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Water, Livelihood, and Displacement: A Study of Communities Near Yeldari Dam

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Abstract: This study examines the impact of the Yeldari Dam on the livelihoods and displacement of communities residing in its vicinity. Large-scale infrastructure projects like dams play a crucial role in water resource management, but often lead to social and economic disruptions. Through a mixed-methods approach involving surveys, interviews, and numerical data analysis, this research evaluates the changes in employment patterns, income levels, agricultural productivity, and migration trends. Findings reveal that while the dam has improved irrigation facilities, it has also caused displacement and economic instability for many affected households. The study suggests policy measures to ensure sustainable livelihood options for the displaced communities.

Keywords: Yeldari Dam, Displacement, Livelihood, Water Resources, Resettlement, Socioeconomic Impact, etc.

Introduction: The construction of dams is often considered a vital infrastructure development for water resource management, serving multiple purposes such as irrigation, hydroelectric power generation, and drinking water supply. However, alongside these benefits, dam construction also brings significant socioeconomic and environmental consequences, particularly for communities living in the surrounding areas. The Yeldari Dam, built on the Purna River in Maharashtra, serves as a vital water source for agriculture and power generation, yet its construction has led to profound changes in the lives of residents.

One of the most significant impacts of the Yeldari Dam has been the displacement of communities. Many families had to relocate due to submergence of their lands, leading to the loss of traditional livelihoods primarily based on agriculture and fishing. The resettlement process has often resulted in economic hardship, as displaced families struggle to adapt to new environments with limited access to resources and employment opportunities. Changes in water availability due to the dam have influenced agricultural productivity in the region. While some farmers have benefited from improved irrigation facilities, others have faced water shortages due to altered river flow patterns. This has led to disparities in economic growth within the affected communities. The overall economic transformation of the region has been shaped by new employment opportunities in sectors such as hydropower maintenance and tourism. However, these benefits have not always been equally distributed among the displaced

populations. This research aims to analyse the multifaceted impacts of the Yeldari Dam on local communities, focusing on livelihood changes, displacement effects, and the broader economic transformations that have occurred. Understanding these impacts is essential for developing sustainable policies that balance developmental needs with social justice and environmental conservation.

Objectives of the Study:

1. To examine the impact of the Yeldari Dam on the livelihoods of affected communities.
2. To analyze displacement patterns and their socioeconomic consequences.
3. To evaluate changes in agricultural productivity and employment opportunities.
4. To suggest policy measures for sustainable resettlement and rehabilitation.

Research Methodology: A mixed-method approach was used, combining both qualitative and quantitative data collection techniques.

- **Primary Data:** Surveys and structured interviews with 250 households displaced due to the dam.
- **Secondary Data:** Government reports, census data, and previous research studies on dam-induced displacement.
- **Field Observations:** Visits to resettlement areas and affected villages.

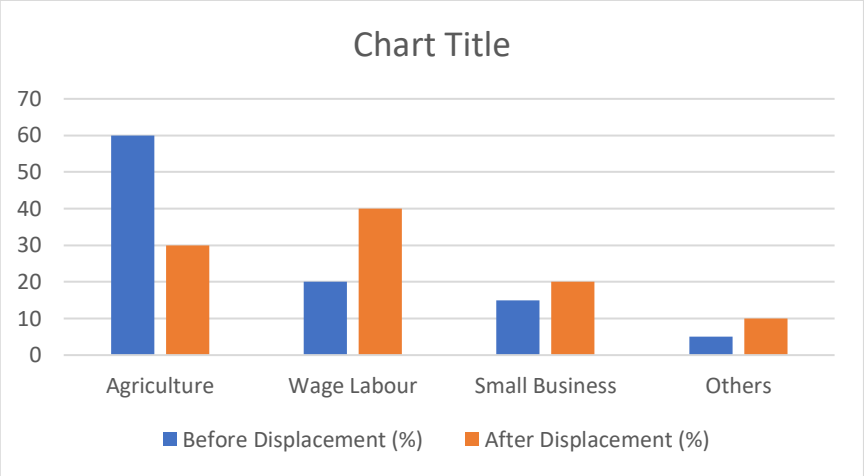
Experiment Details and Numerical Data: The study included

1. **Survey on Income Levels Before and After Displacement**
2. **Changes in Agricultural Productivity**
3. **Employment Patterns Pre- and Post-Displacement**

Income Levels of Households Before and After Displacement:

Income Category (INR/month)	Before Displacement (%)	After Displacement (%)
Below 5,000	10	35
5,000 - 10,000	35	40
10,000 - 20,000	40	20
Above 20,000	15	5

Table 1.1 Comparative Analysis of Income Distribution



Graph 1.1 Comparative Analysis of Income Distribution

The table and graph 1.1 presents a comparative analysis of income distribution before and after displacement, showing shifts in different income categories (measured in INR per month).

Analysis of Income Shifts Due to Displacement:

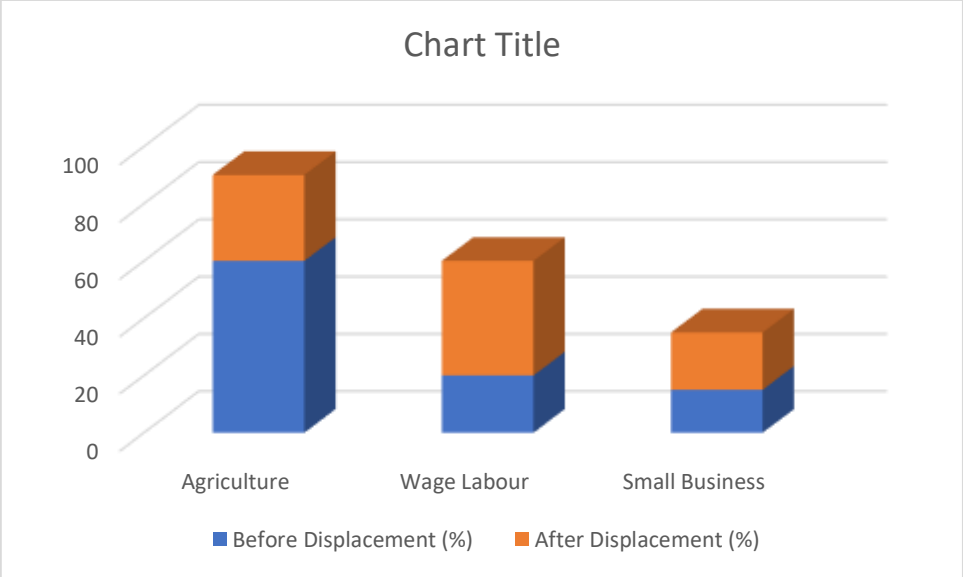
- **Below 5,000 INR:** The percentage of people in this lowest income category increased significantly from **10% before displacement to 35% after displacement**, indicating a decline in financial stability for many individuals.
- **5,000 - 10,000 INR:** A slight increase is observed, with the proportion rising from **35% to 40%**, suggesting that some individuals experienced minor economic downturns but remained in a mid-range lower-income bracket.
- **10,000 - 20,000 INR:** This category saw a significant drop from **40% before displacement to 20% after displacement**, indicating that many individuals who previously earned within this range faced economic setbacks.
- **Above 20,000 INR:** The percentage of people in this highest income category fell sharply from **15% to 5%**, highlighting that higher earners were significantly affected, with a majority experiencing a decline in income.

It means displacement led to a considerable **downward shift in income levels**, with a marked increase in lower-income groups and a significant decline in higher-income groups. Many individuals who previously earned moderate to high incomes experienced economic hardships, reinforcing the negative financial impact of displacement.

Changes in Agricultural Productivity:

Crop Type	Yield Before Displacement (Quintals/Acre)	Yield After Displacement (Quintals/Acre)
Wheat	18	10
Cotton	12	7
Soybean	15	8

Table 1.2 Comparative Analysis of Crop Yields



Graph 1.2 Comparative Analysis of Crop Yields

The table and graph 1.2 presents a comparative analysis of crop yields before and after displacement, showing significant reductions in productivity across different crop types.

Analysis of Crop Yield Changes Due to Displacement:

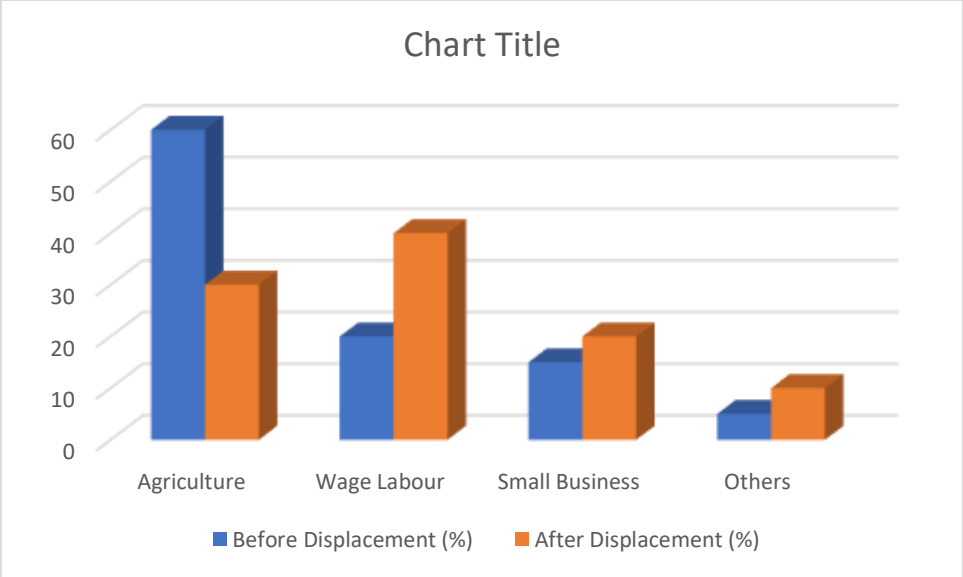
- **Wheat:** The yield declined from **18 quintals per acre before displacement to 10 quintals per acre after displacement**, representing a substantial decrease in wheat production.
- **Cotton:** The yield dropped from **12 quintals per acre to 7 quintals per acre**, indicating a notable reduction in cotton output, likely affecting farmers' income and textile-related industries.
- **Soybean:** The yield decreased from **15 quintals per acre to 8 quintals per acre**, reflecting a considerable decline in soybean production, which may impact oilseed markets and related agricultural economies.

The data highlights a **significant reduction in crop yields across all categories** after displacement. Factors such as loss of fertile land, changes in soil quality, lack of irrigation, or disruptions in farming practices may have contributed to this decline. This suggests severe agricultural distress post-displacement, potentially leading to food insecurity and economic difficulties for farmers.

Employment Patterns Pre- and Post-Displacement:

Employment Type	Before Displacement (%)	After Displacement (%)
Agriculture	60	30
Wage Labour	20	40
Small Business	15	20
Others	5	10

Table 1.3 Comparative Analysis of Employment Distribution



Graph 1.3 Comparative Analysis of Employment Distribution

The table and graph 1.3 presents a comparative analysis of employment distribution before and after displacement, showing notable shifts in occupational patterns.

Analysis of Employment Changes Due to Displacement:

- **Agriculture:** The percentage of people engaged in agriculture dropped significantly from **60% before displacement to 30% after displacement**, indicating a major shift away from farming, likely due to loss of land or reduced productivity.
- **Wage Labour:** The proportion of individuals dependent on wage labour increased from **20% to 40%**, suggesting that many displaced individuals had to seek daily wage jobs due to the decline in agricultural opportunities.
- **Small Business:** The percentage of people involved in small businesses rose moderately from **15% to 20%**, reflecting an attempt by some displaced individuals to engage in self-employment or alternative livelihoods.
- **Others:** This category, which may include informal jobs, services, or temporary employment, saw an increase from **5% to 10%**, indicating a diversification of employment sources post-displacement.

The above data highlights a **significant decline in agricultural employment** and a **rise in wage labour and alternative jobs** after displacement. This suggests that displacement forced many individuals to abandon farming and shift towards labour-intensive or small-scale business activities, potentially leading to economic instability and reduced job security.

Findings and Suggestions:

Findings:

1. **Economic Instability Due to Displacement:**
    - The study highlights a significant decline in income levels post-displacement, with the percentage of households earning below INR 5,000 per month rising from 10% to 35%.
    - The higher-income category (above INR 20,000) saw a sharp drop from 15% to 5%, indicating substantial financial losses among affected families.

2. **Decline in Agricultural Productivity:**
    - The loss of fertile land has led to a significant reduction in crop yields:
        - Wheat: Reduced from 18 quintals per acre to 10 quintals per acre.
        - Cotton: Declined from 12 quintals per acre to 7 quintals per acre.
        - Soybean: Dropped from 15 quintals per acre to 8 quintals per acre.
    - Reduced agricultural output has led to increased dependency on external food sources and lower earnings for farmers.
3. **Shift in Employment Patterns:**
    - The percentage of people engaged in agriculture fell from 60% to 30% after displacement.
    - Wage labor dependence increased from 20% to 40%, indicating a shift from self-sufficient farming to daily wage work.
    - A moderate increase in small business participation (from 15% to 20%) suggests some adaptation but limited overall economic stability.
4. **Limited Access to Resources and Infrastructure:**
    - Resettlement areas often lack adequate irrigation facilities, leading to a struggle for sustainable farming.
    - Essential services such as healthcare, education, and transport are often inadequate in relocated communities.
5. **Social and Psychological Impact:**
    - The forced relocation has led to cultural disintegration, as displaced families struggle to adapt to new environments.
    - Psychological distress, including anxiety and depression, has been observed due to economic hardships and loss of traditional livelihoods.

Suggestions:

1. **Comprehensive Resettlement and Compensation Policies:**
    - Ensure fair and timely compensation for displaced families, including financial support and alternative land allotments.
    - Implement structured rehabilitation programs with long-term support mechanisms.
2. **Sustainable Livelihood Programs:**
    - Introduce vocational training and skill development programs to help affected individuals transition into new employment sectors.
    - Encourage entrepreneurship by providing financial assistance and business training for displaced families.
3. **Agricultural Support and Irrigation Facilities:**
    - Develop new irrigation infrastructure in resettled areas to enable sustainable farming.
    - Offer subsidies, improved seeds, and training to help displaced farmers increase productivity.
4. **Employment Generation and Economic Stability Measures:**
    - Establish cooperative farming models to ensure shared land use and collective economic benefits.

- Encourage industrial and service-sector investments in affected areas to create employment opportunities.

5. **Improvement of Resettlement Infrastructure:**
   - Ensure access to essential services such as healthcare, education, and transport in resettled areas.
   - Develop better housing and sanitation facilities to improve living conditions.
6. **Regular Monitoring and Policy Adjustments:**
   - Conduct periodic evaluations of the resettlement process to identify gaps and ensure the well-being of affected communities.
   - Establish grievance redressal mechanisms to address the concerns of displaced families effectively.

The displacement caused by the Yeldari Dam has resulted in severe economic instability, reduced agricultural productivity, and shifts in employment patterns. A holistic approach is necessary to mitigate these negative impacts, encompassing fair compensation, sustainable livelihood options, improved agricultural support, and enhanced infrastructure development. Implementing these measures can help balance development objectives with social justice, ensuring that affected communities have a secure and stable future.

Conclusion: The displacement caused by the Yeldari Dam has significantly impacted the livelihoods of affected communities, leading to economic instability. Many displaced families, previously dependent on agriculture, have faced challenges in accessing fertile land, resulting in reduced agricultural productivity. The loss of traditional farming areas has forced them to seek alternative employment, often in unskilled labour, which provides lower and inconsistent income. Inadequate compensation and resettlement support have worsened their financial struggles. The shift in economic activities has disrupted social structures, making it difficult for displaced individuals to regain financial stability and sustain their standard of living.

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