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"Ground Water Development Techniques under Water Cup" Bidal Village Dist. Satara

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Abstract: ***Paani Foundation is a non-profit, non-governmental organization actively engaged in drought prevention and watershed management in the state of Maharashtra, India. Founded by Indian actor Amir Khan and his wife Kiran Rao, the foundation is led by CEO Satyajit Bhatkal.***

The state of Maharashtra has a history of recurring droughts and severe water scarcity over the past few years, including the significant drought in 2013. Approximately one-third of the state falls within the semi-arid climatic zone. Due to the impact of climate change, rainfall patterns have become increasingly erratic. The state's irrigation coverage is only 16% of the total cultivated area, significantly lower than the national average of 42%. As a result, there has been excessive use of bore wells, leading to a rapid decline in groundwater levels.

In 2015, the state government officially declared that 60% of its villages were facing a "drought-like condition," meaning their crop yields were less than 50% of the normal yield in the state. This condition currently affects 23,811 out of the state's 39,453 villages, resulting in a significant drop in agricultural output for the year, as stated by officials.

Keyterms: associated with Paani Foundation and its work include watershed management, semi-arid climate, irregular rainfall, official declaration, contour nala bund (CNB), closed contour trenches (CCT), earthen nala bund (ENB), and farm pond.

I. INTRODUCTION

Paani Foundation was set up in 2016 by the 'Satyamev Jayate' Television program group, with the strategic making rural Maharashtra without drought and prosperous. Drought is to a great extent man-made, and we accept that lone individuals' endeavors can tackle this emergency. Their work is towards assembling and preparing residents to lead this battle. From 2016 to 2019, they facilitated the Satyamev Jayate Water Cup, a challenge where a large number of towns contended to do the best and most extreme work in water and soil preservation. More than four years, their work prompted the making of 550+ billion liters of water stockpiling limit in the state! Supported by this achievement and the vitality on the ground, in 2020, we propelled the Satyamev Jayate Samruddha Gaon Spardha. Going past water preservation, this challenge is planned for changing town nature and economy and making a development on supportable water use.4

II. PAANI FOUNDATION

A. Methodology

In order to comprehensively study and comprehend the entire process of the Paani Foundation, several tasks need to be carried out. These tasks include:

Analyzing the location and evaluating the quality of the projects implemented by the Paani Foundation. This assessment requires on-site visits to the villages where soil and water conservation work has been undertaken, and each project needs to be geo-tagged. The evaluation should encompass various aspects such as dimensions, construction quality, engineering suitability, locational appropriateness, and adherence to watershed principles. The assessment of these works should involve simple measurements, primary investigations, visual inspections, and interviews with farmers and residents.

Examining the impact of the projects implemented by the Paani Foundation. In addition to assessing the quality of the work, it is crucial to determine the effectiveness and benefits derived from these projects. The benefits may include increased availability of groundwater, reduction in soil erosion, enhanced farm incomes, improved drinking water supply, and other relevant factors. This evaluation should also involve interviews with farmers and residents to understand their perspectives.

Giving special attention to areas that have not been addressed by the Paani Foundation and identifying potential solutions for these unaddressed areas. This involves identifying gaps or shortcomings in the projects and proposing appropriate strategies or interventions to address them effectively.

In summary, the objectives include studying the Paani Foundation process, evaluating the location and quality of their implemented works, assessing the impact and benefits derived from these projects, and addressing any areas that have not been adequately attended to.

B. Aims and Objectives

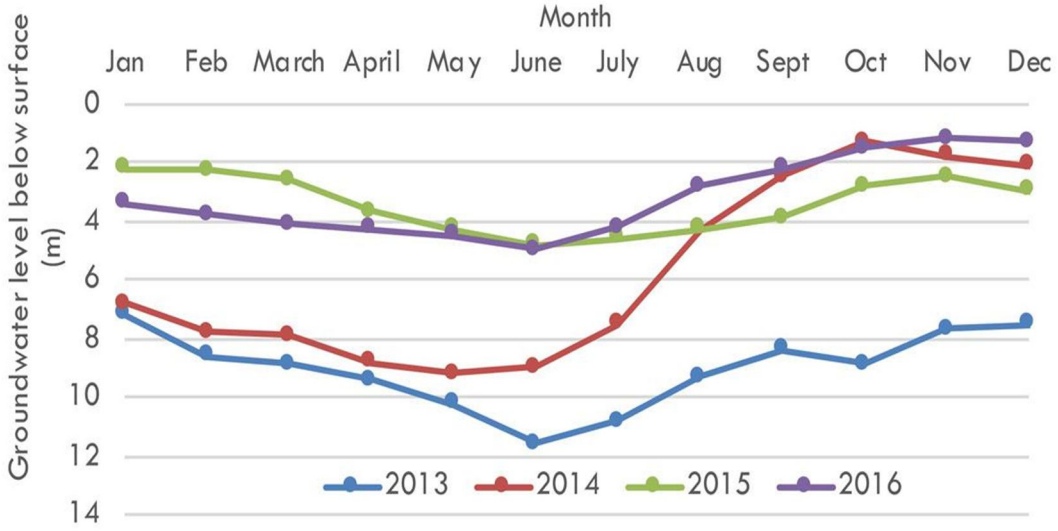
1) Reaping most extreme water in the encompassing of village Itself.
2) Expanding level of groundwater.
3) Expanding territory under water system in the village – Expanding guaranteed water for cultivating and proficiency of water utilization.
4) Ensuring accessibility of adequate water for all in the village- Expanding water supply by restoring dead water supply conspires in the country region.
5) Executing groundwater act.
6) Making decentralized water stockpiles. Sharpening individuals about water collecting/expanding open support

III. ON FIELD ASSESSMENT

The team visited Bidal , Maharashtra on 5th April 2023. The Bidal has won in Satyamev Jayate Water Cup Competition in 2017. The team composed of students 1.Vedant Karande, 2.Nikheel Undre, 3.Mahesh Chaure and 4. Prajwal Mete

Meeting was held at Gram Panchayat office. Our team was discussed with Sarpanch Mr. Pramod Jagdale and few residents and the Executive officer of Paani Foundation from village Mr. Raosaheb Deshmukh. Meeting was all about strategy and methodology for the assessment, the aims and actual procedure of work done under Paani Foundation, villagers participation and budgets. Also we have visited to sites-closed contour trenches, well recharge, cement nala bund, earthen nala bund.

The team told the purpose of survey and process which was being followed. Farmers explained their experiences while working in activities done in Paani Foundation while project was running, how they managed to work for themselves as well as for village, about winning the title of “Satyamev Jayate Water cup” competition. Many farmers was demanding foe more works near their farms which are at top of hilly areas because water is stored at bottom of hills by providing C.C.T and earthen nala bunds but not such storage at hills required for animals, people as well as for farms. We have interacted with villagers belongs from various income group like low income group and medium income group as well as servicemen in village.



IV. PROPOSED FARM PONDS

A. General

Generally farm pond is nothing but rectangular or square shaped structure which can hold around 50,000 litters of water in it. It is made by constructing earthen banks in square or rectangular shape by locally available material like soil and stones. Generally height varies between 9 to 10 feet. inlet and outlet is provided to pond for filling by water and irrigation purpose respectively.

B. Necessity of Farm Ponds

1) To use for the irrigation to crops.
2) To improve watershed health.
3) To collect excess runoff during rainy period.
4) To conserves soil and moisture.
5) To provide drinking water for cattles during drought situation.
6) To use while spraying pesticides on crops.

V. FUTURE SCOPE

If Such work of Paani foundation is should be done in the village those who are facing draught in every year , it will be helpfull for that village in order to increases groundwater level naturally.
Our team suggest a village in Marathwada , which is situated in Dharashiv district name of IZORA.

A. Advantages of Work of Paani foundation in Village

1) No large structures (dams) needed to store large volumes of wate
2) Stored water is relatively well protected from evaporation and pollutants
3) Schemes can be implemented incrementally, keeping initial capital investment relatively low
4) Depleted aquifers can be restored and saltwater intrusion can be controlled by applying artificial recharge
5) Purification and improvement of water quality by infiltration and percolation of surface water through the soil
6) Minimal land use for water storage required
7) Cost-effective implementation and environmental friendliness in comparison with surface storage and dams

VI. CONCLUSION

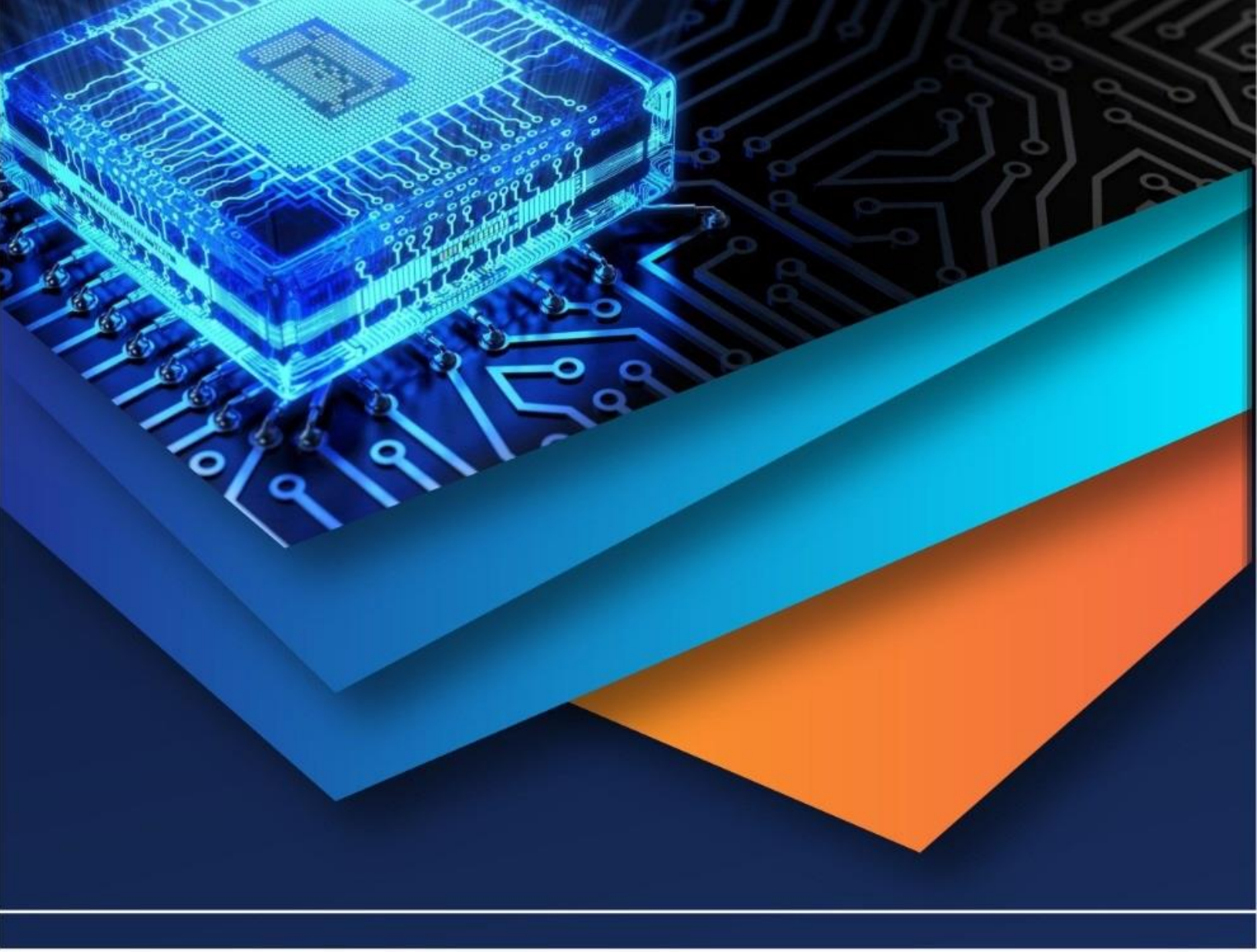
Farmers reported increase in yields due to Paani Foundation activities. Some farmers reported cropping pattern change due to CNBs and they are now able to take cash crops like grapes and horticultural farming. The runoff generated is arrested at the bottom of mountains and recharges nearby wells. Thus, farmers are able to harvest rubby crops. The active participation of the villagers was observed in the activities like excavation, cleaning the site, etc. In some cases, the location of structures was not suitable because lack of guidance gave to villagers and they did. The structures were sound and safe but numbers of structures are lesser especially at mountainous region of the village. The Officials and the village people asked about the place to construct farm ponds at slopes of the mountain. So proper place is to be provided for proposed farm ponds. We interviewed around 15 beneficiary farmers to understand the impact was on different accounts like well recharge, increase in productivity, an increase in crop land, improvement of cropping pattern etc.

VII. ACKNOWLEDGMENT

We would like to express our gratitude to all the individuals who have directly or indirectly contributed to the successful completion of this project. In particular, we would like to extend our sincere appreciation to Mr. Raosaheb Deshmukh, the Executive of Paani Foundation in Bidal, whose guidance has been invaluable.
We believe that success is the result of the combined efforts of experts, hard work, and unwavering determination. From the inception of the project, including the negotiation of terms, topic selection, scoping, scheduling, and project management, we have been fortunate to receive encouragement and motivation from our guides.
We recognize that the higher the summit, the more challenging the climb. However, with a fixed goal in mind, we embarked on this journey with resolute determination and unwavering efforts. There were moments when the goal seemed out of reach, but we embraced each difficulty as a personal challenge.
In this regard, we are deeply grateful to our project guide, Prof. Pramod Yadav, and the Head of the Department, Prof. J. Dhanushkar, whose support and encouragement were instrumental in our progress. We also extend our heartfelt thanks to Principal Dr. R.K. Jain, who consistently supported and motivated us throughout the project. We sincerely appreciate their valuable assistance and cooperation throughout the entire project, and we attribute a significant portion of our success to their unwavering guidance and support.

REFERENCES

[1] Importance of Continuous Contour Trenches (CCT) in Maharashtra Nitin Bajirao Borse M.V.P.Samaj's, Arts, Science and Commerce College, Ozar (MIG) Affiliated to SP Pune University
[2] Proceedings of International Workshop on Integrated Watershed Management for Sustainable Water Use in a Humid Tropical Region, JSPS-DGHE Joint Research Project, Tsukuba, October 2007. Bull. TERC, Univ.Tsukuba, No.8 Supplement, no. 2, 2008
[3] Wocatpedia
[4] megphed.gov.in (Chapter IX artificial groundwater recharge)
[5] The National Academies Press - ground water recharge using waters of impaired quality
[6] Green Roads of Water.



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