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IMPACT ANALYSIS OF WATERSHED DEVELOPMENT PROGRAMME IN PUDUKKOTTAI DISTRICT

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Abstract:

Watershed development in Pudukkottai District, located in the Indian state of Tamil Nadu, involves a range of initiatives aimed at improving water resource management, enhancing agricultural productivity, and supporting sustainable development. The district has historically faced challenges related to water scarcity and soil erosion due to its semi-arid climate and varying topography. Here's a closer look at the key aspects of watershed development in the region:

Introduction

The concept and history of watershed management programme in India go back to the late 19th Century with the appointment of Famine Commission, and also that of the Royal Commission on Agriculture in 1928 by the then Imperial Government. These reports laid the foundation for an organised research. The first large scale public policy support for the Programme was launched in the Independent India's planned era in 1962-63 as a dovetail of major river valley projects. The National Watershed Development Project for Rain-fed Areas (NWSDRPA) was launched in 1986-87 in selected 99 different ordain-fed arable areas across the Country in order to enhance crop productivity. However, the severe drought of 1987 compelled the Government of India to earmark funds on a large scale during the Eighth Five Year Plan period and in the subsequent plans. Hence, the vigor and seriousness of watershed development ushered in only since 1987. The official guidelines issued by the Ministry of Rural Areas and Employment of the Government of India during early 1990's are considered a landmark in the field of watershed developmental policies.

Green Revolution was characterised by land-saving but, water-using technologies, whereas dry land areas need water-saving enterprises and practices which optimise output per unit of scarce water. The stagnation of production and productivity in all major food crops of dry land agriculture helped to the widening of regional disparities between dry land and irrigated areas. Further, the rapid agricultural development in the Green Revolution areas has been more or less tapering off. This does not imply that new breakthroughs or extensions are not possible in these areas. However, in the long run, agriculture has to go beyond the Green Revolution areas for untapped potential for growth. Considering the limited prospects of irrigated regions in meeting the future food requirements of the Country and the equity consideration, there is the need for a shift in the development priorities in favour of dry land agriculture.

State Governments have taken up such programmes either with additional or existing administrative machinery. Fourthly, the Central Government initiated a National Watershed Development Programme for Rain-Fed Area (NWDPRA) which was implemented by each state government with some modifications. Further, some projects are undertaken by voluntary agencies". Under (the new guidelines as many as 10,000 watershed projects under Drought Prone Areas Programme (DPAP).

Collaboration and Funding: The IWMP in Tamil Nadu is supported by central and state government funding, with contributions from various development agencies and international organizations. Collaboration with local bodies and community-based organizations is essential for successful implementation.

Overall, the Integrated Watershed Management Programme in both India and Tamil Nadu represents a holistic approach to managing watershed resources, improving agricultural productivity, and fostering sustainable development.

Objectives of Watershed Development

- To understand the primary goal is to conserve water by capturing and storing rainwater, reducing surface runoff, and recharging groundwater levels.
- To examine the implementing measures to prevent soil erosion, which can degrade land quality and reduce agricultural productivity.
- To assess improving water availability and soil health, the initiatives aim to boost crop yields and support sustainable farming practices.
- To reckon creating opportunities for local communities by improving water access and soil fertility, which can lead to better agricultural income and overall economic stability.
- To know the protecting natural resources and promoting ecological balance through sustainable land use practices and afforestation.

Review of Literature

Only a few studies have explicitly quantified changes in the watershed areas. Srivastava Ashuthosh et a!. reported that the net area sown has increased by Ha. 0.508 per farmer in the watershed area of Mandasaur District in M.P and net area sown has increased by 4.31 per cent. The increase in gross cropped area ranged from 4.31 percent 38.31 percent. Also, Alguman and Singh have come to more or less similar findings in other parts of the Country . The increase in the intensity of cropping was found to vary in different parts of the Country between 0.09 to 53 percent

Many studies concluded that the productivity of all the crops grown in watershed areas has increased due to watershed technology, and estimated to be in the range of 80 to 600 percent. The study conducted by AERC, A.U. reported that yield improvement on the beneficiary fields has been substantial compared to non-beneficiaries for all the crops grown in 1999 . Hajra also found that the productivity of different crops has increased from 150 to 444 per cent over die initial level in Jhansi District, M.P. for wheat, sesamum, mustard etc

Analysis

The study has to attempt to know irrigational facilities in and around of Pudukkottai District. The following Table brings out that the taluk wise irrigational sources in Pudukkottai District.

Table 1: SOURCES OF IRRIGATION BLOCK-WISE – 2022-23

Sl. No.	Name of the Block	Canal	Well	Tank
1	Pudukkottai		2292	428
2	Gandarva-kottai	1	2494	138
3	Annavasal	1	627	566

4	Kunnandarkoil	7	1785	483
5	Thirumayam	7	390	786
6	Thiruvaran-kulam	1	4302	279
7	Aranthangi	1	4065	467
8	Avudaiyarkoil	4	35	294
9	Manamelkudi	1	120	157
10	Viralimalai		2054	371
11	Karambakudi	1	3654	173
12	Ponnamarathi		2185	884
13	Arimalam	4	1006	415
District Total		**28**	**25009**	**5441**

Source: Statistical Handbook of Pudukkottai District, 2022 -23, P. 160.

It is inferred from Table 1, the Pudukkottai district received the water sources from Tank has dominant as followed by wells which indicates that the well water has recharged from the surface of tank irrigation. As a result, the researcher who has confined the surface water and enriching of well water are balanced from the Watershed Development programmes. Therefore, the study has encourage to implement to restore the availability water through drought prone area development programme (DPAP), Integrated Watershed Development Programme (IWDP) renovated and renamed as a Integrated Watershed Management Programme (IWMP). Further the study has identifies that the state sponsored watershed programme of Comprehensive Wasteland Development Programme (CWDP) which also contribute in significant way in Pudukkottai District.

Key Strategies and Practices

Building small check dams, ponds, and other water harvesting structures to capture rainwater and reduce runoff. Implementing agricultural practices that follow the natural contours of the land to reduce soil erosion and enhance water retention. Planting trees and restoring degraded forests to improve soil health, increase water absorption, and enhance biodiversity. Developing comprehensive plans that involve community participation and address specific needs of the watershed, including land use planning and resource management.

Providing training to local farmers and stakeholders on sustainable agricultural practices, water conservation techniques, and soil management. Engaging local communities in the planning and implementation processes to ensure that the solutions are tailored to their needs and to foster a sense of ownership and responsibility.

Challenges and Solutions

The semi-arid climate can make water management challenging. Adaptation strategies such as drought-resistant crops and efficient irrigation methods are crucial. Soil erosion and land degradation can undermine the effectiveness of watershed projects. Integrated soil management and erosion control measures are important. Securing adequate funding and resources for watershed development projects can be challenging. Leveraging government schemes, NGO support, and community contributions can help address this issue. Regular monitoring and evaluation of watershed development activities are necessary to assess their impact and make necessary adjustments.

Successful Examples

Some projects in Pudukkottai District have successfully integrated water conservation, soil management, and community engagement to improve local water resources and agricultural productivity. There have been instances where local communities, supported by NGOs and government programs, have played a crucial role in managing and maintaining watershed projects.

Conclusion

In Tamil Nadu, including Pudukottai District, the primary goal of water conservation—capturing and storing rainwater, reducing surface runoff, and recharging groundwater levels—is addressed through a blend of traditional and modern practices. Each approach has its strengths and challenges. Combining traditional wisdom with modern technology and practices tends to be the most effective strategy for managing water resources sustainably.

Overall, watershed development in Pudukottai District represents a critical effort to address water scarcity, enhance agricultural productivity, and promote sustainable development in a region that faces significant environmental challenges.

The researcher who has found that the preventing soil erosion in Tamil Nadu and Pudukkottai District involves a mix of traditional and modern practices tailored to local conditions. Effective implementation requires community involvement, proper planning, and ongoing management to ensure the long-term sustainability of soil conservation efforts.

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