Before we set out to carve a suitable methodology for our study, a quick review of the existing literature in the area is quite in order. Given an impassionate concern of planners and social scientists alike with disparities and related problems, a swelling mass of literature is the natural outcome. So we come across all types of research reportings, extending from purely speculative type to post-facto justification brand, in this vast arena. It would not be feasible, or even desirable, to touch upon each and every related work. However, the following pages sum up the findings and thinking of some of the authors in the field and hence, provide the necessary back-drop for the present study.

In the literature on disparities in agricultural development, we find the emergence of two competing doctrines in the past three decades. While programme evaluation organisation, Planning Commission, Government of India (1967) and Mahajan (1973) argue that under a system of economic planning, disparities in agricultural development have shown a convergent trend; Singh (1969), Rao (1971), Sharma (1973), Bhalla and Alagh (1978) feel the exactly opposite. The main argument of the former group is that development programmes of agriculture, public action under a system of
economic planning and transfer of resources from the centre to
the less developed states are responsible for a substantial
reduction in the inequalities existing in different states
of the country in general and different regions within a
state, in particular. But, the latter group maintains
that public investment in irrigation, agricultural output
maximisation objective of the Five Year Plans, implementation
of development programmes through planning process on
schematic pattern in all the areas (though areas differ in
their potentialities for development) and confinement of
green revolution to a few areas have tended to accentuate the
regional disparities in agricultural development. However,
the differences in the coverage of period may be largely held
responsible for these two competing viewpoints. The findings
indicated that wide inter-state inequalities existed in
India in 1950-51 but showed a declining trend till 1964-65,
as the growth in the early extensive phase was widespread
(even the dry region added substantially to the agricultural
production during this phase). It is further stated that the
growth policy of the agricultural sector in the intensive
phase was such that agricultural growth began to be
concentrated in the irrigated areas and assured rainfall
regions, increasing rather than reducing the income disparities
that had already existed between these and the rest of the
country side during the extensive phase.
Several empirical studies conducted in this context are reviewed below:

Chatterji (1964) suggested that existence of regional variation in productivity and development was an important characteristic of underdeveloped countries, especially those countries which had to undergo colonial exploitation. He also noted that the gap between the two regions, one being near to the area of industrial development and the other far off from such development remained, though the huge over-head cost and growth of infrastructure had an impact on the production and development of agriculture.¹

Dhondyal (1964) explained regional variations in agricultural development and productivity in terms of farm management factors including the capacity and willingness to borrow money for productive use, intensive crop enterprises and irrigation.²

Shukla (1965) observed that differences in the growth of labour supply were the cause of regional differences in agricultural growth.³

Thamarajaksh (1967) reported that the districts that have done better, had relatively greater potentialities in traditional components of gross area sown and per acre output, moreover, the provision of irrigation facilities had activated the process of agricultural development.⁴
Singh (1969) estimated differential rates of growth of agricultural production among the states and viewed that, since maximisation of agricultural production was the major objective of the Five Year Plans, no action had followed to narrow down those disparities (though these disparities had been noted and discussed).5

Rao (1971) found that the most important cause of disparities in the growth of crop output was the difference in the irrigation, and public investment had played a major role in bringing out this growth in irrigation.6

Mahajan (1973), while analysing the differential growth behaviour of states in agriculture, observed convergent trends in agricultural development and concluded that public action, under a system of economic planning had gone some way in turning the likely divergent trends to the convergent one in the economy as a whole as well as in the agricultural sector separately.7

Kanungo and Sarma (1973) found that the development programmes implemented in agricultural and other sectors through planning process in India were by and large, based on schemetic pattern. They contended that the adoption of this pattern had resulted in varied performance, and regional imbalances came into sharp focus.8

Vyas (1973) observed that among the states which had performed reasonly well in the 1960's, most of those were deficit states to begin with, and concluded that while
there had not been any perceptible tendency for convergence during 1970s, there had not been marked tendency towards divergence either.\textsuperscript{9}

Mukhopadhyay (1976) reported that measured inputs (land, labour, irrigation, fertilizer, machinery and education) explained only about one-fifth of the variation in output over space and time, and the bulk of the variation was due to region specific invariant factors not captured in the measured inputs.\textsuperscript{10}

Sharma (1977) opined that it was the imbalances in the distribution of land among households in various regions that might explain the regional imbalances in agricultural development.\textsuperscript{11}

Sompathi (1977) noted that inter-state inequalities in income showed a declining trend till 1964-65 but increased steadily afterwards. He further concluded that the growth policy in the agricultural sector during 1961-71 contributed significantly to the increases in the inter-state inequalities.\textsuperscript{12}

Bhalla & Alagh (1978) maintained that the confinement of green revolution to few areas had tended to accentuate regional disparities in agricultural output and income.\textsuperscript{13}

Das (1977) observed that growth rate in wheat growing regions was nearly double than that of rice growing or jowar
and bajra growing states because the proportion of wheat area under H.Y.V. of wheat was higher. An ICSSR working group report (1980) suggested that growth in agricultural incomes during the planning period was shared unequally by different regions of the country, more so during the later phase of decelerating growth, based on an intensive development strategy. It further stated that growth in the early extensive phase was widely spread and even the dry region added substantially to the agricultural production during this phase. But in the intensive phase, agricultural growth began to be concentrated in the irrigated areas and assured rainfall regions, increasing rather than reducing income disparity that had already existed between these and the rest of the countryside during the extensive phase.

Rao & Sarma (1980) concluded that government investment had not adequately played the role to compensate for the inadequacy of private investment in the relatively low productivity districts.

Gupta (1982) asserted that technological dimensions were more important than institutional dimensions in explaining the intra-regional variations in agricultural development.

Thus the above mentioned studies conclude that historical factors (initial advantage gained by some area)
natural endowments, agro-climatic conditions, use of physical inputs, technological and institutional changes, farm management ability of the farmers and irrigation are responsible for these disparities in agricultural development.

Only a few studies such as Sharma and others (1969), Rao (1971), Mahajan (1973), Rao (1981) attempted to explain the differentials in the growth behaviour of agricultural production/development with respect to public investment policies. But these studies made inter-state comparisons which conceal the differentials in the growth potentials among the regions even within the state. None of these studies covered all the aspects of public investment which were important for the development of agricultural sector.

Studies examining the existence of disparities as well as the agents and causal factor behind these disparities in Punjab have been reviewed in the following paragraphs.

Dayal (1963) observed that northern and north-eastern districts had done much better than the southern and south-eastern districts. These south and south-western districts were relatively less important for agriculture in Punjab as agriculture in those districts was impeded by inadequate irrigation and sand infested areas.
Rao (1965) suggested that differences in growth of agricultural output between the districts were explained by the extremely uneven levels of development obtaining in the earlier period, provision of irrigation on a large scale in the hitherto arid region and the existence of growth inhibiting factors such as soil erosion, water lagging and share cropping tenancy especially on the areas of lowest change.  

Kaul and Johl (1967) viewed that developmental efforts were equitably distributed among the districts of Punjab. Irrigation facilities were considered to be the most important factor contributing towards the differential growth behaviour of productivity though marketing and processing industries also affected the productivity of commercial crops like cotton, sugarcane and groundnut.

Bal (1980) reported that spectacular growth in agriculture in the mid-sixties had not benefited the farmers in different regions of state uniformly. He further suggested that these regional imbalances might be attributed to regional differences in the resource endowments and to some extent to cropping pattern rather than to any deliberate neglect. The empirical evidence of the study showed that the regions with better resource-endowments, particularly with assured irrigation, reaped more than proportionate advantages of new farm technology.
Bawa & Singh (1980) estimated that variation in agricultural productivity could be narrowed down to the extent of 61 percent by providing uniform infrastructure. In their view, variability in technological inputs was responsible, to the extent of 29 percent, for the variability in agricultural productivity.  

Gupta (1982) found that technological factors were more important for the regional variations in agricultural development and their importance had increased over time.  

Grewal and Bhati (1964) concluded that irrigation was the key variable which explained the variation in value productivity across districts. This factor determined the use of other associated inputs such as fertilizer, mechanisation as well as the cropping intensity. Moreover the districts with higher percentage of area irrigated through tubewells had relatively higher value productivity and vice versa.  

Gosal and Krishan (1984) also stated that all parts of Punjab were not equally developed in agricultural terms. There were, rather, striking regional disparities in this regard.  

Johar and Singh (1987) concluded that the most important factor responsible for inter-district variations in agricultural productivity in Punjab was infra-structure followed by technical and financial inputs.
Thus the studies analyzing the disparities in agricultural development in Punjab reported that growth inhibiting factors such as lack of irrigation, uneven level of development obtaining in the earlier period, poor resource endowments, technological changes and inadequate provision of infrastructural facilities were responsible for the existence and persistence of these disparities.

When it comes to analyzing the disparities in agricultural development in the context of public policies in Punjab, two opposite views are held,

1) developmental efforts were equally distributed and disparities in agricultural sector were not due to any policy neglect (Kaul and Johl, 1967; Grewal and Rang 1976; Bal, 1980), and

2) state policy regarding the development of infrastructure had aggravated the differentials in agricultural production/productivity (Singh and Bhullar, 1980).

But none of these studies attempted to examine these disparities in the context of systematic process of economic planning since independence i.e. to what extent various policies or programmes have been responsible for accentuating or narrowing down of these disparities. Thus, there exists a wide gap in the literature on regional development in Punjab.
Foregoing review has provided us basic familiarity with the state of craft in this area. Now that we are aware of the missing links in the analytical framework, choice of variables and statistics methodology, we can proceed with the task of evolving a suitable methodological framework for our study. This would be taken up in the ensuing chapter, namely chapter 3.
NOTES AND REFERENCES
(Ch. 2)


* For '17' See next page.

27. 'Technological factors were more important for the regional variations in agricultural development and their importance had increased over time', remarked. Gupta, A.K. (1982) op.cit.