

Village Development Strategies: The Road to Self-Reliance

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Abstract

In India, the heavy reliance on government bodies to meet various needs is placing significant strain on the country's governance systems. The government issues guidelines aimed at addressing a range of social, economic, and environmental challenges, with substantial budget allocations made each year for policy implementation. At the village level, the Ministry of Rural Development, India, along with other organizations, works actively to address rural issues and holds decision-making power on various aspects. However, the main beneficiaries rural communities often remain excluded from accessing essential services. A contextualized approach could benefit both the recipients and the implementing agencies. This can be achieved by adopting a well-structured methodology as a baseline guideline for addressing basic needs and developmental projects. This paper focuses on water management, evaluating the current system through an experimental analysis of a randomly selected village and its progress toward sustainable solutions..

Keywords

Government guidelines, measures, sustainability, water management

Introduction

The saying, "India lives in its villages," remains relevant even today. Mahatma Gandhi, as a visionary, had a profound understanding of the importance of villages in India's fabric. He firmly believed that "India lives in her seven and a half lakh villages" and expressed the conviction that "If the village perishes, India will perish too."ⁱ Gandhi's vision emphasized the vitality of rural communities as the backbone of the nation, underscoring the need for their preservation and development. Whenever one imagines development of villages, very firstly the scene of clean and green environment with all smiling faces is portrayed in mind. The word clean is nothing but proper management of waste and sanitation facilities while as the word green interprets agrarian economy

flourished at its optimum. Ultimately water management helps in keeping the places clean and green. On one side low yields due to low irrigated acreage in rain-fed areas & on other side water crisis due to increasing pressure on agriculture due to increasing demand from industrial sector. Also, safe drinking water and proper sanitation facility is another issueⁱⁱ.

The Ministry of Rural Development (MRD), Department of Water and Sanitation, along with various other organizations, continuously strive to address rural challenges through numerous schemes and programs. However, the outcomes have not been entirely satisfactory. At the village level, the Panchayati Raj Institutions (PRI) hold the authority to make decisions on various developmental aspects. To effectively utilize and strengthen this power, every village needs to identify its key priorities and development needs on a broader scale. Implementing a well-structured methodology that addresses each of these aspects would serve as a valuable toolkit, aiding in the sustainable resolution of local problems.

One of the most critical issues is water scarcity, which often leads to food crises, droughts, and loss of life. Historically, water has played a foundational role in human civilizations—whether Egyptian, Indian, Islamic, Chinese, or Japanese—where settlements flourished around water sources that were revered and carefully managed. Even in ancient India, between 230 and 1294 CE, empires like the Satavahanas, Vakatakas, Chalukyas, Rashtrakutas, and Yadavas thrived due to their efficient and skilled water management systems, with rulers contributing significantly to the development and maintenance of water resourcesⁱⁱⁱ.

Precipitation is another key source of water, derived from the evaporation of existing water bodies. The major sources of water include rain, surface water, groundwater, and wastewater. In India, most regions receive rainfall for only about four months each year. After the monsoon, water flow decreases and may disappear entirely during the summer. When these flows are

interrupted, it disrupts the natural cycle, disturbing the biological equilibrium and affecting all life that depends on it.

This disruption has worsened in recent times due to overexploitation and misuse of water resources. Concentrating water in a few locations for extensive human use disrupts the water cycle across much larger areas, amplifying the imbalance^{iv}.

Water demand is primarily focused on adequacy, equity, and purity, all of which are directly linked to public health, welfare, and overall quality of life. Modern water management systems predominantly rely on controlling flows and creating storage facilities, which represent a largely statistical and technological approach aimed at addressing the demand side. However, another critical aspect is ensuring that water streams remain free from sewage and other forms of waste. Proper waste disposal is, therefore, an integral part of an effective water management system.

Incorporating pollution control laws and environmental safeguards, as mandated by relevant ministries, would make water management more efficient and sustainable. Leading scientists worldwide have acknowledged that ecological processes are life-supporting systems that must remain viable and functioning to achieve sustainability in all aspects of life. Thus, it is essential to recognize and meet ecological needs by protecting and restoring water sources, ensuring they remain healthy and capable of supporting life.

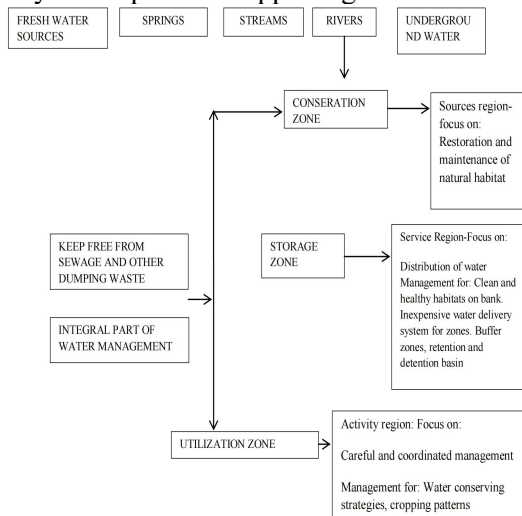


Figure 1: Flow diagram showing water conservation

II. METHODOLOGY

2.1. Understanding the relation between water sources & village life

The village is the foundational unit of a nation's structure. Figure 1 illustrates various methods of water conservation in villages. Over generations, these settlements evolved and became recognized as villages. Water is a fundamental necessity for all livelihoods. Fertile lands near water sources were vital for food production and other needs, with agriculture, animal husbandry, and forestry being key economic activities, all of which relied heavily on a consistent water supply. The relationship between water and a village's economic development was crucial. Man-made lakes, surrounded by a maintained ecosystem and often connected to temples, became a distinctive feature of Indian villages.

Historical records reveal that prior to British rule, India had around 2 million lakes, with nearly every village and farmland having its own lake. The British recognized the importance of these well-managed and delicate ecosystems and systematically began dismantling them. After 1960, the approach to village development shifted dramatically, as communities became increasingly dependent on the government for even basic needs.

Irregular monsoons, changing lifestyles, and the growing pressure on agriculture, driven by the demands of the industrial sector, have compounded the challenges of water management. Cities today require 135 liters per capita per day (LPCD) for water and sanitation, while villages are provided with only 35-55 LPCD, excluding sanitation needs. This highlights the need for a more thorough understanding of the changing lifestyles and water requirements in rural areas when planning for future development.

To avoid crisis due to water stressed conditions, central government now providing funds to the states under Accelerated Rural Water Supply Program (ARWSP) for taking up projects on rainwater harvesting, water recharge & other methods.

2.2 Initiatives directly or indirectly related to water management:

- The creation of Global Water Initiative (GWI) comes at a time when more than 1

billion people lack access to improved water sources & more than 2.6 billion people lack adequate sanitation .

- The Millenium Development Goal of India-Goal 7 ensures environmental sustainability^v.
- Schemes under Minimum Needs Program (MNP) & Accelerated Rural Water Supply Program (ARWSP). The state government has implemented various schemes for improving the water supply coverage over a period of time. Apart from government agencies, World Bank, German Development Bank (KfW) & other NGO's are actively involved in implementing water supply schemes in rural

III. EXPERIMENTAL ANALYSIS

The village study is selected at random to understand the variations in implementation of schemes & programs at contextual level. 'Hotgi' as a village is selected which belongs to hot-dry region of Maharashtra where water scarcity & periodic drought are major issues. The site is located in south Solapur district of Maharashtra. It is situated 12 km towards south from the core city of Solapur- almost at fringe of the city. The total geographical area of the village is 2500Ha. of which the village cluster area is around 18,944m² which is approximately 1.9Ha. Below (figure.3) precise geographical image is showed as well as adjoining commercial lands are also displayed.



The project area falls under hot & dry climatic conditions. The annual rainfall is 350-650mm. Below table showshow much annual rainfall is observed annually over a period of ten years.

Common observations and problem identification

1. Poor management & maintenance of drinking water distribution systems at individual household levels as well as community supply is creating unhygienic conditions.
2. Poor maintenance of open gutters, soak pits & partially completed close gutter systems.
3. Open defecation is still a problem in the village.
4. Very firstly response to Gram Sabhas is very much lacking only 4-6 Gram Sabhas every year clearly indicates non-willingness of both people & the body.
5. Available fund utilization is not justified due to lack of technological aspects.
6. No efforts taken till today to participate in Sant Gadge Baba Gram Swachata Abhiyan or Total Sanitation Campaign (TSC).
7. Exploitation of water resource along the canal by water intensive crops is noticed throughout the year.

IV. RESULTS & DISCUSSIONS

By considering the water requirement for village lifestyle, the daily use water requirement is 65 lpcd. Considering this standard quantity of water, it comes out to be 436m³. But the provided water through pipeline systems is only 210m³. The need is to manage for the standard water needs.

V. CONCLUSION

- As 70% of agricultural land is rain fed, with the help of lake water the opportunities to increase the productivity could be opened to village easily.
- As the assets regarding the water supply & waste water collection are maintained very poorly, the structural & O&M measures must be maintained for clean & hygienic surroundings.
- The existing system of planning is demand oriented which needs to be analyzed such that whether fulfillment of this demand leads to sustainable achievements.

VI. FUTURE SCOPE

1. Data requirement should be carried out to check the requirements considering available values.
2. Structural measures should be considered to evaluate storage, distribution & collection systems availability.
3. Conservation measures should be taken up.
4. Proper developmental plan should be prepared.

References

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