

AERC Foundation Day 2015
Chief Guest Address

AGRARIAN CRISIS – CAN AMUL OFFER SOME SOLUTIONS

by

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Ministry of Agriculture, Farmers Welfare
Government of India, New Delhi



AGRO-ECONOMIC RESEARCH CENTRE

For the states of Gujarat and Rajasthan
(Ministry of Agriculture, Govt. of India)

SARDAR PATEL UNIVERSITY

Vallabh Vidyanagar, Anand, Gujarat, India

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About the Centre:

The Agro-Economic Research Centre (AERC) for the states of Gujarat and Rajasthan was established in July 1961 at the Sardar Patel University, Vallabh Vidyanagar by the Directorate of Economics and Statistics, Ministry of Agriculture, Government of India, New Delhi. AERC has been working as an associate institution of S. P. University and enjoying autonomy status in its working. The Centre has completed 54 glorious years (1961-2015) of its journey marked by both achievements and challenges. During these years, the Centre has emerged as a strong policy feedback centre of the Ministry of Agriculture, Government of India due to hard work and strong commitment of the staff in the Centre. The focus of research effort in the initial stage was on comprehensive village surveys and resurveys in order to understand the process and direction of change at the village level. Subsequently, the emphasis of research has shifted to problem oriented studies. The Centre has by now completed 159 problem-oriented studies, 21 village surveys and 4 village resurveys. During its long journey, the Centre has brought remarkable improvement in every aspect of research including methodological base of the studies. The studies have come out with useful findings and policy implications for agricultural and rural development of the states of Gujarat and Rajasthan.

Published by

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AGRARIAN CRISIS – CAN AMUL OFFER SOME SOLUTIONS?¹

Dr. Ashok Dalwai, IAS²

The Chairman of today's function and the Vice Chancellor of Sardar Patel University, Prof. Harish Padh, the key note speaker and respected Dr. R. S. Deshpande, Adviser to the Centre and highly respected elder Dr. Pathak, Dr. Kalamkar, the Director of the Centre, all the invitees assembled here, the student-friends and friends from the media, Good afternoon to all of you.

It is both a pleasure and privilege for me to come down to be here with you. Coming to Gujarat is by itself a privilege. This is the state that has played such an important role in the modern history of India. The 'Father of our Nation' hails from this state and there are many others from this state who have played a critical role in bringing independence to India. Coming to Anand in particular where one of the greatest sons of India, Sardar Patel, was born, is nothing short of visiting a 'punya bhoomi'. He grew up here not just to work for this place but work for the Nation. If you read history of the world, you will find that many of the European countries had to shed blood to unify

¹ Chief Guest address delivered on July 1, 2015 at the Foundation Day Celebrations of Agro- Economic Research Centre, Sardar Patel University, Vallabh Vidyanagar, Anand, Gujarat.

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their national territories. Unification of Germany and Italy stand out as examples of such turmoil. But here was a man, who without shedding a drop of blood and following the ideals of the Father of the Nation and adopting the means of peace & non-violence deployed his extraordinary leadership to bring not one or two or just three or four, but hundreds of principalities and kingdoms spread across the length and breadth of the country to agree to become part of 'one India'. If you look at the present day map of India and compare it with what it was on 15th August, 1947 you will be surprised. Friends, it was not the same. It was so different. It took time after 1947 to make this India that we see today as a unified nation. In a way, what Mahatma Gandhi did to get us our India freed from the clutches of external powers, the British, Sardar Patel gave us the India of today by pulling out many parcels from the clutches of internal forces, some of whom had fissiparous intentions. While one sent out the powers that were not supposed to be here, another ensured that those who were born & brought up here stayed here as sons & daughters of a unified India. What a noble destiny of this State and this region, that they gave birth to such noble souls. We across the nation must all be proud and grateful, that we had such people born in this country and gifted us what we have today.

I first came to Anand way back in 1979 as a student of the College of Agriculture, Dharward in Karnataka and remember visiting the Amul Dairy and listening to a lecture on how it was founded and launched. I distinctly

remember the PRO who welcomed us, recounting the story of Tribhuvandas Patel, who with the blessings of Sardar Patel and the efforts of Morarjee Desai, brought the people of Kheda District together and fought against the Britishers to establish a Co-operative Union of Milk Producers. This was not easy. It was difficult to withstand the machination & stubbornness of the Milk Commissioner, a British Officer who wanted to stall the registration of the union at any cost. The poor milk producers of Kheda District who had faith in Sardar Patel's guidance managed to remain steadfast, agitate as one and deny milk supply to the private collector, who had the support of the Milk Commissioner. The British Officer had to ultimately yield and Tribhuvandas supported by Morarjee Desai succeeded in organizing five village milk co-operatives and registering the Kheda District Milk Union with its headquarters at Anand.

This morning, when I went back to Amul after 36 years, what I could recall was not just those nostalgic moments of my visit as a student, but now as a mature person, I could appreciate it as one of the major achievements of our country. I realized that Amul has made a name not just in India but in the world at large. The true leadership makes an organization to sustain itself and to that extent Amul is a shining example of not just sustainability but also of enviable growth across the country and, therefore, let us salute today Sardar Patel, Morarji Desai and Tribhuvandas Patel. It is, these three who gave birth to this great organization. We also remember fondly Dr. Verghese

Kurien, a man who came down from Kerala to become a part of Gujarati society and it became his Karma Bhumi. He spent his life right here for decades and what he did here was also replicated across the country through the National Dairy Development Board (NDDB). Just as Sardar Patel was the influence behind Tribhuvandas Patel in creating Amul, the inspiration behind Dr. Kurien for setting up NDDB, was Lal Bahadur Shastri. Shastri ji as the prime minister came down to Anand, travelled to a village close by and stayed there overnight and understood what this milk producers' movement was all about and how the small producers pool their efforts for common good. Convinced of its efficiency, he told Dr. Kurien, 'I want Amul example to be replicated across the county'. That is how a small Amul experiment which began way back in 1946 has spread across different parts of this large country during the last 69 years and has benefited the whole country. Thanks to Dr. Kurien we have white revolution along with a green revolution. So I am privileged to be here and this opportunity was given to me by Dr. R. S. Deshpande, because it is he who introduced me to you. We have known each other from a long time as both of us are from Karnataka and both are linked by the same subject, Agricultural Economics. I have a lot of respect and regard for his scholarship to which a reference has been made by Dr. Pathak. I would like to thank Dr. Deshpande for bringing me here and also thank Dr. Kalamkar and Dr. Pathak for having invited me here and the Chairman of the Institute Prof. Padh who is the influence behind this function. So thank you all very much.

Friends, what also makes me happy about is seeing all of you filling this huge auditorium. It is not dance or music or poetry session that has brought so many people here. I see amidst this August assembly, students, professors, people from media and elders of this place, men & women. All of you have come here to listen to speakers on agricultural economics. People can scarce believe that such a thing can happen. Highly appreciable, I am not going to deliver a formal lecture. I have told Dr. Kalamkar that I would come some other time to do that. Today, since I am supposed to make some initial comments, let me share with you some thoughts and then I sit down as eager as you to listen to our agriculture economist, Dr. Deshpande, who is going to speak on why we should not forget agricultural economics whether in India or in the world. I am personally happy working with the department of agriculture. As I can see, agriculture is the life line of this country and it will continue to be so for many more decades to come, and of course the food giver for all times to come. Today, nearly 58 per cent of our people depend on agriculture directly or indirectly. This is a very large number. Unfortunately, its contribution to the economy as a part of the national GDP is very small. Our Constitution defines India as a socialistic country amongst others, which means that we have to ensure an egalitarian society. A society, where every human being who calls himself an Indian, should have a proper share in the total pie of the economy of this country. But here is a country, where 58 per cent of the people share just about 16 per cent of the GDP of the Country. Obviously, their purchasing power is still very

low. How do we enhance the purchasing power of these people? How do we also make farming viable? The second issue, that concerns me is the way, we put the farmer on the pedestal and call him as Anna Data, because he gives us food and rest content with that. The issue is, how do we treat him in reality? We treat the farmers as Gods but we do everything that we should not do or don't do what we should be doing for him. What do we require today? Yes, we need to produce required food, enough fibre, adequate quantities of other agricultural commodities for agro-possessing industries in a decentralized manner. For the nation as a whole, we need, not only food security but nutritional security as well. We have to graduate from the mundane concept of food security to nutritional security. Food security is what Planning Commission defined as ensuring 2400 kilo calories of energy per person, per day working in the field and 2100 kilo calories for the person who works in the office. But that is not enough if we want human beings to live a meaningful life. That means we meet not just the biological requirements but also cater to his social, educational and cultural necessities. Cultural excellence requires access to nutrition security. That means access to the required proteins, fats, vitamins, and micro-nutrients. A society can be called egalitarian, only when it can enable everyone of its members to meaningfully try for achieving self-actualization. This is possible provided he has more purchasing power than what he has now. To achieve this, we need to make the farmer realize higher farms income year after year. We need to make farming a viable profession. Unfortunately,

agriculture in India is highly overcrowded. Therefore, we need to shift a large number of people engaged in agriculture to non-agriculture sector. In reality, we have disguised unemployment and under-employment in agricultural sector. Our productivity levels of various crops are very low compared to global standards. If India has to become a world power, we have to facilitate everyone of our country's 121 crores population to contribute meaningfully. We have to create an environment and facilitate every farmer to contribute his best. We have to meet the requirements of food, fibre and other agriculture commodities of the country, not just for today but for 2050, when the country's population is expected to peak, and thereafter. We have to change the production conditions in such a manner, that lesser number of people can produce all of these and simultaneously, the surplus people are shifted from farm to non-farm sector. They need to be imparted skills and offered productive opportunities for creating wealth in other sectors. Agriculture cannot remain as an inevitable engager of surplus manpower. It is a waste of human resource. What use is demographic dividend in such a case?

Now, let me talk briefly about agriculture and agrarian distress. According to me there are three simple things. Any production activity whether in industry or agriculture is a function of a series of inputs and income thereof which is a function of marketing. Apart from these two, the third critical factor is the availability of credit. In the past, we

have mostly looked at supply of inputs that go into farming, without bothering much about what happens post-production to the agri-commodities. In 1950s, farmers died because of agrarian crisis. In 1990s, 2000s and in the new millennium also we see farmers committing suicides. Then in 1950s, the farm yields were very low. Now, in the current times, they are much higher. The country produces so much more. Yet, there are unnatural deaths in the farming communities and also among those who don't own land, but depend on farm sector as labour. And, these deaths are spread across the geographies. I recall the tragic deaths of people in districts like Kalahandi, where I worked for four years way back in the nineties. The people are dying not only in some pockets of Central India where the marginalized tribals inhabit the land, but also in rich agriculture States of Punjab, the Coastal Andhra Pradesh, Telangana, Maharashtra and Karnataka. It is an irony, that farmers are dying in the agriculturally evolved states and also not just among those sowing jowar, bajara and raagi. The farmers vulnerable to distress are growing cotton, sugarcane and paddy. As agriculture in India is getting commercialized, farmers are seen to be purchasing more and more inputs from outside. In the olden times, say before we embarked upon Green Revolution technology, the farmers exchanged seeds locally among themselves. Then with G.R. technology, they began to depend for seeds on outside agencies. But they were mostly Government agencies. But today they buy seeds from outside, which are not necessarily Government agencies. It is the private players,

who dominate the seed market. Likewise, the farmers today buy electricity from outside, fertilizers from outside, water from outside, on all of which the ratio of subsidy over the last two decades has seen a relative decline. I am not saying this is a bad change. It is probably inevitable. But what needs to be recognized is, that inputs required for crop production in agriculture domain are not internal anymore but predominantly external and that this transaction relationship has changed drastically during the last 25 years of liberalization. Seeds, for example, were dominantly produced in government sector by the State Agriculture Universities, the State Seed Corporation, and the National Seed Corporation. But today, seeds are also produced and sold by multi-national companies and other private sector producers. To that extent, the market conditions have come to determine what happens to the farmer in a very visible manner. And thus, what we need to appreciate in this contexts is, that supply side economics as it affects farming is influenced by market environment. The public policy seems to have taken a backseat.

Now let me shift and draw you attention to what happens to the farmer once he has managed to negotiate several production challenges and enters the market with his surpluses. Before we move ahead, it is important to appreciate that the commodities by the farmers on sale are not necessarily his marketable surpluses. They are mostly marketed surpluses sold under distress. Today, agricultural markets in India have opened up too, without necessarily supporting the farmer to realize fair &

remunerative prices. The market is influenced by factors not just at Taluk, District, State or National level but also by global factors. Today, in the post-WTO environment where we have signed GATT (General Agreement on Trade and Tariff), global market does affect us as much as the local market condition. Beginning 1997, all Indian product lines have been placed under 'Generalised System of Preferences' (GSP). Further, by the year 2000 most agri-commodities came under Open General License (OGL). Then we had the lifting of quantitative restrictions (QRs) bringing the agri-products under the Tariff system. What comes out clear and loud is, that in the post-production phase too, the farmer is influenced by external factors, without having been empowered appropriately to face the new challenges. The farmer is dependent on the market not only for his input supply but also for the marketing of his produce and the government's trade policies & exchange rates do matter to him today unlike before.

This brings in the all important element of a farmer's withholding capacity which is linked to his liquidity position. He needs money to buy inputs for the succeeding production cycle or to meet other expenditures arising from family obligations. He needs money when he should not be selling because the market is not favorable and he needs to withhold his stock. Does our economy provide such farmer any alternate safety net, whereby he can withhold his stock for some more time without having to resort to distress sale and still not compromise on the inputs that his enterprise needs? The

answer is an emphatic 'No', with a capital 'N'. So, I would say that the crisis really starts with credit access. We nationalized our banks in 1969. The market penetration by the nationalized bank credit increased thereafter, but still it is not as high as it should be. Unfortunately, with liberalization of banking sector, and following the Narasimhan Committee recommendations in 1993, there has been decline in direct agricultural credit. There is now no focus on priority lending to agriculture sector any more. The percentage of farm credit coming through formal channel is therefore not satisfactory and farmers continue to depend on non-institutional credit. A study on farm indebtedness in 2006 has revealed, that dependence on non-institutional credit is as high as 40% and the rates of interest are as high as 36-40%. We have thus exposed the farmer to new market situation, without facilitating him access to the required liquidity, higher level of skills, higher capacity to negotiate with Credit institutions and multiple other professional bodies that control both his input and output transaction domains. The farmer in short, during the liberalization era is carrying the double burden of reduced institutional support and exposure to market forces. That in short is the tragedy of our agricultural sector.

Today, I went to NDDDB and AMUL. it occurred to me, that they can offer solutions to the problems that afflict agriculture, as I looked at the way they are dealing with people facing multiple challenges - cattle owners who are landless, who are small and marginal farmers; producers

who are dispersed in wide geographies; and producers who deal with highly perishable commodity - milk. Jowar, wheat and paddy are not as perishable. Of course, fruits and vegetables are more perishable like milk. The agriculture sector suffers from the weaknesses & challenges as does the Dairy sector. The milk sector provides an example where they have been able to bring such people together in a cooperative form and make them produce enough, sell enough and realize enough income. I was informed that the percentage share of the milk producer in the consumer rupee is around 80%, but in agriculture it is below 60%. Why? Obviously Amul was able to bring people together, the landless, the small and the marginal milk producers into a cooperative fold and offer them economic security. But, why have our other cooperatives not been as successful as Amul? Amul has succeeded in meeting the challenges of liberalized & globalised economy, not merely by embellishing the organization with patriotic or such other emotional fervor but by deploying rational economic tools of size. The Amul dairy continues to rake in profits for its millions of producers, because, the organization has been able to harvest the scales of economy by creating size at different stages of milk production, processing & marketing. It was Dr. Kurien, who was intelligent enough to realize very early, that the emotionally bound kheda Milk union needed to be organized professionally, if it had to sustain & grow. He was able to bring rationality & professional management into this whole set up and introduce the required technology. How else could he have transported

as perishable commodity as milk over more than 300 kms from Anand over difficult roads and sell the surplus collection in the then Bombay market? How else do you think he was able to convert still larger surpluses of milk into milk powder, that has long shelf life? If you loose sight of science and technology, the society is doomed. It can never sustain. It cannot grow. If India failed for 1000 years before 1947, it was because we did not focus on the spread of education among the masses and growth of science and technology. Amul is an example where the organization was able to keep itself abreast of the frontiers of dairy technology. When India embraced economic liberalization in 1991, Dr. Kurien, Shri Jain of Karnataka and Shri Mohan Dharia got together and they met the then Prime Minister and requested him to amend the Cooperative Act, so that a cooperative like Amul would be able to meet the challenges of a liberalized global economy. They were able to convince the then prime minister and help Amul negotiate the new challenges successfully. This is another example of great and visionary leadership and professional approach to running an organization. According to me, Amul succeeded because of professional management of Dr. Kurien, deployment of appropriate technology, focus on research and of course the selfless leadership of Tribhuvandas Patel, who continued to dedicate himself to the cause of the small milk producer, right from 1946 till 1992, when he passed away. If we can similarly replicate this example in the agriculture sector, there is no reason why we should not succeed. So, let me emphasize at this stage, that there are problems in the

agriculture sector but they are not unsurmountable. Nothing is impossible for us and I am sure we can overcome. Friends, there is hope only if we succeed in finding more Kuriens and Tribhuvandas Patels.

Thank you (AERC Vallabh Vidyanagar) for all the surveys, resurveys and investigations on various projects & programmes of our department, that you have taken up & carried out successfully and our department is a direct beneficiary of all the reports that have come out. The recent study, for example, completed by this Centre on Soil Health Card implemented in Gujarat will provide useful inputs on what should be done and what not, as our department implements soil health card scheme across the country.

Thank you all once again

List of Research Studies/Reports Completed by AERC, Vallabh Vidyanagar

1. A Study of Wheat Prices in the States of Gujarat and Rajasthan, by V. S. Vyas, 1963.
2. The Organization and Disintegration of a Collective Farming Society: A Case Study of a Gramdan Village, by K. M. Choudhary, July, 1966.
3. Economics of Well Irrigation in a Rajasthan Village, by K. R. Rakhral, published as an article in Artha Vikas, January 1967.
4. Agricultural Labour in Four Indian Villages, Ed. by V. S. Vyas, May, 1964.
5. Command Area of the Dantiwada Project (Socio-Economic Survey of Three Banaskantha Villages in Gujarat), by B. M. Desai, November, 1964.
6. Working of Fair Price Shops in Gujarat and Rajasthan (with Special Reference to Ahmedabad and Jaipur Cities), by R. M. Patel, March, 1965.
7. A Study of Pilot Co-operative Farming Societies in Gujarat and Rajasthan by M. D. Desai and K. S. Karanth, December, 1964.
8. Factors Affecting Marketable Surplus and Marketed Supplies (A Study in Two Regions of Gujarat and Rajasthan) by V. S. Vyas & M. H. Maharaja, January, 1966.
9. Factors Affecting Acceptance of Improved Agricultural Practices (A Study in an I. A. D. P. District in Rajasthan), by K. M. Choudhary, November, 1965.
10. Economics of Cotton Cultivation (A Study in a selected region of Sabarkantha District of Gujarat), by M. H. Maharaja, May, 1966.
11. Economic Survey of Borsad Taluka (Gujarat State) with Special Reference to the Impact of Community Development Programme by M. L. Bhat, December, 1966.

12. An Evaluation of Some Aspects of Hybrid Maize Programme in Dahod Taluka (Panchmahal District, Gujarat), by B. M. Desai, January, 1967.
13. An Assessment of Co-operative Farming Societies in Gujarat and Rajasthan (A few Case Studies), by K. M. Choudhary, M. T. Bapat, N. R. Shah, D. P. Gupta, K.R. Pichholiya and S.B. Saxena, August, 1967.
14. An Enquiry into the Implementation of Farm Plans in Bardoli Taluka (A Study in an I.A.D.P. District in Gujarat) by V.S. Dharap and M. H. Maharaja, August, 1967.
15. New Strategy of Agricultural Development in Operation (A Case Study of the Kaira District in Gujarat), by B. M. Desai and M. D. Desai, July, 1968.
16. Conditions of Stability and Growth in Arid Agriculture, by N. S. Jodha and V. S. Vyas, December, 1968.
17. Significance of the New Strategy of Agricultural Development for Small Farmers: A Cross-sectional Study of Two Areas, by V.S. Vyas, D.S. Tyagi and V. N. Misra, January, 1969.
18. A Study of the Hybrid Bajra Programme in the Kaira District, Gujarat (Summer 1967-68), by N.R. Shah, June, 1969.
19. A Study of the Hybrid Bajra Programme in the Ahmedabad District, Gujarat (Kharif, 1968-69), by V.S. Dharap, June, 1969.
20. Some Aspects of Long Term Agricultural Finance - A Study of Two Areas in Gujarat, by N.S. Jodha & M.L. Bhat, July, 1969.
21. A Study of High Yielding Varieties Programme in the Kota District, Rajasthan (Rabi 1968-69), by D.S. Tyagi and V.N. Misra, October, 1969.
22. Prospects and Problems of Dairy Development in a Desert Region (A Study in the Bikaner District of Rajasthan) by N.S. Jodha and K.M. Choudhary, March, 1970.

23. An Enquiry into the Working of Cooperative Credit Institutions (A Study in Bhilwara District in Rajasthan), by M.L. Bhat & N.R. Shah, July, 1971.
24. Economic Profile of Marginal Farmers and Labourers (A Study in the Borsad Taluka of Gujarat) by R.M. Patel, May, 1972.
25. Green Revolution and Problems of Marketing (A Study of Production and Marketing of Bajra in three Districts of Gujarat), by S. L. Bapna, July, 1972.
26. Some Aspects of Co-operative Short Term Agricultural Finance (A Study in Three Areas in Gujarat), by N.S. Jodha, March, 1973.
27. Integrated Dryland Agricultural Development Programme: A Case Study of the Rajkot Taluka in Gujarat (Rabi 1971-72), by H.F. Patel, April, 1973.
28. Economic and Social Implications of Green Revolution (A Case Study of the Kota District), by S.L. Bapna, May, 1973.
29. Drought Prone Area Programme : A Case Study of the Banaskantha District in Gujarat (Rabi 1971-72), by R.D. Sevak, May, 1973.
30. Saving and Investment in an Agriculturally Prosperous Area (A Study of Farmers in Surat District), 1969-70, by M.D. Desai, 1973. (Supplement) Employment, Income and Levels of Living of Agricultural Labourers (A Study in the Surat District, Gujarat), 1969-70, by M.D. Desai, 1974.
31. Consumption Pattern in Rural Gujarat: A Study of Four Villages in Anand Taluka, by V.C. Patel, August, 1973.
32. Drought Prone Area Programme: A Study of the Banaskantha District in Gujarat (Kharif 1972-73) by K.M. Choudhary and R. D. Sevak, October, 1973.
33. Saving and Investment in an Agriculturally Prosperous Area (A Study in the Kota District, Rajasthan), 1970-71, by S.L. Bapna and N.R. Shah, December, 1973.

34. Integrated Dryland Agricultural Development Programme: A Case Study of Rajkot Taluka in Gujarat, 1972-73, by R.M. Patel and H.F. Patel, May, 1974.
35. Saving and Investment in an Agriculturally Prosperous Area (A Case Study of the Surat District in Gujarat), 1970-71, by M.D. Desai, June, 1974.
36. Saving and Investment in an Agriculturally Prosperous Area (A Study in the Kota District, Rajasthan), 1971-72, by S.L. Bapna, October, 1974.
37. Employment Pattern in Rural Gujarat (A Study of Four Villages in the Anand Taluka), 1970-71, by V.C. Patel, R. Indu and Vilas P. Patel, January, 1975.
38. Drought Prone Area Programme : A Case Study of the Banaskantha District in Gujarat (Rabi & Summer 1972-73), by R.D. Sevak, March, 1975.
39. Employment Situation in Dry Agriculture: A Study in an IDAD Project Area (Rajkot Taluka, Gujarat), by H.F. Patel, April, 1975.
40. Saving and Investment in an Agriculturally Prosperous Area: A Case Study of the Surat District, 1971-72, by M. D. Desai, April, 1975.
41. Saving and Investment in an Agriculturally Prosperous Area (A Case Study in the Kota District, Rajasthan), 1972-73, by S.L. Bapna, May, 1975.
42. Levels of Agricultural Development in Tehsils of Rajasthan, by M. T. Pathak and M.D. Desai, August, 1975.
- 42a Development of Agriculture in the Backward Regions of Gujarat: Facts and Issues, by Mahesh T. Pathak, Mahendra D. Desai and A.S. Charan, January, 1974.
43. Saving and Investment in an Agriculturally Prosperous Area: A Study in the Kota District, Rajasthan, 1970-71, 1972-73, General Report, by S.L. Bapna and Case Studies, by H.M. Verma, October, 1975.

44. A Study of Impact of Famine and Relief Measures in Gujarat and Rajasthan (with Special Reference to the Banaskantha & Barmer Districts), by K. M. Choudhary & M.T. Bapat, December, 1975.
45. An Economic Profile of the Kadana Irrigation Project and its Command Area, by D.M. Brahmabhatt, March, 1976.
46. Factors Affecting Milk Supply to Co-operative Dairies in Gujarat: A Study of Amul and Dudhsagar Dairies, by V.C. Patel & M.D. Desai, January, 1976.
47. Saving and Investment in an Agriculturally Prosperous Area (A Study in the Surat District, Gujarat) Combined Report 1969-70/1971-72, General Report by M.D. Desai and Case Studies, by A.D. Chauhan, July, 1976.
48. Transforming Tribal Agriculture (An Evaluation of the Leap Forward Project of the Gujarat State Fertilizers Company Ltd., by D.M. Brahmabhatt & M. T. Bapat, September, 1976.
49. Some Aspects of Agricultural Development in Gujarat (1949-50 -1974-75) (A Review & Final Report), by Mahesh Pathak, M.D. Desai and H.F. Patel, April, 1977.
50. An Evaluation of Drought Prone Area Programme (A Study of the Jodhpur and Jaisalmer Districts in Rajasthan), by R.D. Sevak and S.D. Purohit, Case Study by V.M. Patel, May, 1977.
51. 4 P Plan-Crop Insurance Scheme for Hybrid-4 Cotton in Gujarat (An Evaluation of the Promotional Project "Package of Practices for Productivity and Prosperity" of the GSFC Ltd.), by K.M. Choudhary, August, 1977.
52. Working of Farmers' Service Societies in Gujarat (Two Case Studies of Tribal Areas in Gujarat) by D.M. Brahmabhatt & M. T. Bapat, January, 1978.
53. Economic Relationship between Crop Farming and Dairying in a Developing Area: A PL-480 Micro-Level Study of South Gujarat, by A. S. Patel and N.S. Jodha, January, 1979.

54. Block Level Plan, Balasinor Taluka (Kheda District, Gujarat), by Mahesh Pathak and N.R. Shah, October, 1979.
55. Performance of Hybrid Bajri in Gujarat, 1966-67 to 1976-77, by R.D. Sevak and D. M. Brahmbhatt, March, 1980.
56. Block Level Plan, Thasra Taluka (Kheda District, Gujarat), by Mahesh Pathak and Navin R. Shah, September, 1981.
57. Evaluation of Intensive Cotton District Programme and Aerial Spraying Scheme in the Baroda District, Gujarat, by K.M. Choudhary, June, 1981.
58. Socio-Economic Profile, Narmada Command Area (Ahmedabad District), 1981), First Phase Report - June, 1982.
59. Inter-District Variations in Agricultural Development in Gujarat (1949-50 to 1978-79), by Mahesh Pathak and H.F. Patel, August, 1982.
60. Soil Testing Service in Rajasthan, by R.D. Sevak, September, 1982.
61. Working of Small Farmers' Development Agency: Bharuch District, Gujarat, by M.T. Bapat, March, 1983.
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63. Production and Marketing of Mangoes in Gujarat, by D. M. Brahmbhatt, January, 1984.
64. Socio-Economic Profile: Narmada Command Area (Ahmedabad District Second Phase Report), September, 1985, 2nd phase report, Tables March, 1985 (Published Report no. 58).
65. Economics of Dairy Enterprise in Gujarat (Sabarkantha District, Gujarat), by R.M. Patel, K.M. Choudhary, R.D. Sevak and V.D. Shah, September, 1985.

66. Social Forestry Programme in Rajasthan (with Special Reference to Dungarpur and Bharatpur Districts, Rajasthan), by D.M. Brahmbhatt, June, 1985.
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-

Studies conducted for Planning Commission, GOI

- Profile Report- Agro-Climatic Zone No. 13, Gujarat Plains and Hills Region, by Dr. Mahesh Pathak, Dr. A.S. Patel and Dr. H. F. Patel, 1988.
- Strategy for Agricultural Development in Gujarat during the Eighth Plan-Agro-Climatic Zone No. 13, by Dr. Mahesh Pathak, 1988.
- Profile Report- Agro-Climatic Zone No. 14, Western Dry Region, Rajasthan, by Dr. Mahesh Pathak and Dr. Dilip Bagchi, 1988.
- Strategy for Agricultural Development in Gujarat during the Eighth Plan-Agro-Climatic Zone No. 14, Western Dry Region, Rajasthan, by Dr. Mahesh Pathak, 1988.

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