

Summary and Bibliography

# Joint Farming X-Rayed

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Charan Singh



1959

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Mir Singh and Netar Kaur, parents of Charan Singh.  
Village Bhadaula, District Meerut. Uttar Pradesh. 1950.

## Charan Singh: An Introduction

Charan Singh was moulded by three key influences: his early life in a self-cultivating peasant family and the realities of the village, the teachings of Swami Dayanand Saraswati and those of Mohandas Gandhi. His thoughts, ideals and friendships took shape during the mass movement for *Swaraj* and freedom from colonial British rule led by Gandhi. His private and public life was one, his incorruptibility and high character recognised by all who encountered him. Singh believed deeply in a democratic society of small producers and small consumers brought together in a system not capitalist or communist instead one that addressed as a whole the uniquely Indian problems of poverty, unemployment, inequality, caste and corruption. Each of these issues remains intractable today, and his solutions as fresh and relevant to their amelioration and ultimate eradication.

Charan Singh was born on 23 December 1902 in Meerut District of the United Provinces (Uttar Pradesh) in an illiterate tenant farmer's village hut. His mental fortitude and capability were recognised early in life and he went on to acquire a B.Sc., M.A. in History and LL. B from Agra College. He joined the Indian National Congress, at 27, in the struggle to free India from British rule and was imprisoned in 1930, 1940, and 1942 for his participation in the national movement. He remained a member of the Legislative Assembly of Uttar Pradesh from 1936 to 1974 and was a minister in all Congress governments from 1946 to 1967, which provided him a reputation as an efficient, incorruptible and clear-headed administrator. Singh was the state's first non-Congress Chief Minister in 1967 and again in 1970, before his tenure in 1977-78 as the Union Minister for Home and, later, Finance. This journey culminated in 1979 when he became Prime Minister of India. Over much of the 70s and early 80s he remained a figure of major political significance in Indian politics till he passed away on 29 May 1987.

Charan Singh wrote scores of books, political pamphlets, manifestoes and hundreds articles on the centrality of the village and agriculture in India's political economy. Many of these thoughts are relevant to India today as we struggle with an agrarian crisis with 67% of our impoverished population living in the villages and 47% engaged in

unremunerative agricultural livelihoods. He helped write the 611-page report of the Zamindari Abolition and Land Reforms Committee in Uttar Pradesh in 1948 and also wrote the books *Abolition of Zamindari* (1947), *Joint Farming X-Rayed* (1959), *India's Poverty and Its Solution* (1964), *India's Economic Policy* (1978) *Economic Nightmare of India* (1981) and *Land Reforms in U.P. and the Kulaks* (1986).

“Charan Singh’s political life and economic ideas provide an entry-point into a much broader set of issues both for India and for the political and economic development of the remaining agrarian societies of the world. His political career raises the issue of whether or not a genuine agrarian movement can be built into a viable and persistent political force in the 20th century in a developing country. His economic ideas and his political programme raise the question of whether or not it is conceivable that a viable alternative strategy for the economic development of contemporary agrarian societies can be pursued in the face of the enormous pressures for industrialisation. Finally, his specific proposals for the preservation and stabilisation of a system of peasant proprietorship raise once again one of the major social issues of modern times, namely, whether an agrarian economic order based upon small farms can be sustained against the competing pressures either for large-scale commercialisation of agriculture or for some form of collectivisation.”

Brass, Paul. *Chaudhuri Charan Singh: An Indian Political Life*.  
Economic & Political Weekly, Mumbai. 25 Sept 1993.

# Summary

Joint Farming X-Rayed. 1959

# Joint Farming X-Rayed The Problem and its Solution.<sup>1</sup>

BY CHARAN SINGH

## Background

When colonialism retreated after the Second World War in the 1950s, many colonial territories emerged as independent nation-states possessing economies ravaged over the centuries by the colonisers. These fragile post-colonial states faced the task of formulating a vision for economic and social development suited best to their unique conditions. Research specific to economies such as these was scant. India, amongst the largest of these, chose for herself the ideals of democracy, self-reliance, and equity in the matters of wealth and land redistribution.

Colonial British exploitation over hundreds of years had left India's agriculture, indigenous industry and social structures devastated. The colonial government patronized *Zamindars* who extracted rent from tenanted peasants, in exchange for ownership of vast areas of land. These landlords enjoyed too many idle privileges to even think of investing in improving their lands or in improving the condition of the tenants toiling on them. Thus, agricultural yields in India had been on the decline and there had been little change in the technological and production base of Indian agriculture for decades prior to Independence. In 1951 there were 93,000 iron ploughs compared to 31.3 million wooden ones and only 11% of cropped lands was under improved seeds, while investment in flood-control, drainage and desalination of soil was virtually non-existent.<sup>2</sup> Not only that, preferential support for British industry at the expense of Indian had left indigenous village industries in tatters, such

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<sup>1</sup> Published 1959 by Kitabistan, Allahabad. Uttar Pradesh. 322 pages. Written in opposition to the adoption of joint farming as India's agricultural policy, *Joint Farming X-rayed* presents Charan Singh's substantive intellectual break with the political party he had served for 35 years. Charan Singh was Cabinet Minister for Revenue in Uttar Pradesh from December 1954 to April 1959 and publicly opposed the resolution for adopting collective farming as India's agricultural policy in a 1 hour speech at the All India Congress Committee plenary session in Nagpur on 9 January 1959. This opposition to Nehru's policy was at great personal cost to his political career as he sat out of the Congress Cabinet for 19 months. The proximate reason for his resignation was his principled opposition to the State Government's decision to supply energy at preferential prices from the Rihand Dam to an Aluminium project of the Birla group rather than to peasants for irrigation.

<sup>2</sup> Bipin Chandra et al, *India Since Independence*, Penguin, 2000. p. 15.

that a vast number of rural artisans were forced back into agriculture leading to further unemployment and rampant underemployment.

These conditions, coupled with rapidly rising rates of population growth, meant that India was in the unenviable position of catching up on industrialisation centuries after the West had achieved it with very limited capacity for capital formation. Land reforms, State planning, and a transformation in agricultural production were expected to create the surplus required for import of capital-intensive heavy industries in the public sector as the base of further industrialization. How exactly this was to be done was the great puzzle facing these post-colonial nations, the solution for most involved adopting the Marxist model on the lines of the USSR or China or neocolonialism at the hands of capitalist countries whose capital and corporations flooded their incipient markets.

Jawaharlal Nehru, India's first Prime Minister<sup>3</sup> and by far her most influential leader since the death of Mahatma Gandhi in 1948 was heavily influenced by the socialist model on the lines of the USSR and China. So were many public intellectuals, political leaders and influencers of the Congress governments at the Center and States buoyed by the part Marxism had played in forming the ideological and philosophical backdrop for the abolition of *Zamindari* and the resistance against colonial rule. The urban elite believed that institutional changes in agriculture such as the introduction of cooperative farming, in conjunction with land reforms, would automatically increase agricultural production without significant outlays on behalf of the government.

The influential Kumarappa Committee in 1949<sup>4</sup> recommended the state should be empowered to enforce cooperative farming, even though till then the Congress government had not shown any signs of its intent to coerce the peasantry. Enthusiasm for these reforms was not shared by the peasantry but the stature and conviction of Nehru meant that by 1956 the Second Five Year Plan declared that its main task was to take

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<sup>3</sup> Pandit Jawaharlal Nehru (1889–1964) was India's best-known and amongst the most charismatic leaders of the movement to gain Independence from the colonial British state, next only to Mohandas Gandhi. He was the first and longest serving (1947–1964) Prime Minister of India, and a towering figure in Indian politics before and after Independence.

<sup>4</sup> The Indian National Congress' Agrarian Reforms Committee, 1949. J. C. Kumarappa, senior Congress leader from Tamil Nadu and a Gandhian, led this Committee that recommended comprehensive agrarian reform measures.

essential steps as will provide solid foundations for the development of cooperative farming so that over a period of ten years or so a substantial proportion of agricultural lands are cultivated on cooperative lines.

In the same year two delegations of the Indian Union Ministry of Food and Agriculture were sent to China to study how they organized their cooperatives. Their reports stated China had registered remarkable increases in food grain production using cooperative farming. Following this, Nehru's Cabinet launched a full-blown promotion of cooperative farming in the face of resistance by state governments. Matters came to a head at the Nagpur meeting of the All India Congress Committee (AICC) which stated that the agricultural future should be one of cooperative joint farming, and it was to be implemented in just three years.

Charan Singh, Cabinet Minister of Revenue, Scarcity, Irrigation, Power & Power Projects in the UP government at the time, was in attendance at Nagpur and delivered a rousing speech in opposition to the resolution. This speech was to earn him his only time out of the Congress State government since 1937 and was the harbinger of his political sidelining in the factionally fragmented State Congress party.<sup>5</sup> He published *Joint Farming X-rayed* to detail his opposition and present a vision of an alternate agricultural plan he believed India should adopt. In the Third Five-Year Plan the government significantly toned down its cooperative ambitions, settling for "service cooperatives" to be set up in three years, while advocating cooperative farms to be set up "*voluntarily* wherever conditions became mature" (emphasis in original).<sup>6</sup> However, Singh's critique of the fundamentally misguided nature of the measure was ignored, and, more egregiously,

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<sup>5</sup> Charan Singh sat out of the Congress ministry in Uttar Pradesh from 22 April 1959 to December 1960, and had time to write *Joint Farming X-Rayed* from his experience of implementing the Zamindari Abolition Act. Giani Zail Singh, former President of India, wrote in *Kitni Khoobiaan Thi Is Insaan Mein, Asli Bharat*. December 1990, p. 20. CS Papers NMML. "I got an opportunity to hear Chaudhary Saheb's inspiring speech at the Nagpur session. ... Chaudhary Saheb vigorously opposed the Collective Farming proposal brought by Panditji. I was spell bound by Chaudhary Saheb's hour-long fluent speech. Panditji listened carefully to Chaudhary Saheb's powerful speech, and even smiled. In the pandal, there was all round clapping when Panditji moved the resolution, but after Chaudhary Saheb's speech it seemed as if the tables had been turned. Panditji replied to Chaudhary Saheb, and though not agreeing with Panditji, we had to support him because such was the force of his personality then. I know for sure that had I been in Panditji's place I would not have been able to argue the case put forth by Chaudhary Saheb."

<sup>6</sup> Bipin Chandra et al, *India Since Independence*, Penguin, 2000. p. 554.

so was his alternate developmental proposal. The lopsidedness of the government's investments and their detrimental impact on rural India continued unabated.<sup>7</sup>

This book fulfills a cause more constructive than mere criticism, visible in the table of contents. The first part, a third of the book, defines the history and critical aspects of the problem that a suitable agricultural policy for India would solve. The rest of this book is dedicated to charting an alternative for the Indian economy on Gandhian principles – an alternative rejected by Jawaharlal Nehru's 'top-down' policy which came to dominate Indian politics and economics, relegating all alternatives to the sidelines, with ramifications that are visible in the political, agricultural and economic picture of India to this very day.

*Joint Farming X-rayed* derives its dissenting convictions from an endangered perspective in Indian politics: that of a rural, self-cultivating peasant. Charan Singh had an intimate understanding of this life, being the son of a tenant peasant one of "locally dominant peasant community of the cultivating middle classes known for their industriousness and expert skill in the methods of farming, though he started off as a landless peasant".<sup>8</sup>

Ironically, it was the rarity of his perspective that relegated Charan Singh's ideas and politics to the sidelines, with few willing to accept his rigorous academic capability.<sup>9</sup> That has not taken away from its prescience in the light of the course that the agricultural landscape of

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<sup>7</sup> Singh often cited Gandhi and Nehru's fundamental differences, made crystal clear in these letters exchanged in October 1945. Gandhi to Nehru ([http://www.mkgandhi.org/Selected Letters/Selected Letters1/ letter13.htm](http://www.mkgandhi.org/Selected%20Letters/Selected%20Letters1/letter13.htm)), and Nehru's reply to Gandhi (<http://www.gandhiashramsevagaram.org/selected-letters-of-mahatma/gandhi-letter-from-jawaharlal-nehru.php>) Singh saw this critical fork in the road as fundamental to the 'industrialised' trajectory of India under Nehru after 1947. Singh pointed out Nehru came to accept this error in 1963 in speeches in the Indian Parliament, but it was simply too late as he passed away a year after, his spirit broken by the China War.

<sup>8</sup> Lohit, Harsh S. (2018), *Charan Singh: A Brief Life History*, Charan Singh Archives, p. 6.

<sup>9</sup> Byres, Terence. *Charan Singh (1902-87): An Assessment*, Journal of Peasant Studies, 1988. 15:2, 139-189. "More significantly, during a six-month visit to India I made in 1978-79, when I travelled extensively throughout the country, an earlier book, *India's Economic Policy: The Gandhian Blueprint* [Singh, 1978] had recently appeared. Had it been published some three or so years earlier – before the Emergency – it would scarcely have been noticed (indeed, his *Economic Nightmare of India*, published in 1981, received little attention outside of Lok Dal circles). But, in 1978-79, there was Charan Singh on the national stage, challenging for the highest office in the land. He could hardly be ignored. I was reading it and mentioned it to several people. A common response was to suggest that he could not possibly have written it himself. Among the doubting were some prominent urban intellectuals."

India has taken since. This book reads like a forewarning of the many policy pitfalls and disasters that have become the stuff of history since its publication. An examination of its elements, therefore, bear serious consideration, especially since agrarian distress continues to haunt the Indian countryside to the present day.

### Surveying the problem

The book begins with a summary of the historic, social and economic reasons for the abolition of *Zamindari* in his home state of Uttar Pradesh. He places land reform in the pivotal place that it was universally held in the transformation of India and other postcolonial nations and relegates landlords to their deserved title of “parasites” and “drones doing no good in the public hive”<sup>10</sup>. Having stated the reasons why land redistribution reforms were imperative, Singh states clearly that the concrete policy question of “future agrarian organisation as an economic, technical and also a social problem”<sup>11</sup> which the abolition of the *Zamindari* system brought upon the country had yet to be resolved.

Singh lists three options: an independent peasantry cultivating small land holdings, large private farms operated with hired labour, and joint farms “constituted by peasant farmers pooling their holdings voluntarily or under compulsion and worked with joint or collective labour”<sup>12</sup>. He therefore considers the nuances of the first two options largely self-evident and moves on to an analysis of the policy that was to be his country’s future.

That Charan Singh considered the superiority of small peasant proprietors’ yield as opposed to collective farms is evident in the preface itself. Over the course of the book, Singh criticises Marxism’s conclusion about the nature of agriculture, as well as its conception of the peasant as a ‘doomed’ class. However, that is not to say that the book does not examine the prospect it dismisses thoroughly. Quite the contrary. Singh was an unusually erudite leader for his times from the peasant community, and he had held diverse ministries in his tenures in the UP Cabinet.<sup>13</sup> He combined experience and insight from these experiences

<sup>10</sup> Singh, Charan. *Joint Farming X-Rayed*. Kitabistan, Allahabad. 1959. p. 2.

<sup>11</sup> *Ibid*, p. 3.

<sup>12</sup> *Ibid*.

<sup>13</sup> Lohit, Harsh S (2018), *Charan Singh: A Brief Life History*, Charan Singh Archives, p. 24.

with an analytical, empirical data-based approach and his eyes fixed on the ground realities of India.

The following sections, beginning with a historical account of the most notable contemporary forms of collective farming including that of Russia and China whose model Indian agriculture was trying to emulate with modifications, dissect the organisation of the Russian *Kolkhoz* (collective farm), Mexican *Ejido* and the Israeli *Kibbutz*, their similarities and differences, and the extent to which the collectivization of individual resources, occurs in each of these forms. These were all collectives built on Rochdale Principles, characterized by voluntary and open membership, non-discrimination, distribution of surplus in proportion to trade and political & religious neutrality. Members pooled in their resources such as irrigation facilities, land, farming equipment etc., and in return they earned a wage equivalent to their labour or produce provided, as determined by a General Assembly of all the members in charge of rewards and punishments binding on each member.

These collectives further got assistance from the government regarding technical and financial expertise, and in various degrees derived their powers and objectives from the same. Thus, the supposed independence of decision-making of a collective envisioned on paper in collective farms invariably degenerated into coercion by the government, whether direct or indirect. Singh makes particular note of this and explains by way of the Chinese model of “advanced cooperatives” which had “spontaneously” exploded in number under Chairman Mao’s ‘Great Leap Forward’ the impact of collectivization on the member’s psychology and independence and anticipates the need for coercion required to perpetuate such a collective.

The disastrous results of Chairman Mao’s policy in rural China weren’t as fully known in 1959 as they were later, but he warns nevertheless of the course leading to the Chinese that India had envisioned for herself. The word ‘cooperative’ which occurred as the final phase of Mao’s policy was taken to be the golden mean between the Capitalist and Collectivist programs in India. It was to harmonize individualism with voluntary collectivization as per the second Five Year Plan, but Singh warns that the label of a ‘cooperative’ between members who are not economically autonomous would merely be a misnomer. He places much more emphasis on the similarities.

“Both are joint enterprises. Land, labour and capital resources are pooled both in a cooperative and a collective farm, and whatever production technique can be applied to one may be equally applied to the other. The effect on peasants-cum-labourers constituting the farm is similar in both cases and, from the point of view of agricultural production; there is nothing to choose between them.”<sup>14</sup>

Aside from minor differences, the cooperative vision regresses to collectivization on the Chinese model, and “Whatever criticism applies to one applies equally to the other”.<sup>15</sup> Nevertheless, India’s second Five Year Plan’s insistence that “co-operative farming necessarily implies pooling of lands and joint management”<sup>16</sup> at an appropriate time in the future prompts the rigorous analysis that occupies center stage for the rest of the book. Before embarking on the evaluation, Singh considers it axiomatic that India’s agricultural policy should be shaped by its unique natural conditions and commitments as a nation. Any dogmatic implementation of solutions from elsewhere, which didn’t take account of these unique conditions, could not simply be copied and implemented in India.

Singh identifies the four conditions a solution would address: increase of total wealth/production, elimination of unemployment and underemployment, equitable distribution of wealth and the success of democracy. These, with the exception of the last, were the requirements of many postcolonial economies many of whom had taken to the Communist agricultural project as the blueprint for their development.

### **Marx and the Peasant**

Charan Singh’s critique of Marx comes from the same place as the one for Nehru: they are both urban men, who do not understand the visceral nature of a peasant family’s attachment to its land and the impact this relation brings to their productivity. Marx formulated his theory in industrialized England’s economy, where hardly anybody was engaged in agriculture, let alone the hundreds of millions engaged on Indian soil.<sup>17</sup> For Singh, Marx generalized conclusions he arrived at in his

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<sup>14</sup> Singh, Charan. *Joint Farming X-Rayed*. Kitabistan, Allahabad. 1959. p. 17.

<sup>15</sup> *Ibid.*

<sup>16</sup> *Ibid.*, p. 18.

<sup>17</sup> Around 20% of Britain’s population was engaged in agriculture through the decades Marx formulated his theories, compared to 74% of India’s workforce in 1959.

analysis of industry and factories into the organic realm of agriculture, where the “economies of scale” argument – Marxism’s entire argument for collectivization of land into large farms where mechanisation would inevitably lead to higher productivity – does not apply. Instead agriculture is constrained by land, and the cycle of productivity which is an organic process which no amount of mechanisation or technology can accelerate. Marx’s predictions on agriculture and the future of the peasant are rubbished by Singh, and he cites that Marx himself had come to doubt his theory’s predictions in post-colonial economies.

In any case, even if the Marxist doctrine were correct, it asked the wrong question as far as India’s requirements were concerned, for it sought to maximize productivity per unit of labour. This was the same as the approach of advanced capitalist countries such as the USA, New Zealand, Australia and Canada where there is a vast surplus of land over the labour available to till it. India’s agricultural population, relative to its land, dictates an optimization of productivity per unit acre, as land becomes the limiting factor with so many families to be employed on a relatively fixed amount of area. According to this yardstick, an adequate agricultural policy would seek to maximize productivity per acre at the relative cost of land and capital, pointing towards intensive rather than extensive farming methods.

This requirement alone makes collectivization on Marxist principles flawed in India; combined with the Law of Diminishing Returns, which dictates that rise in productivity on a fixed agricultural area diminishes with the addition of each new member, it becomes counterproductive. India’s foremost requirement since Independence from colonial Britain was food security for its ballooning population and would remain for decades after the publication of this book. Famines were all too familiar in recent history, and concern about it was omnipresent in the thoughts of all thinkers. Maximizing overall production was a dire requirement, even at the expense of labor, and small farms were the way to go to achieve it. Singh declares with confidence:

“However, while in sheer theory, the size of the farm, in and of itself, did not affect production per acre, in actual practice and for reasons following, given the same resource facilities, soil content and climate, a small farm produces, acre for acre, more than a large one – howsoever organised, whether cooperatively, collectively or on a capitalistic basis.

And it will continue to produce more, until a device is discovered which can accelerate nature's process of gestation and growth."<sup>18</sup>

These 'reasons following' include the peasant's attachment to his land, animals and poultry which motivate the peasant beyond the incentives provided on collective farms or to labour on large capitalist farms. A peasant's family helps out on the land, charging nothing for it from the peasant, and it takes better care of the animals, poultry and soil which occur recurrently in the productivity cycle as an ecosystem. The collectivized farm, whose whole *raison d'être* of increased productivity stood refuted for Indian requirements, performs poorly on these fronts. It relies more on machinery which produces less per acre than the bullock plough, and artificial fertilizers that deteriorate the quality of soil over the long term. Charan Singh makes little of the last of the arguments for collectivization, viz., access to government machinery and credit, better technologies available on larger farms etc. and bitterly criticises the dogmatic acceptance of the "economies of scale" principle in agriculture, equating bigger with more productive.

### **Men versus Machines**

For a country like India where agriculture was by far the largest employer<sup>19</sup>, Singh maintains the use of machinery would lead to lesser employment for those joining the workforce as the population grew. Only if the wealth grew faster than the population growth would the net welfare of the country go forward, and for that to happen agriculture would have to gainfully employ its millions towards the ultimate goal of maximising returns per acre of land. These conditions necessitated production in small, independently owned holdings of land which were to strike a balance between the area of land and the number of peasant family units tilling it. Owing to the law of diminishing returns, collectivization could not produce these results if a large number of people were employed per unit of land. Furthermore, it would lead to disguised unemployment and underemployment, as the use of machinery reduces the need for labour in a scenario where labor is the most easily available of all the means of production: land, capital and labor.

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<sup>18</sup> Singh, Charan. *Joint Farming X-Rayed*. Kitabistan, Allahabad. 1959. p. 25.

<sup>19</sup> As per the 1951 census, 74% of India's labour force was engaged in agriculture.

Cheap labour, then, needs to be leveraged to produce the agricultural surplus, trade of which could be the road to industrialization and the expansion of the manufacturing and services industries in India. These expansions were imperatives as they were drivers of wealth and created more economic value per unit labour. To catch up with the West in competitive markets, an increase in the share of population engaged in the two sectors had to be driven up, mounted on an increase in the agricultural output and the availability of capital and labour released from agriculture. For that time, then, the resources available to India dictated a strategy which did not demand investment in industry or technology, whilst it provided employment to as many as it could at the cost of maximum yield where necessary. According to Singh, collectivization's benefits were predicated on large machinery and industry, which are both capital intensive and lead to freed surplus labor. These were simply not up to the mark to address India's problems.

### **Authoritarian Footsteps**

Singh goes on to criticise the collectivist policy for its antipathy to the democratic principles India had adopted for herself. These principles are predicated on the individual, and Singh argues the bureaucratic and opaque superstructure that collectivization brings works against the democratic flow. In the case of China and Russia, where forced collectivization was implemented, it was a diktat of ideology and not of efficiency. The form of agricultural organisation was selected to conform to Communist principles and led to greater concentration of power in the hands of the government and Party officials through its access to means of production and the power to coerce membership by offering benefits, either directly or indirectly, to collective farms as opposed to small, independent ones.

Not only that, the State obtains a monopoly on production and purchase, deciding unilaterally the rewards and punishments for the commune, as well the price at which the peasants would sell to government, over and above a government-fixed limit the commune was obliged to give. Whether in China or the USSR large collectives facilitated an exploitation of the rural interests for the benefit of the urban and the overall regression of the government towards a full dictatorship. Singh's analysis is once again prescient and foretells the close relations

between collectivization and authoritarian control in the hands of the government that was to rear its ugly head in these nations.

The last chapter of the first half, titled “Impracticability of Large Scale Farming” makes a summary of his arguments, and although Singh leaves it to the readers’ discretion if the government’s policy meets all its challenges as defined, he does not leave his opinion secret. Psychologically and culturally for the Indian peasant, collectivization implies the uprooting of a whole way of life, which is bound to be met with resistance by the peasantry. A quick survey of the outcome of collectivization on output reveals that the policies did not meet desired results, and in large cases were carried out under orders from dictatorial regimes, or by aid of the USSR, whose assistance came at its price in policy. Wherever circumstances made allowances for it, the peasant sought to abandon the communes; perpetual coercion, therefore, had been required for their sustenance all along, even in the parent countries of USSR and China. Singh finishes with contemporary findings about the *Ejido* and *Kolkhoz* having proved failures in their respective countries and pronounces joint farming as inadequate to India’s needs.

### **An Alternate Vision**

The latter and larger portion of the book geared towards solutions sets for itself the same yardsticks by which it evaluates joint farming. It identifies land as the limiting factor in capital production that precedes mechanization and identifies surplus labour as a result of population as the means to generate that capital in India. Cheap labor could be dedicated to getting more land under cultivation and using the existing land to the fullest by intensive farming methods. This would generate capital which would, in turn, lead to better technologies to follow for both land and labour, slowly weaning the population away from agriculture to manufacturing and services, while population control would ensure that the increase in productivity is not drowned out by the increase in numbers to feed and sustain. Singh boils the essentials of the solutions down to “reclamation and redistribution of land, emigration to foreign countries, development of non-agricultural resources, intensive utilisation of our land resources and population control.”<sup>20</sup> The chapters following each

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<sup>20</sup> Singh, Charan. *Joint Farming X-Rayed*. Kitabistan, Allahabad. 1959. p. 130.

handle these aspects one after the other in an interconnected manner.

Reclamation of land and emigration turn out to be of little help on examination, as India already uses most of its arable land for cultivation, and the prospects of life as an emigrant for an Indian made Singh believe that the Indian immigrant would not find himself welcome in many parts of the world, certainly not in large numbers. He advocates land redistribution wherever possible but does not see much improvement in productivity resulting from it, as the land to be distributed in practical terms would not turn out to be a lot once all the government and state regulations are taken into account. Nevertheless, he proposes measures to organize land-redistribution for better results and lists out some of the possible dangers of the redistribution policy.

Singh's solution focuses simultaneously on the intensive utilization of land and developing non-agricultural livelihoods. Singh reiterates his comment that his strategy is not to promote agriculture-heavy interventions at the cost of the secondary and tertiary forms of employment and insists that the path to economic development goes inevitably through a decrease in the percentage of the population engaged in agriculture and other primary sector employment opportunities in favor of an increase in the Manufacture, Commerce and Services sector. Economically developed countries without exception demonstrate this distribution in their economic blueprints, and Singh regards this as a law:

“Land and mineral resources per head of the population being equal, and the quality of these resources and climatic conditions being similar, that country or region is comparatively more prosperous than others where more men are employed in non-agricultural activities than in agricultural”.<sup>21</sup>

Unlike agriculture, manufacture is a mechanical process, where for a fixed input a fixed outcome can be expected more or less in a fixed amount of time. It is also more flexible to changes in environment and markets, which agriculture – being an organic process – cannot guarantee. Agriculture is dependent on the crop-cycle, soil-conditions and the various levels of care taken of the soil and the produce. Power and machinery aren't available to increase production indefinitely to the agriculturist, putting a ceiling on his productivity in a given time

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<sup>21</sup> Ibid, p. 192.

or piece of land. He also works fewer hours than his counterpart in the manufacturing and services sector owing to the nature of his employment. Lastly, agriculture suffers from a lack of demand for its product and a superfluity of workers using suboptimal land for cultivation in the absence of other employment opportunities, especially in post colonialist economies, even more so in India.

Singh warns against more of the workforce engaging in agriculture in India, which had been on the rise since 1881.<sup>22</sup> He traces the beginning of the decline to colonial Britain's policies, which privileged Britain's markets and economy at the expense of once-flourishing Indian handicrafts and industry connected closely to agriculture. Thus, colonization turned India from an agriculture and village industries economy to a largely agricultural colony. He warns against the continuation of the trend even after Independence from Britain and posits diversification of labour as a prerequisite for economic growth.

Nehru's top-down economic development plan favors immediate large-scale industrialization as the means of boosting this diversification involving large-scale capital investments by the State for producing the infrastructure for heavy industry and machinery. Singh's approach, influenced by Gandhi, argues for a 'bottom-up approach' where, in his own words, on "small-scale decentralised industry geared in with agriculture should predominate. The latter would also lay great emphasis on handicrafts and cottage or village industries."<sup>23</sup>

The two visions for growth are as sharply distinguished in approach as they are from the quarters they come from. Singh's and Gandhi's India lived in the villages, while Nehru's and the government's effort was informed by the vast chasm between urban and rural interests and approaches. Apologists for industrialization gave the example of developed countries' economies, their scales of production and their standards of living as self-evident proofs of the impact of mechanization on production and population control. Industrialism was deemed to usher in new employment opportunities away from just agriculture, and the large amount of Indian population was seen in and of itself as an asset in the form of a virtually inexhaustible workforce and internal market for the production and consumption of the fruits of industrialization. Singh

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<sup>22</sup> Ibid, p. 153.

<sup>23</sup> Ibid, p. 157.

was a soothsayer, for we know today that large scale manufacturing has destroyed jobs in India in the past three decades. In addition, increased mechanisation in production as well as the implementation of robotics and other technological advances has put even these fewer jobs at risk into the future.

Industrial thinking posits that migration to urban centers and a readjustment of the psychological and cultural conditions of the rural agricultural Indian would automatically lead to smaller families, higher education and population control, engendered by life in the city. Higher rates of taxation for the rich, coupled with the per capita increase in real income that comes from employment in non-agricultural sectors, would prove a source of equitable distribution of wealth, and the ultimate flourishing of democracy. Singh lists the above commonly cited reasons by the messiahs of Industrialism, before he takes on a closer look at the fault lines surrounding each of the reasons.

His biggest target is the assumption that India's large population, in and of itself, would prove a boon to industrialization as the Keynesian postulate "labour itself is capital"<sup>24</sup> dictates. Singh disagreed with this assumption and thought a vast unemployed population per unit land, with little ways to generate capital on its own, could never deliver the results on which Keynes' predictions were made. For the industrialised economies, labour and demand were scarce, whereas availability of capital and supply were much less of a problem. India had an acute shortage of both capital and purchasing power per capita, and the increasing population would only make things much worse if not checked.

Similarly, India could not aspire to emulate the developed countries' model, as its conditions of capital formation were abysmal, and therefore the vast investments made on heavy industry and machinery would come at a dear cost to the country's capital and foreign exchange, both of which would be tied up long term in the projects. It had no colonies to exploit to sustain industrialization's hunger for capital and would need to produce all that it needed from a surplus on its agricultural output based on better yields from existing land and labour. Furthermore, insofar as industrialization would not be able to absorb all the surplus hands from agriculture at a fast-enough rate, the migration to cities envisioned in

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<sup>24</sup> Ibid, p. 166.

population control and socio-psychological readjustment thereof would also likely not occur.

Therefore, the conditions that led to industrialisation in the West could never be emulated in India, and industrialism could not be preferred to bottom-up schemes that took into account India's realities. For any solution to work, it would have to incorporate these specifics: it would involve high labor-to-capital ratios, low investments on capital-intensive industries, (with the exception of the absolutely essential ones like that of steel, iron, electrification, railways etc.), and overall, as a target, optimization of output (and employment) per unit capital over output per head. From this point of requirement, small industries outperformed the ones based on heavy machinery, and cruder forms of technology than the "capitalist."

Singh argues this goal assures proportionate rewards to a wider net of people for whom this form would generate employment, as opposed to the few for whom employment in the capital-intensive sectors indeed led to better wages, but whose number forever struggled to catch up with the rising rate of population. Singh's summary is succinct: "In a way, unemployment and consequent misery of millions of persons is the price that the country pays for profits of a few at the top."<sup>25</sup>

### **India Bottom Up**

Singh champions an economy based on an ecosystem of small scale, decentralised and cottage industries which would employ enhanced machinery on a smaller scale than massive mechanized farms or heavy industries. Singh divorces this from the myth that bigger machinery automatically meant more output over all factors of concern. His arguments point repeatedly to Japan, where intensive farming on small farms was implemented along with capital investments on the improvement of farming methods and technology, which had provided innovation opportunities for machinery that was designed for small-scale enterprises. Singh points to the reversal in trend of ballooning machinery and factory sizes already underway in his time, and keeps a forward-looking approach to the decentralizing prospects of electricity, railways, better seeds etc. In fact, some of the most far-reaching predictions of

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<sup>25</sup> Ibid, p. 159.

the growing use of automation anticipate problems of today, long after Singh's time, whereas some of his hopes such as those from nuclear energy are far too optimistic.

Along with advancements in technology, Singh argues next for measures to increase the productivity of agricultural labor, both by handing him better technology and by initiating changes in his training and attitude. Singh points to the productivity of an average farmer of Japan and China, and worries that the peasantry of India, owing to religious outlooks geared towards otherworldly rewards more than the material world, is too fatalistic for its own good. He also blames illiteracy, and lack of capital for the lack of innovation in agricultural technology and suggests investment in education and health sectors to remedy the same.

Lastly, Singh proposes measures to enhance productivity of the land itself by proper soil conservation and utilization. He critiques the assumption that machinery equaled 'advanced technology' compared to the bullock cart in terms of yield and its effect on the topsoil. He stands against the use of artificial fertilizers which have an adverse effect on fertility and crop resistance to diseases. Instead he remarks upon the resources available in the peasant ecosystem itself, with special mention for cow dung, which serves as excellent manure and is readily available to farmers.

The final section of the book talks about the rise of population, which, if unchecked, would undo all the efforts of increasing wealth by providing a proportionate amount of mouths to feed. It leads to rise in unemployment and inflation, and an overcrowding in the agricultural sector and villages of the country beyond the ability of the land to sustain. He explains "underdevelopment" and "overpopulation" as relative concepts, each dependent on resource utilization per capita, and argues against apologists who insisted that increase in population could be sustained by proportional increase in technology and yield, as well as those holding the prejudice that Indians had higher rates of population increase than Western countries. Nevertheless, he advocates State measures to incentivize smaller families via propaganda and policy. Singh's usual methods derive from his Gandhian training of self-discipline, but Singh does not shy away from discussing other solutions of population control. He proposes postponement of the average

marriage age by five years and includes for good measure his thought that the procedure of vasectomy being much easier for men, it should take the lead in voluntary methods of family control the State should incentivize. Sensitization of the country about the impact of population growth and the need for birth control is advocated, until such time as the Industrialization project can be achieved, which would bring about a change in attitude that leads to urban nuclear families – an automatic, though roundabout, way of birth control.

### **Conclusion**

Books by politicians don't hold much water amongst academicians regarding intellectual rigor and one that is titled *Joint Farming X-rayed* and argues against the overwhelming consensus of its time becomes even more likely to be misjudged. To be sure, Charan Singh's dissenting analysis suffers on account of these prejudices of his contemporaries. However, this title detracts from a work of scholarship that far exhausts its title in scope and ambition.

Why joint farming occurs in the title nevertheless is made clear by the emphasis Singh's blueprint for the Indian economy places on maximal land utilization as the sine qua non for progress at the time the book was written. It is by this principle that he organises his critique, and from which an organic picture of his proposed solution grows out. Much of Singh's thought is structured in this organic way, one factor connecting to the other, and ultimately grounded in earthly reality, like an ecosystem. This lends the book's arguments a cohesive quality as it transitions from a discussion of the problems to one of solutions and gives it an air of intellectual honesty belying the political circumstances in which it came out.

The feeling is further bolstered by Singh's scholarship, which presents a dispassionate analysis of a vast amount of empirical data, comprising myriad disciplines across different continents, geographies, and stages of development as economies. Indeed, much of history's march since the publication of the work to our present day has borne out Charan Singh's analysis of the impact of collectivization on democracy and agricultural output. Collective farming is today nowhere to be seen, and when viewed from the clarity of this work's prism, it does not come as a surprise.

Singh's analysis anticipates, at least in part, the horrors of which the world was to become aware after news finally broke about the price Mao's China had paid for 'The Great Leap Forward', or Stalinist Russia for her own agricultural needs and outputs, as a result of forced collectivization with the incentive to accelerate industrialization. Furthermore, it presents a fair amount of evidence available to his contemporaries before the news from China or Russia became common knowledge, shedding unique light on the impact of ideology (in this case Marxist) and the personality of India's pre-eminent leader Nehru on national policy at the cost of empirical data. As for the issues it addresses, *Joint Farming X-Rayed* makes common cause with the agrarian crisis that today worries the government and citizenry alike on burning issues like unemployment, urban-bias in government, the impact of chemical fertilizers on soil fertility, and of deforestation on soil-erosion.

For all the worth of the analysis, the solutions Singh proposed in 1959 have been relegated to the policy graveyard. Nehru's conviction about industrialization as the only way forward sidelined the incipient Gandhian project, of which Charan Singh was a lifelong defender. Not only that, a prototype economy on Gandhian principles doesn't exist anywhere on the globe today and unlike joint farming it has never been duly tested. Singh's decentralised, individualistic model for the economy borrows generously from the Gandhian blueprint and derives much of the intellectual force of its critique of both Industrialism and Marxism from this perspective which puts a premium on individualism above all else. Here is a merger of Singh's peasant upbringing and the all-pervading influence of Gandhi's worldview, one that vowed to remake India on principles that are closer to her home in the village and her office in the fields.

Some criticism of fellow Gandhians, such as Vinoba Bhave and his Bhoodan movement, show that despite Gandhi's deep influence on Charan Singh's thinking on economic and social issues, his commitments were also guided by personal experience and empiricism which led him to mix Gandhian ideas with modifications of his own. How these ideas would have worked out if implemented at Independence will never be known, and Gandhian economics has been criticised for its utopianism, protectionism, and aversion to technology. But, in the absence of empirical evidence, and the radicalism of Gandhian economies when considered

from Capitalist or Marxist principles alike, an assessment of the future of any society should the Gandhian plan have been implemented, is eminently worth speculating.

Singh's book makes a compelling case for a path to India's development on his alternate model, and it asks much of both the rich and the poor in order to get there. It also provides an alternative which works against the lopsidedness that the modern version of 'development' as progress brings, with its cities impoverishing the villages over the long term. More importantly, it speaks earnestly and scholarly on behalf of the interests it represents: the village and the peasantry that bears the brunt of this lopsidedness, and whose poverty of credible representatives amongst the circles of influence makes this an important work as a unique alternative picture of India.

# **Bibliography**

Joint Farming X-Rayed. 1959

# Joint Farming X-Rayed The Problem and Its Solution<sup>1</sup>

## Books and Indirect Sources

- Adams, Brooks (1895), *The Law of Civilisation and Decay*.
- App, Frank & Waller, Allen G. (1938), *Farm Economics: Management and Distribution*, Philadelphia: J. B. Lippincott Company.
- Bateman, Alan M. (1942), *Economic Mineral Deposits*, London: John Wiley and Sons.
- Beard, Miriam (1938), *History of the Business Man*, New York: Macmillan Co.
- Belshaw, Horace (1956), *Population Growth and Levels of Consumption*, London: George Allen and Unwin Ltd.
- Black, J.D. (1959), *Economics for Agriculture: Selected Writings of John D. Black*, Cambridge: Harvard University Press.
- Buck, John Lossing (1930), *Land Utilisation in China*, Taipei: The Orient Cultural Service.
- Castro, Josue De (1952), *Geography of Hunger*, Georgia: Little, Brown Company.
- Chand, Gyan (1956), *Some Aspects of Population Problem of India*, Bihar: Patna University.
- Clark, Colin (1957) ed., *The Conditions of Economic Progress*, London: Macmillan.
- Cohen, R.L. (1949), *The Economics of Agriculture*, London: Nisbet & Company Ltd.; Cambridge: Cambridge University Press.
- Cole, G.D.H. (1940), *Practical Economics, Or Studies in Economic Planning*, New Orleans: Pelican.
- Coudenhove-Kalergi, Richard N. (1938), *The Totalitarian State Against Man*, Sir Andrew McFadyean (ed), London: Frederick Muller Ltd.
- Dandekar, V.M. (1956), *Use of Food Surpluses for Economic Development*, Poona: Gokhale Institute of Politics and Economics.
- Davis, Kingsley (1951), *Population of India and Pakistan*, New York: Princeton University Press.
- Djilas, Milovan (1957), *The New Class*, London: Thames & Hudson.
- Doubleday, Thomas (1853), *The True Law of Population: Shewn to be Connected with the Food of the People*, London: Smith, Elder & Company.
- Dutt, Rajani Palme (1949), *India Today*, New Delhi: People's Publishing House.
- Dutt, Romesh Chunder (1916), *The Economic History of India under Early British Rule, from the Rise of the British Power in 1757 to the Accession of Queen Victoria in 1837*, London: K. Paul, Trench, Trübner & Co. Ltd.
- Evidence before the Commons' Committee, 1832, 2 (1), p. 195. Quoted in Romesh Dutt (1906), The Economic History of India (Early British Rule)*, London: Kegan Paul, Trench, Trubner & Co. Ltd.
- Faulkner, Edward H. (1945), *Ploughman's Folly*, London: Michael Joseph Ltd.
- Gandhi, M.K. (1934), *Man vs. Machine*, Harijan, 16 November 1934. Quoted in R.K. Prabhu & U.R. Rao (1945), *The Mind of Mahatma Gandhi*, London: Oxford University Press.
- Ghosh, D (1946), *Pressure of Population and Economic Efficiency in India*, Mumbai: Oxford University Press.
- Ghosh, O.K. (1957), *Problems of Economic Planning in India*, Allahabad: Kitabistan.
- Gregg, Richard B. (1952), *A Philosophy of Indian Economic Development*, Ahmadabad: Navjivan Press.
- Gregg, Richard B. (1952), *Which Way Lies Hope?*, Ahmadabad: Navjivan Press.

---

<sup>1</sup> Published 1959 by Kitabistan, Allahabad. Uttar Pradesh. 322 pages.

- Howard, Albert (1943), *An Agricultural Testament*, New York: Oxford University Press.
- Howard, Albert (1945), *Farming and Gardening for Health or Disease*, London: Faber and Faber Ltd.
- Howe, F.C. (1922), Denmark; *The Coöperative Way*, New York: Coward-McCann Inc.
- Hubbard, Leonard B. (1939), *Economics of Soviet Agriculture*, London: Macmillan and Co.
- Jacks, J.V. & White, R.O. (1941), *The Rape of the Earth: A World Survey of Soil Erosion*, London: Faber and Faber Ltd.
- Jasny, Naum (1949), *The Socialized Agriculture of the USSR: Plans and Performance*, Stanford: Stanford University Press.
- Korn, Itzhak (1952), *Co-operative Farming in Israel*, Tel Aviv: Histadrut.
- Krause, Walter (1955), *The International Economy*, New York: Houghton Mifflin Co.
- Krishnan, M.S. (1955), *Iron Ores of India*, Calcutta: Indian Association for the Cultivation of Science.
- Lal, Chaman (1949), *Cottage Industries and Agriculture in Japan*, Mumbai: New Book Co. Ltd.
- Lal, Sunder (1938), *Bharat Mein Angrezi Rajya*, Allahabad: Onkar Press.
- Lewis, Arthur W. (1957), *The Theory of Economic Growth*, London: George Allen & Unwin Ltd.
- Manoilescu, Mihail (1931), *Theories of Protection and International Trade*, London: P.S. King & Son.
- Marx, Karl & Engels, Friedrich (1848), *The Communist Manifesto*, London: Workers' Educational Association.
- Mitrany, David (1930), *The Land & The Peasant in Rumania: The War and Agrarian Reform (1917-21)*, London: Humphrey Milford, Oxford University Press.
- Mitrany, David (1951), *Marx Against the Peasant: A Study in Social Dogmatism*, North Carolina: University of North Carolina Press.
- Mukerji, Radhakamal (1926), *Rural Economy of India*, London.
- Pendell, Elmer (1951), *Population on the Loose*, New York: Wilfred Funk.
- Pfeiffer, E (1947), *Soil Fertility: Renewal and Preservation*, London: Faber and Faber.
- Renne, R.R. (1947), *Land Economics*, New York: Harper & Brothers.
- Rowen, Bowels & Prehson (1952), *Mineral Resources of the World*.
- Schiller, Otto (1956), *Co-operative Farming and Individual Farming on Co-operative Lines*, New Delhi: All India Cooperative Union.
- Schumpeter, Joseph A. (1951), *The Theory of Economic Development*, London: George Allen & Unwin.
- Sondhi, V.P. & Mehta, R.S. (1957), *India's Resources*.
- Spillman, William Jasper (1914), *The Law of Diminishing Increments*, Yonkers-on-Hudson and Chicago: World Book Company.
- Stamp, Dudeley L. (1952), *Land for Tomorrow. The Underdeveloped World*, Indiana: Indiana University Press. Quoted in N.G.Ranga & P.R. Parachuri (1958), *The Peasant And Co-operative Farming*, Nidubrolu: Indian Peasant's Institute.
- Talpade, R.M. (1951), *Co-operative Farming, With Special Reference to Bombay State*, Bombay: Provincial Cooperative Institute, 1951.
- The Mining, Geological and Metallurgical Institute of India (1951), *The Progress of the Mineral Industry of India*, Kolkata.
- Thomas, Edgar (1927), *The Economics of Small Holdings*, Cambridge: Cambridge University Press.
- Union, Socialist (1956), *Twentieth Century Socialism*, London: Penguin Books.
- Van Der Post, A.P. (1937), *Economics of Agriculture*, South Africa: Central News Agency Ltd.

- Wales, Nym (1941), *China Builds for Democracy: A Story of Cooperative Industry*, China: Scholarly Press.
- Webb, Sydney & Beatrice (1937), *Soviet Communism: A New Civilisation*, London: Longmans, Green & Co. Ltd.
- Wood, Thomas Barlow (1920), *The Chemistry of Crop Production*, London: University Tutorial Press Ltd.
- Woytinsky, Wladimir S. (1957), *India: The Awakening Giant*, New York: Harper and Brothers.
- Yajñavalkya (9th-6th century B.C.), *Brahadaranyaka Upanishad* (vr. ed.).

### **Government, International Organisations & NGO Publications**

- British Agricultural Tribunal of Investigation (1924), Government of United Kingdom, British Agricultural Tribunal of Investigation, "Final Report", H.M. Stationery Office (printed by Eyre and Spottiswoode, Limited): Great Britain.
- Department of Health Research, Ministry of Health & Family Welfare (1951), Government of India, Indian Council of Medical Research, Department of Health Research, Ministry of Health & Family Welfare, "Diet Surveys of India 1935-48": New Delhi.
- Embassy of the People's Republic of China in India (1955), Article in Circulation by Chau Hansing: New Delhi.
- Food and Agriculture Organization (1950), United Nations, "Report on World Census of Agriculture 1950": Rome.
- Food and Agriculture Organization (1953), United Nations, The State of Food and Agriculture Part I August Issue: Rome.
- Food and Agriculture Organization (1953, 1954), United Nations, FAO Yearbooks: Rome.
- Food and Agriculture Organization, United Nations, "Survey Cooperatives and Land Use": Rome.
- Government of India (1918), Indian Industrial Commission, Government Printing Press, "Report of Indian Industrial Commission 1916-18" by Sir Thomas Holland: New Delhi.
- Government of India (1943), "Report Technological Possibilities of Agricultural Development in India" by Dr. W.Burns: New Delhi.
- Government of United Provinces, India. (1948), "Report of the United Provinces Zamindari Abolition Committee", Allahabad: Printed by M. G. Shome, Superintendent, Printing and Stationary: Uttar Pradesh.
- Her Majesty's Stationery Office (1957), Government of United Kingdom, Commonwealth Economic Committee, "Grain Crops- A Review": London.
- Indian Famine Commission (1880), Crown Rule in India, "First Indian Famine Commission Report": Kolkata.
- International Labour Organization (1953), ILO News September Issue, "Report International Labour Organisation's Asian Regional Conference" by Dr. D.A. Morse: Tokyo.
- International Labour Organization (1953), International Labour Review August Issue, "Population Growth and Living Standards" by Colin Clark: Geneva.
- International Labour Organization (1954), International Labour Review November Issue, Article "Population Growth and Living Standards" by Albert Nevett: Geneva.
- International Labour Organization (1954), International Labour Review January Issue, Article "Child-Bearing and the Standard of Life" by Sten S. Wilson: Geneva.
- International Labour Organization (1954), International Labour Review January Issue, "Report to the First All-India Conference on Family Planning (Bombay, 1951)" by Shakuntala Paranjpye: Geneva.
- International Labour Organization (1955), International Labour Review March Issue, Article "Some Effects of Farm Mechanization" by Desmond L.W. Anker: Geneva.

- International Labour Organization (1955), International Labour Review October Issue, Article "Handicrafts in Europe" by Marcel Laloire: Geneva.
- International Labour Organization (1956), International Labour Review May & June Issues: Geneva.
- International Labour Organization (1956), International Labour Review May Issue, "World's Working Population": Geneva.
- International Labour Organization (1957), International Labour Review November Issue, Article "Changes in European Peasant Farming" by Doreen Wariner: Geneva.
- League of Nations (1938), European Conference on the Rural Life, "Report of the Preparatory Committee on the Work of Its First Session": Geneva.
- Ministry of Agriculture (1952), Government of India, Agricultural Situation of India November Issue, Ministry of Agriculture, "Population and Food Supply in India", Vol. VII No. 8: New Delhi.
- Ministry of Agriculture (1955-56), Government of India, Directorate of Economics and Statistics, Ministry of Agriculture, "Studies on the Economics of Farm Management": New Delhi.
- Ministry of Food and Agriculture (1957), Government of India, The Food-grains Inquiry Committee, Ministry of Food and Agriculture, "Report of The Food-grains Inquiry Committee 1957": New Delhi.
- Ministry of Home Affairs (1931, 1941, 1951), Government of India, Office of the Registrar General & Census Commissioner, Ministry of Home Affairs, "India's Census Report 1931, 1941, 1951": New Delhi.
- Ministry of Home Affairs (1951), Government of India, Office of the Registrar General & Census Commissioner, Ministry of Home Affairs, "Census Report of Uttar Pradesh (Part 1-A) 1951": New Delhi.
- Ministry of Home Affairs (1951), Government of India, Office of the Registrar General & Census Commissioner, Ministry of Home Affairs, Census of India Part 1, "Sample Census of Births and Deaths 1953-54": New Delhi.
- Ministry of Information and Broadcasting (1957), Government of India, Publications Division, Ministry of Information and Broadcasting, Pamphlet "Geology of India", May: New Delhi.
- Ministry of Mines (1955), Government of India, Geological Survey of India, Mineral Information Bureau, Ministry of Mines, "Indian Minerals", Vol. XI, No. 2 (Reserves for 1955)
- Ministry of Mines (1957), Government of India, Geological Survey of India, Mineral Information Bureau, Ministry of Mines, Indian Minerals, Vol.II, No. 2, "Bharat Me Koyle Ke Sansadhan" by Chintamani Tripathi: Kolkata.
- Ministry of Statistics and Programme Implementation (1953), Government of India, Central Statistics Office, Ministry of Statistics and Programme Implementation, "Blue Book on National Income and Expenditure 1946-52": New Delhi.
- Planning Commission (1951), Broad Heads of Development, Planning Commission, "First Five-Year Plan (1951-1955)": New Delhi.
- Planning Commission (1954), Government of India, Planning Commission, "Report of the Textile Enquiry Committee": New Delhi.
- Planning Commission (1955), Government of India, Karve Committee, Planning Commission, "Report of the Karve Committee": New Delhi.
- Planning Commission (1956), Government of India, Panel on Land Reforms, Planning Commission, "Report of Committee on Problems of Land Reforms": New Delhi.
- Planning Commission (1956), Government of India, Panel on Land Reforms, Planning Commission, "Report of Committee on Size of Holding": New Delhi.
- Planning Commission (1956), Government of India, Panel on Land Reforms, Planning Commission, "Report on Size of the Farm": New Delhi.

- Planning Commission (1956), Government of India, Planning Commission, "Report of Agrarian Delegation to China on Agricultural Co-operatives (Patil Delegation)": New Delhi.
- Planning Commission (1956), Government of India, Planning Commission, "Report of Agrarian Delegation to China on Agricultural Planning and Techniques (Krishnappa Delegation)": New Delhi.
- Planning Commission (1957), Government of India, Research Programmes Committee, Planning Commission, "Report on Studies in Economics of Farm Management in Uttar Pradesh 1954-55" by Dr. G.D. Agarwal, Government Agricultural College: Kanpur.
- Planning Commission (1958), Government of India, Panel on Land Reforms, Planning Commission, "Committee on Tenancy Reforms Report": New Delhi.
- Planning Commission (1963), Government of India, Broad Heads of Development, Planning Commission, "Second Five-Year Plan (1956-1961)": New Delhi.
- Plunkett Foundation (1943), "Yearbook of Agricultural Cooperation" by Dr. C.R. Fay: United Kingdom.
- Plunkett Foundation (1951), "Yearbook of Agricultural Cooperation" by Henry F. Infield: United Kingdom.
- Reserve Bank of India (1955), Government of India, Reserve Bank of India, "All-India Rural Credit Survey; Report of the Committee of Direction Vol II": Mumbai.
- Supreme Court of India (1955), Gosamvardhan Enquiry Committee, Supreme Court of India, "Gosamvardhan Enquiry Committee Report", Government of India Press: Allahabad.
- Survey of India (1954), Government of India, Geological Survey of India, Survey of India, "Records" Vol.85 (2): Kolkata.
- United Nations (1950), UN Publishing, "World Iron Ore Resources and Their Utilization": New York.
- United Nations (1952-1954), United Nations Statistics Division, "Per Capita National Products of Fifty-five Countries", Series B No. 4: New York.
- United Nations (1954, 1956), United Nations Statistics Division, "United Nations Statistical Yearbook": New York.
- United Nations (1956, 1957), United Nations Statistics Division, "UN Monthly Bulletin of Statistics" October 1956, March & October 1957: New York.
- United Nations Department of Economic Affairs (1951), United Nations, "Proceedings of the United Nations Scientific Conference on the Conservation and Utilization of Resources": New York.
- United Nations Department of Economic Affairs (1953), United Nations, Economic Commission for Asia and the Far East, "Development of Mineral Resources in Asia and the Far East": New York.
- United Nations Statistics Division (1948, 1951, 1954), United Nations, United Nations Department of Economic and Social Welfare, "Demographic Yearbook": New York.
- United States Department of Agriculture (1950), Federal Government of the United States, "Census of Agriculture 1950": Washington D.C.
- World Bank (1957), International Bank for Reconstruction and Development, "International Finance Statistics" March Issue: Washington D.C.
- "World Petroleum Report" (1958)

### **Articles in Journals, Newspapers, Magazines and Seminars**

- "2,00,000 Houses Destroyed by Flood in China Hongkong, July 1", National Herald, Lucknow, 2 July 1959.
- "Cattle Shortage in China", Hindustan Times, New Delhi, 15 May 1956.
- "Krishnappa Delegation Report", Hindustan Times, New Delhi, 15 May 1956.

- “The Economist’s Article”, *The Pioneer*, Lucknow, 27 October 1956.
- “What is the Key of Economic Growth?”, *Hindustan Times*, New Delhi, 15 January 1958.
- Apte, Shrikant (1957), “Rishi Kheti”, *Hindustan Times*, New Delhi, 29 January 1957.
- Balarka (1958), *Hindustan Times*, New Delhi, 28 December 1958.
- Bansil, P.C., “Indian Food Resources and Population”, *The Eastern Economist*.
- Blair, John M. (1948), “Does Large-Scale Enterprise Result in Lower Costs?”, *American Economic Review*, 38 (2): 121-152.
- Chandrasekhar S. (1959), *The Statesman*, New Delhi, 10 January 1959.
- Ching-Tai, Chang (1955), *Hsueh Hsi* (“Study”).
- Dhar, N.R. (1956), *The Pioneer*, Lucknow, 19 December 1956.
- Gandhi, M.K. (1925), *Young India*, March 12.
- Gandhi, M.K. (1955), *Harijan*, June 25.
- Gee, E.R., *Bulletin of Economic Minerals*, Vol 16.
- Gregg, Richard B. (1958), “One Way to Increase Food Production”, *National Herald*, Lucknow, 23 March 1958.
- Gupta, Amalendu Das (1958), “Inexhaustible Power from Water- Prospects of Controlled Nuclear Fusion”, *The Statesman*, New Delhi, 15 January 1958.
- Hindustan Times*, New Delhi, 16 December 1958.
- Khrushchev (1959), “Interview with Senator Hubert H. Humphrey of the USA”, *The Pioneer*, Lucknow, 21 January 1959
- Lehman, Herbert H. (1957), *National Herald*, Lucknow, 28 September 1957.
- Lokanathan, P.S. (1943), “A Matter of Bottlenecks”, *The Eastern Economist*, New Delhi, 30 July 1943.
- Lokanathan, P.S. (1943), “Cottage Industries and The Place”, *The Eastern Economist*, New Delhi, July 23 1943.
- Lokanathan, P.S. (1943), “Occupational Planning”, *The Eastern Economist*, New Delhi, July 1943.
- Namboodiripad, E.M.S. (1957), *National Herald*, Lucknow, 17 September 1957.
- Nehru, Jawaharlal (1957), Speech delivered in a meeting of the Association of Manufacturers in April 1957, *Hindustan Times*, New Delhi, 14 April 1957.
- Pant, K.C. (1959), “Fertilizers for More Food”, *Hindustan Times*, New Delhi, 1959.
- Parsons, Kenneth H., Penn, Raymond J. & Raup, Philip M. (1951), “Transfer Areas” in *Land Tenure: Proceedings of the International Conference on Land Tenure and Related Problems in World Agriculture*, held at Madison, Wisconsin, 1951, Wisconsin: University of Wisconsin.
- Patil R.K. (1951), “Economic Condition of the Peasant”, *National Herald*, Lucknow, 23 April 1951.
- Rao, M.R. Raghavendra (1958), *The Pioneer*, Lucknow, 1 June 1958.
- Schiller, Otto (1956), “The Resources and Performance of Soviet Agriculture”, *The Journal of Farm Economics*, 38 (2): 306.
- Sheehan, Robert (1958), A Pill to Cure Over-Population?, *American Life Magazine*, July 7.
- Simens, A.T. (1941), “Marketing Report on Groundnut”.
- Sivaraman, M.S. (1958), “If Each Field Grows Its Manure”, *The Pioneer*, Lucknow, 28 May, 1958.
- Tandon, R.K. (1935-36), Sugarcane Manurial Trials in Uttar Pradesh, *Indian Journal of Sugarcane Research and Development*, Shahjahanpur.
- Taylor J.B. (1944), *The Bombay Co-operative Quarterly*, 27: 259-260.
- The Economist*, London, 6 May, 1944.
- The Pioneer*, Lucknow, 19 November 1957.
- The Statesman*, New Delhi, 6 May 1958.

### **Publications in Conferences and Reports, Speeches**

- “Cooperative Farming”, A monograph published in 1957 by Indian Cooperative Union: New Delhi.
- Biswas, N.K. (1956), Note in Tour Diary after visiting M/s Daihatsu Ltd. in Japan as a member of a delegation on November 26: West Bengal.
- Bunker, Ellsworth (1957), Speech delivered at a luncheon meeting on 21 April 1957 of the Indian Junior Chamber of Commerce: New Delhi.
- Voelcker, John Augustus (1889), Report on the Improvement of Indian Agriculture, Eyre and Spottiswoode: London.
- Businessmen’s Commission on Agriculture (1927), “Report- The Condition of Agriculture in the United States and Measures for Its Improvement”, National Industrial Corporate Board, Inc & Chamber of Commerce of the United States of America: New York City & Washington D.C.
- Food and Agriculture Minister of the Government of India (1956), Speech delivered on 18 April 1956 at an inauguration of a two-day conference of representatives of state co-operative institutes: New Delhi.
- Khrushchev, Nikita (1956), “Criticism of a Number of Ministers, Ministries and State and Collective Farms”, Speech delivered in July 1956 at the Closing Ceremony of Siberian Farmer’s Conference.
- Kripalani, Acharya J.B. (1946), Presidential Address delivered in November 1946 at the 54th Session of the Indian National Congress: Meerut.
- Report of 12th International Geological Congress (1913): Toronto.
- Robson, “Sizes of Factories and Firms in the Cotton Industry”, Read on 9 November 1949 before The Manchester Statistical Society: Manchester.
- Russel, John E. (1943), Paper read in April 1943 at Conference of the Rothamsted Experimental Station: Devon.
- Nehru, Jawaharlal (1956), Speech delivered on 29 October 1956 at Uttar Pradesh Political Conference: Jaunpur.
- Tung, Mao Tse (1957), Speech Delivered on 12 March 1957 at the Chinese Communist Party’s National Conference on Propaganda Work.
- Bevan, Aneurin (1957), Speech delivered on 2 April 1957 at a Public Meeting of British Socialist Party: New Delhi.
- Masani, M.R. (1959), Speech Delivered on 14 April 1959 in the Lok Sabha: New Delhi.