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Labour displacement and mechanised direct seeded rice from an intersectional perspective: A case from Odisha, India

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Abstract

Rice in India is a source of livelihood for millions of farmers and labourers. Mechanised direct seeded rice (DSR) is increasingly promoted as a climate-smart alternative to puddled transplanted rice (PTR), offering water savings, reduced input costs, lower emissions, and reduced drudgery. Yet for the thousands of women in rural India who transplant rice for a living, this shift is set to reshape not only how rice is grown but also who earns from it. As machines begin to replace manual transplanting, the distribution of benefits and losses across caste, class, and gender lines, becomes a critical but underexamined question. In socially stratified agrarian settings like India, understanding who gains and who loses from a new technology is essential for ensuring that the transition to mechanisation is both climate-smart and socially ‘just.’

DSR may have differential impacts on men and women, with concerns about labour displacement, un- and under employment, and lower wages, especially for landless women, who are more vulnerable as wage laborers. This can diminish women’s bargaining power and empowerment, negatively impacting household income, food security, and the nutritional well-being of families, and thereby increase existing inequalities.

This study, conducted in four rice-producing districts in Odisha (Puri, Ganjam, Kalahandi, and Mayurbhanj) between April and August 2024, examines the opportunities, challenges, and trade-offs of mechanised DSR adoption. We distinguish between four distinct groups of farms and working households. The findings indicate that while DSR holds promise for larger farmers belonging to socially privileged caste groups, it can lead to labour displacement and lower wages, adversely affecting marginalised farmers who need to sell their labour.

While promoting subsidised farm mechanisation is important for improving agricultural productivity, ensuring that the benefits are distributed equitably among all farmers presents a complex challenge for policymakers. It requires careful consideration of the immediate and long-term implications for those who may not benefit directly from such technologies, such that the pursuit of growth and sustainability does not exacerbate existing inequalities.

Keywords: Climate adaptation, direct seeded rice, India , mechanisation, smallholder farmers, women farmers

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