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ROLE OF KASALGANGA PROJECT IN SOCIO-ECONOMIC DEVELOPMENT IN SOLAPUR DISTRICT (MAHARASHTRA): A GEOGRAPHICAL APPROACH

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ABSTRACT

The Kasalganga Project, launched under the Amrit Mahotsav of Indian Independence and the state-wide "Chala Jaanuya Nadila" campaign, is a watershed-based initiative aimed at revitalizing seasonal rivers to ensure sustainable water use in drought-affected areas of Maharashtra. Centered on the Kasalganga River, a tributary of the Bhima in Solapur district, the project covers about 400 sq. km and benefits nearly 25 villages. Construction of more than 50 cement and stone bunds extended river flow from a few weeks to almost six months annually, improving irrigation, groundwater recharge, and soil conservation. The study, based on primary surveys and secondary sources, reveals major agricultural gains—sugarcane production rose by 378.76% and incomes by over 500%—alongside diversification into horticulture and triple-cropping systems. Socially, migration declined from 40% to 10%, housing and basic amenities improved, and women gained greater participation in education and income activities. Environmentally, the project fostered afforestation, reduced erosion, and promoted sustainable practices. Overall, it serves as a replicable model of integrated watershed management, enhancing agriculture, livelihoods, and ecological resilience in drought-prone regions.

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INTRODUCTION

Food, water, and shelter are the three fundamental needs of human beings, among which water is the most vital factor influencing the origin, distribution, and continuity of life. From the evolution of molecules to the development of civilizations, water has always remained central to human survival. Historically, human civilization has flourished in the neighborhood of rivers, and the distribution as well as the socio-economic development of people has been largely determined by the availability of water resources. In Maharashtra, nearly 80 percent of the rural population is directly or indirectly engaged in agriculture. However, agriculture in the state is often disturbed by recurring droughts, particularly during summer. Drought has frequently hit large parts of Maharashtra, resulting in severe water shortages, crop failures, and food insecurity. Regions such as Western Maharashtra, Marathwada, and Vidarbha are repeatedly exposed to severe droughts, with nearly one-third of the state's geographical area facing water scarcity on a recurring basis.

Solapur district, located in the western part of Maharashtra, represents one of the most drought-prone regions. According to the 2011 Census, the district is home to 43,17,756 people and covers a total area of 14,895 sq. km with an average elevation of 550 meters above mean sea level. Despite its large population and vast geographical extent, the district receives only about 561.47 mm of annual rainfall, which is both low and highly variable. The rivers in Solapur district are largely seasonal, flowing only for a few months during the monsoon season, further intensifying water scarcity. In this semi-arid environment, watershed development and river valley projects have been identified as sustainable solutions to ensure reliable water supply for agriculture and domestic use. To address these challenges, the Government of Maharashtra has promoted several initiatives under the Amrit Mahotsav of Indian Independence, including the campaign "Let's Go to the River", aimed at reviving and conserving rivers across the state. Under this mission, efforts have been made to study and rejuvenate 75 rivers belonging to the basins of the Godavari, Krishna, Tapi, Narmada, and Western coastal channels. It is in this context that the Kasalganga River Project has been initiated in Solapur district. The project is designed to harness and manage the seasonal waters of the Kasalganga River through systematic watershed development, storage structures, and irrigation facilities. The aim is to provide sustainable water resources to drought-prone areas, thereby transforming the agricultural economy and improving the socio-economic status of rural communities. By ensuring irrigation security, the project supports crop diversification, enhances agricultural productivity, reduces migration, and uplifts rural livelihoods.

STUDY AREA

The present study focuses on the Kasalganga River basin, a small but significant tributary of the Bhima River situated in Solapur district of western Maharashtra. The river basin lies primarily within Pandharpur, Sangola, and Malshiras talukas, forming a vital

hydrological unit in the semi-arid landscape of the district. Geographically, the Kasalganga River stretches between latitude 17°34′05″N to 17°48′30″N and longitude 74°56′27″E to 75°17′10″E, covering a total catchment area of about 386.51 sq. km. The basin is bounded by Satara district to the north, Sangli district to the west, Mangalwedha taluka to the east, and in the south it meets the Bhima River, joining from the right bank. The Kasalganga River, though seasonal in nature, plays a critical role in the regional water system by supporting agriculture and domestic needs during the monsoon months.

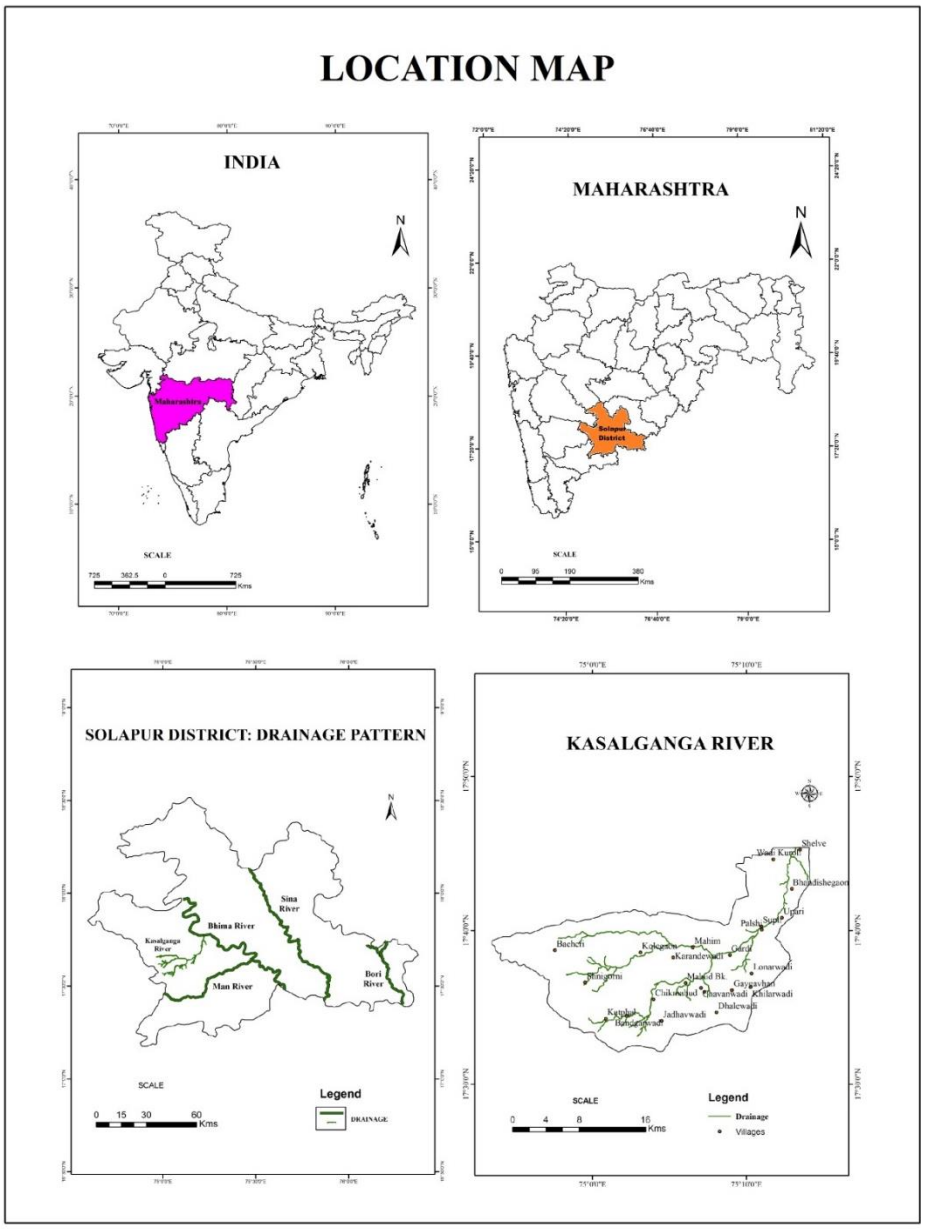

Fig. No.1

The implementation of the Kasalganga Project has transformed this otherwise drought-prone basin into a productive agricultural zone. By storing and channelizing water, the project ensures sustainable irrigation across Sangola, Malshiras, and Pandharpur talukas,

which are otherwise characterized by irregular rainfall and water scarcity. This geographical setting highlights the importance of the Kasalganga basin not only as a hydrological resource but also as a socio-economic lifeline for rural communities. The project has enhanced agricultural productivity, facilitated crop diversification, reduced rural distress, and improved the overall socio-economic fabric of the region. Thus, the Kasalganga River basin serves as a vital case study to understand how localized river-based development projects can significantly contribute to sustainable growth and human welfare in drought-affected areas of Maharashtra.

OBJECTIVES

The main objectives of this research paper are as under:

1. To study the work of Kasalganga Project in the study region.
2. To study the Role of Kasalganga Project on socio-economic status of human population in the study region.

DATABASE AND METHODOLOGY

The present research study is based on both primary and secondary sources to assess the socio-economic impact of the Kasalganga Project in Solapur district. Primary data was collected through field surveys, personal observations and informal interviews with farmers, households and local stakeholders in project-affected villages of Sangola, Malshiras and Pandharpur talukas. Information was collected on changes in cropping patterns, agricultural production, household income, employment levels, migration, housing conditions and access to basic amenities after the implementation of the project. Secondary data was obtained from government publications, research articles, books, project reports, district-level statistical summaries and specifically the Socio-Economic Summary of Solapur district (2021-22). Additional references were taken from newspaper reports, government schemes and policy documents related to watershed management and river rejuvenation.

The data collected was processed and analyzed using both qualitative and quantitative techniques. Statistical methods such as percentage change, growth rate and comparative analysis were used to examine changes in crop production, income levels and employment. Socio-economic indicators such as housing quality, electricity availability, sanitation, drinking water and LPG facilities were compared before and after the project. Maps, tables and graphs were prepared to represent the spatial distribution and temporal changes in agricultural and social development. A geographical approach was adopted to integrate natural conditions such as rainfall, soil type and topography with human responses such as land use, water management and community participation. This methodology provided a comprehensive framework for assessing how the Kasalganga project has contributed to sustainable water use and overall socio-economic

development in the drought-prone Solapur district.

KASALGANGA PROJECT AND ITS BENEFITS

The Kasalganga Project has emerged as a lifeline for the drought-affected areas of Solapur district, especially in the talukas of Sangola, Malshiras and Pandharpur. Launched under the Amrit Mahotsav of Indian Independence and the state-wide "Chala Jaanuya Nadila" (Let's Go to the River) campaign, the project is part of Maharashtra's larger initiative to revive and conserve 75 rivers in major basins like Godavari, Krishna, Tapi and Narmada. In this framework, the Kasalganga river, a seasonal tributary of the Bhima, was selected due to its strategic importance in boosting the economy and livelihoods of about 25 villages in a catchment area of about 400 sq km. Since the Kasalganga is seasonal in nature, the project initiated several water conservation measures to alter the hydrological regime. More than 50 village dams of cement and stone clay were constructed in the riverbed, which created storage reservoirs and enabled year-round water storage. These structures have reduced soil erosion, improved groundwater recharge, and increased the duration of river flow from a few weeks during the monsoon season to nearly six months each year. This expansion of water availability has directly increased irrigation security, improved crop productivity, and diversified cash crops such as sugarcane, fruits, and vegetables, along with grains and pulses.

The socio-economic benefits of the project are profound. Farmers in drought-affected villages are now enjoying sustainable farming opportunities, reducing their dependence on erratic monsoons. Food security has improved, while increased farm incomes have boosted local markets, created rural employment, and reduced seasonal migration. Water availability has also supported livestock rearing, small-scale industries, and household needs, raising the overall standard of living of rural communities. Women in particular have benefited, as the reduced burden of fetching water has enabled them to participate more in income-generating activities and children’s education. Thus, the Kasalganga project stands as a geographical model of integrated watershed management, proving that even a small seasonal river, when used scientifically, can bring about large-scale socio-economic transformation in the drought-stricken Solapur district. It not only conserves water but also secures livelihoods, strengthens rural resilience and promotes sustainable development.

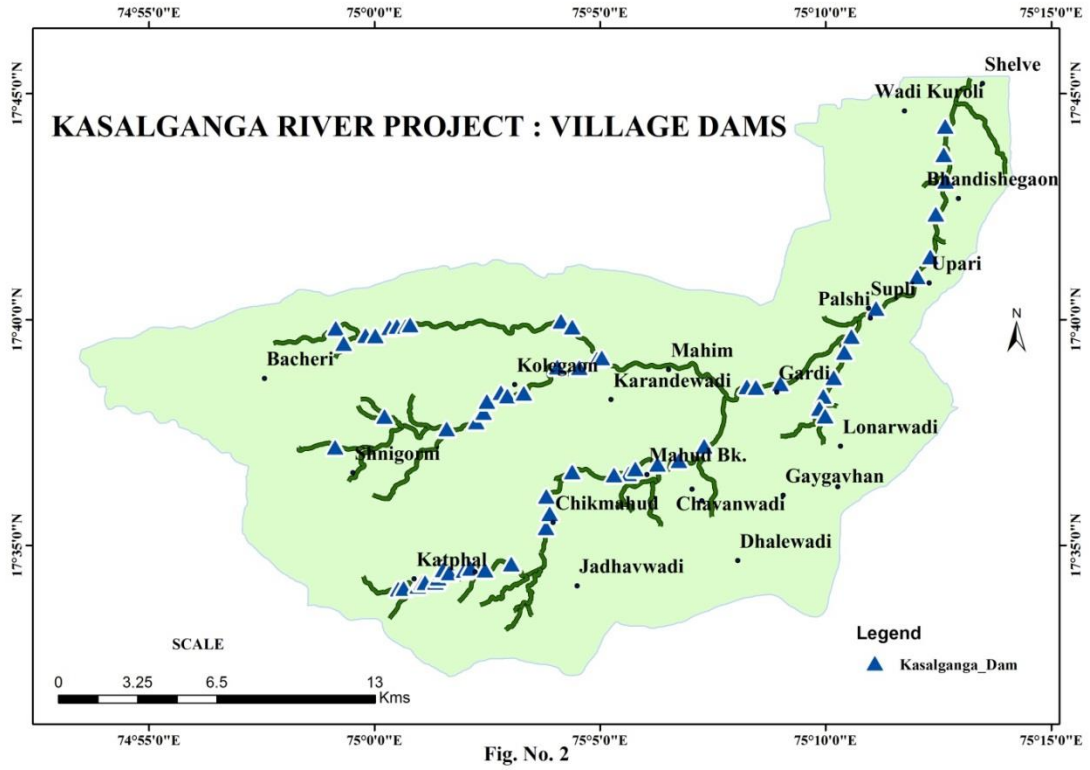

Fig. No. 2

Fig. No.2

ROLE OF KASALGANGA PROJECT ON SOCIO-ECONOMIC DEVELOPMENT

1. Economic Impact

The Kasalganga Project has created a remarkable economic turnaround in the drought-prone talukas of Sangola, Malshiras, and Pandharpur. Earlier, crop failures and low yields forced farmers to depend on dryland crops such as jowar, bajra, tur, gram, and moong, which provided little income and kept households trapped in poverty. With the availability of irrigation, the cultivated area expanded and farmers diversified into high-value crops. The production of sugarcane increased by 378.76 percent, pomegranate by 241.11 percent, vegetables by 170 percent, and fodder crops by 160.87 percent. Incomes rose even faster: sugarcane earnings increased by 524.88 percent, vegetables by 257.14 percent, fodder crops by 214.68 percent, and pomegranate by 136.36 percent. In addition, banana, grape, and mango orchards introduced new streams of revenue that were previously unimaginable in the region. This income boom has allowed farmers to invest in improved agricultural technology such as hybrid seeds, chemical fertilizers, pesticides, drip irrigation, mechanized pumps, tractors, and threshers. The shift from single-cropping to triple-cropping in a year has made agriculture more intensive, market-oriented, and profitable. The multiplier effects are evident: local traders, transporters, and input suppliers benefit from increased agricultural demand; cooperative societies and banks witness higher participation; and rural markets show vibrant activity with new shops, services, and agribusinesses. Importantly, reduced dependence on moneylenders has helped lower rural

indebtedness. Overall, the project has positioned agriculture as a stable and profitable occupation, restoring confidence among farmers and stimulating the rural economy.

2. Social Impact

The Kasalganga Project has also triggered far-reaching social transformation. Migration, once a survival strategy for nearly 40 percent of villagers, has now declined to only 10 percent, with most families able to sustain livelihoods locally. This stability has improved family cohesion, reduced hardships for women and children, and created stronger rural communities. The rise in agricultural income has also directly translated into improved housing quality—kutcha huts have given way to pakka houses and RCC structures, reflecting upward mobility and dignity in living standards. Basic infrastructure within households has expanded considerably. Cooking gas connections are now common, reducing women's health risks from firewood use and saving valuable time. Toilet facilities have improved sanitation, hygiene, and dignity, especially for women. Electricity connections, access to televisions, and the spread of mobile phones have expanded the reach of information, education, and awareness. Water taps and sewage systems, though slower to improve, have still contributed to better living conditions. Families are able to send children regularly to schools, invest in higher education, and access better healthcare facilities due to improved income security. Women, in particular, have benefitted from reduced drudgery in fetching water and firewood, freeing them to participate more in income-generating activities and decision-making within the household. Increased food availability and dietary diversity have improved nutrition levels. The reduction in migration has also ensured that children can continue their schooling without interruption, helping the next generation move toward greater opportunities. Social capital has been strengthened as communities now collectively participate in water conservation, cooperative farming, and village development activities.

3. Environmental Impact

Beyond economic and social dimensions, the Kasalganga Project has significantly improved the environmental balance of the region. The construction of over 50 cement and stone bunds has reduced soil erosion and increased groundwater recharge, ensuring that wells, handpumps, and boreholes retain water for longer periods. Seasonal river flow, which earlier lasted only weeks during monsoon, now continues for nearly six months, replenishing surface and subsurface water. This extended flow has also supported livestock, fisheries, and small irrigation systems for vegetable farming. The spread of water harvesting structures and watershed development practices has enhanced soil moisture, reduced land degradation, and encouraged afforestation in catchment areas. Farmers have become more aware of the need for sustainable water management, leading to the adoption of drip irrigation, mulching, and contour farming in several villages. By conserving natural resources, the project has reduced vulnerability to drought, ensured ecological sustainability, and improved the resilience of farming systems. The

creation of green cover, check dams, and small percolation tanks has improved the micro-climate, reduced dust, and stabilized the natural environment.

KEY FACTS OF KASALGANGA PROJECT

1. The Kasalganga River, a tributary of the Bhima River, flows through Sangola, Malshiras and Pandharpur talukas, covers an area of about 400 sq km and benefits about 25 drought-affected villages in Solapur district.
2. More than 50 cement and stone dams have been constructed, which has increased the seasonal river flow from a few weeks during the monsoon to almost six months every year.
3. Agricultural production increased significantly - sugarcane yield increased by 378.76%, pomegranate by 241.11%, vegetables by 170% and fodder crops by 160.87%, while income increased even faster. Sugarcane yield increased by 524.88%, vegetables by 257.14%, fodder crops by 214.68% and pomegranate by 136.36%.
4. Farmers diversified into banana, grape and mango cultivation, creating new sources of income and shifting from subsistence farming to triple cropping and commercial farming.
5. Increases in income have encouraged the adoption of modern technologies such as hybrid seeds, fertilizers, pesticides, drip irrigation, mechanical pumps and tractors, reduced dependence on moneylenders and strengthened local markets, banks and cooperatives.
6. Seasonal migration has declined from 40% to just 10%, with most villagers now engaged in farming, dairying, poultry farming and agro-industries within their own communities.
7. Housing conditions have improved as mud houses have been replaced by pucca and RCC houses, which have increased mobility and improved living standards.
8. Access to basic amenities has increased rapidly - LPG connections, household toilets, electricity, television, piped water and sewage systems have become common, with LPG and toilets growing the fastest.
9. Women have benefited from reduced toil, better health and education and greater participation in income-generating activities, which have improved empowerment and family well-being.
10. Environmental sustainability improved as soil erosion was reduced, groundwater recharge increased, and seasonal water storage supported livestock, fisheries, and vegetable farming.
11. Adoption of watershed management, drip irrigation, contour farming, and afforestation has increased soil fertility, reduced land degradation, and improved the region's microclimate and ecological stability.

CONCLUSION

The Kasalganga project has emerged as a milestone in drought-stricken Solapur district, demonstrating how scientific management of a small seasonal river can bring about large-scale socio-economic transformation. From a geographical perspective, the project has successfully linked natural resource management with human development. By constructing over 50 check dams and storage structures, the seasonal flow of the Kasalganga river has been increased for almost six months, ensuring reliable irrigation and water availability in Sangola, Malshiras and Pandharpur talukas. This intervention has not only stabilized agriculture but also diversified cropping patterns, increased production and significantly increased farm income. Farmers have shifted from subsistence farming to commercial and horticultural crops based on modern technology, strengthening the rural economy.

The socio-economic impact of the project is equally profound. Migration, which once affected almost 40 percent of households, has now reduced to about 10 percent, ensuring local employment and reducing social stress. Improvements in housing quality, access to electricity, LPG, sanitation, drinking water and education have raised living standards. Women in particular have benefited from reduced labour and increased opportunities for empowerment. At the same time, the environmental dimension of the project cannot be ignored. Soil conservation, groundwater recharge, afforestation and improved micro-climatic conditions have led to environmental stability and long-term sustainability. In short, the Kasalganga project is more than just a water conservation initiative; it is a comprehensive model of rural development that simultaneously addresses economic, social and environmental challenges. It demonstrates that sustainable water resource management in drought-prone regions can secure livelihoods, reduce vulnerability and build resilience in rural communities. The experience of the Kasalganga basin offers valuable lessons for replicating similar watershed and river revitalization projects in Maharashtra and other semi-arid regions of India, ensuring inclusive and sustainable development from a geographical perspective.

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