

Empowering communities for sustainable water management: Insights from Justdiggit and the Paani Foundation

Muhammad Merei^{1*}

¹Faculty of Environmental Sciences, Czech University of Life Sciences Prague, Kamýčká 129, Praha – Suchbátka, 165 00, Czech Republic

Abstract. Community engagement is critical for effective sustainable water management initiatives because it facilitates public participation in decision-making. This study looks at Justdiggit and the Paani Foundation's community participation techniques, which are focused on water management and landscape restoration in water-stressed regions. We conduct a comparative analysis to determine the effectiveness of various initiatives in encouraging sustainable water practices and landscape restoration. Using official data and project evaluations, we assess the socioeconomic and environmental impacts of community-based water management programs. The findings reveal that, Justdiggit and the Paani Foundation actively engage the public through a variety of strategies, including community workshops, local champions, digital platforms, hands-on training, collaborative decision-making, job creation, and milestone celebration. Our findings show strong popular support and favorable effects on water conservation and community development. These findings are useful for practitioners, politicians, and researchers working to address global water concerns. Enhanced community engagement, as demonstrated by Justdiggit and the Paani Foundation, has the potential to achieve more resilient and sustainable water management solutions in the face of growing water issues.

1 Introduction

Stakeholder involvement is widely recognized as an important component of the design and implementation of sustainable water management initiatives [1]. Public participation and stakeholder involvement are crucial in water conservation, as they can enhance the quality of decision-making and resource management [2]. The desire to realize oneself is a key internal element that can motivate public participation in water conservation [3]. Public participation and stakeholders' involvement in crafting a strategy that is economically efficient, ecologically sound, and acceptable to all who are impacted by how this resource is managed over space and time [4]. The Justdiggit Foundation was established in 2009 with the goal of regreening Africa with millions of farmers [5]. It is an organization championing water

* Corresponding author: merai@fzp.czu.cz

projects across diverse African landscapes, offers valuable lessons on community engagement. This article explores key insights from Justdiggitt's experiences, providing a roadmap for organizations and communities seeking to actively involve the public in impactful water management initiatives. Another goal is to examine the successful engagement of the public in the programs by Justdiggitt and explore the potential lessons that developing nations might draw from this experience. While our primary focus is on water, a brief mention of the Paani Foundation's efforts in Maharashtra, India, adds a comparative perspective [6]. The following table 1. will highlight the differences between these foundations.

Table 1. comparative analysis of the basic characteristics, location and primary solutions implemented.

	Justdiggitt	Paani Foundation
Establishment	2009	2016
Headquarters	Amsterdam NL	Mumbai IN
Active areas	Sub-Saharan Africa	Maharashtra state IN
Main solution	Earth smiles	Contour trenches
Community involvement	Raindance Festival	Water Cup
Public participation	High acceptance	High acceptance
Funding sources	Fund raises	Private

1.1 Research Question:

"How can community engagement strategies employed by organizations like Justdiggitt and the Paani Foundation contribute to sustainable water management and landscape restoration initiatives in water-stressed regions?"

1.2 Objectives

- To analyze the community engagement strategies utilized by Justdiggitt and the Paani Foundation in their water management and landscape restoration projects.
- To assess the effectiveness of these strategies in fostering public participation in water conservation initiatives.
- To evaluate the socio-economic and environmental impacts of community-engaged water management projects implemented by Justdiggitt and the Paani Foundation.
- To identify key lessons learned from the experiences of Justdiggitt and the Paani Foundation that can inform future community engagement efforts in water-stressed regions.

- To explore the potential applicability and adaptability of these lessons to other geographic contexts and organizations engaged in sustainable water management and landscape restoration.

2 Methodology

2.1 Study design

Both Justdiggit and the Paani Foundation focus on involving the local community in the greening projects and at the same time sharing the knowledge and experience with all participants, occasionally incorporating elements of competition and reward. Figure 1 represents the main geographic locations of the two organizations' activities.

The present study aims to determine critical domains of interest of both organizations, including strategies for community engagement, geographical concentration, integration of technology, evaluation of impact, and organizational frameworks. Primary data is collected through semi-structured interviews with Justdiggit, the Paani Foundation, community members, and water management project stakeholders. The interviews look at both groups' community participation strategies, their efficacy, and the socioeconomic and environmental ramifications. In addition, attending community seminars and project events provides personal information of how these strategies are implemented. All interviews are available online.

Supplementary data is sourced from project assessments and academic publications. These sources contextualize the organizations' project locations, objectives, methods, and outcomes, adding depth and breadth to the research.

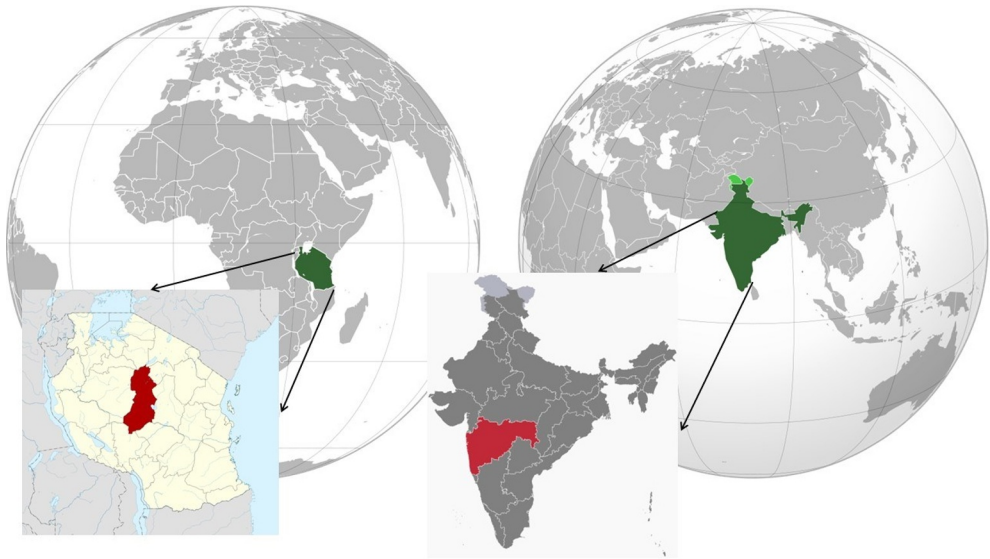


Fig. 1. Schematic of the main two countries where the organizations are active (Not to scale). Central Tanzania (Justdiggit) and Maharashtra state in India (Paani Foundation).

2.2 Participation in the Nature-Based Solutions

Population growth, global warming, overexploitation of farmlands, cutting down trees and overgrazing of grassy areas cause the soil to dry out. This drought leads to desertification and

degradation of the land, making it hard to obtain food, crops, fresh water and natural resources, such as firewood, from the land. Especially in vulnerable areas, such as Sub-Saharan Africa and parts of India, the consequences of the drought are felt on a daily basis. However, regreening is a possible solution!

Recent studies show that nature-based solutions can contribute up to 37% of the carbon emission intake required to keep global warming below 2 degrees Celsius [7].

Regreening programs are typically extensive in extent and entail the active involvement of the entire local community in the impacted region. In order to foster active engagement and participation from stakeholders in these initiatives, the two foundations employed a combination of comparable and dissimilar approaches. The Raindance vs. Water Cup to foster public participation.

Justdiggit used to organize a live activity called “The Raindance Project” which utilized the power of music and dance to unite, inform and activate people globally. It was a successful public gathering streamed via satellite the Netherland, Kenya, and Tanzania at the same time.

Paani Foundation primary program is called the Water Cup, which involves different villages competing to achieve the best water saving practices after getting the training from professionals in the field supported by the foundation and the local state authorities. The Satyamev Jayate Water Cup was an annual, 45-day competition hosted from 2016 to 2019, in which thousands of villages in Maharashtra competed to do the best and maximum work for soil and water conservation. Figure 2 illustrates the public's involvement with the two organizations.



Fig. 2. Public participation in the implementation of water retention solutions, as a result of the training provided by the Panni Foundation [6] (left picture) and Justdiggit (right picture) [5].

3 Results and discussion

Justdiggit and Paani Foundation employ a multidimensional approach to actively involve the public in its projects, fostering a sense of ownership and community-driven change. Here are several key strategies used by Justdiggit to engage the public:

1. Community workshops and meetings: These gatherings provide a platform for community members to voice their concerns, share traditional knowledge, and actively participate in decision-making processes related to water management projects.
2. Local champions and ambassadors: These individuals, often respected leaders or influencers, play a crucial role in mobilizing community members, building trust, and communicating the importance of active participation in water projects.

3. Digital platforms and social media: Leveraging technology, Justdiggitt and Paani Foundation utilize digital platforms and social media to reach a broader audience.
4. Hands-on training and demonstrations: This approach allows community members to actively engage in implementing and observing the impact of sustainable practices, fostering a sense of empowerment and confidence in their ability to contribute to water initiatives.
5. Collaborative decision-making: Justdiggitt ensures that decisions regarding water projects are made collaboratively, with community input and feedback playing a central role. This inclusive approach fosters a sense of ownership and shared responsibility among community members.
6. Creating local jobs and economic opportunities: By involving community members in project implementation, the organization not only contributes to the local economy but also strengthens the bond between the project and the community, making it a shared endeavour.
7. Celebrating the milestones: Justdiggitt and the Paani Foundation highlight project achievements, milestones, and positive outcomes. This celebratory approach instills a sense of pride and accomplishment among community members, motivating continued active participation in water management initiatives.

Overall, the analysis highlights the critical role of community engagement in promoting sustainable water management practices and enhancing resilience in water-stressed regions. By adopting a multidimensional approach that integrates participatory decision-making, capacity-building, digital innovation, and economic empowerment, Justdiggitt and the Paani Foundation demonstrate the potential for community-driven solutions to address complex water challenges. These findings underline the importance of holistic and context-specific approaches to water management, grounded in principles of inclusivity, collaboration, and empowerment. Moving forward, it is essential to prioritize the scaling up and replication of successful community engagement strategies, leveraging local knowledge and resources to build a more resilient and sustainable water future for all.

4 Conclusions and future work

The experiences of Justdiggitt and the Paani Foundation serve as a model for empowering communities by including them in public engagement in water management. Organizations and communities can make significant contributions to sustainable water solutions by customizing tactics, adopting collaborative decision-making, utilizing technology, prioritizing education, and promoting adaptability. In the face of escalating water issues, the insights provided by these two organizations serve as a beacon for promoting community involvement, ultimately resulting in a future that is more secure and resilient in terms of water resources.

References

1. K. Morrison, "Stakeholder involvement in water management: Necessity or luxury?," *Water Science and Technology*, **47**, no. 6, pp. 43–51, (2003), doi: 10.2166/wst.2003.0354.
2. G. Carr, "Stakeholder and public participation in river basin management—an introduction," *Wiley Interdisciplinary Reviews: Water*, **2**, no. 4, pp. 393–405, (2015), doi: 10.1002/WAT2.1086.
3. B. Xue, T. Li, X. Hou, and J. Guo, "Study on the organization of water-conservation activities and guiding strategies for urban communities based on

- public participation in China,” *Journal of Water Supply: Research and Technology - AQUA*, **69**, no. 6, pp. 538–554, (2020), doi: 10.2166/aqua.2020.126.
4. D. P. Loucks, “Water resources and environmental management: Issues, challenges, opportunities and options,” *Water Sci Technol Water Supply*, vol. 7, no. 2, pp. 1–10, (2007), doi: 10.2166/ws.2007.035.
 5. Justdiggitt, “Justdiggitt,” Justdiggitt. Accessed: Dec. 10, (2023). [Online]. Available: <https://justdiggitt.org/what-we-do/landscape-restoration/techniques/>
 6. F. Paani, “Stories of change.” Accessed: Dec. 12, (2023). [Online]. Available: <https://www.paanifoundation.in/impact/stories-of-change/>
 7. L. Villani, G. Castelli, F. Sambalino, L. A. Almeida Oliveira, and E. Bresci, “Influence of trees on landscape temperature in semi-arid agro-ecosystems of East Africa,” *Biosyst Eng*, **212**, pp. 185–199, (2021), doi: 10.1016/j.biosystemseng.2021.10.007.