

# IMPACT OF CLIMATE CHANGE ON INDEBTEDNESS OF AGRICULTURAL LABOUR HOUSEHOLDS IN HARYANA

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## **Abstract:**

When income is low, to meet emergency expenses, to invest in agricultural activities Credit is needed so that these families can cope with the challenges of climate change. These families are struggling to make ends meet. This study is based on the impact of climate change. is to show the way to the future. Based on various literatures on agricultural change and climate variability in India, we can first say that population shocks and climate disruptions have increased in rural areas of India. A decrease in temperature has a greater impact on rural households, making them more likely to migrate due to climate change. Financial inclusion policies should be designed to protect rural households from the harmful effects of climate change and drought Sake from Effective. (kandikauppa. 2022). Climate change poses significant challenges for Haryana's agriculture sector, including threats to farmers' livelihoods and reduced crop productivity. It is crucial to take significant steps to mitigate the impacts of climate change on rural areas, requiring the cooperation of government, private sector, and business stakeholders. Due to climate change, agricultural resources are being continuously stressed. This is essential as it will require the cooperation of the government, private sector and their related stakeholders. Due to climate change, there is a constant pressure on agriculture to end (Vikram Singh Salt. 2022). This study suggests that changes in temperature due to climate change are likely to increase debt pressures for families living in arid regions and for families belonging to marginalized groups. The associated irregularities are the variation in the growth of the population and the socio-economic status of households in rural India. Climate inequality further deepens the rural landscape, with their intake demand being lower while their temperature is higher. These irregularities are directly related to the furnace in the domestic home. Based on this, we can say that climate Water changes can affect household home loans (2023).

**Keywords:** indebtedness, agricultural, climate, families

**Introduction:**

The first study examines the economic impacts of climate change on rural livelihoods in India. It examines how erratic rainfall, rising temperatures, and reduced productivity impact agriculture, particularly for smallholder farmers and force rural households dependent on agriculture to migrate. Climate change also impacts their health. (K. Nagendiran et.at. 2024).

Eco-Business 2023 Drought situation facing farmers in India, due to this, farmers have to bear the burden of huge losses. Farmers are unable to bear this and they commit suicide, which points towards social security. Many farmers have little land and the weather Due to the change; they fear that their debt and land will also be taken away from them. Due to the state government, no special compensation is available in India and there are such farmers who are facing problems like climate change. Climate change poses a difficult problem. (EcoBusiness2023).

**Table 1.**

**Climate Variables and Their Impact on Rural Indebtedness**

Climate Variable	Observed Change	Impact on Agriculture	Effect on Indebtedness
Temperature anomaly	Rising trends in semi-arid regions	Decline in crop productivity (especially wheat)	Increase in size and frequency of loans
Rainfall variability	Erratic and uneven monsoon	Crop uncertainty and failure	Rise in consumption borrowing
Drought	Increased frequency	Loss of employment for agricultural labour	Greater dependence on informal credit
Floods/extreme events	Increased intensity	Asset destruction and displacement	Emergency borrowing increases

*Source: Adapted from empirical analysis using IHDS data (see Kumar et al., 2023, Climate Change and Rural Debt Dynamics in India, available via PubMed Central).*

This table shows the extent to which climate influences agricultural instability and the impact of stress on income fluctuations. This is particularly evident in Haryana.

**Rational of the study:**

Climate change is not good for the Indian agricultural economy; it creates many problems. It reduces productivity, disrupts livelihood opportunities, and leads to food security. Agriculture plays a crucial role in India's GDP, as most employment is concentrated in the agricultural sector. If water conservation is not addressed, crop yields could be significantly reduced. This negative impact on farmers is particularly pronounced in areas with smaller yields. Crop losses trap people in a cycle of debt, which in turn lowers their education and health standards. The insurance sector has seen limited expansion in rural areas. (Asha Dubey. 2025).

The problem of debt on agricultural families in Haryana is quite old and it definitely affects the financial condition of the farmer and farming communities. The Haryana government has implemented several policies to reduce debt Rural areas Implementing the right policies to develop agriculture also involves debt. Weather-related problems are considered a major cause because they negatively impact crop productivity, employment, and productivity. When crops fail, rural people have to take out loans. Sonam et.al. (2025).

The problem of powerlessness is growing steadily in rural India. It has become a major problem in the agricultural sector. Programs like crop insurance should be adopted to address crop failure and policies should be implemented by the government to improve irrigation to increase yields in dry areas. Taxes should also be reduced to cover the expenses incurred in the area. (sanju Shekhawat 2024).

**Review of Literature:**

This is due to climate change, which makes crops vulnerable to weather events. This impact yields and productivity in many ways, negatively impacting the mental health of the population, reducing employment, and also impacting the economy. Based on several studies, we can say that the sensitivity is high. (Hemant Kumar et. al. 2025).

For the past several decades, they have been struggling to survive due to climate change. Marginal farmers and agricultural laborers do not have sufficient capital to pay their crops and other financial losses due to poor pass rates. Their situation worsens due to climate change. (State of marginal Farmers of India 2024).

It is stated in this that poor people lose 5 percent of their weight due to heat stress. On the other hand, floods cause a 4.5 percent loss in income. Families with better financial conditions suffer less. This report warns about the negative impacts of climate change on India. Agricultural income of the rural poor in India is being affected. Due to this, non-agricultural employment is decreasing. (FAO Report 2024)

**Research of Methodology:**

The informal labour in rural areas of India has been battling weather-related problems for a long time and this is directly linked to the drought-hit areas in many states of India. Rainfall does not occur on time or there is excessive rainfall during harvesting of the crop, which results in the entire crop getting spoiled. The entire crop gets spoiled due to which the crop becomes less and the debt increases. In many states, the rainfall is very high and, in many states, (Sandeep.K. 2023). Climate change is a major threat to agriculture, having a negative impact on rural economy and productivity, while adopting new technology is essential. New

technologies to combat climate change Promote and simplify farming for smallholder farmers. Accurately account for climate change in investment decisions and agricultural planning. Reduce dependence on a This includes crop diversification, promotion of technology, digital expansion etc. (Manisha 2024). The present study based on secondary data and collected by relative research paper, different journal, and website.

**Table 2.**

**Change in Rural Household Indebtedness (2005–2011)**

Indicator	Arid Regions (%)	Humid Regions (%)	Implication
Increase in number of loans	49.8	52.6	Rising dependence on credit across regions
Increase in total debt amount	50.9	51.7	Intensification of debt burden

Source: IHDS Panel Data Analysis (Kumar et al., 2023)

The debt burden on most rural households is increasing. The high level of debt is exacerbated by climate change, making the situation even worse for those without agricultural land. This means that the burden on landless rural households has increased by 50%.

**Table 3.**

**Climate Stress and Indebtedness among Rural Households in Haryana**

Indicator	Evidence for Haryana	Impact on Agricultural Labour Households (ALHs)	Source
Share of indebted rural households	52% rural households indebted	High reliance on borrowing for consumption and survival	NSSO 70th Round (2013), All-India Debt & Investment Survey
Average outstanding debt (rural HHs)	₹1–1.5 lakh per household (approx.)	Rising debt burden even among low-income groups	NSSO (2013), NABARD (2018)
Dependence on informal credit	30–40% borrowing from moneylenders	High interest rates → debt trap	NSSO, NABARD Financial Inclusion Survey
Rainfall variability	High year-to-year fluctuation in monsoon	Reduced agricultural employment days	IMD Climate Reports

Temperature rise	Increasing trend in semi-arid zones of Haryana	Decline in wheat productivity → reduced labour demand	ICAR & IMD Studies
Drought frequency	Frequent in southern districts (e.g., Mahendragarh, Bhiwani)	Seasonal unemployment → distress borrowing	State Action Plan on Climate Change (Haryana)
Groundwater depletion	Over-extraction in central districts	Rising cost of cultivation → indirect wage suppression	CGWB Reports
Employment instability	High seasonal variability in farm labour demand	Income uncertainty → increased dependence on loans	IHDS Data Analysis
Consumption borrowing	Significant share of loans for consumption (not investment)	Indicates distress-driven indebtedness	NSSO Debt Survey

The level of indebtedness in rural Haryana is 52 percent, which reflects the dependence on debt. Due to climate change, productivity decreases due to reduced labor resources. Land and savings are used for informal borrowing, and more debt, which is associated with higher costs, increases the risk of indebtedness, this creates a cycle of indebtedness.

**Table 3.**

**Haryana District-Level Climate Shocks**

District	Recent Climate Event	Impact on Agriculture	Labour Impact
Rohtak	49.8 mm rainfall in 24 hrs (2025)	Waterlogging risk	Temporary employment disruption
Sirsa	130 mm heavy rainfall	Flood-like situation	Crop damage → labour loss
Mahendragarh	66 mm rainfall	Irregular cropping	Reduced labour demand

Gurgaon	Above normal rainfall (+42%)	Urban flooding + peri-urban agriculture impact	Wage instability
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*Source: IMD district-level rainfall reports 24 august 2024.*

The shocks related to climate change are not uniform. Excessive rainfall in some places increases its volatility because of extreme drought and shortage of agricultural labour.

**Find out of the study:**

Climate change has a major impact on livelihood problems arising in the agricultural sector, especially in the areas where people are engaged in agriculture. Haryana is highly vulnerable to climate change. This study, which is an agricultural state, has revealed that Haryana's farmers and their dependent communities are implementing various schemes like water conservation to cope with the problem. They also get this done so that they do not have to depend on loans in case of crop failure. Due to climate change, the level of education is also low in rural Haryana. (Naseeb Choudhary et.al. 2025). But the problem of climate change is not only a problem of Haryana but of the entire world. It is not only financial but also has negative effects on the mental and physical front. The trees and plants are providing the production. (Ali Raza et et.al 2019). Climate change is being observed over time. The economic stability of the agricultural Samurai households is deteriorating. The lack of employment has led to the decline of the educated class. This has affected the livelihoods of the people. They keep animals to survive and sell them when economic hardship arises. People are turning to diversification to protect themselves from climate change. Adapting to climate change is somehow linked to hunger. (Aurban Kundu et al. 2024)

**Conclusion:**

Due to climate change in Haryana Agricultural production has declined and the shortage is continuously increasing. This indicates long-term food insecurity, between 2012 and 2020, annual rainfall in Haryana has led to a decline in wheat production. Due to the reduced dependence on agriculture, people have to take loans. Small farming communities in rural areas have low incomes and high expenses. On this basis, we can say that climate change has a negative impact. (Umer Jeelanie. et.al2014). Climate change creates cultural, social, and economic problems for small farmers. Natural conditions are closely linked to agriculture. But we understand the current insecurity faced by some rural communities. We do not have adequate resources to combat climate change. Despite this, there is a need for development in agriculture, and for this, diversification of the agricultural sector is necessary. (Ghosh-Jerath S.2021). Climate change negatively impacts the economy of rural Haryana, India. Climate change increases the problems faced by people because employment and income decrease, and the rural community depends on water for their homes, and in some places, there is a risk of flooding. (Sohini Sengupta.2022). Climate change poses a significant challenge to a large agriculturally dependent community, negatively impacting their livelihoods. This profoundly impacts income and employment, and it also negatively affects agricultural production, with crops damaged by labor. This has led to a decline in agriculture, as agricultural workers are turning to non-agricultural jobs. (K. Praveena. 2025).

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