JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

SOCIO-ECONOMIC AND ENVIRONMENTAL CONDITIONS OF DUBETA VILLAGE, SONIPAT DISTRICT, HARYANA: A MICRO-LEVEL FIELD SURVEY

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ABSTRACT

The present study is a micro-level geographical field survey conducted in Dubeta village of Sonipat district, Haryana. The primary objective of the study is to analyse the socio-economic, demographic, housing, health, sanitation, drinking water, fuel used for cooking, employment and environmental conditions of the village through primary field data. The research is based on a field survey of 265 households out of total 500 houses in the village. Data was collected using primary field survey techniques - including interviews, direct observation, and group surveys across all four wards supplemented by secondary data from Census of India 2011. The findings reveal that Dubeta has a total population of 2030 with a sex ratio of 876 and literacy rate of 68.33%. Agriculture remains the dominant occupation, with 64% of the population engaged in primary activities. Socially, 54.7% of families are nuclear, 53.8% of marriages occur between 15 & 20 years of age, and only 32.8% houses are pucca. While 96.67% houses have toilets and 97.7% houses have electricity, cleanliness, waste disposal, covered drainage and female employment remain critical challenges. LPG use has increased to 49.7%, signaling progress in women's living conditions, yet 40.9% of households still rely on firewood for cooking. The study concludes that despite government interventions like Swachh Bharat Abhiyaan, PM Ujjwala Yojna, and rural electrification programs, there is an urgent need for covered drains, proper waste management, awareness campaigns, improvement in female education and employment, and better drinking water facilities in the village.

Keywords: Dubeta, Sonipat, Field Survey, Socio-Economic, Sanitation, Sex Ratio, Haryana, Micro-Level Study

1. Introduction

This micro-level empirical investigation was conducted in Dubeta village, located in the Sonipat district of Haryana. Geographical coordinates place the village between 29°12'67" N latitude and 76°84'47" E longitude, approximately 22 kilometers from the district headquarters.

According to the Census of India 2011, Dubeta comprises 500 households with a total population of 2,030 (1,115 males and 915 females). The overall literacy rate is 68.33%, with male literacy at 76.32% and female literacy lagging at 58.58%. The overall sex ratio stands at 876, while the working population accounts for 29.4%. Scheduled Castes (SC) constitute 25.7% of the total population.

Agriculture forms the backbone of the local economy, supported by nutrient-rich soils suitable for major crops such as wheat, paddy, and sugarcane, as well as fodder crops like jowar and bajra. Bovine animal husbandry (cows and buffaloes) serves as a primary secondary income source. The village shares boundaries with neighboring settlements: Mahra (1 km), Padi (1.5 km), Sargathal (1.5 km), Kasandi (2 km), and Bajana Kalan (2 km).

Administratively, Dubeta operates under an elected Gram Panchayat headed by the village Sarpanch, Mr. Vikas Arya. Local institutional infrastructure includes one Government Secondary School, one Primary Health Centre (PHC), six community ponds, two temples, one community hall (Chaupal), and a central water storage facility. The village has a strong sporting tradition, particularly in wrestling, with residents participating in national-level sports events. Several natives have advanced into professional careers as judges, lawyers, pilots, or migrated abroad (UK, Canada, France, Germany). Nevertheless, structural deficits remain regarding industrial development, educational quality, safe drinking water, and reliable grid power.

table 1: village profile at a glance

Item	Details
Location	Sonipat, Haryana, 22 km from HQ
Total Houses	500
Total Population	2030 (Male 1115, Female 915)
Literacy	68.33% (Male 76.32%, Female 58.58%)
Sex Ratio	876
SC Population	25.7%
Working Population	29.4%
Sarpanch	Mr. Vikas Arya
Facilities	1 School, 1 PHC, 6 Ponds, 2 Temples, 1 Chaupal

2. Objectives of the study

- To evaluate the demographic and socio-economic composition of Dubeta village.
- To examine housing structures, sanitation, drinking water availability, and domestic fuel patterns.
- To assess local occupational patterns, household income distribution, and educational attainment.
- To identify operational gaps in environmental cleanliness, drainage, and municipal waste management.
- To formulate targeted policy recommendations for rural development and public infrastructure enhancement

3. Methodology and data collection

Field survey methodology is essential across applied social sciences, including geography, economics, and sociology. To fulfill the research objectives, a primary field survey was executed between January 2022 and March 2023.

Primary data was gathered through structured household interviews, direct field observations, and stratified group surveys. Survey teams evaluated all four administrative wards in pairs. Out of 500 total households, a representative sample size of 265 households was surveyed. Primary field data was benchmarked against official secondary datasets from Census 2011 and Gram Panchayat records.

4. RESULTS AND DISCUSSION

4.1 Demographic Composition and Social Structure

Out of the 265 surveyed households, 209 belonged to the General category (78.9%), 38 to Scheduled Castes (14.5%), 13 to Backward Classes (5.1%), and 5 households (1.9%) to other categories (BCA/BCB/OBC). All surveyed households are practitioners of Hinduism. Nuclear family structures predominate, accounting for 54.7% (145 households), while joint family arrangements represent 45.3% (120 households).

4.2 Age Distribution, Marriage Age, and Education Level

The sample population comprises 54.1% males and 45.9% females. Age bracket analysis shows that 38.3% of individuals are under 20 years, 21.37% fall between 20 and 50 years, and 1.67% are between 50 and 80 years. Early marriage remains prevalent, with 53.8% of respondents married between 15 and 20 years of age, 46.1% between 20 and 40 years, and 0.1% above 40 years.
Educational profiles indicate that 14.51% of surveyed individuals are illiterate, 12.8% have completed 8th grade, 23.7% have completed 10th grade, 30.0% have completed 12th grade, 13.2% hold undergraduate degrees, and 4.8% hold postgraduate qualifications.

table 2: education level

Education	Percentage
Illiterate	14.51%
8th Pass	12.8%
10th Pass	23.7%
12th Pass	30%
Graduate	13.2%
Post Graduate	4.8%

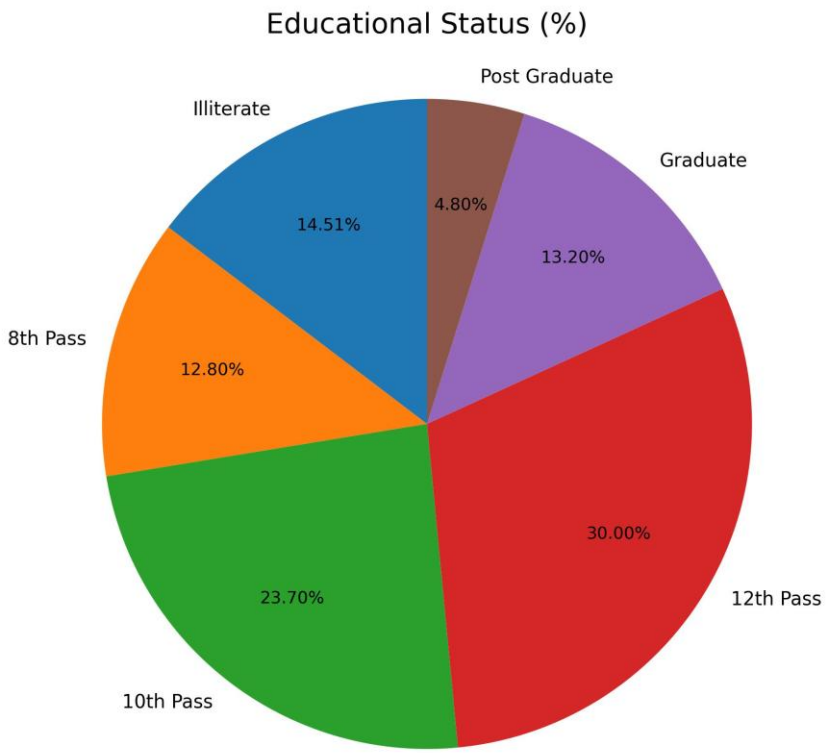


figure 1 : education level

4.3 Occupational Pattern, Household Income, and Employment

A majority of the surveyed workforce (64%) is engaged in primary sector activities (agriculture and animal husbandry), whereas only 3.6% are involved in formal secondary or tertiary sectors. Annual household income distribution reveals that 2.3% earn less than ₹30,000; 34.8% earn between ₹30,000 and ₹50,000; 56.21% fall into the ₹50,000 to ₹1 Lakh bracket; and 6.7% earn between ₹1 Lakh and ₹3 Lakh.

Among 142 gainfully employed individuals, a major gender imbalance exists: 123 are male (86.2%) and only 19 are female (13.8%). Employment distribution across key metrics includes:

- Sector: 66.9% work in private enterprises (95 persons), while 33.1% hold government positions (47 persons).
- Workplace Location: 35.2% work within the village (50 persons), whereas 64.8% commute outside (92 persons).
- Job Tenure: 53.5% hold permanent positions (76 persons), while 46.5% work on a temporary/contractual basis (66 persons).
- Job Satisfaction: 60.5% reported full satisfaction (86 persons), 21.2% moderate satisfaction (30 persons), and 18.3% dissatisfaction (26 persons).

table 3: income and employment

Items	Details
Primary Activities	64%
Income < Rs 30,000	2.3%
Income Rs 30,000-50,000	34.8%
Income Rs 50,000-1 Lakh	56.21%
Income Rs 1-3 Lakh	6.7%
Employed Male	86.2% (123)
Employed Female	13.8% (19)
Private Job	66.9% (95)
Govt. Job	33.1% (47)

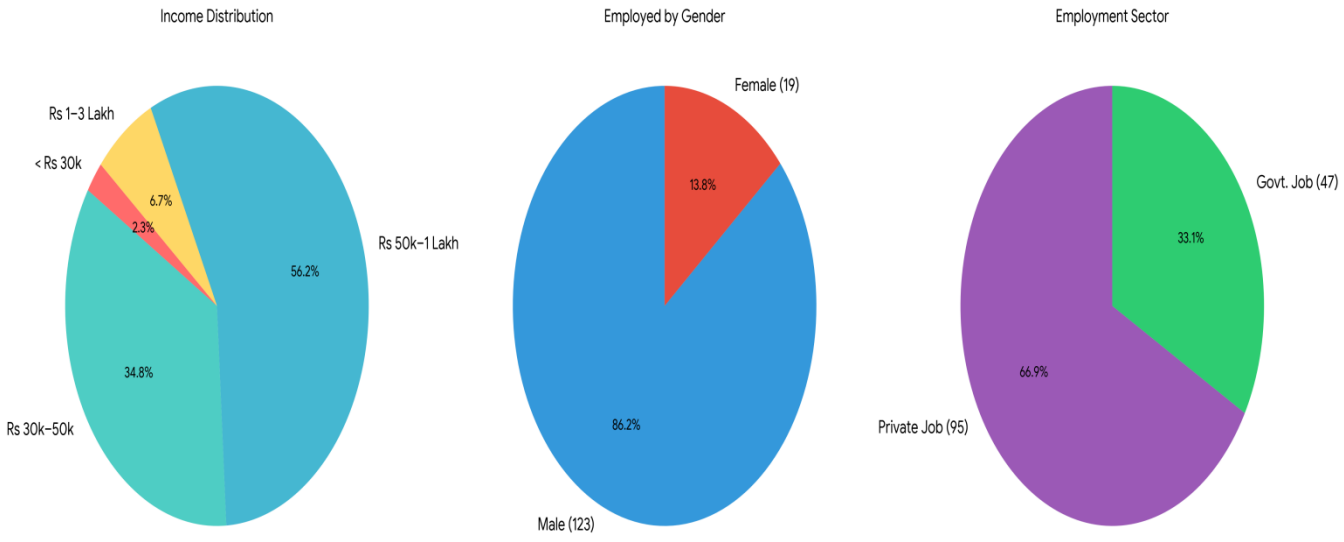


figure 2: income and employment breakdown

4.4 Housing Typology, Kitchen Facilities, and Sanitation

Housing typology assessment shows that 18.4% of structures are kutcha (temporary), 32.8% are pucca (permanent), and 48.9% are semi-pucca. Regarding livestock management, 69.4% of households keep livestock separate from living quarters, while 30.5% house livestock inside the residential compound.

Kitchen setups vary across households: 45.2% feature dedicated separate kitchens, 27.9% have open kitchens, and 26.7% cook directly inside multi-purpose living rooms. Residential ventilation is rated good in 33.57% of homes, average in 41.6%, and poor/inadequate in 24.9%. Overall cleanliness is classified as good in 35.9% of homes, satisfactory in 39.2%, and neglected in 24.9%.

4.5 Sanitation Infrastructure, Water Supply, and Waste Management

Access to household toilets has reached 96.67%, leaving 3.33% without toilet access. Construction timeline analysis shows that 0.9% of toilets were built between 1987 and 1990; 5.6% between 1990 and 2000; 30.8% between 2001 and 2010; and 62.5% between 2011 and 2020. This accelerated construction reflects the impact of national Open Defecation Free (ODF) initiatives.

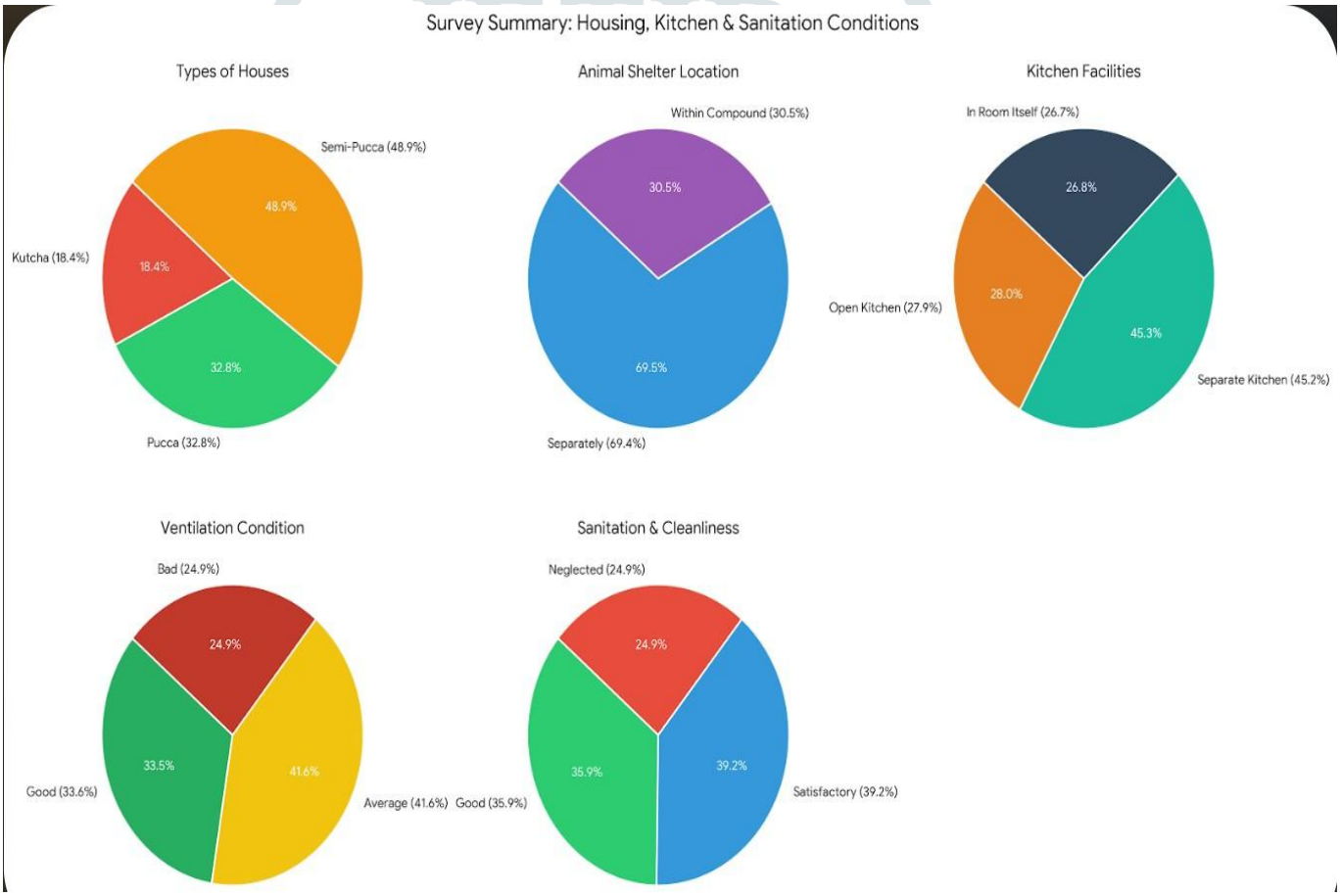


figure 3: housing, kitchen & sanitation conditions

Drainage and waste disposal systems remain significant development bottlenecks:

- Drainage: 56.2% of homes connect to open surface drains, 24.96% use covered drains, and 18.86% lack drainage infrastructure altogether.
- Garbage Collection: 79.37% of households dispose of solid waste individually in open spaces, 13.20% rely on municipal/agency collection, and 7.43% use alternative methods. Disposal frequency is daily for 65.3% of households, twice weekly for 18.4%, and sporadic for 16.3%.
- Waste Segregation & Recycling: 42.6% segregate wet and dry waste, whereas 57.4% combine all waste. Active recycling is practiced by 32.1% of households.

table 4: toilet and waste

Item	Percentage
Toilet Available	96.67%
Toilet Built 2011-20	62.5%
Open Drainage	56.2%
Covered Drainage	24.96%
Item	Percentage
No Drainage	18.86%
Garbage in Open	79.37%
Garbage by Agency	13.20%
Recycle based	32.1%

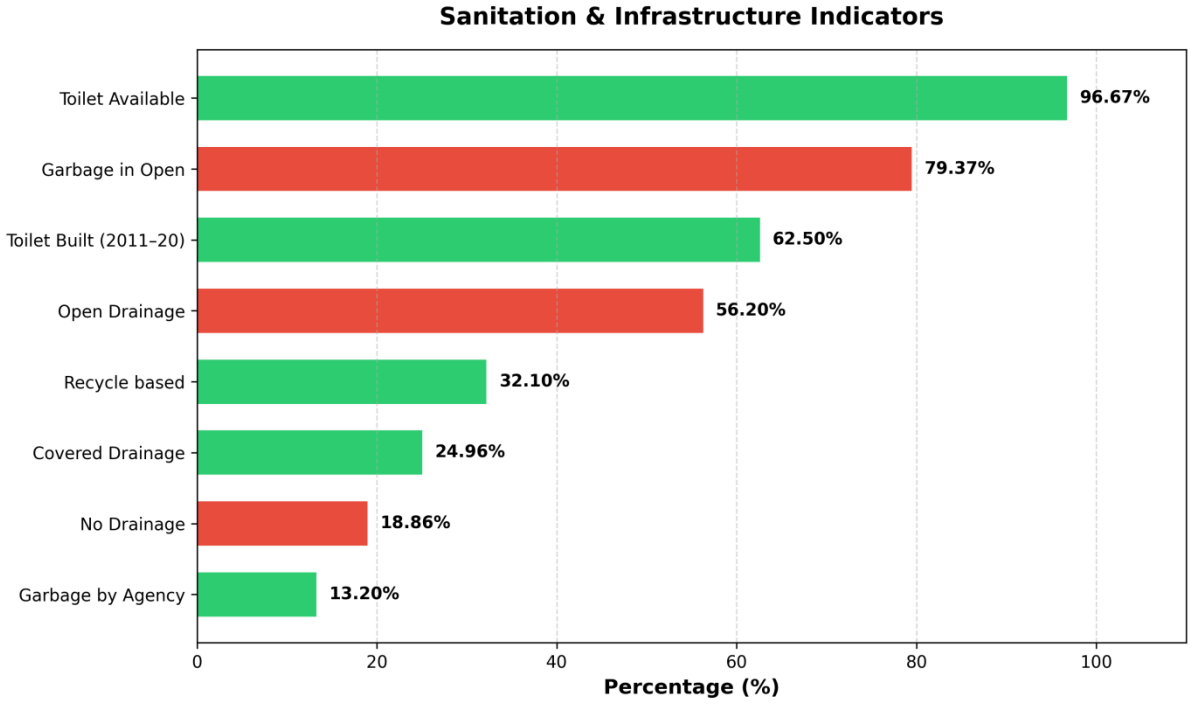


Figure 4: santitation & infrastructure indicators

Tap water connection is available in 47.2% of homes, hand pumps serve 36.6%, water tankers provide 6.1%, and 10.1% rely on alternative sources. Commute distance for water retrieval is significant: 76.6% fetch water within 2,000 meters, 16.0% travel up to 2,500 meters, and 7.4% travel up to 3,000 meters. For general domestic use, hand pumps supply 43.0% of homes, submersible pumps supply 18.2%, and alternative sources supply 38.8%. Drinking water satisfaction rates stand at 58.1% fully satisfied, 19.6% partially satisfied, and 22.3% dissatisfied.

4.6 Cooking Fuel Distribution and PM Ujjwala Adoption

LPG gas is the primary cooking fuel for 49.7% of surveyed households, while 40.9% continue to rely on traditional firewood. Electric appliances account for 2.3%, kerosene for 1.4%, solar cookers for 1.4%, and other traditional sources for 1.7%.

Under the PM Ujjwala Yojana scheme, 25.6% of households have received subsidized gas connections, while 74.4% remain unassisted. Regarding direct fuel subsidies, 32.8% receive benefits compared to 67.2% who do not. LPG supply service satisfaction is split: 47.2% are satisfied, 24.8% are partially satisfied, and 28.0% report dissatisfaction, indicating a clear need for logistical improvements. Traditional open chulhas are used by 77.2% of households, modern chimney-equipped stoves by 11.3%, and 10.8% use both types.

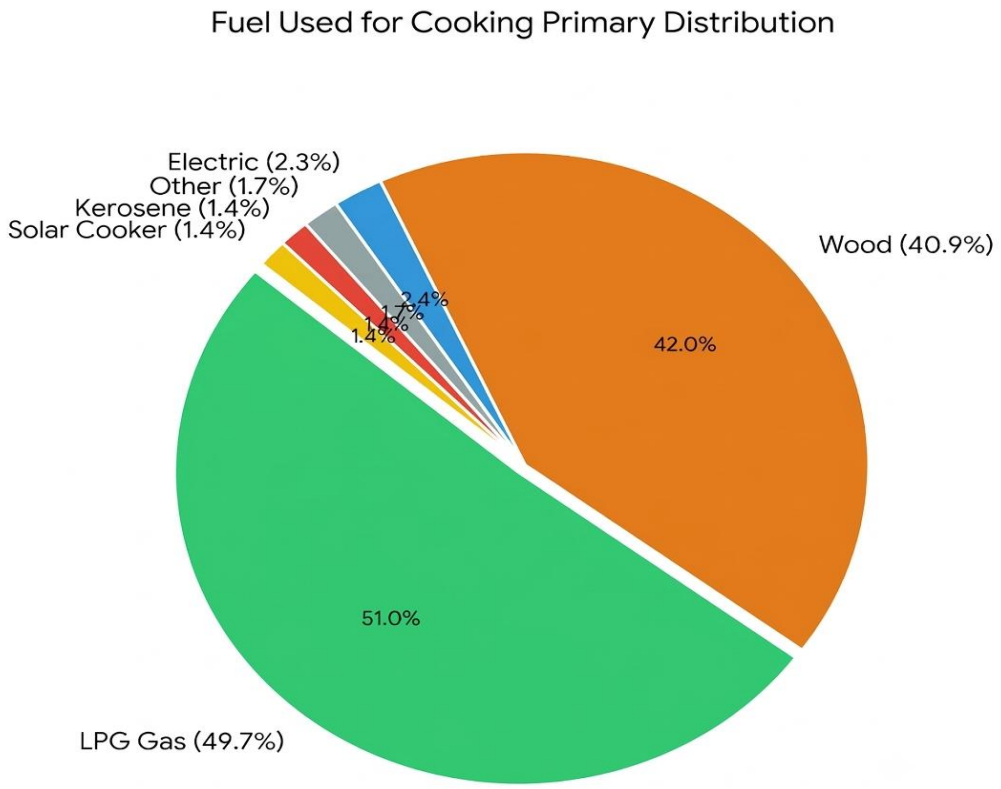


figure 5: fuel used for cooking (primary distribution)

4.7 Mortality Data (Jan 2022 – Mar 2023)

During the 15-month observation period, 14 deaths were recorded in the village (10 males and 4 females). Demographically, the deceased included one infant, two children under five years of age, and 11 individuals aged between 40 and 85 years. Seven deaths occurred at home and five in hospital settings. Cardiac arrest was the leading cause of death (5 cases), Covid-19 caused 1 death, and general chronic ailments accounted for the remainder. Official death certificates were obtained for 13 of the 14 deceased.

4.8 Livestock and Household Amenities

Bovine livestock ownership is widespread: buffaloes constitute 73.6% of domestic animals, cows 21.9%, working bulls 3.6%, and goats 0.97%. Milk sales form a crucial secondary source of household income. Basic electrical grid coverage stands at 97.7%. To mitigate power outages, 55.17% of households utilize battery-inverter systems, and 72.0% have installed solar power units. Personal transportation assets include bicycles, two-wheelers, cars, and public bus transit. Household electronic appliances—such as televisions, refrigerators, washing machines, air conditioners, and smartphones—are widely distributed across the village.

5. CONCLUSION AND RECOMMENDATIONS

The survey data highlights key socio-economic and infrastructural realities in Dubeta village:

- Demographics & Family Structure: The village sex ratio (851 in primary survey / 876 in Census 2011) remains below Haryana's state average of 879. A clear shift toward nuclear family units (54.7%) is evident.
- Education & Employment: Literacy stands at 85.5% among surveyed households, yet female literacy and workforce participation (13.8%) require targeted intervention. Early marriages (53.8% between 15–20 years) negatively impact female higher education and economic independence.
- Housing & Energy: Only 32.8% of houses are fully pucca structures. While LPG adoption has reached 49.7%, reliance on firewood (40.9%) indicates a need for wider Ujjwala coverage and subsidy access.
- Sanitation & Drainage: Despite near-universal household toilet ownership (96.67%), open surface drainage (56.2%) and open waste dumping (79.37%) pose ongoing public health and environmental hazards.

Policy Recommendations & Action Plan

- Infrastructure Upgrade: Convert open surface drains into closed/underground networks to reduce vector-borne health risks.
- Municipal Waste System: Establish regular door-to-door solid waste collection, mandate source segregation, and build community composting facilities.
- Clean Energy Integration: Expand PM Ujjwala Yojana access, streamline fuel subsidy disbursement, and encourage solar cooking technologies.
- Female Empowerment: Implement awareness campaigns against early marriage, strengthen girls' secondary/tertiary education, and establish local vocational training centers.
- Water Security: Expand piped tap water coverage to eliminate long retrieval distances (up to 3,000 meters) and improve filtration infrastructure.

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