The residents of Bramhonon ki Sareri village, which is situated in Asind block of Bhilwara District in Rajasthan, have been facing severe water shortage, especially during the summer season. The annual rainfall in the region has remained less than 500 mm since 2008. The minor dams that are constructed in the early years have also dried up due to erratic rainfall because of which the women are forced to travel a long distance to fetch drinking water. The village has a pond called *Dharmi Talav*, which is filled with sand mounds and wild *babul trees* making it unsuitable for any use. So the villagers requested for its renovation in the year 2017.



Implementation

The proposal for the renovation of Dharmi Talav was approved by the Gram Sabha in August 2017 under Mahatma Gandhi NREGS at a cost of Rs. 35.08 lakhs (Rs. 6.25 lakhs for wages and Rs. 28.83 lakhs for materials). The removal of sand mounds, bushes and the deep-rooted babul trees from the channel that carries water to the pond was a daunting task. Trenches were dug inside the pond to increase its water retention capacity and help percolation of water to the underground aquifer.







“We used to get impure water in our village, which made our children sick with joint pain. They are feeling better now. Our animals suffered as they had no proper access to water. Deepening of the pond has increased the availability of water”.

**—Shri. Jamunalal,
Mahatma Gandhi NREGS Worker and
Marginal Farmer**

“Though this village received water from Chambal River, the water was not enough always. The borewell dug near the pond now supplements the drinking water needs of the village quite efficiently”.

**—Smt. Rukmini Devi,
Mahatma Gandhi NREGS Worker**

Impact

Apart from meeting the drinking water needs of a population of 5,000 in the village, the pond also met the water needs of nearly 2,500 livestock. Approximately, 150 farmers who depend on 21 wells downstream now get sufficient water for rabi crops, mainly wheat. The yield of wheat has increased from 300–400 kg to 500–600 kg per acre. The irrigated area has increased by 18.54 hectares. The pond now covers 9.84 hectares of land with an increased storage capacity of 108 lakh gallons of water. Due to enhanced soil moisture, 50 bighas of pastureland now has a vegetation cover throughout the year. An increase of 3–6 ft. in water table in the nearby wells has reduced the plight of women as they are no longer required to walk long distances to fetch water.



SMALL INTERVENTION MAKES A BIG DIFFERENCE IN PADANSOLI

Introduction

Padansoli village in Dudu block of Jaipur District in Rajasthan is surrounded by hilly terrain, and its residents depend solely on monsoon season for their drinking water and irrigation needs. The largest pond of the village has a catchment area of 300 acres. Over the years, this pond shrunk due to low rainfall, siltation and encroachment. The water table had also declined due to the rampant exploitation of ground water. Gram Sabha decided to take up the work of renovation and development of this pond, so that it can meet the water demand of the village.

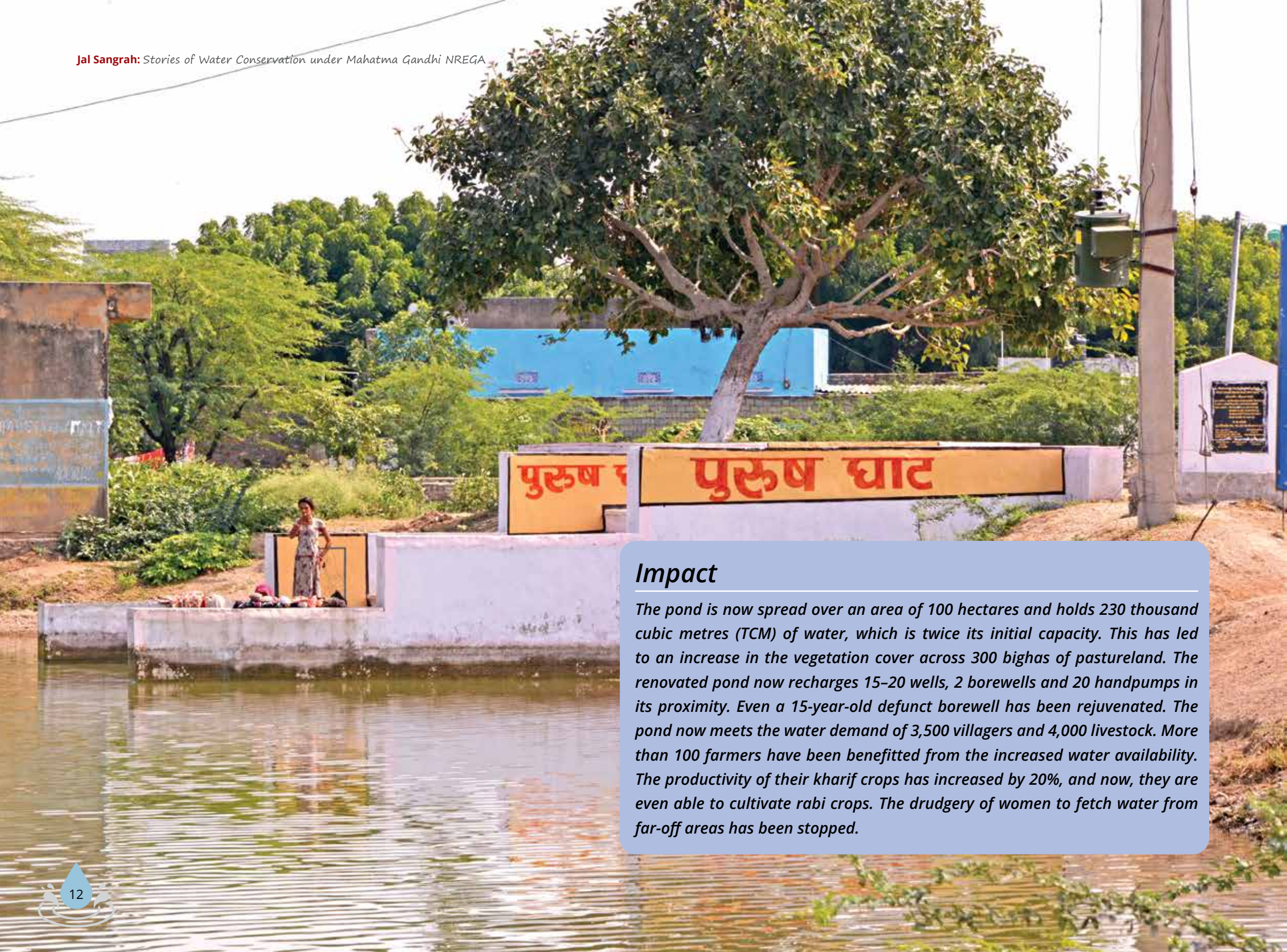


Implementation

The renovation work was taken up by the Gram Panchayat in 2018–2019 at a cost of Rs. 45.01 lakhs (Rs.10.29 lakhs for wages and Rs. 34.72 lakhs for material). Under the guidance of the technical staff of Mahatma Gandhi NREGS, the villagers found a very efficient mechanism to execute the task. The rocky part was left out while the softer sandy part was dug out. This technique has increased the percolation and ensured better groundwater recharge. The major challenge faced during the renovation work was removal of sand mounds and wild *babul* trees. In order to strengthen the bund of the pond, more than 100 trees were planted.



चबूतरा बैठने के लिए



Impact

The pond is now spread over an area of 100 hectares and holds 230 thousand cubic metres (TCM) of water, which is twice its initial capacity. This has led to an increase in the vegetation cover across 300 bighas of pastureland. The renovated pond now recharges 15–20 wells, 2 borewells and 20 handpumps in its proximity. Even a 15-year-old defunct borewell has been rejuvenated. The pond now meets the water demand of 3,500 villagers and 4,000 livestock. More than 100 farmers have been benefitted from the increased water availability. The productivity of their kharif crops has increased by 20%, and now, they are even able to cultivate rabi crops. The drudgery of women to fetch water from far-off areas has been stopped.



“Due to renovation of pond, the water level has increased and this has helped us in irrigating our farms. I have 6 bighas of land in which I am now able to cultivate two crops. I hope to get a bumper wheat crop in the coming years”.

**—Shri. Ashok Sen,
Mahatma Gandhi NREGS worker**

“This pond has made our lives comfortable. Water is now easily available for bathing and washing of clothes. The pond is particularly useful for our animals, which had to walk long distances to access drinking water”.

**—Smt. Rukmini Devi,
Mahatma Gandhi NREGS worker**

“Due to the increased water level, the yield in kharif season has increased by 25–30%, thus increasing my net income. I have 15 bighas of land near the pond in which I am able to cultivate rabi crop as well”.

—Ganesh Sen, Farmer



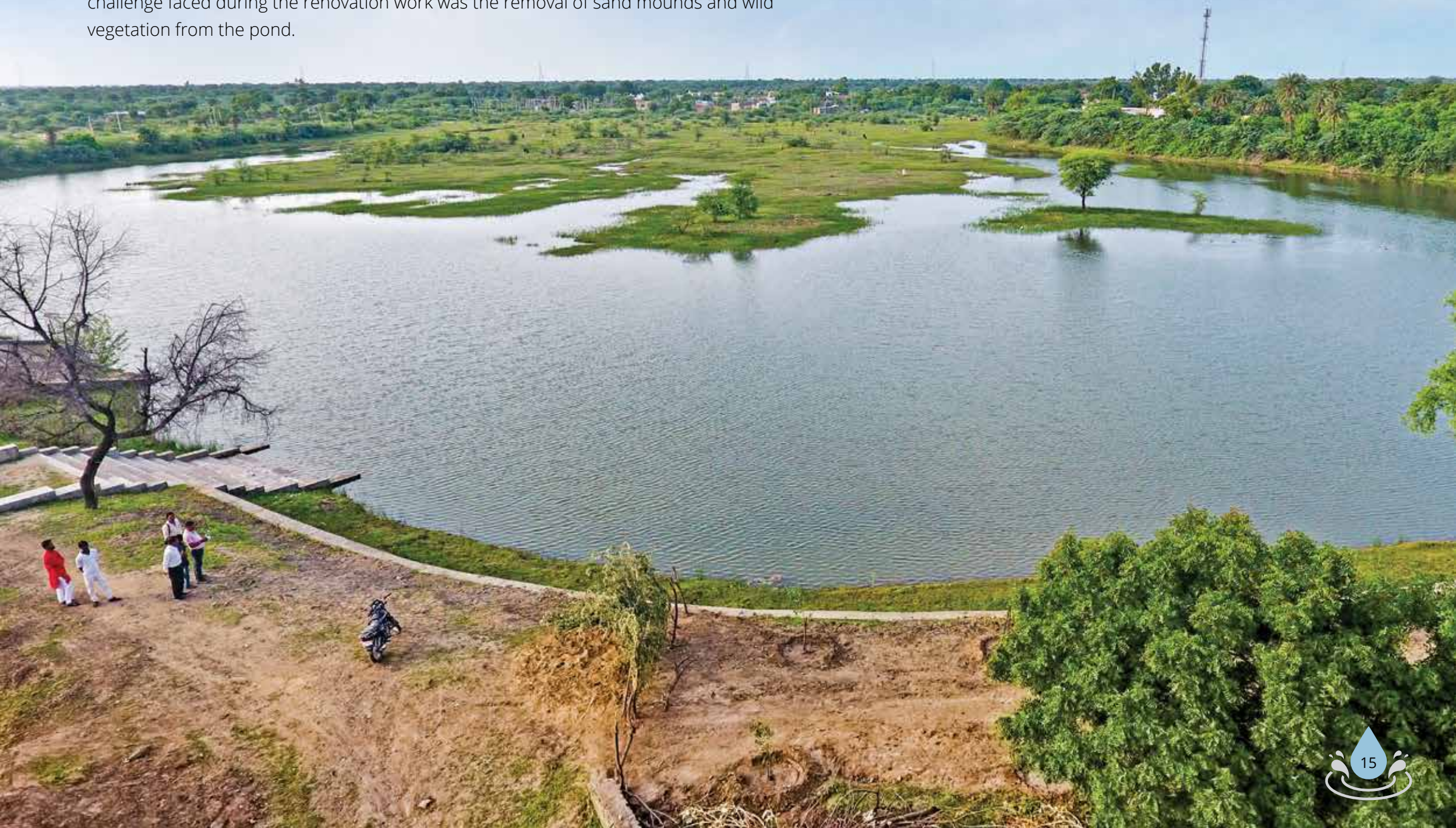
TACKLING WATER PROBLEMS BY RESTORING THE VILLAGE POND

Introduction

Kuraj village is located in Railmagra block of Rajsamand district, Rajasthan. A reservoir located nearby feeds *Takiya Talav*, a pond in the village. The surface water from the nearby pastureland also drains into this pond, which is the primary source of water for the villagers. Over the years, the pond has shrunk to half the size due to the siltation and growth of wild bushes and trees. During excess rainfall, the water from the pond enters into the fields and destroys the crops. During the summer season, both the reservoir and the pond dry up impacting the water level of the wells, handpumps and borewells in the village adversely. This leads to scarcity of water for irrigation and domestic purposes. The Gram Panchayat recognized the importance of renovating the Takiya Talav to address the problem of water scarcity in the village.

Implementation

The Gram Sabha passed a resolution for the renovation of *Takiya Talav* in 2014 under Mahatma Gandhi NREGS. The work was started in early 2015 and completed by 2017 at a cost of Rs.14.29 lakhs (Rs.5.92 lakhs for wages and Rs. 8.37 lakhs for material). The major challenge faced during the renovation work was the removal of sand mounds and wild vegetation from the pond.



Impact

The renovation of Takiya Talav has almost trebled the water availability from 5 TCM to 13.5 TCM. The increased soil moisture has revived the vegetation cover on 2,200 bighas pastureland that now supports the grazing of 10,000 animals from the nearby panchayats. The villagers, especially women, were relieved of the problem of fetching water from remote areas for themselves and their animals. There has also been a considerable increase in the fish stock.

The renovated pond has recharged almost 150 wells and 15 tubewells. The water table in the nearby wells has gone up by 25 ft. The renovated Takiya Talav has enhanced the rabi cropping on 1,000 bighas of agricultural land, leading to an increase in the yield of wheat crop from 200 kg per bigha to 500–600 kg per bigha. Overall, the pond has benefitted 170 households.



“There has been a significant increase in crop production due to an increase in water level. We no longer face difficulty in getting drinking water”.

**—Shri. Mohanlal Khatik,
Marginal Farmer and
Mahatma Gandhi NREGS Worker**

“Water level has come up in the village, wells and borewells have got recharged. Now, crops get timely water. Women can easily collect water from handpumps”.

**—Shri. Nathulal Khatik,
Mahatma Gandhi NREGS Worker**

“The crop productivity has increased by 15–20% in Kuraj village. Also, the problem of fluoride content in the water has come down by 50–60%”.

—Shri. Aji Satik Mohammad, Teacher

MULTIPLE CONSERVATION STEPS HELP RESTORE WATER SECURITY IN ATITMAND

Introduction

Atitmand village in Jawaja block of Ajmer District is severely affected by shortage of groundwater due to poor hydrogeological status and lack of adequate rain. The scarcity of water has led to over-exploitation of groundwater through borewells, which has further worsened the situation. The need for drinking water was fulfilled through water tankers. The development of artificial recharge measures was the only way forward for the region to augment its groundwater and surface water resources. The Gram Sabha felt the need to repair the existing check dams and water channels, which were blocked due to siltation and aging of the structures.

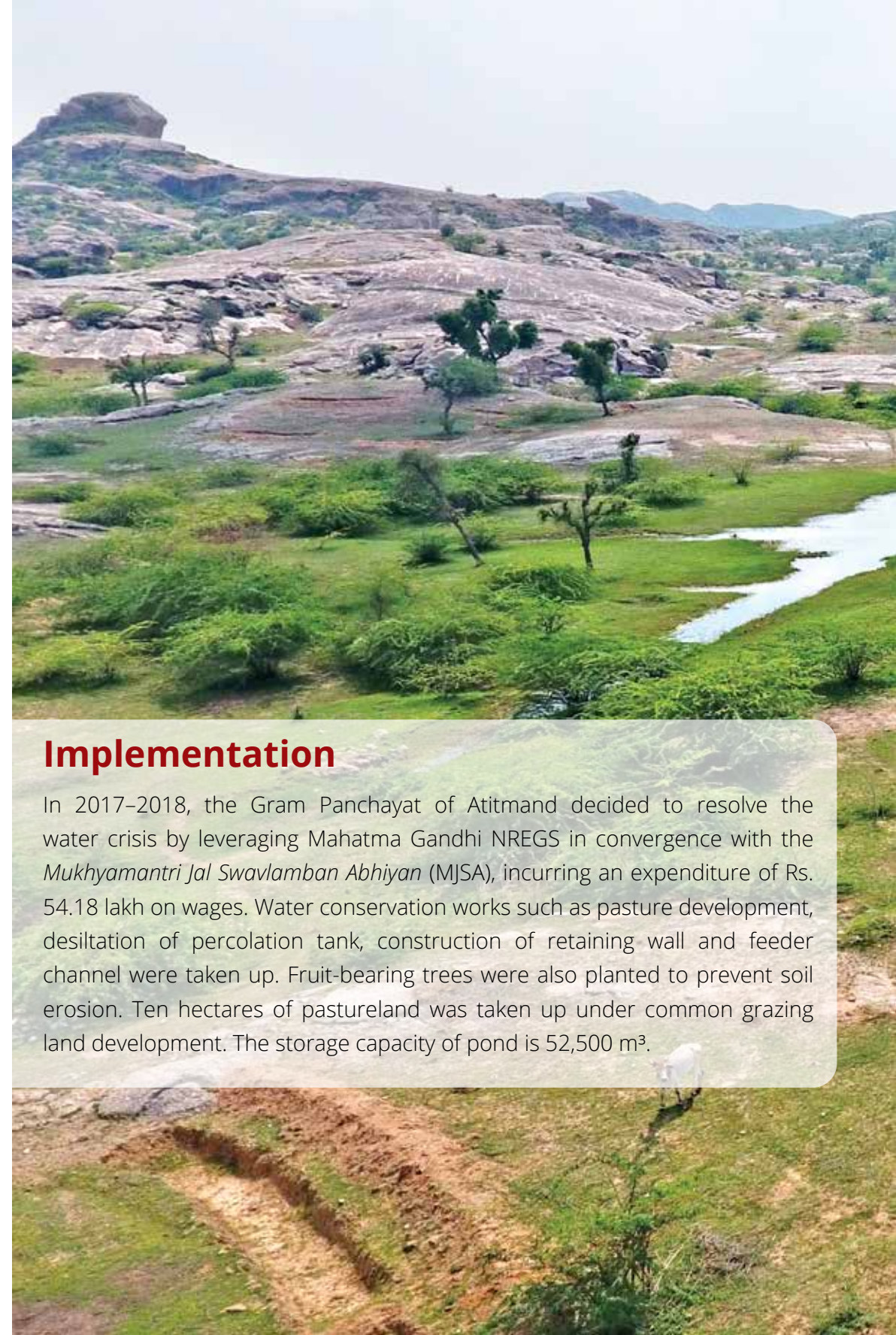


**जल शक्ति
अभियान**
संचय जल, बेहतर कल

जल शक्ति अभियान प्रथम चरण

❁ "प्रतिज्ञा" ❁

- मेरे गाँव में जल शक्ति अभियान चलाया जा रहा है। जिसके तहत वर्षाजल का संचय कर मेरे को जल आत्मनिर्भर बनाने का प्रयास होगा।
- मैं प्रतिज्ञा करता/करती हूँ कि मैं अभियान के लिए तन-मन-धन से अपना पूरा सहयोग दूंगा/दूंगी।
- मैं प्रतिज्ञा करता/करती हूँ कि मैं अपने गाँव के लिए योजना तैयार करने हेतु पूरा सहयोग दूंगा/दूंगी।
- मैं प्रतिज्ञा करता/करती हूँ कि मैं धर्म/समुदाय/राजनीति उपर उठकर इस पुनित कार्य में सहयोग दूंगी/दूंगी।
- मैं प्रतिज्ञा करता/करती हूँ कि अभियान के कार्य के लिए मैं अधिकाधिक लोगों को जागरूक करूंगा/करूंगी।
- मैं प्रतिज्ञा करता/करती हूँ कि सभी को अधिक सहयोग श्रमदान अथवा अन्य सहायता हेतु प्रेरित करूंगा/करूंगी।
- मैं प्रतिज्ञा करता/करती हूँ कि इस पुनित कार्य में आ रही बाधाओं को यथा संभव दूर करूंगा/करूंगी।
- मैं प्रतिज्ञा करता/करती हूँ कि अभियान के अंतर्गत मेरे गाँव में कराये गये कार्य कि देस देस एष सुरक्षा की जिम्मेदारी लूंगा/लूंगी।
- मैं प्रतिज्ञा करता/करती हूँ कि मैं पानी का उपयोग सोच समझकर करूंगा एवं बर्बादी नहीं करूंगा/करूंगी।



Implementation

In 2017-2018, the Gram Panchayat of Atitmand decided to resolve the water crisis by leveraging Mahatma Gandhi NREGS in convergence with the Mukhyamantri Jal Swavlamban Abhiyan (MJSA), incurring an expenditure of Rs. 54.18 lakh on wages. Water conservation works such as pasture development, desiltation of percolation tank, construction of retaining wall and feeder channel were taken up. Fruit-bearing trees were also planted to prevent soil erosion. Ten hectares of pastureland was taken up under common grazing land development. The storage capacity of pond is 52,500 m³.





"Our village has hugely benefitted from this pond. Earlier, we had to go long distances to fetch drinking water for ourselves and animals. Now, wells and handpumps give us enough water".

—Smt. Rukma Devi, Mahatma Gandhi NREGS Worker

"After the renovation and repair of anicuts, the water table in the village has gone up and the borewell has enough water to cultivate wheat. Earlier, I had to work in the quarry or migrate to Kishangarh for work. Now, I am able to earn decent money and save Rs. 8,000-10,000 which was earlier spent on water tankers".

—Shri. Kanehyalal Mali, Marginal Farmer



A scenic view of a lake with a dense green forest in the background. The word "GUJARAT" is overlaid in large, 3D-style letters across the center of the image. The water is calm, reflecting the sky and the surrounding greenery. There are some reeds and small plants in the foreground. A white bird is visible on the far bank.

GUJARAT

REJUVENATING KHORICHIMALI TO RECHARGE LIVES: AMBA TALAT SHOWS THE WAY

Introduction

Amba Talat village is located in Dharampur Taluka of Valsad District in Gujarat, and it falls within the command area of Tan, a tributary of Auranga River. Agro-climatically, the village is located in the high rainfall zone of southern hills with an average rainfall of around 2,422 mm. Approximately 99% of the total population of Amba Talatare tribals who mainly depend on agriculture for their livelihood. They depend on Khorichimali, a tributary of Tan, for their water needs; it originates in the eastern forest hills and runs through the village. However, due to the undulating and hilly terrain, the rainwater run-off in the stream is very fast causing excessive soil erosion and negligible permeation into the ground. As a result, the surrounding farms have been facing severe soilmoisture stress and extended spells of dryness in the rabi and pre-monsoon seasons.

A baseline study was conducted by Gujarat State Watershed Management Agency (GWDA) to assess the situation on the ground. Based on this study, it was decided to revive common natural resources to ensure the availability of water in wells and handpumps.





Amba Talat
2422 mm
rainfall



Amba Talat
99% Tribal Population



Implementation

In 2018, Gram Sabha passed a resolution to leverage Mahatma Gandhi NREGS for making a series of mini structures in and around the Khorichimali tributary. The District Watershed Development Unit (DWDU) of Valsad came on board soon to provide technical support under the ongoing River Rejuvenation Project (RRP) of Gujarat government. In order to promote awareness about river rejuvenation approach and the expected benefits, appropriate information–education–communication (IEC) activities like meetings, group discussions and community level functions were also carried out.

The project was implemented stepwise starting from upstream in Khorichimali following the “ridge to valley” approach to watershed development. The works included the construction of 23 check walls, 1,330 RMT earthen field, 2,000 stone bunds, 30 farm ponds, 13 pakka nalas and 3 gully plugs. Also, block plantation on the barren and uneven lands of farmers was taken up. More than 50 structures have been completed over half the course of the stream (7.2 km) within the village. One pond in the forest area has been desilted and repaired. Factors like variations in slope, soil and rocks were taken into account while planning these structures. The total expenditure incurred on the project was Rs. 63.65 lakhs.



“We grew only paddy in our fields which had lesser productivity due to heavy rain. After the intervention on the upper reaches, the run-off has slowed down resulting in reduced erosion. This has led to increase in productivity”.

—Shri. Rameshbhai Radhabhai Fadvaliya, Farmer





Impact

After the completion of the project, with increased access to water and improved soil conditions, farmers have started to cultivate vegetables like little gourd, bitter gourd and bottle gourd, while paddy remains the major crop. More importantly, the change in the overall ecosystem has motivated several farmers to invest in their farms voluntarily. As a result of implementation of this work, 750 hectares of farmland and 341 households were benefitted.

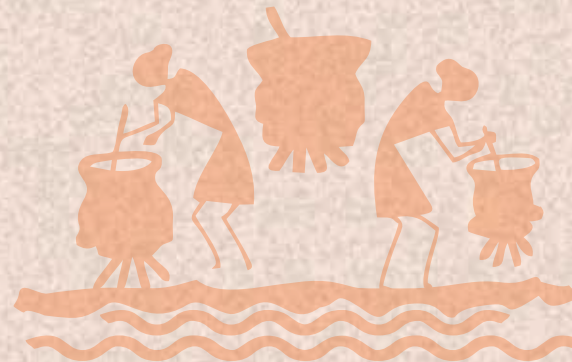
The comprehensive treatment of Khorichimali stream and the farmlands around it has produced perceptible ecological benefits such as increase in groundwater table, improvement in the quantum of surface water, increase in tree cover and decrease in soil loss. The farm productivity has improved, crops are saved and cropping pattern is diversified. The water table has improved in the wells in the catchment of the stream.

As Khorichimali gets a new life, Amba Talat looks forward to a greener future, which will be made possible by the availability of water for farming and the hard work of our farmers.



“Field bunding and stone bunding resulted in increase in cropping area in the upper reaches. Earlier, these areas were lying un-cultivated due to heavy run-off and soil erosion. Presently, I have taken up plantation work on my field with inter-cropping of pulses. I hope for an increase in income”.

—Shri. Rambhai Laxubhai Pawar, Villager



WORKING TOWARDS WATER SECURITY: OLIAMBA'S TALE OF TRIUMPH

Introduction

Oliamba village is located in the Chhota Udepur District of Gujarat, which is predominantly populated by the Rathwa tribe. To the north of the village lies the Orsanga tributary, which is an important tributary of the Narmada River. The village has undulating land interspersed with small hills, rivers and nallas. Two-thirds of the land in the village is under agricultural use, most of which (91%) is rainfed. In rabi season, when work is not available in the village, people migrate with their families to other parts of Gujarat, mainly to Saurashtra, for their livelihood.

Oliamba has been facing severe water scarcity due to excess run-off of surface water and low infiltration of water into the soil. This, in turn, affects the supply of water for the irrigation of farmland. The quantity of rainfall has been diminishing in Chhota Udepur Taluka due to indiscriminate felling of trees, which also exacerbated erosion of topsoil. Insufficient and untimely rains have made farming not viable in Oliamba. Crop failure has also been very common. In order to address this issue, the Gram Panchayat and Mahatma Gandhi NREGS team collectively identified a common land closer to the farms for taking up water conservation works.





“The area of cultivation is increasing with the availability of water. There are many structures in the village now such as khet talavdi, check walls & check dams and water is available almost throughout the year”.

—Shri. Jaggubhai Rathwa, Farmer



Implementation

The work was taken up during 2017-19 by the Gram Panchayat as the implementing agency at the total cost of Rs. 48.89 lakh. The details are as under:

Details of Mahatma Gandhi NREGA Work to Create the Village Pond				
	Year	No. of workers	Person days	Labour cost (in Rs.)
Phase 1	2017-2018	180	2,360	4,29,030
Phase 2	2018-2019	209	2,438	4,36,120
Total			4,798	8,65,150

River Rejuvenation Through GSWDA-Mahatma Gandhi NREGS Convergence						
Type of work	Completed work	Expenditure (in Rs. lakh)	No. of beneficiaries	Area impacted (Ha)	Storage of water (Cmt)	Person days generated
Water Conservation/Water Harvesting Structures						
Check dam (no.)	4	11.49	18	10.5	1,17,000	2,370
Check wall (no.)	10	14.04	25	18.5	1,10,000	2,892
Earthen bund	2	0.885	8	5.5	35,250	456
Percolation tank	3	1.449	Forest land	3.5	5,940	747
Van talavdi	2	4.93	35	25.5	77,175	2,542
Soil and Moisture Conservation						
Contour trench (Rmt)	400	1.85	Forest land		8,100	955
Stone bund (Rmt)	234	1.15	11	6.5		597
Farm bund (Rmt)	3,500	2.11	11	11	24,750	1091
Land levelling	4	1.911	4	5.5		985
Afforestation (Ha)	3.15	0.41	Waste land			150
Total		40.24		86.5	3,78,215	12,785
Through Mahatma Gandhi NREGA		37.34				
Villagers' contribution		2.90				



Impact

As a result of the implementation of this work, 86.5 hectares of land and 30 households have been benefitted. Livestock consisting of more than 500 cattle and 300 goats have got sufficient drinking water facilities and fodder. As per the villagers' testimony, the works have led to an improvement in the groundwater table and an increase in net sown area and agricultural production, which leads to reduction in migration. The secondary impact is the decline in the school dropout ratio.



"We used to go to the Kathiyawad for labour as there was no work available in the village. Almost everyone in the village was migrating for work. There were cases of crop failures due to scarcity of water. Now, we cultivate paddy and maize for two seasons and have also started growing vegetables. The agriculture productivity has improved significantly as compared to the earlier position".

—Shri. Mithiyabhai Rathwa, Farmer

REVIVING THE LIVES OF PEOPLE OF BHARUCH BY CLEARING COURSE OF TOKRI

Introduction

The district of Bharuch in Gujarat comes under the command area of the Narmada River. Major rivers like Narmada, Dhadhar and Kimalong with its tributary called Tokri flow through this district. Two check dams were built on Tokri tributary. Over the years, due to reduced capacity of the dam after siltation, there is always a risk of flood during the rainy season. Moreover, depletion of groundwater resources and drying up of streams and water bodies have also emerged as significant issues constraining the quality of life and livelihood of people. Migration has been the only option left for most of the households to cope with scarcity of water.

In 2018, the Gujarat State Watershed Management Agency (GSWMA), a technical partner in River Rejuvenation Project (RRP) of the Gujarat government, identified the stream of Tokri that flows through Valia and Netrang talukas for treatment. Additionally, eight villages in the catchment of Tokri were selected to be treated with farm protection structures.

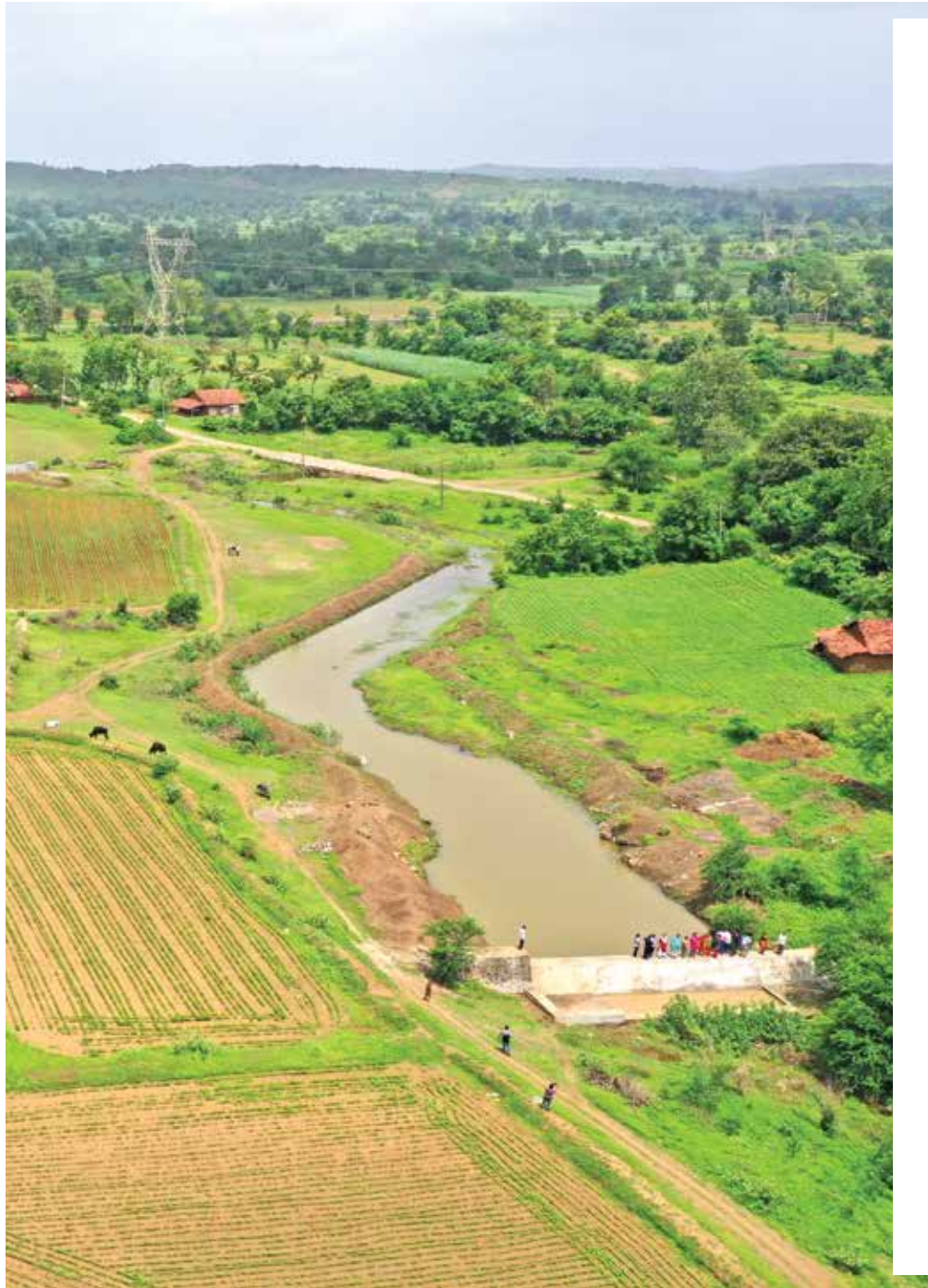




“Because of the river rejuvenation project, water is conserved in the water bodies and streams in our village. It has led to a rise in water table, reducing drinking water problems in the months of May and June. Farmers take support irrigation from check dams. Besides, 80 families of the village were employed in the project for two months”.

**—Ms. Minaxiben Girishbhai Vasava,
Sarpanch, Mauza Village**





Implementation

The project was initiated in 2018 using satellite imagery and a comprehensive survey to identify Tokri stream's catchment and command areas. All the natural streams were mapped through this exercise, and the sites suitable for rainwater harvesting works were identified. Participatory Rural Appraisal (PRA) tools were used to understand the needs of the villagers. The total area treated under the project extends to around 20 sq. km. As of July 2019, an area extending to 9 km in length and 1.5 km in breadth was treated in and around villages of Mauza, Gundia and Rajpara in Netrang-Valia talukas at a total cost of Rs.19.53 lakhs (wage payment—Rs.12.96 lakhs and material cost—Rs. 6.57 lakhs). In all, 98 works have been completed in these villages. The major activities taken up under this project were desilting and repairing of the existing check dams. The other structures made under the project included gully plugs with locally available small boulders and field bunds with outlets.



“Earlier, people had to go out for work. They usually migrated to Ankleshwar for work. When they get there, they may or may not get work there. If they don't get work, then they have to bear additional transportation expenses. Now, they do not need to go out of the village, as they can do farming for two seasons here itself. People can stay with their families. The project is beneficial to farmers, labourers and villagers”.

—Shri. Kamleshbhai Vasava, Farmer





Impact

Prior to the completion of these works, the agriculture was dependent on rain. Farmers could rarely irrigate their fields, and farming was limited to cotton and pigeon pea. After completion of the work, the cropped area was increased, and the cropping pattern was diversified. The borewell and open wells were the preliminary sources of water in the area. There are about 40 borewells and 15 open wells in the project area, which are usually dried up by November–December. But after the treatment of Tokri, now the borewells and open wells have sufficient water throughout the year.

In addition, the farm bunding prevented erosion of fertile soil. As soil moisture increased, farmers could sow the additional crop of pigeon pea. The repaired and desilted check dams have led to an increase in storage of water, which has enabled additional irrigation for rice and cotton crops. As a result of the implementation of this work, a total of 25 acres of land has been benefitted.

In previous years, Mauza village faced acute drinking water problem. About 90 households in the village now receive piped water supply for about 6 hours every day. The availability of water has also been a blessing for the cattle in the area as Panchayats can now fill up open tanks designated for cattle.



BUILDING A FUTURE FOR THE PEOPLE OF NORTA VANTA

Introduction

The Patan District in Gujarat is characterized by arid to semi-arid climate, low land productivity and moderate annual rainfall of about 600–700 mm. Many villages in the district have been facing drought-like situation for the last 3 years. Predominantly, the farmers dependent on groundwater for irrigation of crops. During monsoons, the farmers used to make kacha field channels to divert the flow of water. For most farmers, farming was a one-season activity. Only about 10% of them were able to cultivate their land in all three seasons. Nortavanta village desperately needed a water conservation initiative so that the existing dry ponds in the village could receive and retain rain or canal water. The Gram Sabha decided to undertake the work to deepen the Pipariya *talav* and field channels, and construct a check dam.





"I have worked in Mahatma Gandhi NREGA during the construction of check dam. My wife has also worked on the site. I belong to the Vanzara community. We are around 15 Vanzara families in the village and all are landless. I worked for three weeks in Mahatma Gandhi NREGA and earned Rs. 3,900 as wage".

—Shri. Dalajijoraji Vanzara, Villager



“The checkdam will be beneficial to 100 farmers. Water from the canal will flow directly to the pond, and the farmers will be able to draw water using pumps. Earlier, no water was available. During Sujalam Sufalam, the field channels were made. This will enable the availability of water directly to our farms. Otherwise, we needed to spend about Rs.15,000 every year to make mud structures to conserve water”.

—Amarji Kesaji Thakore, farmer



Implementation

The technical team of Mahatma Gandhi NREGS provided the necessary technical assistance in the planning and execution of water conservation works. The construction of check dams, deepening of Pipariya talav, desilting of existing field channels and construction of new channels were taken up during 2018–2019 in convergence with the *Sujalam Sufalam Jal Sanchay Abhiyan (SSJSA)* at a total cost of Rs. 4.77 lakhs. The major challenge was to complete the work with the limited workforce (i.e. Vanzara community) as landed farmers were not willing to work on lands other than their own. In the last spell of rain in the current monsoon, a total of 11,780 m³ has been accumulated in the structure.



Impact

Farmers in Norta Vanta receive water from the Narmada canal for irrigation and storage in the Pipariya talav. Due to the construction of the check dam, the water from rain and canal is efficiently conserved and available for both farming and consumption for livestock. About 100 acres of agricultural land has been brought under cultivation with the help of the new water conservation structures. As a result of the implementation of this work, 178 households have been benefitted.





PUTTING AN END TO MIGRATION OF MALANGDEV FARMERS

Introduction

Malangdev is a hilly and remote village in Songadh Taluk of Tapi District that falls in the southern Gujarat's heavy rainfall and hilly zone. The district recorded an annual rainfall of 1,064 mm in 2017 and 1,132 mm in 2018. Due to high run-off, retention of surface water and recharge of groundwater are not possible. This has severely affected the livelihood opportunities of the villagers. Only one-fourth of the farmers in Malangdev cultivate their lands twice a year, while the rest migrate after kharif season. The shortage of drinking water is another problem faced by the people during summer months. The Gram Sabha sanctioned desilting of the village pond and construction of an earthen bund under Mahatma Gandhi NREGS.



"After the construction of the pond in 2015–2016, I have stopped migrating to Bardloi. Earlier, the well in my farm used to have water till March only. But now it remains there throughout the year".

—Shri. Bhiku Bhai Mavji Bhai Gamit, Farmer







Implementation

The works were completed by the Gram Panchayat during 2015–2016 at a cost of Rs.18.94 lakhs. The soil excavated from the pond was used for building a 50-m long and 5-m high bund. The structure was expected to help harvest the water that flows down during the rainy season and also to raise the local water table.



Impact

The water conserved in the pond is used to irrigate close to 90 acres of agricultural land. After the intervention, the groundwater table has improved, and the water is now available at 60-feet depth. The farmers are now able to harvest twice a year. They have started to grow wheat, pulses and vegetables in addition to crops like paddy. Animal husbandry, which is an important source of earning for households, has also received a boost after the repair of the pond. Farmers' incomes have improved and many have stopped migrating for work. The pond serves about 43 marginal farmers in the village.







MADHYA PRADESH

NOURISHING THE GROUNDWATER SOURCES AND AN ANCESTRAL LEGACY

Introduction

Jamili GP of Mhow block in Indore District has a total population of over 3,000. The villagers are dependent on rainfed agriculture for their livelihood. An old village pond, which was serving as the primary source of irrigation, could not hold sufficient amount of water due to silt deposition and leakage. The borewells that were giving additional supply of water had also dried up. The villagers were compelled to purchase water tankers to fulfil their household requirements. Women of backward families had to walk up to 8 km to fetch water. The Gram Panchayat decided to renovate the pond in the village to solve the water crisis.





Implementation

The GP completed the work of desilting and renovation of pond in the year 2016–2017 at a total cost of Rs. 9.30 lakhs (Rs. 5.84 lakhs for labour and Rs. 3.46 lakhs for materials). Repair of the existing waste weir was followed by removal of silt deposited at the bottom of the pond. This increased the depth of pond by 1.5 m, which eventually increased the storage capacity of the pond. Channelling water from catchment areas controlled by armed forces toward the pond was a challenge which was overcome through effective convergence with the defence and forest departments. The villagers collectively pledged not to extract water directly from the pond to ensure substantial improvement in the water level of nearby water resources.



Impact

Water holding capacity of the pond has increased from 21,000 meter³ to 3.9 lakhs m³. Water is available in the wells and borewells after rejuvenation of the pond. As a result, more than 420 hectares of land is now being irrigated, and the water requirement for a second crop during rabi season is easily met, which has resulted in an increase in the income of farmers. Cultivation is now possible throughout the year. The renovated pond also ensures water availability for cattle in the summer. The work has benefited 400 people of Jamili Gram Panchayat. Currently, the village is confident of cultivating more crops with increase in ground and surface water level.



"I have witnessed the condition of the pond before and after the rejuvenation. I noticed that whenever water inflows were received in the pond, the same got wasted due to leakages and we could not do anything to stop it. But, after rejuvenation, water is available in the pond throughout the year".

—Shri. Dinesh Patidar, Villager



CREATING AN ENDLESS STREAM TO HARVEST PROSPERITY





Introduction

Gehlana GP in Sitamau block of Mandsaur District is located near a tributary of Chambal River. The majority of the population of the GP is dependent on agriculture and livestock rearing despite the low amount of rain. The village had become water stressed due to continuous depletion of the water table with exhaustive usage and excessive surface run-off and groundwater. Even though farmers owned large chunks of land, water scarcity restricted the income-earning potential of the land. The farmers raised the concern before the Gram Sabha to take necessary measures towards water conservation by constructing a stop dam on the river.

Implementation

The GP completed the construction of stop dam with 55-m long sidewall to stop run-off water during the FY 2016–2017 at a total cost of Rs. 27.0 lakhs, out of which Rs. 6.0 lakhs were incurred under Mahatma Gandhi NREGS, while the remaining funds were provided under Pradhan Mantri Krishi Sinchai Yojana (PMKSY). The stop dam has a capacity to store approximately 300 TCM of water.





“Despite living in a locality blessed with a river, we did not have drinking water after January. The local canals used to dry up post monsoon due to which we were compelled to purchase water. After this canal rejuvenation, we have water throughout the year. Now, we have doubled our agricultural production and live in better conditions”.

—Shri. Badri Lal, Farmer

“The entire rainwater we received in the year used to flow down with the river, leaving us in misery during the summer before this stop dam was constructed. Currently, we have enough water for our domestic needs, agriculture and cattle after building this dam in our village”.

—Shri. Manohar Lal, Farmer

Impact

After completion of the construction of the stop dam, the overall water availability has increased in the region. The groundwater table has risen by 2 ft, and 80 hectares of land belonging to 50 farmers was benefitted through this work. The increased groundwater recharge and better irrigation facility have resulted in more productivity and income generation for the families. Multiple varieties of commercial crops are now being cultivated which has ensured higher income for the farmers. Crop production has increased by 20–30% after the construction of the stop dam.

A 'POSHAK NAHAR' TO NOURISH SHEOPUR DISTRICT

Introduction

Chakrampura Gram Panchayat of Karahal block is located in Sheopur District where people completely depend on agriculture for their livelihood. During the lean season, villagers depend on alternative income generation activities in and around the Gwalior city. A 20-hectare pond, built 100 years ago, had dried up and was unable to provide sufficient amount of water to the villagers. River Basuriya, a seasonal river located nearby, has a dam. There was a need to construct a canal to divert the excess rainwater in the dam towards the pond, which was completed by the Gram Panchayat under Mahatma Gandhi NREGS.



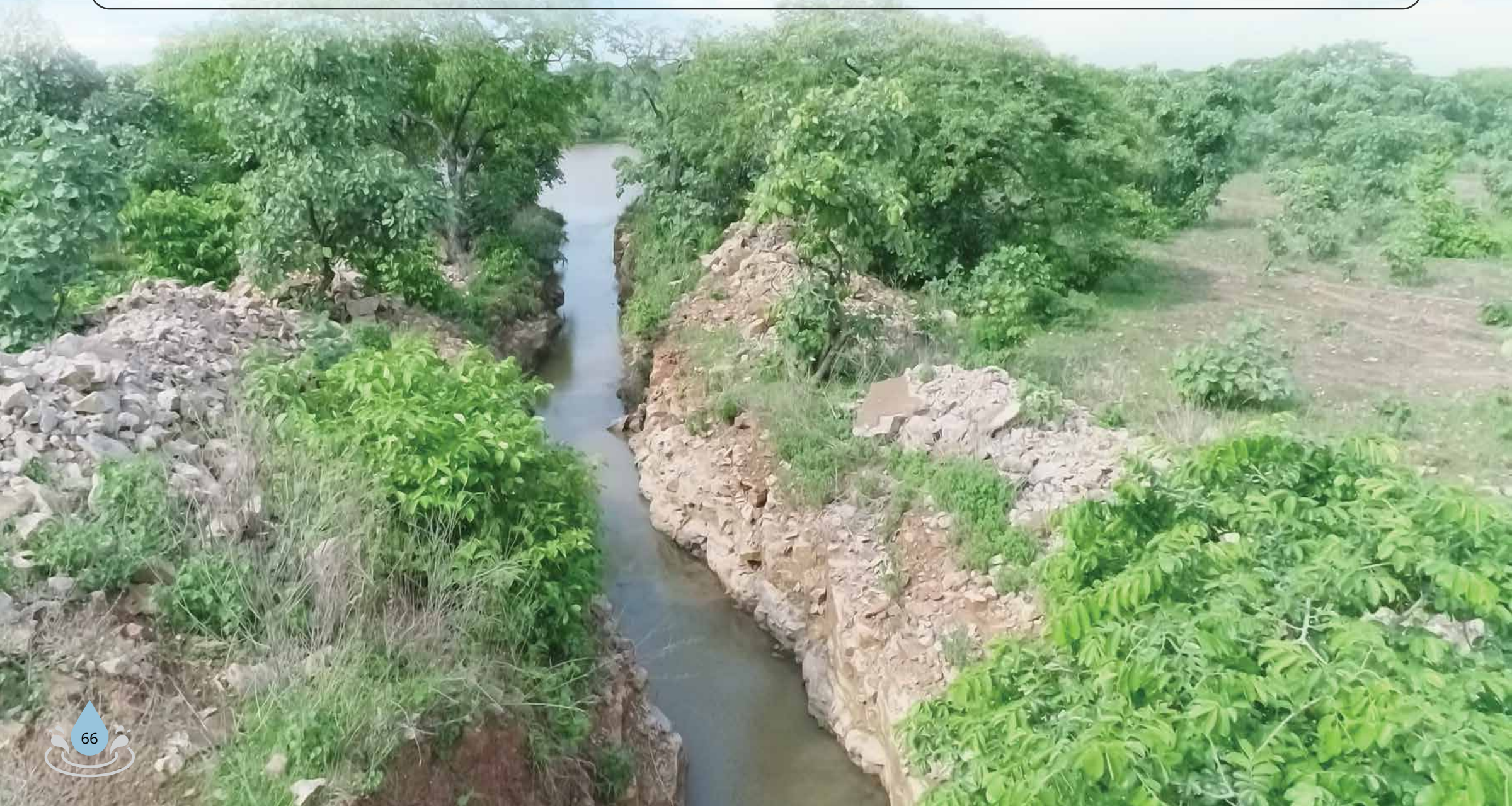
Implementation

Rejuvenation work of the pond and construction of the canal were completed during 2017–2018 at a total cost of Rs. 9.0 lakhs under Mahatma Gandhi NREGS. In the beginning, it was important to analyse the slope of the main canal. While natural slopes were available at few locations, other locations were required to be dug to ensure uninterrupted flow of water. This task was challenging as most of the catchment area of the dam belongs to Forest Department. An artificial slope was created while ensuring zero damage to the forest cover.



Impact

Approximately 100 TCM of water is routed through the canal and stored in the pond. The farmers living in nearby villages like Patonda and Sondhini who were earlier cultivating only single crop are now able to cultivate in all the seasons. Over 250 households are now getting sufficient water to irrigate 200 hectares of land to harvest crops in all the three seasons. At present, the farmers are growing approximately 36.33 quintals of wheat per hectare of land and approximately 50–60 quintals of rice per acre of land. Increased productivity has led to a better lifestyle and reduced migration.



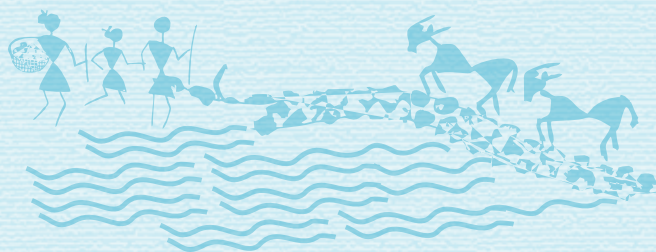


"I was facing a financial crisis as I was able to harvest only one crop in a year due to lack of water for irrigation. After the construction of Poshak canal, today I grow three crops in a year and my financial status has improved".

—Shri. Ghansi, Farmer, Chakrampura

"The availability of drinking water has improved in the village after the canal project came up. Today I grow three crops in a year and earn enough to give a good life to my family".

—Shri. Baldeva, Farmer, Chakrampura



KAPIL DHARA PROVIDING PROSPEROUS LIVELIHOOD



Introduction

Bheel Tola is a small hamlet in Jamuniya Gram Panchayat of Sanchi block in Raisen District. The villagers were dependent on rainfed agriculture. Even though the village receives a good amount of rainfall, the issues of drinking water and crop failures were quite common. During lean agricultural seasons, people would migrate to Raisen, Bhopal and other places for work. The Village Panchayat realised the scope for rainwater harvesting and thus, decided to take up the work of dug wells under Mahatma Gandhi NREGS.





Implementation

The Gram Panchayat completed the construction of ten dug wells in the farm lands of Bheel Tola in the year 2018–2019 at a cost of Rs. 2.93 lakhs per dug well, to conserve the water in the village. The remote location of the habitation posed a major challenge for transportation of the construction materials. The panchayat officials motivated the workers to take up the work by enlisting the long-term benefits of these wells for their families.

Impact

After the construction of these wells, water availability has significantly increased. Over 50 households have now started cultivation of vegetables, soya bean, paddy and maize on their farm lands. The annual income of the farmers has risen from Rs. 5,000 to Rs. 22,000. The farmers have started cultivating two crops in a year. Agricultural productivity has also improved by over 30%. The migration activity has also stopped as the villagers receive enough employment on their fields. The economic improvement followed by the construction of Kapil Dhara wells has brought tremendous changes in the lives of the people of Bheel Tola.





“Due to water availability in the wells throughout the year, we are cultivating two crops in a year. During lean seasons, we used to go to Bhopal for work. But, now after construction of the well, we are getting enough employment throughout the year here itself”.

—Shri. Toli Bai, Villager



ADDRESSING WATER PROBLEMS THROUGH STOP DAM

Introduction

Manya Khedi is a small village located in Netavali Gram Panchayat of Jaora Block in Ratlam District. One of the tributaries of Chambal River flows close to this village. As there was no mechanism to stop and hold the water, this channel would dry up quickly after monsoon. This limited supply of water affected the cultivation and daily needs. Lack of any other nearby water resource further worsened the situation, leading to drought-like conditions. To address the problems of water, Gram Sabha approved construction of a stop dam on the tributary to be taken up.



Implementation

Gram Panchayat completed the construction of the stop dam during the FY 2016–2017 in convergence with Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) at a total cost of Rs. 14.16 lakhs, out of which Rs. 5.46 lakhs came from Mahatma Gandhi NREGS and the remaining Rs. 8.70 lakhs from PMKSY.



Impact

The construction of stop dam has enabled water storage for an extended period now. The work has benefitted 39 households leading to an increase of Rs. 15 lakhs in their aggregate annual income. It has led to recharge of the groundwater in all the dried up dug wells and borewells. More than 20 acres of land has been brought under cultivation. As water is now available during rabi season, farmers are able to cultivate two crops in a year. The agricultural productivity increased by 30% for both kharif and rabi crops like soya bean, wheat, bengal gram, sesame, green gram, mustard, garlic, onion, etc.



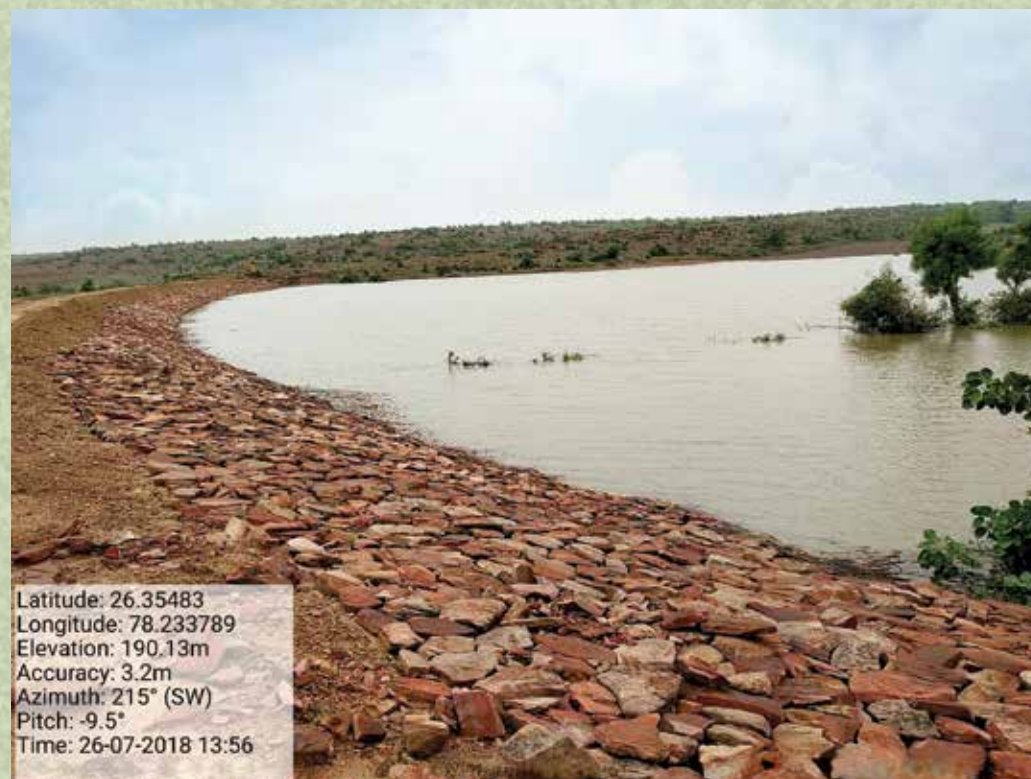
“Because of the stop dam, now water is available for longer duration, resulting in recharging of wells. Due to continuous availability of water, farm productivity has gone up, and now we are able to cultivate two crops in a year. In addition, the dam acts as a bridge and facilitates us to cross the channel”.

—Shri. Ramlal, Farmer

“KSHEER SAGAR ABHIYAN - REVIVAL OF MORENA DISTRICT”

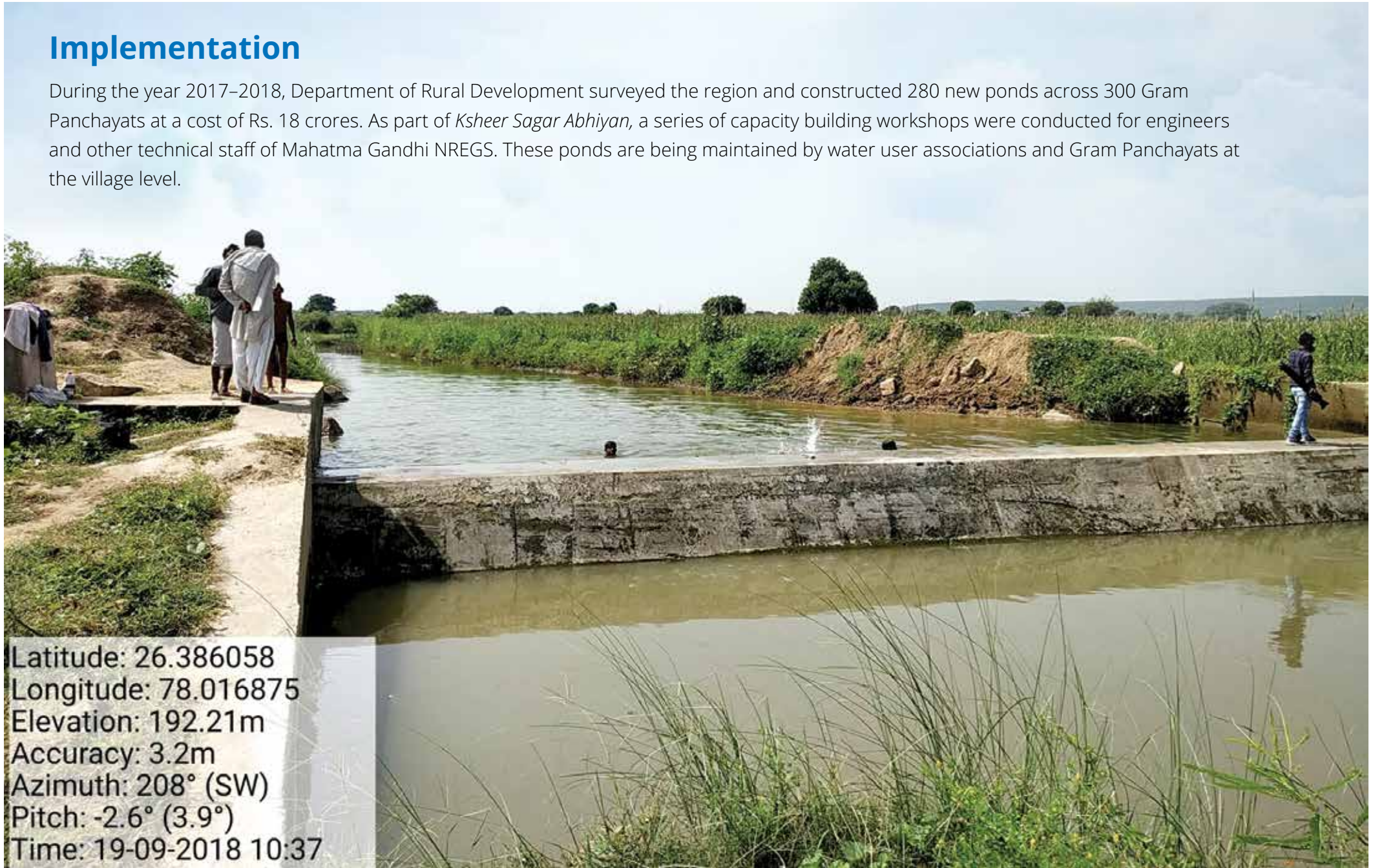
Introduction

“Morena” District is in the low-lying zone of Chambal Valley which receives moderate rainfall, with an average of 753 mm. Due to overexploitation and no maintenance works, the groundwater level had been steadily declining. The District Rural Development Agency (DRDA) decided to rejuvenate the rural water bodies in the district under *Ksheer Sagar Abhiyan*.



Implementation

During the year 2017–2018, Department of Rural Development surveyed the region and constructed 280 new ponds across 300 Gram Panchayats at a cost of Rs. 18 crores. As part of *Ksheer Sagar Abhiyan*, a series of capacity building workshops were conducted for engineers and other technical staff of Mahatma Gandhi NREGS. These ponds are being maintained by water user associations and Gram Panchayats at the village level.



Latitude: 26.386058
Longitude: 78.016875
Elevation: 192.21m
Accuracy: 3.2m
Azimuth: 208° (SW)
Pitch: -2.6° (3.9°)
Time: 19-09-2018 10:37



Impact

After completion of the work, approximately 1,400 hectares of land in the district has got benefitted. The groundwater has recharged, resulting in a 10 ft rise in the water table. The newly constructed ponds enable conservation of rainwater. The increased water availability has enabled farmers to cultivate crops like pigeon pea, green gram, sesame, pearl millet, paddy, black gram and cluster bean in kharif season and wheat, mustard, chickpea, berseem fodder in rabi season along with seasonal vegetables. The availability of water has brought changes in the cropping pattern as well. As a result of the assured irrigation, there is a positive impact on the area under the cultivation of kharif and rabi crops which have increased by 29% and 40%, respectively. The average annual income of the farmers has increased from Rs. 67,019 to Rs. 1,40,623. Residents of different villages have also reported the revival of wildlife in the district.



“Ksheer Sagar Abhiyan is a great initiative to address the water needs of the rural areas through construction of new ponds. Due to this, water storage capacity increased in different villages, which has further helped in improving the groundwater level. Because of the availability of water for a long time, both agricultural productivity and net cropped area have increased tremendously. Nowadays, we have also started growing fodder for our cattle”.

—Shri. Ashok, Farmer

RENOVATION OF WATER BODIES BRINGS PROSPERITY

Introduction

Badera Bharas Gram Panchayat falls under Bhitwar block in Gwalior District. Occurrence of low rainfall over many years had created a situation where the villagers could not fulfil their domestic and agricultural needs. During summer, the villagers had to walk around 3 km to fetch drinking water. All the hand pumps and wells had dried up due to depletion of groundwater. Consequently, agricultural productivity declined, and the land had started turning fallow. Overall, the situation was such that the villagers were compelled to migrate. Therefore, the Gram Panchayat decided to undertake different water conservation and harvesting works by constructing check dams, canals and renovation of ponds.

Implementation

During the years 2015–2019, the Gram Panchayat carried out different activities like construction of check dam, renovation of water bodies, farm ponds, etc. under Mahatma Gandhi NREGS to mitigate the water problems. Small gatherings and awareness campaigns were conducted throughout villages to make people aware about the acute water shortage in the area. Five works were undertaken in the Badera Bharas Gram Panchayat. Among these five, two works of construction of check dams and two works of widening/deepening of the canals were taken up in Toda and Badera villages at a cumulative cost of Rs. 49.1 lakhs. Another work related to renovation of pond, to increase storage capacity, in Jujharpur village of the same panchayat at a cost of Rs. 7.01 lakhs was also completed.





Impact

The construction of check dams and renovation of ponds have improved the water retention capacity of the soil, which gradually helped in increasing the groundwater level. All the dry wells and hand pumps have started functioning again which has positively impacted 150 households in the village. With assured irrigation, the 106 hectares of area under cultivation for 400 farmers has increased for both seasons. The improvement in farm productivity of different crops registered an almost 200% increase in earnings of farmers' income. The workers stopped migrating to other places in search of work.



“After deepening of the tank, storage capacity has increased, and we are able to cultivate two crops in a year. Earlier, we used to migrate to different places in search of work. Now, we are getting enough employment in the village itself”.

—Shri. Rajendra Singh Yadav, Farmer

“When we had the problem of water scarcity, we were facing difficulties to find marriage alliances for men in the family as parents from other villages were not willing to marry off their daughters in Badera Bharas village due to water scarcity”.

—Shri. Punjab Singh Yadav, Farmer







THE LANGANA

SAVING THE RAINWATER FOR THE PROSPEROUS FUTURE OF FARMERS

Introduction

Thimmaipally Thanda Gram Panchayat is situated in Addakal Mandal of Mahabubnagar District, and it is surrounded by hills with undulating terrain. Agriculture is predominantly rainfed, and the village records high rate of crop failure due to erratic rainfall. In the absence of any other source of irrigation, numerous borewells were dug which led to groundwater depletion over the years. So the villagers were migrating in search of employment. As a result, the Gram Sabha decided to revive agriculture by construction of rainwater harvesting structures. Mahatma Gandhi NREGS functionaries persuaded people in execution of staggered continuous trenches and two percolation tanks.



Implementation

As the village lies in the catchment area near the hillocks, the downstream villagers opposed any construction of water conservation structures upstream. They feared loss of water for irrigation. However, a Mahatma Gandhi NREGS functionary persuaded both upstream and downstream villagers and made them aware of the advantages of these structures. Subsequently, the GP undertook different water conservation works during 2014–2019. These works include digging of staggered continuous trenches, excavation of two percolation tanks, desilting of a minor irrigation tank and digging of soak pits. Staggered continuous trenches were dug during 2018–2019 at a total cost of Rs. 16.89 lakhs (Rs. 16.69 lakhs for wages and Rs. 0.20 lakh for material). One percolation tank named *Lachya Kunta* was constructed near the staggered continuous trenches on community land during 2014–2017 at a total cost of Rs. 7.49 lakhs (Rs. 6.69 lakhs for wages and Rs. 0.80 lakh for materials). Another percolation tank was constructed on an individual land during 2015–2017 at a total cost of Rs. 3.77 lakhs (Rs. 1.95 lakhs for wages and Rs. 1.82 lakhs for materials).

Impact

The staggered continuous trenches aid in the cultivation of 88 acres of land belonging to tribal farmers of this village. In addition to the reduction of soil erosion, there was also an increase in the availability of fodder and drinking water for livestock. Silt deposition in the farm ponds and percolation tanks downstream has also reduced. There is an increase in water availability in the wells and tanks in the downstream areas as well.

The percolation tank “Lachya Kunta” constructed in the common land supports two crops in 8 acres of land. Because of the improvement in the groundwater table, the water was found at a depth of 20 feet. The individual percolation tank holds 60 litres of water and irrigates 5 acres of land. It increased flow of water in six borewells in the vicinity. The paddy cultivation increased from ½ acre to 1 ½ acres for an individual farmer. After increase in area under cultivation and resultant increase in farmers’ income, the migration of villagers in search of work has been stopped.







“Voice From The Field”

“Postconstruction of the percolation tank, I bought another 4 acres and I am cultivating paddy in it. I am now growing two crops per year. I managed to clear half of my debt. The borewell is not drying up even during summer and the yield from paddy is 18.75 quintals per acre”.

—Shri. Redya Naik, Farmer

“I have stopped going to Mumbai in search of livelihood as I could grow two crops. My income from agriculture has increased. I have started rearing livestock and bought a tractor which I use not only on my own farmland but also lease it at Rs. 1,000/hour”.

—Shri. Shankar, Farmer

SLOW THE FLOW AND SAVE WATER: A TRIBAL INITIATIVE

Introduction

Ranjan Tanda village is located in Ranjan Gram Panchayat of Kubeer Mandal in Nirmal District. It has hilly terrain and experiences severe drought in summer. There was a need to enhance agricultural production and increase the availability of fodder for cattle. Water conservation was imperative for improving the livelihoods of the people. The Gram Sabha decided to resolve the water scarcity issue through the creation of water harvesting structures such as staggered trenches in ridges of the hills and individual farm ponds.

Implementation

The Gram Panchayat dug staggered trenches to arrest the flow of water on the slopes of the hills at a cost of Rs. 9.16 lakhs and an individual farm pond of dimension of 6 × 6 m on the land of Shri Rathod Kailas at a cost of Rs.14,774 during 2017–2018.



Impact

The staggered trenches created in the upper ridges of the village arrest the flow of water and aid in the percolation of groundwater. This has led to the prevention of soil erosion. The water flow from the borewells has increased, thus meeting the domestic and agricultural water needs of the whole village. Farmers have moved from cultivating food crops like wheat, jowar and pulses to commercial crops like cotton. The increase in production of fodder was also reported. The individual farm pond dug also increased the crop production by 20-25%.



“Under Mahatma Gandhi NREGS a farm pond is constructed in my farm during the year 2017–2018. Since the water is stored in my farm pond, I use it for irrigating the field and now I am getting an adequate quantity of cotton crop and I am feeling very happy to get income for my livelihood. This farm pond is a great asset to me”.

—Shri. Rathod Kailas, Beneficiary

“The Government has taken up rainwater harvesting structures. Rainwater is now percolating into the ground, thereby recharging all the borewells. Now that the water is available in abundance, I can grow two crops per year. Before the creation of this asset, I got Rs. 10,000–12,000 from one crop, whereas I earned Rs. 20,000–25,000 rupees recently. Our problems of water scarcity during summer are also solved”.

—Shri. Yellanna Kunchepu, Farmer

RAINWATER HARVESTING TO BOOST WEALTH IN THE VALLEY

Introduction

Nagulapally village is situated in Nagulapally Gram Panchayat of Julapalli block in Peddapalli District, and it is one of the drought-prone regions in the state. Due to low groundwater levels and rocky terrain, the villagers faced severe water problems. In monsoon, all the water drained to the nearby stream limiting the scope of recharging borewells and open wells. In Gram Sabha, it was decided to conserve rainwater by digging the staggered trenches and continuous contour trenches on various locations of the village.



Implementation

The Gram Panchayat completed the construction of water conservation structures in 2017–2018. Staggered trenches were dug at a cost of Rs.12.38 lakhs while continuous contour trenches of length 14,704 meters were dug at the cost of Rs. 11.24 lakhs. The villagers were initially reluctant to work for the project as it was a tedious job to work on the hard soil. However, the villagers were motivated by the Gram Panchayat officials in numerous meetings explaining the benefits of the project, and consequently, they agreed to work in the larger interest.



Impact

The water conservation structures have helped in meeting the drinking water needs for livestock and increased the water level in the borewells. These water conservation structures have benefitted the entire village land of 288 acres. These structures have collectively conserved 88.59 lakh litres of water. An additional land of 146 acres has been brought under cultivation. Paddy cultivation in the village has also increased from 85 acres to 142 acres with an increase in production. Additionally, 23 acres of barren land is being cultivated. A total of 38 open wells have also been recharged in the village.



"I own 2 acres of land. After the intervention, there is sufficient water in my well. Initially I used to cultivate green gram, groundnut and red gram but now I have entirely shifted to paddy which has given me an additional income of Rs. 10,000 from 0.50 acre".

—Shri. K. Venkataiah, Farmer

"I own 2.5 acres of land. After the intervention, my income has increased to Rs. 1 lakh per year. Earlier I was limited to growing chilli, tomato and paddy but now I am cultivating commercial crops. Mahatma Gandhi NREGS was very useful to me, as it changed my life".

—Smt. A. Bhagyalaxmi, Farmer



FIGHTING THE BATTLE FOR ADEQUATE WATER SUPPLY THROUGH MAHATMA GANDHI NREGS

Introduction

Munidevunipally village is located in Kondapur Mandal of Sangareddy District, and it has always struggled for adequate availability of water. Over the years, traditional water bodies have dried up due to no recharge and diminishing groundwater table. Villagers practice rainfed agriculture. They felt the need for immediate intervention and approached the Gram Sabha in this regard. Accordingly, Gram Sabha approved the construction of continuous contour trenches and desilting of check dam in the area. It also agreed to plant saplings on the bunds to address the issue of soil erosion.

Implementation

Ridge to valley concept was followed in the construction of water conservation structures through Mahatma Gandhi NREGS. Continuous contour trenches (CCTs) were constructed on the Pedda Gutta hillock by the Gram Panchayat during 2017–2018 at a total cost of Rs. 11.30 lakhs (Rs. 11.15 lakhs for wages and Rs. 0.15 lakh for materials). A check dam was desilted during 2015–2016 at a total cost of Rs. 0.67 lakh (Rs. 0.02 lakh for wages and Rs. 0.65 lakh for materials). Saplings were also planted on the bunds of these trenches to address the issue of soil erosion and to reduce evapotranspiration. Digging of the continuous contour trenches on the hill slopes and the mining areas was a challenge during hot summer, which was overcome through motivation of workers by Gram Panchayat and Mahatma Gandhi NREGS officials.



Impact

The continuous contour trenches and desilted check dams have aided the recharge of water in borewells and open wells, benefitting 62 acres of land belonging to 32 farmers from weaker sections. The water stored in the trenches is used for drinking by livestock. The fodder has also become sufficiently available in the area after the intervention.

The desiltation of the existing check dam located in the valley has increased its water storage capacity. The farmers reported that after desilting, the flow of water from their tube wells has increased to a great extent enabling them to practice floriculture.



“Due to the construction of CCTs, the groundwater recharge has increased. Earlier, I used to cultivate rained crops such as millets, but now the availability of water has helped me to cultivate flowers and vegetables. Now my income is Rs. 20,000 per month”.

—Shri. Vadla Buchanna, Farmer

“My 1.5 hectare of fallow land has become cultivable due to Mahatma Gandhi NREGS. I have a borewell and its flow has increased after construction of CCTs. Now I am practicing horticulture and have planted 100 saplings of lemon and guava. All the saplings have survived and grown well”.

—Shri. M. Narasimhulu, Farmer



IBRAHIMPUR'S JOURNEY TO PROGRESS

Introduction

Ibrahimpur village in Narayanraopet block of Siddipet District is located on the slope of hill. The village is drought-prone with drinking water scarcity and relies completely on groundwater resources. Most of the families are dependent on agriculture. In this condition, the villagers approached Mahatma Gandhi NREGS functionaries for construction of water conservation and groundwater recharge structures. As part of the intervention, water and soil moisture conservation works such as boundary trenches, desilting of minor irrigation tank and borewell recharge pits were taken up.

Implementation

The Gram Panchayat desilted the minor irrigation tank *chinnacheruvu* during 2015–2016 to increase its water storage capacity at a total cost of Rs. 7.91 lakhs. Boundary trenches were also dug on the farms spread over an area of 600 acres in 2016–2017 at a total cost of Rs. 1.53 lakhs to store the rainwater. A total of 35 borewell recharge pits were dug to collect rainwater for groundwater recharge at a total cost of Rs. 8.87 lakhs (Rs. 1,404 for wages and Rs. 23,944 for material per dug well) during 2018–2019.







Impact

The minor irrigation tank chinnacheruvu supports 44 acres of paddy, maize and cotton cultivation. After its desilting, an additional 5 acres of land has been brought under cultivation, three dried up borewells in the vicinity have sprung up with the increase in the overall groundwater level. About 2,700m³ of silt was removed and used by the farmers to improve the soil quality of their fields. Overall, 294 households have been benefited from this intervention. There is substantial increase in the earnings of the villagers.

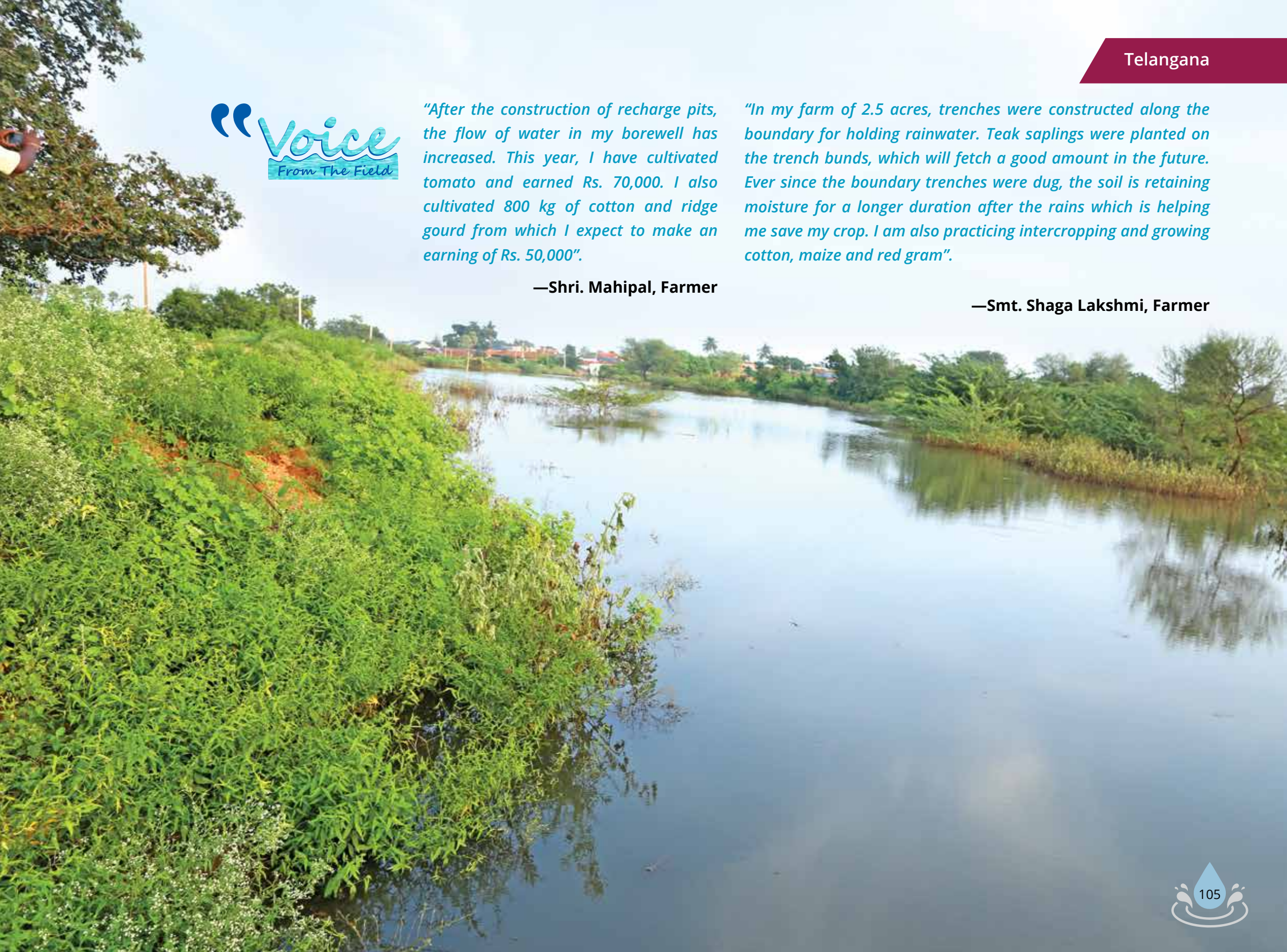


"After the construction of recharge pits, the flow of water in my borewell has increased. This year, I have cultivated tomato and earned Rs. 70,000. I also cultivated 800 kg of cotton and ridge gourd from which I expect to make an earning of Rs. 50,000".

—Shri. Mahipal, Farmer

"In my farm of 2.5 acres, trenches were constructed along the boundary for holding rainwater. Teak saplings were planted on the trench bunds, which will fetch a good amount in the future. Ever since the boundary trenches were dug, the soil is retaining moisture for a longer duration after the rains which is helping me save my crop. I am also practicing intercropping and growing cotton, maize and red gram".

—Smt. Shaga Lakshmi, Farmer



SMALL DROPS MAKE A GREAT OCEAN: SUCCESS STORY OF NAWABPET

Introduction

Nawabpet village in Nawabpet block of Vikarabad District has undulating rocky terrain with red and black soils coupled with hot climate. Most of the villagers have small landholdings and are dependent on rain for agriculture. Continuous droughts had led to depletion of groundwater levels, which resulted in drying up of borewells, and thus, there was inadequacy of water for agriculture. To mitigate this problem, ridge to valley method was followed by Gram Panchayat under Mahatma Gandhi NREGS to reduce rainwater run-off and ensure percolation of water by constructing soil and water conservation structures like staggered trenches and percolation tanks.





Implementation

Staggered trenches were constructed on 10 acres of land by the Gram Panchayat during May–November 2016 at a total cost of Rs. 2.93 lakhs. A mini percolation tank with a capacity of 6 lakh litres was dug in the year 2018 at a total cost of Rs. 0.39 lakh (Rs. 0.35 lakh for wages and Rs. 0.04 lakh for materials) to store the run-off water for recharge of the groundwater.



Impact

This percolation tank supports the farmers in their agricultural needs, especially during the rabi season. This has led to diversification of crops. Poor and marginal farmers are now cultivating the crops of jowar as well as redgram. As a result, there is a substantial increase in agricultural income.



“Water is available even in summer which was not the case earlier. My income per acre increased from Rs. 10,000 to Rs. 20,000. I am able to repay the debts. I have also bought a second-hand auto for transportation of vegetables”.

—Shri. Buchanna, Farmer

“I own 3.5 acres of land. I am cultivating flowers and vegetables. I am earning Rs. 10,000 per month and Rs. 4,500 from vegetables every week after the intervention. With the money accrued from floriculture and horticulture, I bought another half an acre of land for Rs. 2 lakhs”.

—Shri. K. Narasimhulu, Farmer



ELIMINATING MIGRATION OF FAMILIES THROUGH MAHATMA GANDHI NREGS

Introduction

Peddagudem village is located in Wanaparthy block of Wanaparthy District, and it is surrounded by hillocks and receives scanty rainfall for the last 3 years. The village has undulating topography with dry and rocky soil with sparse vegetation. Unavailability of water made it difficult to convert fallow land into cultivable land, which resulted in the migration of families to nearby areas for their livelihood. Realizing the needs of the village, the Gram Sabha planned to construct staggered trenches and desilt tanks to meet the challenges like water scarcity and converting fallow land into productive fields.

Implementation

An existing minor irrigation tank was desilted by the GP in the year 2017 at a total cost of Rs. 3.57 lakhs (Rs. 3.54 lakhs for wages and Rs. 0.02 lakh for materials). The Gram Panchayat dug staggered trenches in an area of 25 acres at a total cost of Rs. 10.87 lakhs during 2018–2019. The Mahatma Gandhi NREGS officials explained the benefit of staggered trenches to villagers and mobilized them for completion of this work.



Impact

These staggered trenches helped in the cultivation of 30 acres of land in the village. It also recharged six borewells benefitting 12 households, prevented inundation of crops and reduced deposition of silt in the rainy season. The water and the grass that grows on the bunds of trenches are used to feed the livestock.

The silt from the minor irrigation tank with high organic carbon content was used by farmers to improve the soil quality in their field. Silt applied soil has higher capacity to retain moisture, which has increased the yield. This tank supports 160 farmers of the village. Desilting of this tank has increased its capacity, thereby supporting irrigation and fishing activity. The Government of Telangana has started planting palm trees as part of the afforestation drive to support the traditional toddy tappers. Palm saplings were planted on the bund of the tank, and 90% of them have survived.







"I own 2 acres of land. Due to silt application on my land, the moisture retention has increased resulting in improved yield. I also engage around 10 labourers during harvest at a daily wage rate of Rs. 300-400".

—Shri. Kavali Chennaiah, Farmer



EMPOWERING WOMEN FARMERS WITH THE HELP OF MAHATMA GANDHI NREGS

Introduction

Rampuram village is located in Nallabelly block of Warangal District, and it is one of the focal villages identified for improvement in living conditions of SC families. The 30 acres of land distributed among 10 SC women farmers along with borewells had failed to generate any yield. With the drying up of borewells, these women farmers could only cultivate rainfed crops and were highly dependent on the monsoon. During the kharif season, crops such as cotton and groundnut were sown but erratic rain made it very difficult for them to save the crop in the absence of any other source of water. Meanwhile, the land was also beginning to go fallow. There was a dire necessity to address these problems. Hence, the Gram Panchayat proposed to construct individual farm ponds on their lands.



మహాత్మా గాంధీ జాతీయ గ్రామీణ ఉపాధి పథకం
 తెలంగాణ ప్రభుత్వము
 శ్రీ. శాంషన్
 మం. నల్లబెల్లి, జి. వరంగల్(౭)

పని పేరు	ఫారం పా
పని నుండి సంఖ్య	917055
లబ్ధి దారుని పేరు	తాళ్ళపెల్లి
బిచ్ కార్డ్ నంబర్	10113-0
రైతు కులం	SC
సర్వే నంబర్	6/8/9/2
పని కొలతలు	20x20
అంచనా విలువ(రూ)	3,40,693
పని చేపట్టిన సం.	2018
మొత్తం ఖర్చు (రూ)	2.64, 565/-
కూలిలకు చెల్లించిన మొత్తం (రూ)	2.52, 264/-
మిటిరియల్ ఖర్చు మొత్తం (రూ)	12, 301/-
కేర్షింగ్ పని వివరాలు	962

Implementation

It was a big challenge to convince the beneficiaries to provide land for digging of farm ponds, as they were apprehensive of the benefits. Therefore, Mahatma Gandhi NREGS functionaries carried out awareness drives such as "Jalanidhi" and "Kala Jatara" that focussed on informing villagers about the benefits of water conservation. Finally, the Gram Panchayat completed the work of 9 individual farm ponds for 10 women SC farmers at a total cost of 30.96 lakhs (Rs. 3.44 lakhs per unit) during the year 2017–2019.



Impact

After the construction of farm ponds, the women farmers can store rainwater and use it to irrigate their crops from sowing to harvest even in the absence of rain. In addition to this, they are growing vegetables on the farm pond bunds and earning additional income of around Rs. 2,000–3,000. With their income from farming, they have constructed houses and are educating their kids.





“Voice From The Field”

“Before digging of the farm pond, I could only cultivate crops during the rainy season. Now that the farm pond holds the water from the rainfall, I could use this water to pass the critical phase of crop even in the absence of rain. In addition to this, I am growing vegetables on the farm pond bund using the farm pond water. I have sold these vegetables in the village and made a profit of Rs.2,000”.

—Smt. Kothuri Savitri, Farmer and Farm Pond Beneficiary

“I had a farm pond constructed on my farm and I could now grow cotton, paddy (28 bags of 75 kg each) and maize in one acre each. I also grow vegetables such as ridge gourd, okra and bottle gourd to supplement my income with the help of increased water availability”.

**—Shri. Thallapally Swaroopa,
Farmer and Farm Pond Beneficiary**





ANDHIRA PRADESH

WATER CONSERVATION FOR IMPROVED HORTICULTURE

Introduction

Kondamanayunipalem village is situated in Kadiri Mandal of Anantapur District. The water table in the village has been continuously decreasing due to dry spells and frequent droughts. The majority of the farmers who depended on groundwater for irrigation were not able to cultivate their lands. This, in turn, forced them to migrate to nearby areas in search of livelihood. In the Gram Sabha meeting, it was agreed to develop the village land using ridge to valley approach, which included taking up several activities like digging trenches and sunken pits across the slope of hillocks to address the problem of water scarcity.









"I have 4 acres of land. After the work, I have started cultivation of mango, nilgiri and teak plants. Water is available in my dug well which suffices my irrigation requirements for the plants. My income has also increased from Rs. 30,000 to 1 lakh rupees annually. The increased moisture content has ensured 100% survival of my mango plants. So, I am happy and thankful to Mahatma Gandhi NREGS".

—Shri. M. Gopinayak (ST farmer), beneficiary

Implementation

Staggered trenches and sunken pits were dug on 465 acres of common land along the slopes of the hillocks by the Gram Panchayat during 2014–2018 at a total cost of Rs. 71.24 lakhs (Rs. 70.71 lakhs for wages and Rs. 0.53 lakhs for material). One of the major challenges faced by the workforce was difficulty in digging the hard dry soil under intense heat, which was overcome by the continuous motivation of the panchayat officials.





"I have 1 acre of land. After this work, groundwater has increased and I am able to cultivate ridge gourd, tomato, bottle gourd, groundnut, etc., with better irrigation. Even I am able to take second crop as well and earn Rs. 60,000 to 70,000 per year. Now I am very happy".

—Shri. Bavayya, farmer

Impact

After the creation of staggered trenches and sunken pits, there has been a significant increase in green cover over the barren hillocks. In the downstream, 25 acres of barren land has been brought under cultivation, and the water level has increased in 14 old wells and 70 borewells. Approximately, 200 households have been benefited from the water conservation works. Fallow lands of many SC/ST families have now been developed with mango plantation under horticulture. These farmers are also able to cultivate bottle gourd, tomato, green gram, leafy vegetables, groundnut, etc., inside the mango orchard by intercropping, which has doubled their income. These works have also ensured livelihood security for poor households.



TRANSFORMATION OF ITHRAMPET TO A WATER SUFFICIENT GRAM PANCHAYAT

Introduction

Ithrampet a Gram Panchayat in B. Koduru block is located in Kadapa District. It is a village with rocky hillocks and sandy soils, and it falls under the scarce rainfall zone. The unpredictability of monsoon coupled with depleting groundwater level had compelled the small and marginal farmers to work as casual labourers and migrant workers. Realizing the need to conserve rainwater, the Gram Sabha decided to repair the existing water conservation structures by digging staggered trenches on the hillocks and desilting the check dams.







Implementation

The GP dug staggered trenches in 25 acres of land with a total length of 11.1 km and an estimated conservation capacity of 55.56 lakh litres of rainwater on the "Ithrampetkonda" and "Kammambodu Konda" hillocks during 2016–2018 at a total cost of Rs. 14.32 lakhs (Rs. 14.17 lakhs for wages and Rs. 0.15 lakh for materials). Three check dams were also desilted by the GP during 2014–2015 at a total cost of Rs. 8.62 lakhs (Rs. 4.05 lakhs for wages and Rs. 4.57 lakhs for materials).



Impact

Desilting of check dams and construction of staggered trenches on hillocks improved the availability of water, which resulted in an increase in groundwater level in borewells. About 40 acres of land that was cultivated by SC families at the foothill had been benefitted, and the families were able to harvest multiple crops (onion, maize and cotton) with higher survival rate. The desiltation of the check dams has benefitted the nearby 6 acres land of four farmers. The yield in these farms has improved, which leads to a 60% increase in the farmers' income. Afforestation activities have improved the green cover in the entire vicinity.

ECONOMICALLY UPLIFTING THE FARMERS BY CONSERVING RAINWATER

Introduction

Nagarur Gram Panchayat is located in the Aspari block of Kurnool District, and it has been facing acute water scarcity. Because of lack of adequate supply of water, the villagers practice rainfed agriculture. Adding to the villagers' misery, continuous dry spells and drought have resulted in low agricultural productivity. Farmers were unable to conserve rainwater due to lack of rainwater harvesting structures. So the Gram Panchayat planned for the construction of series of farm ponds in the village to conserve rainwater.

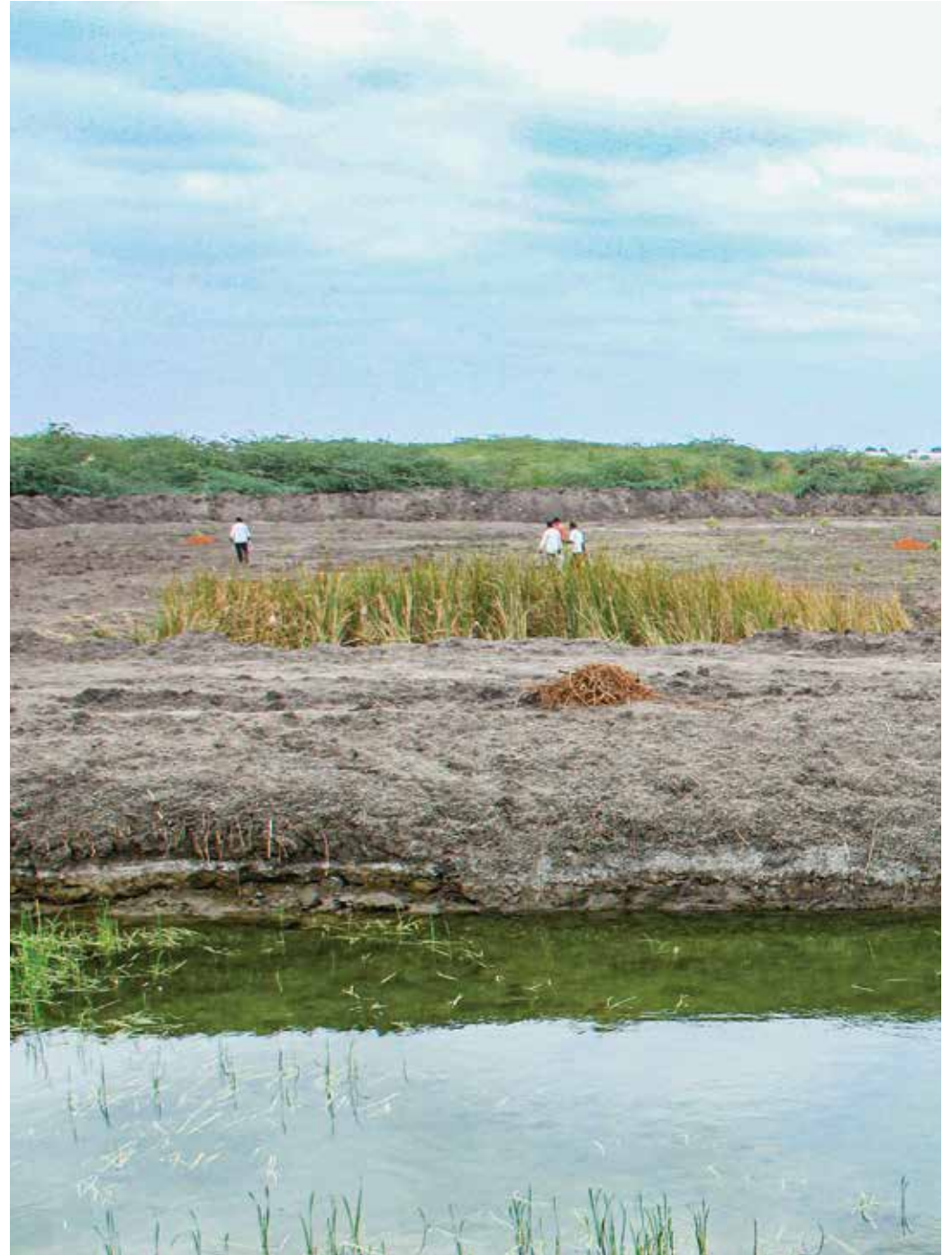


"I have 3 acres of land. After completion of the farm pond, my gross income increased from Rs. 40,000, from 3 acres for millet crops, to Rs. 2 lakh, from commercial crops. I am happy with the development".

—Shri. Veerabadra, Beneficiary









Implementation

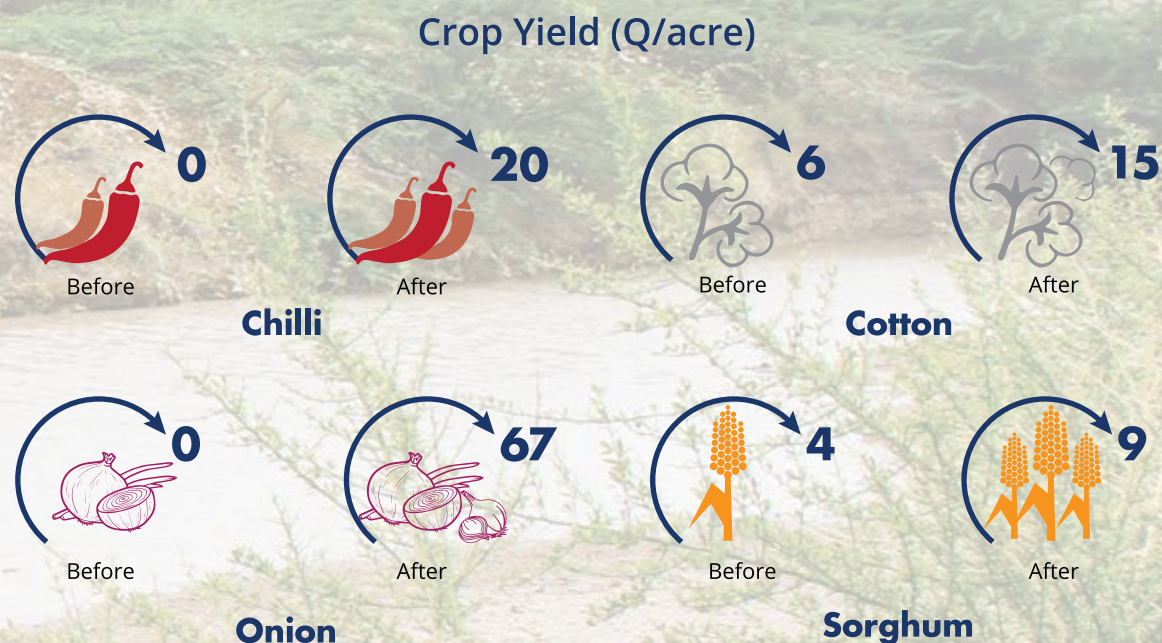
There was a lack of awareness among the farmers about water conservation practices. The panchayat sensitized the farmers to adopt practices of rainwater harvesting and subsequently carried out digging of 88 farm ponds and 41 percolation ponds during 2016–2019 at a total cost of Rs. 3.16 crores. The farm ponds were dug in convergence with Integrated Watershed Management Programme (IWMG) and state government's initiatives such as Neeru-Chettu (water and tree) and Panta Sanjeevani.





Impact

As a result of this intervention, the farmers were benefited with increased irrigation on 6.5 acres of land. The table below shows how the farmers shifted from non-profitable crops to cash crops with a difference in yield between before and after the digging of farm ponds.



Now farmers are earning an average of Rs. 53,000/acre as they have shifted to commercial crops. In addition, beneficiaries are also growing vegetables like bottle gourd, ridge gourd and radish on the boundaries of the fields where the excavated soil of farm pond was deposited. Fodder (jowar) crop was sown for the livestock.

The farm ponds provide drinking water facilities for livestock. The numbers of birds and wild animals such as deer have also increased due to availability of drinking water in the ponds as there is no water in the surroundings.

WATER HARVESTING STRUCTURES: THE SAVIOURS OF CROPS

Introduction

K. Rajupalem village is located in Ballikurava Mandal of Prakasam District. This village has 370 households with cultivatable land of 630 acres. The village depends on nine borewells and four open wells to fulfil its water requirements. Due to lack of rainwater storage facility, the farmers fail to conserve rainwater effectively; this leads to lack of water for irrigation during dry seasons. Hence, the farmers were unable to get good yield from their fields. Keeping all these circumstances in view, the Gram Sabha decided to construct individual farm ponds and desilt an existing check dam.



"I got a farm pond in 2017 and with better irrigation, I am able to cultivate chilly and cotton. I am also able to grow Bengal gram as a second crop. Now I earn net income Rs. 70,000/- per year. I am very happy with this work".

—Shri. Ch. Sivanageswara Rao, Farm Pond Beneficiary









Implementation

The Gram Panchayat dug a farm pond during 2016–2017 at a cost of Rs. 0.96 lakh and desilted a check dam constructed previously under Integrated Watershed Development Programme (IWDP) at a cost of Rs. 3.09 lakhs. Initially, the farmers were not interested in giving their land for digging the farm pond, as they were not aware of the benefits of the water harvesting structures. So the Gram Panchayat conducted several meetings to create awareness among the farmers.





Impact

The construction of the farm pond helped the farmers to cultivate commercial crops such as cotton, chilly, tobacco, Bengal gram, etc. Also, the water storage capacity of the check dam in the common land has been increased to 12.81 lakh litres after the desilting work. The augmented irrigation has doubled the yield of 30 acres of land belonging to 20 farmers. The farmers are now able to cultivate a second crop, which has further enhanced their annual income.



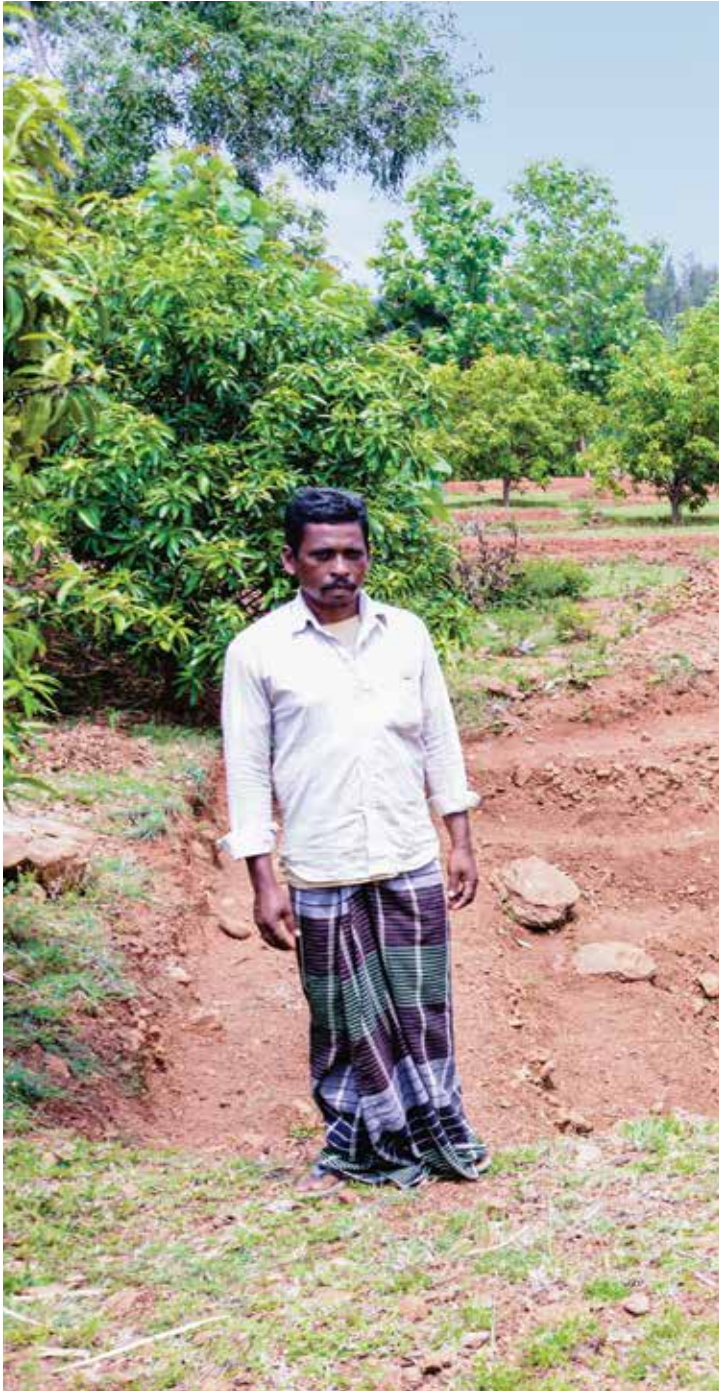
TRANSFORMATION OF K.P. AGRAHARAM GRAM PANCHAYAT: FROM ACUTE WATER SHORTAGE TO A WATER SURPLUS VILLAGE

Introduction

K.P. Agraharam Gram Panchayat is located in Butchayyapeta block of Visakhapatnam District, and it falls under the north coastal zone of Andhra. The terrain of the village comprises hillocks, rocky red soils at the foothill and gravel red soils. Despite good rainfall during the monsoon, the village faces severe water shortage problems due to lack of proper water storage facilities. The District Water Management Agency in cooperation with the Gram Sabha and field functionaries collectively decided to construct various water conservation structures in the village.







"I have 3.75 acres of land. I used to go for wage work for the survival of my family. After the construction of percolation tank, I started cultivating paddy, sugarcane and fodder and generating an income of Rs. 1.75 lakhs/year".

—Smt. Bobbili Devamma, PT Beneficiary



"I have two acres of land on which I am cultivating mango and cashew nut at the foothill. Due to rocky gravel soil, the crops used to fail. After the construction of SMC trenches, the survival rate of crops has improved".

—Smt. Mogga Kondamma, Check Dam Beneficiary

Implementation

Initially, the villagers who had small landholdings were reluctant to participate in the program fearing the loss of their land. A series of meetings were conducted by the Mahatma Gandhi NREGS functionaries to create awareness and help them find the most suitable sites. The Gram Panchayat constructed staggered trenches, 24 farm ponds, 2 check dams, 2 percolation tanks and 5 minor irrigation tanks in downstream of the Kokkerala Konda stream in a phase-wise manner at a total cost of Rs. 1.12 crores during 2015–2016.



Impact

The construction of a series of check dams and percolation tanks had increased the groundwater level, which in turn led to recharge of 13 borewells. An additional 21 acres under check dam and 18 acres land under percolation tank were brought under irrigation. Sugarcane, paddy, fodder, vegetables, etc., are now being cultivated in 13 acres of land near check dams and 18 acres of land near percolation tanks. Vegetable cultivation has also increased. Farmers are now cultivating multiple crops. As the farmers have shifted to commercial crops, their income has doubled. The work also has benefitted all ST/SC households of the village.







KARNATAKA



A DAM CONSERVING RAINWATER - PREVENTING MIGRATION OF VILLAGERS

Introduction

Alaburu Gram Panchayat is located in Hagaribommanahalli block of Ballari District, and it has been facing water shortage issues. As a result, the families living there are prone to distress migration. In order to recharge the groundwater table and to increase the irrigation potential of the locality, the villagers of the Gram Panchayat have decided to harvest the rainwater by constructing multi-arch check dams so that the effects of the drought are mitigated and durable water conservation assets are created. The check dams would help to prevent soil erosion, conserve soil moisture and recharge aquifer.



Implementation

In consultation with the Agricultural Department, the location for the multi-arch check dam was identified. The catchment area of the check dam is 25 hectares, and the storage capacity of this multi-arch check dam is about 4,250 m³. The work was executed by the Gram Panchayat in 2018–2019 under Mahatma Gandhi NREGS at a cost of Rs. 5.9 lakhs (Rs. 1.1 lakhs for wages and Rs. 4.8 lakhs for materials). The major challenges faced by the panchayat officials were to create awareness about the relevance of water harvesting structures and convince the villagers to create such assets instead of migrating to nearby areas in search of jobs.







Impact

The construction of multi-arch check dam resulted in an increase in the groundwater table; the storage of rainwater led to the cultivation of 12 hectares of additional land of farmers. It now supports the surrounding vegetation cover for livestock grazing and natural regeneration of the local forest area.

In addition to an increase in the water table in wells and tube wells, the check dam also serves as the source of drinking water for more than 1,500 livestock. It also had a significant role in preventing the migration of villagers during the drier months.



"I am the beneficiary of this check dam and own 4 acres of land adjacent to it. During the short rainfall period, the water from the borewell was hardly enough to cultivate a single crop. After the construction of check dam, I am able to harvest two crops in a year".

—Shri. Pampanna, Farmer Beneficiary, Alaburu Village

VENTED DAM, VENTING POVERTY



Implementation

Pradhani Gram Panchayat decided to construct a vented dam on the water channel in Birampalli village under Mahatma Gandhi NREGS. However, its distance from the main road created initial hurdles in construction as carrying construction materials to the work site from the nearby main road, which was more than a kilometre away, was a challenging task. Since no vehicles could come up to the construction site, the materials were being carried manually by the villagers.

The panchayat received the land from the forest department for the development of the check dam, which has a catchment area of 30 hectares. The entire process of construction was carried out by the Gram Panchayat in 2018–2019 at a total cost of Rs. 3 lakhs (Rs. 0.99 lakh for wages and Rs. 2.01 lakhs for materials). The outflow of water is approximately 20,000 litres per hour in the reservoir, which can irrigate 50–60 acres of land.





Impact

The check dam is directly benefiting around 25 households of the village by providing irrigation facilities for 60 acres of farmland. With assured irrigation facilities, there has been an increase of about 10% in crop productivity per acre, and the farmers are now able to grow two crops in a year.

Water from the check dam is also used to meet the needs of households and livestock. The houses situated far from the water body also use water from the check dam by lifting it through pumps.

The villagers unanimously agreed that after the construction of the check dam, the wells were recharged, and there was a perceptible increase in the greenery in the village.



“Earlier, we used to construct bunds using sandbags and mud to hold water in the channel for agricultural purposes. But whenever it rains heavily, the mud bund gets washed away by the heavy force of water. The construction of the check dam helped to irrigate 50–60 acres of land. About 25 households of the village are getting benefits of stored water from this check dam”.

—Shri. M. Tushar, Farmer, Birampalli Village





KERALA

REVIVING THE LIFELINE OF ALANALLUR, PALAKKAD

Introduction

Alanallur Gram Panchayat is located in Mannarkkad block of Palakkad District. This district has three major rivers flowing through it and receives good rainfall during the monsoon season. However, due to the unavailability of storage structures, the area suffers from drought-like situations after November every year. During summer, the farmers rely on the Velliyar River for their water needs, across which they construct small bunds using sandbags to facilitate irrigation in their fields. However, realizing the requirement for a permanent water storage structure, *ayalkootams* (neighbourhood group) emphasized on the same. Accordingly, the Gram Sabha agreed to construct a check dam.



Implementation

A 35-m long check dam having a width of 1.2 m and a height of 1.5 m was constructed by the Gram Panchayat across the Velliyar River in Yathiyamgana ward of Alanallur Gram Panchayat to stop and divert water to the nearby agricultural fields at a total cost of Rs. 80 lakhs in March–June 2019. The cost of the materials alone constitutes a major share of the total cost. Since the cost of materials for the project was huge, the vendors were sceptical about the payment after material supply. By holding frequent meetings, the officials of both Block and Gram Panchayats convinced the vendors. The irrigation department provided technical help to the panchayat for selecting the site for check dam by conducting a survey as check dam could only be constructed on hard rock riverbed.

Impact

The check dam has positively impacted nearly 2,000 households in overcoming the drought-like situation by addressing the water woes during the summer season. Now, the farmers in the area have access to ample surface irrigation, which has increased the cultivable area to 400 hectares. The farmers had earlier changed their cropping pattern due to the scarcity of water, but now they have made plans to introduce vegetable cultivation, which needs a regular supply of water. The check dam construction has improved the biodiversity in the area and has supported the agricultural activities to a great extent. The farmers who cultivate primary crops such as paddy (25 hectares), banana (150 hectares), rubber (100 hectares), pepper (50 hectares) and cocoa (40 hectares) have been benefited from this project. The increase in the water level will result in the silt accumulation on the banks of the river, which will enrich the soil fertility.



"I am a marginal farmer. In the last few years, we were facing severe water scarcity during the summer season. The check dam has increased the water level in the river and also the nearby wells. It made a positive impact on agricultural production".

—Shri. Shamsudheen, Farmer

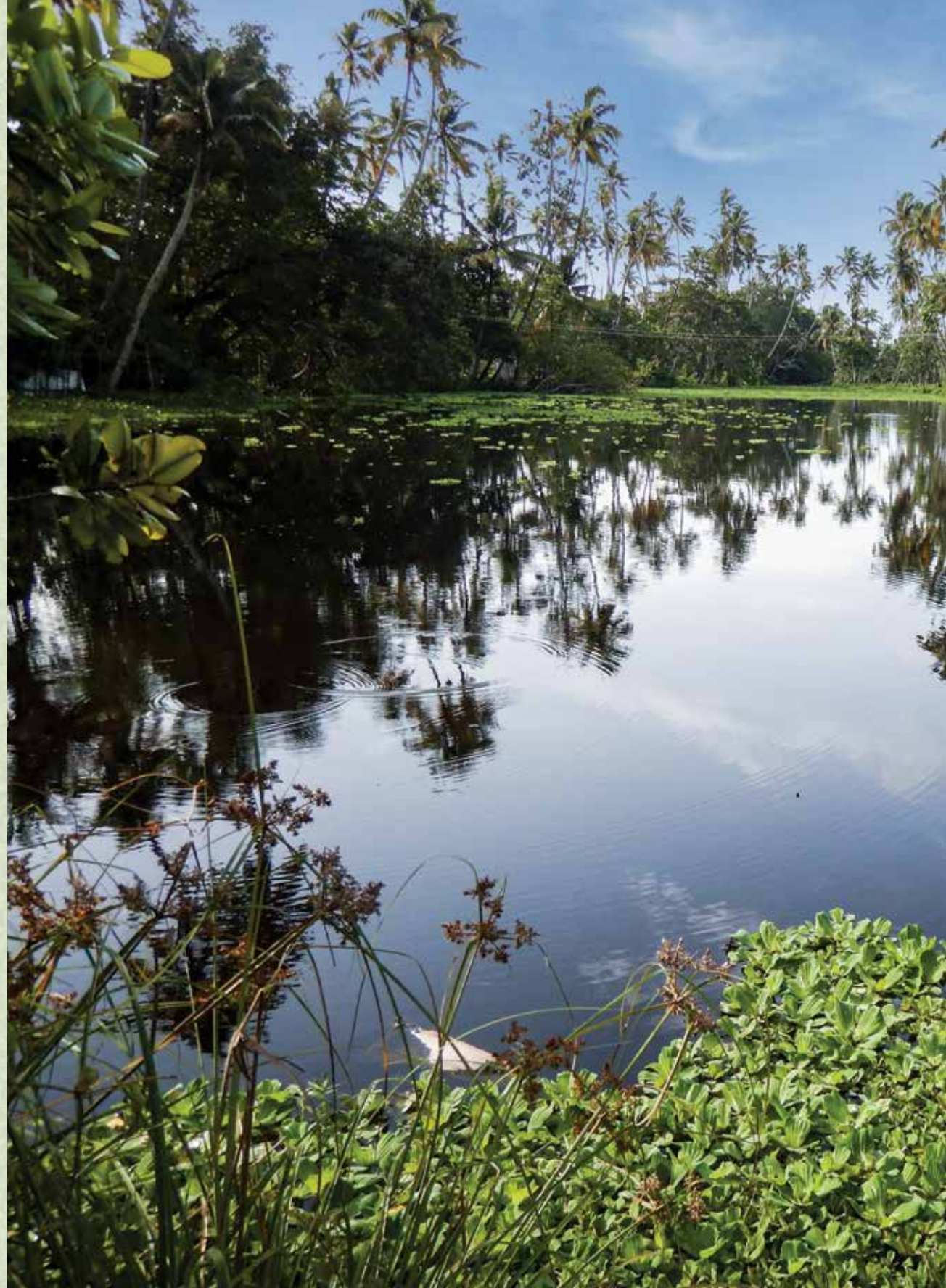
"In the past, there was a shortage of drinking water. But from the initial stage of the check dam construction itself, there was a significant increase in the water level in wells. We are planning to start vegetable cultivation next year".

—Ms. Febina, Beneficiary

STREAM REJUVENATED - ECOLOGICAL BALANCE REGAINED

Introduction

Karippechal stream flows through Cherthala South, Kadakkarappally and Kanjikuzhi Gram Panchayats of Kanjikuzhi Block Panchayat of Alappuzha District. Over the years, the deposits from the shoreline and river pollution silted the flow of the stream, causing flood and other related disasters during the rainy season. This affected the lives of the people, especially those who were living on the shoreline. The floods also led to unhealthy living conditions such as contamination of drinking water, improper sanitation facilities, waterborne diseases, etc., during the monsoon season. Three local self-government bodies of the district, namely, Kanjikuzhi Block Panchayat (BP), Kadakkarappally GP and Cherthala South GP worked in synergy for revival of the stream by desilting it.



Implementation

The work of desilting and deepening of Karippechal stream was jointly carried out by Kanjikuzhi BP, Kadakkarappally GP and Cherthala South GP during 2018–2019 at a total cost of Rs. 92.2 lakhs under Mahatma Gandhi NREGS, out of which Rs. 36.7 lakhs was funded under Mahatma Gandhi NREGS. Of the remaining expenditure, contribution of Rs. 28.5 lakhs was made by Kanjikuzhi BP, Rs. 15.0 lakhs by Cherthala South GP and Rs. 12.0 lakhs by Kadakkarappally GP.

Desilting was undertaken on a stretch of 5.7 km and at a depth of 1 m using machinery as the stream was heavily polluted; the total cost of the project was Rs. 55.5 lakhs. The cost of machinery was met from the three panchayats' plan funds. About 55,000 m³ of silt was transported by Mahatma Gandhi NREGS labour from the stream to the nearby agricultural lands at a total cost of Rs. 36.7 lakhs.



Impact

As a result of rejuvenation of the stream, the ecological balance was regained, and the ecosystem has been re-established in the area surrounding the stream (i.e. approximately 5.5 km). Additionally, the cropping area has been increased by 20 hectares, and the disease-causing vectors have been eliminated. The water holding capacity of the stream has been increased. Approximately, 50 families have been benefited in terms of increase in agriculture produce. Previously, the authorities had to shift 100–150 SC families residing on both sides of the stream to camps for about 4–5 months during the monsoon season. No flood is reported during the previous monsoon so the residents of the area are now happy that they are staying in their own dwellings during the monsoon. Many residents have installed the Chinese fishing nets and are getting a good catch worth around Rs. 700 per day per net. The farmers are now engaged in their seasonal vegetable cultivation in the paddy fields, which they had given up during previous years with the onset of monsoon. The Departments of Fisheries, Agriculture and Irrigation have provided assistance to the residents in finding better livelihoods.





“We don’t know how to express our gratitude to those who executed the Karippechal conservation project. The project not only empowered the whole community but also strengthened the lives of people living along the banks. The project has given us a new life and a better livelihood”.

**—Shri. Omana Shivan,
Kuruppankulangara**

“We stayed in the rehabilitation camp for half of the year, and this project helped us to stay back at our own places without any fear. We hope that more projects will be developed for the sustainability of Karippechal, which could make our living conditions and living culture much better”.

—Ms. Subhadra, Kuruppankulangara

STORY OF HOW A CHECK DAM REVIVED THE PADDY FIELDS OF CHOVOORTHAZHAM

Introduction

Cherpu BP, which consists of Cherpu, Avinissery, Paralam and Valachira GPs, is located in Thrissur District. The farmers in these GPs undertake paddy cultivation. With groundwater being the main source of irrigation, the water becomes scarce during the summer season. Chovoorthazham, an area formed by portions of Avinissery, Cherpu and Paralam, is a boundary of the Chanam paddy field. Earlier, paddy cultivation was done with the support of temporary bunds. However, the water level began to rise in the main canals due to lack of permanent bunds, and farming activity in the area stopped. Consequently, the agricultural land was turned into fallow land. In the Gram Sabha meeting, the paddy farmers proposed the construction of a check dam. Then the Gram Sabha approved the same. The irrigation department identified the spot for the construction of check dam so that the water is made accessible to three GPs.





Implementation

A brushwood check dam was constructed in the year 2018–2019 at a total cost of Rs. 0.45 lakh, of which the villagers contributed Rs. 0.28 lakh. The main canal in Chovoorthazham of Cherpu GP was desilted to increase the water holding capacity of the check dam. The soil thus obtained was filled in the gunny bags and utilized in the construction of the check dam. Materials like bamboo poles and palm leaves required for the construction were collected from the nearby area. A pump set was installed near the check dam by the paddy farming groups who regulate the flow of water to three panchayats. Regulating valves were placed to ensure a perennial flow of water in the canals.



Impact

After the construction of the check dam, farming activities have been revived in nearly 80 acres of fallow land belonging to 60 households, which has resulted in the production of 50 tonnes of paddy. The combined effort of BP, GPs, paddy farming groups and other departments paved the way for the cultivation of agricultural fields, which remained unused for the past 25 years. The harvested paddy is marketed at the rate of Rs. 25 per kg. Thus, they have generated a total income of Rs. 12.5 lakhs. This implies that from a small fund of Rs. 16,342 allocated for a check dam construction, the farmers were able to make an income of Rs. 1.2 crores as returns.



"I am cultivating paddy in about 10 acres of land, out of which 8.5 acres is leased land. Before the construction of the check dam, I could not cultivate this land. Now, I am getting plenty of water and I could produce 4 tonnes of paddy from the 10-acre land".

—Shri. Bharathan, Beneficiary

"I cultivated paddy in 112 cents of land. For the last few years, there was no cultivation in Chovoorthazham area due to lack of irrigation facilities. After the construction of the check dam, water is available for farming. There is a significant change in water quality. Compared to last year, the water level in the wells of our locality has increased after the construction of the check dam".

—Ms. Sulochana, Beneficiary

A POND OF ENHANCED LIVELIHOOD



Implementation

The pond “Kuttikattu Chira” was restored in three phases during 2015–2018 at a total cost of Rs. 44 lakhs. In the first phase, the sludge was removed from the pond. In the second phase, an outlet channel was constructed from the pond to the paddy fields for supplying the water. In the third phase, concrete walls on the four sides of the pond and an approach road were constructed. As the pond is located on marshy land, work could only proceed during drier months of the year. Therefore, the work was undertaken in phases.

Introduction

Asamannoor Gram Panchayat is located in Koovappady block of Ernakulam District, and the villagers depend on agriculture for their livelihoods. The hilly areas in the panchayat faced water scarcity. In addition, there was also a problem of land encroachment in one of the low-lying areas where water would accumulate in the rainy season and dry up in summer. To address these issues, the Gram Panchayat decided to restore the pond “Kuttikattu Chira” with the help of water from the Periyar River to meet the needs of the water-stressed areas of the Asamannoor Gram Panchayat.





Impact

After the restoration of the pond, more than 250 acres of land belonging to 300 households is cultivated with crops like paddy, tapioca, banana and other vegetables. An additional 8,000 kg of paddy is being produced. Fish farming is also being promoted in this pond in convergence with the fisheries department. This pond is the first of its kind in the district to do fish farming through a fish farming club in association with 'Kudumbashree', which provides an additional income of Rs. 300-500 per day. The farmers are able to provide adequate water and fodder to their cattle in all the seasons. The water level in the wells of the area has also increased. The development of the pond has helped in arresting the problem of soil erosion, thereby increasing the productivity of the land.



PERUVANTHANAM'S JOURNEY TOWARDS WATER SUFFICIENCY



Introduction

Peruvanthanam Gram Panchayat is located in Azhutha block of Idukki District, and it has a hilly terrain and receives abundant rainfall during the monsoon season. However, the rainwater drains off entirely due to the topography of the area. Percolation of water is also limited. This resulted in a severe shortage of water during summer. So the villagers had to depend on water tankers for their drinking and household needs. Hence, the Gram Sabha has approved the construction of three check dams at Manikkal, Paloorkavu and Kadamangulam to solve the water scarcity problem of this GP.

Implementation

The Gram Panchayat carried out the construction of three check dams at three different locations in the village at a total cost of Rs. 35.62 lakhs during 2016–2019 under Mahatma Gandhi NREGS. Due to poor accessibility of the project sites, the panchayat had to create temporary roads on dried out streams. The lack of water during summer months made the construction work even more difficult. Panchayat had to bring water in tankers from other locations to the project site.



Impact

Manikkal check dam project has met the water needs of nearly 1,200 villagers in the upstream tea plantation area. Similarly, Palookavu and Kadamangulam check dams have benefitted nearly 450 households providing adequate water supply throughout the year. With better irrigation, the cultivable land area has increased by approximately 150-200 acres. Farmers are getting higher yields, and families have stopped purchasing water from private suppliers.



“For the last ten years, Palookavu pond has been the only source of water for household and agricultural needs. However, every year, from January onwards, regular water supply used to get disrupted due to shortage. Thankfully, water is now available throughout the year after the construction of the check dam in Palookavu stream”.

—Shri. Sunil Kumar, Resident

“Earlier, we used to purchase water especially in the months from March to May to meet our daily requirements. But the situation has changed since last year. The rainwater harvesting measures have ensured the availability of sufficient water, and we haven’t spent a single rupee for water this time”.

—Shri. Sarojini, Resident

EARTHEN DAMS: NOT ONLY SOLVED WATER WORRIES BUT ALSO IMPROVED LIVELIHOODS

Introduction

Puthanchira region in Noolpuzha Panchayat is located in the valley between two hills on the fringes of the Sulthan Bathery forest range in the eastern part of the Wayanad District. The valley comprises farmlands and houses. The surface run-off water from the slopes of the hills is the primary source of water for farming. Unfortunately, climate change and destruction of forests in the region have adversely affected the supply of water for paddy fields. Due to the destruction of forests and soil erosion, rainwater could not be retained for cultivation purposes. Many villagers migrated from this region due to these difficulties. The Gram Sabha proposed to construct 21 earthen dams in the valley under Mahatma Gandhi NREGS to address this problem.

Implementation

The construction work of 21 earthen dams on the slopes of hills located in the Sulthan Bathery forest range was completed by Noolpuzha Gram Panchayat during 2015–2019 at a total cost of Rs. 325 lakhs. Different layers of the barricades of the earthen dams were constructed using mud from the slopes of the hills and bamboo collected from the area. It was a difficult task for the Mahatma Gandhi NREGS workers to reach the worksites, which were located deep inside the forest area. To reach the worksites, they had to walk for a long distance daily amidst the continuous threat of attack by wild animals. The forest department supported this project by giving relevant permissions and security from wild animals.

Impact

The earthen dams in Puthanchira have ensured that water is available for irrigation of 500 hectares of land throughout the year. With increased soil moisture content, an additional 300 hectares of land belonging to 150 tribal farmers has been brought under cultivation. The farmers are cultivating paddy as the major crop along with banana, ginger, turmeric and tapioca. The wells of the region, which used to dry up during early summer, now have enough water to last throughout the year. These wells provide clean drinking water to 48 tribal families.



"The construction of the earthen dams has reinvigorated the local ecosystem and ensured the availability of water, benefitting the growth of crops. It has helped to check the intrusion of the wild animal into settlements and farmlands".

—Ms. Sumithra, Tribal Farmer



UNIFIED INTERVENTION TO ACHIEVE WATER SUSTAINABILITY

Introduction

Nemom Block Panchayat is situated in Thiruvananthapuram District. During the summer season, this region faces acute shortage of water. Traditional water bodies, including drinking water sources, used to dry up by midsummer. While drinking water requirements were met by purchasing water from suppliers, there was no water for agricultural activities. The difficulties faced by the people forced the authorities to think about feasible and cost-effective water conservation and groundwater recharge methods. The water conservation activities were initiated under the program *Jala Samrudhi* in seven Gram Panchayats of Nemom Block in convergence with other line departments of the State Government. A wide range of activities including constructing boulder checks, farm ponds, land development and rejuvenation of traditional water bodies were carried out to ensure water security.

Implementation

After consultation with the State Government departments like Soil Conservation, Irrigation and Agriculture, Kerala State Land Use Board and Haritha Kerala Mission, the Block Panchayat shortlisted and completed the works in two phases during 2016–2018 at a total cost of Rs. 40 crores.

In the first phase during 2016–2017, nearly 750 wells with parapet walls were constructed throughout the block. Watershed development was also taken up in the region following the ridge to valley approach. The stream bund of the watershed was strengthened using coir geotextiles and locally available materials with minimal masonry work. In the second phase during 2017–2018, desiltation of 541 reach streams, construction of 1,000 boulder checks, digging of contour bunds and trenches in 700 hectares and 8,000 rainwater harvesting pits, and renovation of 4 community ponds and 275 individual farm ponds were undertaken. Further, 240 pond bunds were strengthened using coir geotextiles.

In order to create awareness on water conservation among the public, *Kalajatha* (Folk Theatre) was conducted as a part of IEC activities. Wall paintings were made to highlight the importance of water conservation.



Impact

The impact of the works taken up has brought in a remarkable change in the groundwater level, benefitting 20,000 families within the block. More than 1,000 hectares of land is now under cultivation. The villagers are shifting to paddy cultivation after witnessing the increased water availability. At present, 750 families have access to drinking water throughout the year. Initially, the recorded water level was 6.75 mbg (meter below ground level) which has increased to 5.31 mbg. The villagers are encouraged to take up pisciculture as an additional income generation activity.



Kerala



"We had seen the worst conditions when all water sources started drying up at the beginning of summer itself. People used to purchase water. Now, after these interventions, the groundwater level has increased and people are confident to take up more agricultural activities".

—Ms. Sakuntala Kumari, Resident

RESTORED AGRICULTURAL ECOSYSTEM OF MEENACHIL RIVER

Introduction

Meenanthara and Kodoor tributaries of the Meenachil River flow through 30 Gram Panchayats and four municipalities in Kottayam District of Kerala. These were earlier interlinked with several natural or man-made streams. Of late, these streams clogged due to pollution and dumping of waste, leading to their disassociation from the main river. The polluted water was causing several waterborne diseases. Furthermore, thousands of acres of paddy field turned fallow due to clogging of these streams. The aquatic diversity was also vanishing. Therefore, the restoration and relinking of river and its tributaries were carried out under Mahatma Gandhi NREGS in convergence with many line departments of the State Government by desilting, deepening and reinforcing of riverbanks with coir geotextiles. A local NGO also played a role in rejuvenation of these three rivers.





Implementation

The rejuvenation and relinking of the river and its tributaries were taken up in 30 Gram Panchayats of Kottayam District at a total cost of Rs. 8.85 crores during 2017–2019. The activities that were taken up include stream restoration, construction of bunds on stream banks and covering the bunds with coir geotextiles that, in turn, protected 17.57 km stretch of river and stream banks. Additionally, 633.23-km long stretch of streams was also desilted. These activities were taken up in convergence with Departments of Rural Development, Soil Conservation, Minor Irrigation and Agriculture.



Impact

The rejuvenation activity has benefitted paddy cultivation in 30 GPs that have approximately 50,000 households. Nearly 3,500 acres of cultivable land has improved due to this work. The deepening of rivers has resulted in increased water availability in the canals, streams, wells and ponds during the summer season. The quality and quantity of drinking water have improved significantly. The aquatic biodiversity has also improved after deepening of the streams and canals. The use of coir geotextiles to strengthen the banks of the streams has prevented the erosion of soil to a great extent. This process has positively impacted the environmental, social and economic aspects of the community.






“Desilting of canals has increased the water levels. Now, sufficient water is available for farming purposes, especially in Upper Kuttanad areas”.

—Shri. Mugesh Philip, Kumarakom GP

“Dried up canals in Thiruvrappu Gram Panchayat were deepened to enhance water level. This is highly beneficial for the people here”.

—Smt. Binu, Thiruvrappu GP





TAMIL NADU

REJUVENATING LOCAL ECOLOGY BY REPLENISHING GROUNDWATER

Introduction

Provision for safe disposal of wastewater is not available in rural areas. Generally, the grey water from households drains into open ground or water bodies. This water flows through habitations and becomes a breeding ground for mosquitoes and other disease-spreading insect vectors, thereby posing a severe health hazard. In Brammadesam Panchayat of Anthiyur block in Erode District, the wastewater discharged from 75 households became stagnant in a low-lying area located at the west end of the habitation. There was an immediate need to find a practical solution for this issue. In this backdrop, construction of a vertical soak pit and village drains for proper disposal of grey water was taken up as a solution under Mahatma Gandhi NREGS.







Implementation

When soak pit was proposed as a solution to dispose of the wastewater, the local residents were reluctant and argued that disposing of wastewater into the ground would contaminate the existing groundwater. The authorities concerned had to step in and explain to the villagers about the processes and procedures involved in the proposed work, after which the people were convinced that the project would help in resolving this issue. The work was completed at a cost of Rs. 1.16 lakhs under Mahatma Gandhi NREGS during 2018–2019.

Impact

The collected storm water or grey water at soak pits offers a cost-efficient opportunity and a relatively safe way of discharging it into the environment, thereby recharging the groundwater. At present, there are no indications of contaminated and polluted grey water stagnation at the specified low-lying area. The village (75 households) is now clean, and the collected grey water is filtered scientifically and used for recharging of groundwater. Consequently, the groundwater table has increased as compared to the pre-scheme position.



SUSTAINABLE WATER MANAGEMENT THROUGH GREY WATER FILTRATION: A FULL STOP TO STENCH

Introduction

Ravanasamudram GP of Kadayam block in Tirunelveli District did not have a system for proper and safe disposal of grey water. The grey water from the households was discharged into open fields and was disposed of either into open ground or water bodies, which resulted in contamination of surface water and also led to mosquito breeding. Effective management of grey water in rural areas at the household level was the need of the hour. All this necessitated a rural sanitation project that was taken up under Mahatma Gandhi NREGS.



Rs. 0.87 lakh

vertical filter type community
soak pit constructed during
2017-18



Rs. 0.88 lakh

submerged vertical filter type
community soak pit
constructed during 2017-18

Construction of Liquid Waste Management

Vertical Filter - Submerged Method at West Side in Ravanasamudram

Gram Panchayat: Ravanasamudram

Block: Kodayam

District: Tirunelveli

State: Tamil Nadu



"My family members and nearby households are comfortable. Now they can breathe healthy air without any stench because of the success of the vertical filter unit for treating grey water".

—Smt. S. Selvapetchi, Villager, Ravanasamudram



Implementation

A vertical filter-type community soak pit at a cost of Rs. 0.87 lakh and a submerged vertical filter-type community soak pit at a cost of Rs. 0.88 lakh were constructed during 2017–2018 by the Gram Panchayat under the guidance of DRDA. The grey water generated at the household level is thus managed at the very source, so that zero or minimum community waste is disposed of in open areas. It was strictly ensured that sewage water does not get mixed with sludge collected from the households, as there are possibilities for traces of *E. coli* bacteria in the sewage water. An elevated vertical filter-type community soak pit was dug at the waste disposal point where the wastewater from nearly 73 households was directly discharged into Veeranathi River without any kind of treatment. A submerged vertical filter-type community soak pit was dug at the wastewater disposal point (West of anganwadi building), where the wastewater from nearly 140 households was discharged into open fields and used to get disposed into open ground earlier.



Impact

As a result of the implementation of this work, 213 households are benefitted. The groundwater table has also increased in the vicinity. Due to construction of the vertical filter soak pit, stagnation of contaminated wastewater, breeding of mosquitos and emission of bad odour that are posing great health hazards have stopped.

VERTICAL SOAK PITS - MORE GROUNDWATER & ZERO VECTOR BORNE DISEASES



Introduction

Poolankulam Gram Panchayat and Rajagopalaperi Gram Panchayat are located in the Keelapavoor block of the Tirunelveli District. Agriculture is the main occupation of households in these GPs. Due to erratic rainfall for the last 3 years, farmers in these villages faced difficulties in cultivation. Moreover, disposal of wastewater out into open space in these villages caused bad odour and inconvenience to the public. To address this issue, vertical soak pits were planned under Mahatma Gandhi NREGS. This project was taken up mainly to avoid vector-borne diseases and help augment the level of groundwater in the village.

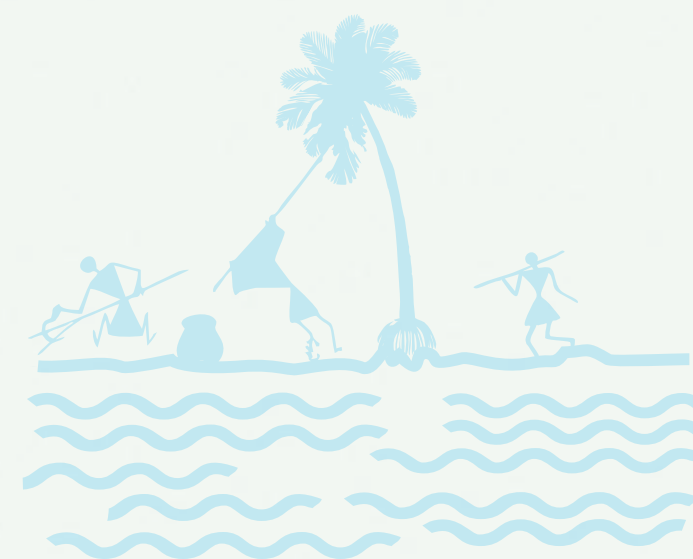


“The treated water is now being used for my garden and also for my 3-acre agricultural land for irrigation purposes”.

—Shri. J. Raja, Farmer

“The village is looking neat and clean. The groundwater level has increased in the hitherto dysfunctional borewell”.

—Smt. Mallika, Homemaker





Implementation

The Gram Sabha decided to take up the construction of a vertical soak pit at a cost of Rs. 1.00 lakh in Rajagopalaperi GP and a horizontal filter at a cost of Rs. 1.24 lakhs in Poolankulam GP during 2017–2018. In the process of implementing the project, three hurdles, namely, identification of the suitable site, availability of panchayat land and clearing the objections by the farmers in the local area, posed great difficulty. The challenges faced by the technical team and the field officials were overcome by continuous interactions with the villagers and GPs. The villagers were convinced of the need to overcome the ill-effects of disposing of grey water in open and resultant health hazards.



Impact

The filtered water was examined by the Tamil Nadu Pollution Control Board, and the results indicated that the major chemical parameters such as biochemical oxygen demand (BOD) and chemical oxygen demand (COD) in untreated water have considerably reduced after filtration. The filtered water was reported to be used for irrigating agricultural land, which has resulted in a noticeable increase in production. As a result of the implementation of this work, 2.5 acres of land and 200 households have been benefitted.

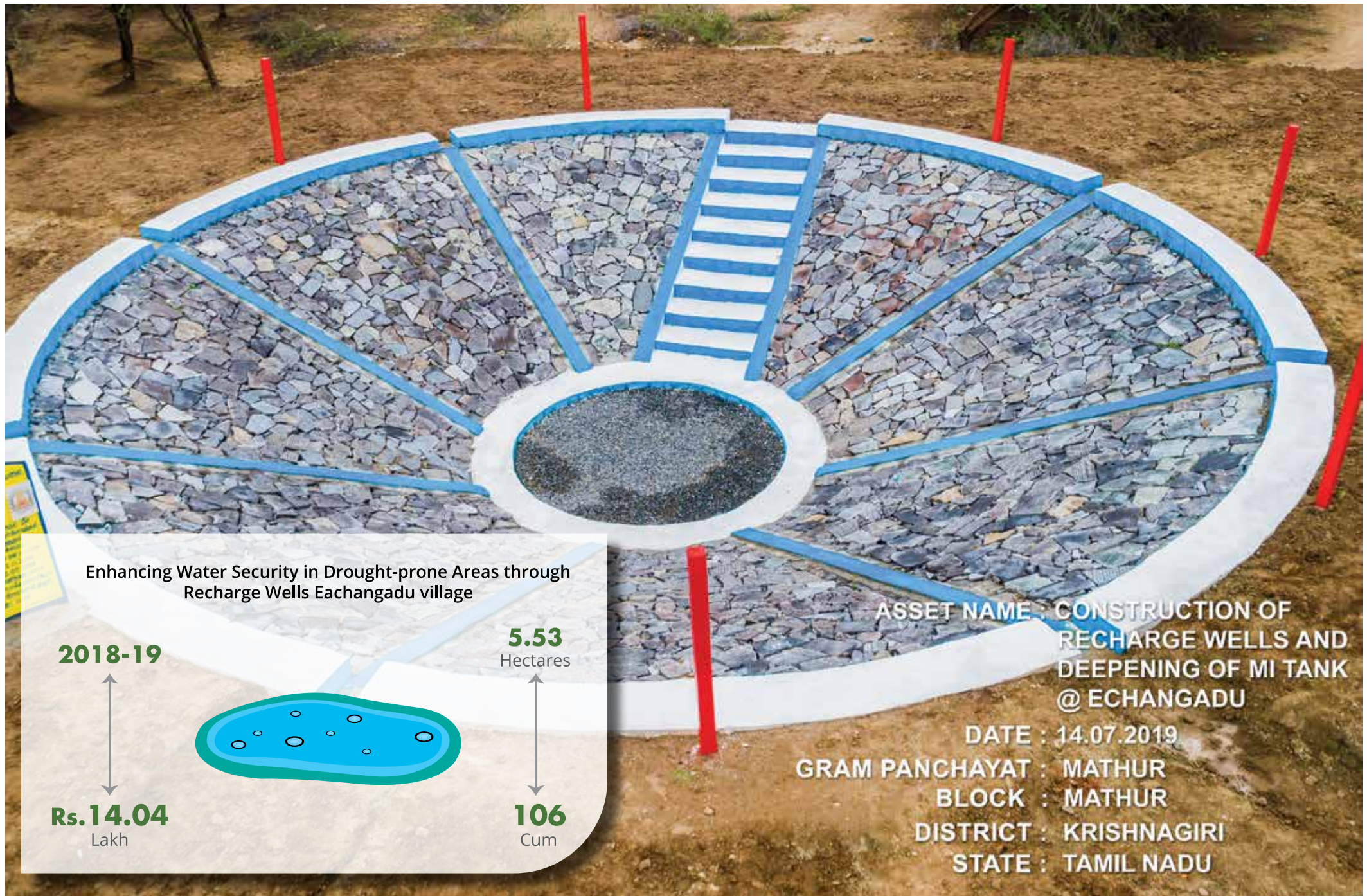
REVIVING AQUIFERS THROUGH RECHARGE WELLS

Introduction

Eachangadu village in Mathur Panchayat Union is situated in Krishnagiri District of Tamil Nadu. In this village, the demand for water was greater than its availability. This made groundwater recharge a crucial aspect of overall water resource management through the revival of aquifers in this area. Water conservation and harvesting structures needed to be constructed to augment and improve the level of groundwater. Besides, the renovation of traditional water bodies also helped in drought mitigation. So, the construction of recharge wells and renovation of minor irrigation tank were undertaken under Mahatma Gandhi NREGS.







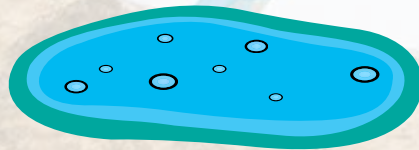
Enhancing Water Security in Drought-prone Areas through Recharge Wells Eachangadu village

2018-19

Rs. 14.04
Lakh

5.53
Hectares

106
Cum



ASSET NAME : CONSTRUCTION OF RECHARGE WELLS AND DEEPENING OF MI TANK @ ECHANGADU

DATE : 14.07.2019

GRAM PANCHAYAT : MATHUR

BLOCK : MATHUR

DISTRICT : KRISHNAGIRI

STATE : TAMIL NADU



"I worked in the Mahatma Gandhi NREGS project at Eachangadu minor irrigation tank, which is near my home with a hope to secure water in the lean season. Water shortage was our biggest problem. Now, we can cultivate our lands in the summer season".

—Smt. Venkatamma, Beneficiary

Implementation

The idea of constructing a recharge well was initially resisted by the villagers as they were of the opinion that such an asset will not be useful for water conservation. However, with continuous persuasion, the Rural Development and Panchayati Raj officials could convince the villagers for the constructing of recharge wells.

The construction of two recharge wells and deepening of a minor irrigation tank were completed in 2018–2019 at a total cost of Rs. 14.04 lakhs. Two recharge wells were constructed in the area of a minor irrigation tank spreading over an area of 5.53 hectares. The capacity of the recharge well is 106 m³.





ASSET NAME : CON
REC
DEE
@ E

DATE : 14.0

GRAM-PANCHAYAT : MAT

BLOCK : MAT

DISTRICT : KRI

Impact

There are 18 open wells and 15 borewells near the minor irrigation tank where the groundwater table has increased by 2 ft. About 130 acres of farmland has benefitted from this project. The irrigation area has increased by 35 acres, resulting in an increase in agricultural production and farmers' income by 10%. Overall, 535 villagers have benefitted from the project. The drinking water needs of both villagers and livestock are also being fulfilled.



CONSTRUCTION OF
CHARGE WELLS AND
OPENING OF MI TANK
CHANGADU

7.2019

THUR

THUR

SHNAGIRI

REJUVENATING MORE THAN 60,000 LIVES THROUGH WATER CONSERVATION EFFORTS

Introduction

Kaniyambadi block in the Vellore District is surrounded by hills and Naganadhi River. The Naganadhi River flows through eight panchayats. One of the biggest problems the Vellore District faces today is water scarcity, which has seriously affected the rural areas of Vellore where people depend on agriculture for their livelihoods. As part of the water conservation efforts to replenish the groundwater level, a pilot project was proposed to construct recharge wells and gabion structures in the drought-affected Kaniyambadi block under Mahatma Gandhi NREGS.



“Voice
From The Field

“Water level rose in my open well after construction of recharge wells along the channels. I am very happy to carry out the agricultural works as no scarcity of water occurs. I am thankful to the team that initiated these works in the district to address the ongoing water crisis”.

—Shri. Balaraman, Farmer, Salamanatham Village



"I could not harvest water-intensive paddy for the past 3 years due to lack of rain and left the land barren. The recharge wells received good inflow during the monsoon, and as a result, our open wells are now filled. Besides getting a good harvest of the crop from my land, I can participate in Mahatma Gandhi NREGS as a worker to earn wages".

—Smt. Nathiya, Mahatma Gandhi NREGS worker



Implementation

In Kaniyambadi block, a total of 349 recharge wells and 128 gabion structures were completed at a total cost of Rs. 3.25 crores under Mahatma Gandhi NREGS during 2015–2017. Initially, as a pilot, Salamanatham Village Panchayat was considered, and later this initiative was extended to 21 panchayats of Kaniyambadi block. Construction of recharge wells is a long-term sustainable solution that would help the farmers in boosting their agricultural efforts and rejuvenating the dry aquifers. Functionally, these structures enable water percolation from the channels and direct the water back into aquifers to stabilize the water table. The wells would not only help in collection of water but also play a vital role in preventing floods. Gabion structures were also constructed at intervals of 100–150 m to reduce water velocity and to support the recharge wells. Initially, Mahatma Gandhi NREGS women workers were reluctant to take up the works due to a lack of confidence in the outcome of this project. Because of the consistent efforts of the technical field officials, workers and active participation of NGO, the project could be completed on time.



Impact

After the completion of the project, a total area of 364 sq. km across 21 Gram Panchayats comprising nearly 60,000 farmers/people has been benefitted. Earlier, the farmers in the block were cultivating two crops a year, mainly turmeric and paddy plantations. As a result of this intervention, there has been an improvement in the groundwater level. Farmers have reported that they are able to cultivate an additional crop every year. Their yield has also increased. In a span of 2 years, significant results from the project were witnessed. More than the short-term gains, it is the larger impact of replenishing the groundwater level that has risen by about 4-7 ft.





EARTHEN BUNDING TO HARVEST RAINWATER: STORY OF COIMBATORE

Introduction

Coimbatore District is located in the north-western part of Tamil Nadu State. The groundwater was overexploited in 213 out of 228 Gram Panchayats of the district while the remaining 15 were in semi-critical zone. During the last 10 years, the average rainfall in the district declined from 690 mm to 616 mm, which leads to a reduction in the water table and natural resources. An uncertainty in seasonal monsoon reduced water storage in the reservoirs and conventional water bodies with depletion of the water table. This led to scarcity of water for public utilities and irrigation purposes. Hence, it was proposed to harvest rainwater through earthen bunds in the land belonging to small and marginal farmers under Mahatma Gandhi NREGS.



"We are getting groundwater, so we expanded the area under irrigation using the groundwater for cultivating the crops".

—Shri. Palani Muthu, Beneficiary

Implementation

The project was implemented by the respective GPs with the technical support of the District Rural Development Agency, Coimbatore at a total cost of Rs. 47 crores during 2017–2019. Initially, the sanction was accorded for the creation of earthen bunds in 376 locations in 228 Gram Panchayats in the district, which was later extended to all the blocks in the district. In all, 7,174 earthen bunding projects were approved by the District Rural Development Agency for small and marginal farmers. Initially, the farmers were not willing to take up earthen bunding work on their small pieces of lands. However, through extensive deliberations in Gram Sabha in the Village Panchayat, all the marginal and small farmers were convinced and motivated to take up this project in their lands.





Impact

The project has been implemented on the land of 7,550 farmers covering an area of 24,160 acres since 2017–2018. Approximately, 6,764 crore litres (2.4 TMC) of water is reportedly accumulating every year, which helps in the recharge of the aquifer. After the implementation of the earthen bunding project, the groundwater table in Coimbatore District has also risen considerably. As per the State Government's reports, the groundwater levels have been recorded at depths of 29.76 m, 22.31 m and 17.62 m during the years 2017, 2018 and 2019, respectively. The data show that there is a considerable increase in the groundwater level.

REBIRTH OF RIVER KOWSIKA TO UPLIFT FARMERS

Introduction

Kowsika River, a tributary of the Noyyal River, originates from the Western Ghats and flows through Periyanaickenpalayam, Sarcarsamakulam, Annur and Sulur blocks in Coimbatore District. The river had an abundant flow of water for about 8–9 months in a year until 1977. Due to plentiful access to water, crops like paddy, sugarcane and banana were grown using the water from the Kowsika River. In due course of time, the level of water in the river shrunk, leading to drying up of open wells and borewells in the vicinity. The people of the block were more concerned about drastic drop in the cultivated area of the region. Therefore, rejuvenation of the river was taken up by putting up a series of rainwater harvesting structures in the riverbed of Kowsika and its tributaries in four water-stressed development blocks under Mahatma Gandhi NREGS.





“Before the construction of the check dam and recharge wells, water was not available in open wells. After construction of ten recharge wells and a number of check dams in Vellamadai Gram Panchayat, the water level in the open wells and dug wells has considerably gone up”.

—Smt. Priya, Farmer





Implementation

The project was taken up in 15 Gram Panchayats of Sarcarsamakulam, Annur, Sulur and Periyanaickenpalayam blocks. The construction of four types of water conservation structures like recharge wells, boulder check dams, gabion check dams and masonry dams was simultaneously taken up. The respective Gram Panchayats were implementing the project under the guidance of DRDA. The removal of encroachments from the riverbed was a major challenge. The officials had a tough time in convincing the farmers about the importance of water recharging works. However, they were successful in their attempts. The technical expertise offered by an NGO was being utilized in constructing these rainwater recharging structures. Putting all kinds of works together, a total of 737 recharge wells were proposed to be constructed over a length of 52 km. The work started in 2017–2018 is expected to be complete in 2019–2020. The progress of the project as of July 2019 is as follows: 57.5% of recharge wells (out of 179), 27.1% of boulder check dams (out of 221), 30.7% of gabion check dams (out of 231) and 11.9% of masonry dams (out of 134) have been completed. The total expenditure incurred so far in the construction of the structures is Rs. 5.50 crores.

Impact

The hitherto dried up and abandoned open wells used for agriculture purposes have now recouped with water due to a series of recharge structures constructed along the river. The lands that were left dry hitherto are now converted into cultivatable lands, and farmers are now growing sugarcane, brinjal, lady's finger, banana plantation and cattle fodder in their fields.

According to Tamil Nadu Water Supply and Drainage Board (TWAD), during May 2017, the groundwater level in the metering well in Ganapathipalayam village in Kuppepalayam Panchayat of Annur block was 73.60 m, and it has increased to 36.70 m during May 2019. After the implementation of this project, 840.09 hectares of land and 1,415 people have been benefitted.





“Voice
From The Field”

“Before the construction of recharge well, there was no water in the borewell. After the construction of ten recharge wells in Vellamadai Gram Panchayat, there is a notable rise in the groundwater table and water level in open and borewells. I am now cultivating crops like banana, maize and fodder in 3 acres of agricultural land, and productivity levels of crops have increased”.

—Smt. Radha, Farmer

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