CHAPTER-2
THE POLITICAL ECONOMY OF GREEN REVOLUTION IN PUNJAB

The rural economy of Punjab has undergone far-reaching changes over the last few decades. The most remarkable development in this regard, as mentioned in the preceding chapters, was the arrival of the green revolution in 1966-67. It provided an unprecedented dynamism to the agricultural sector of the state in terms of the structural shifts and growth. The per capita real income of Punjab was for a considerable period of time was the highest among the states primarily due to its rapidly growing agriculture. Even now, Punjab is among the top five regional states of India in terms of the per capita income. The general standard of living of its rural population registered a steady improvement over time. In general, there is an overall appreciation of what Punjab has achieved against what other regional states failed to achieve. Things, however, have not remained the same since then and at present it is being widely argued that the fruits of green revolution have almost over ripened. A most serious development in the recent Punjab has been a visible deceleration in terms of agricultural growth, an increase in cost of production and a decline in profitability of its main crops, indicating a significant decline in growth rate of total farm production.¹

In this chapter an attempt has been made in some detail as to understand why the Green Revolution was so successful in Punjab, to scrutinize its results and contrast it with the present agrarian crisis. India has gone from a food-deficit to a food-surplus country largely because of the agricultural transformation of Punjab. The economic transformation of rural Punjab is basically a saga of its agricultural transformation. During the 1960s a fundamental change occurred

¹ The deceleration of the state economy is evident from the rate of growth of NSDP and also from the other sectors of the state economy. Agriculture sector growth has declined to only 2.16 per annum during the period 1991-2001, compared with 5.15 per cent during the 1980s. UNDP, Human Development Report, 2004.
in the institutional and economic infrastructure due to massive public investment. There was irrigation and power development, agricultural research and extension services, and the strengthening of the co-operative credit structure. Already, consolidation of holdings and the predominance of owner farmers had created crucial pre-requisites for the Green revolution. The Green Revolution introduced a new technology of production in agriculture. The technology consisted of a package of inputs, such as, high-yielding varieties of seeds, chemical fertilizers, pesticides, insecticides, weedicides, machines like tractors, threshers, pump sets/motors, and combine harvesters/ reapers and others. The proper usage of these inputs required an assured irrigation system, a peasantry with the will and capacity to adopt the new technology and a government willing to lend its support and investment. All these conditions were present in Punjab.

Moreover, in this chapter we would also be making an effort to recapitulate the transformation of political economy of rural Punjab since 1966 and subsequent political and economic developments that have occurred thereafter. In this exercise, we would like to reiterate the role played by the state in creating a sound infrastructural base, social institution in facilitating the process of economic change, political parties in presenting the interest of farmers and agriculture and the individual in making the best of the available economic opportunities. We would also like to see the impact of agrarian growth on the subsequent political developments in the state, as there has been a shift in power structure from urban bourgeoisie to the rural elite. For the purpose of analysis we would be dividing the political economy of development into different periods in terms of varied degrees of performance. The periods are 1950 to 1966; 1966 to 1991; and finally 1991 onwards.

The above three broad periods have been marked by different developments that have a bearing on the political and economic aspects of the state. Although during the first period, Punjab was trailing behind many other states in
agricultural productivity, yet the basic institutional and economic infrastructure was created during this period through massive public investment. The second phase witnessed the consolidation of the gains of the first period and introduced a highly productive irrigation-seed-fertilizer-technology. Under the impact of these technological breakthroughs, there was a spectacular increase in agricultural production, which has had few parallels in the world. Consequently, the state was universally acknowledged as the centre of the green revolution and a model for the emergence of capital-intensive modern agricultural economy. The third phase has been a critical one, which forms the core area of this research exercise. We would argue that the dark areas of green revolution technology have surfaced during this period. There have been several setbacks to the rural economy, which can be attributed to the new agricultural technology that has reached a saturation point over the years. To disseminate on these developments we refer to them one by one.

Following on the footsteps of other states, Punjab also decided to formulate a development strategy for itself when the nation-wide process of planning commenced in 1951. It, however, chose to concentrate on agriculture and small-scale consumer and agro-based industries. A programme of heavy industrialization did not merit in the plan priority in Punjab due to a number of factors. There existed a conducive environment for the development of agro-based industries, such as, an abundant supply of agricultural raw material, an assured supply of labour, locally manufactured machine tools, adequate financial support by the government and the presence of local technician-entrepreneurs (locally known as Ramgharias). Punjab’s development strategy, therefore, clearly inclined towards its most dominant sector-agricultural sector and a network of small scale industries based either on the agricultural implements or consumer goods.\(^2\) It was during this period (1950 to 1966) that the foundation of rural economic transformation was laid. The multi-faceted

spadework was carried out which paved the way for the green revolution. It was this preparatory work alone which made possible the quick application of new technology in Punjab during this period. Numerous factors have been analysed that have contributed to the growth of agriculture sector in the Punjab. A study was initiated in the PAU in 1969 to analyse the factors, which have promoted the green revolution in the Punjab. The study has revealed that apart from the introduction of HYVs of wheat from Mexico, there are other factors such as; the human element; a rational policy of land reforms, which does not obstruct mechanisation; the consolidation of holdings for rational land use and effective exploitation of ground water resources; rural electrification to power tube-wells; rural link roads that links villages with market towns; an agricultural university which controls the entire research and education in agriculture; setting up a department of agriculture and animal husbandry; promoting a co-operative department to provide credit to farmers; a well organized market federation; corporation for the agro-industries; and finally, the necessity of price-support policy, so that the farmers get remunerative price for their crops.3

Historical legacy

Before dwelling on the above, let us look for the roots of agricultural transformation in Punjab during the colonial era. Unlike many other states with colonial history, the British rule in Punjab was less pernicious in form and less exploitative in operation. In fact, the British Empire was extended to Punjab at a time when the imperial masters were already thinking of modifying many of the stringent imperial laws operative in other states. The British were quite conscious of the strategic location of the state as also of it being a very

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important centre for British army recruitment.\(^4\) They could ill afford to create disaffection among the rural peasantry presumably because in the event of an anti-colonial uprising, Punjabi soldiers, who constituted an overwhelming majority among the Indian soldiers in the colonial army, could easily be the first ones to revolt.\(^5\) On the positive side, the British regime contributed to the economy in different ways. The British served the simmering discontent which could disturb the nascent and fragile fabric of the British dominion in India and so, they decided to channelise this potential energy of the Punjabis’ toward building the economic prosperity of the province.\(^6\) Among the significant measures, they introduced the reform measures in the land institutions and revenue system, which proved instrumental in deciding land, claims of refugees after the partition.

The British began settling the land revenue by determining, who should pay government charges on the land and thereby holding proprietary rights on the peasant cultivators rather than the rural landlords, who also claimed proprietary rights. Their purpose was to maximize government revenues by removing all intermediaries between the peasant proprietors to enhance revenue collection.\(^7\) British introduced colonization of crown wasteland through the introduction of an extensive irrigation system under the Land Alienation Act 1900, which came to be known as Canal Colonies. The British government wanted to introduce remedies for the welfare of peasant for fearing a loss of army recruits, rural unrest and disaffection of indigenous troops from the 1870 onwards. The colonial administration passed legislation called the Punjab Land Alienation Act that prevented cultivators from alienating their land or mortgaging them for extended periods except to other cultivators. The Act took

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\(^4\) For example, in 1944, about 10 per cent of the total Indian army consisted of Sikhs, i.e., nearly seven times their share in the Indian population. See Raleigh, Parkin, 1944, *India Today*, New York, John Day, p. 89-90.


away the zamindars right to sell or mortgage his land without prior approval of
the district officers.\(^8\) In due course, these canal colonies emerged as the most
productive farming areas of India and the wide network of canal irrigation
became the envy of all the other states. The basic idea of colonization was to
transfer people from congested areas, improve their economic condition and
thus enhance the revenue base of the state. In brief, agriculture in the state had
a strong infrastructural base (irrigation facilities) and was among the best in
India on the eve of the partition of the country.

The partition, however, as mentioned very briefly in the introductory chapter,
deprived Punjab of its prosperous areas after the partition. Partitioned into two,
the East Punjab remained with India whereas the West Punjab went to
Pakistan. East Punjab inherited 44\% of the population and about 36\% of the
land. The average cultivated area per head worked out to be 0.6 acre in East
Punjab and 1 acre in West Punjab. The rich canal colonies (namely Lyallpur,
Montgomery and Sargodha) remained in Pakistan. The percentage of cropped
area receiving irrigation was about 33\% in East Punjab compared with 61 per
cent in West Punjab; of the government canal irrigated land, 80\% was in the
West and only 20 percent on the Indian side; of the well irrigated area, the
division was 62 and 32 percent, respectively.\(^9\) Moreover, the West Punjab had
some crown wasteland which, when irrigated, could become highly productive.
Another major loss to India was in the field of cotton, which the canal colonies
used to produce in larger quantities.

Thus, it is evident that Indian Punjab suffered huge losses both in terms of
human and material resources. Its agriculture was thrown out of gear.
Fortunately, however, there was considerable potential for the development of
irrigation and hence for the improvement of its production base. As subsequent
events showed, the new administration in Indian Punjab lost no time in

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\(^8\) Annual Report of the Welfare of The Punjab Alienation Land Act XI 111 of 1900, Civil And
Military Gazette Press, Lahore, 1907.

\(^9\) Randhawa, MS, 1954, Out of The Ashes, Public Relation Department, Chandigarh. p. 93.
harnessing the available potential for irrigation expansion and very soon, states agriculture was put back on the track. The process of refugee rehabilitation was done on a war footing. The joint Punjab had an excellent system of land records. East and West Punjab Governments did the process of verification of claims smoothly after exchange of land records as early as April 1, 1949. ‘This unique agrarian feature of Punjab has lent great dynamism to the process of agricultural modernization in due course of time.’

Loss for the Indian Punjab was primarily in terms of the production of the cotton crops and other agro-products, which the canal colonies produced in large quantities. Despite the above, at the time of independence, it could not possibly be predicted that the Punjab would make such strides in agricultural production. With administration almost paralysed in the aftermath of the partition, it was a miracle that the economy itself could be put on the rails again at such a short time. It is believed even to this day that this crisis and its handling were mainly responsible for whatever Punjab is today. Those were the watershed years.

The modernization of Punjab agriculture in real earnest was started as early as in 1950. It must be said to the credit of the state policy makers and those responsible for the execution of various rehabilitation schemes, that people’s enthusiasm was strengthened through financial support and direct investment in many different ways. Almost, rising ‘out of ashes’, people of Punjab readily took up the challenge of economic reconstruction and renewal. Due to the combined efforts of the state machinery and the people themselves, the rural economy of the state started to regain the old touch. The newly organized state

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10 It was a task of huge magnitude and to handle it, about 8000 patwars (revenue officials) were employed. A school building in Jalandhar district and a township of tents served as a temporary Secretariat where this huge staff was accommodated. Exchange of land records was arranged between the East and the West Punjab government and the land claims of the refugees were verified accordingly. Randhawa, M.S., 1974, *Green Revolution in India: A Case Study of Punjab*, Delhi, Vikas Publication, p.31.

11 Chadha, GK, 1986 et al., p. 27.


of Punjab started with the task of augmenting agricultural production in a systematic way.

The task was made easier by the efforts of an enlightened and imaginative government, especially from the early fifties when the late Pratap Singh Kairon became first the Development Minister (1952) and later the Chief Minister (1956-64) of the state. In fact, Punjab owes much of its prosperity to the unusual stability and purposefulness imparted to its government by the leadership of Kairon. As discussed in the introductory chapter, a systematic programme of agricultural development of the state was taken up on a massive scale in the shape of the Grow More Food (GMF) schemes. It was followed up with a programme of consolidation of land holdings and augmentation of canal irrigation and exploitation of underground water in the shape of tube wells. Since the vision was clear towards a politico-social objective, the requisite steps to achieve this objective were also well understood by the ruling leadership. The basics were tackled first, as resources became available under the plans or outside. The irrigation projects naturally had the first priority but, side by side, consolidation of the land holding went on in the right earnest from 1952-68, both being long gestation programme.

The then government of Punjab made full use of the research facilities available in the country and commissioned a techno-economic survey of the state by the NCAER whose report was received in 1959-60. The report lauded the progress and achievements of the state in the field of agricultural developments and suggested long-term improvements and recommendations. Fortunately, the 15 years dominance of the state’s developmental scene by the towering personality of Kairon created a favourable climate in the state in which progress was a must. The government’s many-sided participation in the development process is probably the most striking feature of the Punjab Model.
Institutional measures

The main objectives of the land reforms undertaken in Punjab along with other states of India were abolition of intermediaries, provision of security of land tenure, imposition of land ceiling; and consolidation of holding, besides to increase agricultural production and social justice. Most of the legislations were passed during the early mid fifties and the end of the fifties completed their implementations. Although half hearted, particularly with respect to ceiling on land holdings, one of the most important contribution of land reforms was the abolition of intermediaries and consequent removal of a major institutional constraint. Its implementation, however, was poor with regard to the imposition of ceilings. Punjab had remarkable success in the implementation of relating to consolidation of holdings. The most beneficial effect of the scheme of consolidation was that the farmers were able to sink tube wells. In 1950, there were no tube wells and in 1975 there were 4,27,000. Besides, there was a considerable reduction in the leased out land. There was an increase in cultivated area (earlier lost in embankment). The increase in agricultural production due to such an impressive consolidation was to the extent of 25 per cent.

There was a gradual realization that the country should be self-sufficient in terms of food especially after the food crisis in 1966-67 when Indira Gandhi, the then Prime minister had to visit USA asking for relief under PL 480

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14 At that time the present Punjab area was composed of two states (erstwhile Punjab and the erstwhile PEPSU). The major legislation includes; East Punjab Utilisation of Land Act 1949; The Punjab Occupancy Tenants (Yielding property Right) Act, 1952; The Punjab Abolition of Ala Malkiyat and Talukdari Rights Act, 1953; The PEPSU Tenancy and Agricultural Land Act, 1955 etc.

15 Soon after independence the necessity of consolidation of holdings was realized and the East Punjab Holding Consolidation of Holdings and Fragmentation act was enacted in 1948. An element of compulsion was introduced and hence the progress was rapid. The irregular fields were consolidated into rectangular blocks of an acre size.


17 Gill, MS, 1975, ‘Pakistan Punjab vs. Indian Punjab’, in The Illustrated Weekly of India, 10 August.
programme and in return had to agree to devalue the Indian currency.\textsuperscript{18} The government then onwards showed resolve to deal with the food question. Moreover, with the various land reforms like the abolition of zamindari, land ceiling and the tenancy reforms taking place (particularly the removal of intermediaries), the cultivators had now developed a personal stake in augmenting production through investment in new technology.\textsuperscript{19} From the beginning of the planning in 1951, the policy makers gave a high priority to investment in the rural infrastructure in Punjab. Among the states’ per capita plan, expenditure in rural infrastructure in Punjab was the highest during the first three plans. Nearly 70 percent of the plan outlay in Punjab was devoted to basic rural infrastructure like irrigation, power and research and extension. During all initial plans in Punjab, the highest expenditure was earmarked for power and irrigation.\textsuperscript{20} For financial support to the farmers, a large number of cooperative credit societies were put in place to make available financial resources with farmers to utilize them in hiring and buying new farm technologies. Besides these, other cooperative institutions and nationalized banks engaged themselves in expanding medium and long-term credit for various investment purposes. The setting up of Punjab Agricultural University in Ludhiana in 1962 played a pivotal role in the development of agriculture in the state. It was established with the objective of developing a programme,


\textsuperscript{19} Bhalla, G.S. and G.K. Chadha, 1980, ‘Agricultural Growth and the Structural changes in the Punjab economy: An input and Output Analysis, Research Report No. 82, Centre for Regional Development, Jawaharlal Lal Nehru University, New Delhi, p. 43.

\textsuperscript{20} Between 1965-66 and 1982-83, power generation increased by 328 per cent in Punjab and during the same period per capital consumption increased by 241 per cent in Punjab as compared to about 138 per cent in India. Although all villages in Punjab were electrified, yet every household was not using electricity. The percentage of household (rural urban) using electricity was about 60.0 per cent during 1981-82, which is perhaps considerably higher than the national figure. The percentage of households using electricity in the rural areas of Punjab was, of course, much smaller compared to the urban areas. For example, in 1980-81, the division of rural and urban domestic (electricity) consumers was 60 and 40 per cent against the division of rural and urban population as 72 and 28 per cent respectively. Chadha, G.K. 1986, et al., p. 75.
which could contribute to increase agricultural production and improvement of cultivators’ economic status.\textsuperscript{21}

One of the most significant factors in the development of agriculture in Punjab was the establishment of Punjab Agricultural University (PAU) in place of the Lyallpur Agriculture College, which went to Pakistan after partition. It was organized on the model of Land Grant University of the USA where land has proved to be the powerful engine of change. This boosted agricultural research and technology. Moreover, awareness was created among rural areas of the various scientific strides made in agriculture. The main distinguishing factor of this university was that it combined teaching, research and extension in such a way that it benefitted the university as well as the farmers.\textsuperscript{22}

PAU brought about a real revolution in farming techniques by introducing high yielding varieties of seeds for crops. It also had an impact on the attitude of the farmers and the policies of the state government. Construction and laying of link roads with villages and extension of education facilities helped in filling the gap between rural and urban areas. The crash programme for rural roads, made a tremendous impact on the pace of transportation, contact with urban marketing and industrial centres, diversification of cropping pattern and on the operational efficiency of extension services.

As everywhere else, a key factor in development has been human capital for which Punjab is the requisite reservoir. The farmers of Punjab have always been receptive to the new ideas and opportunities. Thus the farmers were ready

\begin{footnotesize}
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  \item \textsuperscript{21} The idea of establishing agricultural universities in India originated with the report of the Indian University Education Commission\textsuperscript{*} 1948-49 popularly called the Radhakrishan Report, followed by the recommendations of the first and the second Indo-American teams in 1955 and 1960 respectively. M.S. Randhawa, the former Vice-Chancellor of the PAU, was the chairman of the second team whose report gave final shape to this idea.
\end{itemize}
\end{footnotesize}
to adopt new technology, despite the element of risk.\footnote{Barnala, S S, 1991, ‘Policy Statement on Science and Technology and Industrial Development in Punjab’ in Ragnekar S.B. and R. Malhotra, ed., Technology for Development in Northern India, Volume I, CRRID, Chandigarh, p. 23.} Commenting on the entrepreneurship of Punjabi farmer as compared to his counterparts in other parts of the country, Jasbir Singh has said; ‘In Punjab, the human element has played an important part in the green revolution. The Sikh farmers are entrepreneurial farmers having almost a mystical love for their holding. The most prosperous among them are the refugees from the canal colonies of Pakistan’.\footnote{Singh, Jasbir, 1974, *The Green revolution in India: How Green Is It?* Vishal Publications, New Delhi, p. 40.}

Punjab experienced the tragic saga of partition when the entire Hindu–Sikh population of West Punjab had to migrate to India. It created a refugee problem on an unprecedented scale in the history of the country. There was one positive thing that the displaced refugees had the rich experience of cultivating in the canal colonies and they were more experienced farmers who were ready to accept new innovation. So, it was they who in due course of time spearheaded the agricultural revolution. Besides, the people of Punjab have historically been entrepreneurs and progressive. Their open mindedness and acceptance of new ideas helped them in introducing and adopting themselves to new farming techniques than their counterparts in other states.\footnote{Kusum Nair, a journalist, traveled all over India from 1958-1960 to assess the role of the human element in the rural development. In a number of states she found contentment with the existing miserable conditions. In Punjab, however, she observed that the peasantry was enterprising and energetic. She also noticed that the refugee farmers were more progressive and superior in techniques of cultivation to the farmers of the East Punjab. She also realized that the Sikh farmer is the best farmer in India. Nair, Kusum, 1961, *Blossoms in the Dust; The Human Element in Indian Development*, Gerald Duckworth, London. P. 112-15.}

The progressive Sikh culture and faith based on spiritual materialism was also instrumental in the progress of the state. The Sikh community has widely been perceived as being dynamic and enterprising. The community is spread all over India and we have a large Sikh Diaspora in the West. It has always been so as evidenced by the fact that it was the Sikh Jat peasantry that colonized the
colonies of Lyallpur, Montgomery and Surgodha (so called ‘Bars’ in west Punjab) and turned them into the models of agricultural developments in British India. Sir Malcolm Darling, a scholar, who made a deep study of the agricultural population of Punjab, described the Sikh colonies of Lyallpur thus; ‘a colony could hardly have had better material. For Ludhiana, Jullandhar and Amritsar represent the flower of Indian agriculture. They are the home of the Jat Sikhs who have been described as most desirable of colonist. It would be difficult to say which of the three has produced the best type; for industry and thrift, the Ludhiana Sikhs is hard to beat and the Sikh from Amritsar though he may be spend thrift and violent, is unsurpassed as a cultivator. Grit, skill in farming and a fine physique are characteristics common to all and in his new environment the Jat Sikh has reached a point of development probably beyond anything else of the kind in India. In less than a generation he has made wilderness blossom like the rose. It is as if the energy of the virgin soils of the ‘Bar’ had passed into his veins and made him almost a part of the forces of nature, which he has conquered.’

Hence, during this period Punjab gave an excellent account of its initiative, adaptiveness, absorption capacity and ultimate performance by improving it’s per hectare productivity. It goes to the credit of the then state government that it identified the basic needs of the farmers under the new challenge and took many far reaching decisions, which created a reliable infrastructure on which the modern agriculture could flourish. Efforts were also made to intensify agriculture through multiple cropping. This was possible only through irrigation. After partition, Punjab was left with two canal systems? The Upper Bari Doab and the Sirhind Canal. Steps were taken to increase their discharge. More significantly, the Bhakra Canal System was laid during 1948-63. It had three components: (i) construction of a new Bhakra Canal, (ii) augmenting the capacity of the old Sirhind Canal and (iii) laying out of the Bist Doab Canal.

The optimum use of its natural resources of water by building a canal network through schemes like Bhakhra Nangal Project, Harike Project, Madhopur Beas Link, Upper Bari Doab Canal, Ropar headwork and the Pong Dam, extended the irrigation facilities and the hydro-electric project on three rivers of the state created power for rural electrification and for running power induced tube wells.

The political power structure of the state, as mentioned earlier, has had a great deal to do with the dynamics of agricultural transformation. In the post-partition period, there were steady shifts of political power from urban elite to the landed rural elite. This shift has been reflected in the state government’s policies in that all governments irrespective of their political leaning begun to pursue vigorous programmes of rural development. The state governments also focused on agricultural development by starting departments, various bodies and cooperatives like the Punjab State Cooperative Supply, Marketing Federation and the Agro based industries and corporations which supplied fertilizers, tractors, and other farm machinery to farmers and helped them market their products. Cooperatives have also played an important role in the supply of finance in crop production and in the development of land and water resources (purchase and installation of tube-wells). As a part of the technological strategy which followed the institutional strategy, the provision of essential inputs at highly subsidized rates, cheap loans, directly or through co-operation, an assured and expanding supply of seeds, fertilizers, and insecticides, along with organization of agricultural research and extension services and stabilization of product prices paved the way for intensive farming. In brief, in terms of planned rural development, the development of agriculture has been the first priority with each successive government in the state on which we would dwell in the later part of the chapter.

Gill, M S, 1975, The Green Revolution in Indian Punjab, Centenary Celebrations, Birmingham University, Birmingham.
Growth and transformation of Punjab agriculture since sixties

As mentioned at the outset, the state of Punjab bore the main burnt of partition and it took quite a few years after 1947 to rehabilitate its rural economy. It was during the 1950s that the basic institutional and economic infrastructure was created in agriculture through land reforms, massive public investment in irrigation and other rural infrastructure. As a consequence, Punjab was able to record an agricultural growth rate as high as 4.6% during 1950-51 to 1964-65 long before the onset of the green revolution. The greatest factor in bringing about this change was the application of science and technology to agriculture. With electricity coming to villages, the number of tube wells and pumping sets multiplied and mechanization of agriculture with tractors and thrashers became common.

The second phase witnessed the consolidation of the gains of the first period and introduction of a highly productive irrigation-seed-fertilizer technology. In a sense, the first phase completed the gestation period of the modernization of farming in Punjab. It is worthwhile to mention that the agriculture in the state has recorded an impressive growth in output since the beginning of the planning era. During the fifties, it was the increase in the cropped area that contributed largely to increase in output.\(^\text{28}\) As discussed in the introductory chapter, during the 1952-53 to 1964-65 post-partition Punjab was no doubt a leading state in India with regard to the growth rates of total agricultural output. Yet, Punjab’s progress during the period was not that significant in terms of growth of productivity. It was trailing behind many states.\(^\text{29}\) In other words, the introduction of new seed fertilizer technology marked the beginning of new chapter in the history of Punjab. The real breakthrough in crop production,

\(^{28}\) For example between 1951-54 and 1958-61, the contribution of cropped area to total output expansion was 70 per cent, of changes in cropping pattern about 22 per cent and of increases in crop yield only 8 per cent. Minhas, B.S. and A. Vaidyanathan, 1965, ‘Growth of Crop Output in India; 1951-54 to 1958-61: An Analysis by Component Element’, *Journal of the Indian Society of Agricultural statistics*. December, pp.230-32.

which signified the emergence of green revolution in the Punjab, took place only with the advent of new wheat technology in the mid-sixties and later by a new rice technology in the early 70s. The essence of the new wheat and rice technology was essentially the use of high yielding varieties (HYVs) of seeds in combination with the high and regulated use of irrigation and chemical fertilizers.

The entire cropping pattern underwent a change. The area under rice wheat and cotton expanded, whereas area under inferior cereals such as barley, pulses and sugarcane fell considerably overtime. The agricultural economy of the Punjab became very heavily cereal oriented and among the cereals, wheat and rice alone occupied 90 per cent of the cropped area. Thus, Punjab’s agriculture became specialized in wheat and rice cultivation because, as mentioned earlier, these crops occupy more than three fourth of the total cropped area alone. The change in the cropping pattern seems to have become more pronounced with the introduction of new wheat technology in the mid sixties and reinforced by the new rice technology in the early seventies. The continuously increasing yield rates for wheat and rice, accompanied by the state policy of price support and procurement, gave a tremendous boost to the cultivation of both these crops.

The following table clearly shows that the Green Revolution in Punjab was ushered in with the introduction of Mexican wheat in 1966-67. There occurred dramatic changes. The farmer owing to their nature of open mindedness and acceptness turned to new wheat varieties with great alacrity and adopted new technology of HYV seeds, chemical fertilizers artificial irrigation with surprising promptness. Consequently, there was tremendous spurt in area,

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30 The technological breakthrough in agriculture, which came with the advent of the Barloug Seed technology in the mid-sixties was, perhaps the most important determinant of rapid agricultural growth in Punjab. Frankel, Francine, 1971, Green Revolution, Economic Gains and Political Costs, Princeton University Press, New Jersey, p. 23.

31 Although the new seed varieties for wheat were tested and became procurable in 1966-67, yet these were made available for general use only in 1967-68.
production and yield per hectare in case of wheat as would be evident from the table 2.1:

Table 2.1: Area Production and Yield of Wheat

<table>
<thead>
<tr>
<th>Year</th>
<th>Area ('000 ha)</th>
<th>Production ('000 tones)</th>
<th>Yield/P/H (in kg)</th>
<th>% Area under HYVs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950-51</td>
<td>1137</td>
<td>1024</td>
<td>901</td>
<td>-</td>
</tr>
<tr>
<td>1965-66</td>
<td>1550</td>
<td>1916</td>
<td>1236</td>
<td>-3.5</td>
</tr>
<tr>
<td>1970-71</td>
<td>2299</td>
<td>5145</td>
<td>2238</td>
<td>69.11</td>
</tr>
<tr>
<td>1975-76</td>
<td>2439</td>
<td>5788</td>
<td>2273</td>
<td>89.99</td>
</tr>
<tr>
<td>1980-81</td>
<td>2812</td>
<td>7677</td>
<td>2730</td>
<td>98.04</td>
</tr>
<tr>
<td>1985-86</td>
<td>3112</td>
<td>10988</td>
<td>3531</td>
<td>99.93</td>
</tr>
<tr>
<td>1990-91</td>
<td>3273</td>
<td>12159</td>
<td>3716</td>
<td>99.9</td>
</tr>
</tbody>
</table>


As we can clearly point out from the above table that in a short span of just five years of introducing new technology, the area under wheat increased 1.48 time and production and yield rose 2.68 and 1.8 times respectively. If we compare base year with 1990-91, then the rise in area, production and yield have increased 2.12, 6.35 and 3.01 respectively since the inception of New G.R. technology. Hence, the new technology changed the face of wheat production and productivity over the years in Punjab.

The same phenomenon was witnessed in relation to rice when HYV were introduced after their success in wheat productivity in early 70s. Since, Punjab was not traditionally a rice producing area, the achievement in case of rice is more spectacular as evident from the table 2.2.
Table 2.2: Area Production and Yield of Rice

<table>
<thead>
<tr>
<th>Year</th>
<th>Area (‘000 ha)</th>
<th>Production (‘000 tones)</th>
<th>Yield/P/H (In kg)</th>
<th>% Area under HYVs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950-51</td>
<td>120</td>
<td>107</td>
<td>892</td>
<td>-</td>
</tr>
<tr>
<td>1964-65</td>
<td>287</td>
<td>351</td>
<td>123</td>
<td></td>
</tr>
<tr>
<td>1969-70</td>
<td>359</td>
<td>535</td>
<td>1490</td>
<td>20.1</td>
</tr>
<tr>
<td>1975-76</td>
<td>567</td>
<td>1447</td>
<td>2553</td>
<td>91.18</td>
</tr>
<tr>
<td>1980-81</td>
<td>1183</td>
<td>3233</td>
<td>2733</td>
<td>92.16</td>
</tr>
<tr>
<td>1985-86</td>
<td>1714</td>
<td>5485</td>
<td>3200</td>
<td>94.69</td>
</tr>
<tr>
<td>1990-94</td>
<td>2015</td>
<td>6506</td>
<td>3229</td>
<td>94.59</td>
</tr>
</tbody>
</table>


The table clearly reveals that in a period of 10 years from 1970-71 to 1980-81, the area, production and yield increased by 3.30, 6.07 and 1.83 times respectively, after introducing HYV of paddy. But if we compare the base year (1969-70) with 1990-91, then the rise in area, production and yield turns out of the 5.61, 12.16 and 2.16 respectively.

Induced and encouraged by the initial results the area under high yielding varieties increased rapidly from just 3.5% of total cropped area in 1966 to 68.6 in 1969-70 and 99.3 in 1990-91 and under HYV of rice from just 1% in 1966 to 23% 1969-70 and 94.59 in 1990-91 (refer table 2.2). It amply proves that all classes of farmers adopted HYVs with great rapidity. The phenomenal expansion of the cropped area under wheat and rice HYVs had direct implication for the production performance and income levels of different farm size groups. Hence, the situation in respect of wheat and rice is nothing short of a revolution. As regards the use of chemical fertilizers, the acceptance is again very widespread. As per the input survey of 1975-76, conducted by the

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Department of Agriculture in Punjab after every year, nearly 95.26% of the holding in the state has made use of chemical fertilizers.\textsuperscript{33}

The early availability of artificial irrigation and chemical fertilizers, in tandem with progressive profit in the marketed crops, prompted the farmers to take to intensive cultivation. With intensive cultivation, there arose the necessity of mechanization. The use of machinery in various agricultural operations enabled the farmers to have better control over the factors of production. The number of tractors, thrashers, and harvest combine and other agricultural inputs increased rapidly. The easy availability of loans from governmental or private sources enabled all categories of the farmers to have mechanical inputs at their disposal.

The artificial irrigation also increased by leaps and bounds. The proliferation of tube wells enabled all and sundry in the farming sector to have better command over irrigation and use of water in accordance with timeliness and requirement. Likewise, the percentage of net irrigated area to net sown area and number of tube wells increased phenomenally over the years. In 1970-71 fiscal year percent of net sown area was 71, which increased to 81 per cent in 1980-81, and further 90 percent in 1990. The number of tube wells both diesel and electric also increased rapidly from 1.92 lakh in 1970 to 8.0 lakhs in 1990 and is still increasing.\textsuperscript{34} With the increasing application of modern farming technology in agricultural sector, the mode of farming changed to capital-intensive farming from traditional farming.

The phenomenal increase in production of food grains not only saved the country from the occasional food crisis like one in 1966-67 but also helped in becoming a food surplus economy from a food deficit one (It also ended India


dependence on American food supply under PL-480). Punjab emerged as the biggest contributor to the central pool of the Food Corporation of India. Nearly two third (68.80) of total wheat and two fifth (38.4%) of total rice procured by the P.D.S. (Public distribution system) is contributed by Punjab alone. Two other crops, which grew rapidly after the advent of new technology, were cotton and sugarcane. Production of sugarcane increased from 4.80 lakh tones to 6.48 lakh tones during the same period and stayed at that level since then due to limited area under its occupation. Another consequence of new technology was that agriculture in Punjab became increasingly commercialised and interlinked with the national market. As is expected of a fast growing agriculture, marketable surpluses expanded substantially over time. The assurance of a minimum support price for the two major crops, wheat and rice, provided a big boost to greater production and net earning of the farmers thereafter.

A very striking feature of the Punjab model is that all the three regions of Punjab namely Doaba, Majha and Malwa gained by the rapid agricultural growth. Thus the whole state registered significant economic progress, although the pace of agricultural and rural development varied from district to district, mainly because of the agro-climatic and other natural constraints, yet it is a fact that each district made full use of its development potential. The gains from the new technology seemed to have trickled down to all section of the rural population, including the small and marginal farmers as well as the landless labour. However, the grains were more or less in proportion to their asset base. According to M.S. Randhawa; “A Cliche, often repeated by theoretician, is that only big farmers have benefited from the green revolution. This is untrue. Even small farmers with holdings of two to five hectares, have adopted new technology. The landless labour households too have had their share in the prosperity following the green revolution.”

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The real wage rates for all crops operations registered a varying degree of increase since 1960. The arrival of migrant labour had only a minor impact on wages rates, primarily because of the ever-expanding labour requirement of Punjab agriculture at that period. In Punjab, per worker’s earning from agriculture rose steadily after the arrival of green revolution. This rise was much lower in most other states. As a result, a deep dent was made in the level of rural poverty and Punjab became the state with lowest poverty ratio among all the states of India. Increased grain production gave stimulation to poultry farming. Poultry and eggs were being consumed in larger quantities. People whose diet was mainly vegetarian began to consume protein rich diet. The rate of growth of animal husbandry was rapid at 6.4 percent a year. Its share of total income generated in agricultural increased from 14.1% in 1960-61 to 32.3% by 1989-90. This rapid increase was made possible by the development of infrastructure in dairying. The consumption of milk and milk products increased sharply and milk production became a part time profitable household activity. Thus, agriculture stimulated the growth of allied activities during the same period.

The process of building rural infrastructure that was started in 50s reached its zenith after green revolution. The state massive programme of infrastructure development brought marked improvement in roads, extension services, agricultural research and education. By 1985, almost all villages were linked by metalled roads and the proportion of surfaced roads per 100 kilometre of area far exceeded that for India as a whole. The number of regulated markets and the storage capacity of procurement agencies increased sharply. Between 1965

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36 Bhalla, GS, National and Regional Economic Development in India During 1961-71, Working paper, Centre for the Study of Regional Development, Jawaharlal Nehru University, New Delhi

37 A research paper by Prasad clearly shows that after the arrival of the GR there has been a reduction in poverty in varying in all states. In relative terms Punjab’s performance has been far superior. Hence the lesson was clear for other states if they want to make a sizeable dent in rural poverty their agriculture must grow much faster than ever before. Pradhan H.Prasad, ‘Poverty and Agriculture Development,’ EPW, 14 Dec 1985.
and 1995-96, the number of vehicles per 1000 population increased from less than 1 in 1950 to 87.6 by 1995-96 compared with 35.9 for India as a whole.\(^{38}\)

During all plans in Punjab the highest expenditure was in the sectors of power and irrigation. Per capita consumption for electricity increased from 6-kilowatt-hours in 1951 to 744 by 1995-96 compared with an increase from 18 KW-hours to only 335 for India as a whole. By 1981, all Punjab villages were electrified against only 47 per cent in India. By 1995-96, 36.3 per cent of the electricity was consumed in agriculture in Punjab against 30.8 per cent at the national level. This enabled the energization of thousands of pump-sets and tube wells, and also helped the farmers to modernize farm operations and brought about a significant increase in their productivity. Mechanization of irrigation along with the availability of canal irrigation contributed a lot in the increase in productivity. A rapid increase in the cooperative credit to cultivators was another important component of infrastructural development. Total loans by primary agricultural cooperative credit societies in Punjab rose from mere Rs. 22 million in 1950-51 to Rs. 4693 million by 1989-90 and then to 25,551 million in 1996-97. The National Extension Programme, the Panchayat Raj and the Community Development Programs introduced during the 1950s, created a group of trained agricultural extension workers.\(^{39}\) Substantial investment in education had made Punjab, once educationally backward, one of the leading states in educational facilities at schools and universities as well as in engineering and medicine. Punjab became second only to Kerala in the arena of education, health and social development according to most of the indicators of human development.

A great deal of public investment took place in rural and urban infrastructure, particularly in power, roads and communications, thereby fostering the growth


rate of small scale industries in both the consumer goods sector as well in agro-
processing and agro-input industries. There was a rapid increase in the demand
for capital goods like electric motors, diesel engines, threshers, tractors and
construction materials, which were met initially by imports but the increasing
demands and controls on imports gave a boost to local industries.\textsuperscript{40} As
agricultural production increased as a result of the green revolution it provided
an impetus for the growth and expansion of engineering industries (already
existent). While the development of agro-input industries spurted as a result of
backward linkages, substantial increase in output and marketed surplus of
agricultural commodities led to a rapid growth of agro-processing industries
like flour mills and sugar.\textsuperscript{41} Consequently, industrialization got a big boost in
the state due to the multiplier effect of the growth in agricultural output. Most
of these industries were set up in the small-scale sector, which has had a
vibrant growth since the mid sixties.\textsuperscript{42} This enabled the state to derive a great
deal of comparative advantage through specialization both in certain crops and
in some manufacturing areas-though in the small and medium-scale industries.

Hence, the surge in food-grains production of Punjab changed the face of
whole of the rural Punjab. Traditional mode of farming gave way to modern
and commercial agriculture. Punjab experience highlights the fact that how a
rapid agricultural growth can become a powerful instrument for bringing about
a significant transformation of the economy. There was a marked increase in
the growth rate of agriculture, which in turn accelerated growth in other sectors
of the economy through input, output and consumption linkages. In fact, the
growth process strengthened the linkages and dependence of the rest of the
country on the economy of Punjab.

The state had become the food supplier to the nation. Between 1967-68 and 1979-80, the production of wheat and paddy, the two principal crops of the state increased by 136 per cent and 634 per cent respectively resulting in an eightfold increase in the state’s contribution to the central pool of food grains during this period.43

Several institutional, infrastructural and technological factors have contributed to the radical transformation of Punjab Agriculture since independence. The state and the public sector played a crucial role in bringing about the transformation of Punjab economy. These include land reforms, large planned investments in rural infrastructure and other policy intervention like administered price policy and trade and tariff policies.

**Green revolution and political developments in the state**

During 1966 to 1990 period, apart from rapid economic transformation of rural Punjab, another significant change was witnessed in political sphere during these years. The green revolution in Punjab also affected the trends of political process through increased income levels. The Punjabi farmers started harbouring higher political ambitions especially in the context of democratic tools available to him and this led to the culmination of a new political culture.44 The reorganization of Punjab in 1966 coincided with the green revolution. As was happened for the Green Revolution, the spadework for a reorganized Punjab on linguistic basis was also done during the period preceding green revolution. The reorganization of Punjab in 1966 was primarily the result of pressure policies followed by the Akali Dal. The first

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assembly election after the reorganization saw a change of guard in electoral politics of the state. Congress could not ensure its victory in the elections and the Akali Dal formed the government for the first time ever in Punjab with the cooperation of Jan Sangh (the urban based party with the support base among the upper caste Hindus and opposed to the Congress) joined it briefly. This change of guard at the electoral politics level started confrontational politics with Congress who could not reconcile to the fact of loosing power to a state party. So, the impact of the green revolution was clearly felt in electoral politics and the subsequent political developments in the state. The Akali Government was first led by Gurnam Singh, which was followed by P.S. Badal government and again by that of Gurnam Singh, which further was followed by a brief Government of Akali defectors led by L.S. Gill and supported by the Congress. However, irrespective of their political instability, main thrust of policies of all these governments was oriented towards providing an infrastructure for the rural economy of the Punjab. Whether it was the Ropar Thermal Plant or approval of Thein Dam or a Crash Rural Link Roads Programme (During Akali Regime) all of these were aimed at strengthening and integrating the rural and agricultural sector of the economy. The political power structure of the state witnessed a steady shift of power from the urban bourgeoisie to the rural elite and particularly to the Jat Sikhs. The rise of a stratum of rich Jat peasants and the concentration of Jat Sikhs in rural areas provided an opportunity for a dominant section within the Akali Dal to strengthen their base by identifying their politics with that of the interests of farmers (Jat Sikhs) in an indirect way. This also infused the caste factor in the politics of the state.

45 During the 1967-71, the Akali party came to power in 1969 in June 1971, P.S. Badal, (the then Chief Minister enjoying majority in the Vidhan Sabha) ordered the dissolution of the assembly, within two years of its rule. Purpose of this move was to forestall his rival in the party, Gurnam Singh (ex Chief Minister) who later became Chief Minister with the support of Congress party. Refer: Danewallia, HS, 1997, Politics in the 20th Century Punjab, Ajanta Publications, New Delhi, p. 312.
Demand of state autonomy and rise of identity politics

The rise of Shiromani Akali Dal (SAD) as the main political opponent of the Indian National Congress in post-partition Punjab initiated a sequence of confrontational politics in the state. The Congress leadership at the centre was apprehensive of losing power to a state party having ethnic base in a border state having strategic significance. On the other hand, SAD accused the centre, led by the Congress of creating an environment of political instability by encouraging factionalism in the state politics. Though the political quarters may have been satisfied with the reorganization but it proved to be industrially disadvantageous to Punjab. The developing industrial complex around Delhi fell to the share of Haryana and whatever mineral resources were available, went to Himachal. Moreover, Haryana had the advantage of being on the national highway and the proximity to a metropolis like Delhi. So, this helped important industrial conglomerations to emerge in Haryana. The wars with Pakistan reinforced an apprehension for investment on the border areas like Amritsar and Ferozepur.

The other drawbacks of the reorganization were that the capital Chandigarh was to be a union territory and serve as a capital for both states. The Bhakhra Dam and the Pong Dam were also to be administered by a central board; as a consequence, the new Punjab had 41 per cent of the area and 55 per cent of the population. However, the Sikhs constituted 60.22 in the reorganized Punjab.

Consequently when the Punjab Reorganisation Act 1966, came into the implementation stage, many distortions had crept in by then. These potential distortions inevitably led to a reoccurrence of hiccups, so typical to the Punjabi history and politics. The subsequent two decades saw inter party and intra-community ramifications, which proved later of a serious dimensions. Further, it accused the centre of not doing much for the interests of farmers and the state

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Congress party for ignoring the interests of the farmer of the state. It can be rightly observed that if economic development in the state happened with central assistance, then the political instability in the state was also caused by the confrontationist centre, who could not see an eye to eye with the state government when led by the SAD. Politically, things continued to ferment with the Akalis reiterating their stance that there was an anti-Sikh prejudice toward them.

Moreover, the capitalist mode of market oriented farming since 1966 raised the economic lot of rural rich landlords and also their aspirations. The SAD being essentially a party of rich landed peasantry demanded more share for the state agriculture in the central allocation of funds and policies. It also demanded a greater role in decision-making and also in deciding the remunerative prices of farm produce and lowering of input prices. They accused Giani Zail Singh, then chief minister of Punjab of being a puppet in the hands of the central government for not raising the demands of agricultural sector. The party increasingly took recourse to fervent anti-centre stances, radical declaration, and a new conceptual agenda for the party survival to increase their political clout amidst the Sikh masses. This surcharged atmosphere culminated in the Anandpur Sahib Resolution. They declared vehemently that the future course of action of SAD would be determined by the revolution.

The Akali leadership belonging mostly to the rural Punjab was of the view that the farmers of the Punjab were being made to feed the population of the country for which they only got low prices when compared with the hard work they put in producing food grains. There was yet another dimension to the state autonomy demand. If on the one hand, new technology led to greater

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48 The text of the Anandpur Sahib Resolution, adopted at the Open Session of the 18th All India Conference at Ludhiana on 28-29 October 1978, SAD Tract, Amritsar.
49 Akalis demanded the transfer of Chandigarh and Punjab speaking areas to Punjab, Control of Canal headworks by Punjab, to break the monopolistic hold of the capitalists on the Indian economy by the 30 years rule of Congress in India, it demanded party between the prices of cash crops, rapid industrialization of the state, reduction in the prices of inputs.
agricultural productivity on the other hand it got naturalized by the adverse
terms of trade with industry. Thus, the products of agriculture, such as wheat,
rice, sugarcane cotton and oilseeds, constituted the input of industry either as
staple food for workers or as raw material. Similarly the products of industry,
such as fertilizers, pump sets, tractors, pesticides and processed seeds
constituted the inputs of agriculture. Since the prices of industrial commodities
rose faster than those of agricultural one, the farmers were bound to suffer.

This economic problem, which deeply concerned the farmers, had its
repercussion in the state’s political arena. The SAD, being a party close to the
farmers, took to itself the task of fighting against the state and the central
government to push forward the injustice being done to the farmers of the state.
The SAD accused the government at the centre as the government being
supported and run by big industrial and trade houses. It accused the
government for imposing greater restrictions on farmers and system of food
zones that prevented the farmers from exporting wheat to other areas of food
scarcity, leading to low prices of wheat. Thus, the farmers were forced to sell
his produce at the minimum support price, which was also fixed by the central
government. This was the genesis of the demand for state autonomy. The
demand of state autonomy can be seen as a consequence of the statist model of
development pursued by the government at the centre, which encouraged
capitalistic mode of production in all sectors and monopolization of the
policies, by a few influential in the government at the centre. The SAD pointed
out from time to time that the farmers of Punjab would like the support price to
be fixed by the state leadership because of their dependence upon them for
financial and political backing. Further while the central government had put
restrictions on farmers and their produce, same spirit was lacking in
maintaining the prices of industrial commodities. The prices of tractors and
fertilizers in India had been above their world prices and prices of consumer’s
goods produced by the industries were also rising very fast. This step motherly
treatment at the hands of central government for not setting up industries in
Punjab made Punjab a net importer of industrial commodities. It was made a dumping ground for industrial goods considering the high consumption level of its population. There were reflections of colonial exploitation of Punjab and particularly of its farmers at the hands of Central Government by forcing it to export primary products such as wheat, rice, cotton and oilseeds to the rest of India, often at low prices and to import finished products, often at high prices.

In the political arena, the Anandpur Sahib Resolution became a basic policy programme for the Akalis and any opposition to it, from any quarter, was seen as anti-Sikh. While for the opponents of the Akali party it became an excuse to label them as a communal and separatist party. There was no doubt that there had also been a conflict between poor Sikh peasants and Sikh landlords, who were then converted into capitalist farmers. Poor farmers often had to take the rich farmer’s tractor or other implement on rent, or had to obtain loans from them. The marginal farmer had to work for wages on the land of the rich farmers. While the poor peasant had generally tended to be reconciled to his fate, the new capitalist farmer, who had been losing lakhs of rupees due to the adverse terms of trade, fought back. The poor peasantry whose class interests were partly in conflict was motivated to fight in the name of religion. Hence the call went out louder and wider in the Anandpur Sahib Resolution of 1973 that the Sikh identity was in danger and it was pledged that unless amends were made, Sikhs would fight for their homeland, namely Khalistan, in which they would be able to maintain the glory of Sikh community. Meanwhile the efforts of Zail Singh were on to destabilise the government of Badal (who came to power in 1977 with the support of Jan Sangh) as he continued with his philosophy of playing the Pied Piper of religion more rabidly than the Akalis.

During the Baisakhi festival of 1978, there was a clash between the Nirankaris

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50 Tully, Mark and Satish Jacobs, 1985, Amritsar: Mrs. Gandhi’s Last Battle, Rupa Publications, New Delhi, p. 45.
51 The Spokesman, Volume 27, 18, 26 December 1977, p.2.
ard the Sikhs, under the command of Bhinderanwale—a self-styled saint who subsequently rallied a sizeable mass following in rural Punjab.52

Thus, the trend towards the economic modernization of agriculture strained the existing relationship between the peasant community and the upper level of society. As pointed out by Harnik Deol: ‘The green revolution made farmers heavily dependent on conditions over which they had no control. The intrusion of commercial agriculture aroused the rebellious feelings in a substantial section of the Sikh peasantry by the late 1970 and political upheaval seemed most likely. But any potential antagonism against the landed upper classes and the peasant community was dampened by the fact that the Sikh peasantry shared a religion (Sikhism) and belonged to the same caste (Jat Sikh) as the landed upper castes.’53

It is notable that most of the demands contained in the resolution were economic in nature and were aimed at furthering the interest of farmers particularly the big farmers. It was only after the non-fulfilment of the demands in the above resolution that terrorism arose in Punjab.

The agitational politics played by the Akalis during the late 1970s and early 1980 provided the extremists and fundamentalist favourable atmosphere to carry out their activities. We would not dwell upon the aftermath of terrorism, since there have been numerous studies focusing on that aspect. The point we want to make here is that the arrival of the new technology transformed the socio-economic profile of the rural Punjab. While the new technology created a gulf between the small peasants and landed farmers on one hand, on the other hand it raised the political aspiration of landed class that demanded its due share from the centre. The demands like asking for a greater role in decisions

52 Kumar, Pramod, N. Sharma, A. Handa, 1984, Punjab Crisis, Context and Trends, CRRID Publications, Chandigarh, p. 27.
makings and more powers to the states were the result of the introduction of commercial farming or new agricultural technology. Hence, the arrival of new agricultural technology had wider implications in the socio-economic and political atmosphere of the state. One witnessed a great degree of stability in terms of rural economic growth. It, however, also created a political instability that has few parallels in the history of modern India since independence.

Thus, the green revolution has been a watershed in the history of the Punjab. However, the logical historical corollary of the industrial revolution following an agricultural revolution has so far not transpired. The success of the revolution did lead to the state’s per capita income soaring but the state economy suffered in the long term from an anomalous situation because of non-diversification of the economy. As for now the agricultural growth is touching a saturation point and the growth rate is tapering off due to inherent weaknesses that had started surfacing during the green revolution period itself. There has been a failure of an industrial revolution to follow, so the growth rate of industry has not picked up as expected.54 In all developing countries, the large resources flow into other sectors of the economy by the channel of investment in rural infrastructure in order to accelerate its growth rate. Once agriculture starts growing rapidly and agricultural incomes rise sharply, it becomes important for the surpluses to be marginalized from agriculture for investment in the non-agriculture sector.55 This is not happening because the rich farmers have now acquired economic and political clout and the mobilization of surpluses through raising input prices or taxation has become increasingly difficult.

In 1966-67, the primary sector comprising agricultural activities accounted for 57.45 per cent of the net state domestic product (NSDP), while the secondary

sector accounted for 15.27 per cent and the tertiary sector accounted for 27.95 per cent. In 2000-01, the share of agriculture has declined but still account for 39 per cent of the NSDP.\textsuperscript{56} This clearly indicates that the structure of the Punjab economy remained primarily production oriented. From the above, it is clear that structural changes necessary were not yet evident in the state. From a long-term perspective, the structure of the state economy is not well poised for a steady and higher rate of growth.\textsuperscript{57} Over a period of time, the prospect of increase in agricultural production are not very optimistic as there is no scope of further increase in the area under cultivation and cropping intensity and yield per acre, which has almost saturated. The only way out seems to be in sight is a shift in the cropping pattern, though even this will not result in a sufficient increase in the agriculture production and sustainable agricultural production.

The most worrisome feature of Punjab economy today is the drop in its annual growth rate, from 5.3 per cent during 1980-81 to 1990-91 to 4.7 per cent during 1991-92 to 1997-98. By comparison, growth rate at the national level moved up from 5.6 to 6.9 per cent during the same period. Moreover, the annual increase rate of the state’s per capita income also came down from 3.3 to 2.8 percent. A further perusal of data shows a regular decline in the growth rate of agriculture in Punjab since 1985. The state’s share in the contribution of wheat to the Central pool declined from 45 per cent in 1980-81 to 36 percent in 2000-01, and that of rice from 73 to 58 percent during the same period. The livestock sector, which was earlier having an upswing, has been decelerating since 1997. The same has been true of the manufacturing sector. The infrastructure development took a back seat over the years as electricity generation rate suffered a decrease after 1990. Construction, transport, and trade sectors did display some buoyancy. On the whole, the nineties emerge as a difficult phase for Punjab economy.


\textsuperscript{57} Bhalla, G.S. and G.K. Chadha, 1980, ‘Agricultural Growth and the Structural changes in the Punjab economy: An input and Output Analysis, \textit{Research Report No. 82, Centre for Regional Development, Jawaharlal Lal Nehru University, New Delhi, p.30.}
The unhappy downward turn of Punjab economy can be traced to the financial year 1984-85, when it became a revenue deficit state from the status of a revenue surplus one. The Government of Punjab attributed this to an ever increasing salaries and wage bill of the employees (particularly since implementation of the Fifth Pay Commission recommendations), mounting debt burden, heavily subsidized social sector (education and health) and economic services (irrigation and electricity), slow growth of revenue, and loss-making public sector undertakings. The difficult political situation during the eighties has adversely affected both the imposition and collection of taxes. This was more so during the prolonged phase of president’s rule, when the government held out the caution not to create a situation that could add fuel to the fire (reminiscent of similar trend in another crisis state namely Jammu and Kashmir). During the tenure of the elected governments, ‘subsidies on populist lines’ made their own contribution in worsening the situation. Meanwhile fiscal deficits of the public sector undertakings were also mounting and adding to the financial misery of the government. The recourse followed was to go in for public borrowing in a big way, instead of curing the malaise. Interest payment, as a percentage of revenue, moved up from 16.8 in 1990-91 to 29.4 in 2000-01. This was the highest for any major Indian State; the all-India figures were 13.1 and 17.6 per cent respectively. Investment on development suffered badly. The development expenditure, as a percentage of total expenditure, steeply fall from 71.9 in 1980-81 to 54.5 in 1997-98, and further down to 46.5 in 1998-99. Implications of all this for the state’s economic growth rate are not difficult to understand.

On the agricultural front, the persistence of wheat-rice rotation, despite efforts at promoting diversification of the cropping pattern, is causing a serious damage to the state’s natural resource base. Rice, in particular, is a water-


intensive crop and is not eco-friendly for Punjab. Its popularity, however, could not be contained, because it is not only a lucrative crop but also of assured returns. The consequence is there for everyone to see: water-table depletion in tube-well irrigated areas and water logging in canal irrigated ones. The question remains: How to wean the Punjab farmer away from the wheat-rice rotation? A serious effort to this effect was made as early as in 1986. The situation evolved to the contrary, with the rice area increasing from 17 to 26 lakh hectares, and wheat area from 32 to 34 lakh hectares during 1985-86 to 2000-2001. Short-term private economic gains are ignoring the long-term public ecological cost.60

The third part contains the period from 1991 onwards and it is the central part of our thesis. As we have discussed in the earlier part of the chapter, the Punjab’s political economy underwent a significant structural change mostly in the positive direction as it gave way to the modern and commercial agriculture. The capital-technology intensive development strategy, however, has had inherent weaknesses, which surfaced during the late nineties. It also imposed constraints on the economic growth of Punjab to realize its full potential by ignoring other sector.

The above signs of disturbing developments in Punjab agriculture finds space in the recent developmental reports on Punjab.61 The findings of these reports confirms clear signs of either deceleration or even a decline in the crop productivity, which is reported to have approach a plateau and farm income are reported to be stagnant and losing its worth for a decent living. Scholars, economists and agricultural scientists who have contributed to these reports and also have written independently have come out with different explanations for

this dismal state of economy. What comes out clearly that these developments are not a sudden phenomenon, however, its clear signs surfaced only after 1990-91, that makes us to look for the possible reason for this decline in the post reform era. The protagonists of the Punjab agriculture were of the view that the lead of Punjab would not only continue in the post-reform period, but it would also get a big push towards the road to economic prosperity, owing to its past performance. But contrary to this, the trends in Punjab agriculture have been reversed in the post reform period against the performance of the Indian economy in general and some of the ‘progressive’ states like Maharashtra, Karnataka, and Gujarat have significantly improved. The economic growth in the post-reform period has further exposed the weaknesses in the pattern of growth and raised a pertinent question as to why Punjab’s economic performance has legged far behind.

The period of globalisation came along with the arrival of peace and political stability in the state. The centre government decided to bring back political process back in the state that was suspended during the militancy. It was decided to go ahead with the elections despite threats from the terrorist organizations after a long spell of presidential rule. The elections led to a massive mandate for the Congress Party, wining 87 seats out of 117 seats and leading to the formation of a poplar Government under the leadership of late Beant Singh on 25 Feb. 1992. All factions of Akali Dal had boycotted these elections, except a faction led by Amarinder Singh, which won three seats. The Congress government was criticized by its detractors as a minority government lacking a mandate of the people, on the argument, that the Akali Dal, a major political party of the state had boycotted the elections and also that the electoral participation has been abysmally low. However, the government

64 Amrinder Singh had resigned from Congress after Operation Blue Star and had joined Akali Dal.
started functioning on all fronts with a declared first priority of law and order to peace restoration followed by economic development of the state.\(^6^5\) Very soon, the tough polices of the State Government to restore peace in the state and wipe out terrarium, showed their result and within less than one year, there was an all-round improvement in the general climate of the state. The people stated experiencing the renewed bliss of peace.

The first priority of the Government had been to establish peace, since normalcy would automatically boost other activities. Efforts were made to consolidate the economy and join the national economic mainstream.\(^6^6\) It would be interesting to recollect here, that Punjab had been the first state in the country to collaborate with Pepsi Cola, which later became the symbol of a liberalized economic climate in the country.\(^6^7\) Thus the state had to pursue its programme of agricultural and industrial growth to integrate the two sectors to derive the optimum benefit for this.\(^6^8\)

Initially, the new Government in Punjab had to focus on restoring law and order, yet soon, they began formulating progressive economic policies, so as to lure investment in the new economic climate created by the implementation of the new economic policy by the federal government.\(^6^9\) A conference, to this effect ‘Punjab- 2002’ was the first major initiative of the Beant Singh Government, wherein national and international investors were invited to acquaint themselves with a new and resurgent Punjab, and to dispel notions about the law and order situation in state.\(^7^0\) Delegates came from USA, Canada and other European countries. The Government announced a major initiative in


\(^{6^6}\) UNI Backgrounder, 1992, Volume XVI1 No. 9, *Outcome of Punjab Polls*, February 27, p. 2.


\(^{7^0}\) Government of Punjab, 1992, *Directorate of Industries*, Literature Published by Udyog Sahayak, 19 Dec.
the field of industrial incentives and tax rationalization. It was also a period, when Punjab, being the primary agricultural state of the country had to make up its mind on the Dunkel Draft with regard to Intellectual Property Rights on agriculture production and research.\textsuperscript{71} This was a dilemma, because on the one hand, globalisation interest at the macro level demanded that India sign the agreement after the Uruguay rounds of talks whereas the domestic compulsions in the interest of agricultural development, demanded otherwise. The prosperity of the agriculture of Punjab could have been at stake with the acceptance of the entirety of such international pressure.\textsuperscript{72}

Beant Singh paid dearly for the peace and development efforts made by his government when the terrorists assassinated him. His death left the then congress government without a strong leader who could continue the good works done departed leader. Beant Singh’s assassination was followed by a lackadaisical approach of his successor H.S. Brar and an equally uneventful brief tenure of Rajinder Kaur Bhattal. The one and half years of these two Congress chief ministers were marked by allegation of personalized corruption suddenly put the politico-economic fabric of the state, still reeling under the impact of militancy, in a state of disarray, since the leadership was weak and the fresh elections were forthcoming.\textsuperscript{73} In February 1997, new elections took place in the state, which gave a massive mandate to the Akali Government, because the Congress Party was a house divided, after Beant Singh’s assassination.\textsuperscript{74} The Akali Government, particularly, is representative of the interest of the interests of the farming community in the state. In this regard the speech of Prakash Singh Badal made to the PHD Chamber of Commerce on 18 March 1997 (within the first month of the formation of Akali Dal-BJP government) would be a pointer. He stated, “Punjab’s economy is mainly agro-based. A large quantity of agricultural produce is marketed-exported as such

\textsuperscript{71} Sharma, Devinder, 1994, \textit{GATT and India. The Priority of Agriculture}, Konark Publication, Delhi, p. X.
\textsuperscript{72} Ibid, Introduction.
\textsuperscript{74} Ibid.
without any value addition. My government therefore, will give special emphasis on the agro-industries, so as to establish a linkage between industry and agriculture, so that the agriculturists share the benefit of industrial prosperity.\textsuperscript{75}

\textbf{Politics of populism}

The political economy of post-green revolution Punjab can very well be dubbed as the political economy of populism. Since the two leading parties have had neck and neck fight for power and that the two parties have been found wanting in undertaking tough measures to bring about necessary reforms with programmatic efforts so the easy way out for them has been to indulge in crass populism. The Akali-BJP government led by Badal had as one of its major polices announced free electricity and water for agriculture after coming to power in 1997. It also came under fire from all quarters during its rule for the prevalence of widespread corruption and ignoring the interests of common people. Consequently, it was defeated in the assembly elections of 2002. In the year 2002, the Congress government led by Amarinder Singh came back in power with the promise of corruption free governance. The chief minister was keen to perk up the industrial economy. He initiated the process by holding meetings with industrialists and NRIs to promote investment in the core economic sectors. He also set up a high-powered finance committee, which would endeavour boosting agricultural and industrial production, by encouraging their partnership. Most importantly he had done away with freebies like electricity, sheer populism to garner votes but detrimental to industry and the state in the long run.\textsuperscript{76} However after the debacle of the party in 2004 Lok Sabha elections, Congress government promptly restored some of these subsidies and also indulged in crass populism.


\textsuperscript{76} Ibid.
No change was visible in the 2007 assembly elections as both the Congress and the Shiromani Akali Dal in alliance with the BJP continued to compete against each other in holding out the populist promises, without revealing the programmatic efforts to be taken in the event they came to power. Let us refer to the manifestos released by the two parties just before the assembly elections. The Akalis, who had won the elections in 1997 on the promise of free power and water scheme for the farmers, this time, took a head start by promising public distribution of highly subsidised flour and pulses among the people living below the poverty line (the party was derisively dubbed by its critics as Shiromani Atta Dal). In the wake of rising prices, the promise did have mass appeal, a fact grudgingly recognized by Congress who also promised to do the same. Among other impressive promises made by the SAD-BJP coalition in their manifesto (first time having English version also) were: filling all the government vacancies within 6 months of coming to power, a health insurance up to 2 lakh rupees for the farmers, free power to the Dalits to be doubled from the present 200 units to 400 units, rupees 15000 for Shagun for the poor belonging to all the communities, old age pension and pension for the disabled, widows, dependent children ranging from rupees 250 to 400, ‘make your own policy’ for trade and industry, VAT to be streamlined, rupees 5 crore to be spent on 100 block level Adarsh school that would be setup to educate 1.3 lakh children within 3 years, 10 medical colleges along with 500 bed hospitals within 3 years, training institutes for self-employment, five flying and cabin crew training institutes, joint ventures with foreign universities to provide world class education, free education for girls up to university level, getting rid of land scams and farmers getting the right price, separate ministry for NRIs with representative offices in Europe, UK, Canada and USA to protect their property and business interests in Punjab, single window clearance for the NRI investments, international airport at Ludhiana and an airport in Jallandhar, New urban development policies to regulate the haphazard growth besides giving the colonizers and the builders’ freedom to plan their projects, Urban development

The SAD-BJP government started the scheme on August 15, 2007.
with a human face; additional 5170 MW of power for Punjab by measures like reviving Goindwal power plant and Bathinda refinery project to add 1000 MW, one time debt settlement scheme and staggered debt transfer plan for the indebted farmers, a new scheme of free health insurance cover of rupees two lakh for every farmer and land less labourers, grant of cooperative education loans up to rupees ten lakh at a nominal interest to the children of the marginal, farmland to be acquired only with the consent of the affected farmers who were also to be given 30 per cent displacement allowances as settled by the local Sarpanch, MLA and the MP, package to the farmers for the second push to the green revolution, enhancing the power generation to ensure 24 hour free supply to farmers and to weaker sections within 3 years, the setting up of youth development and employment generation boards. 

It was no surprise that the manifesto of the Congress read on similar populist line: rice and flour at 4 rupees and pulses for 20 rupees for poorest of poor, free power supply to the farming sector, tube well connections to small and marginal farmers within 12 months, taking landowners as partners on board any major project, continuation of MSP schemes, reforming the cooperative sector, reducing the interest on farm loan to 5 per cent, streamline the private money lenders called arhitiyas, creating three new special economic zones, one each in three regions, abolition of sales tax by 2010, reworking the value addition tax, reduction in the turnover tax on trade to 0.25 per cent, equal distribution of water to all parts of the state (unlike SAD, it however did not mention the intent to scrap the section 5 of the termination of water agreement act, 2004 that stipulated that Haryana and Rajasthan would continue to receive water as per their respective shares). Among other promises were to provide relief to the manufacturing sector from the stamp duty and electricity duty and the waiver of the entertainment tax. It also promised to make Punjab electricity surplus state by 2012, implementation of the recommendation of 5th Pay

commission, greater thrust on development of information technology and biotechnology based industries, lump sum value added tax on the brick kiln owners. 79

In the following chapter, the emerging trends in Punjab agriculture will be discussed in some detail along with the technical, institutional, social, political and environmental constraints that have been in some way responsible for the deceleration in the economic growth of Punjab. The main point we wanted to raise in this chapter was to understand the socio-economic changes and its subsequent impact on the social and political atmosphere of the state by dividing the development into three periods since independence. As discussed above, each of the three periods has been marred by the distinct developments that separate it from the other period. The first period provided the necessary impetus to rural economy and thereafter it got a boom in the form of green revolution that changed the face of rural economy. This period is also important for political instability and rise of secessionist movement in the state. The period thereafter that saw the decline of rural economy in a politically stable environment will be the central point of this thesis.

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