CHAPTER - IV

METHODOLOGY
METHODOLOGY

Methodology is the study description, explanation and justification of methods. It is used for discipline as well as for its subject matter, but mainly methodology refers to the method or methods used in conduct of an enquiry. The aim of methodology is to help and understand, in the broadest possible terms, not the products of scientific enquiry but the process itself. A systematic account of processes, stages, methods, techniques, tools of enquiry, data analysis and interpretation followed in the present study is described in this chapter.

Field of the Study

The present study was conducted in Haryana state, the seventeenth state in India union, that came into being on Tuesday, the 1st of November, 1966, as a result of the reorganisation of the composite Punjab state. It was also the point of time of introducing high yielding variety of seeds and other technological inputs in agriculture, which has brought the Green Revolution. The state has an area of 44,222 sq.kms comprising 1.3 per cent of the country's area, and a population of 1,64,63,648 according to 1991 census, which is 19.04 per cent of the total population of India. There are 6745 inhabited villages in the state.

Location

Haryana state is situated in the Northern region of the Indian union and is bounded by Uttar Pradesh on the east,
Punjab on the west, Rajasthan in the south and portion of Himachal Pradesh on the north. State extends from 27°3' to 31°9' north latitude and 74°5' to 77 east longitude.

**Physiography**

Physically, Haryana falls into the broad natural division namely the sub-Himalyan and the Indo-Gangetic plain which run in south-eastern direction, almost parallel to each other. The Indo-Gangetic alluvial plain lies between the Himalayas to the north and Rajputana desert to the south. Unconsolidated clay, silt, sand and gravel compose the alluvism layer after layer by the Jamuna and many other small sub-mountaineous torrents "Khads" and "Choes". As a whole it imperceptibly slopes from north to south and is flat. The average height of the topography ranges from 700 to 900 feet above sea level.

**Climate**

The climate of Haryana, most of the year, is of pronounced character, very hot in summer and markedly cold in winter. The maximum temperature is recorded in the month of May and June when it goes up as high as 48°C. The temperature falls to the lowest in January when two to three degree of frost is recorded.

The normal annual rainfall varies from less than 300 mm in the south-western parts of Hisar district to over, 1,250 mm, in the hilly tract in the north-east parts of Ambala district.

There are two well marked seasons of rainfall in the state, the monsoon period lasting from the middle of June till September on which autumn crops and spring sowing depends; and
the winter rains which occur from December to February and although often insignificant in quantity, yet they materially affect the prosperity of spring harvest. Rainfall is scanty, particularly in Bhiwani, Mohindergarh and Hisar districts.

**Agriculture**

Agriculture is the most pre-dominant and largest industry of the state. This sector contributes more than 50.00 per cent of the state income and provides livelihood to about 70.00 per cent of the population. The important crops grown in the state are wheat, gram, bajra, paddy, cotton, sugarcane, jowar, barley and maize occupying about 25.00, 21.00, 16.00, 7.00, 5.00, 4.00, 3.00, 2.00 and 2.00 per cent of total cropped area, respectively. At the time of its inception, Haryana was producing only 25.92 lakh tonnes of foodgrains which reached 95.59 lakh tonnes in 1990-91. There are 98 regulated markets.

Agriculture was a way of life for the people, but with the introduction of HYV seeds in mid-sixties followed by other technological changes have revolutionised agriculture. The area under high yielding varieties increased remarkably from mere 0.17 lakh hectares in 1966-67 to 27.10 lakh hectares in 1991-92. The area under high yielding varieties now covers 95.00 per cent of area under wheat crop and 85.00 per cent of area under rice crop. Net area irrigated has also doubled and number of tubewells/pumpsets has increased twenty times. Similarly, number of tractors has increased from 4803 to 1,33,418.
Fertilizer has been the most crucial input for higher production of crops and its use has increased by more than 47 times. The total fertilizer consumption during the period 1966-67 to 1991-92 has gone from mere 13.35 thousand tonnes to 637.15 thousand tonnes. Similarly, plant protection was provided to 98 lakh hectares in 1990-91 as against only 19.17 lakh hectares in 1966-67. The consumption of technical grade pesticides has gone up from 273 metric tonnes in 1966-67 to 5,265.90 metric tonnes in 1991-92. Per capita electricity consumption in the state is 371 units.

At present, there are 1.35 million operational agricultural holdings in the state. The average size of holding has decreased from 3.77 to 2.76 hectares. Over the two decades, i.e., 1970-1990, there has been an increasing trend of small and marginal land holdings in the state which account for about 70 per cent of the total operational holdings in the state. As per records overwhelming majority of the landholdings are wholly owned and self-operated.

Haryana holds a prominent place in the country for its livestock wealth. Animal husbandry is integral part of rural economy.

People in Haryana, the second major crop producing state in the country, are shifting from agriculture to others professions, indicted by the 1991 census figures. The proportion of cultivators has "substantially come down" to 39.38 per cent in 1991 from 44.67 per cent in 1981. The percentage of
agricultural labourers has on the other hand increased to 19.53 from 16.11 in 1981. There is also a slight rise in the proportion of workers engaged in household industry and other works.

Murrah breed of buffaloes is the highest milk yielder in the world. Cattle population has decreased from 22,171 hundred to 22,001 hundreds and buffaloes population has increased from 19,260 to 38,285 over the period 1966 to 1988. Milk production in the state has increased from 10.8 lakh tonnes to 34.19 lakh tonnes over the period 1966-1991. Besides the White Revolution the state is heading towards Blue Revolution (fishery) and egg production. Poultry has increased from 4756 hundred to 53,390 hundreds over the period 1966 to 1988. There are six milk plants in the state.

Main occupation of the people is agriculture, where 70 per cent of population is engaged. According to recent census 39.38 per cent are engaged as cultivators, agricultural labourers (19.53%), 2.33 per cent workers in households and 22.88 per cent in other occupation.

**Literacy**

According to the 1991 census, the literacy rate is 55.85 per cent with 60.10 per cent for males and 40.47 per cent female. Further, amongst the literates in rural area 68.56 per cent constitutes males and 31.44 per cent females. Among the total literates of Haryana, the highest percentage share is claimed by Rohtak district (12.86%) and the lowest share has
gone to Kaithal district (3.81%). In the rural areas, the maximum number of literates has been recorded in Rohtak district (711,796) while the minimum number of literates has been found in Kurukshetra (208,380).

Transportation

State has 3 National Highways and 23,273 km of metalled road. The Haryana Roadways had a fleet strength of 475 vehicles at the time of its creation. The strength has increased to 3521 buses. The daily operated kilometerage is about 9.7 lakh covering 1054 routes carrying 15.16 lakh passengers. Most of the villages are linked with the metalled roads.

Selection of the District

There were twelve districts namely Hisar, Sirsa, Bhiwani, Gurgaon, Faridabad, Jind, Mohindergarh, Ambala, Karnal, Kurukshetra, Rohtak and Sonipat in the state. Research objectives demanded to identify different districts in order of agricultural development, defined in terms of Green Revolution. Matter was discussed with agricultural experts and other related scientists to identify the indicator/elements of Green Revolution. From review of literature several indicators were collected which were also tested in the field. After a thorough screening, in the light of research objectives following indicators were selected:

1. Percentage of area under high yielding varieties of major foodgrains to total area under those crops.
2. Quantity fertilizer (nutrients) used per hectares of the gross cropped area.

3. Percentage of gross area irrigated to gross area sown.

4. Number of tractors per hectare of the total cropped area.

5. Consumption of pesticides (technical grade) per hectare of the gross cropped area.

Data on these above cited five indicators were collected for all the districts for the year 1988-89 from Statistical Abstract of Haryana (Table 4.1).


Kurukshetra district categorically ranked the highest in Green Revolution. Therefore, Kurukshetra as the most Green Revolutionised district was selected hence hereafter called zone A. Similarly, Bhiwani district categorically ranked the lowest in Green Revolution. So, Bhiwani district was selected as the Non-Green Revolutionised district hence hereafter called zone B.

Selection of the Blocks

In Kurukshetra district, there were eight blocks namely, Kaithal, Pundri, Guhla, Radaur, Thanesar, Shahbad, Pehowa and Ladwa. In consultation with agricultural department, Pehowa and Thanesar were adjudged equally to be the most irrigated and
<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Districts</th>
<th>Percentage of gross area irrigated</th>
<th>Percentage of area under fertilizer HYV of major foodgrains</th>
<th>Quantity of fertilizer (Nutrient) used per hect. of gross area</th>
<th>Number of tractors of the grade per hect.</th>
<th>Consumption of pesticides des (Tech. Index) per hect. of the grossed cropped area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Kurukshetra</td>
<td>96.4</td>
<td>85.45</td>
<td>156.91</td>
<td>26.31</td>
<td>1.48</td>
</tr>
<tr>
<td>2.</td>
<td>Karnal</td>
<td>95.7</td>
<td>91.50</td>
<td>150.85</td>
<td>22.60</td>
<td>1.46</td>
</tr>
<tr>
<td>3.</td>
<td>Ambala</td>
<td>63.2</td>
<td>80.35</td>
<td>131.57</td>
<td>23.46</td>
<td>1.81</td>
</tr>
<tr>
<td>4.</td>
<td>Sonipat</td>
<td>83.3</td>
<td>75.53</td>
<td>104.79</td>
<td>26.40</td>
<td>1.32</td>
</tr>
<tr>
<td>5.</td>
<td>Sirsa</td>
<td>73.9</td>
<td>76.60</td>
<td>121.44</td>
<td>19.76</td>
<td>1.17</td>
</tr>
<tr>
<td>6.</td>
<td>Hisar</td>
<td>77.2</td>
<td>81.30</td>
<td>91.25</td>
<td>14.92</td>
<td>0.72</td>
</tr>
<tr>
<td>7.</td>
<td>Jind</td>
<td>82.2</td>
<td>79.96</td>
<td>77.77</td>
<td>14.45</td>
<td>0.65</td>
</tr>
<tr>
<td>8.</td>
<td>Faridabad</td>
<td>65.6</td>
<td>69.70</td>
<td>71.11</td>
<td>18.18</td>
<td>0.79</td>
</tr>
<tr>
<td>9.</td>
<td>Gurgaon</td>
<td>48.4</td>
<td>75.70</td>
<td>118.73</td>
<td>14.14</td>
<td>0.55</td>
</tr>
<tr>
<td>10.</td>
<td>Rohtak</td>
<td>56.6</td>
<td>81.95</td>
<td>52.54</td>
<td>21.84</td>
<td>0.25</td>
</tr>
<tr>
<td>11.</td>
<td>Mohindergarh</td>
<td>31.0</td>
<td>76.75</td>
<td>49.68</td>
<td>6.38</td>
<td>0.32</td>
</tr>
<tr>
<td>12.</td>
<td>Bhiwani</td>
<td>30.8</td>
<td>75.40</td>
<td>15.70</td>
<td>5.54</td>
<td>0.20</td>
</tr>
</tbody>
</table>

using highest quantum of the elements of Green Revolution were purposively selected. There were eight blocks in Bhiwani district namely, Bhiwani, Bawani Khera, Loharu, Tosham, Charkhi Dadri-I, Charkhi Dadri-II, Badhra and Sewani. In consultation with the Department of Agriculture, Sewani block, being the lowest irrigated and having lowest use of elements of Green Revolution was purposively selected.

**Selection of the Villages**

From Pehowa block of Kurukshetra district, the villages namely, Mangana, Thana, Bherian, Sarsa, Ruan and Murtzapur were identified as the most Green Revolutionised villages and one village Sarsa was selected with the lottery method. Similar procedure was adopted to select the village Barna, out of the most Green Revolutionised villages, i.e., Ghararsi, Barna, Jinjarpur, Chandlana, Sarsa, Ahun, Teontha and Dorain of the Thanesar block of the same district. In Sewani block of Bhiwani district, the village namely, Budh Saili, Motipura, Gangala, Sainiwas, Jhupha Kalan, Jhupha Khurd, Dhani Bhakhra and Matani were having the lowest irrigation facilities and adjusted to be much lower extent of elements of Green Revolution, so were identified as the lowest Green Revolutionised villages. Out of these villages, two villages, namely, Jhupha Kalan and Jhupha Khurd, were selected with lottery method. A brief description of the villages is given below:
HARYANA
MAP SHOWING SAMPLED VILLAGES

1 BARNA
2 SARSA
3 JHUPHA KALAN
4 JHUPHA KRUD
Village Barna

Barna, the name of village, originated from Barasur rishi, who was the son of Bali in Ramayana epic. This version does not find any mention in the village records, but the villagers believe so. Village Barna is located in the South of its district headquarter Kurukshetra, on Kurukshetra-Kaithal road, at a distance of 17½ km, linked by pucca road from village Pindarsi, on the main metalled road. Village falls administratively in the developmental block of Thanesar tehsil. It is at a distance of 2½ km from railway station of Pindarsi.

There were 725 households with total population of 4634. There were 492 cultivators, 425 agricultural labourers, 1335 engaged in allied agricultural activities, such as, livestock, plantation, orchard, etc. Only 35 persons were engaged in the activities of manufacturing, repairing, transports and others. About one-third of persons were from Jat community and about one-fifth, were from scheduled castes. Rest of the persons were from other castes.

Total cultivated area as per village record is 1030 hectares, irrigated by 342 tubewells. Main crop rotation was paddy and wheat, with an area of 750 and 920 hectares, respectively. In the village, there were 65 tractors and 38 threshers. Main centre for the supply of various inputs, storage facilities and marketing was town Dhand, located at a distance of 12 km from the village, linked with pucca road.
The facilities of Post Office, Rural Dispensary, Veterinary Hospital, High School, Primary Credit Cooperative Society, and Gramin Bank were available within the village itself. Besides there were two privately run public school in the village.

**Village Sarsa**

Sarsa village is located in the South of district headquarter Kurukshetra, on Kurukshetra-Pehowa road, at a distance of 19 km, linked by an approach road.

Village falls administratively in the development block of Pehowa tehsil. There were 862 households with a total population of 5187. There were 756 cultivators, 328 agricultural labourers, 1395 were engaged in the allied agricultural activities, such as, livestock, plantation, etc. Sixty-five persons were engaged in manufacturing, repairing, transports and other activities. Jat is the dominating community, constituting half of the total village population and about one-fifth were from scheduled caste. Rest of the persons were from other castes.

Total cultivated area as per village record is 1390 hectare. There were 85 tractors and 48 threshers in the village.

Main centre for the supply of various inputs, storage facilities and marketing town was Pehowa, located at a distant of 13 km from the village, linked with pucca road.
The facilities at Government high school, Veterinary hospital, Medical dispensary, Post office and Primary credit society were available in the village.

**Village Jhupha Kalan**

The name of the village originated from Jhupha, which indicates Jhopri under which a person resides. Jhupha Kalan village is located in the district headquarter of Bhiwani, to its North-west, at a distance of 70 km, linked by pucca road. The village falls administratively in the development block of Sewani tehsil.

There were 480 households with total population of 3125. There were 540 cultivators, 120 agricultural labourers, 7 were engaged in manufacturing and repairing households industry, 4 in other than household industry, 9 persons in construction work, 52 in trade and commerce, 20 in transport and communication, 65 in other services, and 310 were non-workers.

Bishnoi is the dominating caste in the village and one-third of the land of the village is owned by them. They have religious faith in Bishnoi Cult propagated by Guru Jamabshewar. They spent lavishly on kaaz. Other castes in the village are Jat, Brahmin, Bania, Khati, Nai, Chimpi, Chamar, Chura, Nayak, etc.

Total geographical areas as per village record is 3239 hectares and the cropped area is 470 hectares. Main crop rotation was bajra and gram. There were 12 tractors, 3 threshers, 20 trucks and 5 four-wheelers in the village.
Facilities of High school, Veterinary hospital, Rural dispensary, Post office, Gramin bank, Railway station, Police chowki and Forest nursery were available in the village itself.

Village Jhupha Khurd

Jhupha Khurd is located in the district headquarter of Bhiwani, to its North-West, at a distance of 70 km linked by pucca road. The village falls administratively in the developmental block of Sewani tehsil. It is adjacent to the border of Rajasthan.

There were 252 households with a total population of 1150. There were 187 cultivators, 60 agricultural labourers, 6 were engaged in manufacturing and repairing households industry, 4 in other than households industry, 7 person in construction work, 32 in trade and commerce, 8 in transport and communication, 24 in other services and 270 were non-workers.

Total geographical area as per village record is 548 hectare and total cropped area is 470 hectare. Main crop rotation was bajra and gram. There were 2 tractors, 2 thresher and 4 trucks in the village.

The facilities of the Primary credit society, Post office and one privately run public school was available in the village itself.

Selection of the Respondents

The main focus of study was on the pure agrarian categories i.e. non-cultivating-owner, pure-self-cultivator, pure tenant and agricultural labourer for this purpose an inventory
of households of each village was prepared from the records of patwari/nambardar/panchayat secretary. Then households were classified as per agrarian category given above. Thereafter, a sample of 25 respondents from each category, from each village was selected by lottery method (Table 4.2). This resulted into a sample of 50 household of each category from each zone. Thus, four hundred households with one hundred of each category were selected for the study. Functional head of the selected household was selected for the interview.

Tools of Enquiry

Respondent schedules (given in Appendix) containing questions pertaining to the research objectives, were prepared, pre-tested and finalised. Several of the questions were common to all the categories whereas others were specified for a particular category. A battery of the questions was also prepared to assess the changes in agrarian relations between different categories namely, cultivator-labourer and landlord-tenant. Similarly, a battery of statement was prepared for knowing the ideological orientation of different agrarian categories and for this purpose, work of Alexander, 1974 was relied upon. Secondary sources of information like Census of India, Gazetteers, Settlement Reports, Director Agriculture, Commissioner Land Records, Directorate of Economics and Statistics, Irrigation Book of Patwari of respective villages, Statistical Abstract of Haryana and other documents were used for discerning the traditional agrarian relations, besides,
Table 4.2. Distribution of Households and their Selection as per Pure Agrarian Category in Different Selected Villages

<table>
<thead>
<tr>
<th>Agrarian Category</th>
<th>Barna</th>
<th>Sarsa</th>
<th>Jhupha Kalan</th>
<th>Jhupha Khurd</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of households</td>
<td>Sample selected</td>
<td>Number of households</td>
<td>Sample selected</td>
</tr>
<tr>
<td></td>
<td>740</td>
<td>25</td>
<td>862</td>
<td>25</td>
</tr>
<tr>
<td>Not cultivator</td>
<td>49</td>
<td>25</td>
<td>62</td>
<td>25</td>
</tr>
<tr>
<td>Self cultivator</td>
<td>102</td>
<td>25</td>
<td>118</td>
<td>25</td>
</tr>
<tr>
<td>Tenant</td>
<td>61</td>
<td>25</td>
<td>86</td>
<td>25</td>
</tr>
<tr>
<td>Agril.labourers</td>
<td>152</td>
<td>25</td>
<td>169</td>
<td>25</td>
</tr>
<tr>
<td>TOTAL</td>
<td>364</td>
<td>100</td>
<td>435</td>
<td>100</td>
</tr>
</tbody>
</table>
personal observations were also made and incorporated in the study.

Collection of Data

Facts are buried in and overshadowed by cultural norms having invisible but not impregnable roots in the socio-cultural matrix. These factors are not in isolation but have meaningful causal relationship. Facts collected, were pointedly to be picked to reveal the gap in terms of the study objectives. Every effort was made to be selective in probing into facts so that these be related to the objectives of the study.

The data for the study were collected personally by the researcher himself during the year 1991-92. Scholar himself hails from this state and used to visit rural area frequently. The interviews were conducted by the use of local dialect.

The scholar visited all the selected villages and stayed in each village for weeks to have first hand introduction with community leaders and village functionaries. Information was gathered directly from the respondents, but whenever doubt arose, it was verified from the secondary sources and by cross-questioning. Only the reliable and valid answers were noted in respondent schedules, in the margin and backside of the schedule specific notings, if any, were made about the household of the respondent. In addition, the technique of participation observation was also used. Several days were spent with the respondents, in their villages to have a 'feel
of the situation'. The schedules were checked and edited for any discrepancies or omissions in data and for clarifications.

Tabulation, Analysis and Interpretation of Data

After checking and editing the completed schedules for any discrepancy, appropriate code design was developed. After giving code numbers to qualitative data, all the relevant data were listed on the computer sheet, for getting two-way-frequency tables. Subsequently, appropriate tables were formulated, keeping in view, the specific objectives of the study. The analysis was made zone-wise as well as in aggregate.

Qualitative data which could not be quantified and that distorted the reality of facts, was sorted out zone-wise, keeping the objectives in view. Content analysis of the statements, opinions and reactions was made. Scholar's observations during interview were incorporated in course of writing manuscript.

Operational Definitions

Most recently conducted studies were critically analysed and field observations were made. The most commonly recognised agrarian categories were the cultivators, tenants and labourers. There were different sub-classes of these categories, which primarily depended on specific situations. Since the present study is to investigate into the agrarian relations, the most commonly found categories were absentee-landowners, landowner cultivating their own lands, cultivators cultivating other land and selling their labour to the
cultivators. In order to study, empirically, these categories were operationalised as under:

1. **Non-cultivating owner**
   Who owns land, may or may not stays on it but does not cultivate with his own hands or with the help of labour but gives it to others for cultivation.

2. **Pure-self cultivator**
   Who owns land and cultivates with his family labour or with the help of hired labour or with both, but does not involve in lease-in or lease-out process.

3. **Pure tenant**
   Who does not own land, but takes land on lease-in for self-cultivation.

4. **Agricultural labourer**
   A labourer without any land holding, engaged in selling labour for cultivation, draws his maximum family income from this source only.

**Agrarian Relations**

Agrarian relations are the relationship among different categories/classes interested in the pursuit of cultivation of the land.

**Limitation of the Study**

As the study confines to the state of Haryana, the findings of the study, are applicable to this specific socio-cultural system. The present study has obvious limitations as
regards to time, money and other research constraints, faced by a single research scholar. Limitation of time has set up a barrier for probing into more dimensions of the research topic. However, considerable care and thought has been exercised in selecting variables so that the objectives are fulfilled and generalization can be made for the larger section of the society.