climate, soil, vegetation, population density, growth, literacy, sex ratio, occupational structure and other infrastructural details are elaborated.

In Chapter Three, the work participation of women for three periods, its changing pattern and also the overall work participation of the area is considered. Spatial and temporal variation of the work participation of women in the district is analysed.

Chapter Four deals with the spatial and temporal variation of various sectors of women workers and their shift from one sector to another. In Chapter Five Agricultural scenario of Palakkad is explained briefly. The land utilization and cropping pattern of the area and the changing cropping pattern is also analysed here.

In Chapter Six various aspects of social status of the women workers, their economic condition and working condition, gender disparity, health status, and political participation and the problems facing them is given in detail.

Factor Analysis of the primary data is done with 39 variables and four dimensions were extracted and interpreted in Chapter Seven. Chapter Eight deals with the conclusion and findings. Recommendations for the improvement of the status of women workers is also given in this part.

CHAPTER SEVEN

ANALYSIS OF SOCIO ECONOMIC STATUS

7.1 Introduction

In this chapter, data from the primary survey have been analyzed using factor analysis to extract various dimensions with regard to the socio economic

status of women agricultural workers in Palakkad district, which together bring out the socio-economic statuses, problems, perceptions and gender disparity among women agricultural workers.

A popular multivariate procedure in social science analysis is the Factor Analysis, for which variants are available and are in use in several disciplines as well. It is a particular psychometric model that has been in wide use in social sciences. This helps in the study of the logical implications of systematic inter-correlations within sets of tests. However, the social sciences follow just one of the many approaches to the reduction of dimensionality in correlated systems of measurements and the rotation (varimax, short form for maximizing variance, for example) of a reduced number of axes to more meaningful positions (Kaiser, 1958).

The Factor Analysis (FA) is also a classification procedure in that it may be usefully applied to multivariate situations to classifying the N individuals, on the basis of 'm' variables. One particular feature of the FA is that 'p' underlying factors in the multivariate sample space model is always less than the 'm' variables: $p < m$. The underlying factor dimensions are drawn from the use of inter-correlations system by generating 'p' number of scores each for the 'N' individuals. The scores may however be drawn from the varimax rotation, which stands for maximizing variance. If we can measure 'm' variables with respect to social units such as the workers, then the scores may be assigned to these social units for constructing one or more maps showing real social differences (or social variations) in respect of 'p' reduced dimensions.

The purpose of factor analysis is to interpret the structure within the variance-covariance matrices of the multivariate data collection made on the

different factors related to human resources elements, climate, training and performances, etc.

The technique uses extraction of the Eigen values and eigenvectors from the matrices of correlations or co-variances. The basic mathematical operations in factor analysis are done with many embellishments on the procedures. Factor analysis is a deep and complex methodology. It is one of the most widely used multivariate procedures. The factors extracted, or rather the number of factors, are validated by the variance each of them explain to the total. There is a progressive decline in the value of variances with the increasing number of factor dimensions. The first, or the main factor dimension, has the highest of the total variance explained and the bipolar the next highest and so on, resulting in progressively declining variances.

7.2 Data and Methodology

The data included in the present analysis are demographic variables, social and economic variables and the variables indicating gender disparity and the problems of women agricultural workers. The household income and the share of females' share in household income are also included in the analysis because they provide an idea as to how far woman is significant in the sustenance of the family. The amount spent on food is another variable used, which is important to analyse the economic condition in getting money for other necessities. Life and living conditions of the women are difficult and the problems they are facing in meeting both ends are exposed from the problems they are facing. Irregular and less labour days, insecurity in work and low wages are other problems they are facing. Same way loan availed, labour union membership, health parameters prevailed and

gender disparity are also used to analyse the status of women of the concerned group in the study area.

SPSS 11.5 package is used for factor analysis in the present investigation. The steps involved in the analysis is as follows:

- Thirty-nine numeric variables have been entered for the factor analysis.
- Correlation coefficient and inter correlation matrix has been prepared.
- Principal components are extracted which discern all the underlying dimensions existent with the data matrix that gives the coefficient of components.
- Eigen values are extracted, which explains the percentage variance between variables.
- Factor loadings are derived for each variables and component matrix are prepared
- Simplification of factor matrix by rotation of factors and generation of Rotated Component Matrix (Varimax rotation) and
- Factor scores are extracted for identified set of factors to explain spatial variance. The factor scores are presented in map form for each factors.

7.3 Principal Components

As a first step, the Eigen values are considered since they represent the total variance explained by each factor (Table 7.1). In the present analysis, 11 components account for almost 97.6 % of the total variance. Table 7.2 exhibits

the factor loadings on each of the 39 variables with regard to these eleven factors. The factor concentrations are calculated simply by determining the proportion of the Eigen value for each factor that is derived from the variables with loadings greater than 0.5. Factor scores for the 13 blocks are collected from the output which are saved as variables and are given in Table 7.3. For easy comparison and interpretation, the factor scores are then rearranged hierarchically from high positive to high negative values for each factor. Maps are prepared based on these factor scores.

Table 7.1
The Eigen Values and Cumulative Percentage of Variance

Component	Eigen values	% of Variance	Cumulative %
I	7.890	20.230	20.230
II	7.285	18.679	38.909
III	4.616	11.836	50.745
IV	4.128	10.584	61.329
V	3.453	8.854	70.184
VI	2.661	6.822	77.006
VII	2.241	5.746	82.752
VIII	1.866	4.784	87.537
IX	1.611	4.131	91.668
X	1.235	3.167	94.835
XI	1.076	2.758	97.593

Source: Field Survey 2010,

Table 7.2
Factor Loadings of Eleven Factors (Keiser Varimax Method

	Component										
	1	2	3	4	5	6	7	8	9	10	11
1. Female headed family	**.928**	.045	.213	.055	.102	.213	.053	-.073	-.050	-.023	.141
2. Widows	**.920**	.012	.201	.075	.141	.225	-.107	-.088	-.001	-.031	.127
3. Married	**-.910**	-.072	-.247	-.132	-.147	-.120	.005	-.136	.115	-.030	.065

4. Nuclear family	**-.853**	.059	.295	.055	.107	.036	-.027	.270	.121	-.150	-.048
5. Gender disparity in decision making	**.750**	.012	-.285	.182	-.103	-.233	.295	.280	.105	.233	-.084
6. Agricultural workers with age above 50	**.703**	-.009	.274	-.370	-.128	-.416	-.017	.042	.034	.313	-.029
7. Labour union membership	**.504**	.065	.347	-.026	-.256	**.498**	-.108	.106	-.028	.255	-.139
8. Small Family	.031	**.937**	-.280	.002	.008	.058	-.034	.036	-.097	-.016	.145
9. Illiterates	.264	**.898**	.100	-.064	.202	-.090	-.180	.080	-.031	.059	.082
10. Very high expenditure on food	-.068	**.868**	.174	.178	-.073	-.212	-.119	-.085	-.226	.118	-.005
11. SC/ST	-.328	**.703**	.004	.031	-.421	-.323	-.204	-.220	.041	-.117	-.025
12. More years in agriculture as labourers	-.113	**.637**	.179	-.485	-.003	.012	-.364	.348	-.038	-.120	-.146
13. Other Backward community	.467	**-.621**	-.059	.058	.503	-.089	.321	.019	-.075	.135	.039
14. Availability of Newspaper	-.372	**-.605**	.079	**.505**	.048	.081	.043	.194	.006	.391	.084
15. Upper Primary level of Education	-.115	.026	**-.946**	.225	.148	.062	-.050	-.094	.048	-.034	-.018
16. Poor working condition	.220	-.011	**.771**	.066	-.008	.312	-.400	-.016	-.259	.129	-.078
17. Lower Primary level of Education	.313	-.102	**.702**	-.223	.484	-.041	.202	.054	-.119	.001	.236
18. Higher share of women in family expenditure	-.162	.130	-.211	**.865**	.017	.125	-.217	-.076	-.211	-.143	.160
19. Low wages	.440	-.047	.090	**.790**	.257	-.022	-.027	.215	.201	.002	.044
20. Gender disparity in wages	.055	-.098	**-.568**	**.679**	.196	-.097	.174	.154	.102	.023	-.069
21. Loan availed	.304	-.147	-.249	**.560**	-.046	**.549**	.078	-.122	-.052	-.298	.239
22. Availability of Radio	-.186	-.046	.064	.183	**.907**	-.078	.148	.123	.163	.091	-.116
23. Above high school level of education	-.272	-.439	.127	-.256	**-.759**	.152	.145	.075	.043	-.082	-.122
24. High school level of education	-.147	.346	**.502**	.090	**-.626**	-.126	-.307	.041	.081	.103	-.277
25. Birth control measures adopted	.145	.027	.119	.212	-.137	**.851**	.089	-.015	-.030	.001	.233
26. Other Communities	-.186	-.273	.098	-.164	-.070	**.791**	-.169	.398	.052	-.011	-.021
27. Availability of Television	.282	-.333	-.197	-.076	.170	**.720**	.220	-.158	.354	.052	-.063
28. Availability of Mobile phone	-.090	-.449	-.064	.035	-.048	.277	**.830**	.000	.047	.106	-.040
29. Institutional delivery	.009	-.309	-.011	.006	.381	-.094	**.718**	.104	-.066	-.332	-.327
30. Govt. support for house construction	-.282	.245	.075	.235	-.389	.196	**-.638**	-.334	-.210	.086	.136
31. Gender disparity in property ownership	.060	-.013	.009	.084	.054	.121	.097	**.960**	-.024	-.073	-.175
32. Availability of Bicycle	**.516**	-.141	-.369	-.078	-.067	.054	-.126	**-.590**	-.141	.326	.094
33. Availability of Pressure cooker	.032	-.178	-.358	-.270	-.043	.019	.412	-.008	**.762**	.034	-.024
34. Availability of Bike	-.050	-.262	-.050	.113	.418	.385	-.163	-.172	**.699**	.067	-.129
35. Child Immunisation	.376	.153	.147	-.116	.116	.150	.252	-.356	**-.662**	.359	-.058
36. Income below 1000	.212	.012	.129	-.042	.133	.023	-.006	-.133	-.021	**.932**	.174
37. Health problems	-.310	.198	.200	.265	.037	.097	.279	.117	.530	**-.577**	.067
38. Other problems	.010	.063	-.015	.097	.109	.118	-.161	-.130	.025	.201	**.928**
39. Less Labour days – a problems	-.316	-.158	-.170	-.354	.321	-.077	.037	.371	.213	.153	**-.622**

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 24 iterations.

Table 7.3
Palakkad District – Women Agricultural Workers - Eleven Factor Scores

Blocks	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
Alathur	-0.42	-0.34	1.43	1.31	1.32	1.56	0.75	-0.04	-1.19	-0.48	0.68
Attappady	-1.36	2.58	-0.47	0.14	-0.49	-0.37	-0.69	0.06	-1.10	-0.45	-0.04
Chittur	1.07	0.45	-0.39	1.71	0.10	-0.36	0.92	0.56	0.58	-0.14	-2.22
Kollengode	2.07	0.42	-1.54	-0.15	-0.40	0.44	0.66	-0.42	-0.31	-0.13	1.55
Kuzhalmannam	-1.05	-1.07	-1.43	0.62	0.94	-0.51	-0.61	-1.12	-0.11	1.71	-0.23
Malampuzha	0.65	0.19	1.29	-0.87	0.69	-1.58	0.10	1.65	-0.30	1.32	0.35
Mannarkkad	0.53	0.01	1.07	-0.71	-1.60	1.09	-0.19	-1.10	-0.71	1.54	-0.86
Nenmara	-0.60	1.06	0.26	-0.91	1.00	0.51	0.94	-0.72	2.32	0.28	0.43
Ottappalam	0.25	-0.59	-0.17	0.01	0.49	-1.34	-0.13	-0.49	-0.81	-0.70	0.68
Palakkad	0.87	-0.17	0.44	0.14	0.41	0.55	-2.80	0.12	0.98	-0.85	-0.09
Pattambi	-0.76	-0.82	0.85	0.98	-1.98	-1.09	0.40	-0.36	1.01	-0.66	0.87
Srikrishnapuram	-0.93	-0.84	-1.15	-0.34	-0.73	1.26	0.06	2.29	0.20	0.22	0.22
Thrithala	-0.31	-0.89	-0.19	-1.93	0.25	-0.16	0.60	-0.43	-0.54	-1.66	-1.35

Source: Field Survey 2010

By the principles of interpretation of Eigen values, we could have retained as many as 11 factor dimensions, for Eigen values exceed 1.0 in these cases (Table7.1). However, the first four dimensions account for nearly 61 percent of total variance. Since the contribution of other dimensions to the total variance is comparatively less, they are not considered for detailed analysis.

7.3.1 Factor I- Social Status of the Family

The first dimension has eight variables which are statistically significant. This dimension has an Eigen value of 7.89 and a total variance of 20.23 percent (Table7.1). The variables are loaded both ways (Table 7.4). Positively loaded variables are Female head of the family (.928), Widows (.920), Gender disparity in decision making (.750), Agricultural workers with age above 50 (.703), Labour union membership (.504), Other backward community (.467) and Availability of

bicycle (.516). The variables loaded in the negative direction are Married (-.910) and Nuclear family (-.853).

Table 7.4
Factor I -Social Status of the Family

Variable Code	Variables	Positive Factor Loadings	Negative Factor Loadings
1	Married		**-.910**
2	Female headed family	**.928**	
3	Widows	**.920**	
4	Nuclear family		**-.853**
5	Gender disparity in decision making	**.750**	
6	Agricultural workers with age above 50	**.703**	
7	Labour Union membership	**.504**	
32	Availability of Bicycle	**.516**	
Eigen Value		**7.890**	
Total Variance explained		**20.230**	
Cumulative Variance explained		**20.230**	

Source: Field Survey 2010

The variables indicate the social status of the women agricultural workers of the area of investigation. Widows participating agricultural labour is a common phenomenon in this region. This is because due to the absence of male income females are compelled to earn a living. In this social dimension factor, another variable loaded moderately heavily is female head of family. These two variables are complimentary to each other, since after the death of the husband, females are forced to become the head of the family. Age above 50 or the older age group among the respondents was widows and is the head of the family. Labour union membership is another variable, which is loaded positively in this dimension. Senior workers are normally the members of labour unions, they are aware of the benefits of labour unions. Two negatively loaded variables married and nuclear family is lacking in certain parts of the study area, and they are related to each other. It may be noted that the only odd variable in this group is the availability of

bicycle and no specific explanation can be given in this regard. This Dimension may be named as the **Social Status of the Family**.

Fig. 7.1 illustrates the spatial pattern of this first dimension. Chittur and Kollengode exhibit a very high score in this regard. This indicates that the Social Status of the family considering the above mentioned variables are very high in these two blocks. At the other extreme lie the Attappady and Kuzhalmannam blocks. Remaining blocks are in a moderate level.

7.3.2 Factor II- Community, Illiteracy and Poverty

The second factor is loaded with seven variables loaded from .605 to .937 in both directions. This has an Eigen value of 7.3 and a total variance of 18.7 percent (Table7.5). The positively loaded variables are Small Family (.937), Illiterates (.898), Very high expenditure on food (.868) SC/ST community (.703) and More years in agriculture (.637). The variables, which are loaded negatively in this component are Other backward community (-.627) and Availability of Newspaper (-.605). Literacy is generally low in the case of SC/ST category. This is true in the case of women agricultural workers also. Poverty as an aspect determines the food habits and hence the expenditure on food. Further poverty also makes it necessary for women workers to be in the job for more years. Illiteracy is high among the SC/ST agricultural workers hence the negative relationship with the newspaper.

Table 7.5
Factor II – Community, Illiteracy and Poverty

Variable Code	Variables	Positive Factor Loadings	Negative Factor Loadings
8	Small Family	**.937**	
9	Illiterates	**.898**	
10	Very high expenditure on food	**.868**	

11	SC/ST	**.703**	
12	Other Backward community		**-.621**
13	More years in agriculture	**.637**	
14	Availability of Newspaper		**-.605**
Eigen Value		**7.285**	
Total Variance explained		**18.679**	
Cumulative Variance explained		**38.909**	

Source: Field Survey 2010

The high positive score is seen in Attappady and Nenmara (Fig 7.2) which indicates a comparatively low development. Kuzhalmannam represents high negative value while Thrithala, Srikrishnapuram and Pattambi exhibit low negative status in this dimension.

7.3.3 Factor III- Level of Education and Working Condition

This component has an Eigen value of 4.6 and a total variance of 11.8 percent. Five variables are loaded in this factor, three of them positively and two variables negatively (Table 7.6). Positively loaded variables are Poor working condition of work (.771), Lower primary level of education (.702) and High school level of education (.502). The negatively loaded variables are upper primary level of education (-.946) and Gender disparity in wages.

Table 7.6
Factor III - Level of Education and Working Condition

Variable Code	Variables	Positive Factor Loadings	Negative Factor Loadings
15	Upper Primary level of Education		**-.946**
16	Poor working condition	**.771**	
17	Lower Primary level of Education	**.702**	
20	Gender disparity in wages		**-.568**
24	High school level of education	**.502**	
Eigen Value		**4.616**	

Total Variance explained	**11.836**
Cumulative Variance explained	**50.745**

Source: Field Survey 2010

This dimension has brought out the fact that irrespective of Level of education, working condition is poor for women agricultural workers. Even where there is a concentration of workers with high school level education, the condition remains the same. The lack of interest for the educated women for agricultural work may be the reason for the same.

Spatial pattern of this factor dimension is given in Fig. 7.3, in which it is noticed that very high value occurs in Alathur, Malampuzha and Mannarkkad Factor scores of this dimension are very low in Kollengode, Kuzhalmannam and Srikrishnapuram.

7.3.4 Factor IV – Problem of Low Wages

The Fourth dimension indicates the problem of Low wages. The Eigen value is 4.1 and the total variance explained is 10.6 %. All the variables in this dimension are positively loaded (Table 7.7). The major variables are Higher share of women in family expenditure (.865), Low wages (.790), Gender disparity in wages (.679), Loan availed (.560) and Availability of newspaper (.505). From the positive loaded variables it is observed that the existence of

Table 7.7
Factor IV – Problem of Low Wages

Variable Code	Variables	Positive Factor Loadings	Negative Factor Loadings
18	Higher share of women in family expenditure	**.865**	
19	Low wages – a problem	**.790**	
20	Gender disparity in wages	**.679**	
21	Loan availed	**.560**	

14	Availability of Newspaper	**.505**	
Eigen Value		4.128	
Total Variance explained		10.584	
Cumulative Variance explained		61.329	

Source: Field Survey 2010,

the family depends on females, even though they are getting lower wage than their male counterpart. Because of the gender disparity in wages they found difficulty in managing the domestic matters smoothly and they are forced to avail loans. Fig. 7.4 provides the spatial pattern of this dimension. It may be noted that the problem of low wages is very high in Alathur and Chittur which are the important rice growing regions and Thrithala scores very low in this dimension.

7.3.5 Overall Assessment of Women Agricultural Workers in Palakkad District

Having discussed the four major dimensions that explain the variance of characteristics of Women agricultural labour in the study area, it is apt to group the Blocks in the District into different categories for effective planning strategy.

Table 7.8 describes the position of each Block with regard to the four dimensions explained earlier. It may be noted that the 13 blocks in Palakkad District may be grouped into three categories.

Table 7.8

Palakkad District - Identification of Problem Areas

Blocks	Factor I	Factor II	Factor III	Factor IV
Alathur	Low negative	Low negative	High positive	High positive
Attappady	High negative	High positive	Low negative	Low positive
Chittur	High positive	Low positive	Low negative	High positive
Kollengode	High positive	Low positive	High negative	Low negative
Kuzhalmannam	High negative	High negative	High negative	Low positive
Malampuzha	Low positive	Low positive	High positive	Low negative
Mannarkkad	Low positive	Low positive	High positive	Low negative
Nenmara	Low negative	High positive	Low positive	Low negative
Ottappalam	Low positive	Low negative	Low negative	Low positive
Palakkad	Low positive	Low negative	Low positive	Low positive

Pattambi	Low negative	Low negative	Low positive	Low positive
Srikrishnapuram	Low negative	Low negative	High negative	Low negative
Thrithala	Low negative	Low negative	Low negative	High negative

Source: Derived from factor scores

Malampuzha, Chittur, Mannarkkad and Alathur belong to the first group. These blocks register positive factor loadings for all the four factors. This indicates that these are the areas where the problem of women agricultural workers is more acute and planning strategy for these areas should be different from that for the other blocks. It may be seen that in all these blocks except Mannarkkad rice cultivation is dominant (Fig. 7.5).Kollengode, Attappady, Nenmara and Palakkad belong to the moderate problem area category. These blocks have both positive and negative factor loadings. Pattambi, Ottappalam, Srikrishnapuram, Thrithala and Kuzhalmannam blocks have comparatively lesser problems with regard to women agricultural workers. It may be noted that almost all these blocks lie in the western part of the District. Suitable planning strategies have to be devised separately for these groups of blocks with regard to the condition of women agricultural labourers so that the overall development of the region can be achieved.

CHAPTER SIX

SOCIO-ECONOMIC STATUS OF WOMEN AGRICULTURAL WORKERS

6.1 Introduction

"There is no chance for welfare of the world unless the condition of women is improved."
- Swami Vivekananda

Although, 'GREEN REVOLUTION' has given our country self-sufficiency in agricultural sector, its benefits have not reached the agricultural labourers especially the women agricultural labourers. They get less and irregular wages and maintain a low standard of life and live below poverty line. Agricultural labourers form an integral part of total Indian labour force. The exploitation of women