

Evolution of Agrarian Land Systems in India: From Permanent Settlement Policies to Modern Agricultural Reforms

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Abstract

Agrarian land relations have been central to India's economic history and to the trajectory of its rural society. This paper traces the evolution of agrarian land systems in India across five broad phases: the community-based landholding of pre-colonial India, the British colonial land revenue systems (the Permanent Settlement/Zamindari system, the Ryotwari system and the Mahalwari system), the post-independence land reform movement, the technology- and productivity-led agricultural reforms of the post-1960s period, and the ongoing shift toward sustainable, climate-resilient and digitally enabled agriculture. Using a historical-analytical method that draws on secondary sources, government reports and existing scholarship, the paper argues that each phase of India's agrarian history represents a response to the crises and contradictions generated by the preceding phase. The colonial land revenue systems, designed primarily to secure fiscal stability for the colonial state, undermined customary community rights, deepened peasant indebtedness and encouraged the commercialisation of agriculture at the cost of subsistence security. Post-independence land reforms — abolition of intermediary tenures, land ceiling legislation, tenancy reform and the Bhoodan movement — sought social justice and equitable redistribution but achieved only partial success. The Green Revolution and subsequent reforms raised productivity but introduced new regional and ecological imbalances that current policy, through digitisation of land records, income support schemes such as PM-KISAN, precision farming and organic and climate-resilient practices, is attempting to correct. The paper concludes that India's agrarian transition can be read as a long movement from exploitation to empowerment, from traditional wisdom to technological innovation, and from mere food production to holistic food security and sustainability, and it identifies land record digitisation, climate adaptation and inclusive farmer welfare as the critical frontiers for future reform.

Keywords: Agrarian land systems, Permanent Settlement, Zamindari, Ryotwari, Mahalwari, land reforms, Green Revolution, PM-KISAN, sustainable agriculture, India.

1. Introduction

Land is not merely a factor of production in the Indian countryside; it is the axis around which social status, political power and household survival have historically revolved. The manner in which rights over land have been defined, recorded, taxed and redistributed has therefore shaped the broader course of India's economic and social history. From the self-governing agrarian communities of the pre-colonial period, through the revenue-extractive apparatus imposed by British colonial rule, to the redistributive land reforms and productivity-oriented agricultural policies of independent India, the evolution of agrarian land systems offers a lens through which the changing relationship between the state, the cultivator and the land itself can be understood.

This paper undertakes a chronological and thematic examination of this evolution. It begins with the community-oriented land arrangements of pre-colonial India, proceeds through the three principal British land revenue systems — the Permanent Settlement (Zamindari), the Ryotwari system and the Mahalwari system — and then examines the post-independence programme of land reform, the technology-driven Green Revolution and subsequent reforms, and the contemporary movement toward digitally enabled, climate-resilient and sustainable agriculture. The paper further situates these developments within a comparative framework across five broad historical aspects — land ownership, revenue systems, technology, farmer welfare and sustainability — in order to draw out the underlying continuities and ruptures in India's agrarian transformation.

2. Review of Literature

The historiography of Indian land systems is extensive. Colonial administrator-historians such as B. H. Baden-Powell documented the diversity of Indian land tenures and the rationale behind the different revenue settlements introduced by the East India Company and later the Crown. Nationalist and Marxist historians, including scholars associated with the subaltern studies tradition, have since re-examined these systems as instruments of colonial fiscal extraction that disrupted pre-existing community rights and precipitated peasant indebtedness and agrarian distress. Economic historians have further analysed the differential long-run consequences of landlord-based (Zamindari) versus cultivator-based (Ryotwari and Mahalwari) revenue systems on agricultural investment and productivity in the decades following independence.

A second strand of literature concerns post-independence land reform, encompassing the abolition of intermediary zamindari tenures, the enactment of land ceiling legislation, tenancy reform, and voluntary redistribution movements such as Vinoba Bhave's Bhoodan (land-gift) movement. Scholars broadly agree that while the abolition of intermediaries was achieved with relative success, land ceiling and tenancy reforms suffered from weak implementation, legal loopholes and benami transfers, so that the goal of equitable redistribution remained only partially realised.

A third body of work addresses the Green Revolution and subsequent agricultural policy, documenting the productivity gains achieved through high-yielding variety seeds, chemical fertilisers and expanded irrigation, alongside the regional disparities, groundwater depletion and ecological stress that this technological package generated. More recent policy literature and government reports examine digitisation of land records, direct income-support schemes such as PM-KISAN, soil health management, precision farming and the framework of the Sustainable Development Goals as the emerging pillars of agricultural policy. This paper synthesises these strands into a single chronological and comparative framework.

3. Objectives of the Study

- To trace the historical evolution of agrarian land systems in India from the pre-colonial period to the present.
- To critically examine the structure and consequences of the three principal British land revenue systems — Permanent Settlement (Zamindari), Ryotwari and Mahalwari.
- To evaluate the objectives, instruments and outcomes of post-independence land reforms.
- To assess the contribution of the Green Revolution and subsequent technology-driven reforms to agricultural productivity and its associated regional and ecological consequences.
- To analyse the emerging framework of sustainable, climate-resilient and digitally enabled agriculture in contemporary India.

4. Research Methodology

This study adopts a descriptive-analytical and historical research design based entirely on secondary sources. Data and information have been drawn from published historical scholarship, economic history literature, government committee reports, census and land revenue records as cited in secondary works, and official documents relating to land reform and agricultural policy. The material has been organised into five broad chronological phases — pre-colonial India, British land revenue systems, post-independence reforms, modern agricultural reforms, and sustainable agriculture and the future — and further synthesised comparatively across five thematic aspects: land ownership, revenue systems, technology, farmer welfare and sustainability. This dual chronological–thematic method allows both the sequence and the underlying structural logic of India's agrarian transformation to be captured within a single analytical frame.



Figure 1. Conceptual framework — Evolution of Agrarian Land Systems in India: From Permanent Settlement Policies to Modern Agricultural Reforms (schematic prepared by the authors).

5. Phase I — Pre-Colonial India: The Community-Based Agrarian Order

Prior to colonial rule, land relations in most parts of India were embedded in community institutions rather than in individualised private property. Village communities generally exercised collective rights over land and its produce, and village-level self-governance regulated the allocation of land, the maintenance of common resources and the settlement of local disputes. Cultivation depended on traditional tools and organic practices, and irrigation was managed through community-maintained tanks, wells and canals rather than centrally administered infrastructure. Agriculture was primarily oriented toward subsistence, with production geared to the needs of the household and the village rather than to distant markets.

The defining feature of this period, as reflected in Figure 1, was collective responsibility and the sustainable use of land: because rights and obligations were shared within the community, incentives existed for the conservation of soil fertility, water sources and common lands across generations. Revenue demands where they existed were customary, often paid in kind, and calibrated to the agricultural season rather than fixed in rigid cash terms. This is not to romanticise the pre-colonial agrarian order, which contained its own hierarchies and inequities; but by comparison with what followed, it was characterised by lower exploitation and a closer ecological balance between cultivation and the natural resource base.

6. Phase II — British Land Revenue Systems

Colonial rule fundamentally restructured Indian land relations by subordinating them to the fiscal requirements of the colonial state. Between the late eighteenth and the mid-nineteenth centuries, the British administration introduced three principal, and structurally distinct, land revenue systems across different regions of India.

6.1 The Permanent Settlement (1793) and the Zamindari System

Introduced by Lord Cornwallis in 1793 in Bengal, Bihar and parts of Odisha, the Permanent Settlement fixed land revenue in perpetuity and vested proprietary rights in the Zamindars, who were transformed from revenue collectors into hereditary landlords. In exchange for a fixed annual payment to the state, Zamindars were granted extensive powers over the peasantry, including the right to collect rent and, in practice, to evict tenants. While the system offered the colonial state a predictable and easily administered revenue stream, it inserted a layer of rent-extracting intermediaries between the state and the actual cultivator, weakening customary peasant rights over land.

6.2 The Ryotwari System

In contrast, the Ryotwari system, associated with the administrations of Madras and Bombay under officials such as Thomas Munro and Alexander Read, established a direct settlement between the state and the individual cultivator (ryot), who was recognised as the landholder and was individually liable for revenue payment. Although this system dispensed with hereditary intermediaries, revenue rates were periodically revised and were frequently pitched at levels that left cultivators with little surplus, particularly in years of poor harvest.

6.3 The Mahalwari System

The Mahalwari system, applied mainly in the North-Western Provinces, Punjab and parts of Central India, settled revenue not with individual cultivators or hereditary landlords but with the village community or a group of villages (mahal) as a collective unit, represented by village headmen or lambardars. Revenue liability was joint, and the settlement was periodically revisited, preserving elements of the earlier community structure while still embedding the village within a fixed and externally imposed fiscal obligation.

6.4 Consequences of the Colonial Revenue Systems

Despite their structural differences, all three systems shared a common orientation toward maximising and stabilising colonial state revenue rather than promoting agricultural investment or peasant welfare. As indicated in Figure 1, the principal effects were a high and often inflexible land revenue demand, chronic peasant indebtedness arising from borrowing to meet revenue obligations, and an increasing commercialisation of agriculture as cultivators were compelled to grow cash crops for the market to generate the cash required for revenue payment. These pressures eroded the community-based resilience of the pre-colonial agrarian order and left a legacy of land alienation, tenant insecurity and rural poverty that independent India inherited at the time of transfer of power.

7. Phase III — Post-Independence Land Reforms

The overarching goal of agrarian policy after 1947, as reflected in Figure 1, was social justice, equitable distribution of land and the empowerment of the actual tiller of the soil. This was pursued through a set of interlinked legislative and social measures.

- Abolition of Zamindari: Intermediary tenures created under the Permanent Settlement and analogous systems were abolished through state-level legislation enacted from the late 1940s onward, transferring proprietary rights toward the actual cultivators and removing rent-extracting intermediaries from the revenue chain.

- **Land Ceiling Acts:** Legislation was enacted to impose ceilings on individual landholdings, with the surplus land declared and redistributed to landless and marginal cultivators, although implementation was uneven and undermined in many states by legal exemptions and fictitious transfers.
- **Tenancy Reforms:** Measures to regulate rent, provide security of tenure and, in some states, confer ownership rights on tenants ("land to the tiller") were introduced, with varying degrees of success across regions.
- **The Bhoodan (land-gift) Movement:** Initiated by Vinoba Bhave from 1951, this voluntary movement sought landowners' donations of land for redistribution to the landless, complementing statutory reform with a moral and social appeal, though the scale of land actually redistributed fell short of the movement's aspirations.

Collectively, these measures marked a decisive shift from the colonial extraction-oriented framework toward a redistributive and welfare-oriented agrarian policy. Land ownership patterns began to move toward the actual tiller, and the revenue system was reformed and brought under closer state regulation. Nevertheless, the persistence of tenancy at will, the incomplete implementation of ceiling legislation and continuing rural indebtedness meant that the goal of full agrarian equity remained only partially achieved by the close of this phase.

8. Phase IV — Modern Agricultural Reforms

From the mid-1960s, Indian agricultural policy shifted focus toward technology, productivity, profitability and sustainability, as summarised in Figure 1. The Green Revolution, built on high-yielding variety seeds, chemical fertilisers, pesticides and expanded irrigation, transformed India from a food-deficit to a broadly food-surplus country, particularly in wheat and rice cultivation in states such as Punjab, Haryana and western Uttar Pradesh. This transformation, however, was geographically uneven and generated new pressures, including groundwater depletion, soil nutrient imbalance and regional disparities between irrigated and rain-fed tracts.

Subsequent decades have layered further reforms onto this productivist foundation. Direct income-support schemes such as PM-KISAN provide periodic cash transfers to landholding farmer families; digitisation of land records has sought to reduce disputes and improve tenure security and access to credit; the Soil Health Card scheme promotes balanced and need-based fertiliser use; precision farming techniques, including remote sensing and drone-based monitoring, are being extended to optimise input use; and organic agriculture is being promoted as an alternative to input-intensive cultivation in ecologically sensitive and economically appropriate regions. Together, these initiatives represent an attempt to reconcile the productivity gains of the Green Revolution era with the imperatives of farmer income security and long-term resource sustainability.

9. Phase V — Sustainable Agriculture and the Future

The current and emerging phase of India's agrarian evolution is oriented toward a vision of resilient, inclusive and sustainable agriculture, as depicted in Figure 1. Key priorities include climate-resilient farming practices capable of withstanding erratic rainfall and rising temperatures; water conservation measures, including micro-irrigation and watershed management, to address the depletion associated with earlier intensive cultivation; sustainable land management practices that restore soil health and biodiversity; food security strategies extending beyond aggregate production to nutritional adequacy and access; and explicit alignment with the United Nations Sustainable Development Goals (SDGs), particularly those relating to zero hunger, responsible consumption and production, climate action and life on land.

This phase can be understood as an attempt to recover, at a technologically advanced level, some of the ecological balance and community resilience that characterised the pre-colonial agrarian order, while retaining the productivity gains secured during the Green Revolution period. It thus represents not a rejection of modern agricultural technology but its reorientation toward long-term sustainability and inclusive farmer welfare.

10. Comparative Analysis: The Historical Transformation of Indian Agriculture

Table 1 synthesises the preceding discussion across five thematic aspects — land ownership, revenue systems, technology, farmer welfare and sustainability — situated within four broad historical periods. This comparative framework makes visible both the cumulative direction of change and the specific contribution of each historical period to the present agrarian structure.

Aspect	Past (Pre-Colonial)	Colonial Period (18th c.–1947)	Independent India (1947–1990s)	Modern India (1990s–Present)
Land Ownership	Community ownership; collective rights	Transferred to Zamindars/State; loss of peasant control	Abolition of Zamindari; land to the tiller	Individual ownership with legal titles and land digitization
Revenue System	Low or no fixed revenue; customary dues	High revenue demand; cash payments	Reformed revenue system; regulation by the state	Market-linked policies, subsidies and support mechanisms
Technology	Traditional tools; organic practices	Limited improvement; focus on cash crops	Irrigation projects; HYV seeds and fertilizers	Precision farming, biotechnology, digital tools, AI
Farmer Welfare	Community support; low exploitation	Exploitation and indebtedness; poverty	Cooperatives, credit, MSP, subsidies	Schemes (e.g., PM-KISAN), insurance, extension services
Sustainability	Ecological balance; sustainable use	Resource depletion; soil degradation	Environmental awareness begins	Sustainable agriculture, climate action, SDG alignment

Table 1. Historical transformation of Indian agriculture across key thematic aspects.

Read horizontally, Table 1 shows that in respect of land ownership, India has moved from diffuse community rights, through colonial expropriation and post-independence redistribution, to a contemporary regime of individualised, legally documented and digitally recorded ownership. In respect of the revenue system, the trajectory runs from low, customary dues to a high and rigid colonial revenue demand, followed by state-regulated reform and, most recently, a shift toward market-linked support mechanisms and subsidies rather than pure revenue extraction. Technological change follows a broadly cumulative path, from traditional tools and organic practice through limited colonial-era improvement concentrated on cash crops, to Green Revolution-era irrigation and high-yielding seed technology, and now toward precision farming, biotechnology, digital tools and artificial intelligence. Farmer welfare outcomes shift from community-based support, through colonial-era exploitation and indebtedness, to post-independence cooperative credit and price-support mechanisms, and finally to the targeted welfare architecture of the present, including direct income transfers, crop insurance and extension services. Sustainability indicators move from pre-colonial ecological balance, through colonial and early independence-era resource depletion, to the still-developing framework of climate action and SDG-aligned sustainable agriculture.

11. Discussion and Key Findings

Several inferences emerge from this historical analysis. First, each phase in the evolution of Indian agrarian land systems can be read as a corrective response to structural weaknesses generated by the preceding phase: colonial revenue systems disrupted community-based sustainability, prompting post-independence redistributive reform; the partial success of redistribution and the imperative of food security prompted the productivity-oriented Green Revolution; and the ecological and distributional costs of the Green Revolution have, in turn, prompted the current emphasis on sustainability, digitisation and inclusive welfare.

Second, the paper's overarching narrative — summarised in the concluding motifs of Figure 1 as movement "from exploitation to empowerment," "from traditional wisdom to modern innovation," and "from food production to food security and sustainability" — captures a consistent long-run direction in policy intent, even though implementation across each phase has been uneven. The abolition of Zamindari and land ceiling legislation, for instance, achieved substantial

legal change but incomplete redistribution in practice; similarly, the Green Revolution achieved dramatic productivity gains but at the cost of regional and ecological imbalance that current sustainability-oriented policy is still working to address.

Third, the comparative table indicates that technology and welfare policy have generally advanced further than the resolution of underlying land ownership and tenancy questions. Land record digitisation and tenancy reform remain unfinished agendas in several states, suggesting that future reform must attend as much to institutional and legal completion as to technological modernisation.

12. Conclusion and Policy Implications

The evolution of agrarian land systems in India illustrates a long historical arc from community-based, ecologically balanced subsistence agriculture, through an extractive colonial revenue regime, to a still-evolving framework of redistribution, technological modernisation and sustainability. While each phase has left an enduring institutional legacy, the cumulative direction of change has been toward greater recognition of the cultivator's rights, greater technological capability and, most recently, a renewed concern for ecological sustainability and climate resilience.

For policy, this history suggests three priorities. First, the completion of unfinished land reform agendas — particularly tenancy regularisation and accurate, updated digital land records — remains essential to secure tenure and facilitate access to institutional credit. Second, the extension of precision farming, soil health management and climate-resilient practices needs to be broadened beyond the relatively well-resourced regions that benefited from the Green Revolution to rain-fed and ecologically fragile areas. Third, farmer welfare schemes should be integrated with sustainability objectives so that income support and production incentives do not, as in earlier phases, come at the expense of long-run resource conservation. Read together, these priorities point toward the vision articulated in Figure 1: a resilient, inclusive and sustainable agricultural future for India.

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