



Category: Arts and Humanities

REVIEW

Exploring the Effectiveness of the 'WADI' Model for Tribal Development: A Comprehensive Analysis in the Goalpara District Special reference to -Dudhnai Block

Exploración de la eficacia del modelo "WADI" para el desarrollo tribal: Un análisis exhaustivo en el distrito de Goalpara Especial referencia a -Dudhnai Block

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Cite as: Sheikh NU, Narayanan R. Exploring the Effectiveness of the 'WADI' Model for Tribal Development: A Comprehensive Analysis in the Goalpara District Special reference to -Dudhnai Block. Salud, Ciencia y Tecnología - Serie de Conferencias. 2024; 3:669. <https://doi.org/10.56294/sctconf2024669>

Submitted: 28-11-2023

Revised: 22-02-2024

Accepted: 04-05-2024

Published: 05-05-2024

Editor: Dr. William Castillo-González 

ABSTRACT

Introduction: sustainable development is crucial for balancing progress with resource preservation, especially in marginalized communities like tribal regions. The WADI model, pioneered by NABARD and introduced in India in the 1990s, has proven successful in fostering sustainable development in arid tribal areas.

Objective: this study aims to explore the impact of WADI projects on the sustainable development of tribal communities in the remote villages of Dudhnai Block, Goalpara district, Assam.

Material and Method: the study employs a qualitative research approach, gathering data on migration patterns, agricultural production, natural resource management, social cohesion, and economic advancement through interviews, surveys, and field observations.

Results: preliminary analysis reveals positive outcomes regarding increased agricultural yield, reduced migration rates, improved social cohesion, and economic empowerment among tribal communities participating in WADI projects.

Conclusions: WADI projects hold promise as a viable model for sustainable development in tribal regions, contributing to poverty alleviation, food security, and overall quality of life enhancement while preserving natural resources for future generations.

Keywords: Sustainable Development; WADI; Women Empowerment; Tribes; Economic; Natural Resource; Migration; Advancement.

RESUMEN

Introducción: el desarrollo sostenible es crucial para equilibrar el progreso con la preservación de los recursos, especialmente en comunidades marginadas como las regiones tribales. El modelo WADI, promovido por NABARD e introducido en la India en la década de 1990, ha demostrado su eficacia para fomentar el desarrollo sostenible en zonas tribales áridas.

Objetivo: este estudio tiene como objetivo explorar el impacto de los proyectos WADI en el desarrollo sostenible de las comunidades tribales en las aldeas remotas de Dudhnai Block, distrito de Goalpara, Assam.

Material y método: el estudio emplea un enfoque de investigación cualitativa, recopilando datos sobre los patrones de migración, la producción agrícola, la gestión de los recursos naturales, la cohesión social y el progreso económico a través de entrevistas, encuestas y observaciones sobre el terreno.

Resultados: el análisis preliminar revela resultados positivos en relación con el aumento de la producción

agrícola, la reducción de las tasas de migración, la mejora de la cohesión social y el empoderamiento económico entre las comunidades tribales que participan en los proyectos WADI.

Conclusiones: los proyectos WADI son prometedores como modelo viable para el desarrollo sostenible en regiones tribales, contribuyendo a la mitigación de la pobreza, la seguridad alimentaria y la mejora general de la calidad de vida, al tiempo que preservan los recursos naturales para las generaciones futuras.

Palabras clave: Desarrollo Sostenible; WADI; Empoderamiento de las Mujeres; Tribus; Económico; Recursos Naturales; Migración; Avance.

INTRODUCTION

Indigenous people are found all over the world. They are communities that live in specific areas and have their own unique cultures that they want to protect and pass down to their children. They deeply care about the environment and have a special connection to it through their cultural values. For generations, they have followed traditional customs to take care of the environment. In India, they are called Adivasi, Vanyajati, Tribe, or Scheduled Tribe. According to Roy Burman, forests are closely connected to tribal life.^(1,2,3,4,5,6,7,8) They see forests as their home, a source of food, jobs, and income. They have a deep respect for forests and worship them from one generation to the next.^(9,10)

“(In 2007, the United Nations declared to protect the rights of indigenous communities. As per Australian Human Rights Commission”)^(11,12) They established policies to preserve their culture, social systems, language, and natural resources. The main goal is to let them live in their world without harming the environment.

Over time, governments and NGOs have created various policies and programs to improve the situation of indigenous communities. However, the main focus of sustainable development should be to protect the environment while meeting the needs of the present generation without compromising the ability of future generations to meet their own needs. (In 2015, the United Nations established sustainable development goals to address the challenges faced by disadvantaged indigenous communities.)⁽¹³⁾ They aim to create a world free of poverty, hunger, and disease for these people. The development goals prioritize environmental sustainability and community well-being. (The Bruntland Commission, in their 1987 report titled 'Our Common Future' emphasized the importance of development that prioritizes communities while also maintaining environmental balance.)⁽¹²⁾ According to the report, sustainable development means meeting the needs of the present generation without compromising the needs of future generations. It involves achieving economic progress while ensuring the long-term protection of nature and integrating environmental, social, and economic aspects from the perspective of communities. The focus is on meeting the needs of tribal people through their traditional knowledge and practices. Development entails positive changes in society, particularly in livelihoods and the economy. This approach promotes equality and equity among and between generations, as well as a balance across social, economic, cultural, and political dimensions. The overarching goal of development is to ensure sustainability in community growth and economic stability for countries. Establishing a balanced relationship between humans and the natural environment is the core principle of sustainable development.

This study focuses on the WADI development system among tribal communities in the Goalpara district of Assam, India. The WADI project was initially launched in Gujarat, India. In Gujarati, "WADI" refers to a piece of land planted with fruit trees, essentially a garden farming process surrounded by various forest species. The primary aim of this model is to enhance the economic and social well-being of tribal families. Under this program, each beneficiary family must contribute at least one acre of land for growing fruit trees, surrounded by other forest species. The study aims to assess how the WADI model helps improve the situation of tribal families. It also explores the history of the WADI model in India, including its inception and key components. Additionally, the study examines the success rate and impact assessment of the WADI model on the tribal families under study.

Objective of the study

1. Understand the role and significance of the 'WADI' model in promoting sustainable development among tribal communities.
2. Explore the socio-economic and environmental impact of the 'WADI' initiative on tribal livelihoods in Dudhnai Block
3. Assess the effectiveness of the 'WADI' model in addressing issues of poverty, food security, and income generation among tribal households.

METHODOLOGY

The study is anthropological research that took place in three villages located in the Dudhnai block of the Goalpara district in the state of Assam, India. Because the WADI project was started in this block with a maximum number of beneficiaries of the project. The period of the study is from February 3rd, 2024 to March 1st, 2024.

Goalpara is situated in the lower part of Assam, India. The study was conducted in three villages within the Dudhnai block of Goalpara district, which is known to be one of the most socially and economically backward blocks in the district. This study specifically focused on three villages: Lela, Rang Pather and Latapara each from a different Gram Panchayat. The block is located in the Rabha Hasong Autonomous Council and is predominantly inhabited by tribal communities. In this research frequency distribution statical method was used.

To gather relevant data, various anthropological methods were used. Data collection involved both qualitative and quantitative methods. Beneficiaries were chosen using purposive sampling. Information about the WADI program and its components was obtained through qualitative approaches. Basic family details such as income, education, and livelihood were gathered using both qualitative and quantitative methods. The success rate of the project and the involvement of beneficiary families were assessed through case studies and structured interviews.

In conducting the study in the Dudhnai block of Goalpara district, ethical standards were rigorously followed to ensure the integrity and well-being of all participants. Prior to data collection, informed consent was obtained from all individuals involved, including beneficiaries and those providing information. This ensured that participants fully understood the purpose, risks, and benefits of their involvement in the study. Confidentiality measures were strictly upheld to protect the privacy and anonymity of participant information, with data anonymization techniques employed during reporting to prevent identification.

RESULTS

Table 1 displays the total number of WADI beneficiaries and the trees planted in each village. All beneficiary families own one acre of unused land, which they have dedicated to creating WADI gardens. They planted two types of orchards: Mango and Cashew trees. Additionally, they planted forest trees rubber and Arjun (*Terminalia arjuna*) to prevent soil erosion. The survey found that 128 acres of land, covering 121 families, were involved in the proposed program. Lela village has the highest proportion (46,00 %) of WADI plots, followed by Rang pather (33,00 %) and Lata para (21,00 %). In the villages under study, farmers grow a variety of vegetables such as tomatoes, eggplants, pumpkins, chili peppers, beans, cucumbers, mustard greens, radishes, okra, watermelons, beets, carrots, coriander, pigeon peas, and various types of leafy greens as intercrops to supplement their income. It meets their daily needs and provides nutritious food for their children. They sell the extra crops at the local market, which boosts their income.

S No	Village Name	No of WADI/ Beneficiary	Land (In Acre)	Plantation trees	Forestry trees
1	Lela	56 (46 %)	57	Mango, Cashew	Rubber, Arjun, Segun etc.
2	Rang Pether	40 (33 %)	43		
3	Lata Para	25 (21 %)	28		

Source: Structure Questionnaire.

Another crucial aspect of this project is organic farming. In the villages under study, a total of five vermicompost pits have been set up, where cow and goat waste are used for composting. Vermicompost helps enhance soil productivity and promotes the use of organic products. Additionally, various indigenous methods like neem (*Azadirachta indica*) paste and cow dung are applied to improve the natural fertility of the land.

Group formation and the creation of self-help groups are another important aspect of this project. The implementing agency plays a key role in providing various trainings related to orchard plantation, income generation, women's empowerment, resource mobilization, and product marketing. A total of 12 Self Help Groups have been formed with members from beneficiary families. Almost all members are involved in activities such as preparing puffed rice, making jam and jelly, and participating in other successful micro-enterprises. Empowering women is crucial for their active participation in project implementation, with a focus on income generation, sanitation, and reducing drudgery. The program aims to provide women with opportunities to supplement their existing income and improve their quality of life by meeting basic needs such as food, education, and health. Income generation activities will be carried out both at the group and individual levels. The health department addresses major community health issues, but there are still certain health aspects

that women in the villages lack education and treatment for. To address these issues, it is proposed to conduct health check-up camps and provide medicine to women and adolescent girls in the villages under this program. The key components of the health program include mother and child immunization, postnatal care, nutrition and health education, and hygiene and health. All these health components will be addressed in a single camp organized quarterly in each village.

Target, success rate and assessment

WADI is a comprehensive development approach that addresses various aspects of tribal life. Generally, the tribal families in the studied villages are economically disadvantaged and rely heavily on labor work. Although they own land, it is mostly barren and infertile, with only a small portion suitable for cultivation, and even then, it cannot meet their needs due to water scarcity. As a result, many families migrate to other places for better opportunities to support their families. The tables below depict the population distribution based on gender, the education scenario, and a comparison of income levels before and after the project completion.

Table 2 illustrates the total population of the three villages based on the gender of all tribal families studied. The study included 121 families across the three villages, comprising 258 males and 283 females. The percentage of male and female population is 48 % and 52 %, respectively. Lela has the highest number of male populations, while Lata para has the least. Conversely, the percentage of females (51 %) in Lela and Lata para village is higher than in the other villages.

Village Name	Male	%	Female	%
Lela	99	50 %	101	51 %
Rang Pether	94	49 %	98	51 %
Lata Para	65	44 %	84	56 %
Total	258	48 %	283	52 %

Source: Structure Questionnaire.

The educational background of the population in all three villages is a crucial aspect of this study. Education plays a significant role in determining one's status and position in society, and it is often linked to development. Literacy serves as a valuable social indicator, reflecting people's attitudes toward modern amenities and decision-making. The table below illustrates the educational status of the villagers under study.

Category	Male	%	Female	%	Total	%
Non-literate	67	12 %	98	18 %	165	30 %
Class I - IV	71	13 %	67	12 %	138	26 %
Class V - X	58	11 %	76	14 %	134	25 %
Class XI - XII	34	6 %	24	4 %	58	11 %
Above H.S.	19	4 %	12	2 %	31	6 %
Graduate	9	2 %	6	1 %	15	3 %
Total	258	48 %	283	52 %	541	100 %

Source: Structure Questionnaire and Assam Tribal Development Authority <https://wptbc.assam.gov.in/>

The majority of villagers (about 30 %) are non-literate, meaning they cannot read or write. A significant portion of the population (about 26 %) has education up to the fourth grade or lower. About 25 % of villagers have completed education up to the tenth grade. A smaller percentage of the population (about 11 %) has completed education up to the twelfth grade. Only a small portion of villagers (about 6 %) have education beyond high school, and an even smaller percentage (about 3 %) are graduates. Overall, the data highlights that while there is some level of education among the villagers, a substantial portion of the population lacks basic literacy skills, indicating a need for educational interventions and support programs within the community.

Table 4. Migration status before and after implementation of the Project (familywise)

Types	No. of families before implementation	No. of families after implementation
Non-Migrant	54 (45 %)	87 (72 %)
Within Goalpara	40 (33 %)	26 (21 %)
Outside Goalpara	23 (19 %)	8 (7 %)
Outside Assam	4 (3 %)	0 (0 %)
Total	121 (100 %)	121 (100 %)

Source: Structure Questionnaire and Assam Tribal Development Authority <https://wptbc.assam.gov.in/>

The research indicates a notable decrease in the overall migration of families after the project implementation. This decrease is particularly evident in families migrating within and outside Goalpara, as well as those moving outside Assam. Such a decline in migration rates suggests that the project may have contributed to stabilizing families within their local communities. The significant increase in the number of non-migrant families after the project highlights the effectiveness of the intervention in retaining families within their original communities.

This retention is crucial for fostering community stability, social cohesion, and sustainable development within the region. The decrease in migration within Goalpara specifically underscores the project's positive impact on encouraging families to remain within their immediate locality. This suggests that the project may have provided opportunities or resources that incentivized families to stay closer to their homes. The findings from the table could have implications for policy formulation and implementation regarding community development initiatives. Understanding the factors that contribute to migration patterns can inform the design of more targeted interventions aimed at addressing socio-economic challenges and promoting local development.

In summary, the data from the research suggests that the project has had a significant impact on reducing migration rates and retaining families within their local communities. This underscores the importance of community-based interventions in fostering sustainable development and enhancing the well-being of residents.

Table 5. Comparison of the level of income of the studied villagers' pre- and post-scenario of the project

Income range	Before implementation		Post-implementation	
	No. of Families	%	No. of Families	%
Below Rs. 1000	49	40 %	15	12 %
Rs.1001 to 3000	45	37 %	24	20 %
Rs.3001 to 5000	21	17 %	51	42 %
Above Rs. 5000	6	5 %	31	26 %
Total	121	100 %	121	100 %

Source: Structure Questionnaire and Assam Tribal Development Authority <https://wptbc.assam.gov.in/>

DISCUSSION

This research reveals a significant improvement in the income levels of the studied villagers after the project implementation. Across all income ranges, there is an increase in the number of families earning higher incomes post-implementation compared to before the project. The notable decrease in the number of families earning below Rs. 1000 after the project suggests an effective poverty reduction impact. It implies that the project interventions may have successfully lifted some families out of extreme poverty or increased their earning potential to surpass the Rs. 1000 threshold. There is a clear trend indicating a shift towards higher income brackets post-implementation. The increase in the number of families earning between Rs. 3001 to 5000 and above Rs. 5000 highlights the project's role in facilitating income-generating opportunities and improving economic conditions within the community. The findings underscore the positive socioeconomic impact of the project, indicating its effectiveness in enhancing the financial well-being of the villagers. This suggests that the project has played a crucial role in poverty alleviation, economic empowerment, and overall livelihood improvement within the community. The data could have significant implications for policy formulation and future research. Understanding the factors contributing to income improvement post-project implementation

can inform the design of more targeted interventions aimed at sustainable economic development and poverty reduction.

In summary, the data from the table provides compelling evidence of the positive impact of the project on income levels and socioeconomic well-being within the studied community, highlighting its significance in fostering economic development and improving livelihoods.

Self-help groups have been established among beneficiary family members to foster community development. These groups aim to create additional income opportunities through small-scale agricultural initiatives like horticulture, vermicomposting, marketing of produce, and processing saal leaves. (There are a total of 11 WADI women's self-help groups, each with a bank account where group income is deposited.)⁽¹⁰⁾ Members can borrow cash from their group when needed, and the money, along with interest, is later distributed among members. Currently, four women's groups have received grain husking and spray machines from the implementing agency, enabling them to earn a good income. (Additionally, each village has one vermicompost unit run by women's groups, producing 19 quintals of vermicompost last year, valued at Rs. 23,000.)⁽¹⁰⁾ Other income generation activities include seasonal fruit plants, Sal plates, goat rearing, puffed rice production, and rope making from Babui grass.

The SHGs also promote family health awareness and distribute water filters to members as part of an awareness program by the implementing agency. Fruit plants are supplied to families through women's WADI groups to establish kitchen gardens for household nutrition. Halogen tablets and bleaching powder are distributed among selected families initially for health and sanitation purposes. However, after the completion of the WADI project, the condition of the people has improved through income-generating activities such as making jam, jelly, tomato sauce, puffed rice, goat rearing, pig farming, and vermicomposting. SHG members also take loans from the group for family needs such as children's education and food, reducing dependency on their husbands.

Overall, the WADI program encompasses various aspects of tribal livelihood, including the development of barren land and its inhabitants through economic, environmental, health, soil conservation, water resource development, agricultural, and women's development initiatives.

CONCLUSION

The WADI project takes a comprehensive approach to rural development, addressing various aspects of tribal life. Its primary goal is to generate income for poor tribal families in the studied villages. These families have historically faced poverty and exploitation, often migrating to towns in search of better opportunities due to low productivity and scarcity of forest resources. The WADI project offers them a ray of hope for a better life by introducing fruit-bearing plants and other forest species to meet their fuelwood needs.

In essence, the WADI project has significantly improved the quality of life for the tribal households through economic and women's empowerment, sustainable horticultural development, and health initiatives. The study shows that increased income levels among tribal beneficiaries have reduced migration rates, ensuring food security, income stability, improved health, and environmental conservation for the community.

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FINANCING

The authors did not receive financing for the development of this research.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest".

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