

Jal Sangraha

 Stories of Water Conservation under Mahatma Gandhi NREGA

Volume  2



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Volume  2

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

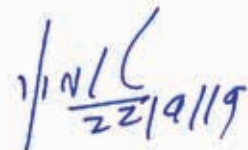
नरेंद्र सिंह तोमर

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



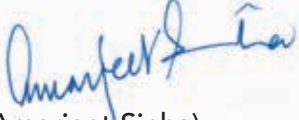
Message

सचिव
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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 (Kharagpur, 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

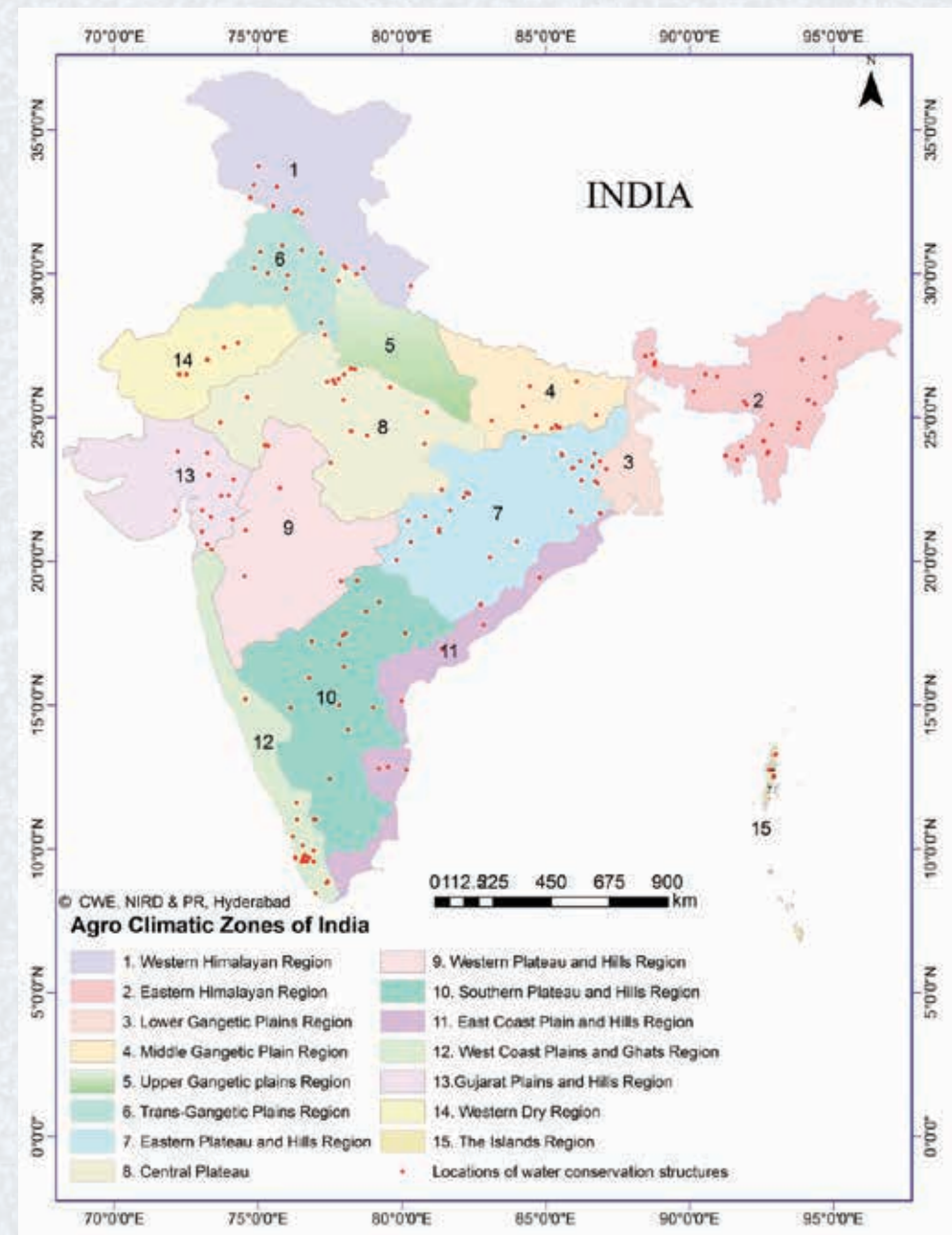


Figure: Locations of Case study across agro climatic regions of India.

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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PUNJAB

'HARHA DI ROKAAN': SUTLEJ EMBANKMENT

Introduction

Kasabad village in Ludhiana-2 Tehsil of Ludhiana District is situated on the bank of Sutlej River. Crop damage was rampant due to inundation of fields from overflowing river during monsoon. As per the report of state government, "bori bandhs", used earlier for flood control, were ineffective and would get damaged during monsoon season as these could not withstand the rapid flow of river. In order to protect this area from recurring floods, the work of river embankment using stone boulders was undertaken.



“Voice
From The Field

“I had witnessed the devastating floods earlier and always feared. After this construction under Mahatma Gandhi NREGS, we feel lesser risk. This is being regularly maintained, which makes us less apprehensive about the flood”.

—Shri. Satinder Pal, farmer





Implementation

Under the guidance of the flood control department, flood mitigation measures were undertaken in the FY 2018–2019. A retaining wall was constructed by putting boulders in a wired crate along the river bank. Loose soil behind this wall was compacted to further strengthen it. The total expenditure incurred for this work was Rs. 14.69 lakhs. This work was executed in convergence with Ludhiana Drainage Division and Water Resources Department.

To complete this task, trained labours were needed, who could go deep into the river to put boulder stone. The drainage department trained workers to complete this work. Semi-skilled workers were also deployed, who had to be sourced from various Gram Panchayats.



Impact

This embankment has prevented more than 100 villages and urban areas nearby from getting flooded. Now, nearby fields and houses are safe from recurring floods for the next 10–15 years with this stone boulder method. The rapid flow of the river is now controlled towards one edge of the riverbank. This diverts the stream of water, and hence, soil erosion is significantly arrested. Moreover, this has become a scenic spot. Regular maintenance is being done which ensures that the embankment remains strong and intact. As a result of the implementation of this work, 960 hectares of area becomes cultivable, and 13,600 households have been benefitted.



"My land is close to the bank of the river itself. Every year during the rainy season, the water from Sutlej runs over my fields damaging my crops. Construction of this has stopped the problem of soil erosion as well as flooding my fields".

—Shri. Varinder Singh, farmer

SWACHCH BADHOCHHI KALAN BY DEVELOPING 'SEECHAWAL MODEL'

Introduction

Badhochhi Kalan village is situated in Fatehgarh Sahib District of Punjab. The main occupation of the village is agriculture. The major sources of irrigation are tube wells, wells and canals. A dried-up pond in the village used to get filled up with rainwater and silted with grease, oil, garbage and mud. This contaminated water used to emit a lot of stench and became a breeding ground for mosquitoes and flies. Periodic manual cleaning was ineffective. An idea was mooted to develop this site on the "Seechawal model", for treating sewage water and using it for irrigation, as a pilot project in Badhochhi Kalan, Fatehgarh.



Implementation

“Seechewal model” involves constructing drains with filter mesh at household level to stop waste from entering into the main drain. This wastewater is collected in a big drain with a filter mesh and further connected to other three wells. The inlet and outlet pipes in each of the wells are designed and placed in such a manner that there is constant rotation of water due to gravity, which separates out waste. In the first well, all the heavyweight particulate matter gets deposited at the bottom, and the rest of the water gets transferred to the next well. In the second well, all the lightweight particulate matter comes out and the clean water gets transferred to the third well, which then goes to the pond. The water collected in the pond is cleaned by sun rays. The main advantage of the “Seechewal model” over the five-pond system is its compactness and cost-effectiveness. The residents of the village have contributed in terms of fund and labour as well as maintenance of the project by keeping their sewers clean. This work was taken up during the FY 2018–2019 with the help of Mahatma Gandhi NREGA and RURBAN funds in convergence with 14th Finance Commission Funds through the Gram Panchayat Badhochhi Kalan involving an expenditure of Rs. 35.83 lakhs.



Impact

By laying down a proper sewerage system, open drainpipes are done away, which has reduced the problem of flies and mosquitoes. The site of the asset sharing its boundary with a school used to get flooded during monsoon, which has now stopped. The water in the pond has been tested for biological oxygen demand (BOD) and total dissolved solids (TDS), the levels now are in safe limits for irrigation. The farmers using this treated water reported reduction in urea usage in fields. Around 350 households have been benefitted. The increased use of surface water for irrigation has thereby reduced

the extraction of groundwater. The comparison of before-after scenario is as under:

	Before	After
Total dissolved solids (TDS)	800	500
Urea used per acre	150	70
Underground water usage	7 days a week	1 day in a week

“Voice From The Field”

“Our village has become very clean now. Even during rainy season and heavy rainfall, there is no waterlogging in the entire village. We now go for morning and evening walks to the place which we used to avoid earlier”.

—Ms. Gurleen Kaur, resident

“I use this treated water for irrigation. The use of urea has reduced a lot. Earlier I had to put three bags (150 kg) urea per acre, but now only one bag (50 kg) is enough. The water from the pond is sufficient that earlier I used to pump groundwater for irrigation all 7 days of the week, but now I use groundwater only for one day”.

—Shri. Rajesh Singh, farmer



EDUCATING MANSA CHILDREN ABOUT CONSERVATION OF WATER THROUGH SOAK PITS

Introduction

Mansa District falls in the southern part of Punjab. Agriculture forms the backbone of the district economy. The main source of irrigation is canals, dug wells and tube wells. The major concern of the district is depleting water table. Being a desert district, Mansa has sandy soil, which has great absorption capacity and a low groundwater level. This makes the district suitable for the construction of soak pits. The idea of constructing soak pits in schools was mooted by district administration as a lot of grey water is generated from cooking midday meals and washing of utensils. Thus, constructing soak pits in the washing area would help in water conservation.





Implementation

As many companies were not familiar with the concept of soak pits and most were interested in visible impact programmes under corporate social responsibility, persuading them to fund such projects was a challenge. A lot of companies had to be approached before BPCL came forward to fund the project of soak pits in schools under their corporate social responsibility (CSR) initiative. The district administration of Mansa spoke to each Gram Panchayat for the implementation of this project with Mahatma Gandhi NREGS and CSR convergence and explained the benefits. The only requirement is to make people conscious regarding the cleanliness of the soak pits by making sure that no solid waste goes into it. The sarpanch of the Gram Panchayat, Mahatma Gandhi NREGA district coordinator, school staff, BPCL staff and the people of the village have all helped in the implementation. The work was taken up during the FY 2018–2019 with an expenditure of Rs. 1.95 lakhs.



Impact

The project is benefitting in recharging groundwater from the daily wastewater generated in schools through midday meal scheme (utensils washing) and water near drinking water sources and rainwater. This project helps in sensitizing children about water conservation and serves as a live demo for children to learn about water conservation process. Making them aware has helped their parents and other villagers to understand the relevance of soak pits. As a result of the implementation of this work, approximately 200 litres of grey water/wastewater per school is being recharged into ground on a daily basis, and 53 schools have been benefitted. This initiative will slowly and steadily replenish the groundwater in the vicinity. The soak pits have checked the breeding of mosquitoes and flies. In one of the schools of this village, a handpump, which had dried up, has revived.



ADDRESSING WATER SCARCITY BY INNOVATIVE SOLUTIONS

Introduction

Two villages of Moga District of Punjab, Dhalekha and Chand Nawan, were facing similar problems of water scarcity. In Dhalekha village, a 4-acre pond was filled with contaminated water. Over the years, this pond was encroached and being used to discharge industrial waste from local factories. Moreover, wild grass and weed grew in the pond, which made it completely useless for the villagers. In Chand Nawan Gram Panchayat, an old pond had dried up and was filled with garbage. During rainy season, the pond would overflow which would create a sewer-like situation. Both the ponds had become a breeding ground for mosquitoes and flies. To address the problem of water scarcity and to improve the hygiene of the area, Gram Sabhas of the respective panchayats decided to take up rejuvenation of these ponds under Mahatma Gandhi NREGS.





“Voice
From The Field

“The pond area of our village was very dirty and was considered a black spot next to the Gurudwara. I come to the Gurudwara every day and had to cross this area which was filthy with smell. Now, it has converted into a beautiful park where I like to sit for some time and enjoy nature after offering my prayers”.

—Shri. Satpal Singh, resident, Dhalleke village



"I am an athlete and come to the stadium every day for workouts and practice. Since the construction of this beautiful park, many of us prefer to visit the park. Even during rains, there is no water logging since all the water flows into the well and thus our practice is not disrupted".

—Shri. Amar, athlete, Dhalleke village

Implementation

In Dhalekha Panchayat, the factory encroachment was removed from the pond. A garden was created in a low-lying area, and an open well was constructed with grills and filter mesh in one corner of the garden. The design is such that the rainwater from the catchment area flows into this well. A small elevated area was constructed for cultural activities. The project was implemented during the FY 2016–2017 to 2017–2018 at a total cost of Rs. 0.67 lakh (materials: Rs. 0.35 lakh and labour: Rs. 0.32 lakh).

Chand Nawan Panchayat constructed three wells and four ponds on the old dried-up pond. The inlet and outlet pipes in each of the wells are designed and placed in such a manner that there is automatic and constant transfer of water to segregate the waste of entire village, which comes through one big drain. The project was implemented during the FY 2018–2019, and the expenditure incurred was Rs. 17 lakhs in convergence with panchayat and NRI funds.



Impact

The 4-acre pond of Dhalekha Panchayat was once the dumping ground but now has been converted into a beautiful park with a lot of trees. It has become an attraction for the residents as well as for the visitors of the nearby Gurudwara. As a result of the implementation of this work, 600 households have been benefitted.

Three wells and four ponds constructed in Chand Nawan Panchayat are very useful to local residents as well as farmers. The treated water is being used for irrigation which resulted in increase in productivity and maintenance of groundwater level. The treated water is pumped through a 1.5-km pipeline to irrigate 45 acres of cultivation area. As a result of the implementation of this work, 30 households have been benefitted.

Both villages have got rid of waterborne diseases.

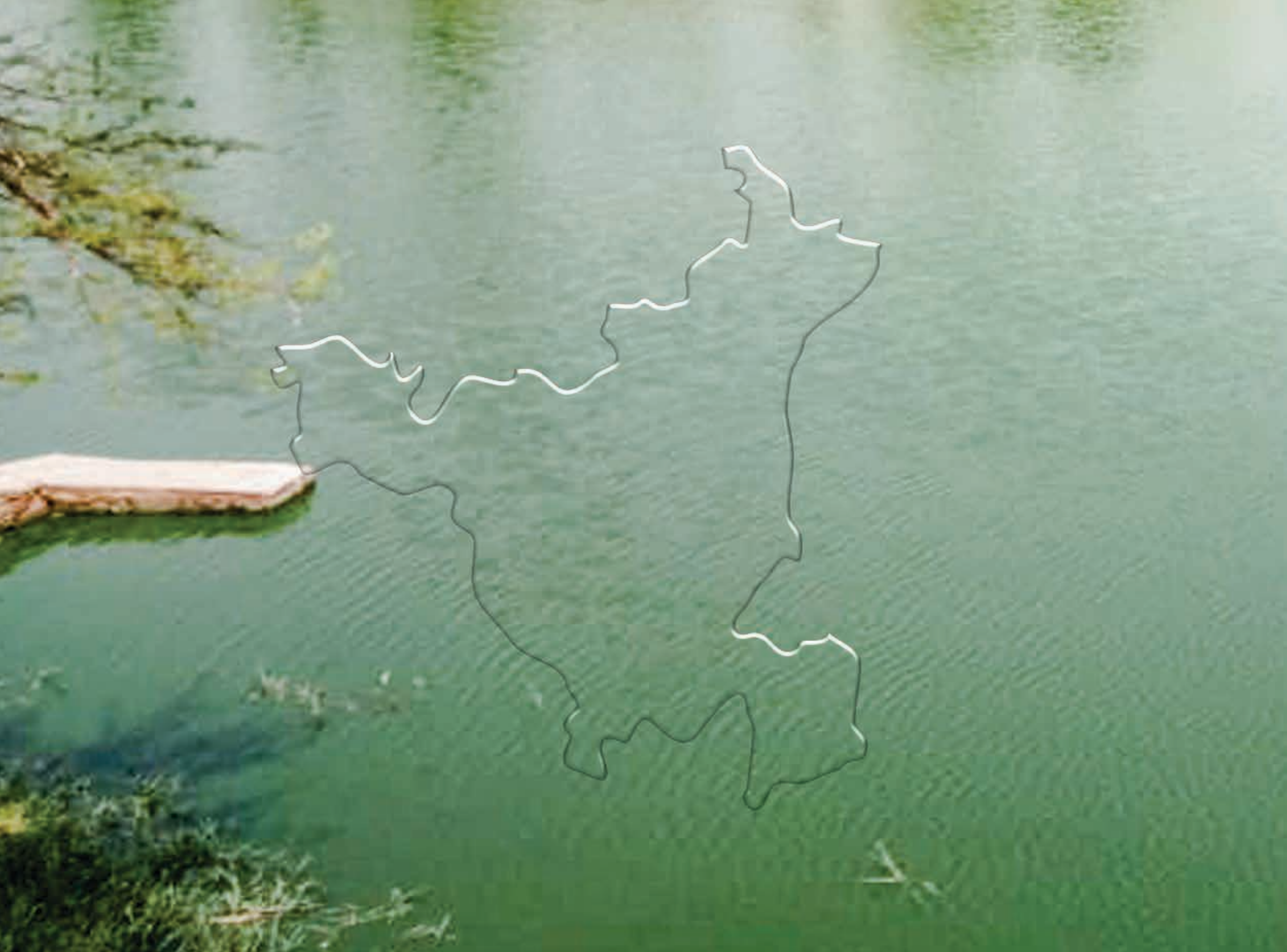




“Since I have started using the treated water for irrigation, I have to use less groundwater which is saving my diesel cost and also less urea is required now. This project has helped me economically”.

—Shri. Amarendra Singh, farmer, Chand Nawan





A serene landscape featuring a calm body of water, likely a lake or pond. The water is a deep, clear green, reflecting the surrounding environment. In the foreground, there are lush green plants with large, pinnate leaves, possibly from a tree or shrub, framing the bottom and right sides of the image. The background shows a soft, out-of-focus view of the water and distant trees, creating a peaceful and natural atmosphere. The word 'HARYANA' is superimposed in the center of the image in a stylized, outlined font.

HARYANA

REVIVING OLD WISDOM THROUGH MAHATMA GANDHI NREGS

Introduction

Baikheda village, which is located in Sohna block of Gurgaon District in the state of Haryana, receives less rainfall than the other districts. With no major rivers running through, the village required rainwater harvesting structures. A pond constructed decades ago by the villagers along the gradient to store excess rainwater had silted, leading to decline in water holding capacity. Due to scanty and sparse rainfall, the pond rarely gets filled up. Lately, the situation worsened leading to inadequacy of water for household and agricultural purposes. The villagers felt the urgent need of reviving the pond and proposed this work in Gram Sabha meeting.







Implementation

Following a strong demand from the villagers and with the initiative of sarpanch, the Gram Panchayat carried out the work of digging of this pond at a total cost of Rs. 5.37 lakhs in the year 2018 under Mahatma Gandhi NREGS. As Baikheda is well connected to nearby urban areas, the able-bodied males generally work as casual labourers apart from participating in cultivation. Therefore, the project's demand for labour was mostly met by women in the village.





Impact

The renovation of this pond led to two outcomes: first, it reduced the dependency of villagers on groundwater for irrigation, and second, there was a significant improvement in the groundwater levels in the vicinity of the pond. This allowed farmers to take up double cropping. The desilting of the pond boosted cattle rearing in the village especially among the poor households. Initially, the adolescent girls travelled long distances to fetch water for domestic and livestock consumption purposes. But now, they generally utilize this time for studying, while women get a chance to take rest or attend to other household chores. As a result of the implementation of this work, 125 households have been benefitted.



MULTIPLE BENEFITS THROUGH MULTI POND SYSTEM

Introduction

Yamunanagar District receives more rainfall compared to other districts of Haryana. Due to excess rainfall, Baindi village of Radaur block faced the problem of waterlogging in monsoon. The water capacity of the big pond in the village was reduced due to silt accumulation, which led to flood during the rainy season. The main road of Baindi village, next to the pond, used to be waterlogged during every monsoon. Many incidents of the bikers falling into the pond during floods were reported. To avoid such incidents, commuters had to take alternate routes during monsoon. Under these circumstances, Gram Panchayat decided to put an end to the waterlogging, unhygienic environment and mosquito menace by renovating the pond into multi-pond system.





"The road is completely safe now. The nearby Mahatma Gandhi Colony does not get flooded anymore. The water from this new pond recharges groundwater. In the last week, there was rainfall for 48 hours continuously, but there was no flooding".

—Shri. Ajay Singh, sarpanch, Baindi





Implementation

This work was taken up in the year 2016 in convergence with 14th Finance Commission Funds. Initially, when the single big pond was getting partitioned, the villagers protested with a fear of losing the village pond. Sarpanch and ex-sarpanch along with some volunteers ensured timely completion of work. Even social activists and other volunteers came forward for the beautification of the park through plantation and gardening. At present, the whole work is owned by the community. The total expenditure incurred was Rs. 2.31 lakhs.







Impact

The problem of waterlogging has completely been resolved. Wastewater of the entire village is treated through waste stabilization pond (WSP) and used for irrigation and groundwater recharge. Cleaning of the treatment chamber is done once in every 2–3 years, and the sediment is used as a natural fertilizer. The groundwater table of the region has improved from 130 ft to 90–100 ft. Few tube wells which had dried up earlier have sprung up now.

Cultivation takes place in the land surrounding the pond, which was not possible earlier. The farmers of 5–10 acres of land, who used to follow monocropping due to absence of water in the tube wells, now grow two crops in a year with water from this pond. The pond has turned into a recreation spot particularly in winters. As a result of the implementation of this work, 44 households have been benefitted. Realizing the multiple benefits, residents of nearby villages have demanded similar structure in their Gram Sabha meetings.

STORING WATER – RESTORING RELIEF

Introduction

Burak village is in Burak Gram Panchayat, Hisar 2 block of Hisar District in Haryana. It is the last village of the block touching the Rajasthan border. The entire village depends on rainwater for both drinking and agriculture purposes. With declining rainfall and changing rainfall pattern, the village was exposed to serious water crisis. The villagers were often meeting the demand-supply gap by extracting groundwater, which has led to drastic depletion of groundwater and has become saline in recent times. The Gram Sabha decided to take up the work of digging of Dhaab pond.





“The groundwater quality of our area was very poor and unsuitable for drinking. Due to groundwater recharge through this pond, the quality of groundwater in the surrounding areas has turned potable. Due to scarcity of water, the stray animals, particularly the deer, struggled for drinking water. These animals can also now drink water from the Dhaab pond”.

—Shri. Mewa Singh, sarpanch, Burak

Implementation

The digging up of Dhaab pond in the village started in the year 2017–2018 under Mahatma Gandhi NREGA. A technical team visited the village and prepared the estimate. The project faced major challenges as very few labourers in Burak Gram Panchayat were willing to work under Mahatma Gandhi NREGS. Also, the weather conditions were too harsh to complete this work. However, these challenges were overcome by involving labourers from neighbouring villages. The shape and design of the pond were planned and executed in convergence with Integrated Watershed Management Programme (IWMP). An expenditure of Rs. 13.67 lakhs was incurred for the work which was completely spent on labour.





Impact

The villagers found the work very useful. The frequency of rain in this GP is low, so whenever it rains, water is being collected in this pond and used for domestic and other purposes. Earlier, women had to either travel long distances to bring water or had to purchase it at the rate of Rs. 700–800 per tank. Presently, the water from Dhaab pond is made potable after adding alum to it which saves money and energy for the villagers. The stray animals and local wildlife use this pond for drinking purposes.

In 2018, during the lean season, the villagers did not face much shortage of water due to this Dhaab pond. As a result of the implementation of this work, 775 households have been benefitted.

CLEANLINESS LEADS TO HAPPINESS

Introduction

Litani village is located in Uklana block of Hisar District, Haryana. It depended on two water tanks for piped drinking water supply. Over the past 15 years, these water tanks were silted and their storage capacity was reduced. Since the villagers are engaged in animal husbandry activities, the need for clean water was more. The contaminated water was increasing risks of spreading waterborne diseases. The villagers often complained of foul smell emanating from the drinking water. Understanding the gravity of the situation, the Gram Panchayat decided to take up the work of desilting of the water tanks.





“After cleaning this tank, the bad odour that was present in the drinking water is no more. The number of cases of hepatitis E has now come down to zero”.

—Shri. Dayanand, Litani village

“There is a significant difference in the quality of drinking water after cleaning the tank. Now, we are getting good quality water”.

—Ms. Jyoti Rani, sarpanch, Litani village

Implementation

The Gram Panchayat, with the help of the villagers, drafted a plan for desilting of water tanks in collaboration with the public health department and block officials. The work was taken up in the year 2016–2017 under Mahatma Gandhi NREGS. The big challenge was to restrict supply of drinking water during the period of work. In the first phase, only one tank was undertaken for desilting so that the supply of water may continue from the second tank. Moreover, there was shortage of labour due to heatwaves during that period. All these challenges were overcome with strong support from the Gram Panchayat and villagers. Ramps and ladders/stairs were used for getting inside the tank for desilting. The villagers were informed beforehand that they should be prepared to adjust with shortage of drinking water for a week. The total cost incurred was Rs. 0.94 lakh.



Impact

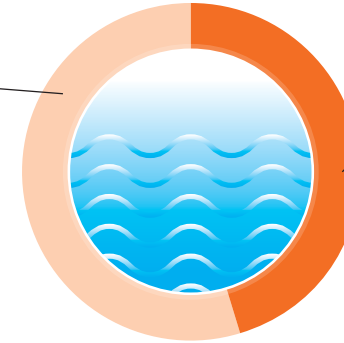
After desilting of the tank, the water storage increased to full capacity. As a result, the water supply per household also increased.

The villagers are happy with the quality of water being supplied. The clean water enhanced the hygiene status of people in the area. The number of cases of waterborne diseases has come down significantly. As a result of the implementation of this work, 2,150 households have been benefitted.

7865550

Litre

Water availability
after cleaning



6554625

Litre

Water availability
before cleaning







UTTAR PRADESH

EXPANDING LIVELIHOOD BY RECHARGING GROUNDWATER

Introduction

Ajnara and Madhavgarh villages of Jalaun District located in the Bundelkhand region of Uttar Pradesh are drought-prone areas. Undulating terrain with sandstones and water scarcity made the life difficult for villagers. Rainfed agriculture and livestock are sources of livelihood for many households. The villagers were facing harsh poverty with cultivation of single crop in a year and low productivity from indigenous varieties of livestock. There are instances of distress migration. Drinking water in many villages is not potable due to the presence of dissolved solids. Suitable development interventions were needed to improve the livelihoods of the people. The idea of sustainable agricultural ecosystems by renovating or constructing new check dams was one of the major interventions in the area by local administration in coordination with civil society.

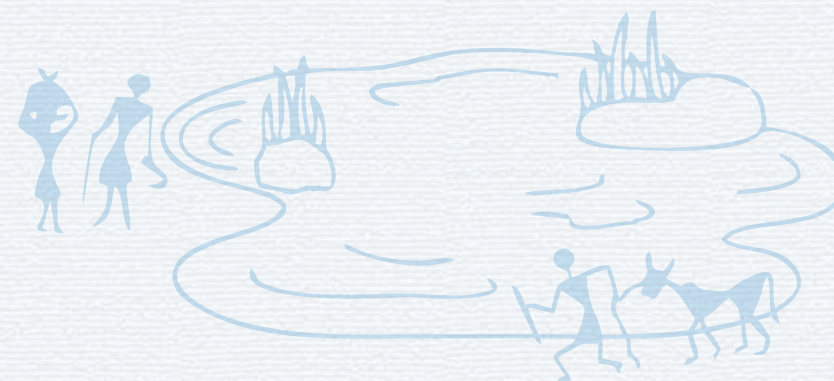




“As a local resident and farmer, I add that the intervention had helped people to augment the livelihood sources”.

—Shri. Pratap Singh, farmer





Implementation

The primary need of the work was to provide drinking water to the villagers throughout the year. The other objectives were to improve the groundwater level in adjoining fields and local vegetation. It was a challenge during the initial period of the project to sensitize and mobilize the community towards these goals. Difficulties in coordinating with civil society and local administration were overcome with proper planning and transparency in convergence with local administration, minor irrigation department, soil conservation department and non-governmental organizations.

Two check dams were constructed in Ajnara and Madhavgarh villages during the financial year 2018–2019 at a total cost of Rs. 5,74,000 and Rs. 1,35,000, respectively. They used removed silt from the channel for making bunds on both sides of the channel to stop soil erosion, and local administration promoted extensive plantation on the bunds of the check dams to strengthen it.

Impact

The project improved water storage, groundwater recharge, reduction in the cost of irrigation and crop survival rate. Diversification of crop from single cultivation of bajra to multiple crops of wheat, pulses and mustard was observed. A minimum of 30% improvement in crop production was reported in the vicinity of these check dams. The project made improvements in the local ecology of the region, as the presence of water became a permanent feature. The problem of flooding and soil erosion has also been reduced. As a result, the area of 32 acres is now cultivable, and 24 households have been benefitted. The project made changes in the livelihood of the local people.





SUCCESS STORY OF SEMAR GRAM PANCHAYAT: INSPIRING THE WHOLE DISTRICT

Introduction

Semar Gram Panchayat is located in Robertsganj Tehsil of Sonbhadra District. This village is a part of the mineral-rich belt. There was no other source of water in the area except one big pond. The water storage capacity was low due to rocky geology. There has been a decline in the groundwater level in the past few years. The village was facing groundwater scarcity for irrigation. The villagers depended on water tankers for fulfilling their domestic needs. The Gram Sabha decided to take up deepening of pond to address the problem of water scarcity.





“Voice
From The Field”

“Water levels in the wells and borewells have increased by 10 ft. Through this work, our agricultural land has been irrigated, and productivity has increased. No need of purchase of water from tankers”.

**—Shri. Bharat Bhushan, Shri. Bakreedan, Shri. Ramakant,
Shri. Basit Ali, Shri. Bansdeo (residents)**







Implementation

The work was implemented under the guidance of Gram Panchayat during the FY 2018–2019 with the active participation of the villagers. The total expenditure incurred was Rs. 3.1 lakhs. The pradhan of this village took the lead, and the block development office provided the necessary support. Women played a significant role in the planning and decision-making process. The conservation work followed best management practices to preserve the water body. The maintenance of this work was owned by the community. The silt removed from the pond was used to make bunds on which plantation has been done.

Impact

The groundwater level has improved, and 30% of the handpumps are functioning throughout the summer. There is an increase in the availability of water for irrigation for another 50–60 bighas of land resulting in 20% extra yield. It is now possible to cultivate crops two times in a year. As a result, 13 acres of land becomes cultivable, and 14 households have been benefitted. This conservation work has enabled irrigation in 50–60 bighas of land. The fisheries activity has also started in the pond, which is being hailed as another livelihood opportunity. There is an increase in water availability for livestock. The district administration replicated this work at 1,001 sites through community participation.

REJUVENATION OF ODI RIVER TRANSFORMED MANY LIVES

Introduction

Odi River originates from Madansagarat, which is located in Katal area of Madanpur village of Mandwara development block in Lalitpur District. There are four Gram Panchayats, namely Madanpur, Didaunia, Hansera and Paharikala, which are situated near river basin. The flow of water from the river has lost its force and natural form due to the presence of many check dams with the accumulation of silts. The geographical and vegetative balance of the river started to deteriorate due to which the rejuvenation of the Odi River had become extremely important. This work was taken up by the district administration.





“Rejuvenation work has increased the availability of water for irrigation. We have started Moong cultivation as water is available for irrigation. Our farms are protected from soil erosion during rainy season”.

—Shri. Deshpat Singh, Villager

Implementation

The work was planned and implemented in a phased manner. A total of 42 locations were selected at a distance of 14 km from Madanpur to Jamni Dam for water conservation work. Out of these locations, water conservation works were done at 33 places from the month of April to June in the year 2018–2019. The silt removed during the process was used for making bunds with plantations. The work was further extended in the remaining nine locations and five new locations. The work was completed in convergence with Gram Panchayat and other schemes for water recharging. An expenditure of Rs. 63.99 lakhs was incurred from Mahatma Gandhi NREGS and Rs. 23.30 lakhs from Gram Panchayat Funds (State Finance Commission). The district administration of Lalitpur played an important role, and this work also won the National Water Award in 2018 from the Government of India. The NGO Bundelkhand Sewa Sansthan played a key role in supporting the district administration in taking up this work.





Impact

Now, water is available for irrigation benefiting rabi crop. In the Gram Panchayat, approximately 40% of households have benefitted, and the nearby farmers are able to irrigate their fields three to four times for one crop, which resulted in increase in production by 20–50% in the rabi season. Many farmers started moong cultivation as they could irrigate one crop six times. Water and fodder are available for cattle throughout the year. The rejuvenation work has led to the availability of water in wells and handpumps throughout the year. As a result, 2,135 acres of land becomes cultivable, and a total of 924 households have been benefitted.

TRADITIONAL WATER BODIES: LIFELINE OF AKBARPUR

Introduction

Akbarpur Gram Panchayat of Kadaura block is located in Jalaun District. This area is mostly drought-prone, so the water crisis is a big problem in the village. The primary need of the work was to improve groundwater levels in the adjoining fields and to reduce water crisis during extreme summer to stop the migration of people. It was needed to increase the agriculture production and income of farmers. The Gram Sabha decided to take up renovation of pond to address the problem of water crisis.





Implementation

Pond restoration was undertaken on a land area of 10 acres. A smaller pond was also constructed exclusively for cattle feed. The renovation of pond was done in two stages. The land of the pond was encroached upon by villagers. Through the coordinated efforts of local Gram Pradhan, community and district administration, the land was brought under community control. Awareness was created among the villagers on how to save community property from encroachment. The pond was renovated in the financial year 2017–2018 with an expenditure of Rs. 6.89 lakhs. A fence was also erected around the pond (around 10 acres) for the protection of plants and to avoid further encroachment. A convergence was done with the minor irrigation and soil conservation department for technical inputs and monitoring.



Impact

The renovation of the pond improved the overall ecological system of this region and provided drinking water for cattle throughout the year. The recharge of groundwater and the availability of surface water were achieved. Due to soil moisture, the green land cover has increased. The large-scale plantation was made possible through this water restoration. With the increase in the groundwater level, the crop production also increased by 15–20%. As a result of the implementation of this work, 24.71 acres of land becomes cultivable, and 62 households have been benefitted.



“It is a great example of the evacuation of the community property from encroachment. The asset is useful for irrigation and cattle for drinking water”.

—Shri. Amit Dwedi, Gram Pradhan of Akbarpur



CONSERVATION OF WATER USING ABANDONED MINES

Introduction

Birdha block of Lalitpur District has around 15 Gram Panchayats which are situated in the catchment area of Jakhlaun pump canal in the Bundelkhand region of the Uttar Pradesh. The farmers are dependent on rains primarily for cultivation. There is no other source of water for irrigation and drinking purposes. This block area has rocky geology and many sandstone mines. Being a plateau area, there are many difficulties in conservation of water in Bundelkhand. The Gram Sabha decided to take up work to conserve water in the abandoned mines.



Implementation

There were many abandoned mines in that area; it was planned to convert these abandoned mines into big ponds by renovation and creation of catchment area. A survey was carried out at these mines where the water will be filled after monsoons. This water could be used as drinking water (mainly for livestock) and for irrigation. Removing mounds without machinery like JCB and tractors was a difficult task. Stone pitching and soil work became necessary, which had to be done through convergence. The construction of mine pond for water conservation was started in Saipuramuzaffta GP, Rampura village during the year 2017–2018. Twelve unutilised sandstone mines of six Gram Panchayats of Lalitpur district were converted into ponds. The total cost of this work was Rs. 4.55 lakhs. One more pond was constructed in Deogarh Gram Panchayat, Kuchadon village.

Impact

Thirty households owning farms have been benefited. Water from the pond is now used for irrigation, drinking and livestock consumption. Rabi production has increased by 30–40% with the availability of water. Villagers are also getting employment in mine pond works. As a result, 1,900 acres of land has become cultivable. Villagers have demanded the construction of more number of such ponds so that all 100 families get benefitted.



“Village has benefitted from this mine pond, and it gives us water for irrigation two to three times, whereas in the past, we had to face a lot of problems due to scarcity of water”.

—Shri. Laxmi Prasad and Shri. Ajay Pal, farmers





BIHAR

TALE OF RIVER KAO'S REBIRTH





Introduction

Mukund Dera, Bind Toli, Shital Toli and Athar are located in Buxar District of Bihar. Despite being located in the catchment area of Kao River, a seasonal tributary of Ganga, the villagers are unable to cultivate their lands due to scarcity of water. The groundwater level in the area had also declined. The Kao water, having the potential to irrigate 195 hectares of these villages, needed rejuvenation for sustaining irrigation. To tackle this problem of water crisis, the villagers proposed the idea of river rejuvenation. The village panchayats carried out the work of river rejuvenation.

Implementation

The work was completed at a cost of Rs. 11.69 lakhs during the FY 2018-2019. Major activities undertaken were desilting, cleaning of the river bed spreading over a stretch of 4 km, construction of small check dams and eviction of encroachments of river bed. The major challenges faced while executing this work were addressing the issue of encroachment, motivating and convincing the villagers about the benefits of river rejuvenation and identifying labour to do certain hard tasks. The village panchayats and RD officials, through several meetings, mobilized and motivated the community.



Impact

The river rejuvenation work significantly improved the agriculture production of these four villages as it brought an additional fallow land of 105 hectares under agriculture that benefitted approximately 300 households. The households are now able to cultivate multiple crops in a year including Menthe, a commercial crop, along with regular crops like paddy and wheat. Farmers are now able to save their crops from damage due to water scarcity. Increased agricultural production has enhanced the livelihoods of the people. The check dams have ensured the availability of water for a longer duration.



“After revival of the Kao River, we have not faced any shortage of water for drinking as well as for irrigation even during the summer season”.

—Shri. Munna Singh, farmer, Athar

“After completion of the work, we have enough water to cultivate vegetables and other crops even during summer”.

—Shri. Lalchand Rai, Mahatma Gandhi NREGS worker

SOAK PITS: ONE STOP SOLUTION FOR PAHARPUR

Introduction

Uttari Noneya and Enarwabhar villages, which were located in Paharpur block in Purbi Champaran District of Bihar, had no proper drainage system. As a result, wastewater was stagnating near the houses, creating unhygienic conditions and providing a breeding ground for mosquitoes. To address this issue, it was decided to provide soak pits to individual households in these villages. The primary objective of this intervention was not only to improve the hygiene in these villages but also to use the wastewater for recharging the groundwater. The Block Development Office initiated the project.



“We are happy that the wastewater is not getting stagnated. The construction of soak pit has helped in keeping the house and its vicinity totally neat and clean. Also, water is now available all through the year in hand bores”.

—Shri. Ganga Manjhi, beneficiary, Uttari Noneya village



महात्मा गांधी राष्ट्रीय ग्रामीण रोजगार गारंटी योजना



स्थान का विवरण
 जिला : पूर्वी चंपारण
 पंचसद गाम : पहाड़पुर
 पंचायत : उत्तरी नोनिया



वित्त सरकार

कार्य का नाम : जल सोखता का निर्माण

प्राक्कल्पन राशि : 5100.00

श्रम/सामग्री : 11 / 89

कार्य प्रारम्भ/पूर्ण की तिथि : 1/5/2016 - 1/7/2019

लाभार्थियों का नाम एवं कार्य का आई.डी

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| 1. गणेश प्रसाद - WC/20221155 | 5. गणेश प्रसाद - WC/20222211 |
| 2. पन्नालाल प्रसाद - WC/20221155 | 7. मुनीलाल प्रसाद - WC/20228207 |
| 3. वीरभारत पाण्डेय - WC/20221174 | 8. अमर प्रसाद - WC/20222149 |
| 4. दिनेश राय - WC/20221511 | 9. जगदीश दास - WC/20222282 |
| 5. रामभु साह - WC/20221169 | |

माप की इकाई :

कुल मानव दिवस की संख्या : प्रस्तावित : 003 सृजित : 003

दैनिक मजदूरी दर (रुपये में) : ₹177

कार्यान्वयन एजेंसी का नाम :

ग्राम पंचायत : उत्तरी नोनिया

लोकपाल / सामाजिक अधिकार इकाई का नाम एवं नंबर



Implementation

The major challenge was to mobilize the community for building awareness on soak pits. To carry out these works, the panchayat and Rural Development Department created awareness among the people by explaining the importance of soak pits for recharging the groundwater, which will help improve the hygiene in the area. In total, 919 and 372 soak pits were constructed in Uttari Noneya and Enarwabhar villages, respectively, during the FY 2017–2019. Each soak pit costs Rs. 8,138 (Rs. 1,239 for wages and Rs. 6,899 for materials).



Impact

These soak pits helped the households to keep the surroundings clean and hygienic. The mosquito menace has come down significantly and has resulted in the reduction of waterborne diseases. This has also helped in improving the groundwater level in the nearby areas. The scheme benefitted 1,291 households in these two villages. After seeing the impact of this work, households in nearby panchayats are requesting for implementation of similar scheme.

THANKS TO WELLS – ALL IS WELL

Introduction

The Meskaur block of Nawada District is located in the drought-prone area of Bihar. This is a semi-arid region having stony terrain close to the hilly forest. The villagers of this block practice rainfed cultivation and depend on open wells for drinking purposes. However, in the recent past, they were facing water scarcity for domestic consumption and agricultural purposes. In order to improve drinking water sources, the villagers in Akri, Sahbajpur, Bisiat, Meskaur, Tetariya, Abdul, Khatangi, Uperdih, Hardia, Lengura and Sawaiya panchayats of Meskaur block proposed to construct wells and soak pits.









Implementation

The major challenge faced by the villagers was identifying locations for constructing open wells as the terrain is hilly and stony. It was also challenging to convince people about the benefits of soak pits. The village heads with the cooperation and support of Mahatma Gandhi NREGS officials took efforts to mobilize the community and also to build awareness among them. The work was carried out at a unit cost of Rs. 2.21 lakhs/well and Rs. 8,138/soak pit during the year 2018–2019. A total of 100 wells, along with soak pits, were constructed. The majority of the wells were constructed under the category of individual assets. The implementers also educated the beneficiary farmers about the benefits of sharing water for irrigation with the fellow farmers for maximizing the total agriculture production.

Impact

The constructed wells approximately irrigate 200 hectares of agricultural land. The farmers are using the water to cultivate crops like paddy, wheat and moong. Higher productivity levels have increased the income of farmers. The extra income is spent on buying necessary household items and also for their children's education. It also provides drinking water to 11 GPs. The village is neat and clean after the construction of numerous soak pits. The village is also free from waterborne diseases.



JHARKHAND

INTEGRATED NRM ACTIVITIES: THE GAME-CHANGER

Introduction

Ara and Keram villages, which were located in the Ormanjhi block of Jharkhand, were facing acute water scarcity, especially in summer. The villages are characterized by limited fertile land, rainfed agriculture, low yields and crop losses due to erratic rainfall over a long period. It resulted in outward migration of the workforce in search of livelihood. To address the issue of water scarcity, a proposal to build farm ponds, wells, trench-cum-bund, staggered trenches, loose boulder structures and plantation was proposed by the state functionaries and line departments.

Implementation

Initially, the villagers showed little interest in these projects, as they were unaware of integrated natural resource management practices. Interventions of the State Government and other functionaries played a crucial role in overcoming these constraints. The series of works were taken up during the FY 2016–2019 at a total cost of Rs. 77.58 lakhs. Water conservation practices in the villages started in 2016 in convergence mode with the construction of 54 farm ponds, 12 wells, trench-cum-bund system in 24 acres on the upland, five loose boulder structures and plantation in the area of 2 acres. Soil Conservation Department provided the pumps. In addition, the drip irrigation system was provided to the farmers under the Pradhan Mantri Krishi Sinchayee Yojana. Furthermore, the Forest Department facilitated exposure visit of the farmers to Maharashtra, whereas the Agricultural Department extended necessary support services.



Impact

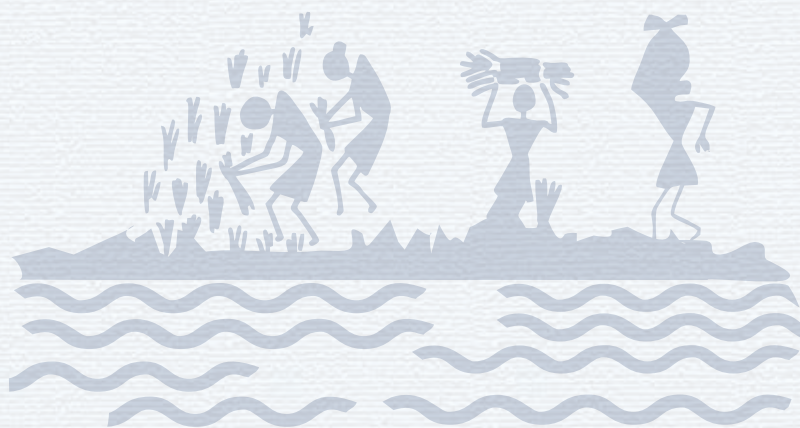
After the creation of the assets, agriculture has become the primary source of livelihood for the villagers. There are signs of improvement in water level in ponds and wells. Furthermore, convergence initiatives have also helped the farmers. The projects have also benefitted in respect of wasteland management and percolation in tanks. The stored water is used for assured irrigation for paddy, fishery, vegetation, horticulture, animal husbandry and plantation along with intercropping of tomato and chilli and various domestic purposes. Many of the farmers now cultivate three crops in a year. As a result, 226 households have been benefitted.



SMALL STEPS LEADS TO SIGNIFICANT BENEFITS

Introduction

Baridih village is situated in the Ormanjhi block of Ranchi District, Jharkhand. The villagers were dependent on limited rainfed farming for their livelihood. Collection of nontimber forest products from nearby forest and migration to nearby towns for work were also adopted by them for sustenance. To address the issue of water scarcity, the district functionaries and panchayat planned for an integrated water conservation approach.





"I received both a pump and a drip irrigation system after construction of farm ponds which have helped me in reducing wastage of water and growing more crops. I received financial support from Jharkhand State Livelihood Promotion Society (JSLPS)—an initiative of the Department of Rural Development, Government of Jharkhand and Pradhan Mantri Krishi Sinchayee Yojana to complete the entire work".

—Shri. Narayan Mahato, farmer





Implementation

The real challenge was to motivate and build awareness on water conservation among villagers. They were having the general perception that water scarcity cannot be improved through human intervention. The villagers lacked expertise needed to improve agricultural practices. However, with continuous efforts by the Cluster Facilitation Team (CFT) members, the villagers showed interest in water conservation activities. The trench-cum-bund and staggered trenches were constructed in 4 acres at the foothill of the village to reduce the pace of surface water run-off. In addition, construction of 14 small farm ponds and two wells was also taken up to ensure the availability of water for irrigation, especially during the rabi season. The works were taken up during the period 2016–2018 at a cost of Rs. 12.47 lakhs.







Impact

After the completion of the works, there are green patches around the trench-cum-bunds (TCBs) vis-à-vis the other parts of the area. Plants and trees have regenerated due to greater moisture in soil in the treated area. Furthermore, the staggered trenches have checked soil erosion in the upper ridges in saturation mode, and rainwater has started percolating downwards. This leads to the availability of water for longer period. The assets have also contributed to higher cropping intensity and diversification. As a result, 56 households were benefitted.

PROMOTING LIVELIHOODS BY HORTICULTURE UNDER MAHATMA GANDHI NREGS

Introduction

Hutukdag Gram Panchayat is located in the Chatarpur block of Palamu District, Jharkhand. Because of high slope and very thin topsoil with rocky substrate in the uplands, Hutukdag has low water-retention capacity, which results in very low soil moisture. This adversely affects the productivity of soil. Given the topography of Hutukdag, the Cluster Facilitation Team (CFT) members and villagers decided to construct water conservation structures, i.e. digging of wells and construction of trench-cum-bund, in mango plantation areas.



Implementation

The major challenge was to convince the villagers about the benefits of plantation and the need for water conservation. Due to long gestation period of mango plantation, it was also necessary to give the farming households an alternative steady source of income during this period. All these challenges were overcome through counselling of the villagers by the government functionaries and CFT members. The project was completed during the FY 2016–2019 at a cost of Rs. 45.98 lakhs. The works included plantation of 1,600 mango saplings in 16 acres of land and construction of five wells and trench-cum-bund (TCB) in 10 acres.



Impact

After the creation of the assets, which lead to improvement in water availability, 20 acres of barren land has now become cultivable. This has provided livelihood to 39 households. The farmers feel that there are signs of improvement in soil moisture. The decline in soil erosion and increase in biodiversity and water availability are other advantages. All these have facilitated farming and animal husbandry leading to greater livelihood opportunities, more income and hence better socio-economic conditions of the beneficiaries. The farmers cultivate a variety of vegetables such as chilli, brinjal, tomato, radish, etc., through intercropping. In a couple of years, they will harvest the mango crop too.



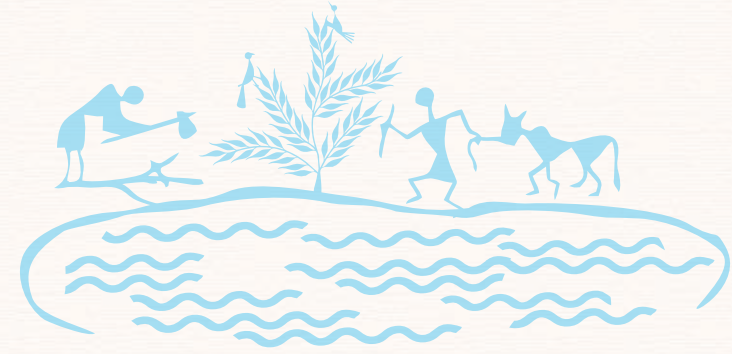


WEST BENGAL

HARVESTING FOR GREENER FUTURE

Introduction

Birbandh, Kharujhor and Kawatanga villages of Barikul GP in Ranibandh block are located in the Bankura District of West Bengal. It is characterized by undulating terrain with hilly outcrops and uneven distribution of rainfall. High surface run-off and soil erosion are two important issues that are adversely affecting the livelihood of the people. Water stress resulted in limited income-generating opportunities that further worsened the situation for farmers. In order to address the issue, the concept of creating farm ponds along with plantation and horticulture was introduced in Barikul GP.



“After the creation of Happas, water is available in plots and agriculture is possible. We see a change here. Apart from rice, we are in a position to grow even vegetables now”.

—Smt. Sephalimandi, beneficiary

“We could not generate any income from the area earlier. After plantation, now we understand that we will be able to earn some money after 5 years by selling these trees. Earlier, rice crops used to wither away for want of water. The crops are not adversely affected anymore due to availability of water in Happa. Besides rice, we will also be able to grow vegetables and mustard”.

—Smt. A. Tudu, beneficiary



Implementation

In 2018–2019, a series of *Happas* (farm ponds) were dug out to support critical stages of crop growth along with the plantation of orchards. The expenditure incurred was Rs. 29.9 lakhs. Mobilizing the resources was a problem at the beginning of the work. The convergence of funds for plantation (seedlings) was done by the Central Silk Board under *Mahila Kisan Sashaktikaran Pariyojana*, whereas the labour expenditure was met through Mahatma Gandhi NREGS. In convergence with the Central Silk Board, the plantation of orchards and construction of *Happa* were implemented by an NGO which works actively in the rural areas. The block office played a key role in successfully implementing the project.





Impact

A total of 26.25 acres of fallow land has been covered under social forestry. In addition, 12 water harvesting structures have been created. In total, 60 farming households have benefitted from the intervention. Agriculture became vibrant due to the availability of water. The income of villagers has increased through agriculture and horticulture activities. With the initiatives under the scheme for water conservation, perceptions of the villagers started to change in the area. The scheme is also benefitting the nearby farmers, as the owner of the land (in case of private land) is not keeping any restriction in meeting the critical water needs of the neighbouring farmers.

IMPROVED AGRICULTURE WITH SPRING-SHADE DEVELOPMENT

Introduction

The Mahabari Deopani area in Dooars region of West Bengal has perennial springs which are the only source of water for drinking and domestic consumption. In the last 3 years, these springs had started drying up and turned seasonal. Consequently, the homemakers had to trek upstream for about 500–700 m through sloped terrain to fetch water. Recharging of groundwater by checking run-off was found to be the only solution to rejuvenate the spring. Hence, a project to develop the upstream area for containment and slow release of run-off was undertaken by Gram Panchayat in Matiali Batabari of Matiali Development Block in Jalpaiguri District.



“The structure benefitted us. The water is available in large quantity which was earlier collected from a distant location. Now, all families are getting water”.

—Shri. Umesh Kurmi of Deopani Basti





Implementation

Given the high gradient, raising bunds was found to be ineffective without sufficient protective measures. Moreover, motivating the locals was another challenge in the beginning. The primary objective was to recharge the spring through groundwater conservation to make it perennial for domestic and agricultural use in the hilly area. The raising of a small bund, gully plugging and digging of a small pit across the slope with vetiver plantation also reduced the soil erosion.

By arresting the run-off water across the slope, the flow of spring water increased. The surplus water was diverted to a reservoir from which water tanks were filled for subsequent distribution of the water for domestic and other use by using solar pumping system. The solar pumping-based drinking water distribution system was implemented under the 14th Finance Commission. The springshed development of Deopani Jhora of Deopani Mahabari was started in May 2017 and completed in June 2018 at a cost of Rs. 15.16 lakhs. In addition, it converged with Deopani spring through 14th Finance Commission at a cost of Rs. 12.55 lakhs.





Impact

Apart from helping in groundwater recharge, the project reduced soil erosion in the high slope areas. Also, 7,500 litres of water is being collected in the nearby collection structure. The water is distributed to the 205 households that use it for drinking and other domestic needs. The flow of spring water was increased (from about 7 litres per minute to an average of 19 litres per minute), and it became perennial. The water available downstream also increased the agricultural production. Apart from this, the vetiver plantation is expected to generate additional income.

USHARMUKTI MODEL : FREEDOM FROM WATER SCARCITY

Introduction

Bandhdih of Burda-Kalimati Gram Panchayat of Baghmundi block in Purulia District of West Bengal is located close to the Ajodhya Hills. It is a tribal-dominated village. Lac cultivation was a popular occupation. However, high mortality of the insects made it non-profitable, forcing the villagers to depend on traditional agriculture. Water scarcity came as a blow to those shifted to agriculture from lac farming, and hence, water conservation through checking run-off became the need of the hour. So, the farm pond with horticulture plantation was proposed in the village.







"With the development of the orchard, I am anticipating better returns. It will restrict soil erosion. Digging pits in the plantation area will further improve water availability".

**—Shri. Gopal Singmura, husband of
Smt. Pramila Singmura, owner of the orchard**





Implementation

The primary objective of the creation of farm pond (*Happa*) was to check the run-off water during the rainy season. A farm pond with a spillway outlet has also been dug close to the agricultural plot for the removal of excess water during rainy season. This also helped in recharging groundwater. The effort to set up mango and guava orchard was started in the year 2018–2019 with an aim for a better sustainable agri-horti production system. The plantation work was executed through convergence with horticulture and food processing industry (FPI) departments of West Bengal. The Horticulture Department arranged the material component, whereas the labour component was provided under Mahatma Gandhi NREGS. An NGO was involved in the implementation process under Usharmukti initiative (West Bengal Government and NGO collaboration). An expenditure of Rs. 0.37 lakh was incurred in excavation of the farm pond.







Impact

The intervention has converted unproductive agricultural plots of farmers into cultivatable land. The project is also benefitting the nearby farmers by helping them to meet their water requirements. The area that had remained barren started changing gradually to farmland. Moreover, with minimal efforts such as restricting the run-off of water through structures across the slopes, the low-lying areas have been converted as small reservoirs of water for agricultural purpose and groundwater recharge. As a result of the implementation of this work, 1.06 hectares of land is cultivable, and four households have been benefitted. A total of 2.3 hectares of mixed fruit orchards has been developed benefitting five households.



ODISHA



BRACING FOR TOUGH TIMES THROUGH SMART WORK



Introduction

Banjhimunda village is located in Kantamal block of Boudh District in Odisha. The village experiences frequent droughts and acute drinking water shortage due to its location and untimely rainfall for at least 4–6 months in a year. Frequent droughts forced people to either migrate to other places for employment or depend on forest for livelihoods.

The average annual rainfall in the district is 1,510 mm but most of the rainwater received during monsoon drains away damaging agricultural fields and the main road, and it remains dry during the rest of the year. This necessitates building structures that can effectively prevent the flow of rainwater downstream, which causes a lot of inconveniences. Hence, the line department (Integrated Watershed Management Programme) drew up a detailed plan to construct three big check dams (one check dam under Mahatma Gandhi NREGS and two check dams under IWMP) and a series of tanks/ponds inside the catchment areas of the check dams for protecting and promoting livelihoods of the people.







Implementation

The water harvesting project was approved under Mahatma Gandhi NREGA in the financial year 2017–2018. An expenditure of Rs. 7.84 lakhs (Rs. 5.83 lakhs for wages and Rs. 2.01 lakhs for material) was incurred on construction of one check dam under Mahatma Gandhi NREGS. IWMP constructed two more check dams beside the one constructed under Mahatma Gandhi NREGS under the convergence scheme. The technical team worked hand in hand with the villagers for the construction of three check dams with additional tanks and ponds.

Impact

The rainwater that previously drained off is now being stored for irrigation and domestic use throughout the year (Table 1). During the summer season, Banjhimunda village has abundant water for domestic use. Soil erosion was checked, and the moisture content of the soil has also gone up.

Crop production has been increased threefold from the same measure of land. The villagers have successfully moved from cultivating a single (paddy) crop to multiple crops such as pulses and vegetables. Additionally, Fisheries and Animal Resources Development Departments, Government of Odisha in convergence with Mahatma Gandhi NREGS helped the farmers to increase their revenue from pisciculture.

Table 1: Socio-economic impact of Water Harvesting Structure under Mahatma Gandhi NREGA in Banjhimunda Village, Baragochha GP:

Variables	Parameters/Indicators	Before the Project	After the Project
Cultivated land	Area of cultivation (acres)	10	60
No. of beneficiaries	In terms of irrigation (farmers)	3	17
Inundated land	Amt. of land (in acres) damaged by the flood every year	30	Nil
Crops	Paddy/acre (kg/acre)	150	1,000
	Pulses/acre (kg/acre)	Nil	250
	Vegetables	Nil	17,000 (in year)
	Onion (kg)	Nil	57
Number of livestock	No. of cattle	17	45
	No. of goat	80	400
	No. of sheep	57	150
	No. of outmigration	12	00
	No. of SHGs (for women)	Nil	12
	No. of women involved in SHGs	Nil	120
	No. of SHGs (for men)	Nil	07
	No. of men involved in SHGs	Nil	42





“After the construction of these check dams, we are really happy. During summer, we get water and in monsoon, we are not affected by floods anymore. Earlier, I used to get 5 quintals of paddy/year from my 2 acres of land. Now from the same measure of land, I am harvesting 15 quintals of paddy/year”.

—Shri. Anadi Singha, villager

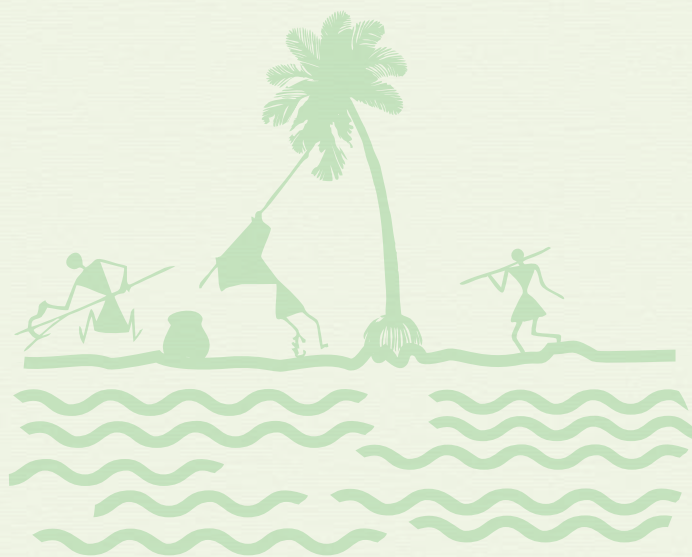
“After constructing these check dams, we are really happy because we get water throughout the year. The water level in our wells has come up by at least 3 ft. Earlier, I used to produce 5 quintals/acre, but now am able to reap 15 quintals/acre”.

—Shri. Biswakesami Singh, farmer

MANAGING RAINWATER – INCREASING INCOME

Introduction

Regeda village of Dhenkanal District is located in the central part of Odisha. This village is drought-prone. The villagers cultivate only one crop per year due to the lack of adequate water. So they engage in daily wage work and collection of forest products to make their living. The district administration decided to take up the work of rainwater management to improve the standard of life of the villagers.





“Earlier due to droughts and less availability of water, we used to suffer a lot. After the implementation of the project, paddy cultivation has increased”.

—Shri. Basanta Nayak, farmer





“When there is sudden rain, the rainwater would usually flow into our fields, destroying our crops. The system that we have built lets the water reach our fields slowly, not causing any trouble”.

—Shri. Balabhadra Boral, ex-sarpanch

Implementation:

Although the village receives abundant rainfall, the groundwater recharge was not possible because of the village’s location on a steep slope. Rainwater would quickly rush downstream. The biggest challenge for the farmers of Regeda was to control and store the rainwater and use it for irrigation. The steep slope and absence of water retention mechanisms made their job difficult. The district administration of Dhenkanal discussed the issue with the technical team and approved the project for rainwater management (construction of earthen bunds and soak pits) in the financial year 2018–2019 under Mahatma Gandhi NREGS at a cost of Rs. 8.94 lakhs (Rs. 8.73 lakhs for wages and Rs. 0.21 lakh for material).

Impact

The groundwater table in the village has improved, and the soil moisture content is restored (Table 1). The increase in agricultural productivity has also led to more employment opportunities, especially for landless farmers. There is also a considerable rise in the plantation of other plants like pumpkins, etc.

Table 1: Socio-economic impact of rainwater management project under Mahatma Gandhi NREGA in Regeda Village, Nadiali GP

Variables	Parameters/Indicators	Before Project	After Project
Cultivated land	Area of cultivation (Acres)	24	44
No. of beneficiaries	In terms of irrigation (Farmers)	Nil	40
Agricultural production	Paddy (Kg/Acre)	34	408
	Pumpkin (Rupees/Month)	2,200	5,555





RENOVATION OF 'BICHA BANDHA' IMPROVES CULTIVATION

Introduction

Darubhadra village is located in Hinjilicut block of Ganjam District in Odisha. Geographically, the district is broadly divided into two parts: the coastal plain area in the east and hilly region in the west. The residents of Darubhadra have traditionally depended on agriculture for their livelihood. The households in these two villages (Darubhadra and Khajipalli) depend solely on the Bicha Bandha tank for irrigation and other domestic uses. The tank was heavily silted due to the lack of regular maintenance and its water holding capacity came down considerably. The farmers in these villages could barely use the tank water for 6 months. For the remaining 6 months, the villagers would struggle to fetch water for their household needs, so they were not able to do farming. There was an immediate need for renovating the water tank so as to store and supply adequate water for the entire year. The Gram Sabha decided to take up the work of renovation of the water tank.



Implementation

The villagers were well aware of the local hydrological dynamics and were actively participated in planning and execution of this work. The farmers have kept three inlets on the west side of the tank as the slope of the land is from west to east which allows the rainwater to flow into the tank. Three outlets have been put in place on the eastern side of the tank, which let the stored water to flow into the agricultural land. The renovation work started in April 2016 and was completed by June 2017. The total expenditure incurred during the renovation was Rs. 8.92 lakhs (Rs. 6.61 lakhs for wages and Rs. 2.07 lakhs for materials).



“Before the renovation of the Bicha Bandha, many conflicts would arise among farmers in our village while sharing the water from the tank. This was because everybody used to make their own outlet for their land and as a result, the tank run out of the water very soon. But, after renovation, the water holding capacity of the tank has significantly increased, and the number of outlets has been restricted to three, which is sufficient for every farmer in our village to get sufficient water. Now everybody has access to irrigation water either through well or motor pump. Now, there are no such conflicts and we live happily and peacefully”.

—Shri. Ramachandra Panigrahi, farmer



Impact

The renovation of 'Bicha Bandha' tank has brought a sigh of relief to the villagers (Table 1). The farmers are able to cultivate in both kharif and rabi seasons. The cultivated area has increased to 70 acres from 40 acres. The abundant availability of water has allowed the farmers to cultivate various vegetables. Banana and coconut trees have been planted on the bund of the tank either by the community or individual farmers.

Table 1: Socio-economic impact of tank renovation under Mahatma Gandhi NREGA in Darubhadra Gram Panchayat

Variables	Parameters/Indicators	Before Renovation	After Renovation
Cultivated land	Area of cultivation (acres)	55	70
Number of beneficiaries	In terms of irrigation (farmers)	50	150
	In terms of bathing (villagers)	50	210
	Washerman ("Dhobi")	Nil	1
Crops	Paddy/acre (kg)	1,500	2,500
	Pulses/acre (kg)	3-5	30-40
	Vegetables (in rupees)	Nil	1,60,000
	Groundnut (in rupees)	Nil	15,000
Number of livestock	No. of cattle	200	350
	No. of goat/sheep	Nil	15
	No. of sheep	20	150
Pisciculture	Avg. annual income from the fishery (in Lease)	Nil	Rs. 7,800
Physical characteristics of the tank	Water depth	Summer—5 ft Monsoon—10 ft	Summer—5 ft Monsoon—10 ft
	Tank size (acres)	1.5	3
	Outlets/inlets	No. of inlets—0 No. of outlets—0	No. of inlets—3 No. of outlets—3



MAXIMUM BENEFITS THROUGH MINIMUM INVESTMENT

Introduction

Terchhapala is a small tribal-dominated village in Joradobra Gram Panchayat of Kalahandi District in Odisha. A total of 185 households reside in this village. Agriculture is the main occupation, and it is mainly rainfed. Although Kalahandi District receives an average annual rainfall of more than 1,300 mm, lack of water for irrigation has been impacting the farming scenario in this region. The farmers are able to grow only one crop in a year during kharif season. In order to provide assured irrigation, a check dam was proposed to be constructed by villagers themselves in the year 2015–2016.



Implementation

After several interactions and meetings, the proposal was approved by Gram Sabha. Accordingly, the plan and estimate were prepared and got approved by DPC. While constructing the check dam, indigenous techniques were used. As the canal is passing very close to all the agricultural land, very less infrastructure was required to collect rainwater. It was realized that one check dam was sufficient to hold water throughout the year, and the farmers can use that water for all sorts of cultivation for entire year. The district administration displayed a sheer passion for the water conservation measures in Kalahandi District, ensuring quality work with an expenditure of Rs. 5.86 lakhs for construction of check dams. The project was completed in the financial year 2017–2018.



"The entire scenario has changed after the check dam and 'nala' (canal) were made. Now we can cultivate during summer, even when other regions face acute water shortages".

—Shri. Niabati Sahoo, farmer

"Earlier, I used to produce 5–10 quintals of paddy during the rainy season. Now, I am able to cultivate 25–30 quintals of paddy every season. It was possible only because of this project. I am confident that the scenario of this entire region will change significantly".

—Shri. Thayakar Maji, farmer



Impact

The check dam is farmer-friendly in which a farmer can open the field channel whenever he or she wants water for irrigation and close it when he or she does not need. The yield has gone up to 20 quintals/acre. The groundwater table has risen up to 3 ft in the dug well. The moisture content of the soil has also increased significantly. The residents started rearing more cattle, which are used for ploughing and earning additional income. The migration of workers has come down significantly.

Table 1: Socio-economic impact of the implementation of check dam under Mahatma Gandhi NREGA in Terchhapala village, Joradobra GP

Variables	Parameters/Indicators	Before Construction of Check Dam	After Construction of Check Dam
Cultivated land	Area of cultivation (acres)	5-10	30
No. of beneficiaries	In terms of irrigation (farmers)	4-5	13
Crops	Paddy (kharif) (kg/acre)	416	1,250
	Paddy (rabi) (kg/acre)	Nil	800
	Pulses (kg/acre)	Nil	200
Number of Livestock	No. of cows and buffaloes	12	20
	No. of goat/sheep	22	45
	No. of outmigration	10 persons	Nil



PRESERVE AND CHANNELIZE: MANTRA FOR LIVELIHOOD

Introduction

Asanbani is a tribal village in Pipilia Gram Panchayat of Ghatagaon block, Keonjhar District, Odisha. During the rainy season, the water from hills would come down as a stream, carrying silt and stones. Then the stream would deposit the silt and stones on the agricultural field, making it unproductive and barren. This run-off water would rapidly pass through the village and join the stream. As the water was not stored, Asanbani remained without water for domestic use and irrigation for the whole year. To mitigate this situation, the residents of the village and an NGO came up with a solution.



“Earlier there was lot of problem for drinking water. By Makar Sankranti (January), the wells used to dry up. All the villagers used to depend on only one well. We used to stand in queue from early morning to collect drinking water and sometimes we used to return without water. Now wells in every household are having water up to 5/6 ft during summer season. This is possible because of water conservation works”.

—Shri. Basanti Nayak, beneficiary



Implementation

The project was implemented by Pipilia Gram Panchayat. The plan was to construct a series of loose boulder structures (LBS) stretching from the hilltop to the plains. The added advantage was that the topography was conducive to this structure. The project would streamline the flow of water. As per the report, about 3 km of primary guide bunds and field bunds in 100 acres were completed during the period of 2009–2015 with the technical guidance from an NGO. A road was constructed just below the hill. The alignment of the road was modified in such a way that it acted as a guide bund to the run-off. The run-off stream flowing from the hill now runs along the road for a long distance. To obtain the required outcome, bunds and soak pits were constructed to channelize the flow of water. Subsequently, the rainwater percolated into soil instead of running into the stream.



“The paddy production has increased significantly from 10 quintals to 37 quintals in my 7 acres of land. I am growing various vegetables in the winter which was not possible before”.

—Shri. Banabihari Mahanta, beneficiary



Impact

Farmers have reported a 100% increase in agricultural production. The intervention has made the *Goddha* or fallow land fit for cultivation. The livestock population in the village has also increased. The outmigration of the villagers has been stopped after the completion of the work (Table 1).

Table 1: Socio-economic impact of tank rainwater management project under Mahatma Gandhi NREGA in Asanbani village, Pipilia GP

Variables	Parameters/Indicators	Before the Project	After the Project
Cultivated land	Area of cultivation (acres)	100	400
No. of beneficiaries	In terms of irrigation (farmers)	20–30	100
Crops	Paddy (kg/acre)	32	750
	Vegetables (rupees per acre)	20,000	40,000
Number of Livestock	No. of cattle	189 (2014)	312
	No. of goat	180	355
	No. of sheep	12	53
	No. of outmigration	100	Nil
	No. of SHGs	3	10
	No. of women involved in SHGs	30	100



TRANSFORMATION FROM SHIFTING CULTIVATION TO SETTLED AGRICULTURE

Introduction

Pedda Dabba village falls under Kasandi Panchayat of Nandapur block in Koraput District, Odisha. The village is inhabited by tribals who are dependent on agriculture and forest for their livelihood. The village had no rainwater storing practice and rain harvesting structures despite having a perennial stream running nearby. The households were mainly involved in *Podu* cultivation (shifting cultivation) by burning strips of forestland during rainy season, and rest of the time, they were engaged in the collection of forest products and manual labour. The shifting cultivation practices in the nearby hills have resulted in massive soil erosion and led to damage of agricultural fields located downstream. A large tract of land remained uncultivated due to lack of water. The idea of using stream water for irrigation through field channels was proposed by the villagers.

Implementation

The perennial stream flows near the village but the farmers were hesitant to use the stream for agriculture as its course was unpredictable, and the flow was unruly especially during the monsoon season. The villagers used their traditional knowledge to build drainage/channels manually according to the slope of the agricultural field before the onset of monsoon. The first proposal was to build a series of three check dams on the upstream followed by field channels on both sides of the check dams. The field channels release water to farmlands, which can easily be managed by farmers. The work was completed in 2018–2019, incurring a total cost of Rs. 5 lakhs.



"After this work, my life has changed. Earlier it was chiefly paddy, now we are growing various vegetables throughout the year and can sell them in the market. Now I earn nearly Rs 40,000 per year. I have brought a mini truck on an instalment basis to ferry farm produce to local market every day".

—Shri. Chanu Vhoe, farmer and truck driver of the village

"The condition of the women in the village has changed significantly as they are earning by cultivating vegetables through SHGs".

—Smt. Mamata Devi, head of one of the SHGs

Impact

There is a shift from practicing shifting cultivation to settled agriculture. All the tribal farmers sell their crops and vegetables in Nandapur market. A large variety of vegetables and crops are being sold in the market. Agriculture has become a stable source of income (Table 1).

Table 1: Socio-economic impact of the construction of field channel under Mahatma Gandhi NREGA in Dabba village, Kasandi GP

Variables	Parameters/Indicators	Before Construction of Field channel	After Construction of Field Channel
Cultivated land	Area of cultivation (acres)	10	40
Crops	Paddy (kg/acre)	35	255
	Vegetables (rupees per acre)	Nil	30,000
	Horticulture—banana production (rupees per month)	Nil	9,000
Number of Livestock	No. of cattle	200	400
	No. of goat	50	200
	No. of sheep	60	100
Inundated land	Amt. of land (in acres) damaged by the flood every year	15–20	Nil
Crop Loss	Amt. of crops (in lakhs of rupees per year) damaged by the flood every year	1.5	Nil
	No. of outmigration	50–60 persons	Nil
	No. of SHGs	Nil	04
	No. of women involved in SHGs	Nil	50
Transportation	No. of mini trucks in the village	Nil	03
	No. of bikes in the village	Nil	22



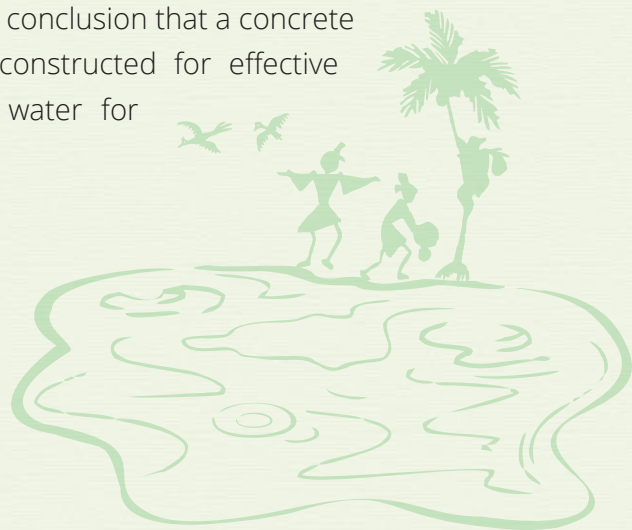
CHECK DAM: THE GUARD-WALLS TO GAIN 60% MORE!

Introduction

Dudhiasole village is located in Kendua Gram Panchayat of Samakhunta block, Mayurbhanj District. The main occupation in the village is agriculture. More than 200 households in the village are dependent on stream water for irrigation and domestic chores.

An earthen dam was built across the stream by farmers using mud, stones and sandbags to divert water to farms and to prevent its overflow. However, this dam was not durable and was damaged frequently.

The villagers came to the conclusion that a concrete check dam should be constructed for effective control of the flow of water for irrigation.



Implementation

The construction of the check dam was approved and built under Mahatma Gandhi NREGS in the financial year 2018–2019. The total expenditure incurred was Rs. 9.58 lakhs (Rs. 2.95 lakhs for wages and Rs. 6.63 lakhs for materials).

The project is designed under the Infrastructure for Climate Resilient Growth (ICRG) programme, a technical assistance programme jointly being implemented by the Ministry of Rural Development and the UK's Department for International Development (DFID). The implementation of the project was made possible with the convergence of other line departments including Integrated Tribal Development Agency (ITDA), Odisha Agro Industries Corporation Limited (OAIC) and Odisha Livelihood Mission. They provided impetus to the work. The convergence with Odisha Agro Industries Corporation Limited (OAIC) was mainly for lift irrigation project. Meanwhile, Dudhiasole residents planned for a guard wall to prevent the influx of water into agricultural fields during heavy downpour.



Impact

The cultivated area has increased by 60% (Table 1). After the construction of guard walls, the flooding has reduced. The other benefits of the check dam include storing water for the summer season.

Table 1: Socio-economic impact of construction of check dam under Mahatma Gandhi NREGA in Dudhiasole village, Kendua Gram Panchayat

Variables	Parameters/Indicators	Before Construction of Check Dam	After Construction of Check Dam
Cultivated land	Area of cultivation (acres)	2-3	50
No. of beneficiaries	In terms of irrigation (farmers)	3-4	40
Inundated land	Amt. of land (in acres) damaged by the flood every year	2-3	Nil
Crop loss	Amt. of crops (in rupees) damaged by the flood every year	20,000-30,000	Nil
Crops	Paddy/acre	66 kg/acre	400 kg/acre
	Vegetables (in rupees)	Nil	20,000/acre
	Groundnut		
Number of Livestock	No. of cattle	30	50
	No. of goat	200	400
	No. of sheep	100	120
Beneficiaries	Beneficiaries of lift irrigation by OAIC	Nil	6
	Beneficiaries of receiving sapling and seeds by KVK	Nil	15



“Earlier I used to cultivate only paddy in the rainy season. Now I am able to grow two crops in a year. In last summer, I cultivated groundnut during rabi season by investing Rs. 5,000 and earned Rs. 40,000. After check dam was constructed, cultivation in the nearby land became possible. I am growing groundnuts in my 2 acres of land during summer seasons. Before the check dam was constructed, it was not possible”.

—Shri. Padmalochan Mahanta, farmer



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CHHATTISGARH

A TIMELESS ECONOMIC VENTURE FOR THE WOMEN OF SIRSIDA

Introduction

Sirsida Gram Panchayat is located in Dhamtari District, Chhattisgarh. The farmers in the village faced an acute water shortage due to lack of rainfall. During the rainy season, the available rainwater was lost as run-off from the catchment areas. The villagers had access to water only for a few months in a year. The panchayat decided to intervene by constructing a check dam and planting trees in 5.5 acres of land to conserve rainwater and mainly to provide irrigation to the beneficiaries of women's self-help groups to maintain an orchard.

“Voice
From The Field”

“The plantation in the unused land area helped us in attaining financial stability and as a result, we don’t wander around in search of work. Plants like mango, jackfruit, guava, vegetables, etc., have been planted and are generating income. Every day I am involved in maintaining this area, and we received a lot of benefits”.

—Smt. Puspa Patel, resident

Implementation

The uncultivable common land was marked in the Gram Sabha, and DPR was prepared. A check dam to control and regulate the flow of water and a garden (*antyyodaya vatika*) to utilize the unused common land were built at a cost of Rs. 34.97 lakhs under Mahatma Gandhi NREGS during the FY 2018–2019. Water that flows through the channel is brought down to the garden and used for growing trees, plants and vegetables. Further, the estimation of land development and mixed plantations of fruit plants was prepared at the district level. The work was monitored by the SHGs and other NGOs. The work was executed in convergence with the Prime Minister's Krishi Sinchayee Yojana (PMKSY), Department of Horticulture and NRLM.



“There was a water crisis earlier and after constructing the check dam under Mahatma Gandhi NREGS, a lot of benefits have been availed. Around 50 acres of land is cultivated twice a year using the water from the check dam”.

—Shri. Raja Ramdhu, farmer



Impact

After the construction of the check dam, the water was conserved and utilized for irrigation. The area has seen a considerable rise in the level of groundwater. The water level in the nearby borewells has also increased. The women of the village are involved in plantation work and able to earn money. A small part of the income generated by the SHG from the sale of fruits is shared with the Gram Panchayat for maintaining the irrigation system. The seasonal vegetables and fruits that are grown in the garden are sold to the villagers at low rates. As a result of the implementation of this work, 70 households have been benefitted. There are approximately 45 borewells near the catchment area. The water level in these borewells increased from 50–60 ft to 35–40 ft after the construction of the check dam.



FOSTERING SUSTAINABLE LIVELIHOOD THROUGH MAHATMA GANDHI NREGS

Introduction

Kekrakholi Gram Panchayat is located in the Magarlod development block of Dhamtari District. Under the project *Hamar Jungle Hamar Aajeevika* ("Our Forest Our Livelihoods") that was launched by the Government of Chhattisgarh, the panchayat utilized the provision under Mahatma Gandhi NREGS to undertake various types of permissible works for FRA beneficiaries. It is in convergence with other schemes on livelihood promotion and water conservation for the beneficiaries of Forest Rights Act (FRA). The program aimed to increase the cropping intensity to twice or thrice a year by providing land development and irrigation facilities. As part of this project, the activities such as providing solar pumps, constructing pond, channel fencing, land development, private pond construction and plantation were carried out on the land of FRA beneficiaries.





"I am getting sufficient water and am able to cultivate. My produce from my 7 acres of land has increased from 35 Bhora (sack) to 80 Bhora. My family is now engaged in the cultivation of our land, and the economic condition of my family has improved".

—Shri. Dular Singh Netam, villager



Implementation

The project was implemented with the help of agencies like Zilla, Block and Gram Panchayats at a total cost of Rs. 1.89 crores during the FY 2017–218 in convergence with rural engineering service of GP. They focused on dug well, shed for self-help groups, goat/poultry/dairy sheds, vermicompost, fruit tree plantations, etc., for the benefit of tribal communities. Most of the families put in considerable effort to develop the areas suitable for cultivation. The small trenches with the accumulated water in the catchment areas reduce the velocity of run-off water and soil erosion; the water is then used for agricultural purposes. Other activities such as horticulture and fisheries are also encouraged to stabilize the livelihoods. They developed assets on the patches of lands recognized under FRA to ensure sustainable livelihoods for one of the most vulnerable communities.



Impact

Now, the villagers can cultivate two crops per year. A surplus of 136 acres of land was brought under cultivation, which also increased their income. The villagers are not migrating in search of work. The water is utilized for cultivation of fruits, vegetables, etc., as per the needs of the people in this area. As a result of the implementation of this work, 32 households have been benefitted.



"My family is engaged in cultivation of our land instead of going outside in search of work. I am reaping twice as much as I used to because the water supply is available for cultivation. I am getting benefits out of this project".

—Shri. Satya Netam, villager

'PAKKA JHIRIYA': AN AGE-OLD METHOD OF WATER CONSERVATION

Introduction

Bhelki Gram Panchayat is located in the Pandariya block of Kabirdham District in Chhattisgarh. Jhiriya is an age-old water conservation activity of the tribal communities, which is practiced by channelling rainwater dripping off cliffs into an adjacently dug small trench (storage pit). This is a sustainable drinking water source nurtured by tribal communities. It is practiced in tribal settlements in four villages bordering this GP. Lately, this system has become ineffective due to the lack of sufficient rain and debris accumulation. In some areas, the stagnated water has become the breeding ground for mosquitoes causing diseases. In this context, the project called Pakka Jhiriya was introduced by Gram Sabha in these hamlets to revive this drinking water source.







“Due to the construction of Pakka Jhiriya through Mahatma Gandhi NREGS, we get clean and safe drinking water throughout the year without waiting in a long queue. The waterborne diseases have significantly reduced and people of this village are very happy with this project”.

—Shri. Ghasi Ram Baigaa, resident





Implementation

The isolation of the tribal region and poor connectivity to the villages made the execution of the project challenging. The issue of reviving the Jhiriya system in the tribal hamlets was taken up in Gram Sabha in the year 2018–2019. The Gram Sabha passed a resolution to strengthen wells, called Pakka Jhiriya, on both sides of the hills of these hamlets. Accordingly, three wells were dug in Diwanpatpar Gram Panchayat, four in Teliyapanidhobe and one each in Adhchara and Bhelki at a cost of Rs. 0.37 lakh on each Pakka Jhiriya. Along with the construction of Pakka Jhiriya, a convergence project with funds from 14th Finance Commission to panchayats was planned. The pipelines were connected from one of the Jhiriya in Diwanpatpar to a tank adjacent to the main road for easy accessibility of potable drinking water for the villagers.



Impact

Each Pakka Jhiriya is serving the water needs of about 40–50 households consisting of around 260 members from the community. The incidence of waterborne diseases has come down. The piped water system is also helping women to save their time they used to spend on fetching water earlier. The villagers are content with reliable access to safe drinking water.



DIGNITY OF LIFE THROUGH SUSTAINABLE LIVELIHOOD

Introduction

Kodasiya Gram Panchayat is located in Lailunga block of Raigarh District. While 95% of households primarily depend on agriculture, only 5% have irrigation facilities. The villagers mainly relied on rainfall for cultivation. The farmers were facing problems due to the degradation of natural resources and low agricultural production. The water conservation approach in cultivation was in high demand. The groundwater recharge was low due to sloppy and undulating terrain and high run-off. A Cluster Facilitation Team (CFT) project was launched in 2015–2016 where panchayat, women self-help groups, line departments and civil society organizations came together to help the community to develop their village development plan.



Implementation

Women collectives and panchayats initiated the awareness programs at the village through an inclusive planning process using participatory rural appraisal. They actively participated and ensured the proper implementation of work through regular monitoring. In total, 207 works were undertaken by the Gram Panchayat at a total cost of Rs. 53.72 lakhs under Mahatma Gandhi NREGA. Individual irrigation infrastructures like water harvesting systems were created by 28 households on their private land for agriculture purposes. The horticulture department has undertaken plantation works on 7 acres of common land. The NABARD-TDF WADI project supported for irrigation facility and vegetable cultivation on 66 acres of mango and cashew orchards. Additionally, the horticulture department undertook 20 acres of fruit plantation. The agriculture department has assisted 60 farmers to go for System of Rice Intensification (SRI) as well as pulses and oilseed cultivation. Overall, 28 SHGs and village organizations were supported through the financial inclusion process of NRLM.



Impact

Construction of farm ponds, wells and soil conservation works like land levelling and bunding has helped in groundwater recharging. The area under cultivation has increased to 395 acres with more than 70% of the families cultivating paddy under SRI, oils seeds and pulses, and cash crops like tomato, chilli, etc. In total, 60 households have an annual household income in the range of Rs. 80,000–1,00,000. Individual asset creation helped the community to have farm-based livelihood options, which secured their food availability as well as enabled them to live a life with dignity.



"We have a farm pond that helps us to grow paddy and vegetables. Now, I am helping other women to have their assets. My income has increased from Rs. 25,000 to Rs. 1,00,000 per year. I am quite happy with the outcome of the project".

—Shri. Vishwanath Painkra, farmer

CASCADING PONDS, CHANNELIZING LIVELIHOOD!

Introduction

Bharari Gram Panchayat is located in Bilaspur District of Chhattisgarh. A vast majority of workers belong to scheduled caste and other backward communities. Due to shortage of water, farming saw a gradual slowdown in the village. To resolve the problem of water scarcity, the Gram Panchayat decided to construct six large cascading ponds.



Implementation

The Gram Panchayat carried out this work during 2016–2018. Two different works, viz. construction of the feeder channel and desiltation of the community ponds, were taken up to address the issue of water stress. The project is designed under the Infrastructure for Climate Resilient Growth (ICRG) programme, a technical assistance programme jointly being implemented by the Ministry of Rural Development and the UK's Department for International Development (DFID). The feeder channel was constructed during 2016–2017 with an estimated cost of Rs. 5.91 lakhs through financial convergence of three different schemes (40% from Mahatma Gandhi NREGS, 20% from 14th Finance Commission and 40% from Gram Panchayat). The district administration undertook plantation on the bund in convergence with the forest department. Under this project, 500 seedlings were planted on the bunds of the community ponds along with tree guards. With the technical assistance from Infrastructure for Climate Resilient Growth program, this work has been planned and implemented as climate resilient work (CRW) based on climate science and integrated natural resource management approach along with parameters of durability, inclusion and livelihood diversification.



Impact

The interlinking of community ponds has increased the storage capacity of the ponds due to channelization of run-off water. This has also enhanced the water harvesting capacity by 25–30%. The storage of water in the ponds has increased the groundwater recharge in the aquifer. In addition to meeting the drinking water needs of the people, 25 households are using the stored water for irrigation during kharif season. Under normal weather conditions, the water is used to irrigate 8 hectares of land during rabi season. The villagers also benefitted from the community pond by using it for domestic purposes throughout the year.



“Now we are getting sufficient water for domestic use and cultivation. The villagers are very positive about the outcome of the scheme”.

—Shri. Behai, beneficiary

“Before the water conservation project, I had to carry water from a long distance. Now, water is available during summer and also for meeting our domestic needs. I am pleased with the outcome”.

—Smt. Kavita Surwanshi, beneficiary

MAKING PALI CLIMATE RESILIENT WITH FARM PONDS

Introduction

Pali block, which is located in Korba District of Chhattisgarh, faces acute water stress. Despite Pali has 44% of forest cover, the irrigated area is just 1.1%. Therefore, rainfed agriculture is practiced in most parts of the district. The area also has a large number of landless households who do manual labour work. The villagers diverted water from the nearby forest to the village farm ponds for irrigation. To overcome the water crisis for cultivation, the team comprising district officials had a meeting with the village community and GP functionaries to identify the NRM works in the panchayat. It was decided in the meeting to promote farm ponds in the village.





“The land of the family is near the irrigation source constructed under the scheme. As assured, irrigation facility is now available, the yield registered significant improvement. With the implementation of the scheme, the need for the family to migrate has come to an end”.

—Shri. Jawahil Prasad Khairwar, beneficiary, ST community

Implementation

The work was carried out under Mahatma Gandhi NREGS at a total cost of Rs. 2.75 lakhs (Rs. 2.10 lakhs for wages and Rs. 0.65 lakh for materials) during 2017–2018. The households received support from Mahatma Gandhi NREGS to construct drain and pond for livelihood practices. Fisheries are also encouraged in the farm ponds, which can generate supplementary income for the farmers. A large number of women-headed households (HHs) also participated. More value to this asset was added in 2018–2019 by planting 45 saplings of mango, jamun and jackfruit on the bunds of farm ponds. The idea was to make the area climate resilient along with augmenting livelihood sources. Training sessions were arranged to the farmers on the improved means of agriculture practices like system of rice intensification (SRI) through master trainers of Krishi Vigyan Kendra (KVK) and agriculture department. The project is designed under the Infrastructure for Climate Resilient Growth (ICRG) programme, a technical assistance programme jointly being implemented by the Ministry of Rural Development and the UK's Department for International Development (DFID).





Impact

Each farm pond directly provides water to 2 acres of land near the pond. Besides, two other farmers also benefitted from the project through water supplied from the pond. In the case of the first farmer, the extent of the acreage is 1.2 from which 16 quintals of paddy was produced. The second farmer got an output of 9 quintals of paddy from half an acre of land. Training sessions under the project also helped the farmers in producing higher yields. In terms of direct benefits, the farmers are getting water for irrigation, and the indirect benefits are in terms of higher yields by adopting improved agricultural practices.

FISH REARING PONDS IMPROVE LIVELIHOOD IN PONDI GRAM

Introduction

Pondi Gram Panchayat comes under the Koriya District of Chhattisgarh and is dominated by tribal communities like Kols, Gonds and Pandos. The district faced severe water scarcity in the past despite having hills and good forest cover, leading to frequent droughts. During the last 30 years, Koriya faced moderate drought 4 times and mild drought 13 times. About 95% of the population in the panchayat constitutes small and marginal farmers who depend upon rainfed farming for subsistence. They also earn supplementary income from non-timber forest produce (NTFP) and pisciculture. Agriculture is uncertain owing to erratic rainfall, NTFP production is meagre due to forest degradation and fish rearing became hard with the unavailability of water. However, Pondi GP has a locational advantage as it is close to a hill that has untapped water available throughout the year. It was proposed in the Gram Sabha to tap the water from the hill through the construction of ponds.



Implementation

While constructing the ponds, two aspects were given due consideration. First, stones were pitched on the outer side of the bund to protect the bunds of the pond from soil erosion. Second, the inlet and outlet of the pond were built to regulate the optimum water flow into the fish rearing pond at a cost of Rs. 1.74 lakhs. The primary stakeholders (the community) were taken into confidence in identifying the site. The site for fish rearing ponds was identified after consultation with Deputy Director, Fisheries. They also provided technical assistance for planning, implementation and monitoring of the project. During 2016–2017, four fish seedling production ponds in a series were taken up in the Pondi GP. The area of four ponds was set up in 0.4 hectare. The expenditure on these four ponds was Rs. 6.59 lakhs. The project is designed under the Infrastructure for Climate Resilient Growth (ICRG) programme, a technical assistance programme jointly being implemented by the Ministry of Rural Development and the UK's Department for International Development (DFID). A targeted livelihood convergence plan was prepared to link beneficiaries to various agriculture schemes and financial services of the government like seed distribution, credit card, soil health card, horticulture plantation and irrigation, pump installation, etc. Around 190 farmers received System of Rice Intensification (SRI) training in different methods for vegetable cultivation and livestock management in the rainy season from Krishi Vigyan Kendra.





Impact

Direct benefits from the fish rearing pond accrued to 31 ST households. They have formed a cooperative called “Om Shiv Machuwa Sahakri Samiti Maryadit—Amhar group” and registered under Societies Registration Act. The hatchery can produce 16 lakh fingerlings annually. The group was also given the charge of doing pisciculture in the *Ghunghutta* dam and nearby ponds. All put together, about 480 metric tons of fish is expected to be produced in a year.





An aerial photograph of a wide, muddy river flowing through a lush green landscape. The river is the central focus, with a sandy bank on the right side. The surrounding area is densely populated with various types of green trees and vegetation. In the bottom left corner, a small boat is visible on the water, and a few people can be seen on the bank. A large, stylized text overlay is centered across the middle of the image.

MAHARASHTRA

DOUBLING OF AGRICULTURAL PRODUCTIVITY – A SAGA OF NAXAL-AFFECTED CHARBHATTI

Introduction

Charbhatti village is located in the Gadchiroli District. It is a remote area covered with dense forest and influenced by left-wing extremism. Due to absence of water conservation structures, the village faced water crisis. As a result, farming and raising cattle became challenging. There was a long-pending demand of villagers for the creation of a water storage structure in the village to irrigate farmland. However, due to lack of sufficient funds from regular schemes of irrigation department, the work could not be taken up so far. The Gram Panchayat finally decided to construct a check dam on *kataldoh*, a drain joined to *Sati River*.



“Construction of the check dam was a long-pending demand of the villagers. After the construction of the dam, enough water is available for irrigation and also for taking care of domestic animals. We are earning higher income now”.

—Shri. Budhaji Tukaram Nat, farmer





Implementation

The GP decided to take up the work of construction of a check dam under Mahatma Gandhi NREGS in convergence with Jalyukt Shivar Abhiyan, the flagship program of Government of Maharashtra, at a total cost of Rs. 25.71 lakhs, during 2018–2019. The execution of the work was a challenging task because of fear of the prominent left-wing extremism activities, and there were no roads for transportation of materials. However, the challenge was overcome with the help of coordination with villagers and construction of a temporary road with *shramdan*.

Impact

The farmers are now cultivating a fine variety of rice, millets, cereals and oilseeds in kharif season. They also started cultivating chilli, maize, flaxseed, groundnut, flat bean, snake bean and horse gram. The area under irrigation has now increased to 38 hectares and has resulted in the doubling of agricultural productivity. Since the area is a dense forest, the check dam has turned into a source of drinking water for livestock. As a result of the implementation of this work, 52 households have been benefitted.





“Construction quality of the check dam is good. After the construction of the dam, production has increased, and the economic condition of the farmers has improved. We need a number of such installations for the development of the village”.

—Chandralal Jogiram Halami, villager



IMPROVED LIVELIHOOD THROUGH INCREASED IRRIGATION – STORY OF TUMKHEDA

Introduction

Tumkheda (Khurd) Gram Panchayat is located in the Gondia block of Gondia District in Maharashtra. In the village, a check dam was constructed during the year 2000. But the condition of the dam had deteriorated due to lack of regular maintenance and repair works. There was a demand from the villagers to repair the dam to enhance water availability during the summer season.









“Now, water is available after the repairing of check dam which is used for agricultural purposes”.

—Smt. Kantabai Giridhari Brahmanekar, farmer

Implementation

Gram Panchayat carried out the work of repair of the dilapidated check dam through convergence under Mahatma Gandhi NREGS during 2018–2019 at a total cost of Rs. 25.5 lakhs. The work involved desilting and deepening of the *nalla*, construction of the right flank abutment of the dam and repairing of the rest of the check dam. Minor Irrigation Sub-division, Gondia implemented the work.



“Community fish farming is being done here. It has improved the economic condition of the villagers”.

—Smt. Lalitabai Sewakram Tembhare, villager

Impact

The storage capacity of the dam has been increased to 40 TMC. An additional 10 hectares of land was brought under irrigation. This has benefitted 280 farmers with increased irrigation capacity. The work also provided a source of livelihood to the local fishermen by promoting pisciculture activities in the submerged area. There is a considerable increase in the water table.





10X GROWTH : A FARM POND DID IT!

Introduction

Tambhere Gram Panchayat is situated in the Rahuri black of Ahmednagar. The area falls in the drought-prone zone of the state. In the absence of basic irrigation facilities, Tambhere GP had a traditional cropping pattern. Farmers grow bajara (pearl millet) and jowar (*Sorghum vulgare*) during the kharif season, while the land remains uncultivable during the rabi season due to lack of irrigation facility. It was decided in the Gram Sabha to construct farm ponds for rainwater harvesting as a drought mitigation initiative.



“The horticulture plantation helped me to earn a good income, and it makes me happy. I could raise this plantation only due to the farm pond constructed under Mahatma Gandhi NREGS”.

—Shri. Rohidas Musmade, farmer from Tambhere village

Implementation

In the financial year 2017–2018, the Gram Sabha decided to construct a farm pond of size 30 m × 30 m at a cost of Rs. 2.51 lakh for Shri. Rohidas Musmade, a farmer from Tambhere village, having a total landholding of 1.30 hectares. The agriculture department facilitated him with pomegranate plantation in convergence with Mahatma Gandhi NREGS for 0.50 hectares of land. A total of 370 saplings were planted at an estimated cost of Rs. 1.13 lakhs. In addition, he was also provided with drip irrigation facility under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) at a cost of Rs. 24,000.





Impact

The farm pond increased the water storage capacity, which was in turn used for irrigation. Drip irrigation helped Shri. Rohidas Musmade to utilize the storage capacity to its full extent. Change in cropping pattern benefitted him in enhancing his income. After constructing the farm pond and pomegranate cultivation, his income increased from Rs. 30,000 to Rs. 3.0 lakhs from the 0.5 hectare of land. Rohidas Musmade's success story boosted the confidence of other farmers in the vicinity. Five more farm ponds with pomegranate plantation were taken up under Mahatma Gandhi NREGA in another 18 hectares.

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