CHAPTER V:

STUDY OF EXPERIMENTAL AREAS:
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V.1. From the study of last survey chapter, it is to be said that the AMP may be conducted through schools. In subsequent chapters the study is done in that direction and hence main emphasis was laid down on schools. But the schools are closely related to village community life and hence while conducting the programme like teaching of nutrition through schools, one must know the community background in respect of Socio-economic status and the dietary traditions and customs of the society. Secondly, while conducting a programme in a school for the experiment purpose one must know the present condition of school in respect of school curriculum, ability of teachers and students, general situation of school and its relation with village community, etc.

It is already pointed out that the study was mostly concerned with the situation of Maharashtra State. There are 25 districts in Maharashtra and Kolhapur is one of them. The district Kolhapur is divided into 12 Blocks or Tahashils. The
district is under the control of district collector. He is
in-charge of general administration, Law and Order, Land revenue
and Civil supply.

But, the Zilla Parishad at the district level and the
Panchayat Samities at block level were formed in 1962 to
promote the participation of the people in developmental
activities of the community. One block consists about 100
villages and is called the Development Block. There are 12
blocks under the Zilla Parishad, Kolhapur. The working of the
Zilla Parishad is more or less separate from the district
collector as laid down in the Maharashtra Panchayat Samiti
Act of 1960. The ANP in Maharashtra conducted through Zilla
Parishades and block is taken as a unit for the said activities.
At present Panhala, Shahuwadi, Radhanagari, Ajara, and Bhudargad
are the five blocks, covered under ANP out of 12 blocks of
Zilla Parishad, Kolhapur.

: GENERAL STUDY OF EXPERIMENTAL BLOCKS- BHUDARGAD AND
RADHANAGARI :

(1) NATURAL CONDITIONS :

V.2. Radhanagari and Bhudargad are the blocks, located at the
Western side of the Kolhapur district. The Western boundaries
of both the blocks have touched the district Ratnagiri. These
two blocks are adjoining to each other. Towards the Eastern
side comes the Kagal block where as southern side of Bhudargad
comes into contact of Ajara block and North side comes the Karvir
block. (See Map No.5.)
Gargoti is the head quarter of Bhudargad and Radhanagari is the head quarter of Radhanagari block. Both the said places are about 50 k.m. from district head quarter, Kolhapur. The area of Radhanagari is 892.3 Sq.meters and that of Bhudargad is 644.4 Sq.meters. There are three rivers flowing from West to East, namely, Doodenga, Bhogawati, and Tulashi in Radhanagari whereas only one river, Vedganga flows in Bhudargad. There is hydroelectric dam near the Radhanagari village on Bhogavati river which gives irrigation facilities only to the northern side of Radhanagari. The prominent villages are located on the bank of rivers and get the advantages of irrigation from the river bed during the summer. However, both the blocks do not have sufficient irrigation facilities for agriculture.

Most of the soils are hilly and poor in fertility except the land available on either sides of rivers. The Radhanagari has got more forest area and heavy rains than Bhudargad. However, the cropping pattern is the same in both the blocks. There are two cooperative Sugar Factories where most of the prominent cultivators are members. These sugar mills play a very important role in the economy of this area. Besides, these sugar mills there are cooperative sale purchase Unions, one for each block known as, "Taluka Shetakpri Sangh" .

(2) POPULATION :

V.3. The total population of the Bhudargad block is 94,246 and that of Radhanagari is 1,25,053 as per the census of 1971. The population figures were 65,929 and 78,655 in 1951 and 1961 for
Bhudargad and 87,205 and 1,0431 for Radhanagari respectively. This shows that in Bhudargad about 29 thousand population increased during the last 20 years and 38 thousand increased during the same period in Radhanagari. There are 1,093 villages and 16,08000 rural population in the district. Bhudargad and Radhanagari have got only the rural population, distributed in 95 and 101 villages respectively. The density of population found in Bhudargad 146 per sq.km. and the same is 140 in Radhanagari. Being the rural area almost all population is engaged in agriculture. Majority, about 90 percent people are Hindu and then come muslims, Jains, Christains, Buddhists. Among the Hindu, the majority is Hindu -Maratha. There are 2,32,500 people belonging to the scheduled classes and 3800 belonging to the scheduled tribes in the district whereas as 9000 and 12000 scheduled class people are found in Bhudargad whereas only 100 are recorded in Radhanagari block.

(3) AGRICULTURE:

V.4. Maharashtra State is not still self-sufficient so far as food production is concerned. The land available for cultivation is limited. The use of hybrid and high yielding varieties, supply of fertilizers, insecticides, etc. have been propagated on a large scale and campaigns undertaken every year. However, agriculture still depends on the mercy of rains. The land available for cultivation is fixed; so the only resource open to increase production is by more intensive utilisation of the available land with better inputs and extension of irrigation facilities. The total area under crops in the district is 409514
hectares and that for Bhudargad and Radhanagari is 24231 and 28837 respectively. The main food crops grown are Rice, Jowar, Ragi, etc. The area covered by food grains is about 50 percent and the ratio of the food and nonfood crops is 3:2. In these two blocks, paddy is the main food grain crop and covers 1/3 of the cropped area, then comes Ragi. In these blocks sugarcane is the only cash crop and all irrigation facilities are meant for sugarcane. Because of Radhanagari dam, irrigated area is more, about 8 thousand hectares found in Radhanagari as against the 4 thousand in Bhudargad. Generally all sugarcane crop is sent to the sugar factories and manufacture of gur is not in practice nowadays in these blocks.

As these two blocks are concerned, crops like vegetables, wheat, Maize, Bajara, Chillies, Pulses are rarely grown and grown as mixed crops hence people have to purchase from outside area. Fruits like mango, cashewnut, Jackfruit, are available in summer season but well maintained orchards are rare.

Taking into consideration the requirement of food grains per person per day, the total yield of all cereals will be sufficient to feed the present population of these blocks if the total production of cereals distributed properly among the masses. However, the production of fruits, different vegetables and pulses must be increased by maintaining the speed of cereals.

(4) **ANIMAL HUSBANDRY**

Animal Husbandry plays an important supporting role of supplementing food programme and also provides greater avenues of employment in rural area. It still provides drought power to
farm cultivation. There are 1,64,000 working animals in the
district and the corresponding figures for Bhudargad and
Radhanagari are 10,500 and 12,600 respectively. The milking
animals, both cows and buffaloes, are 72,000, in the district
and the corresponding figures for Bhudargad and Radhanagari
are 4425 and 6994, respectively. The number of milking
animals per thousand (1,000) human population for a district
is 72 and that of for Bhudargad 70 and Radhanagari 75.

The sheep, goat, poultry are also reared mainly for meat
purpose. These are local breeds and the number available in
the district is 19,374, 142394, 549775 respectively. The
corresponding figures for Bhudargad are 2598, 8534, 23355, and
for Radhanagari are 2827, 10496, 33839. From these figures the
number of sheep, goats and poultry birds per 1000 human
population can be calculated.

(5) HEALTH:

Health problem is being tackled by both the agencies,
public and private. There are about 80 private dispensaries in
rural area for the district. Out of them 4 are in Bhudargad
and 5 are in Radhanagari. There are 24 primary health
centres in the district run by Zilla Parishad. Out of them one
is in Bhudargad and 3 are in Radhanagari. There are 29 family
planning centres operating in the year 1973-74 and out of them
one is in Bhudargad and 2 are in Radhanagari.

(6) EDUCATION:

Education is the most effective means for rapid economical
and social progress. It provides opportunities for self elevation
and social progress. It provides opportunities for self elevation and economic betterment. Educational statistics at various levels serve as an indicator in this regard. District level educational position during the 1973-74 was as below:

There were 48 pre-primary schools where 2,175 boys and 1,907 girls were attending. There were 1,851 primary schools and 107,591 boys and 110,520 girls taking education. There were 236 secondary schools and 47,397 boys and 18,954 girls were studying. There were 24 higher educational institutions where 14,268 boys and 21,79 girls were studying. The students teacher ratio at primary, secondary, higher level was 35:1, 25:1, and 21:1 respectively. The general literacy percentage in the case of males was 49.78 and that in females was 20.34.

The educational position at the block level is as below:

(i) In the Bhudargad block there were 144 primary schools where 7,615 boys and 3,542 girls were attending. The number of male teachers was 365 and female teachers was 28. The teacher pupil ratio was 1:28. There were 8 secondary schools and one higher educational Institute where the situation was the same as in the case of the district level. The general literacy percentage in the case of males was 44.00 and in the case of females was 12.46.

(ii) In the Radhanagari block there were 165 primary schools where 10,446 boys and 5,120 girls were studying. The total number of teachers was 492 and out of them 32 were the lady teachers. There were 10 secondary schools and one higher educational institution. The teacher pupil ratio at primary level was 1:30 and the other position was the same as in the district. The general literacy percentage in the case of males was 45.62 and
in the case of females was 12.47. Well and regularly organised pre-primary education was not seen in both the blocks.

Besides, factors stated above, other factors like employment of labour force at various levels and their wage rate, food policy and prices of different commodities, electricity and its use in rural industry and agriculture, transport facilities, etc., occupy an important place in the rural community life.

(B) STUDY OF SELECTED VILLAGES:

V.8. In the beginning of this chapter a brief account of the general conditions of the district Kolhapur and the two blocks Bhudargad and Radhanagari is given because the district is an administrative unit for the developmental activities and these activities are generally implemented through the blocks. The two blocks Bhudargad and Radhanagari are studied along with the district because the experimental activities have been conducted in the villages and schools of these blocks. Secondly, the primary schools in Maharashtra are under the control of Zilla Parishad, except for some policy matters like curriculum making which are controlled by the State department of education.

Now, before studying the selected schools and respective pupils, it will be better to get an idea of the general background of the villages, because it is closely related to school life. For this purpose the investigator has conducted a

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The information in paragraphs 1 to 7 is taken from Socio-economic Review and District statistical abstract of Kolhapur district - 1974-75.
limited survey and studied the experimental area where the following information was obtained:

(a) General situation of the selected villages.

(b) Factors responsible for the dietary pattern and food habits of the population under study.

(c) General health and sanitation of the selected villages.

A brief account of the data collected through the survey in respect of village conditions, food habits and dietary pattern of the villagers and the general health and sanitation in these villages are described in the following pages. This information will help readers to understand the community life of the selected population and it will also give an idea how far the experimental groups are similar to each other in respect of factors which can influence the present study.

From the Table No.V-1, one can get an idea about general situation of the selected villages.
### TABLE V-1:

Statement showing the general information of the villages under study.

<table>
<thead>
<tr>
<th>Village</th>
<th>Total Population</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Schedule Caste</th>
<th>No. of Educated</th>
<th>Transport</th>
<th>Education &amp; Communication Facilities</th>
<th>Water</th>
<th>Health Facilities</th>
<th>Bus</th>
<th>Post Office</th>
<th>Road Office</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rashivade</td>
<td>919</td>
<td>2872</td>
<td>2750</td>
<td>280</td>
<td>242</td>
<td>1465</td>
<td>500</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes, up to river and well</td>
<td>Yes</td>
<td>Yes, secondary</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Kavalav</td>
<td>540</td>
<td>1792</td>
<td>1711</td>
<td>173</td>
<td>180</td>
<td>829</td>
<td>132</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes, primary, river and well</td>
<td>Yes</td>
<td>Yes, primary</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Saravade</td>
<td>741</td>
<td>2220</td>
<td>2175</td>
<td>101</td>
<td>104</td>
<td>1218</td>
<td>302</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes, secondary, river</td>
<td>Yes</td>
<td>Yes, primary</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Martavade</td>
<td>352</td>
<td>930</td>
<td>925</td>
<td>118</td>
<td>123</td>
<td>512</td>
<td>130</td>
<td>Yes</td>
<td>-</td>
<td>Yes</td>
<td>Yes, primary, river</td>
<td>Yes</td>
<td>Yes, primary</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Bhudargad</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gargoti</td>
<td>1375</td>
<td>4244</td>
<td>3728</td>
<td>266</td>
<td>221</td>
<td>2556</td>
<td>1072</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes, higher, river, yes</td>
<td>Yes</td>
<td>Yes, primary</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Khanaour</td>
<td>234</td>
<td>717</td>
<td>708</td>
<td>64</td>
<td>60</td>
<td>409</td>
<td>135</td>
<td>Yes</td>
<td>-</td>
<td>Yes</td>
<td>Yes, primary, river</td>
<td>Yes</td>
<td>Yes, primary</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Nande</td>
<td>361</td>
<td>1085</td>
<td>1064</td>
<td>131</td>
<td>132</td>
<td>516</td>
<td>130</td>
<td>Yes</td>
<td>-</td>
<td>Yes</td>
<td>Yes, primary, river</td>
<td>Yes</td>
<td>Yes, primary</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

* Source of data:
1) Socio-economic Review and District statistical abstract of Kolhapur district, 1974-75.
2) Census of 1971.
V.9. Dietary pattern and food habits of the community of the selected area have been studied by the investigator because such type of information is needed for the planning of nutrition education schemes in any community. Accordingly one may suggest ways and means to improve the diet of the people by implementing the nutrition education scheme.

A knowledge of existing diets of food pattern and of economical and social background is necessary in order to plan a satisfactory programme of nutrition education. A knowledge of food pattern and customs, food supply and intake and nutritional status of the people is needed to define the nutrition situation of the community or the country. From this information it is possible to assess the need for an educational programme. So far as the present study problem is concerned the investigator has collected the information from the project area in respect of following factors and briefly accounted them in subsequent paragraphs:—


The information collected in respect of above points can give a general picture of what people eat, what they feel about
their existing diets and food habits and where the weakness lies. This can give an educational line for planning any nutritional programme.

: PROCEDURE FOLLOWED FOR FAMILY SURVEY :

V.10. To get the requisite information, the procedure followed is given as under:-

From each school, classwise lists of students were made for 5th, 6th and 7th classes. From each list 10 numbers were picked up by the help of random number table. Thus, 30 students were selected (10 from each class) from each school. Then, the families of these students were covered for the study purpose.

Various methods were adopted for studying the dietary pattern and food habits. The criteria used for selection of methods depended upon the type of information to be collected and availability of facilities for the work.

Accordingly a question-schedule was prepared and questions were asked during the home visits to the concerned households of selected families and responses were recorded.

Besides, home visits and interviews, personal rapport and observations were made by the investigator while discussing with the households and community leaders. The school teachers and school children were also contacted in this respect and the necessary information got from them.

FAO: "Dietary Surveys"; Their Technique and Interpretation; FAO Nutritional studies No 4; Washington, U.S.A.; 1949, p.6.
It is to be noted here that the number of male respondents was more than the female. Many times the answers were given by men inspite of women, though the women were present there and were expected to answer.

**TABLE VI-2:**

School-(village)-wise number of families participated during the survey.

<table>
<thead>
<tr>
<th>Name of the school</th>
<th>No. of families</th>
<th>Name of the school</th>
<th>No. of families</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental group</td>
<td></td>
<td>Control group</td>
<td></td>
</tr>
<tr>
<td>Sarvade</td>
<td>28</td>
<td>Rashivade</td>
<td>28</td>
</tr>
<tr>
<td>Martavade</td>
<td>27</td>
<td>Kavalav</td>
<td>23</td>
</tr>
<tr>
<td>Gargoti (JBB)</td>
<td>30</td>
<td>Gargoti (PS)</td>
<td>30</td>
</tr>
<tr>
<td>Khanapur</td>
<td>29</td>
<td>Akurde</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>114</strong></td>
<td><strong>Total</strong></td>
<td><strong>111</strong></td>
</tr>
</tbody>
</table>

V.11. In the nutritional study, the caste plays an important role, specially in food habits and food pattern of the family. The caste-wise distribution of the families included in the survey is given below:

**TABLE VI-3:**

Caste-wise distribution of the families:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of the caste</th>
<th>No. of families</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Maratha</td>
<td>180</td>
<td>80.00</td>
</tr>
<tr>
<td>2</td>
<td>Harijan(Schedule caste)</td>
<td>15</td>
<td>6.67</td>
</tr>
<tr>
<td>3</td>
<td>Brahmin</td>
<td>10</td>
<td>4.44</td>
</tr>
<tr>
<td>4</td>
<td>Jain-Lingayat</td>
<td>8</td>
<td>3.55</td>
</tr>
<tr>
<td>5</td>
<td>Momenden</td>
<td>6</td>
<td>2.67</td>
</tr>
<tr>
<td>6</td>
<td>Others(barber, carpenter, etc.)</td>
<td>6</td>
<td>2.67</td>
</tr>
<tr>
<td><strong>Total</strong>:</td>
<td><strong>225</strong></td>
<td><strong>100.00</strong></td>
<td></td>
</tr>
</tbody>
</table>
The factors like family income, family size, marketing facilities, etc. influence the food habits and food pattern but these factors are not studied during the survey as they are out of present study and the investigator would like to state only the general picture of the food pattern and food habits of the sample area, just to show that the two groups are similar in food pattern and habits, and the school experimental activities were conducted accordingly. The following points are covered during this survey.

(1) **AVAILABILITY OF FOOD** :

V.12. Majority of the families got their main food, produced on their own farm. Those who were in deficit would purchase from their neighbours and from Government fair price rationing shops, and meet their needs. The cereals like Jowar, Rice, Manchan, Maize which contribute about 80 percent of the diet were produced locally. And other food stuffs like oil seeds, fruits, different vegetables, pulses, spices, etc. were produced partly on their farms and partly, purchased from the local market where they were brought from outside the area.

Among the survey families 22 families (9.7 percent) did not have either their own farm or where they had it was too small to get the required farm produces, and therefore, they had to purchase everything from the market.

(2) **STORAGE OF THE FOOD** :

V.13. The methods of storage and the keeping time between harvesting and consuming have got importance as they may affect the
nutritive value of the food, or the wastage that may occur. In all these villages, cereals were stored mainly in drum like big baskets made of bamboo, prepared locally and known as "KONANG". Besides bamboo baskets, Gani-bags and iron drums were also used for storage. The pulses and other commodities were generally stored in tin-pots or earthen pots. It was found that for food storage special precautions were not taken, however, some households told that some times control of rats had to be done on individual basis. Storage period generally did not exceed a year, which would not have any bad effect on any food-stuffs, under present village conditions.

(3) TYPES OF FOOD CONSUMED:

V.14. In this locality, paddy, Jowar, Maize, Nachani are the cereal crops, constituting over 80.00 percent of the diet and sugarcane is the only cash crop. Rice is the main food substance in daily meals and without rice, the meal can not be a meal. The second preference was given to 'Jowar Rotti'. The 70.00 percent people ate Jowar along rice, and 30.00 percent ate Nachani or maize or wheat. Wheat is costly and required oil to prepare the 'Chapati', and hence restricted to the higher group. The 22.00 percent respondents told that they use 'Chapati' and 'Rotti' both at a time. However, Rotti from rice flour was also preferred by the higher income group.

66.00 percent households h-ve got milking animals but only 28.00 percent families found using the milk within their families, and others sold it to Government dairy or privately for money income.
The milking capacity of the animals was so poor that average figure calculated by the investigator from answers given by the respondents was only 1.3 litre per animal per day.

Vegetables like brinjal, tomato, potato, chillies, onion, beans, etc. were consumed by the people in small quantity but green leafy vegetables were rarely used.

Sugar or gur was taken with the tea, about 20 to 22 grams daily. Fruits like mango, banana, shital, jack-fruit, etc. were very rarely consumed. Fruits like Jambal, Umbar, Amala, guava, etc. were cheaply available, during the particular season but nobody was interested to eat them. 90.00 percent households were non-vegetarian, enjoying fish, eggs, meat of goat or sheep but the quantity was so low, that it was not possible to record them for a day. Only 29.00 percent households consumed meat once in a week, about 1 kg. for 5 to 6 members. That means, 20-25 grams per day per person. The remaining large group might have 1 kg. hardly, once in a month. The other foods like oil, pulses, spices, etc. were consumed adequately by the economically better families.

(4) **COOKING FACILITIES AND PREPARATION METHODS OF FOODS:**

Cooking processes influence the diet and its qualities. Generally, all the families cook their food on fire made in either 'Chula' or 'Shagadi'. A few families were using the Kerosin stoves along the 'Chulas'. Only four families out of 225 were found preparing the meals, in a 'Pressure Cooker'. Generally, all of the families got their food cooked in Brass or Aluminium pots and served them in the same kind of dishes.
All types of vegetables were served after boiling. Rice was prepared after boiling the rice grains in sufficient quantity of water. Before boiling, an undesirable process of washing the grains thoroughly, to get maximum whiteness of boiled rice was observed as a tradition. All the families consumed, the milled rice and flour, the process which reduces the nutritional values of foods. The bread or 'Rotti' prepared from flour of Jowar or Ragi baked on iron pans known as 'Tava'.

The process of preparation and cooking depends upon the type of recipes to be prepared. Generally, it was observed that housewives were interested to prepare the food tasty rather than nutritious.

(5) EATING HABITS:

V.16. There was not any seasonal difference in eating habits. Tea was a common beverage seen in every family. In all families tea was taken in the morning at about 7.00 a.m. and in some families secondly in the after-noon. The school children took their meals in the morning at about 10.00 a.m., before going to school and then at 8.00 p.m. before sleep. Besides meals, some children found, eating ground-nut pods, gramdal, sugarcane, etc. in a small quantity. Very few children drank only milk and not tea.

About 54.0 percent students took their meals, again at about 2.00 p.m. and others showed their inability. Elder persons their meals, according to their convenience of the work, generally two times in a day. During the farm work, the
farmers took their breakfast consisting two to three breads of Jawar or Rotti, in the morning and then two meals at noon and at night. Generally, house-wives took their meals last, but not as a rule, some times, they might take the meals simultaneously. But in some families, this tradition was strictly followed.

It was found that for any kind of food, priority was given to children and then the father and last was the mother. Rice and bread or 'Rotti' of Jawar was common food in all the families. Rice eaten with dal-curry and bread of Jawar with a small quantity of vegetables of any kind. Vegetable was not common in a majority (67.0 per cent) of the families. Special food for children and mothers either in pregnant or nurshing stage was not being prepared except on the advice given by a medical doctor.

(6) FACTORS AFFECTING DIETARY PATTERN AND FOOD HABITS:

V.17. During the study two types of families were met in the survey, one was a joint and second was a single. There were 52 joint families out of 225, where the maximum number of family members was 22 and minimum 10. And in the second group the number of family members was as large as 8 and as small as 3. If the size is large, then it is not possible for the housewives to give attention to everybody, and it is difficult to feed satisfactorily everyone.

The composition of the family means the different ages and type of duties, every member has to perform. The family having more school going children differs in food, quantity
and quality, from the family having more elder persons doing farm activities. It is well known that an economically sound family gets the better foods than a poor family. The climate also affects the food pattern and habits. Cold climate requires more food than warm. The diet of the people in winter differs from summer. But in this area the diet of the people has not shown remarkable differences. This might be due to minor differences occurring in climate of this locality. Generally, education is expected to bring about improvement in diet or food habits. In the survey group 42 families were supposed to be educated as most of their elder persons were in service and having education level above S.S.C. They were knowing the difference between good and bad foods. But the investigator did not notice any educational influence on dietary habits of these families. From this survey, it can be said that general education will not be sufficient to change the diet habits of people. Therefore, to change the dietary habits, special nutrition education is needed, along with the general education.

Type of work, age, sex are the factors which can affect food consumption. Heavy work like farm operation, road construction, etc. require more calorie containing foods.

(7) CULTURAL AND RELIGIOUS SIGNIFICANCE OF FOOD:

V.18. Milk is considered primarily an important food for all. Cow's milk is preferred to buffalow's milk, specially for children and sick persons because of low fat content which can help digestion. However, cow's milk was rarely found in this area.
Liquid and fresh milk was believed to be more beneficial than its products. Milk was not taken together with fish, eggs or meat. At the time of a festival or at the arrival of the guests, meat containing meal was preferred first in all the families except in Jain and Brahmian. Priority to the sweet product of milk was given in Jain and Brahmian families at the time of festival. The importance of the foods like milk and vegetables was found in the vegetarian families than non-vegetarian group.

It was told by some community leaders that Jain families were strictly vegetarian, but in some Brahmian families specially the males take non-vegetarian meals, outside their homes, and this tendency of Brahmian people is becoming more day by day.

V.19. It is worth to note that some kind of food acquired a social significance unrelated to nutritional values. The white bread has more prestige than brown because the former is originally more expensive and its consumption is largely restricted to the higher income groups of the society. Likewise, fine, scented rice got high social prestige. The coarser and high-yielding varieties of Paddy as well as hybrid Jowar and Maize were not being consumed by the economically better families, though these foods are equally important, considering the nutritional status of the food.

The meat of female poultry birds is given priority among all the types of meat in this locality; then comes goats and sheep. Among the Mohammadian families, meat only can be eaten when an animal or bird killed according to the, "Halal" method. This involves the cutting the throat of the animal or bird while, holy Verses are read, and allowing the animal to bleed to death.
V.20. All the respondents responded that while purchasing or cooking any type of food, significant attention was not paid towards the nutritional values of foods. The preparation method generally used by tradition, and test of the food was taken into consideration. The 66.0 percent respondents agreed that attention was not given sufficiently towards vegetables, tubors, fruits, locally available, in a particular season, though they are nutritious, and cheap. The wild grown leafy vegetables were available in the rainy season but it was the impression of the people to use them for home consumption was the below the level of social prestige. Some of the respondents (15.50 percent) who were knowing the importance of food in good health showed their inability of getting the balanced diet. Therefore, it is to be mentioned here, that even the educated and better economical group of the sample population were under the wrong impression that it would not be possible for them to get the balanced diet. This shows that the people from this area are ignorant about the balanced diet as they do not know exactly what the balance diet is and how it can be obtained at minimum cost. They were under the impression that balanced diet is something more than a daily diet. So, it requires to teach the people what balanced diet is, and how to obtain it from foods, locally available, or in hands by adopting the principles of food nutrition and food hygiene.
V.21. There are certain schemes, regarding the nutritional programmes, being carried out by different agencies, like the supplementary feeding programme, the Composite feeding programme, the child welfare programme, ANP, etc. People should be aware of such schemes, otherwise it is not possible for them to get the maximum benefit from them. The ANP and the child welfare programmes were conducted in the villages of Radhanagari Block during the study period, but nobody answered correctly regarding the said activities. 40.0 percent respondents told that these are the school programmes conducted by the Government for the welfare of children because the Government is for the welfare of the people. The remaining respondents (60.0 percent) told that they were not knowing anything about these schemes. 15 prominent villagers have complained that the nutritional schemes are never discussed before the villagers and never shown the benefits and responsibilities of the people, before starting them. People should be first convinced of any community welfare programme through proper channel so that a sound bases can be established. This is the key point for the success of any national scheme.

C) STUDY OF GENERAL HEALTH AND SANITATION OF THE VILLAGERS:

V.22. The World Health Organisation has defined Health as, "a complete state of physical, mental and social well-being and not merely the absence of disease or infirmity".

"Health is wealth", is a universal truth and he who has health, has hope and he who has hope has every thing. This shows that health is a quality, which every one should possess to lead a useful life.

The concept of health differs from individual to individual. To a mother health means a happy family. A doctor looks at health as a normal functioning of body organs. A common man understands health in terms of absence of disease.

People in these villages considered a man to be healthy who functions efficiently without any discomfort and has sufficient muscular strength. Generally, they believed that a person who does not require any aid of stimulants like, tea, bidi or cigarettes, tobacco and wine is regarded as a healthy man. They agreed that unless a man has strength in him, it is not possible for him to undertake any work. In short, they felt that for maintaining strength and stamina for hard work, proper and sufficient food is needed.

Besides the food, the man must have good environmental sanitation to maintain the good health. The sanitation around the home and in the home, specially in the kitchen has got an important place in maintaining health. Environmental sanitation includes many things and all of them are essential, however, provision of good drinking water, collection and disposal of animal and human excreta, disposal of waste, refuse and water from the kitchen, need the highest priority and hence an attempt has been made to study them briefly in the following lines:
1) **DRINKING WATER** :

V.24. Drinking water is most essential and it should be sufficient and safe from the public health point of view. All the sample villages were supplied with the drinking water mainly from rivers. The villages - Gargoti, Khanapur and Akurde from Bhudargad block get the water from the river Vedaganga throughout the year. The villages, Rashivade, Kavalav take water partly from the river and partly from wells, whereas Nartavade and Sarvade are provided water mainly from the Doodhganga river. In the rainy season, the people had to undergo many hardships for approaching the river. The water passes through an open area having muddy red colour and people use it without any purification except in a few cases where water is filtered by ordinary clothes and no other precautions are taken thereafter. Dirty water causes many types of troubles including serious diseases such as 'Cholera'.

When people were asked regarding the use of unhygienic water, they replied that they were habituated to this type of water. This shows the traditional ignorance of the people.

2) **USE OF LATTRINES** :

V.25. Next to water supply from the health point of view is the use of latrines. Indian villages lack in latrine provision and the sample villages were not exceptions to this.

It was found that children ease themselves nearby their houses. No family members took care to remove the excreta. Women go for easing at night or early in the morning and wait till evening. Apart from discomfort and agony, it is bad for their health not to give immediate responses to natural calls.
34.0 percent respondents shown their need of latrines from the convenience point of view - specially for women, old and sick persons. Very few - 8.0 percent looked at latrines from the point of privacy and the saving of time. Those who did not feel the need of latrine said that they were accustomed to go out to open area or field. Another reason given by them was scarcity of place and inability to bear the expenditure on latrines. It seems that they were habituated to go out and did not want to discontinue this method. They felt that latrines near a house means bringing insanitary conditions in the home.

This shows that they did not have a clear idea about the expenditure for the construction of latrine and advantages from it which need to be taught.

3) DISPOSAL OF REFUSE AND WASTE WATER:

It was found that collection and disposal of refuse was very much neglected. Large accumulation of refuse is dangerous, as it becomes the breeding place of flies and mosquitoes, which is injurious to public health. It was found that in all the villages refuse and waste from kitchen were laid outside the houses and common places and the same was the case with manure heaps. They were formed near the dwelling. The manure heaps could be removed to the assigned land but many respondents raised the question who could go to that place? It involved additional work for which women had no time, was a common argument. A few, 12.0 percent respondents told that looking after the village sanitation was one of the main duties of the village panchayat. This shows the tendency of avoiding public responsibility.
That means everybody's job is nobody's job, and nobody is interested in such common work in the villages.

Disposal of waste water was far from satisfactory. Properly designed soak pits or good gutters were not seen in any of the sample villages. Washing clothes was usually done outside the houses, generally on river banks. The waste water from the kitchen was thrown in the backyard.

4) HOUSING CONDITIONS:

V.27. Housing arrangement and size have got importance in public sanitation. Ventilation and cleanliness in and around the house is important from the health point of view. Generally, ventilation was seen at the front side in many of the houses but the front room mostly was used for lodging cattle. There was no separate kitchen room or dining room. It was observed that in 22.0 percent houses, the kitchen, dining and even bed room was the same. According to tradition cattle were kept under the same roof or adjoining the main roof of the house. The common argument for this arrangement was that, it would be possible to look after the cattle all the time. This was not possible if the cattle shed is at some distance and the second reason was the scarcity of place. 66.0 percent houses have got such type of unhygienic arrangement.

5) PERSONAL CLEANLINESS OF THE SAMPLE POPULATION:

V.28. Food alone cannot show its good effect on one's health unless he follows the rules of personal hygiene. In teaching the subject like nutrition, rules of personal hygiene have got an importance in the curriculum. Personal hygiene includes, bath,
care of teeth, eyes, nose, skin, hair, etc. It also includes regularity in natural duties and the avoidance of special habits like smoking of bidi or cigarettes, chewing of tobacco, drinking wine, etc. It was observed that 70.0 percent of the population brush their teeth once in the morning with tobacco powder prepared at home. Others use powders like cow dung ash, tooth paste or tooth powder available in the market. Nobody was interested in personal hygiene. Only 20.0 percent population was taking daily bath with toilet soap and 45.0 percent told that they were taking bath on alternate days with or without soap. Others were taking bath once or twice in a week. Generally, ledadies take their hair-bath once in a fort-night or on festival days. About 25.0 percent of the sample population was not taking their meals at regular time. They gave the common argument that, it was not possible for them to keep regularity because of different types of work.

About 80.0 percent male population have got special habits like chewing the tobacco with a small quantity of lime and smoking either cigarettes or bidi. Some of them enjoy betel leaves along with tobacco. Nobody was interested to know the effects of such habits on the general health. These were traditional habits of this locality. Some people drink country liquor but nobody admitted because it was supposed that any kind of alcoholic drink was a very bad habit and decreased the family and social prestige.

It was found that all people went to bed at about 10.00 p.m. and got up at 6.00 a.m. and carried out their natural duties first.
V. 29. Before conducting the new activities the two groups must be homogeneous at the maximum possible then and then only one can say that the differences are due to the new approach. For this purpose the experimenter has shown these groups approximately similar in nature. The points considered for the similarity were age of the pupils, height, weight and general health of the pupils; qualifications, and experiences of the school teachers; administration and physical conditions of the schools, etc.

In case of human beings - the pupils, teachers and parents, it is not possible to make the groups perfectly homogeneous. To get the similar surroundings and physical conditions in schools are also difficult. However, the school time-table, curriculum and the general administration of these schools found same. The similarity of the two groups was taken into consideration and not the school as an individual.

The information, regarding the age, height, weight and the general health of the selected children and the qualifications, experiences of the teachers as well as the surroundings of the schools are given in brief in following tables :-
<table>
<thead>
<tr>
<th>Experimental Schools</th>
<th>Average age of School classes</th>
<th>Control schools</th>
<th>Average age of School classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sarvade</td>
<td>12.3</td>
<td>13.4</td>
<td>14.4</td>
</tr>
<tr>
<td>Nartavade</td>
<td>12.2</td>
<td>13.5</td>
<td>14.6</td>
</tr>
<tr>
<td>Gargoti(JBB)</td>
<td>12.1</td>
<td>13.1</td>
<td>14.0</td>
</tr>
<tr>
<td>Khanapur</td>
<td>12.4</td>
<td>13.3</td>
<td>14.5</td>
</tr>
</tbody>
</table>

Mean of the experimental group: **13.30 Years.**

Mean of the control group: **13.37 Years.**
The average age of the pupils of the three classes from each school was recorded from the school register and then the school mean was calculated. From this school mean, the mean of the group was found out for both the groups i.e. 13.30 for the experimental group and 13.37 for control group. This shows that the average age of these two groups did not differ from each other.

(b) **ANTHROPOMETRIC MEASUREMENTS**

V.30. The heights and weights of the students under study from all the schools were measured as they could be affected mainly by proteins and calories and also influenced by vitamins. The weight can give an all round indication of nutritional state of a child.

The students were asked to stand erect with heels together, legs, back and neck straight and eyes horizontal at the time of recording the heights. The heights were recorded to the nearest 0.5 centimeter and weights to the nearest 0.5 kgs. Weights were taken after removing shoes and shirts.

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**TABLE V.5:**

<table>
<thead>
<tr>
<th>SCHOOLWISE HEIGHTS AND WEIGHTS OF THE SCHOOL CHILDREN:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental schools</td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>1. Sarvade.</td>
</tr>
<tr>
<td>2. Nartavade.</td>
</tr>
<tr>
<td>3. Gargoti (JBB).</td>
</tr>
<tr>
<td>4. Khanapur.</td>
</tr>
</tbody>
</table>

Mean = '134.25 cm' '28.12 kg.  Mean = '134.5 cm' '28.12 kg.
With the help of a qualified medical doctor, the clinical survey was made and respective school children from both the groups were examined in respect of protein, calorie and vitamin deficiencies where the symptoms on hairs, skins, eyes, teeth, and mouths were observed, thus, the nutritional state of these children was recorded and classified into four groups as -

(i) Good - Normal health with no deficiency signs.

(ii) Fair - Normal health with one minor deficiency sign found.

(iii) Poor - With many deficiency signs.

(iv) Very poor - With many deficiencies and undernourished cases.

--- TABLE V.6 ---

THE SCHOOLWISE GENERAL HEALTH OF THE SCHOOL CHILDREN FOUND DURING THE SURVEY:

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Experimental Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sar</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Narta</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Gargeti</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Khana</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Rashi</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>Kavalav</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Gargeti</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Akurde</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>vade</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>vade (JBB)</td>
<td>25</td>
<td>28</td>
</tr>
<tr>
<td>pur.</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>(P5)</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>-4-</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>-3-</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>-2-</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>-1-</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Good</td>
<td>49</td>
<td>48</td>
</tr>
<tr>
<td>Fair</td>
<td>130</td>
<td>114</td>
</tr>
<tr>
<td>Poor</td>
<td>36</td>
<td>58</td>
</tr>
<tr>
<td>Very poor</td>
<td>27</td>
<td>32</td>
</tr>
</tbody>
</table>

The differences in respect of anthropometric measurements and clinical examination, shown in tables above are not to be taken into consideration for groups as such.
QUALIFICATIONS AND EXPERIENCES OF THE TEACHERS UNDER STUDY:

<table>
<thead>
<tr>
<th>School Name</th>
<th>'Average' experience teachers</th>
<th>No.of qualified</th>
<th>School Name</th>
<th>'Average' experience teachers</th>
<th>No.of qualified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sarvade</td>
<td>14</td>
<td>8</td>
<td>Rashivade</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>Nartavade</td>
<td>14</td>
<td>2</td>
<td>Kavalav</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>Gargoti (JBB)</td>
<td>13</td>
<td>7</td>
<td>Gargoti (PS)</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Khanapur</td>
<td>15</td>
<td>7</td>
<td>Akurde</td>
<td>14</td>
<td>6</td>
</tr>
</tbody>
</table>

Total: 5 28 3

Total: 4 31 3

* D.Ed. = Diploma in Education; awarded by Department of Education.

PTC = Primary Teacher Certificate Course.

ANP = Training in A.N.P.
From the above given data the average experience of school teachers in the experimental group is 14 years and that of 14.25 years of Control group. The differences in experience will not affect teaching career of the teachers in the group. The distribution of the numbers of trained teachers need not to be considered, taking into account the group as a whole.

(e) — TABLE V-8 —

PHYSICAL CONDITIONS OF THE SCHOOLS UNDER STUDY:

<table>
<thead>
<tr>
<th>Items</th>
<th>Experimental group</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surrounding Fair</td>
<td>T-1</td>
<td>T-2</td>
</tr>
<tr>
<td>Structure Good</td>
<td>T-3</td>
<td>T-4</td>
</tr>
<tr>
<td>Gardening facilities</td>
<td>T-5</td>
<td>T-6</td>
</tr>
<tr>
<td>Present condition Fair</td>
<td>T-7</td>
<td>T-8</td>
</tr>
<tr>
<td>Cooperation Fair</td>
<td>T-9</td>
<td>T-10</td>
</tr>
</tbody>
</table>

The above given information will give the schoolwise situations that can affect the teaching or the learning processes in the schools. The above five items were considered important and rated into four criteria—Fair, Good, Better and Best. The schoolwise remarks were made during the primary survey as shown in the above table for both the groups to get an idea about the situations of the schools. Taking the group as a unit, the differences between the groups are negligible.