SOCIAL COST BENEFIT ANALYSIS IN VEGETABLE PRODUCTION PROGRAMMES IN KERALA THROUGH PARTICIPATORY APPROACH

BY

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THESIS
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2002

Dedicated

to

My Dearest

Daddy and Mummy

DECLARATION

I hereby declare that this thesis entitled "Social Cost Benefit Analysis in Vegetable Production Programmes in Kerala through Participatory Approach" is a bonafide record of research work done by me during the course of research and that the thesis has not previously formed the basis for the award of any degree, diploma, associateship, fellowship or other similar title, of any other university or society.

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CERTIFICATE

Certified that this thesis entitled "Social Cost Benefit Analysis in Vegetable Production Programmes in Kerala through Participatory Approach" is a record of research work done independently by Ms. Sindhu Sadanandan (98-21-01) under my guidance and supervision and that it has not previously formed the basis for the award of any degree, fellowship or associateship to her.

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CHAPTER I

INTRODUCTION

India has made long strides in agricultural development, growing from the position of importer to that of a net surplus country in just four decades, but on few selected crops only. India, which stands in the second position immediately after China in population, required 120 million tonnes of vegetables by 2000 AD for local consumption alone. In addition surplus amount will be required for export and post harvest. The growth rate of area under vegetables in hectares and production in million tonnes are 0.74 and 1.57 respectively (FAO, 1999). We could understand this pitiable condition when we compare it with our neighbouring nation Pakistan. We have realized the need for its better and quicker returns and nutritional richness.

Kerala, which is blessed with fertile land, suitable climate and skilled people for producing most of the vegetables it requires, produces only 6 lakh tonnes of vegetables whereas the requirement is 17 lakh tonnes. This paradox of insufficient production may be due to the improper utilization of natural as well as human resources. In order to overcome this paradox, vegetable production programmes were started in Kerala. Kerala state, known for its pioneering attempts aimed at comprehensive agro-social development initiatives in the past, has not lagged behind in the formation participatory groups to bring agricultural development. In order to improve the conditions of small resource poor farmers and to sustain the development in the farming sector, the best development strategy now available is participatory approach.

Participatory approach can be promoted through the formation of farmer's groups, farmer's interest groups, farmer's organisations, Self Help Groups, community organisations, farmer's samithies etc.

For any sustainable development of agricultural sector, farmer has to be the focus and the system should be build around them. Here comes the relevance of SHGs. SHGs have been working in the field of micro credit, health, rural and community development etc. But SHGs for commercial production of vegetables is an innovative approach, which was initiated by quasi-governmental and governmental agencies in Kerala a few years back. They are Kerala Horticultural Development Programme (KHDP) and Intensive Vegetable Development Programme (IVDP), which were initiated in the year 1993 and 1997 respectively.

KHDP

Kerala Horticultural Development Programme (KHDP) is a quasi-governmental organisation, which started its activities in the year 1993 with the financial support of European Economic Union and Government of Kerala.

The programme aims at enhancing and sustaining the income of participatory farmers through hi-tech cultivation practices and appropriate marketing of horticultural crops. The entire programme activities are converged into neighbourhood SHGs of about 15-20 participating farmers.

IVDP

The Government of Kerala have launched Intensive Vegetable Development Programme (IVDP) in November 1997 and declared Haritha Year from 1997 November to 1998 November. The care unit of the programme in Self Help Groups called 'Haritha Sanghams' which have been registered under Charitable Societies Act (1975). The member farmers of each group are entrusted with an area of five hectares for vegetable cultivation and a subsidy at a rate of 50 per cent of total expenditure was sanctioned to each SHG. The main objective of IVDP is to ensure production and supply of vegetables throughout the year as well as to prevent glut during any one season.

To find out the feasibility and profitability of any programme or project, cost-benefit analysis is done. It is observed that both KHDP and IVDP have succeeded in increasing the production level of vegetables in Kerala. Most of the cost-benefit analysis done in agricultural development programmes is over simplification of the whole scenario where social costs and social benefits are not taken into consideration. So these analyses become limited and intended results are not achieved. Social costs and social benefits are the costs/benefits incurred by a society. In financial analysis, social costs such as air pollution, noise, wear and tear of road etc., would not enter as costs in the calculation as these are not costs to the individual project. Similarly, social benefits such as longevity of life is a part of the Social Cost Benefit Analysis (SCBA) but not so of the financial analysis.

Therefore, the research study entitled "Social cost-benefit analysis in vegetable production programmes in Kerala through participatory approach" was formulated with the following specific objectives.

1) To delineate the dimensions of social cost and social benefit accruing out of Agricultural Development Programme with special reference to Vegetable Production Programmes implemented through KHDP and IVDP.

2) To quantify the dimensions of social cost and social benefit.

3) To study the personal, socio-psychological, economic and situational characteristics affecting dependent variables.

4) To suggest a framework for SCBA of agricultural development projects to be implemented under People's Plan.

Scope of the study

Scientific studies in the SCBA of Agricultural Development Programme are a must to reorient the ADP. This is a pioneering study which aims at identifying the likely social costs and likely social benefits of the ADP with special reference to vegetable production under KHDP and IVDP and also aims to develop a framework for SCBA of ADP which will help in the SCBA of the ADP to be implemented under People's Plan.

Limitations of the study.

No human effort is free from limitations. This study is no exception to this general thinking. As this study was a single researcher investigation

undertaken as a part of the requirement for a Doctoral degree programme it has all the limitations of time and other resources. Only few dimensions of social cost and benefit are included in this study because of time constraint and this study is confined to only three districts and conducted within a short period of time, the conclusions were restricted to conditions prevailing there and any attempt at generalisation must be done with care.

Presentation of the study

The report of the study has been presented under five chapters. The first chapter deals with introduction, where in the statement of the problem, objectives, scope and limitations of the study are discussed. The second chapter covers the review of theories and related studies in the light of the present investigation. The third chapter deals with the methodology used in the study followed by presentation of results and its discussion in the fourth chapter. Chapter five gives a summary of the study followed by references and appendices.

Theoretical orientation

CHAPTER II

THEORETICAL ORIENTATION

Review of literature is necessary for any research endeavour. In this chapter an attempt is made to present the most important concepts coming under the purview of the present study and the relevant findings of the past studies. Since this study is a pioneer work in the specific area, review could be done only from related areas of study and these are presented under the following sections.

2.1 Participatory Group Approaches in agricultural development

2.2 Definition and concept of groups and Self Help Groups

2.3 Self Help Groups in agriculture

2.4 Concept of Social cost, Social benefit and Social Cost Benefit Analysis (SCBA)

2.5 Dimensions of Social cost and Social benefit

2.6 Personal, socio-psychological, economic and situational characteristics of SHG members

2.7 Conceptual framework of the study

2.1 Participatory Group Approaches in agricultural development

Mathur (1983) stated that the individual farmers could be reached more easily through their participatory organisations. Participatory organisations will also create external pressures on governmental agencies to be more responsive to the needs of their clients.

According to Mishra (1984) the involvement of people in participatory approach are in the scenes such as: (1) participation in decision making; (2) participation in implementation of programmes and projects; (3) participation in monitoring and evaluation; and (4) participation in sharing the benefits of development.

According to Oakley (1991) organisations are the fundamental instruments of participation.

UNDP (1993) defined participation as the close involvement of people in the economic, social, cultural and political process that affect their lives.

According to Ashby *et al.* (1995) in participatory methodologies, instead of being taught blanket recommendations, the farmers take part in selecting promising items from the menu and are involved in experimenting with them. Farmer participation improves rate of adoption and help to raise small farmer's income.

Shah and Shah (1995) reported that participatory approaches in development programmes increased the participation of local communities in development process and supported the formation of accountable institutions.

Chowdhry and Gilbert (1996) defined participation as a generic term covering a broad range of activities ranging from one-shot problem identification exercise to continuing association in which rural communities and individual farm families play more active role.

According to Parker (1997) participation ranges from local people being involved in implementing development or conservation of programmes to be actively involved in all stages of the development process including decision making process.

According to Abraham (1998) the Haritha scheme for vegetable production organised through Self Help Groups by the State Department of Agriculture, Kerala has generated mass participation through individual and group initiative. Large number of educated young farmers has taken vegetable cultivation through this scheme.

According to Kareem and Jayaramaiah (1998) participation is the degree to which the members of the beneficiary families involve themselves in different stages of the programme, starting from the selection of beneficiaries to deriving benefits from assistance, provided under the programme.

According to Turton and Reddy (1998) participatory approach helped in improving productivity and sustainability.

Surendran (2000) suggested that for efficient functioning of groups for sustainable development of agriculture in Kerala, the groups should promote participatory approach.

2.2 Definitions and concept of group and Self Help Group

According to Bales (1950) a small group is defined as any number of persons engaged in interaction with one another in a single face-to-face meeting or series of such meetings in which each member receives some impression or perception of each other member distinct enough so that he can, either at that time or in later questioning, give some reaction to each others as an individual, even though it is only to recall that the other was present.

Sherif and Sherif (1956) defined group as a social unit which consists of a number of individuals who stand in (more or less) definite status and role relationships to one another and which possess a set of values or norms of its own, regulating the behaviour of individual, members, atleast in manner of consequence to the group.

Hare (1962) gives an analytical definition of group maintaining that there are five characteristics, which separate a group from a collection of people. According to him the members of the group are in interaction with one another. They share a common goal and set of norms, which give direction and limit their activity. They also develop a set of roles and a network of interpersonal attraction, which serve to differentiate them from other groups.

Cartwright and Zander (1968) defined group as a collection of individuals who have relations to one another that make them interdependent to some significant degree i.e., a group refers to a class or social entities

having in common the property of interdependence among their constituent members.

Mc David and Harari (1968) defined that a socio-psychological group is an organized system of two or more individuals who are interrelated so that the system performs some function, has a standard set of role relationships among its members and has a set of norms that regulate the function of the group and each of its members.

Chitambar (1973) defined group as a unit of two or more people in reciprocal interaction or communication with each other.

Bhatnagar and Dahama (1985) defined group, as an aggregation of two or more persons among whom there is an established pattern of interaction.

Rao (1993) opined that in DWCRA programme besides offering the benefits of economics of scale, the group approach, by tapping the strength members brings about a sense of common awareness and oneness of purpose, thereby minimising the opportunity for exploitation.

Sen and Rani (1990) suggested that in order to bring the rural women into the national mainstream more effectively, a strategy may be evolved by which they can be organised into groups with economic objectives and provide with greater access to institutions controlling credit, market and processing etc. and provide with technological and extension support towards improving their techniques of production.

Hussain (1992) in his study on group management in rice production defined group as two or more farmers having close interaction with collective behaviour, common interest and advocation in terms of paddy cultivation.

Rajakutty and Sarkar (1994) opined that DWCRA is a movement to awaken the rural women to realize their potential, to be aware of their rights, to rise upto meet the challenges of like through self-help and collective action, to enable them to become socially and economically independent so that they get their rightful place in the society and feel empowered.

Rao (1994) defined SHGs as a means of raising the claim making capacity of the rural poor for reaching out to such agencies as they are willing to work with and which can provide them with additional production resources.

Sood (1994) stated that income-generating activities suited to their skills, aptitudes and local conditions undertaken by women's group will make them economically sound.

According to Ghosh (1995) rural women will gain a feeling of self-confidence by being a member of women's group. Women themselves change fundamentally when they are members of a strong functional women's group. This results as, difference between weakness and strength lies in well built cohesive organisation.

According to KHDP (1995) SHG means a group of about 20 farmers who are cultivating fruits and vegetables and whose farms are in the neighbourhood. They come together and join as a group on voluntary basis

with purpose of improving their income level by carrying out the cultivation of fruits and vegetables as their major occupation.

NABARD (1995) defined SHG as a homogeneous group of rural poor voluntarily formed to save whatever amount they can conveniently save out of their earnings and mutually agree to contribute to a common fund from which to lend to members for productive and emergent credit needs.

According to Singh (1995) Self Help Group is defined as a set of persons with common interest and having interpersonal relations who agree to share risks and benefits through self designed rules and reciprocity in behaviour.

According to Krishnamurthy (1996) SHG is an organisation formed by people for pooling their resources to help each other.

Roul (1996) defined SHG as an institutional framework for individuals or households who have agreed to co-operate on a continuing basis to pursue one or more objective.

According to Karmakar (1998) SHG is an informal group of people where members pool their savings and re-lend within the group on rotational basis.

SHG is a homogeneous group of rural people voluntarily formed to save small amounts out of their earnings which is convenient to all the members and agreed upon by all to form a common fund corpus for the group

to lend its members for their production and emergent credit needs (Thomas, 1988).

According to Gupta (1999) the concept of SHGs in India comes from Grameen bank of Bangladesh, which was founded by the noted economists, Mohamed Yunus in the year 1975. It provides large scale micro lending; provide more credit to the rural section that is aggregate of all the other banks.

Gurumoorthy (2000) reported that SHGs generally has members not exceeding twenty and each group select a leader among its members called animator. He also reported that repayment from SHGs to banks is more than 90 per cent where as it was less than 35 per cent under IRDP, which might be the reason for failure of the scheme.

2.3 Self Help Groups in Agriculture

According to Geetha (1998) in Vallisseri Haritha Sanghams, the cultivation from planting up to harvesting was done collectively by the members of the SHGs and they had decided to share their profits equally.

Hussain (1998) reported that under the guidance of officials, the unemployed youth of the Haritha groups 'leased in' the fallow lands and started cultivating vegetables.

Natarajan (1998) reported that Government of Kerala has targeted to produce atleast five lakh tonnes vegetables and extended the vegetable

cultivation to an area of 10,000 hectares additionally through SHGs called Haritha Sanghams.

According to Basil (1999) one of the many group efforts initiated by SHGs is participatory marketing. Farmers establish and manage their own markets with active participation in trade. Such farmers markets do not function parallel to the public markets but serve to make them more competitive and such markets are called field center (FC).

Jayalekshmi and Hussain (1999) reported that in horticulture, crop production and processing could be taken up with the help of SHGs. Because of the perishable nature of horticultural crops, processing units can be opened by rural men and women, so that during peak season or production, these fruits and vegetables can be processed and with the help of extension workers they can market their produces. This helps the rural poor to become economically independent.

Market information centers (MIC) set up by KHDP has enabled farmer's groups to improve their bargaining power (Raghunath, 1999).

Kuniyam Parambil (2000) reported that in the second phase of IVDP during the year 1998-1999, 3.65 lakh tonnes of vegetables were produced in an area of 11,674 hectares through 1102 Haritha sanghams.

Sreedaya (2000) reported that the major constraints felt by the KHDP SHGs were associated with the field centres and marketing whereas in IVDP SHGs faces constraints in the field of planning, production and marketing and organisational constraints.

2.4 Concept of Social Cost, Social benefit and Social Cost Benefit Analysis (SCBA)

Social Cost Benefit Analysis is concerned with the theory and application of criteria for investment decision making in the public sector (Irvin, 1978).

Aruna (1980) defined SCBA as a technique of identifying, investigating and quantifying in a single summary measure the total impact of the cost as well as the benefits of a project as a whole of society so that the economists or its decision makers are enabled to select only the socially most remunerative projects for implementation.

Pitale (1982) opined that investment decisions considered from society's angle go beyond the ordinary dimensions of costs and benefits in monitory terms. Example: Transporting a few inputs from one place to another is a transport cost to an individual but the wear and tear of road is of no cost to him. It is a cost to society. According to him tangible benefits are those, which are easily measurable in monetary units. Intangible benefits are those, which cannot be evaluated easily and precisely. In Social Cost Benefit Analysis (SCBA) an attempt is made to quantify the intangibles and social costs and benefits are the costs and benefits incurred by society and in his study on SCBA of lift irrigation project in Sangli district, Maharashtra concluded that the scheme is found to be technically feasible, economically sound and bankable as the Benefit Cost ratio worked out to be 2.24.

Puttaswamaiah (1989) in his study concluded that benefits derived from irrigation project includes, diversification in the cropping pattern, increased employment due to irrigation, increased income and increased consumption and asset formulation as a result of increased income. According to him social benefit of the project is the incremental value of output. The value of output is a gross concept. SCBA aims at assessing the utility of a project to society as a whole.

According to Little and Mirrlees (1968) the three aspects of SCBA are:

1) To determine the contribution of the project different policy objectives of development, such as increase in aggregate consumption, income redistribution, a substraction rate of economic growth with social objectives, increase in employment, achievement of self reliance etc.

2) Use of modified prices for inputs and outputs to account for distortions and constraints in the economy and to get the true resource value of the inputs and outputs.

3) Identification and quantification of not only the direct effects of a project but effects external to it, falling on the society but not reflected in the resource flows statements of the project.

Dean *et al.* (1995) in their study on the costs and benefits of Agro forestry to farmers found out various social benefits from establishing trees on farms, they are: tree can provide protection form soil erosion, tree provides wood products for the farm and trees provide raw materials for rural industries

that generate employment for rural communities and other social benefits like wild life habitats, water retention capacity, or shade and dwelling.

Dependent variables

2.5 Social cost and social benefit

In this study the main objective was to delineate the dimensions of Social cost and Social benefit. By using Nominal Group Technique and Policy Delphi Technique, six dimensions of Social cost and eight dimensions of Social benefit were delineated by the researcher. Very few researches have been done on Social costs and Social benefits with respect to Agricultural Development Programmes. Following are the available reviews:

2.5.1 Dimensions of social cost

Conversion of paddy land is one of the main constraints limiting paddy production in Kerala (Nair, 1982)

Panicker (1983) reported that decline in area under paddy crop is the major reason for low production, the reason being low price for paddy and high labour cost and cost of cultivation.

Sreedaya (2000) suggested that because of the perishable nature of vegetable, to avoid damage to the produce, proper arrangement for storage and processing facilities of the produce should be made.

2.5.2 Dimensions of social benefits

Katz (1944) opined that relative to larger groups, smaller groups were more cohesive, members were more satisfied and individual members assumed more importance.

Hare (1952) found that as the group size increased, member satisfaction decreased.

Thibaut and Kelley (1959) in their exchange theory of groups assume that the existence of the group is based solely upon the participation and satisfaction of individuals in the group.

According to Adam's theory of equity, people are motivated to maintain fair relationship with others and will try to rectify unfair relationships, by making them fair (Adam and Rosenbaum, 1962).

Collins *et al.* (1964) and McGrath and Altman (1966) found that a member's satisfaction is affected by, the status of the group- its successfulness, its tasks achievements, its prestige, the interpersonal relations within the groups, the attractiveness of other group members, their attitude toward him, their attitude towards belonging to the group, the members role within the group, its prestige, communication centrality, power, significance and interest, the direct rewards and benefits received from membership, the group atmosphere, as determined by such factors as leadership style, group size, group imposition and the nature and desirability of conflicting membership on activities.

Christopher (1969) Ramakrishnan (1979) have all opined, self-confidence as one of the characteristic traits of entrepreneurs and that it reflects on the entrepreneurial behaviour of an individual.

Shaw (1977) opined that groups that fail to satisfy the need or needs of individual group members usually disintegrate.

Meera (1981) found a significant difference in the level of knowledge about improved agricultural practices between trained and untrained farmwomen.

Reddy (1983) found that material possession had a significant relationship with management orientation.

Esman and Uphoff (1984) identified equity as one of the performance indicators of social organizations.

Sarkar (1985) opined that level of living takes into account the composite goods and services actually consumed by the family which may or may not be identical with what they regard as necessary or desirable.

Behavioural inequity resolution strategy and physiological inequity resolution strategy are two methods to escape inequity (Rao and Narayana, 1986).

Sumathi (1987) reported that self-confidence of coffee growers had positive correlation with their management orientation.

Shah (1993) opined that a Self Help Groups could be sustainable only if it serves purposes important to its members.

According to Shah or Shah (1993) a Self Help Group can be sustainable only if it serves purposes important to its members.

According to Hay (1995) equity mean people enjoying equitable access to opportunities. Development without equity means a restriction of choice of many individuals in society.

Fernandez (1996) found that for the substantiality of SHGs, the equity should be ensured.

Nizammudeen (1996) and Sangeetha (1997) reported that a good majority of the respondents belonged to high group with respect to self-confidence.

Muller (1997) found out that due to the increased training the members become more knowledgeable about the ways and means to achieve group goals and hence an increased satisfaction was seen.

Shaw (1997) opined that groups that fail to satisfy the needs of individual group members, usually disintegrate

Kanagasabhapathi (1998) found a significant relationship between knowledge on the cultivation of important crops and training need of 'Irulas' of Attappadi.

Turton and Reddy (1998) reported that to ensure even a moderate degree of equity, there require a high level of social organizations.

Sreedaya (2000) found that 41 per cent of the SHG farmers of KHDP and 50 per cent of IVDP SHG farmers were under medium category for the variable equity and equity had exhibited a non significant relationship with planning, production and marketing aspects of vegetables and also observed that 47 percent of the farmers of SHG of KHDP and IVDP respectively were under medium category for the variable need satisfaction. Need satisfaction had a negative and significant relationship with annual income, educational status, positive and significant relationship with experience in vegetable cultivation and cosmopoliteness, negative and non significant relationship with planning, production and marketing aspects of vegetables.

According to Nagesh (2001) family labour income gives an idea regarding how much family labour is involved in cultivation and how it contributes to the income of the farmers. He also observed that in case of bittergourd the entire cost structure among the two groups, hired labour utilized by KHDP farmers was less (16.7 per cent) whereas IVDP groups employed more. This is one of the reasons why the KHDP growers realized more family labour income for all the crops. Considering the case of snakegourd IVDP growers showed a negative value for family labour income. This is due to the comparatively lower gross returns and higher cost incurred and concluded that both hired and family labour were employed in vegetable cultivation by both the groups. Hired labour being very costly, vegetables can be profitably cultivated only through engaging family labour. In addition, it also provides gainful employment opportunities to the farm family members which otherwise would have remained idle and unproductive.

2.6 Personal, Socio-psychological, Economic and Situational characteristics of SHG members

2.6.1 Personal variables

2.6.1.1 Age

Perumal (1994) found that majority of the participants (70.85 per cent) belonged to young category followed by middle-aged category (29.15 per cent).

Prasad (1995) found that any new skill development is possible only among the younger age groups as their physical strength and their psychomotor skills are at peak.

Muller (1997) reported a positive and significant correlation between age and need satisfaction of women in her study on the analysis of group characteristics of women's group and their role in rural development.

Sindhu (1997) identified a positive relationship between age and planning and marketing aspects of cut flower growers in Thiruvananthapuram district.

Jeya (1999) found that almost an equal percentage of participants belonged to young (49.6 per cent) and middle aged (50.40 per cent) categories among women farmers.

Thomas (2000) reported that 54 per cent of cultivators belonged to low category with respect to age.

Sreedaya (2000) found that majority of the farmers of SHGs of KHDP and IVDP belonged to middle aged category (58 per cent and 55 per cent) and age had non significant relationship with group cohesion, equity and planning, production and marketing aspects of vegetables.

2.6.1.2 Educational status

According to Bheemappa *et al.* (1990) the education had shown a positive and significant association with participation in integrated rural development programme.

Jeya (1999) reported that 44 per cent of the participants were educated upto primary level followed by 41.60 per cent upto secondary level.

Vellusamy (1999) found that education had a significant correlation with extent of participation in development programmes.

Thomas (2000) reported that 57 per cent of the cultivators had low level of education.

Sreedaya (2000) found that majority of the farmers of SHGs of KHDP and farmers of IVDP Self Help Groups had medium educational status and educational status of farmers had non significant relationship with equity and planning, production and marketing aspects of vegetables and had a negative and significant relationship with group cohesion.

2.6.1.3 Occupational status

Syamkumar (1999) reported that 32.5 per cent of the farmers were engaged in Government or Private Service along with farming and 30 per cent in business along with farming.

2.6.1.4 Experience in commercial vegetable production

With the reception of the same work, one gets specialised in it. This specialisation helps him to do work in the best possible way, which improve the skill (Jhingan, 1990)

Sreedaya (2000) reported that majority of the farmers of KHDP SHGs and farmers of IVDP SHGs had medium experience in vegetable cultivation and their experience had a positive and significant relationship with equity and planning, production and marketing aspects of vegetables and had a negative and significant relationship with group cohesion in case of KHDP farmers and had a non significant relationship with Group cohesion and equity and a positive and significant relationship with planning, production and marketing aspects of vegetables.

2.6.2 Socio-psychological variables

2.6.2.1 Mass-media participation

Masood (1987) in his study with dryland blackgram growers observed that 41.66 per cent of the farmers were found to have high level of exposure to mass media where as more than one-third (34.17 per cent) of the farmers had

medium level of exposure. Low level of mass media exposure was seen with 24.17 per cent of the respondents.

Sophia (1991) reported that 62.22 per cent of the dryland farmers possessed moderate level of mass media exposure followed by 20.00 per cent and 17.78 per cent with low and high levels of mass media exposure respectively.

Savithri (1992) observed that most (62.27 per cent) of the farm women were found to have high level of exposure to mass media followed by medium and low levels with 24.00 per cent and 13.73 per cent respectively.

Chandran (1993) has stated that 42.00 per cent of sunflower cultivating dryland farmers had low level of exposure to mass media. Medium and high level of mass media exposure were seen among 34.50 per cent and 23.50 per cent respectively.

Kamaraj (1996) concluded that majority of the dryland farmers had a moderate level of exposure to mass media sources, followed by 27.50 per cent with low level of media exposure. High level exposure was reported for less than one-fifth (18.33 per cent) of the respondents.

Mass media participation and knowledge

These researchers have identified the following relationships between mass media participation and knowledge.

	Name	Year	Relationship
1	Lalitha	1986	Negative and Significant
2	Gnanadeepa	1991	Negative and Significant
3	Preetha	1997	Positive and Significant

Thomas (2000) in his study on medicinal plant cultivations found that 51 per cent of farmers were having high mass media experience.

2.6.2.2 Risk orientation

Ravichandran (1996) revealed that 87.80 per cent of the farm women had medium level of risk orientation followed by 8.57 per cent and 3.57 per cent in high and low levels respectively.

Sindhu (1997) reported that group members of cutflower farmers exhibited high level of risk orientation.

Sivaprasad (1997) found that by imparting proper training orientation, the risk bearing ability of the individuals can be increased.

Jeya (1999) reported that 78.40 per cent of the farm women had medium level of risk orientation and almost equal percentage with low and high level of risk orientation.

Sreedaya (2000) reported that majority of the farmers of SHGs of KHDP and IVDP had low level of risk orientation and risk orientation had a

non-significant relationship with group cohesion, equity and planning, production and marketing aspects of vegetables.

2.6.2.3 Management orientation

Samantha (1977) refers planning, production and marketing orientations as the components of management orientation.

Bucket (1981) stated that successful market is one of the key functions of management and at the operational stage it is necessary to make use of every opportunity to market to the best advantage, market may be negotiated and produce has to be selected in right condition at the right market.

Massie (1987) found marketing management as regulating the level, timing and characteristics of demand for one or more product of the team and it consists of planning, organising, controlling and implementing of marketing programmes and strategies.

Anantharaman (1991) related managerial efficiency with the managerial functions in terms of components such as planning, labour management, information management, financial management, risk management, production management and marketing management.

According to Hansari (1998) planning process involves scrutinizing the field level problems by scientists, extension specialist, farmers and community as a whole.

Management orientation and knowledge

These researchers have identified the following relationships between management orientation and knowledge.

	Name	Year	Relationship
1	Kamarudeen	1981	Positive and significant
2	Anantharaman	1991	Positive and significant

2.6.2.4 Market perception

Poerchezhian (1991) found that there was a non-significant relationship between market perception and management orientation.

Sreedaya (2000) reported that 47 per cent of farmers of SHGs of KHDP and 56 per cent of IVDP SHG farmers belonged to high category of market perception level and market perception level had a non significant relationship with group cohesion and equity under both KHDP and IVDP but had a positive and significant relationship with planning, production and marketing aspects of vegetables in case of KHDP and had a non significant relationship with planning, production and marketing aspects of vegetables in case of IVDP.

2.6.2.5 Cosmopoliteness

Cosmopolite farmers were more inclined to adopt new technology (Ferreira *et al.*, 1983).

Siddharamaiah and Rajanna (1984) reported that farmers with high cosmopoliteness had significantly higher gain in knowledge about agricultural aspects.

Those who are economically motivated would try to improve their farming practice by acquiring knowledge from cosmopolite sources (Sabapathi, 1988).

Thomas (1988) found positive and significant relationship between cosmopoliteness and participation in watershed development programmes

Syamkumar (1999) reported that 57.5 per cent of the rice farmers had high level of cosmopoliteness followed by 42.5 per cent with low level of cosmopoliteness and cosmopoliteness had a non-significant relationship with attitude of farmers.

Sreedaya (2000) found that almost 82 per cent of the farmers of SHGs of KHDP and 52 per cent farmers of IVDP SHGs had medium level of cosmopoliteness and cosmopoliteness had a positive and significant relationship with group cohesion and a non significant relationship with equity and involvement in planning, production and marketing aspects of vegetables.

Cosmopoliteness with knowledge

These researchers had identified the following relationships between cosmopoliteness and knowledge

	Name	Year	Relationship
1	Gnanadeepa	1991	Negative and significant
2	Gangadharan	1993	Positive and significant
3	Manju	1996	Non significant
4	Preetha	1997	Non significant
5	Jose	1998	Positive and significant

2.6.2.6 Extension orientation

Syamkumar (1999) reported that majority of the farmers of SHGs of KHDP belonged to low category of extension orientation level and extension orientation had a significant relationship with attitude of farmers.

Extension orientation and knowledge

These researchers had identified the following relationships between extension orientation and knowledge

	Name	Year	Relationship
1	Gananadeepa	1991	Negative and non significant
2	Gangadharan	1993	Positive and significant
3	Manju	1996	Non significant
4	Manju	1997	Positive and significant
5	Jose	1998	Non significant

Thomas (2000) reported that 51 per cent of medicinal plant cultivations had low extension contact and least extension participation.

2.6.2.7 Group cohesion

Festinger *et al.* (1950) defined group cohesiveness as the resultant of all the forces acting on the members to remain in the group.

Back (1951) concluded that in a highly cohesive group, homogeneity is sought either with or through the process of mutual persuasion and influence.

Schachter *et al.* (1951) found that cohesion is directly related to the degree of members influence on each other, and the direction of influence determine the productivity of a group. High cohesive groups will be more successful than low cohesive groups in increasing or reducing productivity.

Seashore (1954) found that, greater the cohesion, greater influence the group will have over the behaviour of members and subsequently group performance.

Taylor (1958) concluded that group cohesion or solidarity increases with each succeeding objective or goal the group reaches. The greater the solidarity of a group, the more capable it is to withstand outside pressure.

Hare (1962) in an intensive study of group cohesiveness in industrial work groups, indicated that members of high cohesive groups exhibited less anxiety than members of low cohesive work groups.

Zander and Cartwright (1967) opined that a cohesive group might be characterised as one in which all the members work together for a common goal.

Cohen *et al.* (1980) opined that group cohesion is increased in proportion to the status of the group relative to other group in the system.

According to Rao and Narayana (1986) factors determining the group cohesiveness are location, outside pressure, status of the group, success and other reasons like attractive leaders, collective power etc.

Santhanam *et al.* (1990) defined group cohesiveness as the force that hold a group together. He opined that cohesiveness is based upon the attraction that the members of the group feel for each other and cohesiveness induces pressures towards uniformity and conformity leading to group thinking.

Ghosh (1995) stated that group cohesiveness refers to the ability of the group members to relate emotionally to each other for a given task so as to integrate with each other effectively for achieving common goals.

Beyson (1997) found that as members develop favourable approaches to each other, cohesiveness increases.

Muller (1997) observed a positive and significant relationship between group cohesion and characters like extension participation, information source utilization, cosmopoliteness and training.

Sreedaya (2000) observed that 77 per cent and 53 per cent of farmers of SHGs of KHDP and IVDP respectively belonged to high category of group cohesion.

2.6.2.8 Attitude of farmers

Allport (1935) defined attitude as a mental state of readiness organised through experience exerting a direct or dynamic influence upon the individual's response to all objects and situations with which it is related.

Thurstone (1946) defined attitude as the degree of positive or negative affect associated with some psychological object towards which people can differ in varying degrees.

Sharma (1972) defined attitude as personal disposition which impels an individual to react to some objects or situations.

Attitudes are learned responses and since they are always found in relation to object, ideas and persons, they play an important role in determining human behaviour (Dahama, 1976).

Kuppuswamy (1984) stated that attitudes are learned in the course of life experience, which make the individual behave in characteristic ways towards persons, objects or issues to which they get related.

Gangadharan (1993) in his study on pepper growers found that majority (89 per cent) of pepper growers had medium level of attitude towards improved agricultural practice.

Sindhudevi (1994) concluded that majority of neo-literate farmers (90.7 per cent) had a high level of attitude towards scientific agricultural practices.

Haemalatha (1997) observed that more than 55 per cent of the respondents selected were having high attitude towards rice based farming system.

2.6.3 Economic variables

2.6.3.1 Annual Income

Badagaonkar (1987) found a positive and significant relationship between annual income and management orientation of the farmers.

NABARD (1995) found that majority of the farmers of SHGs were possessing low level of annual income.

Syamkumar (1999) reported that equal percentage (32.5 %) of farmers had low and medium level of annual income followed by 35.0 per cent of farmers with high level of annual income and it exhibited a non-significant relationship with attitude of farmers.

Sreedaya (2000) reported that among the farmers of both KHDP and IVDP SHGs majority had medium level of annual income and it exhibited a negative and significant relationship with group cohesion and non-significant relationship with equity and planning, production and marketing aspects of vegetables.

Annual Income and knowledge

These researchers have identified the following relationships between annual income and knowledge

	Name	Year	Relationship
1	Kamarudeen	1981	Non significant
2	Badagaonkar	1987	Positive and Significant
3	Manju	1996	Non significant
4	Preetha	1997	Non significant
5	Jose	1998	Non significant

2.6.3.2 Credit orientation

Wadhwa (1994) based on NABARD experiences reported that Self Help Groups have been found as an effective and economic means of ensuring access of credit to the poor and vulnerable sections of society.

Fernandez (1995) reported that group provides cost effective credit delivery system as the transaction cost of lending decreased sharply both to the banks and borrowers.

Riddell and Robinson (1995) found that the groups promoted participation and acted as a channel to avail credit and other inputs.

Oostrum (1998) reported that the participatory approach followed by the small holder's associations helped farmers to become credit worthy.

Sreedaya (2000) reported that 47 per cent of SHG farmers of KHDP had high credit orientation level and 54 per cent of SHG farmers of IVDP had

medium level of credit orientation and credit orientation had a non significant relationship with equity and involvement in planning, production and marketing aspects of vegetables.

2.6.3.3 Economic motivation

Sabapathi (1988) found that those who are economically motivated would try to improve their farming practices by acquiring knowledge from localite or cosmopolite sources.

Jeya (1990) reported that 53.60 per cent of the respondents had medium level of economic motivation and 24 per cent belonged to low and 22.40 per cent to high level of economic motivation.

Shanthi (1996) reported that earning money to meet day to day requirements is the prime motive of women labourers in rice farming and hence economic motivation has emerged as the most contributing variable to managerial efficiency of those farmwomen.

Sivaprasad (1997) reported that economic motivation is an important character that persuades people to adopt improved practices that are proven worthy.

Syamkumar (1999) in his study on extension intervention for sustaining rice production reported that 55 per cent of farmers had high economic motivation and 45 per cent had low economic motivation.

Sreedaya (2000) reported that majority of the farmers of SHGs of KHDP & IVDP had high economic motivation and economic motivation had a

negative and significant relationship with group cohesion and non significant relationship with equity among the farmers of KHDP SHG and had a non significant relationship with group cohesion equity among IVDP SHG farmers.

Economic motivation and knowledge

These researchers have identified the following relationships between economic motivation and knowledge.

	Name	Year	Relationship
1	Choudhari & Makode	1992	Positive and Significant
2	Gangadharan	1993	Positive and Significant
3	Manju	1996	Non significant
4	Manju	1997	Negative and significant
5	Preetha	1997	Non significant
6	Jose	1998	Positive and significant

2.6.4 Situational variables

2.6.4.1 Non availability of agricultural labourers

Nair (1982) in his report on the problems of paddy cultivation in Kerala reported that non availability of agricultural labourers was one of the main constraints limiting paddy production in Kerala.

Kerala Agricultural University (1983) in the proceedings of the seminar on stagnation in agricultural production in Kerala with special reference to paddy, identified various technological, socio-economic and extension constraints limiting rice production in Kerala. Lack of security to farmers is one of the main technological constraints, low net return from paddy and non availability of labourers are two main economic constraints.

Kothicane *et al.* (1987) reported that non availability of labour in time, high labour cost, unsuitability of loan recovery procedure, high cost of implements and fertilizer use were some of the economic constraints perceived by farmers in Kerala. Bhilegoanker (1976) and Joshi and Shinde (1984) reported the same.

2.6.4.2 Lack of marketing and storage facilities

Prakash (1989) reported that in the Southern region of Kerala state all together 40 per cent of farmers, research workers, extension workers, input agents, in the Central region, 33.33 per cent of farmers, 40 per cent of research workers, 15 per cent of extension workers and 33.33 per cent of input agents and in the Northern region, 50 per cent of the farmers, 40 per cent of research workers, 40 per cent of extension workers and 50 per cent of input agents identified lack of marketing facilities as a main constraint limiting paddy production in Kerala.

Sreedaya (2000) reported that 30 per cent of the farmers of IVDP and 72 per cent of the farmers of KHDP SHGs identified lack of adequate marketing facilities as one of constraint in vegetable production and she

suggested that for improving SHGs of vegetable production programmes there should be proper storage, processing, marketing facilities like own vehicle in the field centre for proper handing of the produce.

2.6.4.3 Low profitability in paddy cultivation

Radhakrishnan (1983) conducted that the absolute profitability in paddy cultivation has declined after 1974 -75 and this is the major reason for decline in paddy area and production.

Prakash (1989) in his study observed that in the southern region 93.33 per cent, 50 per cent, 60 per cent and 50 per cent, in the central region 60 per cent, 50 per cent, 30 per cent and 50 per cent and in the northern region 53.33 per cent, 30 per cent, 40 per cent and 30 per cent of farmers, research workers extension workers and input agents respectively identified low profitability as the main constraint limiting paddy production in Kerala.

2.6.4.4 Difficulty in Rice cultivation

Gopalan (1986) reported that difficulty in cultivation of paddy crop is one of the main economic constraints limiting paddy production in Kerala.

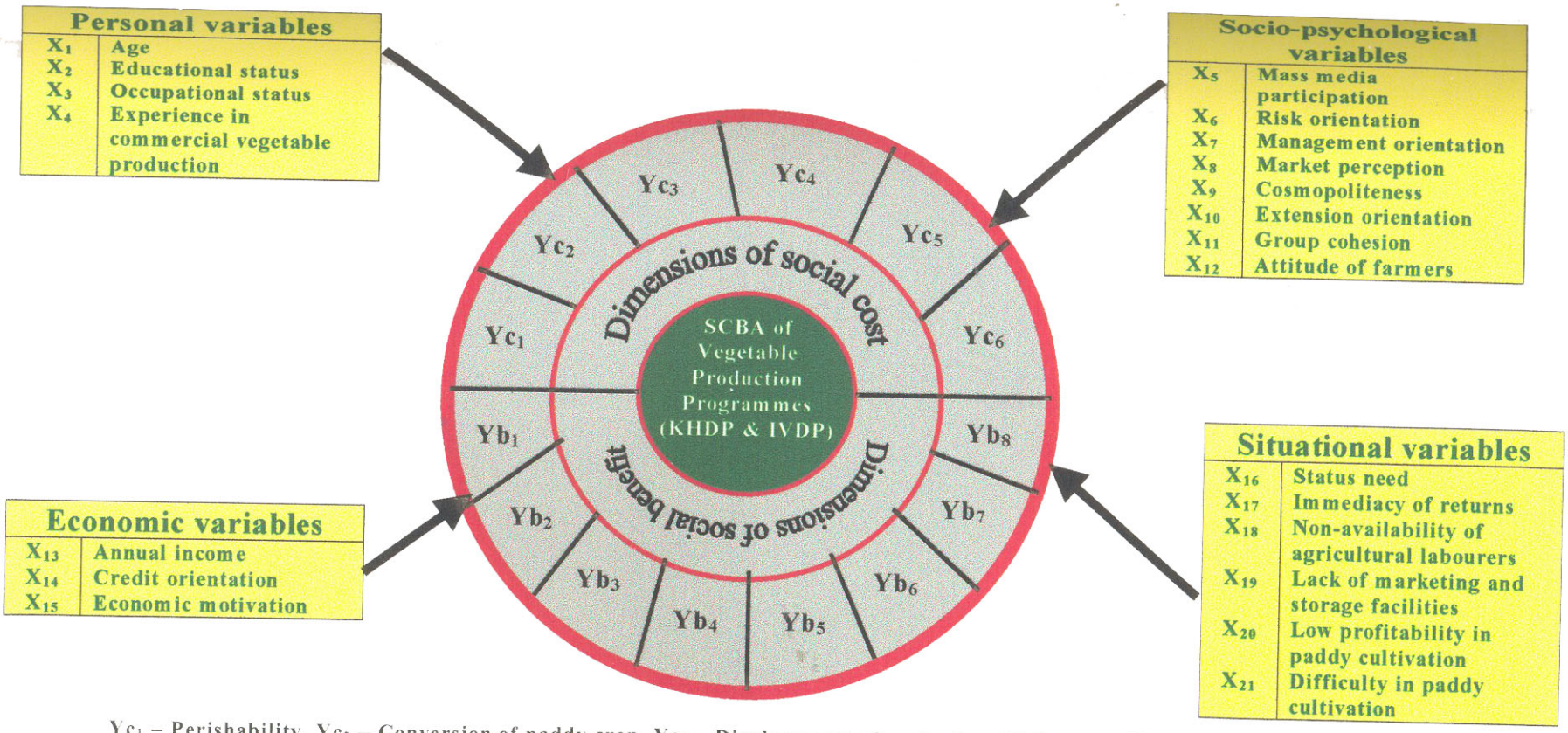
Prakash (1989) in his study observed that in the southern region of Kerala state. 90 per cent, 80 per cent, 50 per cent and 30 per cent of farmers, Research workers, Extension workers and Input agents respectively in to northern region 60 per cent, 30 per cent, 30 per cent and 40 per cent of farmers, research workers, extension workers and input agents respectively and in the central region 73.33 per cent, 70 per cent, 60 per cent and 25 per

cent of farmers, research workers, extension workers and input agents respectively identified difficulty in rice cultivation as the main constraint limiting rice production in Kerala.

From the situational variables in case of status need and immediacy of returns no reviews were available.

2.7 Conceptual framework of the study

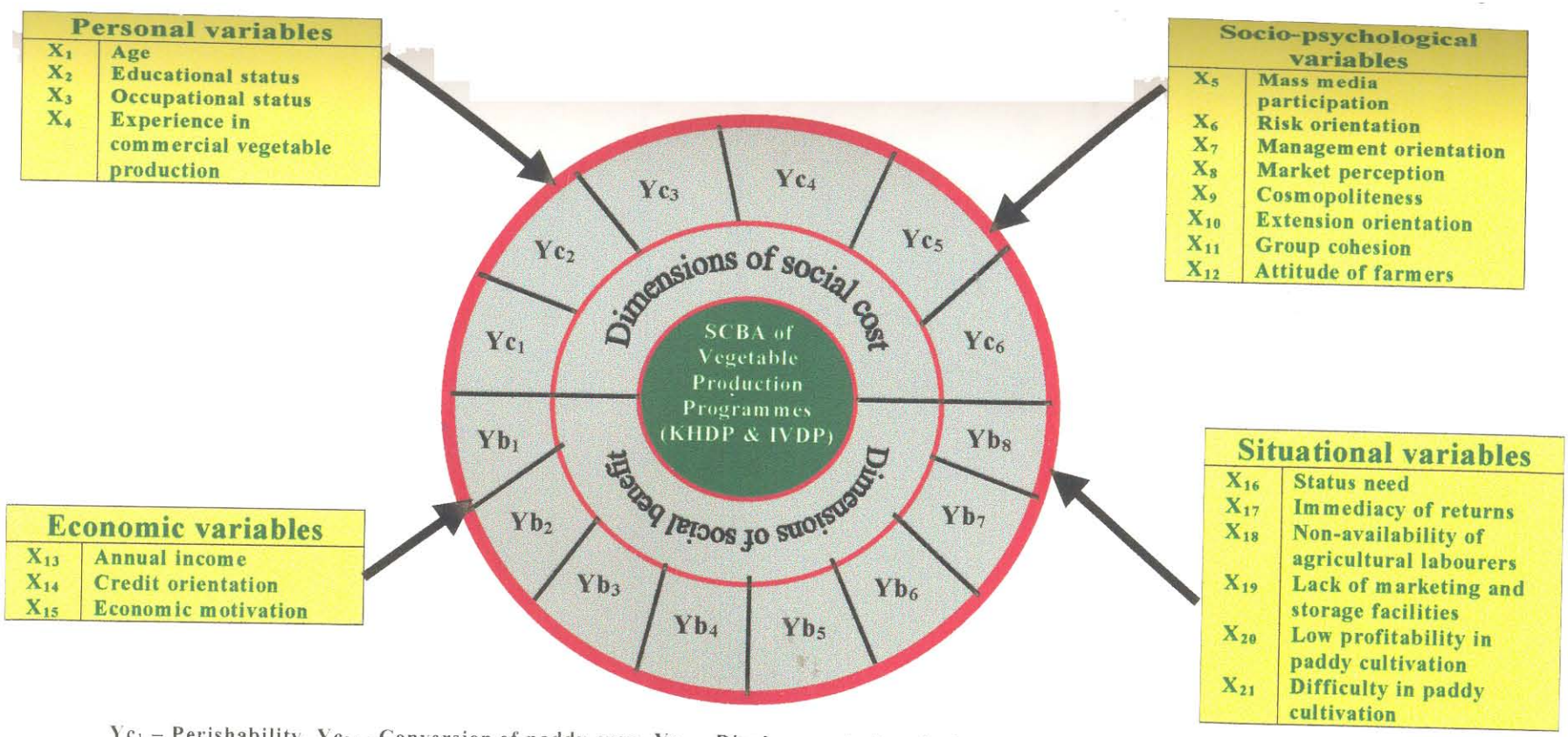
The conceptual framework of the study to be empirically verified is presented in Fig. 1.



Yc_1 – Perishability, Yc_2 – Conversion of paddy crop, Yc_3 – Displacement of agricultural labourers, Yc_4 – Exploitation by middlemen, Yc_5 – Time constraints, Yc_5 – Involvement at the cost of education

Yb_1 – Family labour utilization, Yb_2 – Increased living standard, Yb_3 – Self confidence, Yb_4 – Dignity of farmers, Yb_5 – Equity, Yb_6 – Satisfaction, Yb_7 – Sociability, Yb_8 – Knowledge in vegetable production

Fig. 1 Conceptual model of the study



Yc_1 – Perishability, Yc_2 – Conversion of paddy crop, Yc_3 – Displacement of agricultural labourers, Yc_4 – Exploitation by middlemen, Yc_5 – Time constraints, Yc_5 – Involvement at the cost of education

Yb_1 – Family labour utilization, Yb_2 – Increased living standard, Yb_3 – Self confidence, Yb_4 – Dignity of farmers, Yb_5 – Equity, Yb_6 – Satisfaction, Yb_7 – Sociability, Yb_8 – Knowledge in vegetable production

Fig. 1 Conceptual model of the study

Methodology

CHAPTER- III

METHODOLOGY

The methodology followed in the study is presented under the following heads.

3.1 Research design

3.2 Locale of the study

3.3 Selection of respondents

3.4 Variables and their measurement

3.4.1 Selection of dimensions of Social Cost and Social Benefit

3.4.2 Computation of Social Cost Index Value (SCIV)

3.4.3 Computation of Social Benefit Index Value (SBIV)

3.4.4 Benefit cost ratio of vegetable production programmes

3.4.5 Operationalization and measurement of dimensions of social cost and social benefit

3.4.6 Operationalisation and measurement of independent variables

3.5 Frame work for effective social cost Benefit analysis

3.6 Statistical tools used for the study

3.1 Research design

This study was conducted adopting an ex-post facto research design. According to Kerlinger (1973) ex-post facto research is a systematic empirical inquiry in which the scientist does not have direct control over independent variables because either their manifestations have already occurred or they are inherently not manipulable. Inference about relations among variables is made, without direct intervention, from concomitant variation of independent and dependent variables.

In this research study, since most of the selected variables were of ex-post-facto in nature and the researcher had very little chance to control them, ex-post-facto research design was resorted to.

3.2 Locale of the study

Out of the total five agro-climatic zones of Kerala State, three zones viz., Southern Zone, Central Zone and Northern Zone were selected for the study. The southern zone comprises the districts of Thiruvananthapuram, Kollam, Pathanamthitta, Alappuzha and Kottayam. The central zone consists mainly of three districts: Ernakulam, Thrissur and Palakkad excluding the high ranges. Northern zone consists of four districts viz. Malappuram, Kozhikode, Kannur and Kasargode.

3.2.1 Sampling design and data collection

Stratified multirandom sampling procedure was followed for the purpose of drawing sample for the study. The sample selection procedures adopted for the study are indicated here with.

3.2.2 Selection of districts for the study

The study was conducted in the three selected agro-climatic zones of Kerala. One district each was selected from the three selected agro-climatic zones. The districts selected for the study were Thiruvananthapuram district from southern zone, Thrissur district from Central zone and Malappuram district from Northern zone where both KHDP & IVDP are being implemented.

3.2.3 Selection of Self Help Groups for the study

The study was conducted among the selected Self Help Groups (SHGs) of the Governmental and Quasi-Governmental sectors, involved in vegetable production. From the Governmental sector SHGs under IVDP and from the Quasi-Governmental sector SHGs under KHDP were selected.

Two taluks were selected at random from each selected districts (6 taluks). In each selected taluks, panchayats where both KHDP and IVDP are implemented satisfactorily were identified and list of all panchayats were prepared. From each taluk, two Panchayats (12 Panchayat) and from each panchayat one SHG from IVDP and one SHG from KHDP were selected using random sampling procedure. The details of which are presented in the following table.

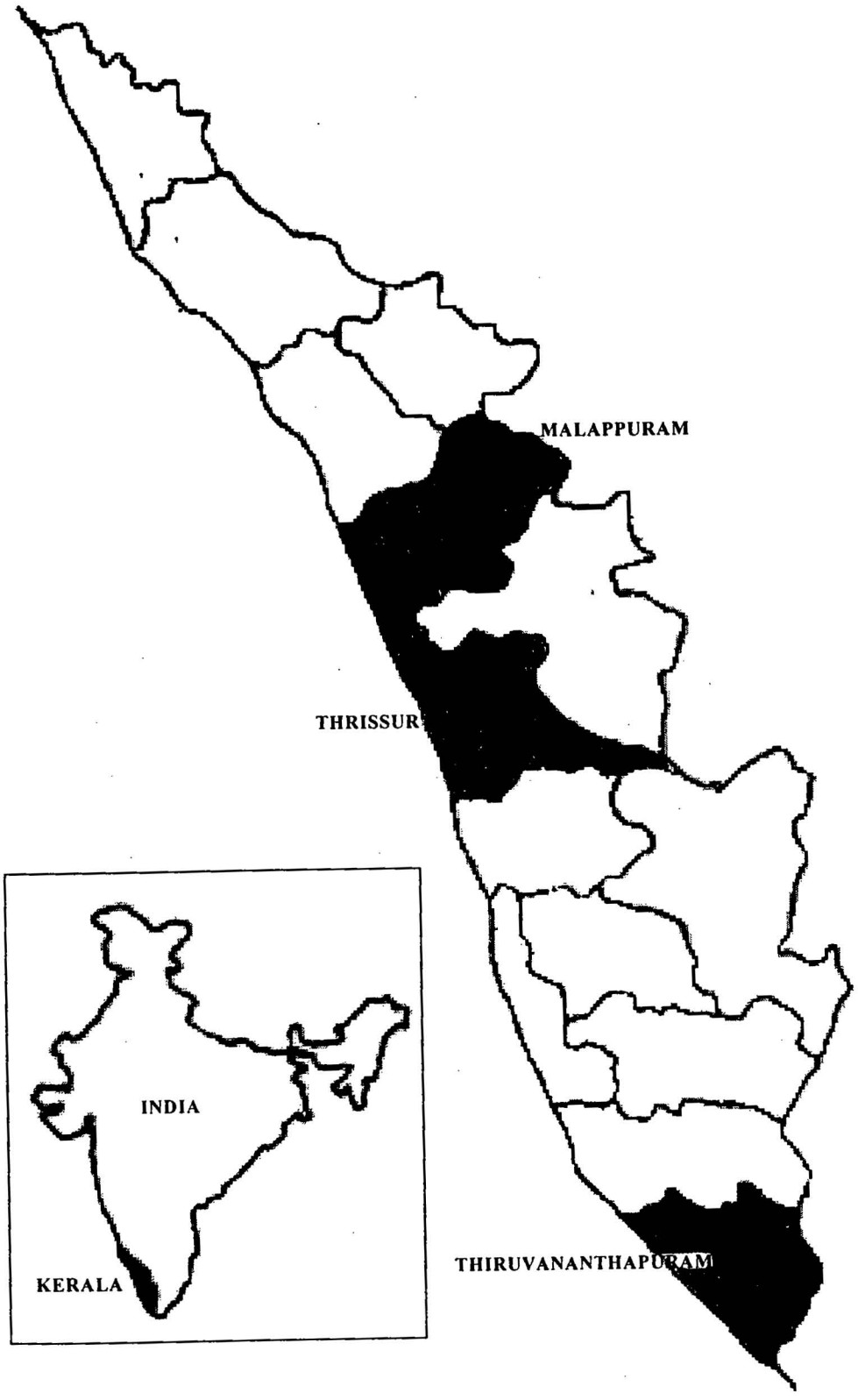


Fig. 2 Map showing the selected three districts for the study

List of districts, taluks, panchayats and SHGs selected for the study

Sl. No	District	Taluk	Panchayat	SHGs	
				KHDP	IVDP
1	Thiruvananthapuram	a. Neyanttikara	a. Venganoor	Nallivala unit	Venniyoor
			b. Kalliyoor	Nedinjal charuvila	Kovilnada
		b. Thiruvananthapuram	a. Sreekaryam	Pangappara	Perur
			b. Pothenkode	Karurkalivila	Pothengode
2	Thrissur	a. Thrissur	a. Panachery	Oravumpadam	Vindechery
			b. Puttur	Dharba	Nithyanidhi puthengad
		b. Mukundapuram	a. Melur	Kovilampadi	Pullani
			b. Thrikkur	Kallayi A.	Kallayai
3	Malappuram	a. Ernad	a. Edvanna	West chathalour II	Chathaloor
			b. Thrikalakode	Edakkad	Cherepalli
		b. Nilambur	a. Wandoor	Shariyil	Kapilmanna pada
			b. Thiruvalli	Thiruvali	Punnapalam

3.3 Selection of respondents

Three categories of respondents were included in the study namely scientists, extension workers and farmers.

In the first stage for selection and prioritization of the dimensions of social cost and social benefit using Nominal Group Technique and Policy Delphi Technique, 20 progressive farmers, 20 scientists and 20 extension workers actively involved in vegetable production programmes of KHDP and IVDP were randomly selected thus making a sample size of 60.

The ultimate unit of analysis in the study was individual farmers of SHGs. The lists of farmers in the selected SHGs under KHDP and IVDP were collected from the concerned offices of Agriculture Department and Quasi-governmental organisations (KHDP and IVDP). Fifteen respondents were selected at random from each group thus forming sample size of 360.

Table 2 Distribution of respondents in various categories

Sl. No.	Categories	No. of respondent
1	Farmers (SHG members + progressive farmers).	360
2	Scientist	20
3	Extension experts/workers	20

Thus 420 respondents formed the total sample for the study.

3.3.1 Procedure employed in construction of interview schedule / Questionnaire

The pilot study conducted by the researcher gave the first hand information about the basic aspects to be studied. The interview schedule and questionnaire were prepared in conformity with the objectives of the study. Great care was taken to see that questions in the interview schedule/ questionnaire were unambiguous, clear, complete and comprehensive. The interview schedule and questionnaire were pre-tested and finalised. The interview schedule and questionnaire are appended as Annexure - III and IV.

3.4 Variables and their measurement

3.4.1 Selection of dimensions of social cost and dimensions of social benefit

The dependent variables of this study were dimensions of social cost and social benefit of vegetable production programmes. The various dimensions of social cost and social benefit accruing out of vegetable production programmes were identified using Nominal Group Technique as adopted by Motilal Nehru (1989). The above identified dimensions were prioritized using Delphi analysis of Turoff (1975) and as followed by Prakash (1989). The details of the procedures employed are furnished below.

3.4.1.1 Collection of items through Nominal Group Technique

Nominal group technique was applied to collect the exhaustive list of all the dimensions of Social costs and Social benefit, accruing out of vegetables production programmes. The technique was applied in non-sample area.

Here, the investigator explained the objectives of research work and purpose for which the group session was convened. Each member was requested to state the social costs and social benefits of vegetable production programme. The stated items were edited and presented in the second session and discussed in detail to avoid ambiguity.

3.4.1.2 Prioritization of the dimensions by Delphi Methodology

In order to prioritize the identified dimensions of social costs and social benefits accruing out of vegetable production programme, Delphi analysis was done as followed by Prakash (1989).

The Delphi Methodology

Brown (1968) pointed out that the Delphi method is a name that has been applied to a technique used for elicitation of opinion with the object of obtaining a group response of a panel of experts. Delphi replaces direct confrontation and debate by a carefully planned, orderly programme of sequential individual interrogations usually conducted by questionnaires. The series of questionnaire are interspersed with feedback derived from the respondents. The technique puts the emphasis on informed judgment. It attempts to improve the panel or committee approach by subjecting views of individual experts to each others criticism in ways that avoid face to face confrontation and provide anonymity of opinion and of arguments advanced in defense of these opinions.

The Delphi process today mainly exists in two forms. One is referred as Delphi exercise and another form is the Policy Delphi, which was first introduced and reported by Turoff (1976).

A policy Delphi deals largely with statements, arguments, comments and discussions. To establish some means of evaluating the ideas expressed by the respondent group, rating scales must be established for such items as

the relative importance, desirability, confidence and feasibility of various policies and issues. The scales must be carefully defined so that there is some reasonable degree of assurance that the individual respondents make compatible distinction between 'very important' and 'important'.

Application of Delphi Method

In this study, the policy Delphi procedure was followed with slight modifications. It had three steps consisting of two steps for the identification of dimensions of social costs and social benefits accruing out of vegetable production programmes and the third step for giving ranks to the identified dimensions of social cost and social benefit.

STEP I

By applying the Nominal Group Technique (NGT), 13 dimensions of social cost and 17 dimensions of social benefits of vegetable production programmes were identified and were distributed for relevancy rating to sixty experts viz., 20 scientists, 20 extension experts and 20 progressive farmers. The respondents were asked to rate the dimensions on a five point continuum and they were asked to add additional dimensions if any, along with their rating of these dimensions.

The scoring procedure adopted was as follows:

Rating	Score
Most relevant	5
More relevant	4
Not decided	3
Less relevant	2
Least relevant	1

Step II

All the dimensions of social costs and social benefits rated during step I were again rearranged with inclusion of additional dimensions based on the total scores under each category of the respondents separately and again given to the same experts for relevancy rating. There were ten dimensions of social cost and twelve dimensions of social benefit and the respondents were asked to rate the dimensions on a five point continuum from most relevant to least relevant. Total scores of the dimensions of social cost and social benefits were used to work out the index for each category of respondent.

Step III

The average score of the 3 categories of respondents were found out and finally the relevancy index was worked out using the formula given below.

$$\text{Relevancy Index (R.I)} = \frac{\text{Score obtained}}{\text{Maximum Score Possible}} \times 100$$

The dimension with more than 70 Relevancy Index were selected and were arranged in descending order. Thus the dimensions selected for the study were.

1) Dimensions of social cost

1) Perishability

2) Conversion of paddy crop

3) Displacement of Agricultural labourers

4) Exploitation by middlemen

5) Time constraints

6) Involvement at the cost of education

2) Dimensions of social benefit

1) Family labour utilization

2) Increased living standard

3) Self confidence

4) Dignity of farmers

5) Equity

6) Satisfaction

7) Sociability

8) Knowledge in vegetable production

3.4.2 Computation of Social Cost Index Value (SCIV)

Total social cost of the vegetable production programme faced by the members of the Self Help Groups (SHGs) was measured by computing the SCIV of each respondent and compared.

In this study, social cost accruing out of vegetable production programme was measured by using the SCIV developed for the purpose. It may be pointed out here that the main purpose behind the index development was to construct an index of general nature to suit any group and for converting the values obtained into 0 – 1 scale.

SCIV of each respondent was worked out by considering the social cost score, the maximum possible score and weightage (Table 4.1) used for each dimensions. The formula used for this purpose was

$$SCIV = \frac{\Sigma \left[\frac{Sc_i}{Ci}\right] wi}{\Sigma wi}$$

$$\frac{\left[\frac{Sc_1}{C_1}\right] w_1 + \left[\frac{Sc_2}{C_2}\right] w_2 + \text{----------} + \left[\frac{Sc_6}{C_6}\right] w_6}{w_1 + w_2 \text{ ---------- } + w_6}$$

Where

w_1, w_2 -------- w_6, are the weightage of six dimensions

Sc_1, Sc_2 -----Sc_6 are the social cost score of 6 dimensions

C_1, C_2 -------C_6 are the maximum possible social cost score of 6 dimensions.

In this formula $\frac{Sc_i}{Ci}$ takes care of the unequal distribution in the range of scoring of the dimensions and the index takes a minimum value of zero and maximum one. Hence the efficiency can be easily identified and compared.

3.4.3 Computation of Social Benefit Index Value (SBIV)

Social benefits accruing out of vegetable production programmes faced by SHGs farmers were measured by computing SBIV of each respondent and compared.

SBIV of each respondent was computed by applying the method similar to that of SCIV. Extent of social benefit score, the maximum possible score and the weightage of each dimension (Table 4.2) were applied in the following formula to find out SBIV of each respondent.

$$SBIV = \frac{\Sigma \left[\frac{Sb_i}{Bi}\right] wi}{\Sigma wi}$$

$$\frac{\left[\frac{Sb_1}{B_1}\right] w_1 + \left[\frac{Sb_2}{B_2}\right] w_2 + \text{----------} + \left[\frac{Sb_8}{B_8}\right] w_8}{w_1 + w_2 \text{----------} + w_6}$$

Where

w_1, w_2 ------ w_8 are the weightage of eight dimension of social benefit

Sb_1, Sb_2 ------Sb_8 are the social benefit score of eight dimension

B_1, B_2 -------B_8 are the maximum possible social benefit score of eight dimension of social benefit.

In this formula $\frac{Sb_i}{Bi}$ takes care of the unequal distribution in the range of scoring of the dimensions and the index takes a minimum value of zero and maximum one. Hence the efficiency can be easily identified and compared.

3.4.4 Benefit – Cost ratio of vegetable production programme (KHDP and IVDP)

In the present study, for SCBA, the benefit-cost ratio of the programmes was found out based on the SCIV and SBIV calculated for each selected districts. The formula used is as follows.

$$\text{Benefit – cost ratio (B-C ratio)} = \frac{\text{Total SBIV}}{\text{Total SCIV}}$$

Where, SBIV – Social Benefit Index Value

SCIV – Social Cost Index Value

3.4.5 Operationalisation and measurement of dimensions of Social cost and Social benefit

3.4.5.1 Dimensions of Social Cost

3.4.5.1.1 Perishability

Refers to the degree to which vegetables get destroyed because of the glut situation in the market.

It was measured by applying the schedule developed by the researcher for the purpose. The respondents were asked to state, how often they face the problems of Perishability and the responses were collected in four point continuum viz., 'very often', 'often', 'occasionally' and 'never' with scores 4, 3, 2 and 1 respectively (Appendix IVb).

3.4.5.1.2 Conversion of paddy crop

This is a serious problem in paddy cultivation in Kerala. Being less profitable, people are indiscriminately converting paddy land to other high value crops, which inturn results in decreased production.

This is operationally defined as the extent of conversion of paddy land into vegetable farm by the farmer. For the purpose of this study, conversion of paddy land was calculated as follows.

$$\textbf{Conversion index} = \frac{\text{Area (in acres) converted}}{\text{Area under paddy crop before conversion}} \times 100$$

3.4.5.1.3 Displacement of Agricultural labourers

This is operationally defined as the degree to which Agricultural laboures are being displaced by family labour due to various reasons.

It was measured by applying the schedule developed by the researcher for the purpose, the scale consisted of four items. The first and third items were measured in 'yes' and 'No' response with scores 'two' and 'one' respectively. The second and fourth items were measured on a four - point continuum as 'very high', 'High', 'less', 'Very less' with scores 'one', 'two', 'three' and four respectively. Summation of these scores of all the items was the degree of displacement of agricultural labourer as perceived by the respondent. The score ranges from 4-12 (Appendix IVb).

3.4.5.1.4 Exploitation by middlemen

This is operationally defined as the amount of profit taken by the middlemen from the farmers for marketing the produce.

It was measured by applying the schedule developed by the researcher for the purpose. The scale consisted of three items. The first item was measured in three point continuum as 'once in a month', 'two to three times a month', 'more than three times a month' with scores of 'one', 'two' and three respectively. The third item was related to the profit taken by the middlemen, which included 3 choices namely 'less than five per cent', 'five to ten per cent' and 'more than ten per cent' with scores of 'one', 'two' and 'three' respectively. Summation of these scores of all the items was the extent of exploitations by middlemen. The score ranges from 3 to 9 (Appendix IVb).

3.4.5.1.5 Time constraint

It was operationalised as the lack of time on the part of the respondent to spend with families and for recreational activities.

It was measured by applying the schedule developed by the researcher for the purpose. The scale consisted of three items. The first item consisted of two choices namely 'farming' and 'non-farming' with scores of 'two' and 'one' respectively. The second item consisted of three choices namely "less than eight hours", 'eight to ten hours and 'more than ten hours' with scores of 'one', two and three respectively. The third item was measured on a four point continuum namely 'enough time', 'less time', 'very less time' and 'No time' with scores of 'one', 'two', 'three' and four respectively. Summation of

the scores of all the items was the extent of time constraint faced by the respondent. The score ranges from 3 to 9 (Appendix IVb).

3.4.5.1.6 Involvement at the cost of education

It was operationalised as the extent of loss in education of children because of their involvement in the field for vegetable production.

The schedule developed by the researcher was used to measure the above dimension. The scale consisted of two items, the first item was measured in 'yes' and 'no' response with scores 'two' and 'one'. The second item had three choices namely 'Before or After school time', 'Before and after school time' and 'full day' with scores of 'one', 'two' and 'three' respectively. Summation of the scores of the two items was the extent of loss in education of children. The score ranges from 1 to 5 (Appendix IVb).

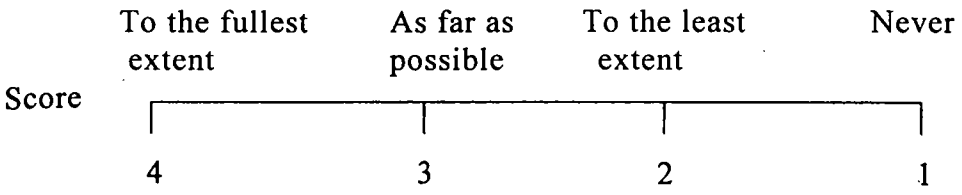
3.4.5.2 Dimensions of social benefit

3.4.5.2.1 Family labour utilization

This variable was operationalized as the extent of utilization of members of the family by the respondent for vegetable production.

To quantify the farmer's perception, the respondents were asked to state to what extent they feel, there is utilization of family members in their farm the responses were taken on a four-point continuum.

Continuum :



3.4.5.2.2 Increased living standard

This was operationalised as the extent of increase in the economic condition of the respondent after becoming the member of SHG of vegetable production programme.

It was measured using the scale developed by Trivedi (1963) with modification. The scale consisted of three items namely 'house type', 'vehicle possessed' and material possession. The respondents were asked to give responses regarding the type of house, vehicle possession and material possession before and after commercial vegetable cultivation.

The living standard score of an individual was obtained by adding up the scores obtained for house type, vehicle possessed and material possessed. The difference in the total score for before and after commercial vegetable cultivation indicated the increased living standard of each respondent.

3.4.5.2.3 Self confidence

This was operationalised as the extent of feelings of the respondent about his own power and ability to perform the activity, which he describes to undertake.

This variable was measured by the scale developed by Basavanna (1974). The scale consisted of eight statements and the possible score varied

from '8' to '40'. Responses on the statements of the scale were obtained on a five point continuum namely 'Strongly Agree', 'Agree', 'Undecided', 'Disagree' and 'Strongly Disagree' with a weightage of '5', '4', '3', '2', and '1' respectively for positive statements and the weightage was reversed for negative statements (Appendix IVb).

3.4.5.2.4 Dignity of farmers

This is operationally defined as the extent to which the respondent felt recognised and respected in the society after becoming the Self Help Group member of vegetable production programmes.

This variable was measured using the schedule developed by the researcher for the purpose. The scale consisted of four statements and the possible score varied from 4 to 16. Responses on the statements of the schedule were obtained on a four point continuum namely 'Strongly Agree', 'Agree', 'Disagree' and 'Strongly Disagree' with scores of '4', '3', '2' and '1' respectively for positive statements and the score was reversed for negative statements.

3.4.5.2.5 Equity

This was operationalized as the extent to which the group approach minimized inequalities in the distribution of profits and decision making in a group.

The variable was measured using the schedule developed by the researcher for the purpose. The schedule consisted of three statements. The statements were measured on a four point continuum namely 'Strongly Agree',

'Agree', 'Disagree' and 'Strongly Disagree' with scores of '4', '3', '2' and '1' respectively. The score ranges from 3 to 12 (Appendix IVb).

3.4.5.2.6 Satisfaction

Refers to the degree to which the members of the group feel satisfied from vegetable cultivation.

The variable was measured by using the schedule developed by the researcher for the purpose. The schedule consisted of five items and the respondents were asked to give response on a five point continuum namely 'Very Much Satisfied', 'Much Satisfied', 'Undecided', 'Not Much Satisfied' and 'Not at all Satisfied' with weightage of '5', '4', '3', '2' and '1' respectively. The summation of the scores of all the four items reflects the extent of satisfaction of each respondent. The score ranges from 5 to 25 (Appendix IVb).

3.4.5.2.7 Sociability

This is operationalised as the extent to which the respondent made friends, liked social contacts and social activity.

This variable was measured by using the schedule used by Seema (1997), which was a modification of original Guilford Zimmerman Temperament Survey. The schedule consisted of 7 statements of which 3 statements were negative. Responses were obtained on a three point continuum of 'Agree', 'Undecided' and 'Disagree' with scores of '3', '2' and '1' for positive statements and scores of '1', '2', '3' for negative statements respectively. The possible score range was 7 to 21 (Appendix IVb).

3.4.5.2.8 Knowledge in vegetable production

The knowledge of farmers was tested using a simple teacher made test developed by Sreedaya (2000). The test consisted of 6 questions to which the respondent had to answer. A score of 'three' was given to the correct answer 'two' for partially correct answer and 'one' for wrong answer. The sum of the scores obtained for all the items indicate the knowledge score of the respondent. The variable was operationally defined as the quantum of information possessed by the respondent on vegetable production. The possible score range was 6 to 18. (Appendix IVb)

3.4.6 Operationalisation and measurement of independent variables

3.4.6.1 Selection of independent variables

Based on the objectives, review of literature, discussion with experts and observation made by the researcher, a list of 40 personal, Socio-Psychological, economic and situational characteristics were framed along with their operational definitions and sent to 30 judges for eliciting their relevancy on a five point continuum ranging from 'most relevant' to 'least relevant' (Appendix –II) The judges were drawn from among the scientists of Kerala Agricultural University officers, Department of Agriculture and Scientists of University of Agricultural Sciences, Bangalore and KHDP and IVDP officials.

The scores were assigned as follows

Response	Score
Most relevant	5
More relevant	4
Undecided	3
Less relevant	2
Least relevant	1

The total score obtained for each character was worked out and a relevancy index was worked out using the formula.

$$\text{Relevancy Index} = \frac{\text{Score obtained}}{\text{Maximum score possible}} \times 100$$

Those characters which secured a relevancy index of 70 and above were finally selected. Thus 21 variables were finally selected under four major categories.

3.4.6.2 Personal variables

1) Age

2) Educational status

3) Occupational status

4) Experience in commercial vegetable production

3.4.6.3 Socio- Psychological variables

1) Mass media participation
2) Risk orientation
3) Management orientation
4) Market perception
5) Cosmopoliteness
6) Extension orientation
7) Group cohesion
8) Attitude of farmers

3.4.6.4 Economic variables

1) Annual income

2) Credit orientation

3) Economic motivation

3.4.6.5 Situational variables

1) Status need
2) Immediacy of returns
3) Non availability of Agricultural labourers
4) Lack of marketing and storage facilities
5) Low profitability in paddy cultivation
6) Difficulty in paddy cultivation

Personal variables

3.4.6.2.1 Age

Age was operationally defined as the number of completed years of vegetable cultivators at the time of interview and the chronological age was taken as the measure.

The respondents were asked to mention their age in terms of completed years at the time of interview.

3.4.6.2.2 Educational status

It refers to the number of years of formal learning possessed by the respondents. In this study, scale developed by Trivedi (1963) was used to measure the educational status. The scoring pattern was as follows.

Sl. No	Items	Score
1	Illiterate	1
2	Can read and write	2
3	Primary school	3
4	Middle school	4
5	High school	5
6	College	6

3.4.6.2.3 Occupational status

The occupational status was operationalised as the extent to which a respondent is engaged in farming activity alone. A farmer without any subsidiary occupation was given maximum score. The occupational status of respondents was quantified by the procedure followed by Allaudin (1983) with some modification in the scoring pattern.

Occupation	Score
Farming alone	4
Farming + Farming labour	3
Farming + Business	2
Farming + Service (Government or private)	1

3.4.6.2.4 Experience in commercial vegetable production

Refers to the total number of years the respondent has been engaged in commercial vegetable production.

Sl. No.	Experience	Score
1	Up to 1 year	1
2	1 to 3 years	2
3	3.1 to 5 years	3
4	Above 5 years	4

Socio-psychological variables

3.4.6.3.1 Mass media participation

Mass media participation was operationally defined as the extent to which respondent is exposed to different mass media communication.

The procedure used by Anantharaman (1991) with slight modification was used to measure the extent of exposure of the respondent to different mass media and the scoring was done as given below.

Mass medium	**Frequency**	**Score**
Radio	Daily	6
	2 to 6 days a week	5
	Once in a week	4
	Once in a fortnight	3
	Rarely	2
	Never	1
Newspaper	Daily	6
	2-6 days a week	5
	Oncein a week	4
	Oncein a fortnight	3
	Rarely	2
	Never	1
Magazines/leaflets/ Bulletins	Regularly	3
	Occasionally	2
	Never	1
Films (seen last year)	More than 6 times	4
	4-6 times	3
	1-3 times	2
	None	1

The total score of each respondent was computed by summing the scores of all the four sub items. The possible score ranges from 4 to 19.

3.4.6.3.2 Risk orientation

Risk orientation refers to the degree to which the respondent is oriented towards uncertainty and possesses enough courage to face problems in farming.

It was measured using the scale developed by Supe (1969). The scale consisted of six statements of which one statement was negative. The scoring was on a five-point continuum as 'Strongly Agree (5)', 'Agree (4)', 'Undecided (3)', 'Disagree (2)' and 'Strongly Disagree (1)' for positive statements and was reversed in the case of negative statements. The sum of the scores of each statement is the score of the risk orientation of the respondent. The possible score ranges from 6 to 30. (Appendix IVa)

3.4.6.3.3 Management orientation

Management orientation was operationalised as the degree to which respondent is scientifically oriented towards planning, production and marketing aspects of an enterprise in agriculture.

For measuring the management orientation, the scale developed by Samantha (1977) was used. It consisted of 14 statements, 4 for planning and 5 each for production and marketing orientation. In each group positive and negative statements were mixed. In case of positive statements, a score of two was given for agreement and 'one' for disagreement. For a negative statement, the scoring pattern was reversed. The sum of the scores obtained

by the respondent was taken as his score for management orientation. The possible scores ranges from 15 to 30. (Appendix IVa)

3.4.6.3.4 Market Perception

Refers to the degree of farmer's perception about different trends of marketing for greater returns.

It was measured by adopting the procedure developed by Nair (1969). The method consisted of scoring the responses obtained to selective questions presented to the respondents to elicit their perception of the market for the produce. The questions and the scoring procedure adopted were as follows:

1. Do you think a farmer will be able to sell the produce if he increases the production by adopting the recommended practices?

Yes - 1

No - 0

2. What price will the produce of the crop cultivated according to the recommended practice fetch compared to those raised under traditional methods ?

Low price - 0

Same price - 1

High price - 2

3. How difficult it will be to dispose off the produce of the crop cultivated following the recommended practices?

Very difficult - 0

Difficult - 1

Easy - 2

Very easy - 3

The score obtained by the farmer in each of the item questions were added up to form his market perception score. The possible total score ranges from 0 to 6.

3.4.6.3.5 Cosmopoliteness

Refers to the degree to which the respondent is in contact with outside village with the belief that all the needs of an individual cannot be met with in his own village.

The scoring pattern adopted by Desai (1981) with suitable modifications was used to measure cosmopoliteness and the scoring pattern is as follows.

Sl. No	Items	Score
A	**Frequency of visit to nearest town**	
1	Twice or more in a week	5
2	Once in a week	4
3	Once in a month	3
4	Seldom	2
5	Never	1
B	**Purpose of visit**	
1	Entertainment	5
2	Personal	4
3	Professional	3
4	Agricultural	2
5	Other purpose	1
C	**Membership in organisation out side the village**	
1	Non member	1
2	Membership in one organisation	2
3	Membership in more than one organisation	3

The score obtained are summed up to get the final score of the variable. The score ranges from 3 to 30.

3.4.6.3.6 Extension orientation

Refers to the degree to which the respondent has contact with different extension agencies and participation in various extension activities or programmes.

The method used by Bhaskaran (1979) was used with slight modifications. The extension orientation consists of two dimensions viz. Extension contact and extension participation.

(i) Extension contact

The extent of extension contact by the respondents was computed by giving scores to the items as follows.

Officials	Frequency of meeting	Score
Agricultural Assistants	a) Two or more times a week	4
	b) Once a week	3
	c) Once to thrice a month	2
	d) Never	1
Agricultural Officers	a) Two or more times a week	4
	b) Once a week	3
	c) Once to thrice a month	2
	d) Never	1
Block Development Officers	a) Two or more times a week	4
	b) Once a week	3
	c) Once to thrice a month	2
	d) Never	1
Technical assistants	a) Two or more times a week	4
	b) Once a week	3
	c) Once to thrice a month	2
	d) Never	1
Field Officers	a) Two or more times a week	4
	b) Once a week	3
	c) Once to thrice a month	2
	d) Never	1

ii) Extension participation

The following activities were included to evaluate the extension participation of the respondents.

1. Meetings
2. Seminars
3. Exhibitions
4. Film shows
5. Farmers days
6. Demonstrations
7. Field days

The respondents participation in the above extension activities for the past one year was considered to arrive at extension participation scores as given below.

Frequency	Score
Whenever conducted	3
Occasionally	2
Never	1

The scores obtained to both the sub items by each of the respondent was calculated and summated up to get the extension orientation score of each respondent. The score ranges from 12 to 41.

3.4.6.3.7 Group cohesion

Refers to the degree of closeness exhibited by members in the group and are motivated to remain in the group.

The variable was measured by applying the schedule developed by Sreedaya (2000) with slight modifications. The schedule comprises of five statements and was measured in a three-point continuum as 'Always, 'Sometimes' and 'Never'. Positive statements carry scores of '3', '2' and '1' and negative statements, '1', '2' and '3' respectively. Summation of each score obtained for each statement formed the total score of the respondent and the score ranges from 5 to 15. (Appendix IVa)

3.4.6.3.8 Attitude of farmers

Attitude of farmers was operationalised as a degree of positive and negative effect of the respondents towards vegetable production programmes.

Attitude is a pre-conditional factor for any action. Attitude of an individual plays an important role in determining his/her behaviour with respect to a particular psychological object. As corollary of this fact, the farmers attitude towards Vegetable Production Programmes will largely determine the nature and extent of their involvement and participation in the programme, which in turn, reflect on the quality of work done. It is therefore crucial to identify the attitude of farmers towards Vegetable Production Programmes and take such steps as are required to make programmes a success. Therefore, an attempt has been made in this study to highlight the

macharues of construction of scale to measure the attitude of farmers towards Vegetable Production Programmes.

The details of the steps followed in the construction of Likert type scale to measure the attitude of farmers towards Vegetable Production Programmes have been discussed as below.

a) Collection of statements

The first step in the scale construction was to collect and select a set of statements covering the entire universe of content. The statements were collected through review of literature, discussions with experts from Kerala Agricultural University and Department of Agriculture and farmers. Thus a total of 70 statements were collected.

b) Editing the statements

The statements were edited based on the criteria described by Edwards (1957) and from the total statements 50 statements were selected. Care was taken to include both positive and negative statements.

c) Selection of items

The statements were given to 30 experts in the Kerala Agricultural University and Department of Agriculture to test their relevancy to be included in the scale. This responses were collected in a four point continuum of 'Very Much Relevant' (VMR), 'Much Relevant' (MR), 'Somewhat Relevant' (SR) and 'Not Relevant' (NR). The scores were given as 4, 3, 2, and 1 for VMR, MR, SR and NR respectively. The total score for each

statement given by the experts was calculated. The statements were ranked in descending order of their scores. From these 30 statements with highest scores were selected and subjected to item analysis.

The process of item analysis is to examine how well each statement discriminates between farmer with different attitude. Procedure suggested by Edwards (1957) was followed. The statements were administered to 100 farmers of Haritha Sanghams selected from non-sample areas randomly. The farmers were asked to respond to each statement in terms of their own agreement or disagreement on a five point continuum viz., Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA) and Strongly Disagree (SDA). The various responses were assigned numerical weights such that the response of strongly agree had a score of 4, agree-3, undecided-2, disagree-1 and strongly disagree-0 for positive statements and reverse for the negative statements. The total score for each of the respondent was the sum of all the items.

The subjects were then arranged in descending order based on the total score obtained by them. 25 per cent of respondents with higher total scores and 25 per cent of respondents with lower total scores were selected from among the respondents. These two groups formed the criterion groups. To evaluate individual statements, the critical ratio i.e., t - value which is a measure of the t - unit to which a given statement differentiates between high and low group of respondents for each statement was calculated by using the formula suggested by Edwards (1957). Thus 8 positive and 6 negative statements with highest t-value i.e., more than 1.75 were selected for the final scale.

Attitude statements

Sl. No.	Statements	't' value
1.	Introduction of awards by Vegetable Production Programmes has motivated more farmers towards vegetable cultivation	5.09
2.	Vegetable Production Programmes has helped in attaining self sufficiency in vegetable production	5.03
3.	Benefits of Vegetable Production Programmes goes only to those farmers who regularly visit KrishiBhavan	4.74
4.	Vegetable Production Programmes improved the interaction between farmers and scientist.	4.63
5.	Group approach through Vegetable Production Programmes helps in building unity among the farmers	3.39
6.	Infrastructure facilities provided by Vegetable Production Programmes is not sufficient	3.06
7.	Vegetable Production Programmes helped in the introduction of improved varieties	2.46
8.	Only resourceful farmers with sound family background can take up vegetable cultivation implemented through Vegetable Production Programmes	2.45
9.	Vegetable Production Programmes help in promoting Integrated Pest and Disease Management	2.07
10	Leadership ability improved as a result of Vegetable Production Programmes	2.04
11.	Government assistance is comparatively low in vegetable cultivation implemented through Vegetable Production Programmes	2.03
12.	Conversion of paddy field increased with the implementation of Vegetable Production Programmes	2.00
13.	Subsidy provided by Vegetable Production Programmes not attractive for farmers.	1.95
14.	Less risk is involved in vegetable cultivation through Vegetable Production Programmes	1.78

d) Scoring techniques

The items on the attitude scale were provided with 5 point psychological continuum viz., Strongly Agree, Agree, Undecided, Disagree, Strongly Disagree with weights of 4,3,2,1,0 respectively for the positive statements and 0,1,2,3 and 4 for the negative statements. The attitude score of the respondents can be obtained by summing up the scores for all the items in the scale.

Reliability

Test-retest method was used to establish the reliability of the developed attitude scale. The scale was administered twice to 30 farmers at 15 days interval. The two sets of scores were correlated and the correlation coefficient (r) was estimated. The correlation coefficient (0.85) was significant at 0.01 level and thus the scale was found reliable.

Validity

Validity of a scale is the property that ensures that the obtained scale measures the variables they are supposed to measure. The validity of the scale was tested in the following way.

Content validity

The scale was examined for the content validity by determining how well the content of the scale represented the subject matter under study. As all the possible items covering the increase of content were selected by discussion

with experts, social scientist and from all the available literature on the subject, the scale satisfied the content validity.

Economic variables

3.4.6.4.1 Annual Income

Refers to the sum of the earning of all the adult family members of the respondent for one year.

This was obtained by adding the income earned by all the adult members of the family and it includes income from the land and off farm activities for one year. The variable was measured by directly asking the respondents about the total Income earned by them. The scoring pattern followed in this case is given below.

Sl. No.	Income (Rs.)	Score
1	Up to 2000	1
2	2001 to 5000	2
3	5001 to 10,000	3
4	10,001 to 20,000	4
5	Above 20,000	5

3.4.6.4.2 Credit orientation

Credit orientation was operationalised as the degree to which the respondent is oriented to avail credit.

It was measured using the scale developed by Beal and Sibley (1967) with slight modification. The scale consisted of five items. The first and last items were measured in 'yes' or 'no' response with scores '2' and '1' respectively. The second item was measured on a four point continuum as 'Very Difficult', 'Difficult', 'Easy' and 'Very Easy' with scores '1', '2', '3' and '4' respectively. The third item was measured on a four -point continuum as 'Very Badly', 'Badly', 'Fairly' and 'Very Fairly' with scores '1', '2', '3' and '4' respectively. Fourth item was measured on a five point continuum of 'Strongly Agree', 'Agree', 'Disagree' and 'Strongly Disagree' with scores of '5', '4', '3', '2' and '1' respectively. Summation of these scores of all the items was the credit orientation score of the respondent. The possible score ranges from 5 to 17.

3.4.6.4.3 Economic motivation

Refers to the degree of respondent's orientation towards profit maximization. The scale developed by Supe (1969) was used to measure economic motivation. The scale consisted of six statements of which forth and sixth are negative. Each statement was provided with five point response categories namely 'Strongly Agree', 'Agree', 'Undecided', 'Disagree' and 'Strongly Disagree' with scores of 5, 4, 3, 2 and 1 for positive statements and 1, 2, 3, 4 and 5 for negative statements respectively. The summation of the scores of all the statements formed the score for economic motivation. The score ranges from 6 to 30. (Appendix IVa)

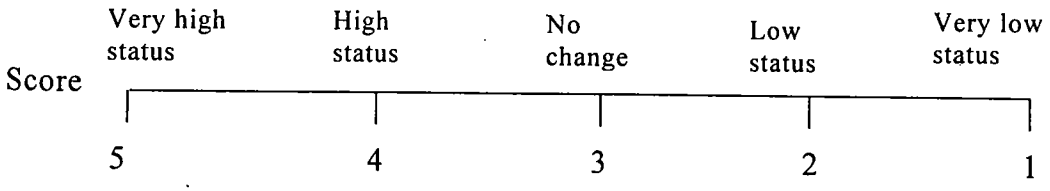
Situational variables

3.4.6.5.1 Status need

Refers to the perception of vegetable growers about the degree to which vegetable cultivation can bring status to the farmer in the society in comparison with rice cultivation.

To quantify the farmers perception, the respondents were asked to state as to how much they feel vegetable cultivation can bring status in the society. The responses were taken on a five point continuum as given below. The response weightage itself form the score of that individual on status need.

Continuum :

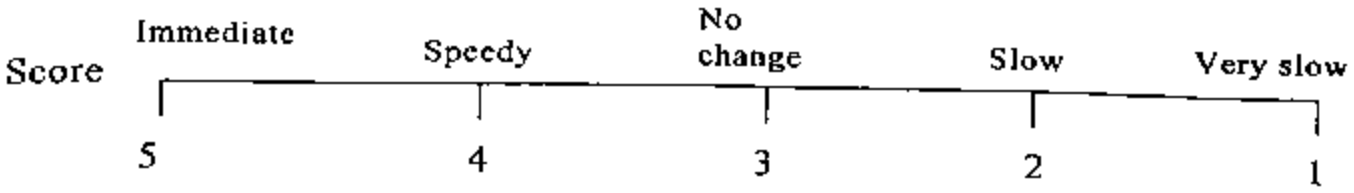


3.4.6.5.3 Immediacy of returns

Refers to the degree to which vegetable cultivation can provide immediate returns in comparison with paddy cultivation as perceived by the vegetable farmers. Respondents were asked to state as how much they feel vegetable cultivation can bring immediate returns compared to other crops.

The response of their perception was taken on a five point continuum as follows. Score of the individual respondent is the weightage of his or her response.

Continuum :



3.4.6.5.4 Non availability of Agricultural labourers

One serious problem of Kerala's agriculture is the non availability of labourers in time. This affects the paddy cultivation adversely and results in limiting paddy cultivation by farmers. Non availability of agricultural labourers was operationalised as the extent of timely availability of agricultural labourers felt by the respondents.

In this study, the availability of agricultural labourer was measured using schedule developed for the purpose. The respondents were asked to state whether in their case agricultural labourer were 'Easily Available', 'Available but Not Sufficient' and 'Not Available' with respective scores of 1,2 and 3.

Response category	Score
Easily available	1
Available but not sufficient	2
Not available	3

3.4.6.5.5 Lack of marketing and storage facility

Lack of insufficient storage facility results in damage of produce. For the purpose of this study, lack of marketing and storage facility is operationalised as the degree to which marketing and storage facilities is being perceived as sufficient by the respondents. The scoring procedure used was as follows.

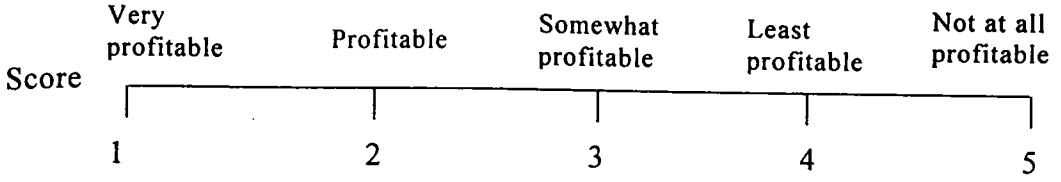
Response category	Score
Highly sufficient	1
Sufficient	2
Moderately sufficient	3
Least sufficient	4
Not sufficient	5

3.4.6.5.6 Low profitability in paddy cultivation

Profitability is viewed as the intensity of reward measured in economic terms, resulting in cultivation of different crops by the farmer. It is quite logical that farmers in general will switch over to another crop if they are convinced that it is no more profitable.

Low profitability in paddy cultivation was operationalised as the degree to which the respondent perceives paddy cultivation a less profitable enterprise compared to other crops. To quantify the farmer's perception the respondents were asked to state as to how profitable they consider, the paddy cultivation. The scoring pattern used by Prakash (1989) was used to measure the response. The responses were taken on a five-point continuum.

Continuum:

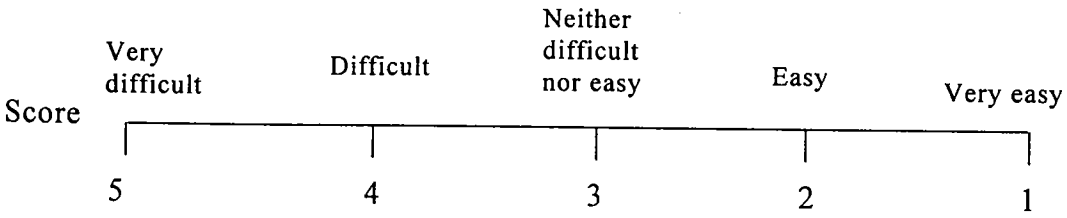


3.4.6.5.7 Difficulty in paddy cultivation

Difficulty refers to the degree to which the respondent perceives different operations in paddy cultivation as difficult.

To quantity the perception of the difficulty, the respondents were asked to state as to how difficult they think is the cultivation of paddy crop. The scoring procedure used by Prakash (1989) was used in this study to elicit the responses.

Continuum :



3.5 Frame work for effective Social Cost Benefit Analysis

Based on the results and inferences obtained from the study, a draft framework of SC BA applicable to peoples plan in the state was formulated by the researcher. The draft framework was then subjected to refinement by the panel of experts in the field. The results of the refinement formed the framework suggested for SCBA of Agricultural Development Programme in Kerala.

3.6 Statistical tools used for the study

The data collected from the respondents were scored, tabulated and analysed using statistical methods as detailed below:

3.6.1 Mean

The respondents were classified into low groups and high groups for the dependent and independent variables based on the respective mean score.

3.6.2 Percentage analysis

To make simple comparisons percentage analysis was done.

3.6.3 Correlation analysis

To find out the relationship between the independent (x) and dependent (y) variables the Pearson's product moment correlation (r) was worked out using the formula.

$$r_{xy} = \frac{\Sigma xy - \frac{(\Sigma x)(\Sigma y)}{n}}{\sqrt{\left[\Sigma x^2 - \frac{(\Sigma x)^2}{n}\right]\left(\Sigma y^2 - \frac{(\Sigma y)^2}{n}\right]}}$$

where,

n = the sample size

The correlation coefficients have limits between +1 and –1. A coefficient of +1 indicates perfect positive correlation and coefficient of –1 indicates perfect negative correlation. A positive correlation indicates a

similar trend of relationship between two variables, i.e., as one increases, the other also increases or as one decreases, the other also decreases.

3.6.4 Principal Components Analysis

The components determining social cost and social benefit can be represented by means of measurements over a number of factors. By principal components analysis, it is possible to concentrate on those factors or linear combinations of the factors, which are mainly responsible for the variation between the respondents. The total variability present in the data are divided into different components (equal to the number of factors) such that each component is a linear combination of the different factors. These combinations are called Principal Components. The procedure of finding these functions is by applying orthogonal transformations to the original set of variables (Hotelling, 1933). Here a multidimensional data set is reduced to a space of low dimensions.

The first linear combination obtained will have the maximum variation, the second has the next maximum variation and so on. First few components explaining more than 75 per cent of variability are identified through this study.

3.6.5 t – test

t – test was done to find out whether there is any significant difference between the groups selected under KHDP and IVDP.

Results and Discussion

CHAPTER IV

RESULTS AND DISCUSSION

The results and discussion of the study are presented under the following subheads.

4.1 Dimensions of social cost and social benefit

4.2 Social Cost-Benefit Analysis (SCBA) of vegetable production programmes

4.2.1 Development of Social Cost Index Values (SCIV)

4.2.2 Correlation of dimensions of social cost with Social Cost Index Values (SCIV)

4.2.3 Principal Component Analysis of dimensions of social cost

4.2.4 Development of Social Benefit Index Values (SBIV)

4.2.5 Correlation of dimensions of social benefit with Social Benefit Index Value (SBIV)

4.2.6 Principal Component Analysis of dimensions of social benefit

4.2.7 Benefit-Cost ratio (B-C ratio) of vegetable production programmes

4.3 Distribution of respondents based on dimensions of social cost and social benefit

4.3.1 Dimensions of social cost

4.3.2 Dimensions of social benefit

4.1.1 Dimensions of social cost and social benefit

Six dimensions of social cost and eight dimensions of social benefit accruing out of vegetable production programmes were identified and selected for the purpose of the study by using Nominal Group Technique (NGT) and Policy Delphi Technique. The procedure adopted for delineating the dimensions is described in the methodology chapter. Table 4.1 shows the list of dimensions of social cost and Table 4.2 shows the list of dimensions of social benefit selected for the study.

Various dimensions of social cost and dimensions of social benefit were identified using Nominal Group Technique and these dimensions were further prioritized using Policy Delphi Technique. Table 4.1 shows the total scores of each category of respondents namely scientists, extension experts and progressive farmers used in Policy Delphi Technique. Table also reveals the average score of each dimension based on which relevancy index were calculated. It could also be observed that the maximum Relevancy Index (R.I) was obtained for the dimension conversion of paddy crop (80.6) followed by perishability (78.6), involvement at the cost of education (78.6), displacement of agricultural labourers (78.3), exploitation by middlemen (78.0) and the least Relevancy Index was obtained for the dimension time constraint (73.3) (Fig. 3).

Table 4.2 reveals the total scores obtained by each category of respondents namely scientists, extension experts, progressive farmers used in Policy Delphi Technique to delineate the dimensions of social benefit. Table

Table 4.1 Dimensions of social cost with respective relevancy index

(n=60)

Sl. No.	Dimensions	Scientists	Extension experts	Progressive farmers	Average score	Relevancy Index
1	Perishability	85	77	74	78.6	78.6
2	Conversion of paddy crop	83	81	78	80.6	80.6
3	Displacement of Agricultural labourers	79	76	80	78.3	78.3
4	Exploitation by middlemen	85	74	75	78	78
5	Time constraints	60	78	82	73.3	73.3
6	Involvement at the cost of education	79	73	84	78.6	78.6

Table 4.2 Dimensions of social benefit with respective Relevancy Index

(n=60)

Sl. No	Dimensions	Scientists	Extension experts	Progressive farmers	Average score	R.I
1	Family labour utilisation	94	94	90	92.6	92.6
2	Increased living standard	84	85	95	88	88
3	Self confidence	97	94	92	94.3	94.3
4	Dignity	78	77	91	82	82
5	Equity	79	83	84	82	82
6	Satisfaction	80	80	79	79.6	79.6
7	Sociability	90	93	91	91.3	91.3
8	Knowledge in vegetable production	88	72	71	77	77

4.2 also shows the average score obtained for each dimension based on which relevancy index were calculated. It could also be seen from the table that among the selected dimensions of social benefit, the dimension self confidence had the maximum relevancy index (94.3), followed by Family labour utilization (92.6), Sociability (91.3), Increased living standard (88.0, Dignity of farmers (82.0), Equity (82.0), Satisfaction (79.6) and the least was obtained for knowledge in vegetable production (77.0).

The above listed six dimensions of social cost (Table 4.1) constitute to form, social cost index (SCI) and the eight dimensions of social benefit (Table 4.2) constitute to form Social Benefit Index (SBI) for the present study.

4.2 Social Cost Benefit Analysis (SCBA) of vegetable production programme

4.2.1 Development of Social Cost Index Value (SCIV)

The social cost index (SCI) was used as a tool to assess the extent of social cost accrued out of vegetable production programmes by the respondents. The six dimensions of social cost constitute to form the social cost index (Table 4.1).

Based on the score obtained by applying the social cost index, the social cost index value (SCIV) of the respondents of KHDP and IVDP Self Help Groups were calculated to measure and compare the social cost as observed by the Self Help Group farmers (Appendix Va and Vc). The procedure adopted in the development of SCIV is described in the methodology chapter. Table 4.3 shows the district wise distribution of SCIV of KHDP and IVDP as observed by the farmers of SHGs.

Table 4.3 Social Cost Index Value (SCIV) of KHDP and IVDP

Sl. No.	District	KHDP	IVDP
1.	Thiruvananthapuram	0.4193	0.4329
2.	Thrissur	0.3645	0.3606
3.	Malappuram	0.4107	0.4705

F value : 8.489**

The result in the Table 4.3 shows that under KHDP, Thiruvananthapuram district had the highest SCIV (0.4193) followed by Malappuram district (0.4107) and the least SCIV was found in Thrissur district (0.3645). This might be due to the reason that respondents of Thiruvananthapuram district would have faced the maximum social cost which accrued out of KHDP followed by the other two districts. The perusal of Table 4.3 also show that in case of IVDP, Malappuram district had the highest SCIV (0.4705) followed by Thiruvananthapuram district (0.4329) and the least SCIV was found in Thrissur district (0.3603). In the case of IVDP Malappuram district would have faced the maximum social cost, which accrued out of the programmes, this might be reason for the above result. F value (8.498**) implies that there was significant difference between KHDP and IVDP with respect to SCIV.

4.2.2 Correlation of dimensions of social cost with SCIV

The degree of the linear relationship of the six dimensions of social cost with SCIV was found out by calculating the Pearson's product moment correlation coefficient. The results are presented in Table 4.4.

The perusal of the data presented in Table 4.4 indicates the relationship of dimensions of social cost with SCIV. The test for statistical significance for correlation coefficient (r) was made at 0.05 and 0.01 level of probability. All the six dimensions had significant and positive association with SCIV at 0.01 level.

The high correlation coefficients obtained in the present study clearly indicate that the dimensions included in the study were not extraneous but rather form part of SCI. The positive and significant correlation of all components to SCIV justified the important assumption that dimensions included in the SCI have significant association with social cost perceived by the members of the SHGs.

Table 4.4 Correlation of dimensions of social cost with Social Cost Index Value (SCIV)

(n=60)

Sl. No.	Dimensions	Correlation coefficient (r)
1.	Perishability	0.4910**
2.	Conversion of paddy crop	0.5317**
3.	Displacement of agricultural labourers	0.4125**
4.	Exploitation by middlemen	0.5435**
5.	Time constraints	0.3960**
6.	Involvement at the cost of education	0.4936**

4.2.3 Principal Component Analysis of dimensions of social cost

The results of the Principal Component Analysis based on five dimensions (variables) of social cost excluding the dimension, conversion of paddy crop as majority of the respondents in this case had zero score, are presented in Table 4.5 and Table 4.6. For these five dimensions there will be five vectors. VAR-1, VAR-2, ..., VAR-5 denotes the five dimensions (variables). Results indicated that the first linear combination of principal components contributed 34 per cent to the total variation, the second linear combination contributed 17 per cent variation. Thus the first three linear combinations of dimensions yielded 84 per cent of the total variation. In the first linear combination, larger magnitude of variation was contributed by dimensions such as exploitation by middlemen (VAR-3), displacement of agricultural labourers (VAR-2) and time constraint (VAR-4). In the second linear combination larger magnitude of variation was due to dimensions such as displacement of agricultural labourers (VAR-2), time constraint (VAR-4) and perishability (VAR-1). In the third linear combinations, dimensions such as involvement at the cost of education (VAR-5), displacement of agricultural labourers (VAR-2) contributed larger magnitude of variation. The above findings indicate that the dimensions such as exploitation by middlemen (VAR-3), displacement of agricultural labourers (VAR-2) and time constraint (VAR-4) contributed higher magnitude of variation. Results of correlation of dimensions with SCIV confirms the above findings.

Table 4.5 Principal Components Analysis of the dimensions of social cost

Sl. No.	Variable	PRIN 1	PRIN 2	PRIN 3	PRIN 4	PRIN 5
1.	VAR 3	0.856	-0.492	-0.131	0.033	-0.089
2.	VAR 2	0.396	0.734	0.164	-0.080	0.520
3.	VAR 4	0.332	0.402	0.067	-0.058	0.849
4.	VAR 5	0.029	-0.196	0.961	0.194	0.019
5.	VAR 1	0.017	0.140	-0.169	0.975	0.007

Table 4.6 Percentage of variation and cumulative variation contributed by the dimensions of social cost

Sl. No.	Principal components	Latent roots	Percentage variance	Cumulative variance
1.	PRIN 1	1.756	34.712	34.712
2.	PRIN 2	1.642	32.448	67.161
3.	PRIN 3	0.869	17.182	84.943
4.	PRIN 4	0.509	10.053	94.396
5.	PRIN 5	0.284	5.604	100.00

4.2.4 Development of Social Benefit Index values (SBIV)

The Social Benefit Index (SBI) was used as a tool to assess the extent of social benefit accrued out of vegetable production programme as observed by the respondents. The eight dimensions of social benefit constitute to form the Social Benefit Index (SBI) (Table 4.2). Based on the score obtained by applying the SBI, the SBIV of the respondents of KHDP and IVDP were calculated to measure and compare the social benefits of KHDP and IVDP

SHG farmers (Appendix Vb and Vd). The procedure adopted in the computation of SBIV is described in the methodology chapter. Table 4.7 shows the district wise distributions of SBIV of KHDP and IVDP as perceived by the SHG farmers.

Table 4.7 Social Benefit Index Values (SBIV) of KHDP and IVDP

Sl. No.	District	KHDP	IVDP
1.	Thiruvananthapuram	0.7026	0.6420
2.	Thrissur	0.7141	0.6565
3.	Malappuram	0.6237	0.6222

F value : 19.008**

It could be observed from the Table 4.7 that maximum SBIV was found in Thrissur district. Under both KHDP (0.7141) and IVDP (0.6565) followed by Thiruvananthapuram district which was 0.7026 in case of KHDP and 0.6420 under IVDP. In both KHDP and IVDP least SBIV was observed in Malappuram district. It was observed that the respondents of Thrissur district had perceived the maximum social benefits from vegetable production programmes. This might be the reason for the above result. It could also be seen from the F value (19.004) that their existed a significant difference between KHDP and IVDP with respect to SBIV.

4.2.5 Correlation of dimensions of social benefit with Social Benefit Index Value (SBIV)

The degree of the linear relationship of the eight dimensions of social benefit with SBIV was found out by calculating the Pearson's product moment correlation coefficient. The results are presented in Table 4.8.

The perusal of the data presented in Table 4.8 indicate the relationship of dimensions of social benefit with SBIV. The test for statistical significance for correlation coefficient (r) was made at 0.05 and 0.01 level of probability.

All the eight dimensions had significant and positive association with SBIV at 0.01 level.

The high correlation coefficients obtained in the present study clearly indicate that the dimensions included in the study were not extraneous but rather form part of SBI. The positive and significant correlation of all components to SBIV justified the important assumption that components included in the SBI have significant association with social benefits perceived by the members in the SHGs.

Table 4.8 Correlation of dimensions of social benefit with SBIV

Sl. No.	Dimensions	Correlation coefficient (r)
1	Family labour utilization	0.2571**
2	Increased living standard	0.4266**
3	Self confidence	0.7641**
4	Dignity of farmers	0.2619**
5	Equity	0.4061**
6	Satisfaction	0.5761**
7	Sociability	0.6156**
8	Knowledge in vegetable production	0.2914**

Table 4.9 Components analysis of the dimensions of social benefit

Sl. No.	Variable	PRIN 1	PRIN 2	PRIN 3	PRIN 4	PRIN 5	PRIN 6	PRIN 7	PRIN 8
1	VAR4	0.982	-0.125	-0.142	0.014	-0.002	0.004	-0.008	-0.000
2	VAR7	0.162	0.229	0.874	-0.391	-0.011	0.024	0.059	0.011
3	VAR3	0.074	0.916	-0.300	-0.116	-0.144	-0.172	-0.024	-0.028
4	VAR6	0.065	0.251	0.320	0.893	0.168	0.064	0.031	-0.018
5	VAR5	0.003	0.014	-0.032	-0.117	0.853	-0.507	-0.001	0.028
6	VAR8	0.003	0.159	-0.102	-0.143	0.454	0.800	-0.289	-0.120
7	VAR1	0.002	0.021	0.024	0.025	-0.030	-0.006	-0.443	0.895
8	VAR2	-0.000	0.065	-0.105	-0.045	0.131	0.261	0.846	0.427

Table 4.10 Percentage of variation and cumulative variation contributed by the dimensions of social benefit

Sl. No.	Principals	Latent roots	Percentage variance	Cumulative variance
1.	PRIN 1	42.443	54.369	54.369
2.	PRIN 2	18.098	23.183	77.552
3.	PRIN 3	7.578	9.707	87.259
4.	PRIN 4	4.781	6.125	93.384
5.	PRIN 5	2.883	3.693	97.077
6.	PRIN 6	1.747	2.238	99.314
7.	PRIN 7	0.310	0.397	99.711
8.	PRIN 8	0.226	0.289	100.001

4.2.6 Principal Component Analysis of dimensions of social benefit

The results of the Principal Components Analysis based on the eight dimensions (variables) of social benefit are presented in Table 4.9 and Table 4.10. Eight vectors of principal components are presented along with the percentage variance in the decreasing order corresponding to each vector. VAR-1, VAR-2, ... VAR-8 denotes the eight dimensions (variables) of social benefit. Results indicate that the first linear combination of principal components contributed 54 per cent to the total variation, the second linear combination yielded 23 per cent and third linear combination contributed nine per cent variation. Thus the first three linear combinations of dimensions yielded 87 per cent of the total variation. In the first linear combination, larger magnitude of variation was contributed by dimensions such as dignity of farmers (VAR-4) and sociability (VAR-7). In the second linear combinations larger magnitude of variations was due to dimensions such as self confidence (VAR-3), satisfaction (VAR-6) and sociability (VAR-7). In the third linear combinations dimensions such as sociability (VAR-7) and satisfaction (VAR-6) contributed larger magnitude of variation. The above findings indicate that the dimensions such as VAR-4, VAR-7, VAR-6 and VAR-3 contributed higher magnitude of variations. Results of correlation of dimensions with SBIV confirms the above findings.

4.2.7 Benefit Cost Ratio (B-C ratio) of vegetable production programme

The procedure adopted for B-C ratio was discussed in the methodology chapter. Table 4.11 reveals the B-C ratio of the KHDP and IVDP based on the

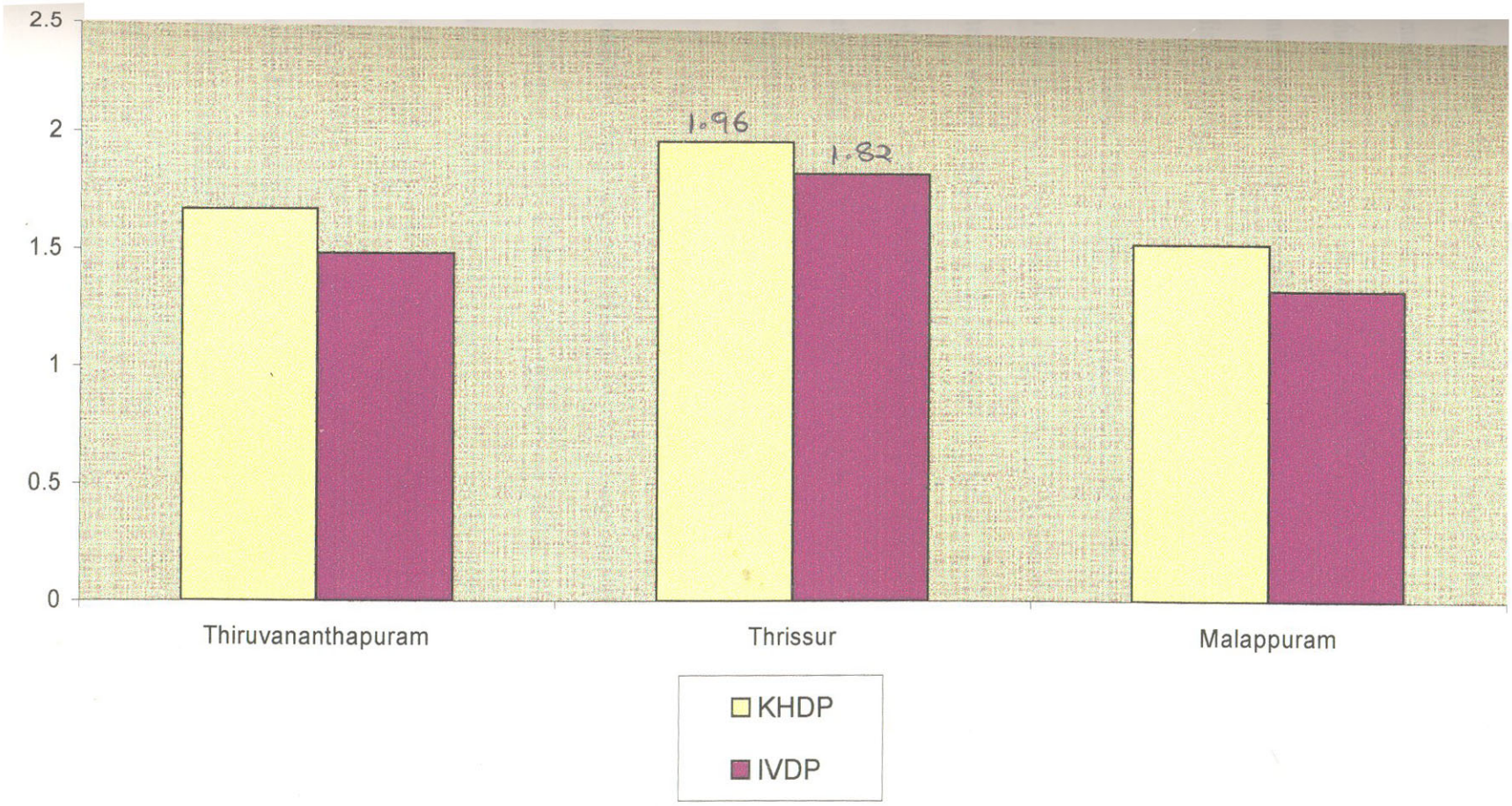


Fig. 3 Bar graph showing District wise distribution of B-C ratio of KHDP and IVDP

B-C ratio obtained for each respondents under each district (Appendix Ve and Vf). From the Table 4.11, it could be concluded that Thrissur district had the maximum B-C ratio under both KHDP (1.96) and IVDP (1.82). This might be due to the reason that respondents of Thrissur district and observed the maximum social benefit and least social cost compared to the other two districts (Fig. 3).

From the Table 4.11 it could be observed that B-C ratio of KHDP (1.72) is more than the B-C ratio of IVDP (1.54) and the F value implies that there was a significant difference between KHDP and IVDP with respect to B-C ratio. From the result it could also be inferred that KHDP is found to be better than the IVDP, eventhough both the programmes are socially feasible and profitable.

The Kerala Horticultural Development Programme is one of the most successful agricultural development programme in this country. Since its inception in 1993 KHDP has disproved many myths about Indian agriculture. The KHDP functions through project areas and field centres at macro level and self help groups at micro level. KHDP aims to improve the standard of living of farmers. The main role of KHDP is to act as a facilitator of technical knowledge and inputs and to make the farmers self sufficient and self reliant. All SHG members are found conducting their SHG meetings at least once in a month.

Table 4.11 District wise distribution of B-C ratio of KHDP and IVDP

Sl. No.	Districts	KHDP	IVDP
1.	Thiruvananthapuram	1.67	1.48
2.	Thrissur	1.96	1.82
3.	Malappuram	1.52	1.32

F value : 17.67**

This is attributed to the good level of co-operation among the SHG members and the officials. Field Centres made the farmers aware of the daily prices that they would get for their produce and the trading agency. KHDP is the only organisation providing credit through nationalized banks to the tune of Rs. 25,000/- without any collateral and that too with fewer formalities. The training organized by KHDP are practical oriented and aims at improving the technical know how of the farmers. The trainings are imparted to the master farmers who inturn train their fellow members, hence KHDP interventions has breathed new life in the horticulture sector of Kerala. Eventhough IVDP too aims to ensure production and supply of vegetables throughout the year and to improve the standard of living of farmers because of various loopholes like lack of coordination among members, lack of credit facilities for the members, lack of efficient leadership, lack of direct contact between officials and farmers, lack of adequate marketing facilities like a common marketing centre as in case of KHDP, members of IVDP SHGs were found to observe more social cost and less social benefits compared to KHDP, hence less social benefits compared to KHDP, this resulted in comparatively low B-C ratio than KHDP.

Table 4.12 District wise distribution of social cost of KHDP SHG farmers

Sl. No	Dimensions	Category	Score range	Mean	Thiruvananthapuram (n=60)		Thrissur (n=60)		Malappuram (n=60)	
					F	P	F	P	F	P
1	Perishability	H	1 – 4	2.51	28	47	25	42	34	57
		L			32	53	35	58	26	43
2	Conversion of Paddy crop	FC		-	33	55	13	22	7	12
		NFC			27	45	47	78	53	88
3	Displacement of agricultural labourers	H	4 – 12	7.59	33	55	35	58	31	52
		L			27	45	25	42	29	48
4	Exploitation by middlemen	H	3 – 9	5.84	31	52	14	23	55	92
		L			29	48	46	77	5	8
5	Time constraint	H	3 – 9	5.47	29	48	25	42	30	50
		L			31	52	35	58	30	50
6	Involvement at the cost of education	H	1 – 5	2.87	30	50	26	43	31	52
		L			30	50	34	57	29	48

M – Mean,
H – High (≥ Mean)
L – Low (< Mean)
FC – Fully converted
NFC – Not fully converted
F – Frequency
P – Percentage

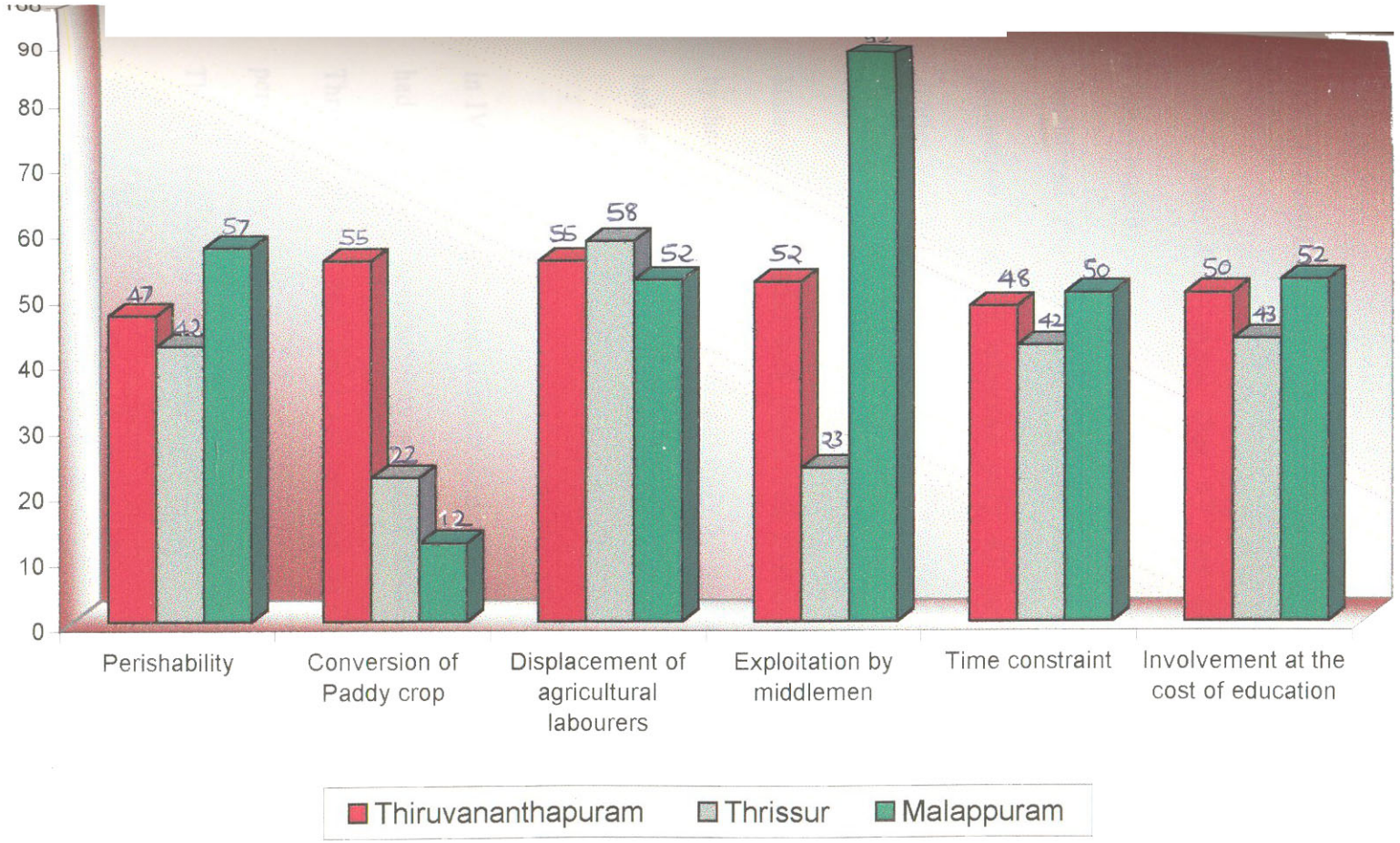


Fig. 4 Bar graph showing District wise distribution of social costs (in %) as perceived by KHDP SHG farmers

4.3 Distribution of respondents based on dimensions of social cost and social benefit

4.3.1 Dimensions of social cost

4.3.1.1 Perishability

Table 4.12 show that 47 per cent of respondents of KHDP in Thiruvananthapuram district and 57 per cent in Malappuram district considered Perishability a major social cost faced by them in vegetable production (Fig. 4) whereas only 42 per cent of respondents in Thrissur district had perceived the same. In case of IVDP farmers as shown in Table 4.13, 63 per cent of respondents in Thrissur district and 67 per cent in Malappuram district had perceived perishability as a major social cost faced by them. It was also seen that only 53 per cent in Thiruvananthapuram district had perceived the same (Fig. 5).

It could be concluded from the above results that in KHDP as well as in IVDP, Malappuram district had the maximum number of respondents who had perceived perishability a major social cost where as KHDP farmers of Thrissur district had the least number of respondents who had reported high perishability and similar result was found in IVDP SHG farmers of Thiruvananthapuram district.

Vegetables are perishable by nature and if there is no proper marketing facilities in the market it would lead to perishability, hence there will be heavy loss to the farmers. It was observed that all the farmers produced same types of vegetables at a time, and because of lack of proper transport facility they

Table 4.13 District wise distribution of social cost of IVDP SHG farmers

Sl. No	Dimensions	Category	Score range	Mean	Thiruvananthapuram (n=60)		Thrissur (n=60)		Malappuram (n=60)	
					F	P	F	P	F	P
1	Perishability	H	1 – 4	2.63	32	53	38	63	40	67
		L			28	47	22	37	20	33
2	Conversion of Paddy crop	F.C		-	17	28	10	17	6	10
		NFC			43	72	50	83	54	90
3	Displacement of agricultural labourers	H	4 – 12	7.57	32	53	34	57	32	53
		L			28	47	26	43	28	47
4	Exploitation by middlemen	H	3 – 9	6.69	36	60	33	55	58	97
		L			24	40	27	45	2	3
5	Time constraint	H	3 – 9	5.57	30	50	18	30	37	62
		L			30	50	42	70	23	38
6	Involvement at the cost of education	H	1 – 5	2.8	32	53	19	32	51	85
		L			28	47	41	68	9	15

M – Mean,
H – High (≥ Mean)
L – Low (< Mean)
FC – Fully converted
NFC – Not fully converted
F – Frequency
P – Percentage

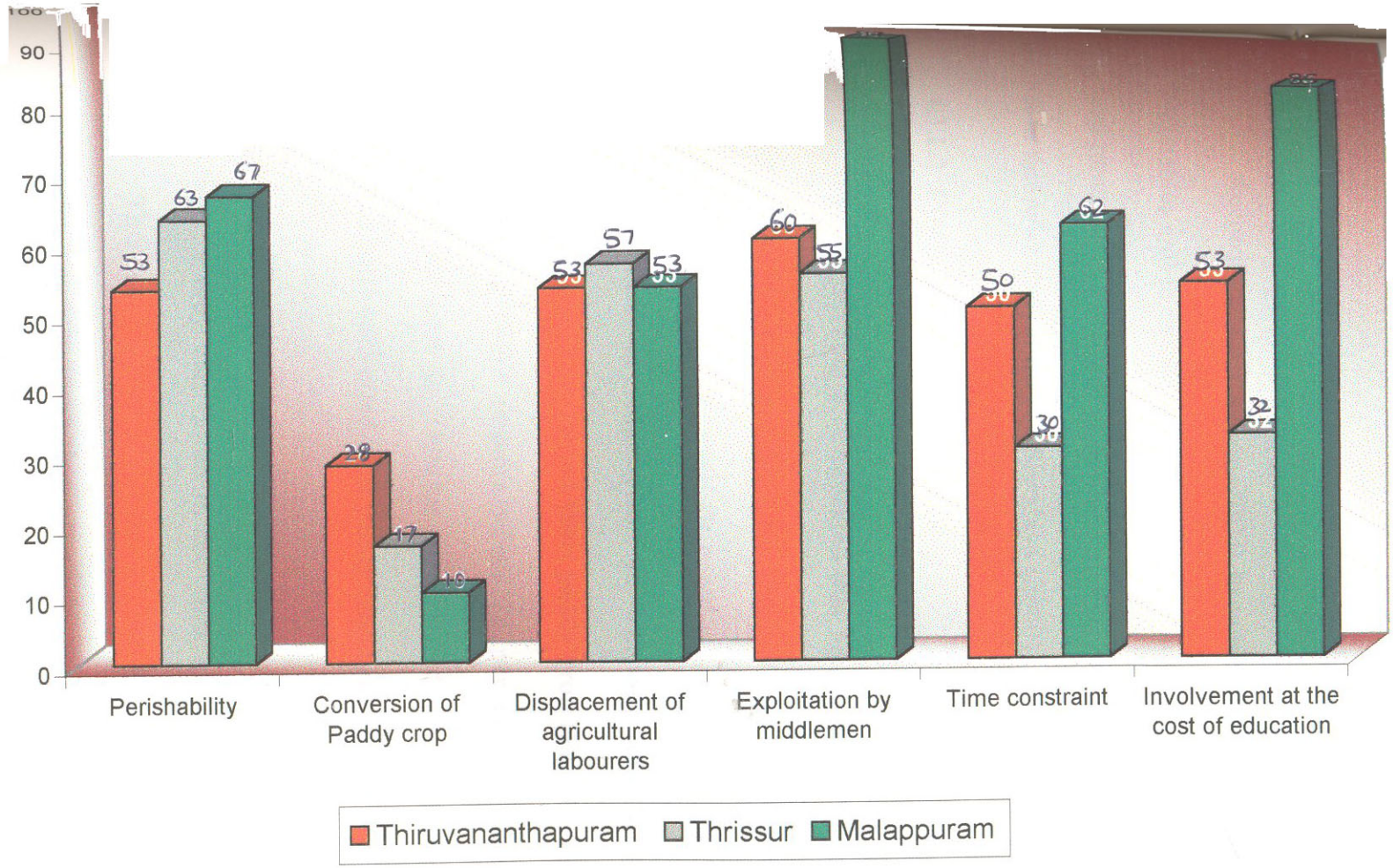


Fig. 5 Bar graph showing District wise distribution of social cost (in %) as perceived by IVDP SHG farmers

could not go out to distant places for marketing and this created glut situation in the nearby markets and because of no proper storage facilities vegetables got perished. These problems were observed maximum in the Malappuram district and this could be the reason for the above result.

According to Sreedaya (2000) because of the perishable nature of the vegetables and to avoid damage to the produce, proper arrangement for storage and processing facilities of produce should be made, hence the above finding is in line with the finding of Sreedaya (2000).

4.3.1.2 Conversion of Paddy crop

Perusal of Table 4.12 revealed that among KHDP farmers, 55 per cent of respondents in Thiruvananthapuram district had fully converted their paddy land into other profitable crops. It could also be noted that only 22 per cent and 12 per cent of respondents in Thrissur and Malappuram district respectively had fully converted their paddy crop (Fig. 4). Similar trend was observed among IVDP farmers where 28 per cent in Thiruvananthapuram district, 17 per cent in Thrissur district and 10 per cent in Malappuram district, had fully converted their paddy crop (Table 4. 13 and Fig. 5).

Land and labour are the two major components of the process of production. Paddy cultivation in the state has been stagnating since many years. This was mainly because of the fact that the improvement in productivity had been more than off set by the decline in area under the crop. The surging pressure exerted by more rewarding crops resulted in a continuous shift in area from paddy cultivation to other crops, hence low profitability

could be one of the reason for the conversions of paddy land among the respondents. Paddy cultivation requires some difficult operations like land preparation, harvesting and post harvest operations which require skilled agricultural labourers but non availability of agricultural labourers was expressed as a problem by the respondents of the study and this could have resulted in conversion of paddy crop to other crops. The above listed factors that have resulted in conversion were expressed as a main problem mainly by the farmers of Thiruvananthapuram district. This may be the reason for the above result.

This result is on par with the results of Kothicane (1987), Nair (1982) and Radhakrishnan (1983) who revealed that cost of production of paddy cultivation are the main constraints liming paddy production in Kerala.

4.3.1.3 Displacement of Agricultural labourers

Table 4.12 reveals that 55 per cent of respondents in Thiruvananthapuram district, 58 per cent in Thrissur district and 52 per cent in Malappuram district of KHDP opined displacement of agricultural labourers as a major social cost (Fig. 4). In case of IVDP also same trend was observed where 53 per cent, 57 per cent and 53 per cent of respondents in Thiruvananthapuram, Thrissur and Malappuram district had expressed the same dimension as the major social cost (Table 4.13 and Fig. 5).

Self Help Group farmers selected for the study felt that vegetables could be grown profitably only by utilizing family labour because of high wage rate and non availability of agricultural labourers. It was seen that the

members of the group grew same crops at a time and thus critical period of labour requirement for the farmers came simultaneously, this resulted in non-availability of agricultural labourers. Hence, these factor would be the reason why majority of respondents in all the three districts were under high category with respect to the dimension displacement of agricultural labourers. This result is in confirmation with the result of Nagesh (2001).

4.3.1.4 Exploitation by middlemen

Maximum number of respondents under KHDP who identified exploitation by middlemen as a major social cost was in Malappuram district (92%) followed by Thiruvananthapuram district (52 %) and Thrissur district (23 per cent) (Table 4.12 and Fig. 4). Same trend was observed in IVDP also, where 97 per cent of respondents in Malappuram district had perceived exploitation by middlemen a major social cost and 60 per cent and 55 per cent in Thiruvananthapuram and Thrissur district respectively had perceived the same (Table 4.13 and Fig. 5).

It could be concluded from the above result that Malappuram district had maximum number of respondents who had expressed exploitation by middlemen as a major social cost. Commercial production of vegetables started in Kerala only after the introduction of KHDP and IVDP and these programmes have started only recently, hence farmers lacked knowledge regarding this field. Farmers of Malappuram district were found to be localite in nature, hence were reluctant to go out of their territory so lacked enough awareness about different marketing opportunities. It was also found that

officials of these programmes gave much importance to production aspects rather than marketing so, to get good returns from vegetable production they used the help of middlemen and because of lack of foresight and awareness got exploited. High educational status and high level of cosmopoliteness among the respondents of Thrissur district made them aware of different marketing opportunities and also made them vigilant about middlemen, hence faced less exploitation by them.

4.3.1.5 Time constraint

A cursory glance at the data in the table 4.12 and 4.13 reveals that 48 per cent of respondents in Thiruvananthapuram district, 42 per cent in Thrissur district and 50 per cent in Malappuram district in KHDP had expressed high time constraint in vegetable cultivation and 50 per cent 30 per cent and 62 per cent of respondents in Thiruvananthapuram, Thrissur and Malappuram district respectively of IVDP had perceived the same (Fig 4 and Fig 5).

Due to non-availability of agricultural labourers and high wage rate, farmers were forced to utilize family labour in vegetable cultivation. Vegetable cultivation requires attention throughout the growth period and because of this reason respondents hardly got time to take part in family get together, family rituals, festivals etc, hence this might be the reason why respondents of Thiruvananthapuram and Malappuram district had expressed high time constraint in vegetable cultivation.

It could be concluded from the above results that Thrissur district had minimum number of respondents who had expressed high time constraint in vegetable cultivation compared to other two districts. It was observed that people in Thrissur district had comparatively high educational status than the other two districts and because of this they had high occupational status, hence more family income. Due to this high annual income compared to other two districts, respondents of Thrissur district could engage hired labourers whenever required and would not have perceived high wage rate as a problem, which resulted in less time constraint among them. This could be the reason for the above result.

4.3.1.6 Involvement at the cost of education

From Table 4.12 and 4.13 it is evident that under KHDP 50 per cent of respondents in Thiruvananthapuram district, 43 per cent in Thrissur district and 52 per cent in Malappuram districts where as under IVDP 53.3 per cent in Thiruvananthapuram district, 32 per cent in Thrissur district and 85 per cent in Malappuram district had high involvement of their children in farming at the cost of their education (Fig. 4 and Fig. 5).

Results of the study reveal that Thrissur district had the minimum number of respondents who had high involvement of their children in farming. Farmer of Thrissur district had high educational status than the farmers of other two districts. Due to high educational status they had high level of aspiration and competitive spirit, hence they aspired their children to have white-collar jobs, which requires high academic qualification. These reasons

Table 4.14 District wise distribution of social benefits of KHDP SHG farmers

Sl. No.	Dimensions	Category	Score range	Mean	Thiruvananthapuram		Thrissur		Malappuram	
					F	P	F	P	F	P
1	Family labour utilization	H	1 – 4	3.45	31	52	33	55	29	48
		L			29	48	27	45	31	52
2	Increased living standard	H		2.2	33	55	33	55	18	30
		L			27	45	27	45	42	70
3	Self confidence	H	8 – 40	29.14	34	57	40	67	24	40
		L			26	43	20	33	36	60
4	Dignity of farmers	H	4 – 16	13.23	21	35	56	93	16	27
		L			39	65	4	7	44	73
5	Equity	H	3 – 12	10.12	44	73	45	75	32	53
		L			16	27	29	25	28	47
6	Satisfaction	H	5 – 25	19.29	34	57	39	65	34	57
		L			26	43	21	35	26	43
7	Sociability	H	7 – 21	17.84	33	55	41	68	39	65
		L			27	45	19	32	21	35
8	Knowledge in vegetable production	H	6 – 18	13.91	45	75	40	67	22	37
		L			15	25	20	33	38	63

M – Mean,
H – High (≥ Mean)
L – Low (< Mean)
F – Frequency
P – Percentage

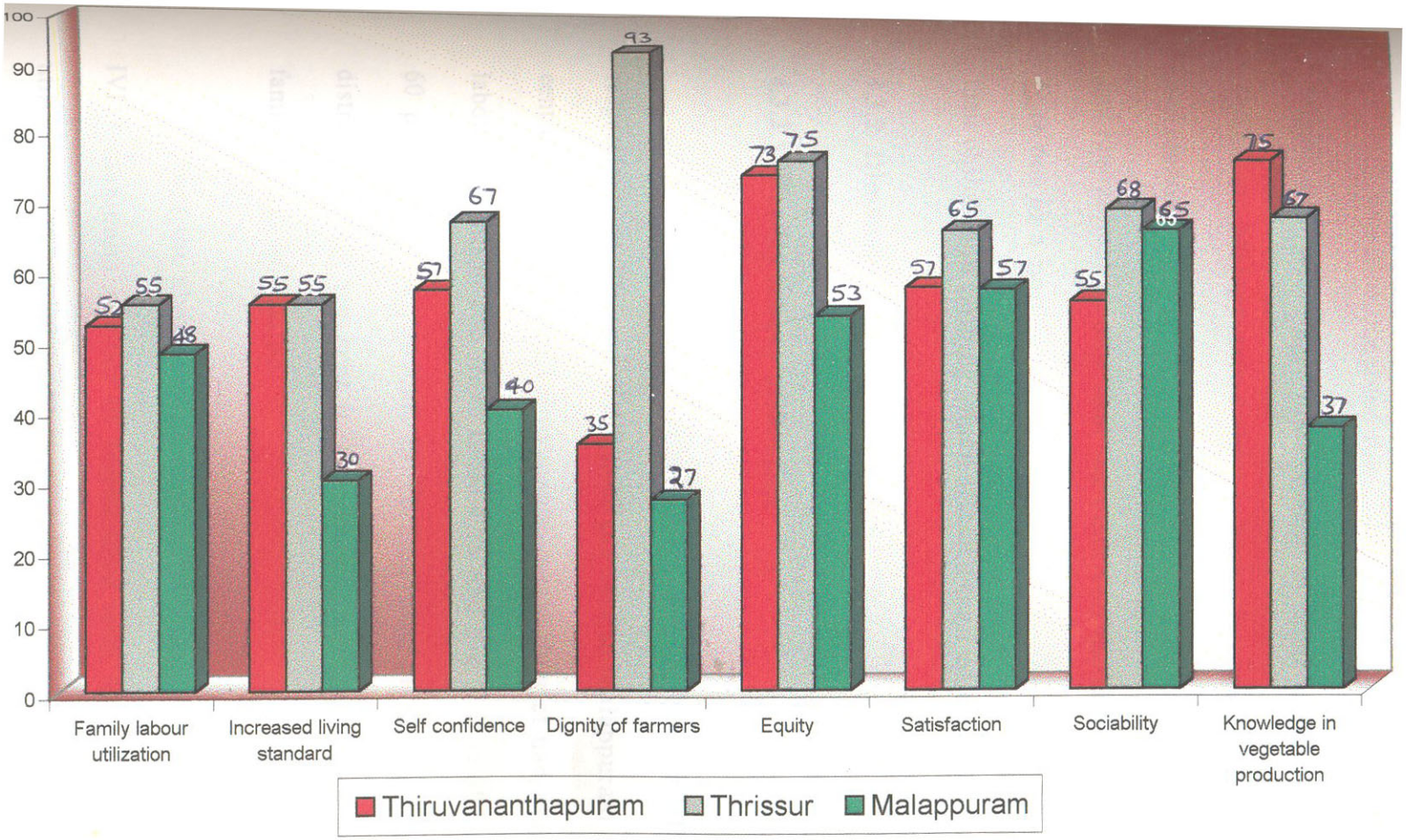


Fig. 6 Bar graph showing District wise distribution of social benefits (in %) as perceived KHDP SHG farmers

led to less involvement of their children in farming at the cost of their education.

It was also observed that Malappuram district had maximum number of respondents with high involvement of their children at the cost of their education. Malappuram district is basically considered as a backward district, and moreover it was observed that people over here had low educational status and low annual income than the other two districts. Due to less income they were not in a position to engage hired labourers and were forced to involve their children in farming which affected their education.

4.3.2 Dimensions of social benefit

4.3.2.1 Family labour utilization

As observed in the Table 4.14 and Fig. 6 in KHDP 55 per cent of respondents in Thrissur district, 48 per cent in Malappuram district and 52 per cent of respondents in Thiruvananthapuram district had high extent of family labour utilization and from Table 4.15 and Fig. 7 it is observed that in IVDP 60 per cent of respondents in Thrissur district 33 per cent is Malappuram district and 45 per cent in Thiruvananthapuram district had high extent of family labour utilization.

From the above results it could be concluded that in KHDP as well as IVDP maximum number of respondents with high extent of family labour utilization was found in Thrissur district. Thrissur district had people with high educational status and high level of cosmopoliteness than the other two districts. These characters would have made them aware of fact that engaging

Table 4.15 District wise distribution of social benefit of IVDP SHG farmers

Sl. No.	Dimensions	Category	Score range	Mean	Thiruvanantapuram (n = 60)		Thrissur (n=60)		Malappuram (n= 60)	
					F	P	F	P	F	P
1	Family labour utilization	H	1 – 4	3.46	27	45	36	60	20	33
		L			33	55	24	40	40	67
2	Increased living standard	H		1.74	34	57	42	70	32	53
		L			26	43	18	30	28	47
3	Self confidence	H	8 – 40	28.94	31	53	33	55	11	18
		L			29	48	27	45	49	82
4	Dignity of farmers	H	4 – 16	11.98	15	25	46	77	29	48
		L			45	75	14	23	31	52
5	Equity	H	3 – 12	8.8	31	52	31	52	31	52
		L			29	48	29	48	29	48
6	Satisfaction	H	5 – 25	19.61	34	57	36	60	19	32
		L			26	43	24	40	41	68
7	Sociability	H	7 – 21	17.44	31	52	35	58	10	17
		L			29	48	25	42	50	83
8	Knowledge in vegetable production	H	6 – 18	12.97	34	57	33	55	18	30
		L			26	43	27	45	42	70

M – Mean,
H – High (≥ Mean)
L – Low (< Mean)
F – Frequency
P – Percentage

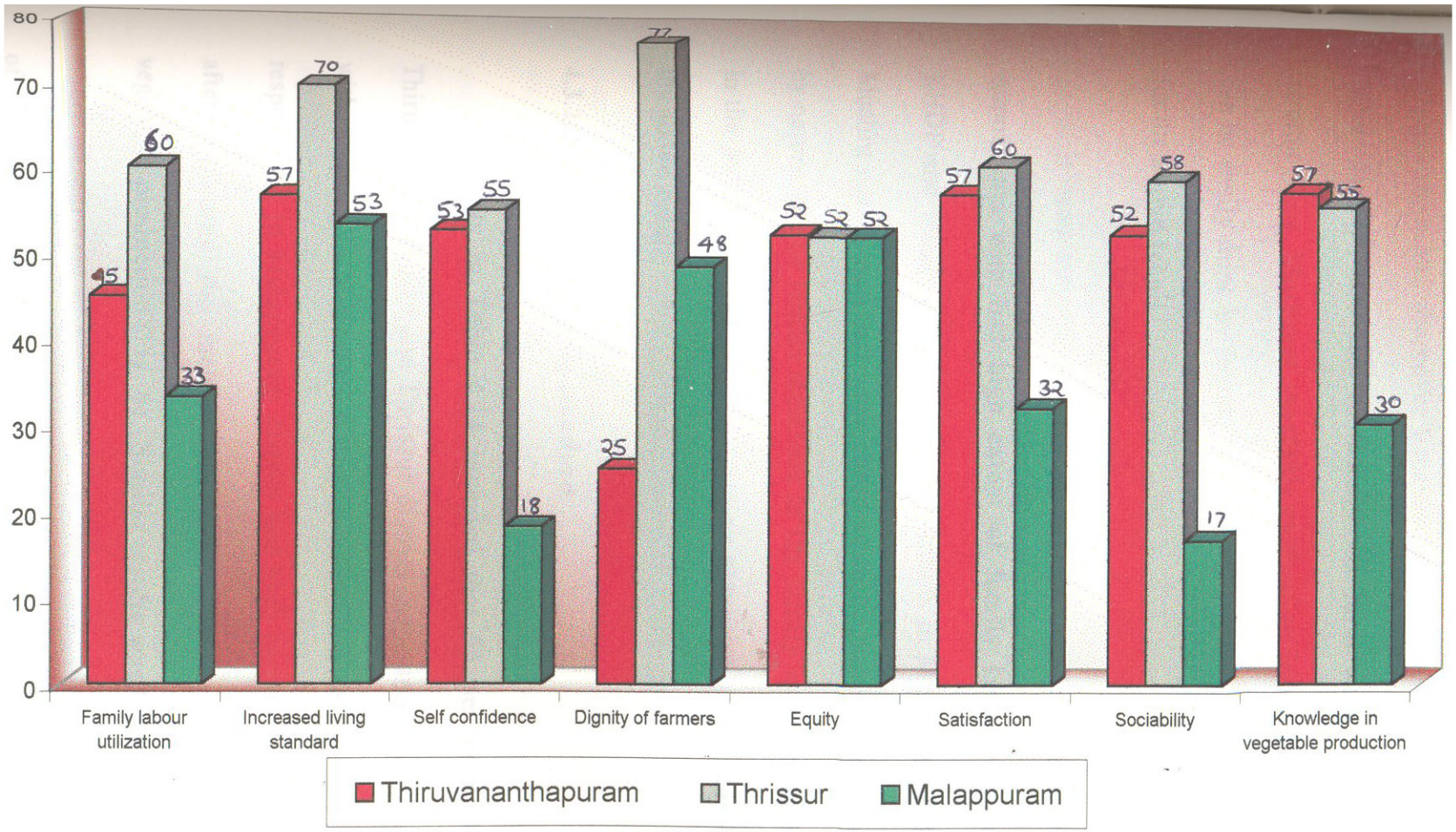


Fig. 7 Bar graph showing District wise distribution of social benefits (in %) as perceived IVDP SHG farmers

family labour provides gainful employment opportunities to the members of farm family members which otherwise would have remained idle and unproductive and moreover because of the above characters female members of the family were able to manage the farm works in the absence of male counter ports. Moreover vegetable cultivation involves easy operations, which can be easily done by female members of the family. This could be the reason for the above result.

It was also noted that Malappuram district had less percentage of respondents who had high extent of family labour utilization under both KHDP and IVDP. Majority of respondents in Malappuram district were from Muslim community and were observed to be more orthodox and more localite by nature, hence female members of the family were not allowed to come out in the public and take part in farming activities. This may be the reason for the above result.

4.3.2.2 Increased living standard

Results in Table 4.14 revealed that 55 per cent of respondents in Thiruvananthapuram and Thrissur district respectively were under high group with respect to increased living standard where as only 30 per cent of respondents in Malappuram district had high increase in their living standard after becoming the member of KHDP self help group for commercial vegetable production (Fig. 6). Similar results was found among IVDP farmers where 57 per cent of respondents in Thiruvananthapuram district, 70 per cent of in Thrissur district and 53 per cent in Malappuram district had high

increase in their living standard after becoming the member of IVDP SHGs (Table 4.15 and Fig. 7).

It could be observed from the above results that in both KHDP and IVDP Malappuram district had least number of respondents who had high increase in their living standard. Selected SHGs in Malappuram district for the study were started just recently, hence respondents had less experience in the field of commercial vegetable production and moreover had low educational status and low level of aspiration. Due o this characters they were very localite by nature, hence were reluctant to go out for job purpose and had low annual income because of that. All these factors would be the reason for low living standard in Malappuram districts. It was also seen that farmers in Thrissur and Thiruvananthapuram district were more cosmopolite by nature, and had high level of aspiration, which aspired them to have high income level and high living standard and moreover these districts are the district head quarters of central and southern region of Kerala state respectively and Taluks and Panchayats of these districts were comparatively more self reliant. This could be the reason why majority of respondents in these districts had high increase in their living standard.

4.3.2.3 Self confidence

It is evident from the Table 4.15 and Fig. 5 that under KHDP majority of respondents in Thiruvananthapuram district (57%) and Thrissur district (67%) had high level of self-confidence where as only 40 per cent of respondents in Malappuram district had high level of self-confidence. Similar

result were found in case of IVDP where majority of respondents in Thiruvananthapuram (52%) and Thrissur district (55%) had high level of self confidence and only 18 per cent of respondents in Malappuram district had high self confidence in them (Table 4.15 and Fig. 7).

Above mentioned results showed that Malappuram district had least number of respondents with high self-confidence. People in Malappuram district were found to be more localite by nature, hence had less mass media exposure and extension orientation, which resulted in low level of self confidence in them as we know that more the exposure of a person to the outside world, more confident will he be. This could be the reason for the above result. It was also observed that Thiruvananthapuram district and Thrissur district had comparatively more number of respondents with high level of self-confidence. This might be due to the fact that because of high level of educational status, high mass media exposure and cosmopolite outlook, respondents in these district were more innovative in approach and had high risk bearing capacity which contributed to high self confidence in them.

Srinivasan (1996) in his study found that Self Help Groups offer means by which the poor could have access to resources in their own right, without waiting for anyone and not by another person's mercy. This makes the people confident. This gives them a feeling of being in charge of their lives, they feel emboldened to conduct work themselves and take a share of resources as a matter of right. This also could be reason for the self-confidence in respondents of this study.

4.3.2.4 Dignity of farmers

As evidenced from the Table 4.14 under KHDP 35 per cent of respondents in Thiruvananthapuram district, 27 per cent in Malappuram district and 93 per cent of respondents in Thrissur district had high level of dignity (Fig. 6). Similar trend was found in IVDP, were 25 per cent of respondents in Thiruvananthapuram district, 48 per cent in Malappuram district and 77 per cent in Thrissur district had high level of dignity in them (Table 4.15 and Fig. 7).

It could be concluded from the above results that under both KHDP and IVDP, Thrissur district had maximum number of respondents with high level of dignity among farmers compared to other two districts. It is quite natural that in a group usually people realize their potential, become aware of their rights, meet the challenges through collective action and help themselves to become socially and economically independent so that they get their rightful place in the society and respect too. This could be the reason for the above result. This result is in confirmation with the findings of Rajakutty and Sarkar (1994) who found similar results in DWCRA. On the other hand respondents in Thiruvananthapuram and Malappuram districts had less number of respondents with high dignity level. This could be attributed to the fact that in a society a person with high educational level is respected more than the person with less educational status. There is a belief that people with low education prefer farming and have less self esteem in them, hence have less self respect which makes them feel that they are respected less in the society.

This could be the reason why in these districts respondents perceived less dignity in them.

4.3.2.5 Equity

It is obvious from the Table 4.14 and Table 4.15 that majority of respondents in all the three districts had high extent of equity among them. It was 75 per cent, 52 per cent and 73 per cent among the KHDP SHG respondents in Thrissur, Malappuram and Thiruvananthapuram district respectively where as it was found to be 52 per cent, 52 per cent and 52 per cent in Thiruvananthapuram, Thrissur and Malappuram district respectively in IVDP (Fig. 6 and Fig. 7).

High group cohesion among the respondents of these districts could be the reason for the above result and moreover Fernandez (1998) had observed that for sustainability of SHGs the equity should be ensured. Higher the equity more will be the sustainability of groups.

4.3.2.6 Satisfaction

Results in Table 4.14 revealed that majority of respondents in Thiruvananthapuram district (57%), Thrissur district (65%) and Malappuram district (57 %) had gained high satisfaction being the member of KHDP SHGs (Fig. 6). Similar results was observed in Table 4.15 and Fig. 6, were 57 per cent of respondents in Thiruvananthapuram district and 60 per cent in Thrissur district had expressed the same whereas only 32 per cent respondents in Malappuram district had high level of satisfaction.

From the above result in could be observed that except in Malappuram district under IVDP, in all the selected three district, majority of respondents expressed high level of satisfaction in them. Rather than people working individually, people in-group usually have more credit orientation and economic motivation and these characters in them prepare a person to deal with problems more wisely and prepare them to satisfy their needs and satisfied needs leads to high level of satisfaction. Moreover in a group both individual needs as well as group needs could be fulfilled, hence more satisfaction. This result is in confirmation with the result of Sreedaya (2000). Comparatively low economic motivation and low credit orientation would have resulted in less percentage of respondents of IVDP with high satisfaction in Malappuram district.

Shaw (1993) observed that SHGs can be sustainable only if they satisfy the needs of its members.

4.3.2.7 Sociability

It could be observed from the Table 4.14 and Fig. 5 that majority of respondents of KHDP in Thiruvananthapuram district (55 %), Thrissur district (68%) and Malappuram district (65%) had high extent of sociability and similarly, in IVDP 58 per cent and 50 per cent of respondents in Thrissur and Thiruvananthapuram districts respectively had high level of sociability whereas only 17 per cent of respondents in Malappuram district had high level of sociability (Table 4.15 and Fig. 7).

A person who is self employed is his own master but when he is working in group he should have qualities like patience, impressing, pleasant disposition and a social temperament which is collectively known as sociability. As one socializes one gets more exposure and wider contacts with people in different field. Thus a link is established for the group member with different systems of the society, which will help him to run his business smoothly. Running an enterprise necessitates the member to maintain contact and relationship with many people and institutions, hence for successful running of the group, each person should be social. This may be the reason why more than 50 per cent of respondents in all the three districts had high extent of sociability except in Malappuram district among respondent of IVDP SHGs. Apart from the above reason group cohesion and cosmopoliteness are the two factors which contribute to sociability and it was observed in the study that respondents of IVDP SHGs in Malappuram district had very low percentage of respondents with high group cohesion and cosmopoliteness. This could be the reason for the above result.

4.3.2.8 Knowledge in vegetable production

Table 4.14 and Table 4.15 revealed that majority of respondents in Thrissur and Thiruvananthapuram district had high knowledge in vegetable production. Among KHDP respondents it was 67 per cent in Thrissur district and 75 per cent in Thiruvananthapuram district and among IVDP farmers it was 55 per cent in Thrissur district and 57 per cent in Thiruvananthapuram district (Fig. 6 and Fig. 7).

Table 4.16 District wise distribution of Personal, Socio - psychological, economic and situational characteristics of KHDP farmers

Sl. No.	Characteristics	Category	Score range	Mean	Thiruvananthapuram (n=60)		Thrissur (N=60)		Malappuram (N=60)	
					F	P	F	P	F	P
	Personal characteristics									
1	Age	Young		-	20	33	11	18	14	23
		middle			34	57	42	70	36	60
		old			6	10	7	12	10	17
2	Educational status	H	1-6	3.58	39	65	44	73	33	55
		L			21	35	16	27	27	45
3	Occupational status	Farming	1-4	1.79	47	78	33	55	37	62
		Farming + other			13	22	27	45	23	38
4	Experience in commercial vegetable production	H	1-4	3.11	37	62	33	55	29	48
		L			23	38	27	45	31	52
	Socio psychological characteristics									
1	Mass media participation	H	4-19	14.02	30	50	42	70	24	40
		L			30	50	18	30	36	60
2	Risk orientation	H	6-30	14.73	38	63	40	67	37	62
		L			22	37	20	33	23	38
3	Management orientation	H	15-30	23.72	37	62	38	63	34	57
		L			23	38	22	37	26	43
4	Market perception	H	0-7	4.49	38	63	37	62	31	52
		L			22	37	27	38	29	48
5	Cosmopoliteness	H	3-13	8.63	30	50	47	78	31	52
		L			30	50	13	22	29	48
6	Extension orientation	H	12-41	29.27	41	68	45	75	29	48
		L			19	32	15	25	31	52
7	Group cohesion	H	5-15	11.58	31	52	40	67	33	55
		L			29	48	20	33	27	45
8	Attitude of farmers	H	14-56	48.43	34	57	41	68	31	52
		L			26	43	19	32	29	48
	Economic characteristics									
1	Annual Income	H	1-5	2.06	22	37	27	45	9	15
		L			38	63	33	55	51	85
2	Credit orientation	H	5-17	12.71	41	68	38	63	27	45
		L			19	32	22	37	33	55
3	Economic motivation	H	6-30	24.26	37	62	28	47	22	37
		L			23	38	32	53	38	63
	Situational variables									
1	Status need	H	1-5	4.35	30	50	31	52	30	50
		L			30	50	29	48	30	50
2	Immediately of returns	H	1-5	3.54	32	53	35	58	31	52
		L			28	47	25	42	29	48
3	Non availability of agricultural labourers	H	1-3	2.46	34	57	31	52	31	52
		L			26	43	29	48	29	48
4	Lack of marketing and storage facilities	H	1-5	4.24	28	47	25	42	29	48
		L			32	53	35	58	31	52
5	Low profitability in paddy cultivation	H	1-5	3.56	42	70	31	52	40	67
		L			18	30	29	48	20	33
6	Difficulty in paddy cultivation	H	1-5	3.42	34	57	33	55	31	52
		L			26	43	27	45	29	48

M- Mean, H – High (≥ Mean), L – Low (< Mean), F – Frequency, P – Percentage

Table 4.17 District wise distribution of personal, socio-psychological economical and situational characteristics of IVDP farmers

Sl. No.	Characteristics	Category	Score range	Mean	Thiruvananthapuram (n=60)		Thrissur (N=60)		Malappuram (N=60)	
					F	P	F	P	F	P
	Personal characteristics									
1	Age	Young		-	17	28	14	23	11	18
		middle			40	67	45	75	45	75
		old			3	5	1	2	4	7
2	Educational status	H	1-6	3.64	35	58	40	66.7	31	51.7
		L			25	42	20	33.3	29	48.3
3	Occupational status	Farming	1-4	1.91	33	55	27	45	44	73
		Farming + others			27	45	33	55	16	27
4	Experience in commercial vegetable production	H	1-4	2.52	33	55	25	42	13	22
		L			27	45	35	58	47	78
	Socio psychological characteristics									
1	Mass media participation	H	4-19	14.12	22	37	33	55	21	35
		L			38	63	27	45	39	65
2	Risk orientation	H	6-30	12.56	36	60	40	67	21	35
		L			24	40	20	33	39	65
3	Management orientation	H	15-30	21.46	24	40	37	62	16	27
		L			36	60	23	38	44	73
4	Market perception	H	0-7	3.69	34	57	36	60	19	32
		L			26	43	24	40	41	68
5	Cosmopoliteness	H	3-13	8.82	36	60	42	70	16	27
		L			24	40	18	30	44	13
6	Extension orientation	H	12-41	26.28	32	53	37	62	26	43
		L			28	47	23	38	34	57
7	Group cohesion	H	5-15	9.34	31	52	32	53	31	52
		L			29	48	28	47	29	48
8	Attitude of farmers	H	14-56	45.53	22	37	23	38	4	7
		L			38	63	37	62	56	93
	Economic characteristics									
1	Annual Income	H	1-5	2.05	11	18	24	40	21	35
		L			49	82	36	60	39	65
2	Credit orientation	H	5-17	11.42	31	52	32	53	26	43
		L			29	48	28	47	34	57
3	Economic motivation	H	6-30	24.16	30	50	32	53	23	38
		L			30	50	28	47	37	62
	Situational variables									
1	Status need	H	1-5	4.37	30	50	32	13	30	50
		L			30	50	28	47	30	50
2	Immediacy of returns	H	1-5	3.43	31	52	31	52	30	50
		L			29	48	29	48	30	50
3	Non availability of agricultural labourers	H	1-3	2.46	35	58	33	55	30	50
		L			25	42	27	45	30	50
4	Lack of marketing and storage facilities	H	1-5	4.47	40	67	33	55	45	75
		L			20	33	27	45	15	25
5	Low profitability in paddy cultivation	H	1-5	3.61	35	68	31	52	52	32
		L			25	42	29	48	48	28
6	Difficulty in paddy cultivation	H	1-5	3.33	40	67	35	58	32	53
		L			20	33	25	42	28	47

M – Mean, H – High (≥ Mean), L – Low (< Mean), F – Frequency, P – Percentage

According to Jhingan (1990) with the reception of the same work one get specialized in it and thus a person who is more experienced have more knowledge. It was observed in the study that experience in case of vegetable production was more in case of farmers of Thrissur and Thiruvananthapuram district. This could be the reason for the above result.

It could also be observed from the tables that farmers in Malappuram district in both KHDP and IVDP had less number of respondents with high knowledge in vegetable production, which was 37 per cent in KHDP and 30 per cent in IVDP. Along with experience, educational status, level of cosmopoliteness and extension orientation are some factors that contribute to knowledge. The selected SHGs for the study in Malappuram district had started recently, hence the respondents had very little experience regarding commercial vegetable production and the factors like educational status, cosmopoliteness and extension orientation were also very low among the respondents of Malappuram district. This might be the reason for the above result.

4.4 Distribution of respondents based on their personal, socio-psychological, economic and situational characteristics

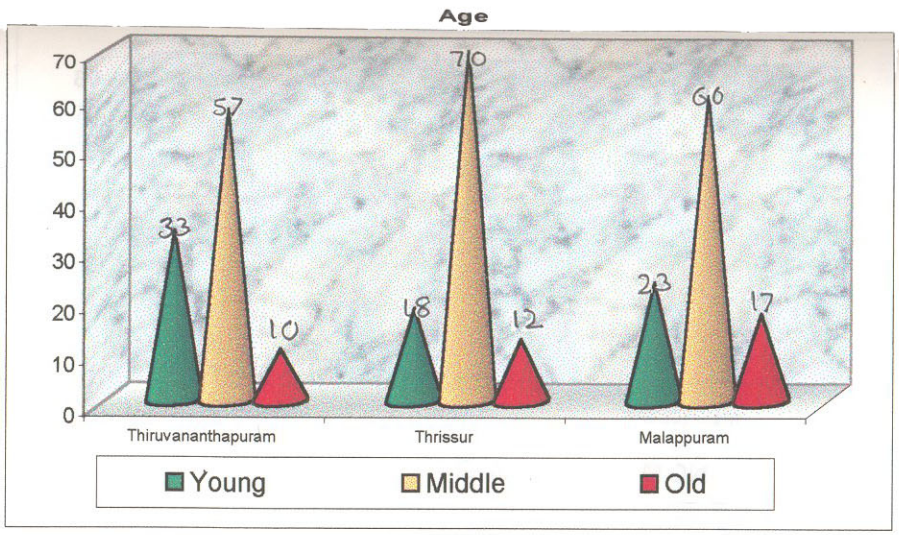
4.4.1 Personal characteristics

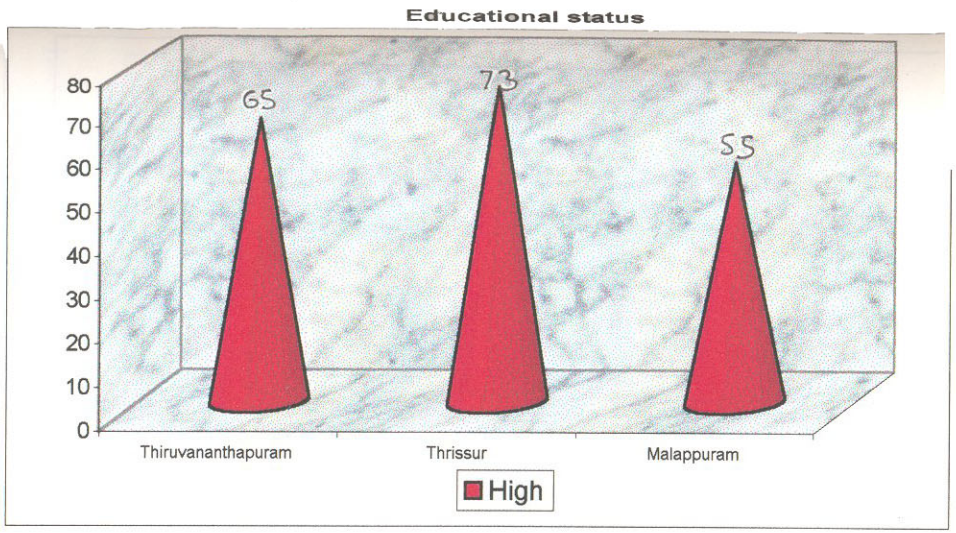
The personal characters of the respondents of KHDP and IVDP in the study are presented in Table 4.16 and table 4.17 respectively.

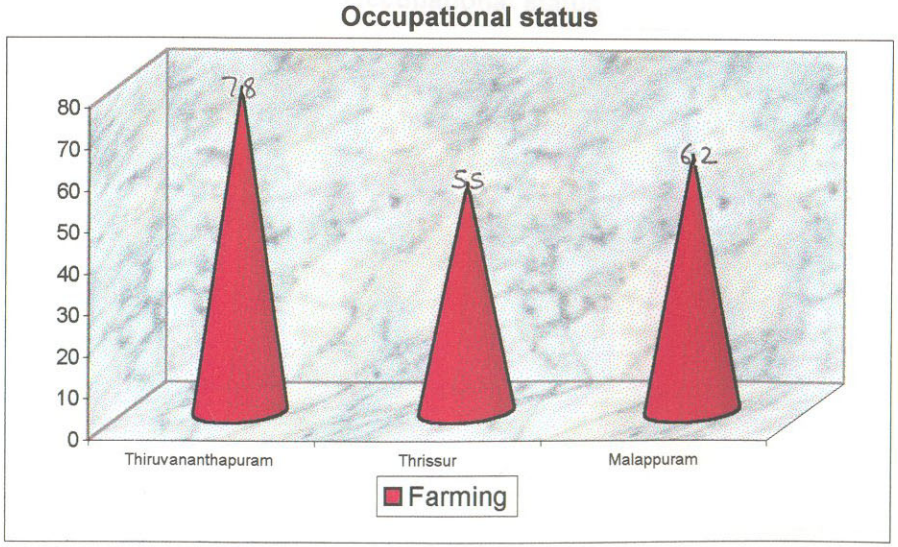
4.4.1.1 Age

It could be seen from the Table 4.16 and Fig. 8a that in KHDP, 57 per cent of respondents in Thiruvananthapuram district, 70 per cent and 60 per cent in Thrissur and Malappuram district respectively belonged to middle age group where as 33 per cent, 18 per cent and 23 per cent of respondents in Thiruvananthapuram, Thrissur and Malappuram districts respectively belonged to young age group and 10 per cent, 12 per cent and 10 per cent of them were old aged. Similarly in IVDP (Fig. 8b), 67 per cent, 75 per cent and 75 per cent in Thiruvananthapuram, Thrissur and Malappuram districts were middle aged whereas 28 per cent, 23 per cent, and 18 per cent were young and 5 per cent, 2 per cent and 7 per cent in these districts respectively were old aged.

From the above result it could be concluded that majority of respondents in the three selected districts under KHDP and IVDP were middle aged where as only very few belonged to young and old age group. Individuals in the middle age group have more physical strength and bear more family responsibilities than the young and older ones. This could be the reason why majority of the respondents belonged to middle age group. Young men are pushed into this job due to unemployment problem and old people usually hesitate to work because of physical exertion required but still some are forced to do to earn and to be independent. This might be the reason why few percentage of respondents in the three districts belonged to young and old age group.







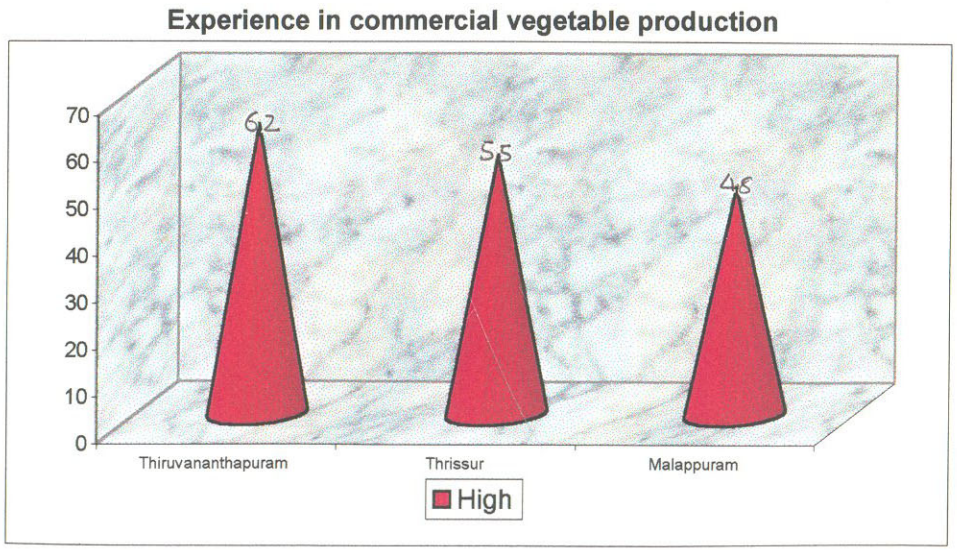
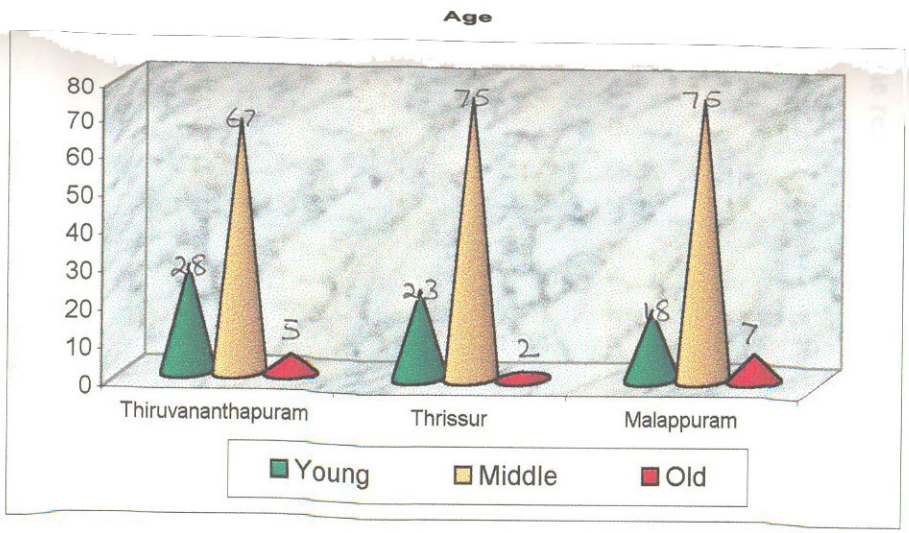
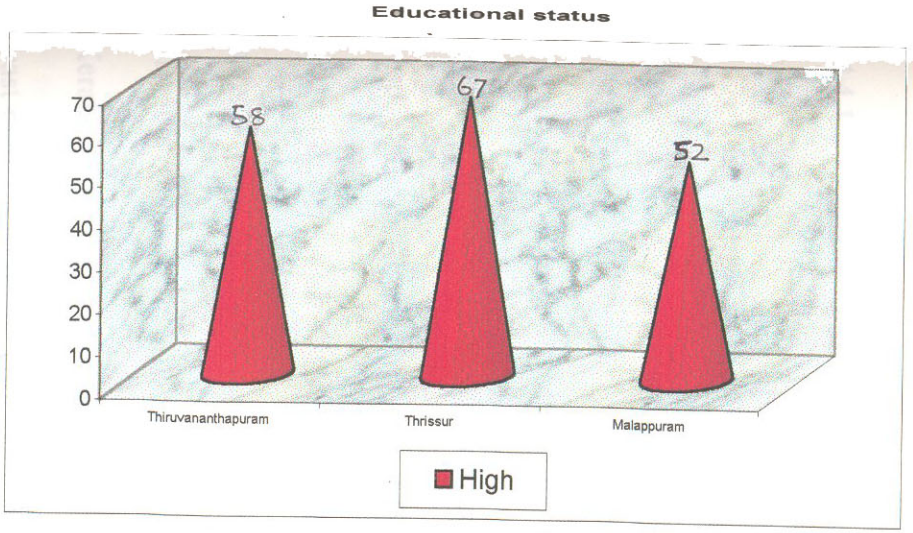
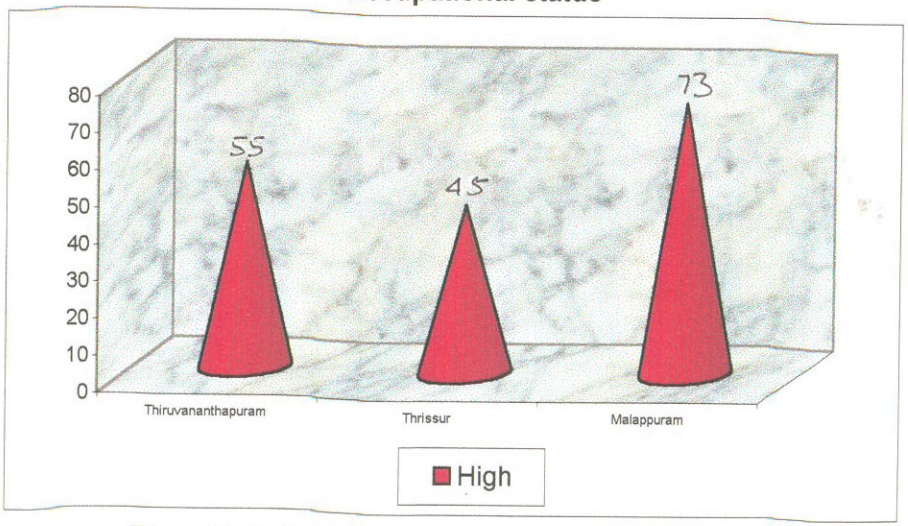


Fig. 8a 3-D Graph showing District wise distribution of personal characteristics (in %) of KHDP SHG farmers







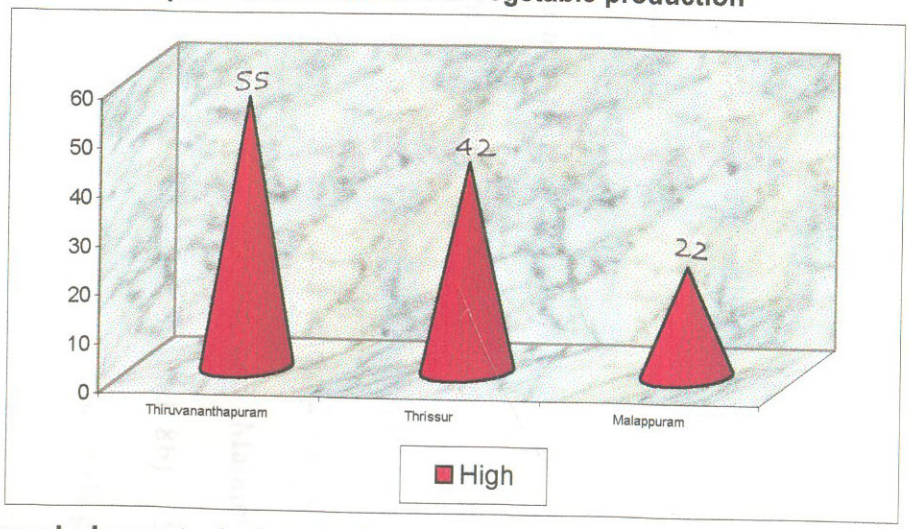


Fig. 8b 3-D showing District wise distribution of personal characteristics (in %) of IVDP SHG farmers

4.4.1.2 Educational Status

Education is life blood in any developmental activity as it helps people understand and practice the ideal preached.

As evidenced from Table 4.16 and Table 4.17 in all the selected three districts namely Thiruvananthapuram, Thrissur and Malappuram, among the respondents of both KHDP and IVDP, 65 per cent, 73 per cent and 55 per cent of respondents of KHDP and 58 per cent, 67 per cent and 52 per cent of respondents of IVDP in Thiruvananthapuram, Thrissur and Malappuram districts respectively had high educational status (Fig. 8a and 8b). Since Kerala is the state having high literacy rate majority of the people will get at least primary level of education, hence high literacy level in the state could be the reason for the above result. The result is in conformity with the finding of Sreedaya (2000) and in contrast with the result of Thomas (2000) who in his study observed that majority of respondents had low educational status.

4.4.1.3 Occupational status

A critical view of the Table 4.16 indicates that majority of respondents in KHDP (Fig. 8a) of Thiruvananthapuram district (78%) and Malappuram district (62%) had farming as their only occupation. Similar result was found among the respondents of IVDP (Fig. 8b) where 55 per cent of respondents in Thiruvananthapuram district and 73 per cent in Malappuram district had farming as their only occupation.

India is a country where more than 70 per cent of the population are living in rural areas with agriculture as their main occupation. Agriculture is

the backbone of India's economy. It provides direct employment to about 70 per cent of the working people in the country. Thus, it forms the basic occupation of people in the rural areas. Moreover, Government of Kerala has implemented many projects that give recognition to the farming community. So many people are coming forward to take up farming as their primary occupation. Even people without land have leased in land and started cultivation. This might be the reason for the above result. This finding is in conformity with the results of Sindhu Sadanandan (1998) who found that in her study majority of respondents had farming as their main occupation.

It could also be noted from the tables that in Thrissur district, majority of respondents belonged to farming + other occupation category which was 55 per cent in case of KHDP and IVDP respectively. Farmers of Thrissur district were very business minded and had high educational status and level of cosmopoliteness, these factors would have motivated them to shift over to off farm works along with farming.

4.4.1.4 Experience in Commercial vegetable production

From Table 4.16 it is evident that majority of respondents (62%) in Thiruvananthapuram district had high experience in commercial vegetable production whereas only 55 per cent and 48 per cent of respondents in Thrissur and Malappuram district respectively had high experience (Fig. 8a). Table 4.17 evidenced that 55 per cent of respondents in Thiruvananthapuram district and 42 per cent in Thrissur district had high experience in commercial

vegetable production where as only 22 per cent of respondents in Malappuram district had high experience (Fig. 8b).

According to Jhingan (1990) with the reception of the same work one gets specialized in it. This specialization helps him to do work in the best possible way. Selected SHGs of KHDP as well as IVDP in Thiruvananthapuram district were started earlier than the SHGs in Thrissur and Malappuram districts, thus respondents in Thiruvananthapuram district started producing vegetables commercially earlier to the other two districts.

4.4.2 Socio-Psychological characteristics

4.4.2.1 Mass media Participation

Table 4.16 implies that 70 per cent of respondents of KHDP in Thrissur district had high level of mass media participation where as 50 per cent and 40 per cent of respondents in Thiruvananthapuram and Malappuram district respectively had high mass media participation (Fig. 9a). Similar trend was observed in IVDP where 55 per cent of respondents in Thrissur district and 37 per cent and 35 per cent in Thiruvananthapuram and Malappuram district respectively had high level of mass media participation (Table 4.17 and Fig. 9b).

It could be observed from the above results that majority of respondents in Thrissur district had high mass media participation. High educational status of respondents in this district might have facilitated an easy and meaningful interaction with mass media channel and would be referring to News paper, Magazines, leaflet etc more frequently compared to other two districts. This might be the reason for the above result. This finding confirms

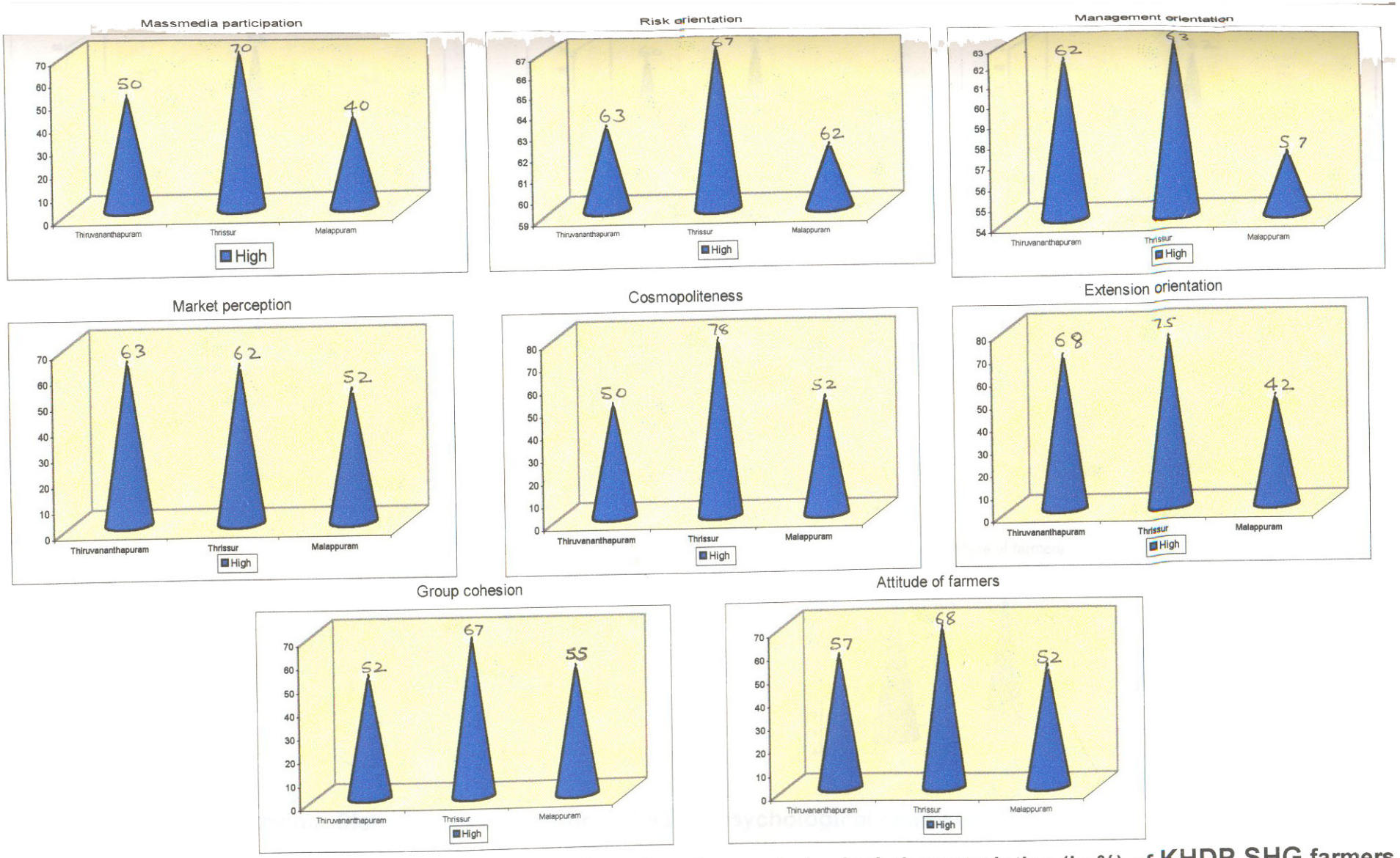


Fig. 9a 3-D Graph showing District wise distribution of socio-psychological characteristics (in %) of KHDP SHG farmers

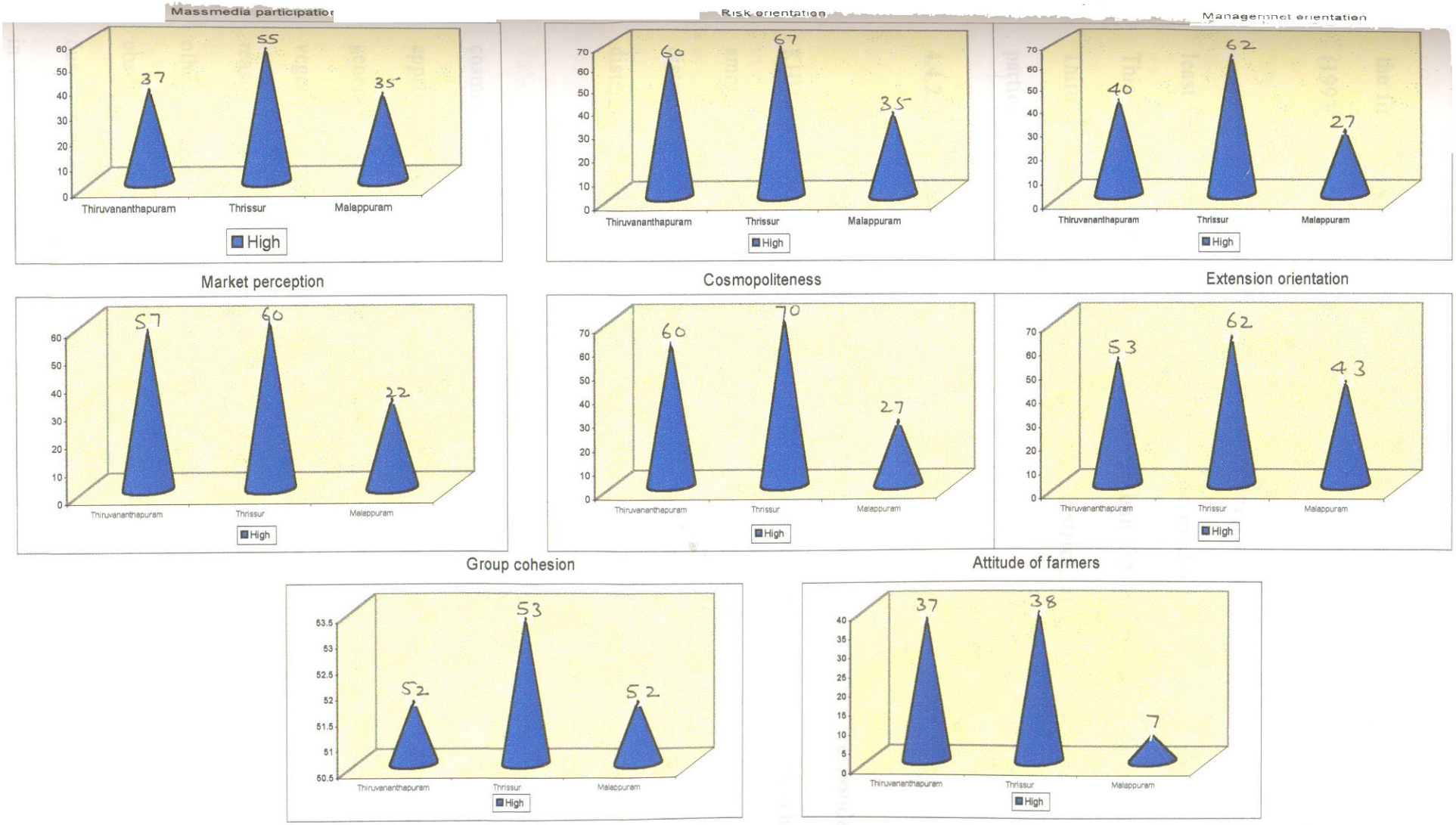


Fig. 9b 3-D graph showing District wise distribution of socio-psychological characteristics (in %) of IVDP SHG farmers

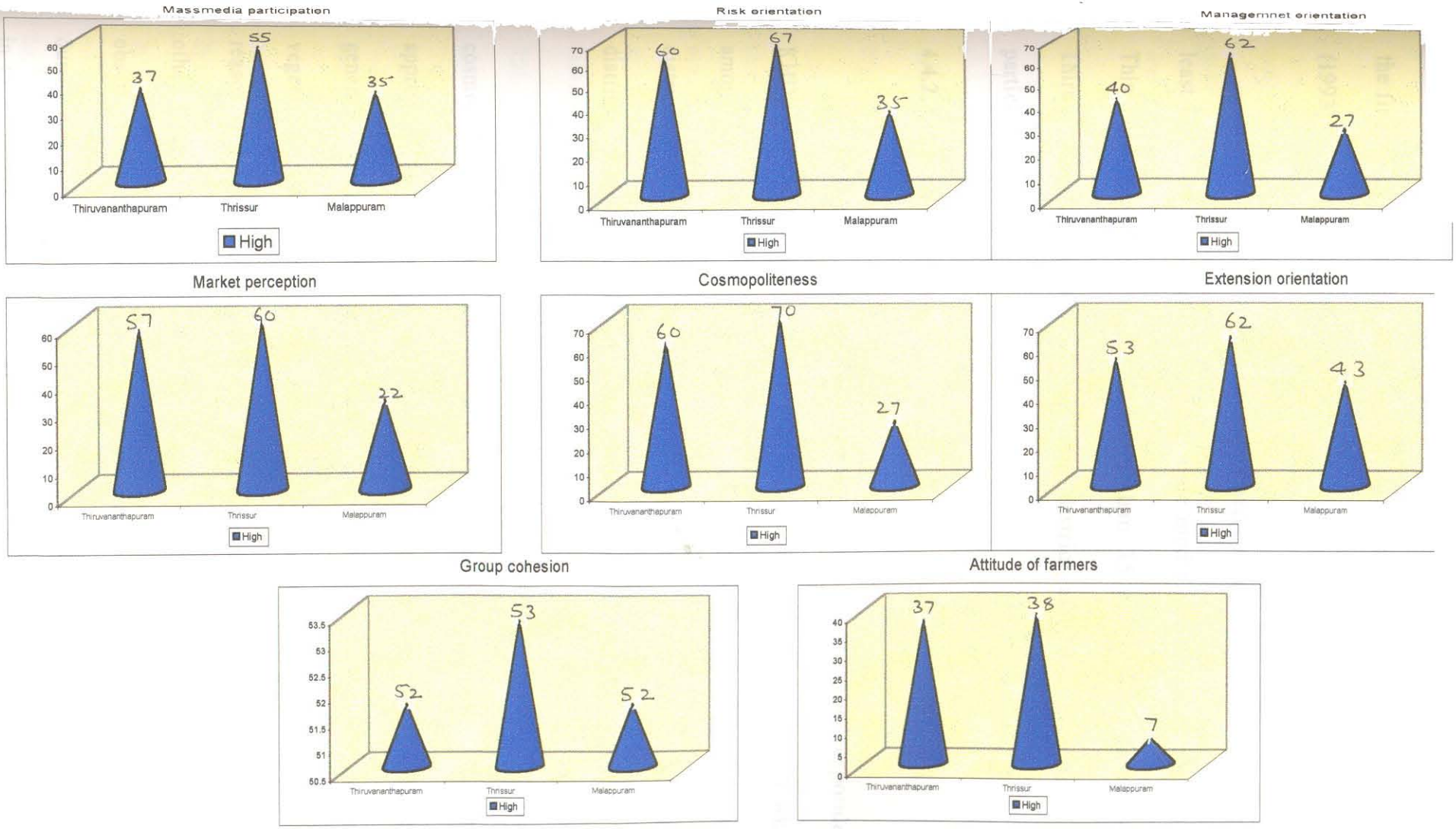


Fig. 9b 3-D graph showing District wise distribution of socio-psychological characteristics (in %) of IVDP SHG farmers

the finding of Savithri (1992) and is in contrast with the finding of Chandran (1993).

Kerala being a state with high literacy rate, every individual could at least read Newspaper and view electronic media like T.V and possess Radio. This could be the reason why more than 35 per cent of respondents in Thiruvananthapuram and Malappuram district also had high mass media participation.

4.4.2.2 Risk orientation

With regards to risk orientation more than 60 per cent of respondents of KHDP had high level of risk orientation (Table 4.16 and Fig. 9a) where as among farmers of IVDP, 60 per cent of respondents in Thiruvananthapuram district, 67 per cent in Thrissur district and only 35 per cent in Malappuram district had high level of risk orientation (Table 4.17 and Fig. 9b).

We all know that younger generation who are more educated and have cosmopolitan outlook, are ready to take risks and are very innovative in approach, thus try new practices and enterprises and the old aged people are generally resistant to gamble with their life. In this study majority of vegetable growers belonged to middle and young age group. This could be the reason why except among the IVDP respondents of Malappuram district, in all other districts, majority had high level of risk orientation. It was also observed in the study that vegetable growers grew crops like amaranthus even during rainy season, thus due to the fact that this crop could be harvested with in three weeks and because of off season, fetched them good price. Thus

immediate returns in case of vegetable would have motivated them to take risk. Because of low educational status and low economic motivation, localite outlook, low extension orientation in the IVDP SHG of Malappuram district, they were scared to face risk, this would be the reason why in Malappuram district, few respondents had high level of risk orientation.

4.4.2.3 Management orientation

The results presented in Table 4.16 indicated that more than 55 per cent of respondents in Thiruvananthapuram, Thrissur and Malappuram district had high level of management orientation (Fig. 9a). The respondents of the study were members of SHGs. Efficient utilization of men and material is essential in these SHGs. These SHGs are run through participatory approach, each and every member of the group gets an opportunity to become part and parcel of every activities undertaken. This may have helped them to improve their management orientation and moreover periodical training and supervision by KHDP officials would have gained high level of management orientation in the member of the groups. This finding is in line with the finding of Sreedaya (2000) who found that majority of KHDP SHG farmers had high level of management orientation.

On the other hand the result presented in Table 4.17 indicates that in IVDP only in Thrissur district majority of respondents (62%) belonged to high group with respect to variable management orientation where as only 40 per cent and 27 per cent of respondents in Thiruvananthapuram district and Malappuram district respectively had high management orientation (Fig 9b).

The reason for majority of respondents falling under high group with respect to management orientation has been discussed in case of KHDP SHG farmers and the same reason holds good in case of Thrissur district under IVDP. Due to low educational status, mass media exposure, low cosmopoliteness and low experience among the respondent of Malappuram district under IVDP as observed in the study, people would be less aware of the ways of efficiently utilizing men and materials, hence had less management orientation. This finding confirms the finding of Sreedaya (2000) who also found that majority of IVDP SHG farmers had low level of management orientation.

4.4.2.4 Market perception

Majority of respondents in Thiruvananthapuram district (63%), Thrissur district (62 %) and Malappuram district (52%) of KHDP belonged to high group with respect to market perception (Table 4.16 and Fig. 9a). Similar result was observed among farmers of IVDP SHGs of Thiruvananthapuram and Thrissur district where 57 per cent and 60 per cent of respondents respectively had high level of market perception (Table 4.17 and Fig. 9b).

Market perception of farmers greatly relies on their awareness and possession of knowledge of marketing channels, comparative prices etc of the produce. Farmers with these qualities could be able to market the produce with ease and confidence for remunerative prices which will insure favourable market perception in them. Respondents of this study came forward to join the SHGs of vegetable production programmes due to unemployment and to be independent. They were aware of the fact that vegetable had good market

compared to other crops and they would gain much profit if they take commercial vegetable production because of good market, hence it was observed that respondents had good market perception and moreover, experience and educational status are the factors which leads to awareness and possession of knowledge of marketing channels and other aspects of marketing. These factors would have contributed to market perception level of the respondents. This finding is in conformity with the result of Sreedaya (2000) who found that majority of KHDP SHG farmers had high market perception.

From the table 4.17 it could also be noted that majority of respondents of IVDP SHG in Malappuram district had low market perception (68%) less educational status, less extension orientation and less experience of these respondents as observed in the study would be the reason of the above result. This result is in line with the finding of Sreedaya (2000).

4.4.2.5 Cosmopoliteness

From the Table 4.16, it could be observed that 50 per cent of respondents in Thiruvananthapuram district, 52 per cent in Malappuram district and 78 per cent in Thrissur district under KHDP (Fig. 9a) had high level of cosmopoliteness where as table 4.17 shows that in IVDP, 60 per cent and 70 per cent of respondents in Thiruvananthapuram and Thrissur districts respectively had high level of cosmopoliteness and only 27 per cent of respondents in Malappuram district had high level of cosmopoliteness (Fig. 9b).

From the above results it is clear that majority of respondents with high level of cosmopoliteness was found in Thrissur district. An educated person

will be naturally more cosmopolite through which he gets latest information and an educated person would prefer going out of his village in search of job based on his academic qualification. It was also observed in the study that people in Thrissur district are very business minded and to flourish their business people would keep contact to as much as people an possible. These all factors would have contributed to the level of cosmopoliteness. This result is in conformity with the findings of Sakeer Husain (1994) and Syamkumar (1999). Low educational status among the respondents of Malappuram district under IVDP would be the reason why only 21 per cent of them had high level of cosmopoliteness.

4.4.2.6 Extension orientation

As furnished in Table 4.16 majority of respondents in Thiruvananthapuram (68%) and Thrissur district (75%) had high level of extension orientation and in Malappuram district only 48 per cent had the same (Fig. 9a). Similar trend was found among the farmers of IVDP where 53 per cent and 62 per cent of respondents in Thiruvananthapuram and Thrissur district respectively and 43 per cent in Malappuram district had high level of extension orientation (Table 4.17 and Fig. 9b).

The respondents were member of SHGs of KHDP and IVDP and were having frequent contact with the officials of these organization and also officials of related organization. This might be the reason for the above result. This might also be due to the decentralization approach of panchayats and Krishi Bhavans in the development activities as decentralized approach

would have made the farming community more powerful in decision making. This result is in contrast with the result of Syamkumar (1999) where majority of rice farmer had low level of extension orientation.

It was found in the study that respondents of Thrissur and Malappuram district had maximum number of respondents with high and low level of extension orientation respectively. Comparatively high educational status, high risk orientation and high level of cosmopoliteness would have resulted in high extension orientation among the farmers of Thrissur district than Malappuram district, which would be the reason for the above result.

4.4.2.7 Group Cohesion

The results of the study presented in Table 4.16 and 4.17 shows that more than 50 per cent of the respondents in all the three districts had high group cohesion which was 52 per cent, 67 per cent and 55 per cent among KHDP SHGs respondents of Thiruvananthapuram, Thrissur and Malappuram district respectively and 52 per cent, 53 per cent and 52 per cent in Thiruvananthapuram, Thrissur and Malappuram districts respectively under IVDP (Fig. 9a and Fig. 9b).

When we become a member of any group, we are bound to adhere to the rules and regulations of group. Groups usually teach their members regarding the need for unity. Only through strong and cohesive groups people could derive their due share. All the above factors may tend item to remain in the group. This might be the reason for the above result. Thrissur district had the highest percentage of farmers with high level of group cohesion.

Maximum number of respondents with high educational status might be the reason for the above result. This result is in concurrence with the findings of Ghosh (1995) who in his study reported that group cohesion could be increased by increasing the educational status of the respondents.

4.4.2.8 Attitude of farmers

As revealed from Table 4.16 and Table 4.17, 57 per cent of respondents in Thiruvananthapuram district, 68 per cent in Thrissur district and 52 per cent in Malappuram district under KHDP and 37 per cent, 38 per cent and 7 per cent of respondents of IVDP in Thiruvananthapuram, Thrissur and Malappuram district respectively belonged to high group with respect to farmers attitude towards vegetable production programme.

Attitude is individual oriented while values are society oriented. As a person gets more experience in a field, his attitude towards that programme is bound to increase. KHDP was started in 1993 where as IVDP was started in 1997. This could be the reason for the above result. This result is in confirmation with Kuppuswamy (1984) who stated that attitudes are learned in the course of life experience which make the individuals behave in characteristic ways towards persons, objects or issues they get related. It could be noted that under both KHDP and IVDP respondents in Thrissur district had comparatively more favourable attitude towards vegetable production programmes. A greater extension agency contact, participation in extension activities, ability to take risks would have favoured a positive attitude. This could also be due to the awareness of respondents about the

vegetable production practices and its importance and also because of participatory group approach which is relatively better than individual approach. This finding is in tune with that of Boniface (1996) and Haemalatha (1997) who found that majority of farmers in their study had high level of attitude.

4.4.3 Economic variables

4.4.3.1 Annual income

Table 4.16 show that majority of respondents under both KHDP and IVDP belonged to low group with respect to annual income. It was 63 per cent, 55 per cent and 85 per cent in Thiruvananthapuram district, Thrissur district and Malappuram district respectively under KHDP (Fig. 10a) and 65 per cent, 60 per cent and 82 per cent respectively in case of IVDP (Table 4.17 and Fig. 10b).

Agriculture was the main source of income in case of majority of respondents as observed in the study and were mainly with small holdings, thus earned only a negligible amount from the cultivation of vegetable crop though vegetable is considered to be a profitable crop. It was also observed that many of the SHG members were cultivating vegetables on leased land and more fertile the land, more the rent, thus earned less annual income. The result of the study is in tune with the result of Sreedaya (2000) who found that majority of the respondents of KHDP and IVDP farmers had medium to low level of annual income. The result is in contrast with the findings of Shanmugadiru (1992), Devi (1994) and Hemalatha (1997).

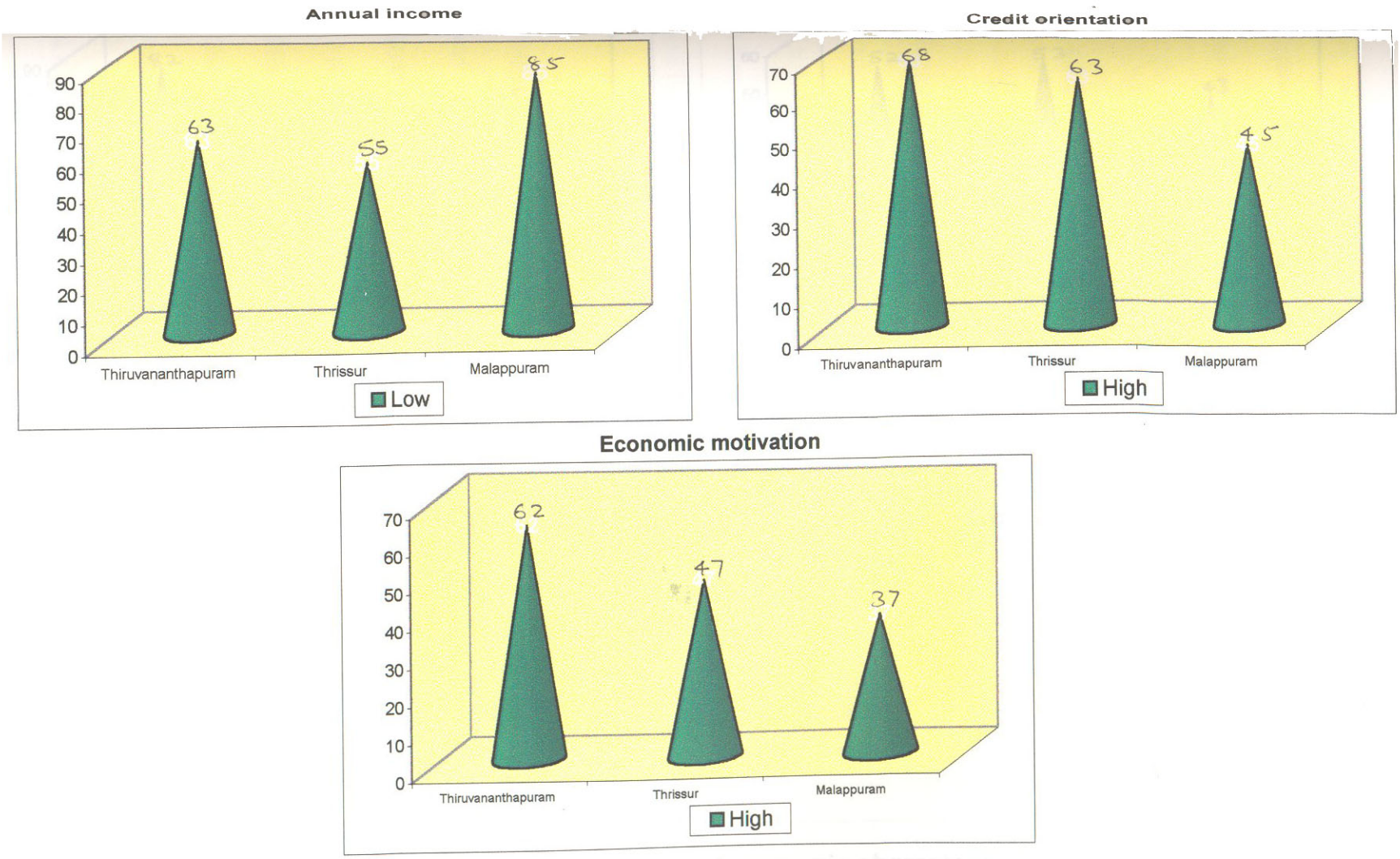


Fig. 10a 3-D graph showing District wise distribution of economic characteristics (in %) of KHDP SHG farmers

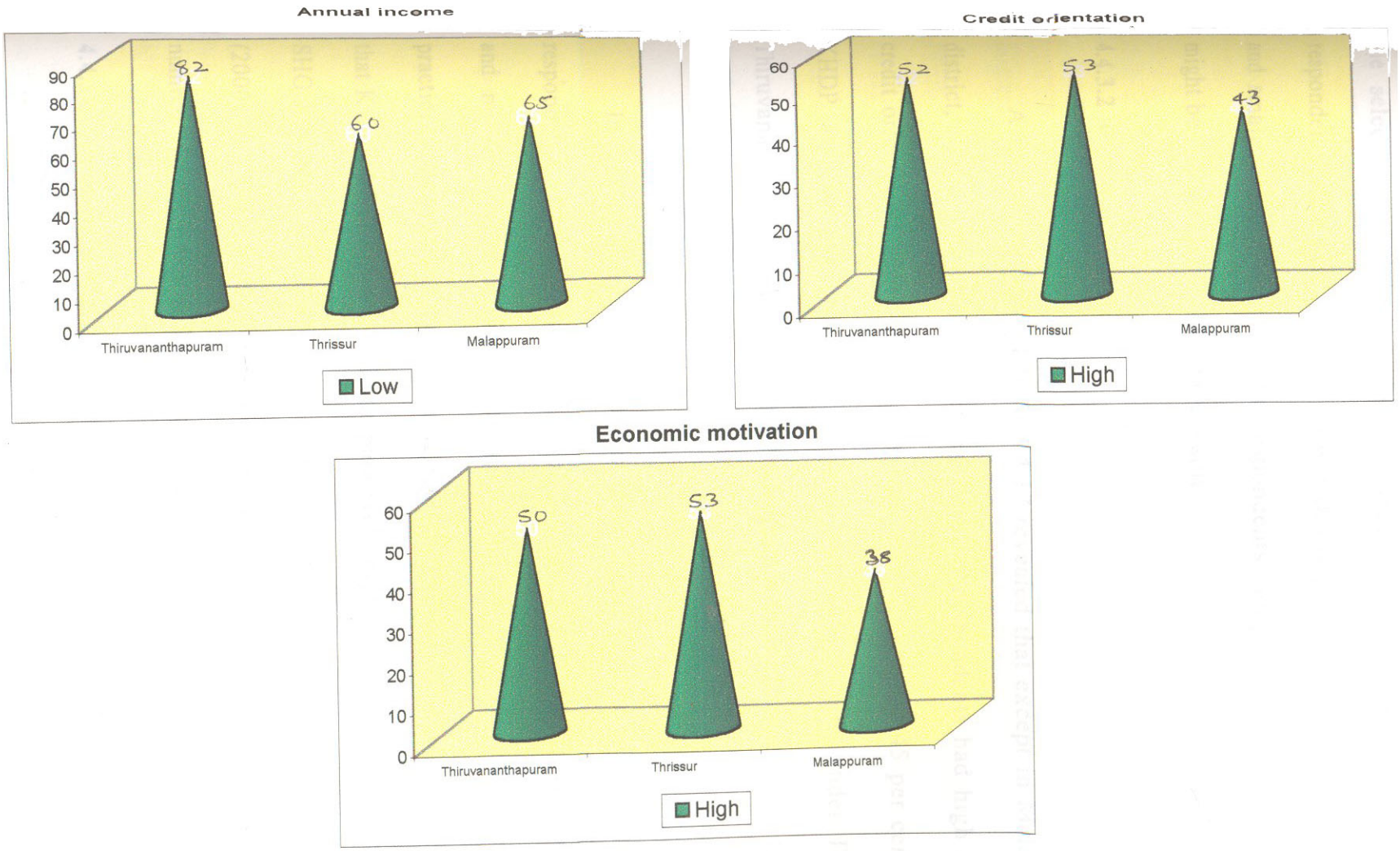


Fig. 10b 3-D graph showing District wise distribution of economic characteristics (in %) of IVDP SHG farmers

It could also be noted from the Table 4.16 and Table 4.17 that among the selected three districts, Malappuram had the maximum number of respondents with low income. Low risk orientation, low educational status and small scale holdings of the respondents compared to other two district might be the reason for the above result.

4.4.3.2 Credit orientation

A perusal of Table 4.16 and 4.17 revealed that except in Malappuram district, in the other two districts majority of respondents had high level of credit orientation which was 68 per cent, 63 per cent and 45 per cent under KHDP and 52 per cent, 53 per cent and 38 per cent under IVDP in Thiruvananthapuram, Thrissur and Malappuram district respectively (Fig. 10a and Fig. 10b).

In case of Thiruvananthapuram district and Thrissur district majority of respondents had high extension and management orientation. High extension and management orientation prompt individual to have more credits for practicing innovative practices in agriculture. It was also observed in the study that KHDP SHG farmers had comparatively high credit orientation than IVDP SHG farmers. The above result is in accordance with the result of Sreedaya (2000) and Surendran (2000). Less experience would be the reason for least number of respondent in Malappuram district with high credit orientation.

4.4.3.3 Economic motivation

It could be seen from the Table 4.16 and 4.17 that only in Thiruvananthapuram district comparatively more number of respondents both

in KHDP (62 %) and IVDP (50%) had high economic motivation (Fig. 10a and Fig. 10b). Economic motivation is a driving force influencing the external behaviour leading to action for ensuring a better standard of living. The respondents selected for the study were vegetable growers. Vegetables produced were exported, so their main motive was to harvest maximum from their available improved technologies. It is natural that younger individuals are ready to take risks and venture into new practices and enterprises. The old farmers may be hesitant to gamble with their life and resources, hence more young respondent and more experience in Thiruvananthapuram district would be the reason for the above result. This result is in confirmation with the result of Syamkumar (1999).

4.4.4 Situational characteristics

4.4.4.1 Status need

A glance at the Table 4.16 and 4.17 reveals that nearly 50 per cent of respondents in all the three districts in KHDP as well as IVDP felt that vegetable production through participatory group approach had increased their status level (Fig. 11a and 11b).

Self Help Groups enable each members to become socially and economically independent which leads to rightful and respectful place in the society resulting in increased status.Rajakuty and Sarkar (1994) opined that DWCRA is a movement to awaken the rural women to realize their potential to be aware of their rights, to rise up to meet the challenges of life through self help and collective action, to enable them to become socially and

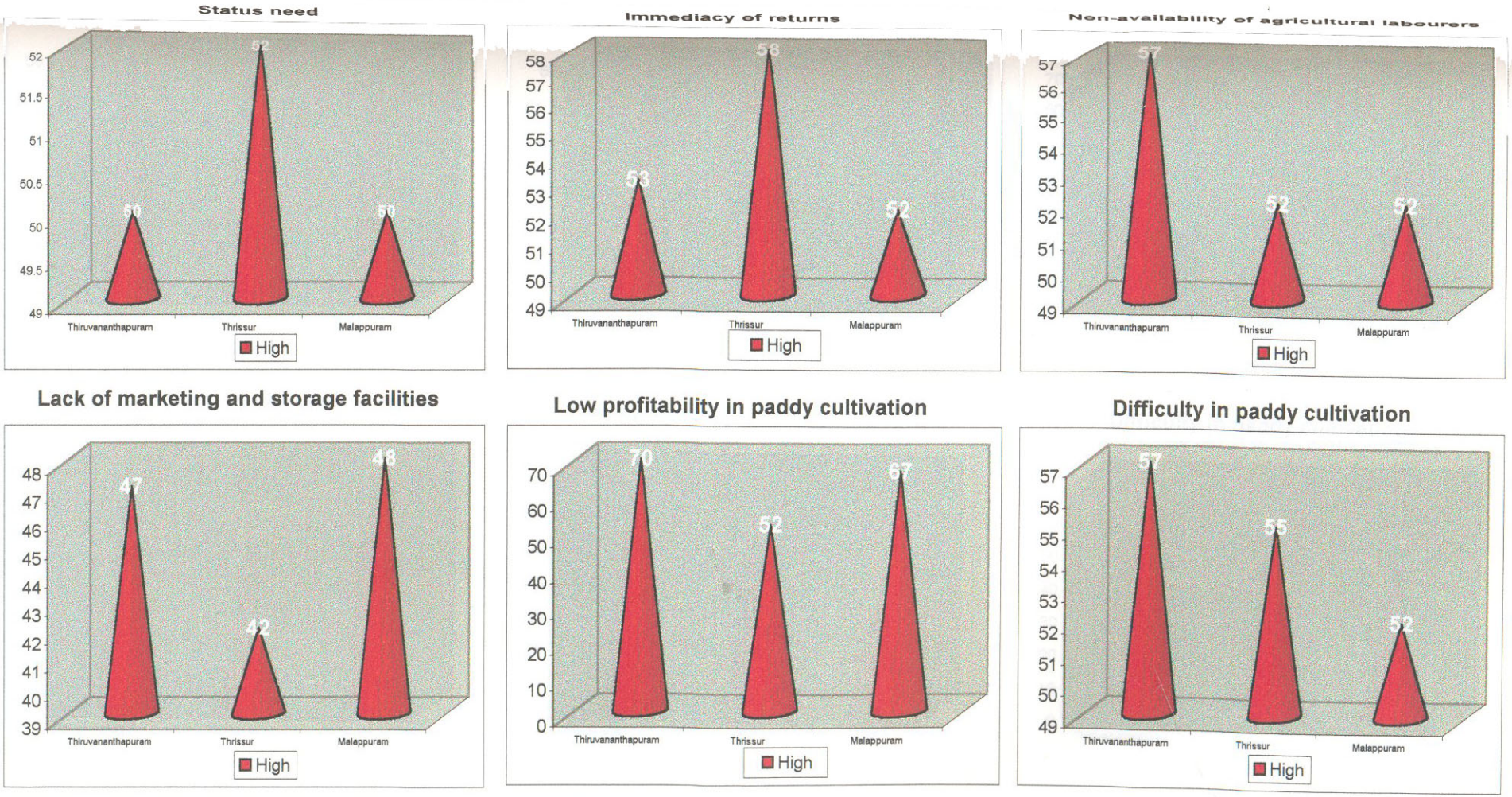


Fig. 11a 3-D graph showing District wise distribution of situational characteristics (in %) of KHDP SHG farmers

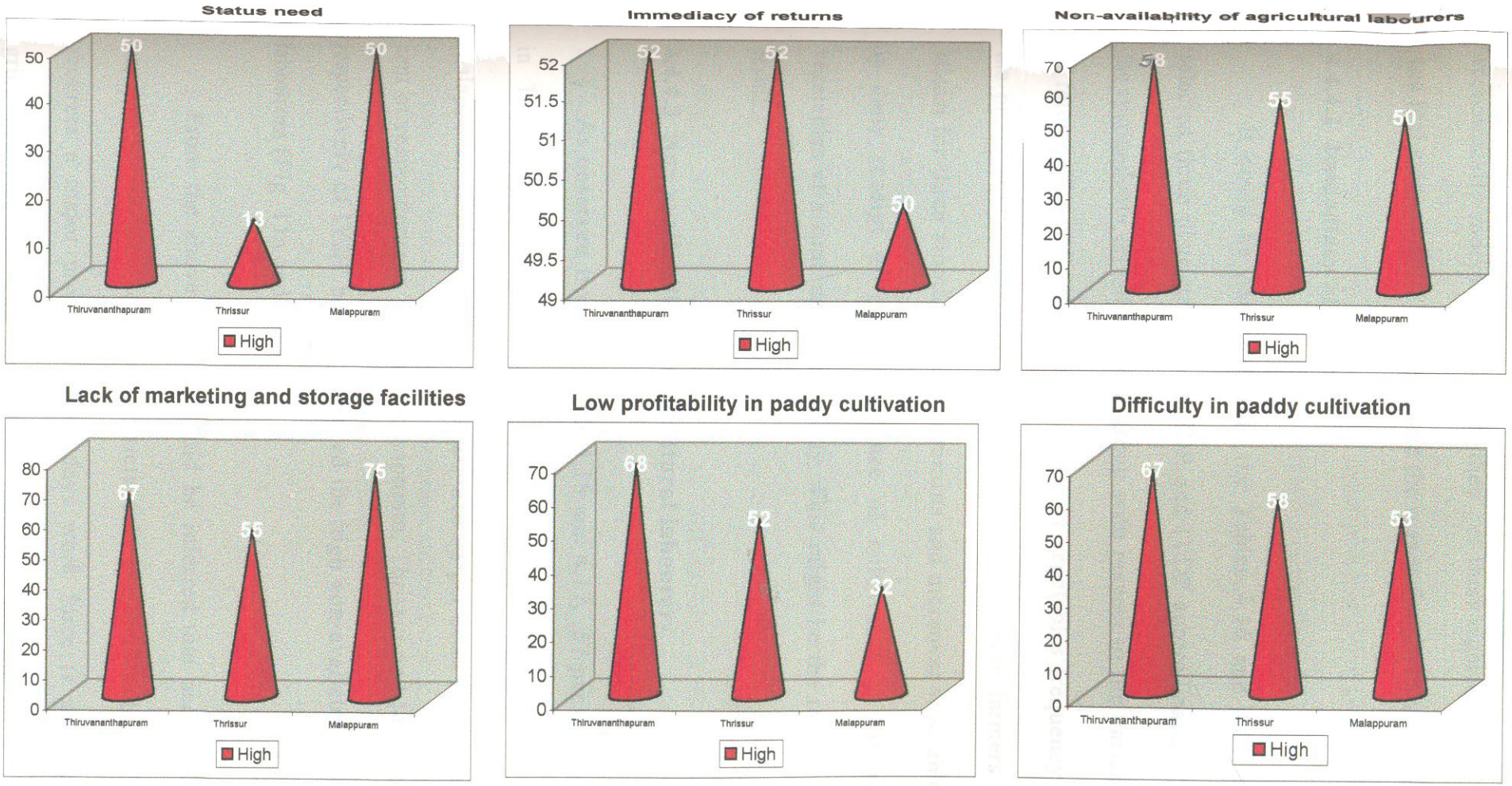


Fig. 11b 3-D graph showing District wise distribution of situational characteristics (in %) of IVDP SHG farmers

economically independent so that they get their rightful place in the society and feel empowered. This might be the reason for the above result.

4.4.4.2 Immediacy of returns

It could be observed from the Tables 4.16 and 4.17 that in all the selected three districts under KHDP and IVDP approximately 50 per cent of the respondents fell under high group with respect to the variable immediacy of returns (Fig. 11a and 11b). In case of vegetables frequency of harvest of the produce is comparatively more than paddy where farmers have to wait atleast for three months to get the returns and moreover vegetable growers are in daily receipt of returns because of cultivation of different types of vegetables at a time unlike in paddy. This might be the reason for the above result.

4.4.4.3 Non availability of agricultural labourers

As observed from the Table 4.16 and 4.17, 57 per cent of respondents in Thiruvananthapuram district and 52 per cent each in Thrissur and Malappuram districts in case of KHDP and 58 per cent, 55 per cent and 50 per cent of respondents in Thiruvananthapuram, Thrissur and Malappuram district respectively of IVDP had experienced the high non-availability of agricultural labourers (Fig. 11a and 11b).

From the above result it could be inferred that nearly 50 per cent of respondents in all the three districts felt non-availability of agricultural labourers a major problem. Nowadays work force is shifting away from agricultural sector. The agricultural labourers are the most exploited and

oppressed class in the rural hierarchy. They have been the most neglected section of the rural community and also the most exploited, unorganized and apparently poor. The demand for labour in agriculture is highly seasonal and uneven due to seasonal nature of agricultural operations. All the above factors could be the reason for non-availability of agricultural labourers and moreover, in order to improve standard of living they might be forced to migrate to other places to find better employment opportunities especially in non agriculture sector. The results of the study confirms the findings of Prakash (1989).

4.4.4.4 Lack of marketing and storage facility

In KHDP only 43 per cent of respondents in Thiruvananthapuram district and 48 per cent in Thrissur and Malappuram district respectively perceived, lack of marketing and storage facility a major problem while marketing whereas in case of IVDP 67 per cent, 55 per cent and 75 per cent in the three districts respectively had perceived the same (Fig. 11a and 11b).

Adoption of improved farm practices increases output of the farm produce. There must be a market for these produce and a good price for them, high enough to repay the farmer for his cash cost and effort in producing them. The three factors necessary are:

(i) a demand for the produce

(ii) a good marketing system

(iii) The farmer's confidence

Unlike in IVDP, KHDP has Marketing Information Centres and Field Centres. These centres provide accurate and timely data on all aspects of markets, which enable farmers to make better decisions. Product, price, place, promotion and participation are five pillars of the group marketing strategy envisaged by KHDP. Hence the good marketing system in KHDP might be the reason why comparatively less percentage of respondents faced the problem of lack of marketing and storage facilities. In Malappuram district, the selected SHGs under the KHDP and IVDP were started recently, hence lack proper marketing facilities.

4.4.4.5 Low profitability in paddy cultivation

More than 50 per cent of respondents in case of KHDP (Fig. 11a) as well as IVDP (Fig. 10b) in all the selected three districts had identified paddy as a low profitable crop (Table 4.16 and 4.17).

Paddy is known as a labour intensive crop and requires high cost of production. In India productivity of paddy is very low, hence, it was perceived by the respondents that amount spent on agricultural labourers as wages were more than the returns because of high cost of labour. The above factors could be the reason why majority of respondents in all the three districts identified paddy cultivation as less profitable. This result confirms the result of Prakash (1989).

4.4.4.6 Difficulty in paddy cultivation

It was observed from the Tables 4.16 and 4.17 that more than 50 per cent of respondents in all the three districts under KHDP and IVDP found

Table 4.18 Relationship of personal, socio-psychological, economic and situational characteristics of KHDP SHG farmers with the dimensions of social cost

Sl. No.	Dimensions	Personal characteristics				Socio-psychological characteristics							
		1	2	3	4	1	2	3	4	5	6	7.	8
1.	Perishability	0.00310	0.0875	0.185	0.0314	0.0083	0.1621	0.1062	-0.2746**	0.0039	-0.2061*	0.1569	0.126
2.	Conversion of paddy crop	0.0060	0.1743	0.0024	0.173	0.0077	0.0018	0.0099	0.234*	0.028	0.102	0.096	0.165
3.	Displacement of agricultural labourers	0.079	0.117	0.110	0.107	0.118	0.049	0.006	0.0037	0.1098	0.1009	0.186	0.0099
4.	Exploitation by middlemen	0.147	0.126	0.006	-0.428**	0.128	0.189	0.144	-0.393**	0.0047	-0.237*	0.0073	0.183
5.	Time constraint	0.132	0.177	0.173	0.0058	0.142	0.0034	0.0089	0.070	0.129	0.144	0.181	0.0079
6.	Involvement at the cost of education	0.521**	-0.781**	-0.492**	0.070	-0.640**	0.0089	0.0093	0.181	-0.298**	0.162	0.0046	0.0069

Table 4.18 Contd...

Sl. No.	Dimensions	Economical characters			Situational characteristics					
		1	2	3	1	2	3	4	5	6
1.	Perishability	0.0081	0.187	0.1025	0.1026	0.135	0.149	0.6771**	0.0079	0.1141
2.	Conversion of paddy crop	0.0050	0.0093	0.151	0.1465	0.128	0.168	0.0472	0.669**	0.7406**
3.	Displacement of agricultural labourers	0.178	0.162	0.118	0.131	0.020	0.297**	0.026	0.0012	0.316**
4.	Exploitation by middlemen	0.0050	0.132	-0.579**	0.111	0.173	0.156	0.025	0.119	0.129
5.	Time constraint	0.127	0.0091	0.105	0.113	0.124	0.824**	0.1012	0.185	0.156
6.	Involvement at the cost of education	0.482**	0.161	0.145	0.463**	0.182	0.296**	0.105	0.184	0.0047

*Significant at 5 % level **Significant at 1 % level

Personal characteristics
1) Age
1) Educational status
1) Occupational status
1) Experience in commercial vegetable production

Socio-psychological characteristics
1) Mass media participation
2) Risk orientation
3) Management orientation
4) Market perception
5) Cosmopoliteness
6) Extension orientation
7) Group cohesion
8) Attitude of farmers

Economic characteristics
1) Annual income
2) Credit orientation
3) Economic motivation

Situational characteristics
1) Status need
2) Immediacy of returns
3) Non availability of agricultural labourers
4) Lack of marketing and storage facilities
5) Low profitability in paddy cultivation
6) Difficulty in paddy cultivation

paddy crop a difficult crop to cultivate (Fig 11a and 11b). Nursery formation, puddling, transplanting, harvesting, threshing and winnowing are some of the operations required in paddy cultivation. These operations could be done only by skilled labourers and are very difficult for a farmer to do it himself.

This might be the reason why majority of respondents in all the three districts fell under high group with respect to the variable difficulty in paddy cultivation. The finding of the study is in accordance with the finding of Prakash (1989).

4.5 Relationship of dimensions of social cost with independent variables

4.5.1 Relationship of dimensions of social cost with independent variables in case of KHDP

4.5.1.1 Perishability

It is evident from the Table 4.18 that only one variable namely lack of marketing and storage facilities (0.6771) had positive and significant correlation with the variable perishability. The variables market perception (-0.2746), extension orientation (-0.2061) had negative and significant relationship with the variable perishability. All the other variables exhibited a non-significant relationship with the dependent variable.

Perishability is the degree to which vegetables get destroyed. This happens when glut situation occurs in the market as many a times lots of vegetables at a time are dumped in the market for sale and because of poor marketing and storage facility the vegetables gets perished which is a great cost to the people. Hence, this might be the reason for the positive and significant correlation between

Perishability and the independent variable lack of marketing and storage facility. This result is in tune with the result of Sreedaya (2000).

Farmers with high market perception could be able to properly market his produce as he possess high knowledge regarding different marketing facilities. Farmers with high level of extension orientation, participate in more and more extension activities and seek guidance form various extension agents and thus have knowledge about good marketing. Good marketing system includes good marketing and storage facilities, hence less perishability. This might be the reason for the negative correlation of the dependent variable Perishability with the independent variables like market perception and extension orientation.

4.5.1.2 Conversion of paddy crop

As could be seen from the Table 4.18, market perception (0.234), low profitability in paddy cultivation (0.669) and difficulty in Paddy cultivation (0.7406) were the variables that showed positive and significant relationship with the dimension conversion of paddy crop. All the other variables exhibited non-significant relationship.

As the level of market perception increases a person become more and more aware of different marketing channels and also become aware of profitable crops and knowledge regarding crops with good market and would have realized that throughout the year vegetable market would fetch steady income and employment. Farmers with high market perception would have perceived paddy as a non-profitable crop, which resulted in conversion of

paddy crop. Farmers won't prefer the crop which is difficult to cultivate and is non profitable. This would have resulted in shifting to the cultivation to a profitable crop like vegetables. This might be the reason for the positive and significant relationship of the variables market perception, low profitability in paddy cultivation and difficulty in paddy cultivation with the dependent variable conversion of paddy crop. This result is in confirmation with the results of Prakash (1989), Nair (1982) and Radhakrishnan (1983) who in their study concluded that low profitability and difficulty in paddy cultivation are the major factors limiting paddy production in Kerala state.

4.5.1.3 Displacement of agricultural labourers

The perusal of Table 4.18 showed that variables such as non-availability of agricultural labourers (0.297) and difficulty in paddy cultivation (0.316) had exhibited a positive and significant correlation with the dimension displacement of agricultural labourers. All the other variables exhibited non significant relationship with the dependent variable.

In case of paddy cultivation, farmers face critical period of labour requirement at the same time, this results in non-availability of agricultural labourers. Paddy cultivation requires difficult operations hence need trained labourers. The above reason resulted in shifting over to other profitable crops like vegetables by the respondents and moreover vegetable cultivation requires attention throughout the growth period. It was observed that because of high labour cost and non-availability of agricultural labourers, farmers shifted over to family labour, which resulted in displacement of agricultural labourers.

These might be the reasons for the positive and significant correlation of the independent variables non-availability of agricultural labourers and difficulty in paddy cultivation with the dependent variables displacement of agricultural labourers. This result is in confirmation with the findings of Nair (1982).

4.5.1.4 Exploitation by middlemen

It is clear from the Table 4.18 that the variables experience in commercial vegetable production (-0.428), management orientation (-0.744), market perception (-0.393), extension orientation (-0.237) and economic motivation (-0.579) had exhibited negative and significant relationship with the dependent variable exploitation by middlemen and none of the variables exhibited positive and significant relationship. All other variables exhibited non-significant relationship with the dependent variable.

Experience in vegetable cultivation makes the farmer more and more perfect that he could study from faults and adjust the activities to get valid and authentic results, hence high experience in commercial vegetable production would have made a person more scientifically oriented towards every aspects of marketing and might have created a better awareness among the respondents about the role of middlemen is marketing. This could be the reason for the negative correlation between the variables.

Market perception of farmers greatly relies on their awareness and possession of knowledge of marketing channels, comparative prices etc. of the produce. Farmers with these qualities could be able to market the produce with ease and confidence for remunerative prices with less scope for

exploitation by middlemen. This might be the reason for the negative correlation between the variable market perception and exploitation by middlemen.

Economic motivation is one of the important motives which mould the behaviour of individual. Farmers with high level of economic motivation would be very profit oriented, hence would leave less scope for middlemen.

The more the involvement of farmers in extension oriented activities such as seminars, method demonstrations etc., the more knowledge they gather and their sphere of comprehension widens. The person with high extension orientation would be scientifically oriented towards every aspects of marketing and would be much aware about the role of middlemen in marketing. This could be the reason for the negative correlation between the variables.

4.5.1.5 Time constraint

Non availability of agricultural labourers (0.824) is the only variable that exhibited a positive and significant relationship with the dependent variable time constraint All the other variables exhibited a non-significant relationship with the dependent variable (Table 4.18).

Agricultural labourers are the most exploited and oppressed class in the rural hierarchy. The demand for labourers in agriculture is uneven due to the seasonal nature of agricultural operations, that resulted in migration of agricultural labourers to different parts in search of better employment opportunities, hence non-availability of agricultural labourers and wage rate contributed to more family labour utilization. Vegetable cultivation requires

attention throughout the growth period, because of this farmers would not have got time for family get together and time to attend festivals and rituals with family members. This could be the reason why the independent variable non-availability of agricultural labourers exhibited a positive and significant relationship with the dependent variable time constraint.

4.5.1.6 Involvement at the cost of education

Table 4.18 revealed that independent variables like age (0.521) and non-availability of agricultural labourers (0.296) exhibited a positive and significant relationship with the dimensions involvement at the cost of education. It could also be noted from the table that variables like educational status (-0.781), occupational status (-0.492), mass media participation (-0.640), Cosmopoliteness (-0.698), annual income (-0.482), status need (-0.463) exhibited negative and significant relationship with the dependent variable involvement at the cost of education. All the other variables exhibited non-significant relationship.

An aged person is usually with traditional mentality and would be less aware of the importance of high education level. This could also be due to low level of aspiration in case of aged person, thus it was observed that the respondent under old age group did involve their children in farming at the cost of their education. Non-availability of agricultural labourers is the major problem faced by majority of farmers. Due to the above problem respondent would have utilized more family labour in vegetable cultivation and moreover in vegetable cultivation, the operations are not very difficult which resulted in

Table 4.19 Relationship of personal, socio-psychological, economic and situational characteristics of KHDP SHG farmers with the dimensions of social benefit

Sl. No.	Dimensions	Personal characteristics				Socio-psychological characteristics							
		1	2	3	4	1	2	3	4	5	6	7	8
1.	Family labour utilization	0.131	0.159	0.138	0.009	0.123	0.0019	0.121	0.008	0.211	0.145	0.116	0.123
2.	Increased living standard	0.125	0.145	0.0219	0.839**	0.128	0.434**	0.462**	0.185	0.125	0.155	0.0004	0.132
3.	Self confidence	0.123	0.193	0.273**	0.425**	0.206*	0.697**	0.772**	0.509**	0.239*	0.229*	0.004	0.180
4.	Dignity of farmers	0.325**	0.371**	0.0472	0.291**	0.151	0.161	0.0006	0.157	0.523**	0.832**	0.0013	0.194
5.	Equity	0.087	0.0073	0.0033	0.0009	0.121	0.124	0.081	0.0038	0.115	0.112	0.924**	0.108
6.	Satisfaction	0.177	0.395**	-0.353**	0.325**	0.139	0.266**	0.155	0.363**	0.413**	0.455**	0.0029	0.0067
7.	Sociability	-0.413**	-0.481**	0.0571	0.188	0.107	0.0070	0.0003	0.0073	0.911**	0.507**	0.297**	0.398**
8.	Knowledge in vegetable production	0.0052	0.227	0.0025	0.540**	0.0028	0.186	0.189	0.396**	0.245*	0.203*	0.142	0.396**

Table 4.19 Contd...

Sl. No.	Dimensions	Economical characteristics			Situational characteristics					
		1	2	3	1	2	3	4	5	6
1.	Family labour utilization	-0.268**	0.135	0.149	0.174	0.182	0.979**	0.184	0.139	0.123
2.	Increased living standard	0.286**	0.1006	0.281**	0.0002	0.0025	0.0089	0.124	0.0088	0.131
3.	Self confidence	0.187	0.510**	0.476**	0.123	0.158	0.101	0.182	0.116	0.121
4.	Dignity of farmers	0.429**	0.174	0.0051	0.114	0.112	0.175	0.144	0.107	0.009
5.	Equity	0.403	0.161	0.124	0.132	0.005	0.174	0.165	0.148	0.0087
6.	Satisfaction	0.340**	0.123	0.390	0.606**	0.713**	0.139	0.156	0.177	0.0075
7.	Sociability	0.153	0.174	0.159	-0.257**	0.171	0.164	0.166	0.0035	0.0044
8.	Knowledge in vegetable production	0.0032	0.188	0.115	0.126	0.0046	0.019	0.171	0.0088	0.014

*Significant at 5 % level **Significant at 1 % level

Personal characteristics
1) Age
2) Educational status
3) Occupational status
4) Experience in commercial vegetable production

Socio-psychological characteristics
1) Mass media participation
2) Risk orientation
3) Management orientation
4) Market perception
5) Cosmopoliteness
6) Extension orientation
7) Group cohesion
8) Attitude of farmers

Economic characteristics
1) Annual income
2) Credit orientation
3) Economic motivation

Situational characteristics
1) Status need
2) Immediacy of returns
3) Non availability of agricultural labourers
4) Lack of marketing and storage facilities
5) Low profitability in paddy cultivation
6) Difficulty in paddy cultivation

use of children also to some extent in farming. This could be the reason why age and non-availability of agricultural labourers exhibited positive and significant relationship with the dependent variable.

Education exposes the individual to wide ranging scientific and general information from reliable source which would have created a favourable attitude in respondents towards high educational status, hence resulted in less involvement of their children in farming at the cost of their education. A person with high occupational status would aspire there to have high level of education, hence less involvement of their children in farming at the cost of their education. Mass media play a crucial role in linking the individual with the outside world providing him within numerable general and specific information, which resulted in having a favourable attitude in them towards high educational status.

Respondents with more annual income and high level of status need would have utilized hired labour to keep up their status and would not have allowed their children to work in the farm.

All these could be the reasons for the negative correlation between the variables.

4.6 Relationship of dimensions of social benefit with independent variables in case of KHDP

4.6.1 Family labour utilization

The results presented in Table 4.19 implies that variable annual income (-.268) exhibited a negative and significant relationship where as the variable

non-availability of agricultural labourers (.979) exhibited positive and significant relationship with the dependent variable family labour utilization. All other variables exhibited non-significant relationship with the dependent variable.

Farmers belonging to low income group participate in farm operations to a great extent to save labour cost, and to earn their livelihood and farmers with high annual income do not go out for attending farm operations rather they hire agricultural labourers to work in their field owing to class consciousness and status factor of society preventing them from attending farm work. Respondents with more annual income would have utilized more hired labourers than family labour in this study. This might be the reason why the variable annual income exhibited negative and significant relationship with the dependent variable.

Now-a-days workforce is shifting away from agricultural sector. The demand for labour in agriculture is highly seasonal and uneven due to the seasonal nature of agricultural operations. Agricultural labourers are not at all getting the opportunities throughout the year so they shift or migrate to different parts. The uneven labour demand resulted in migration of agricultural labourers, due to this respondents would have faced the problem of non-availability of agricultural labourers, hence they shifted to family labour. Family labour utilization provided gainful employment opportunities to the farm family member which otherwise would have remained idle and unproductive. This might be the reason for the positive and significant

relationship of the variable non- availability of agricultural labourers with the dependent variable.

4.6.2 Increased living standard

It could be observed from the table 4.19 that variables like experience in commercial vegetable production (.839), risk orientation (.434), management orientation (.462), annual income (.286) and economic motivation (.281) exhibited positive and significant relationship with the dependent variable increased living standard.

With the reception of the same work, one gets specialized in it. High experience in the commercial vegetable production would have specialized the respondents in it and that would have helped him to do the work in the best possible ways that resulted in increased production and productivity, which ultimately led to, increased returns, hence increased living standard.

Respondents with high level of risk orientation would have adopted innovative techniques and indigenous practices in order to increase the production level and to decrease the cost of production. This increased production and decreased cost of production led to increased income level, hence increased living standard. Management orientation makes a person well aware of efficient utilization of men and materials. The respondents with high management orientation had utilized the men and material in the best possible way in order to get more profit, increased profit led to increased living standard. Economic motive is a major driving force influencing the external behaviour, leading to action for ensuring a better standard of living. All the

above-discussed variables contributed to increased annual income that ultimately increased the living standard of the respondents

4.6.3 Self confidence

In the present study it was observed that there was significant and positive relationship between occupational status (0.273), experience in commercial vegetable production (0.425), mass media participation (0.206), risk orientation (0.697) management orientation (0.772), market perception (0.509) Cosmopoliteness (0.239) extension orientation (0.229), credit orientation (0.510) and economic motivation (0.476) with the dependent variable self confidence where as all the other variables exhibited non-significant relationship with self confidence (Table 4.19)Respondents who had farming as their main occupation naturally had more experience compared to person with subsidiary occupations

As people get more experienced, they learn to tackle their problems more wisely and try to satisfy their needs, which increases the confidence in them. Thus more the experience more will be the self-confidence. This could be the reason for the positive and significant relationship between experience in commercial vegetable cultivation and occupational status with self-confidence. Greater awareness with the surrounding because of high mass media participation would have added to their self confidence as mass media exposure enable a person to know all the changes taking place in the market, about the price variation etc, hence a person with more mass media

participation will have more self-confidence. This might be the reason for the positive and significant relationship between the variables.

A person with high-risk orientation will try and experiment new products and new methods of production, which are economically sound. In this study as the risk orientation level of the respondents increased, readiness to face uncertainties and anxiety associated with new venture increased. The courage to face and overcome this anxiety will be more only in a self-confident person. A farmer who dares to take risks are likely to be progressive and more he become progressive, more self confident he be, thus a person with high risk orientation would be more self confident compared to the person with low risk orientation

. To run any enterprise profitably, one has to utilize the available men and material in the prevailing condition to the best advantage. Efficient utilization of men and material result in more profit that increase the self-confidence of each and every member of the enterprise. In this study respondents with high management orientation could have utilized the men and material resources efficiently which resulted in increased production and they're by increased standard of living, hence self confidence increased. This might be the reason for the positive and significant correlation between the variables.

Market perception refers to the degree of farmers perception about different trends of marketing for greater returns, hence in this study as the level of market perception increased, the respondents would have become

more and more aware of different trends of marketing which resulted in increased returns, this increased the self confidence of the respondents.

A person with high level of cosmopoliteness would be visiting the near by villages and would be aware of different aspects like what they do, what have resulted in their progress and try to apply or follow the same in his field, which increases the confidence in him. This could be the reason for the positive and significant relationship between the variables cosmopoliteness and self-confidence.

The positive and significant correlation between extension orientation and self confidence can be substantiated by the fact that more the involvement of a person in the extension activities and interactions with extension personnel's more will he be equipped with first hand information and necessary skills and other related aspects of crop management and moreover more a person is equipped with the knowledge in a particular aspect more will be the self-confidence in him. Thus as the extension orientation level of the respondents increased, his self-confidence also increased.

Economic motivation refers to the degree of respondent's orientation towards profit maximization. A person with high economic motivation strive very hard to make profit compared to the person with low economic motivation and more the profit a person get, more confident he will be. This could be the reason for the positive and significant relationship between the variables economic motivation and self-confidence.

The positive and significant correlation between credit orientation and self confidence can be explained by the fact that KHDP provides credits to their farmers for vegetable and fruit cultivation on easy terms and conditions through Nationalized Banks and farmers without land had the facility to avail credit and could repay well, hence the easy availability of credit resulted in increased confidence in farmers to take up vegetable cultivation.

4.6.4 Dignity of farmers

Independent Variables like age (0.325), educational status (0.371), experience in commercial vegetable production (0.291), cosmopoliteness (0.523), extension orientation (0.832), annual income (0.429), attitude of farmers (0.194) exhibited a positive and significant relationship with the dependent variable dignity.

An aged person will be more experienced than the young person and will be considered as more knowledgeable than the person with less experience in the field. Other people in the society would also consider him as a credible source for many of the problems. In the study respondents with old age would have been respected and recognized more because of their age and experience in the particular field. This could be the reason for the positive and significant relationship between the variables age and dignity. The same reason holds good for the positive and significant relationship between the variables educational status and dignity.

The result showed that there was positive and significant correlation between annual income and dignity. As the education level of the person

increased he switched over to other jobs rather than confining himself to farming alone. This fetched him with additional income. Increased annual income result in increased living standard. Respondents with high annual income have high living standard. Due to high living standard he had good position and high respect in the society, which led to increase in the level of dignity. This might be the reason for the positive and significant relation between annual income and dignity.

According to Jhingan (1990) with the reception of the same work one get specialized in it. This implies that as the experience level of a person increases, his knowledge level also increases because of specialization. In this study it was observed that as the experience level of respondents increased in the field of commercial vegetable production, his knowledge in the field also increased. This result confirms the result of Sreedaya (2000). Due to the high knowledge he was recognized as the credible source of information's and was respected too. This might be the reason for the positive and significant relationship between the variables experience in Commercial Vegetable Production and the dignity level.

Involvement in extension activities, interaction with extension personnel equip farmers with first hand information and similarly cosmopoliteness provides for meaningful interaction of respondents with the outside world and that widens the outlook of farmers. All these factors contributed to increased awareness (Syamkumar, 1999). High extension orientation and high cosmopoliteness of the respondents led to high awareness among the respondents regarding vegetable production and they were

respected more. This might be the reason for the positive and significant correlation of the variables extension orientation and cosmopoliteness with dignity level.

Introduction of awards for best vegetable cultivators have created a favourable attitude in farmers towards vegetable cultivation and succeeded in motivating the farmers to get equipped and become more and more aware of innovative technologies in order to increase the production level. More favourable the attitude of farmers towards vegetable production programme more would be the awareness in them, hence recognized and respected more. This could be the reason for the positive relation of attitude of farmers with their dignity level.

4.6.5 Equity

It was observed from the table 4.19 that only the variable group cohesion (0.924) exhibited a positive and significant relationship with the dependent variable equity and all the other variables exhibited non-significant relationship.

Group cohesion is the degree of closeness exhibited by members of the group. Group cohesion is an important character which determine the success of the group and this group approach minimizes the inequalities in the distribution of production inputs and outputs among the members which is nothing but equity. This could be the reason for the above result.

Similar finding was reported by Beyson (1997) who found out that as the members develop favourable approaches to each other, cohesiveness increases.

4.6.6 Satisfaction

As evidenced from Table 4.19 variables like educational status (0.395), experience in commercial vegetable production (0.325), risk orientation (0.266), market perception (0.363), cosmopoliteness (0.413), extension orientation (0.455), annual income (0.340), economic motivation (0.390), status need (0.606) and immediacy of returns (0.713) exhibited a positive and significant relationship with the dependent variable satisfaction the variable occupational status (-0.353) had a negatively significant relationship with the dependent variable

As the education level of a person increases, his knowledge increases. In this study as the educational status of the respondents increased, his knowledge about the ways and means to achieve group goals and about vegetable cultivation would have increased, hence resulted in increased satisfaction. This finding is in contrast with the findings of Sreedaya (2000) who in her study observed negative and significant correlation between the variables educational status and need satisfaction.

As the people get more experienced they learn to tackle their problems more wisely and try to satisfy their needs. This might be the reason for the positive correlation between experience in commercial vegetable production

and satisfaction. Shaw (1993) observed that self help groups can be sustainable only if they satisfy the needs of its members.

Risk orientation is the degree to which the farmer is oriented towards encountering risks and uncertainty in adopting new ideas in farming. In this study respondents with high-risk orientation would have tried new ideas and farming methods to increase the production level of vegetables in his farm. This increased production would have resulted in increased income, hence more satisfaction. This might be the reason for the positive and significant relationship between risk orientation and satisfaction.

Respondents with high market perception would be able to market the produce with ease and confidence, which results in high level of satisfaction in respondents. This might be the reason for the above relationship. Extent of cosmopoliteness and extension orientation provides more meaningful interaction of respondents with the outside world that provide the farmers with first hand information and also widens the outlook of farmers which increases the satisfaction level of farmers. This might be the reason for the positive and significant correlation of the variables cosmopoliteness and extension orientation with the dependent variable satisfaction.

It was observed that annual income and economic motivation exhibited a positive and significant relationship with the dependent variable satisfaction. Person with high annual income would be able to satisfy the needs of his family members and his own needs more easily than the person with comparatively low income. Satisfied needs bring satisfaction in a person.

Similarly a person with high economic motivation strives hard to make more profit and more the profit, a person gets, more satisfied will he be. This could be reason for the positive and significant relationship between the variables.

Respondents of the study felt that vegetable cultivation has increased their status level because of various reasons like introduction of awards, more annual income etc. and this increased status brought a sense of satisfaction in them. Immediacy of returns was operationalised as the degree to which vegetable cultivation can provide immediate returns in comparison with paddy cultivation. Vegetable cultivation provided immediate returns compared to paddy cultivation as perceived by many respondents. These immediate returns resulted in immediate fulfilling of needs, which brought satisfaction in the respondents. These might be the reasons for the above positive and significant relationship of the variables status need and immediacy of returns with the dependent variable satisfaction.

In this study occupational status was operationalised as the extent to which a respondent is engaged in farming alone. This increased occupational status didn't give any additional income to the family. A person with less annual income would not be able to fulfill the needs of his family and his own needs more easily compared to the person with high income, hence have a less satisfied life. This might be the reason for the above relationship.

4.6.7 Sociability

It could be observed from the table 4.19 that variables like age (-0.413), educational status (-0.481) and status need (-0.257) exhibited negative and significant correlation with the dependent variable sociability and variables cosmopoliteness (.911), extension orientation (0.507), group cohesion (0.297) and attitude of farmers (0.398) exhibited positive and significant relationship with the variable sociability.

The old farmers are likely to loose interest in active participation with in and outside the social system and become more self absorbed and similarly a person with high educational status and high status need would be highly self –oriented, prestige conscious and selfish and may be social with others to a lesser extent only. This might be the reason for the negative and significant correlation of variables age, educational status and status need with the dependent variable sociability. This finding contradicts the findings of Syamkumar (1999) who observed positive and significant association between educational status and sociability.

A person with high level of cosmopoliteness and extension orientation is more exposed to the outside world than others, which develop positive attitude in them towards each other's, and they would interact more frequently, thus tend them to become more social. This might be the reason for the above result.

High level of group cohesion in the respondents tend them to remain in the group and develop a positive attitude in them towards each other's thus

make them more social. High attitude of farmers towards the Vegetable Production Programme would motivate them to master in vegetable production, he would try to meet and interact with different experts in the field and would have frequent contacts with different agencies, which makes him more social. These could be the reasons for the positive and significant correlation of the variables group cohesion and attitude of farmers with sociability.

4.6.8 Knowledge in vegetable production

It is evident from the table 4.19 that variables like educational status (0.227), experience in commercial vegetable production (0.540), market perception (0.396), cosmopoliteness (0.245), extension orientation (0.203) and attitude of farmers (0.396) exhibited positive and significant correlation with the dependent variable knowledge in vegetable cultivation.

Education exposes an individual to wide-ranging scientific and general information from reliable source and hence increases the knowledge level. As the education level of a person increases, he become more confident, exchange and seek new ideas and information from other farmers, thus gain more knowledge regarding the particular field, because of these reasons as the educational status of the respondent increased, his knowledge in vegetable cultivation also increased.

Experience in vegetable cultivation makes the farmer more and more perfect and moreover with the reception of the same work, one get specialized in, this would result in increase in knowledge level. This might be the reason

Table 4.20 Relationship of personal, socio-psychological, economic and situational characteristics of IVDP SHG farmers with the dimensions of social cost

Sl. No.	Dimensions	Personal characteristics				Socio-psychological characteristics							
		1	2	3	4	1	2	3	4	5	6	7	8
1.	Perishability	0.114	0.0022	0.028	0.071	0.0007	0.0019	0.1218	0.234	0.126	0.1153	0.0032	0.157
2.	Conversion of paddy crop	0.114	0.103	0.0013	0.016	0.004	0.200*	0.0012	0.117	0.120	0.020	0.001	0.0018
3.	Displacement of agricultural labourers	0.0078	0.0066	0.106	0.0029	0.0036	0.0030	0.0068	0.0006	0.0024	0.0056	0.0070	0.075
4.	Exploitation by middlemen	0.106	-0.327**	0.102	-0.436**	0.0038	0.186	-0.741**	0.159	-0.264**	-0.246**	0.192	-0.706**
5.	Time constraint	0.0017	0.0020	0.0077	0.0037	0.008	0.0043	0.119	0.0049	0.0030	0.0027	0.145	0.147
6.	Involvement at the cost of education	-0.485**	-0.727**	-0.478**	0.125	-0.445**	0.009	0.110	0.142	-0.68**	-0.540**	0.129	0.175

Table 4.20 Contd...

Sl. No.	Dimensions	Economic characteristics			Situational characteristics					
		1	2	3	1	2	3	4	5	6
1.	Perishability	0.138	0.151	0.004	0.114	0.1652	0.164	0.784**	0.178	0.186
2.	Conversion of paddy crop	0.0003	0.098	0.002	0.2070*	0.208*	0.142	0.0068	0.488**	0.274**
3.	Displacement of agricultural labourers	0.0011	0.104	0.0074	0.0011	0.132	0.8414**	0.178	0.128	0.146
4.	Exploitation by middlemen	0.112	0.106	-0.505**	0.171	0.118	0.153	0.000	0.0053	0.006
5.	Time constraint	0.0015	0.0087	0.024	0.0096	0.155	0.744**	0.100	0.187	0.208*
6.	Involvement at the cost of education	-0.474**	0.092	0.153	0.160	0.006	0.005	0.160	0.182	0.131

*Significant at 5 % level **Significant at 1 % level

Personal characteristics
1) Age
2) Educational status
3) Occupational status
4) Experience in commercial vegetable production

Socio-psychological characteristics
1) Mass media participation
2) Risk orientation
3) Management orientation
4) Market perception
5) Cosmopoliteness
6) Extension orientation
7) Group cohesion
8) Attitude of farmers

Economical characteristics
1) Annual income
2) Credit orientation
3) Economic motivation

Situational characteristics
1) Status need
2) Immediacy or returns
3) Non availability of agricultural labourers
4) Lack of marketing and storage facilities
5) Low profitability in paddy cultivation
6) Difficulty in paddy cultivation

for the positive and significant relationship between the variables experience in commercial vegetable cultivation and the dependent variable.

Market perception of farmers greatly relies on their awareness and possession of knowledge of marketing channels, prices etc of the produce, hence more the level of market perception, more the knowledge level.

Involvement in extension activities and interactions with extension personnel provide the farmers with necessary information and skills about the technicalities and other related aspects of crop management. Similarly, cosmopoliteness provides for meaningful interaction of respondents with the outside world and widens the outlook of farmers. These might be the reasons why in this study as the extent of extension orientation and cosmopoliteness of the respondents increased, his knowledge level also increased.

A person having favourable attitude towards vegetable cultivation would try to gain more information regarding each and every aspect of vegetable cultivation, which ultimately lead to increase in his knowledge level

4.7 Relationship of dimensions of social cost with independent variables in case of IVDP

4.7.1 Perishability

The Perusal of Table 4.20 showed that only one variable namely lack of marketing and storage facilities (0.784) had positive and significant correlation with the variable perishability.

The same result was also observed in KHDP SHGs while finding the correlation between perishability and independent variables.

4.7.2 Conversion of Paddy crop

It is evident from the Table 4.20 that risk orientation (0.200), status need (0.2070) immediacy of returns (0.208), low profitability in paddy cultivation (0.488) and difficulty in paddy cultivation (0.274) were the variables that showed a positive and significant relationship with the dimension conversion of paddy crop. All the other variables exhibited non-significant relationship.

Farmers who dare to take risks are likely to be progressive and responsive to externally influenced desirable changes. In this study as the risk orientation level of the respondents increased, readiness to face uncertainties and anxiety associated with new venture increased, hence would have dared to raise a completely new crop by converting the existing paddy land. This could the reason for the positive and significant relationship between the variables risk orientation and conversion of paddy crop.

Respondents of the study felt that vegetable cultivation could increase their status level because of awards, immediate returns, high income etc. Hence, more the respondents became status conscious, more was the conversion of paddy crop to vegetables.

Vegetable cultivation fetch immediate return compared to the paddy cultivation as many vegetables could be harvested in a very short span of time.

Hence more the respondents perceived that vegetable cultivation bring immediate returns, more was the conversion of their paddy crop to vegetables.

Variables like low profitability in paddy cultivation and difficulty in paddy cultivation exhibited a positive and significant correlation with the variable conversion of paddy crop. The same result was observed incase of KHDP SHG farmers, hence the same reason holds good here also.

4.7.3 Displacement of agricultural labourers

Table 4.20 revealed that only one variable non-availability of agricultural labourers (0.8414) exhibited a significant and positive relationship with displacement of agricultural labourers while all the other variables exhibited a non significant relationship.

The same result was also observed in KHDP SHGs while finding the correlation between displacement of agricultural labourers and independent variables.

4.7.4 Exploitation by middlemen

As could be seen from the Table 4.20 experience in commercial vegetable cultivation (-0.436), mass media participation (-.288), management orientation (-0.741), cosmopoliteness (-0.264), extension orientation (-0.246), attitude of farmers (-0.706), economic motivation (-0.505) were the variables which showed a negative and significant relationship with the dimension exploitation by middlemen.

In case of KHDP SHGs, variables like experience in commercial vegetable cultivation, management orientation, extension orientation and economic motivation exhibited a negative and significant relationship with the dependent variable. Hence the same reason holds good in case of IVDP SHGs also.

Mass media play a crucial role in linking the individual with the outside world providing him with innumerable general and specific information. Similarly cosmopoliteness provides for meaningful interaction of respondents with the outside world and has a complementation effect on information exchange and also widens the outlook of farmers. The above-mentioned reasons resulted in increase in the awareness level of respondents with increase in the extent of mass media participation and cosmopoliteness. Awareness with respect to different marketing channels, comparative prices, role of middlemen etc resulted in less exploitation by middlemen. This could be the reason for the above result.

4.7.5 Time constraint

Non- availability of agricultural labourers (0.744) and difficulty in paddy cultivation (0.208) are the two variables that exhibited positive and significant relationship with the dependent variable time constraint (Table 4.20). All the other variables exhibited a non-significant relationship with the dependent variable.

The reason for the positive and significant correlation between the variables non-availability of agricultural labourers and time constraint is explained under KHDP, the same reason holds good here also.

More the respondents perceived paddy cultivation a difficult operation; more they shifted over to vegetable cultivation. Vegetable cultivation requires attention throughout the growth period because of this farmers would have faced time constraint. This could be the reason for the positive and significant correlation between the variables difficulty in paddy cultivation and time constraint.

4.7.6 Involvement at the cost of education

The perusal of Table 4.20 showed that only the variable age (-0.485), exhibited a positive and significant relationship with the dimension involvement at the cost of education. Where as variables such as educational status (-0.727), mass media participation (-0.445), cosmopoliteness (-0.680), extension orientation (-0.540), annual income (-0.474) exhibited negative and significant correlation with the dependent variable.

The same result was observed in case of KHDP SHGs except in case of relationship between extension orientation and involvement at the cost of education. Involvement in the extension activities undertaken by Krishi Bhavan, Department of Agriculture and interactions with extension personnel provide the farmers with first had information about each and every aspects of crop management, moreover he would also become aware of the merits of high educational status, hence would aspire for high

Table 4.21 Relationship of personal, socio-psychological, economic and situational characteristics of IVDP SHG farmers with the dimensions of social benefit

Sl. No.	Dimensions	Personal characteristics				Socio-psychological characteristics							
		1	2	3	4	1	2	3	4	5	6	7	8
1.	Family labour utilization	0.0025	0.0063	0.113	0.007	0.005	0.001	0.007	0.007	0.004	0.006	0.008	0.009
2.	Increased living standard	0.009	0.006	0.006	0.7916**	0.0008	0.342**	0.353**	0.173	0.003	0.004	0.181	0.002
3.	Self confidence	0.008	0.167	0.236*	0.522**	0.124	0.338**	0.507**	0.285**	0.004	0.003	0.150	0.519
4.	Dignity of farmers	0.130	0.208*	0.131	0.000	0.156	0.007	0.006	0.200*	0.293**	0.252**	0.004	0.004
5.	Equity	0.123	0.188	0.152	0.168	0.112	0.009	0.003	0.097	0.189	0.124	0.778**	0.002
6.	Satisfaction	0.107	-0.326**	0.008	0.200*	0.328**	0.236*	0.244*	0.122	0.011	0.174	0.129	0.234*
7.	Sociability	-0.433**	0.481**	0.0581	0.002	0.169	0.106	0.170	0.124	0.791**	0.483**	0.584**	0.281**
8.	Knowledge in vegetable production	0.0008	0.2075*	0.008	0.785**	0.0039	0.108	0.107	0.316**	0.0004	0.004	0.110	0.463**

Table 4.21 Contd...

Sl. No.	Dimensions	Economic characteristics			Situational characteristics					
		1	2	3	1	2	3	4	5	6
1.	Family labour utilization	-0.200	0.005	0.104	0.003	0.147	0.967**	0.026	0.130	0.268**
2.	Increased living standard	0.199*	0.149	0.522**	0.145	0.009	0.102	0.006	0.016	0.106
3.	Self confidence	0.246*	0.124	0.484**	0.158	0.183	0.105	0.006	0.001	0.189
4.	Dignity of farmers	0.267*	0.144	0.100	0.006	0.003	0.005	0.123	0.009	0.009
5.	Equity	0.124	0.124	0.005	0.007	0.005	0.004	0.182	0.178	0.009
6.	Satisfaction	0.209*	0.154	0.188	0.798**	0.688**	0.002	0.184	0.288**	0.304*
7.	Sociability	0.147	0.136	0.134	0.009	0.0004	0.007	0.140	0.133	0.119
8.	Knowledge in vegetable production	0.128	0.112	0.171	0.141	0.157	0.0012	0.098	0.166	0.020

*Significant at 5 % level **Significant at 1 % level

Personal characteristics
1) Age
2) Educational status
3) Occupational status
4) Experience in commercial vegetable production

Socio-psychological characteristics
1) Mass media participation
2) Risk orientation
3) Management orientation
4) Market perception
5) Cosmopoliteness
6) Extension orientation
7) Group cohesion
8) Attitude of farmers

Economical characteristics
1) Annual income
2) Credit orientation
3) Economic motivation

Situational characteristics
1) Status need
2) Immediacy or returns
3) Non availability of agricultural labourers
4) Lack of marketing and storage facilities
5) Low profitability in paddy cultivation
6) Difficulty in paddy cultivation

education for their children. This would have resulted in less involvement of their children at the cost of their education.

4.8 Relationship of dimensions of social benefit with independent variables in case of IVDP

4.8.1 Family labour utilization

Variable annual income (-0.200) showed a negative and significant correlation where as variables non availability of agricultural labourers (0.967) and difficulty in paddy cultivation showed a positive and significant correlation with the dependent variable family labour utilization (Table 4.21).

The relationship of annual income and non availability of agricultural labourers is same an in case of KHDP SHGs, hence the same reason holds good here also.

More the farmers perceived paddy cultivation a difficult operation more the extent of conversion of paddy crop to other crops like vegetables. Vegetable cultivation requires attention through the growth period and because of high labour cost and non-availability of agricultural labours, respondents shifted over to family labour. This could be the reason for the above result.

4.8.2 Increased living standard

Table 4.21 clearly showed that variables like experience in commercial vegetable cultivation (0.7916), risk orientation (0.342), management orientation (0.353), annual income (0.199), and economic motivation (0.522)

had exhibited positive and significant relationship with the dependent variable increased living standard.

The same result was observed in case of KHDP SHGs while finding the correlation between increased living standard and independent variables.

4.8.3 Self confidence

As could be seen from the Table 4.21occupational status(0.236), experience in commercial vegetable cultivation (0.522) risk orientation (0.338), management orientation (0.507), market perception (0.285), attitude of farmers towards vegetable cultivation (0.519) and annual income (0.246) were the variables which showed a positive and significant relationship with self confidence.

The same result was observed in case of KHDP SHGs except for the correlation between the variables attitude of farmers and annual income with self confidence. The reason for the above relationship is discussed under KHDP and the same reason holds good here also.

As the attitude of farmers toward vegetable cultivation become more and more favourable he would have tried to gather as much information about every aspect of vegetable cultivation, this greater knowledge might have reinforced their self confidence and hence had positive correlation with self confidence. The result is on par with the result of Syamkumar (1999) who found a positive correlation between the variables attitude and self-confidence. Increased in annual income result in increase in living standard and higher the living standard, more confident he would be.

4.8.4 Dignity of farmers

Table 4.21 revealed that variables like educational status (0.208), market perception (0.200), cosmopoliteness (0.293) extension orientation (0.252) and annual income (0.267) exhibited a positive and significant relationship with the dependent variable dignity while all other variables exhibited a non significant relationship.

Except the relationship between variables market perception and dignity all other variables exhibited similar relationship with the dependent variable as in case of KHDP SHGs. Hence the same reason for the above result holds good here also.

Market perception refers to the capacity of the respondents to identify the market trend to sell the produce for greater returns. More the level of market perception in a person, more would he be aware of the different market trends, good market and comparative prices of the produce. In this study as the level of market perception increased, because of the above-mentioned characters, respondents would have gained profit, which would have led to increased living standard, hence resulted in increased dignity.

4.8.5 Equity

It is evident from the table 4.21 that only the variable group cohesion (0.778) exhibited a positive and significant relationship with the dependent variable equity while all the other variables exhibited non-significant relationship.

The same result was also observed in KHDP SHGs while finding the correlation between equity and independent variables.

4.8.6 Satisfaction

It could be observed from the Table 4.21 that variable educational status (-0.326) exhibited a negative and significant relationship with the dependent variables where as variables, experience in commercial vegetable cultivation (0.200), mass media participation (0.328), risk orientation (0.236), management orientation (0.244), attitude of farmers (0.234) annual income (0.2092), status need (0.798), immediacy of returns (0.688), low profitability in paddy cultivation (0.288), and difficulty in paddy cultivation (0.304) exhibited a positive and significant relationship with the dependent variable satisfaction.

Mass media play a crucial role in linking the individual with the outside world, which develop a positive attitude in them towards others. A greater participation in mass media channels would have helped them to tackle their problems more wisely and to satisfy their needs. This could be the reason for the above result.

To run any enterprise profitably one has to utilize the available resources in the prevailing condition to the best advantage. In this study as the management orientation level increased as the respondents, his income would have increased, which helped him to satisfy his needs without difficulties. This might be the reason for a positive and significant correlation between the variables management orientation and satisfaction.

Vegetable being a more profitable crop due to several factors such as low cost of cultivation, less labour intensive etc., farmers might have developed more inclination towards the cultivation of vegetables. Moreover, because of immediate returns and more income in case of vegetable cultivation, respondents could satisfy their needs easily. This might be the reason for the above result.

It is quite natural that as the education status of the family increases, the needs of its members also increase and hence satisfaction of the needs cannot be achieved to that extent. The result was in conformity with the result of Sreedaya (2000).

Annual income refers to the total earning of all the members of the family of the respondents for one year. More the annual income, more easily a person could satisfy his needs and could live a satisfied life. This might be the reason for the positive and significant correlation between the variables annual income and satisfaction. The result is in contradiction with the result of Sreedaya (2000) who in her study observed a negative and significant correlation between the variables annual income and satisfaction.

Low profitability and high difficulty in paddy cultivation resulted in shifting over to other crops like vegetables. Immediacy of returns, less cost of cultivation and less labour intensive nature etc of vegetable crops fetched them more profit. Hence more the profit, more will be the level of satisfaction.

The reason for the positive and significant relationship the variables experience in commercial vegetable cultivation risk orientation, status need, immediacy of returns with the dependent variable satisfaction is discussed under KHDP SHGs and the same reason holds good here also.

4.8.7 Sociability

It is evident from the Table 4.21 that only the variable age (-0.433) exhibited a negative and significant relationship with the dependent variable sociability where as variables like educational status (0.481), cosmopoliteness (0.791), extension orientation (0.483) group cohesion (0.554) and attitude of farmers (0.281) had exhibited a positive and significant relationship.

Higher educational status might have created a better awareness among the member about their role in the society and thus would develop patience and qualities like impressing and getting along well with people. This could be the reason why sociability increased with increase in educational status.

The correlation observed with respect to the variables age, cosmopoliteness, extension orientation, group cohesion and attitude of farmers with the dependent variable sociability is same as observed under KHDP SHGs, hence the same reason holds good here also.

4.8.8 Knowledge in vegetable cultivation

The perusal of Table 4.21 showed that variable such as educational status (0.2075), experience in commercial vegetable cultivation (0.785), market perception (0.316) and attitude of farmers (0.463) had exhibited a

positive and significant correlation with knowledge in vegetable cultivation. All the other variables exhibited non-significant relationship with the dependent variable.

The correlations between the same independent variables with knowledge in vegetable cultivation were found to be significant and positive in the case of KHDP SHGs.

4.9 Comparison between KHDP and IVDP SHG members with respect to personal, social–psychological, economical and situational characteristics

The mean score of independent variables of KHDP and IVDP SHG members were subjected to 't' test to know whether there is any significant difference between these two groups with respect to these variables.

It could be seen from the Table 4.22 that the two group members (KHDP and IVDP) do not significantly differ with respect to variables such as age, educational status, occupational status, cosmopoliteness, attitude of farmers, annual income, economic motivation, status need, immediacy of returns, non availability of agricultural labourers, low profitability in paddy cultivation and difficulty in paddy cultivation. But these group members significantly differ with respect to following characteristics.

Table 4.22 Result of the 't' test between independent characteristics of the KHDP and IVDP SHG members

Sl. No.	Independent variables	Mean score		't' value	
		(KHDP)	(IVDP)		
	Personal characteristics				
1	Age	40.18	40.24	0.006	NS
2	Educational status	3.58	3.64	0.645	NS
3	Occupational status	1.79	1.91	0.991	NS
4	Experience in commercial vegetable production	3.11	2.52	6.509	S**
	Socio psychological characteristics				
1	Mass media participation	14.02	14.12	1.33	NS
2	Risk orientation	14.73	12.56	4.74	S**
3	Management orientation	23.72	21.46	8.19	S**
4	Market perception	4.49	3.69	9.26	S**
5	Cosmopoliteness	8.63	8.82	.898	NS
6	Extension orientation	29.27	26.28	7.959	S**
7	Group cohesion	11.58	9.34	12.94	S**
8	Attitude of farmers	48.43	48.13	5.37	NS
	Economical characteristics				
1	Annual income	2.06	2.05	.1205	NS
2	Credit orientation	12.71	11.42	6.35	S**
3	Economic motivation	24.26	24.16	1.04	NS
	Situational characteristics				
1	Status need	4.35	4.37	.218	NS
2	Immediacy of returns	3.54	3.43	1.55	NS
3	Non availability of agricultural labourers	2.46	2.46	.102	NS
4	Lack of marketing and storage facilities	4.24	4.47	3.29	S**
5	Low profitability in paddy cultivation	3.56	3.61	.627	NS
6	Difficulty in paddy cultivation	3.42	3.33	1.25	NS

4.9.1 Experience in commercial vegetable production

It is evident from the table 4.22 that there was a significant difference between the two groups with respect to experience of respondents in commercial vegetable production. KHDP respondents exhibited high experience (3.11) than IVDP respondents (2.52). KHDP had started its activities in the year 1997. Moreover the selected SHGs under KHDP had started functioning much earlier than the selected IVDP SHGs for the study. Thus, the respondents of KHDP had high experience in commercial vegetable production.

The result of this finding is in contrast with the findings of Sreedaya (2000) where the KHDP and IVDP SHGs did not differ significantly with respect to the variable.

4.9.2 Risk orientation

It could be observed from the Table 4.22 that there was a significant difference between the two groups with respect to the level of risk orientation among the respondents.

It can be inferred that the level of risk orientation of KHDP SHG farmers (14.73) was better.

The KHDP aims at enhancing and sustaining the income of participating farmers through high tech cultivation practices and appropriate marketing of vegetables and in addition to the direct benefits expected, there are indirect benefits associated with processing, marketing and transport

activities. It was observed in the study that KHDP officials used to give technical support, to its members whenever required, unlike incase of IVDP. This could be the reason why members of KHDP SHGs developed enough courage to face risk they would encounter, hence resulted in high level of risk orientation.

The result of this finding is in contrast with the findings of Sreedaya (2000).

4.9.3 Management orientation

It is evident from the Table 4.22 that two groups significantly differ with respect to management orientation. KHDP respondents exhibited a higher management orientation (23.72) than IVDP respondents (21.46).

As the centre fulcrum of an enterprise, each member has to manage the working of the venture and also tackle the day-to-day problems. This includes control and direction of men and machinery most efficiently in the short run along with planning and forecasting its future expansion and policies in the long run. In case of KHDP SHGs unlike in case of IVDP free trainings are given to the members regarding the cultivation aspects as well as regarding efficient utilization of men and resource in order to make profit, hence high level of management orientation. This could be the reason for the above result.

4.9.4 Market perception

The perusal of Table 4.22 showed that two groups significantly differ with respect to the level of market perception of its members. The farmers of

the KHDP group exhibit high market perception (4.49) than the IVDP group (3.69).

The main objective of KHDP is to enhance and sustain the income of horticultural farmers by improving their bargaining power, by providing group marketing infrastructure, better post harvest handling methods, adequate, appropriate and timely market information and developing and strengthening domestic and export markets for vegetables. KHDP is taking care of these objectives through their 'credit' market farmers, field staff, Market Information Centre (MIC) etc. that might have resulted is more information to the farmers of KHDP SHGs about different market trends and marketing channels. IVDP lack the facility of credit, master farmers, Market Information Centre (MIC) etc. and moreover unlike in case of IVDP, the shift from "What is possible to produce" to "Produce what is marketable" is actively promoted in KHDP. This warrants better understanding of the markets and the changing needs of consumers. These could be the reasons for the higher market perception of KHDP respondents. The result is on par with the result of Sreedaya (2000).

4.9.5 Extension orientation

Table 4.22 revealed that there is significant difference between the two groups with respect to extension orientation. The farmers of the KHDP group exhibit high level of extension orientation.

KHDP has professional and extensive extension networks, which the IVDP lack and through that KHDP facilitate the vegetable and fruit

farmers who are organized into SHGs to adopt appropriate production technology. Implementation of the programme is done through the various programme management units set up by the programme through contacts with the existing organisations, wherever possible. Extension services is done through full time technical personnel employed by the Programme, messages through All India Radio, T.V, Newspapers, Technical Bulletins, Demonstration, video films etc. IVDP does not have extensive extension networks thus IVDP SHGs members have comparatively low level of extension orientation that the KHDP SHG members.

4.9.6 Group Cohesion

As evident from the Table 4.22 there exist a significant difference between the two groups with respect to group cohesion. The members of KHDP SHGs (11.58) exhibit more group cohesion than IVDP SHGs (9.34).

KHDP SHGs have been formed through three stages namely group initiation, formation stage, building up/ stabilization stage and self helping stage (KHDP, 1995). All these three stages might have motivated the group members to be more affiliated to each other and remain with in the group. In case of KHDP only those who adhere to the group norms are allowed to become the member of SHG and are supposed to attend at least two meetings in a month. Such rules and compulsions are not found in case of IVDP. This could be the reason for the above result.

The finding is in confirmation with the studies of Sreedaya (2000) who observed a significant difference between the two groups with respect to group cohesion and also the studies of Schachter *et al.* (1951) who reported that high cohesive groups are more successful than low cohesive groups in increasing or reducing productivity.

4.9.7 Credit Orientation

It is evident from the table 4.22 that there existed a significant difference between the two groups with respect to the extent of credit orientation. KHDP respondents exhibited higher credit orientation than IVDP respondents.

Credit component of the KHDP stabilize the credit delivery system as well as the credit requirements of the new farmers. The unit simplifies the rural credit delivery system by establishing a sustainable relationship between the credit institutions and farmers. Firm linkages are established between different agencies so as to sustain the credit delivery system. In KHDP, the farmers having at least 5 cents of land, after producing 'ownership receipt' and 'tax receipt' could avail credit from the bank up to an amount of Rs. 25,000 provided they should have a cultivable land (including 6 leased in land). The repayment period is also not short, i.e. three seasons with in which the farmers were expected to pay back the money. The interest rate is also optimum of about 12.24 per cent. Above all the field staff and the master farmer for credit of the programme give the necessary guidance to the farmers and also persuade them for repayment with in the stipulated time. It was

observed that there is a lack of credit facilities in case of IVDP SHGs. This could be the reason for the higher credit orientation exhibited by the KHDP respondents. The result is on par with the result of Sreedaya (2000).

4.9.8 Lack of marketing and storage facilities

It could be seen from the Table 4.22 that there exist a significant different between the two groups with respect to lack of marketing and storage facilities. The members of KHDP SHGs (4.24) faced the problem of lack of marketing and storage facilities comparatively less than the IVDP SHG members (4.47).

Unlike in IVDP, KHDP has the facility of MIC, which provides the FCs appropriate, accurate and timely data on all aspects of markets, which enables them to make better marketing decisions. Measures are taken for reducing the handling losses in vegetables by supply of plastic crates. Farmers are given information regarding the consumer preference for grading of fruits and vegetables. Value addition to produce is encouraged. Moreover the Indian Institute of packaging has entrusted to evolve better packaging for fruits and vegetables so as to reduce the post harvest losses. All the facilities under KHDP would be the reason, why farmers of KHDP perceived lack of marketing and storage facilities less serious problems than the farmers of IVDP SHGs.

4.10 Comparison between KHDP and IVDP SHG members with respect to dimensions of social cost

Table 4.23 Result of 't' test between dimensions of social cost as perceived by KHDP and IVDP SHG members

Sl. No.	Dimensions of social cost	Mean score (KHDP)	Mean score (IVDP)	't' value
1.	Perishability	2.51	2.63	NS
2.	Conversion of paddy crop	9.609	5.50	S**
3.	Displacement of agricultural labourers	7.59	7.57	NS
4.	Exploitation by middlemen	5.84	6.69	S**
5.	Time constraint	5.47	5.57	NS
6.	Involvement at the cost of education	2.87	2.8	NS

It could be seen from the Table 4.23 that the two groups do not significantly differ with respect to the dimensions such as perishability, displacement of agricultural labourers, time constraint and involvement at the cost of education. But these groups significantly differed with respect to following dimensions of social cost.

4.10.1 Conversion of paddy crop

As evident from the table 4.23 there exist a significant difference between the two groups with respect to the dimensions conversion of paddy crop

The members of KHDP SHGs (9.609) had fully converted their land to other profitable crops more than the members of IVDP SHGs (5.50).

Paddy cultivation in the state has been stagnating since many years. This was mainly because of the fact that the improvement in productivity had been more than off set by the decline in area under the crop. The surging pressure exerted by more rewarding crops and high cost of cultivation in paddy crop resulted in a continuous shift in area from paddy cultivation to other profitable crops. It was observed that level of economic motivation was more in case of KHDP SHG farmers than the IVDP SHG farmers. This could be the reason for the above result.

4.10.2 Exploitation by middlemen

It could be observed from the Table 4.23 that there was a significant difference between the two groups with respect to the dimension exploitation by middlemen. It can be inferred that members of KHDP SHGs (5.83) had got less exploited by middlemen than the members of IVDP SHGs (6.69).

KHDP provides the farmers of the FC with regular information to help them negotiate with the traders. This is done through the Market Information Centre (MIC) of the marketing unit and moreover in all the FCs, the SHG members are fully aware of the 'vipani' activities such as marketing, Pricing, trading agencies involved etc. on a day-to-day basis. The members are aware of the daily prices that they would get for their produce and the trading agency. Training also forms one of the critical inputs of the programme. In case of IVDP, because of lack of MIC, master farmers and training etc, members are less aware of different marketing channels, comparative etc., which forced them to depend on middlemen for better markets, hence gave scope for exploitation. All the qualities of KHDP give less scope for exploitation by middlemen among KHDP SHG farmers.

4.11 Comparison between KHDP and IVDP SHG members with respect to dimensions of social benefit

Table 4.24 Result of 't' test between dimensions of social benefit as perceived by KHDP and IVDP SHG members

Sl. No.	Dimensions of social benefit	Mean score (KHDP)	Mean Score (IVDP)	't' value	
1	Family labour utilization	3.45	3.46	0.206	NS
2	Increased living standard	2.20	1.74	5.83	S**
3	Self confidence	29.14	28.94	1.14	NS
4	Dignity of farmers	13.23	11.98	1.84	NS
5	Equity	10.12	8.8	8.43	S**
6	Satisfaction	19.29	19.61	1.24	NS
7	Sociability	17.84	17.44	1.29	NS
8	Knowledge in vegetable production	13.91	12.97	6.02	S**

It could be seen from the table 4.24 that the two groups do not significantly differ with respect to dimensions of social benefit such as family labour utilization, self confidence, dignity of farmers, satisfaction and sociability. But these groups can be differentiated with respect to the following dimensions of social benefit.

4.11.1 Increased living standard

Table 4.24 revealed that there is significant difference between the two groups with respect to their increased living standard. There was more increase in the living standard of KHDP SHG farmers (2.2) than IVDP SHG farmers (1.74).

After the introduction of KHDP, the farmers could increase their level of income and area under cultivation. Non-scientific and dangerous use of pesticides have paved way to organic farming as they started using neem oil emulsion, Kiriath emulsions etc. Before the introduction of the program the farmers were not aware of high yielding variety, seeds and their availability was also lesser. The price received by farmers were very low due to the absence of proper marketing channels and their social contacts were also below the average level before the arrival of the programme, but the programme have made gradual changes in their life style. In case of IVDP because of no proper guidance regarding proper and effective way of cultivation and also due to lack of efficient officials, the member had comparatively little improvement in their living standard after becoming the IVDP SHG member. These might be the reasons for the above result.

4.11.2 Equity

Table 4.24 revealed that there is significant difference between the two groups with respect to equity. Equity between the farmers of KHDP SHGs (10.12) is more than that of IVDP SHGs (8.8).

The KHDP is not giving any subsidy to the farmers in turn it encourages the farmers by giving suitable credit facilities. The profit (commission) is also shared according to a predetermined manner. Out of the total 5 per cent, 3 per cent is given to the farmers in the form of bonus and 2 per cent to centers.

Surendran (2000) in his study reported that level of involvement of members of quasi- governmental groups was more in various activities of groups including investment, procurement of inputs, sharing of benefit etc. Unlike in governmental organisation. This could be the reason for the above result. This result is in tune with the result of Sreedaya (2000) and is in confirmation with the studies of Ashbby *et al.* (1995) who reported that an important factor of effectiveness of farmers group is equity that is how equitable benefits are distributed.

4.11.3 Knowledge in vegetable production

The perusal of Table 4.24 showed that there was a significant difference among the farmers of the two groups with respect to their knowledge in vegetable production, which is higher in case of KHDP farmers (13.90).

Training forms one of the critical inputs of the KHDP programme. Through a holistic approach the client system is equipped and empowered. The trainings are organized based on rational need analysis coupled with feed back analysis. Higher knowledge in vegetable production in case of KHDP farmers compared to IVDP farmers may be due to continuous support of production master farmers of the respective groups coupled with the support of technical officers in the area and also because of more experience in this field than IVDP SHG farmers.

Table 4.25 Framework suggested for social cost benefit analysis (SCBA) of agricultural development programme

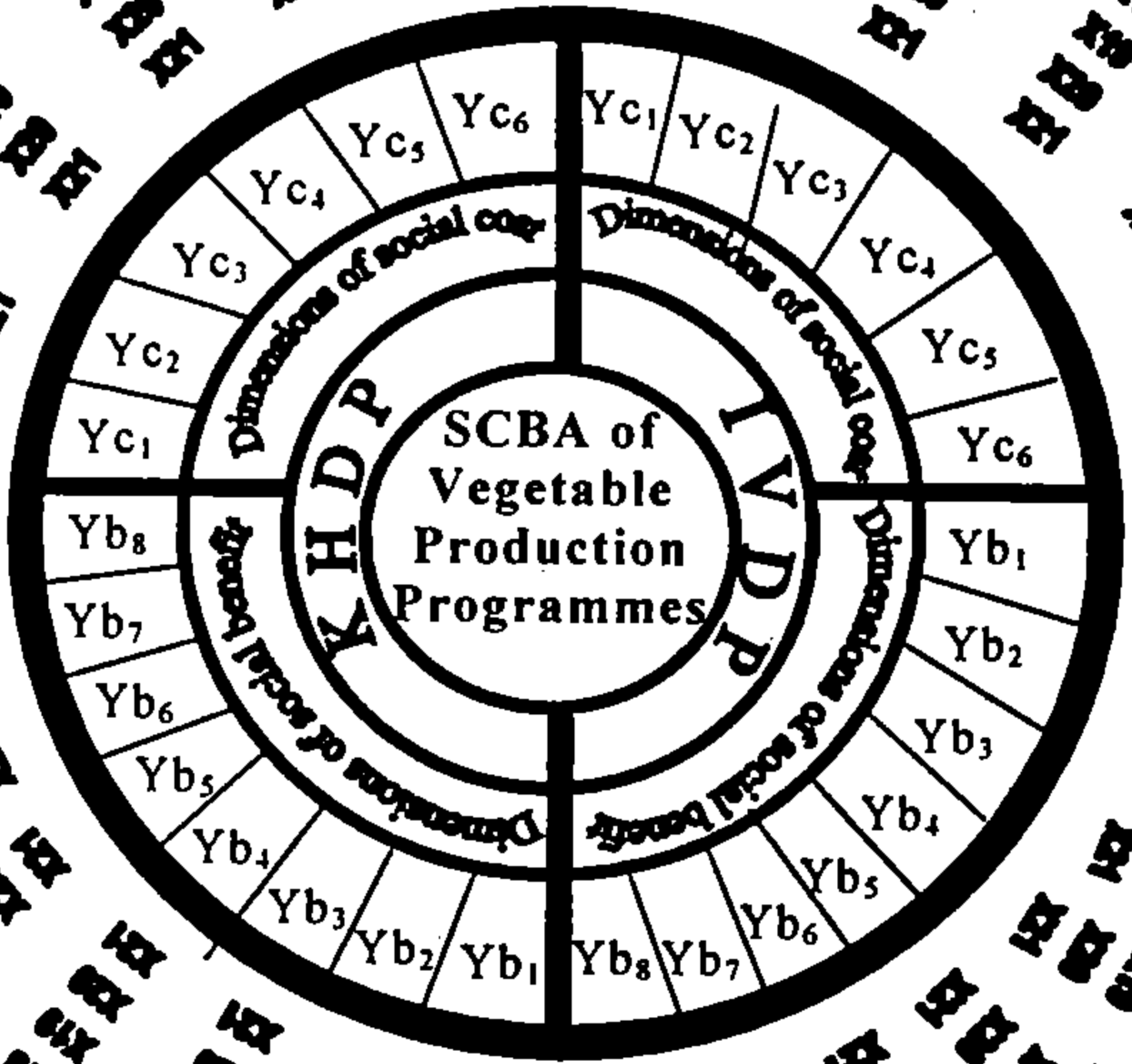
Key needs	What needs to be done	Suggested strategy
1. Identity social costs	1. Identify the indirect costs and intangible costs of the project. The sub total of all these costs represents the sacrifice made by society for setting up the project in questions. This is its total social cost.	1. Use NGT to find out the exhaustive list of social cost that has accrued out of the project in questions. 2. DT has to be used to prioritize the social cost identified through NGT.
2. Identify social benefits	1. Identify the indirect and intangible benefits of the project. The sum total of all these benefits represents the gain made by society after setting up the project in questions. This is its total social benefit.	1. Use NGT to find out the exhaustive list of social cost that has accrued out of the project in questions. 2. DT has to be used to prioritize the social cost identified through NGT.
3. Comparing costs and benefit	a) Benefit – Cost ratio	a) Benefit–cost ratio = $\frac{\text{Total SBIV}}{\text{Total SCIV}}$ $SCIV = \frac{\Sigma \left[\frac{Sc_i}{Ci}\right] wi}{\Sigma wi}$ $SBIV = \frac{\Sigma \left[\frac{Sb_i}{Bi}\right] wi}{\Sigma wi}$

Key needs	What needs to be done	Suggested strategy
At group level 1. Participatory group approach	1. Formation of Self Help Groups	1. Create awareness among local people about benefits of participatory group approach by organising awareness development campaign. 2. Explain the benefits of participatory groups by comparing these groups with other local cooperation. 3. Explains the need of a common bond.
	2. Establishing the groups	1. Choose a name for the group 2. Decide when and how to meet 3. Specific objective has to be set 4. Discuss the importance of attending meeting up 5. Discuss the importance of good communication
	3. Discuss the building blocks of SHG	1. Leaders and committee members must be chosen carefully 2. Regular group savings are essential 3. Avoid internal conflicts should be made clear the responsibilities of each member 4. Proper record keeping which need to be understandable to all members
2. Self reliant and sustainable group	1. Build human and financial self reliance	1. Promote group activities 2. Diversity activities 3. Build confidence and self esteem 4. Promote cooperation among groups
	2. Management skill of group members need to be improved	1. Exposure group members to managerial courses 2. Inclusion of training and practical oriented courses to equip them to manage men and material

Key needs	What needs to be done	Suggested strategy
3. Capital formation	1. Assure credit facilities to the group members	1. Government should provide enough monetary and fiscal incentives. 2. Strengthen the network of agro service centres and credit institutions at government sector and non-government sector.
4. Technical guidance and support	1. Effective extension system	1. Seminars, field visits, agro-clinics, meetings etc. should be arranged to the convenience of group system.
5. Income generation		1. Group activity must be able to produce product that people want to buy. 2. The group activity must produce more income than it spend 3. The group must decide in advance the goal, tasks and resources of the activity 4. The group must strive to satisfy its customers.

4.13 Empirical model of the study

Fig. 12 diagrammatically represents the results of relationship of the dependent variables with profile characteristics of self help group farmers of KHDP and IVDP.


SCBA of Vegetable Production Programmes
YHDP
IVDP
Dimensions of social benefit
Dimensions of social cost
Yb1
Yb2
Yb3
Yb4
Yb5
Yb6
Yb7
Yb8
Yc1
Yc2
Yc3
Yc4
Yc5
Yc6

X_1 Age
X_2 Educational status
X_3 Occupational status
X_4 Experience in commercial vegetable production
X_5 Mass media participation
X_6 Risk orientation
X_7 Management orientation
X_8 Market perception
X_9 Cosmopoliteness
X_{10} Extension orientation
X_{11} Group cohesion
X_{12} Attitude of farmers
X_{13} Annual income
X_{14} Credit orientation
X_{15} Economic motivation
X_{16} Status need
X_{17} Immediacy of returns
X_{18} Non-availability of agricultural labourers
X_{19} Lack of marketing and storage facilities
X_{20} Low profitability in paddy cultivation
X_{21} Difficulty in paddy cultivation

Yb_1 – Family labour utilization
Yb_2 – Increased living standard
Yb_3 – Self-confidence
Yb_4 – Dignity of farmers
Yb_5 – Equity,
Yb_6 – Satisfaction,
Yb_7 – Sociability,
Yb_8 – Knowledge in vegetable production

Yc_1 – Perishability
Yc_2 – Conversion of paddy crop
Yc_3 – Displacement of agricultural labourers
Yc_4 – Exploitation by middlemen
Yc_5 – Time constraints
Yc_5 – Involvement at the cost of education

Fig. 12 Contd... Empirical model of the study

Summary

CHAPTER V

SUMMARY

India lives in her villages, Four out of five Indians live in rural areas and within these ruralities every five out of six are dependent on agriculture. Agriculture plays a dominant role in the economic development of the country with more than 50 per cent of the total national income contributed by agriculture and allied sectors.

Kerala which is blessed with fertile land, suitable climate and skilled people for producing most of the vegetables it requires, produces only 6 lakh tonnes of vegetables, where as the requirement is 17 lakh tonnes. In order to overcome this paradox of insufficient production, Vegetable Production Programme were started in Kerala. For any sustainable development of agricultural sector, farmer has to be the focus and the system should be build around them. Here comes the relevance of Self Help Groups (SHGs). SHGs for commercial production of vegetables is an innovative approach which was initiated by quasi governmental and governmental agencies in Kerala a few years back. They are Kerala Horticultural Development Programme (KHDP) and Intensive Vegetable Development Programme (IVDP).

Most of the Cost –Benefit Analysis done in Agricultural Development Programme are over simplification of the whole scenario where social costs and social benefits are not taken into consideration, so these analysis became limited and intended results are not achieved. Therefore, the research study entitled "Social Cost- Benefit Analysis (SCBA) in Vegetable Production Programmes in Kerala through Participatory approach" was undertaken with the following specific objectives.

1) To delineate the dimensions of social cost and social benefit accruing out of Agricultural Development programmes with special reference to vegetable production programme implemented through KHDP and IVDP.

2) To quantity the dimensions of social cost and Social benefit.

3) To study the personal, socio-psychological, economic and situational characteristics affecting social cost and social benefit with respect to KHDP and IVDP.

4) To suggest a framework for SCBA of Agricultural Development Project to be implemented under people's plan.

The study was conducted in the three selected agro-climatic zones of Kerala. Stratified multirandom sampling procedure was followed for the purpose of drawing sample for the study. One district each viz. Thiruvananthapuram district from Southern zone, Thrissur district from central zone and Malappuram district from Northern zone where both KHDP and IVDP are actively working was selected. Two taluks were selected at random from each selected districts (6 taluks). From each taluk, two panchayat (12 panchayat) and from each panchayat one SHG from KHDP and one from IVDP were selected.

Three categories of respondents were included in the study namely scientists, extension workers and farmers. In the first stage, for selection and prioritization of the dimensions of social cost and social benefit, twenty progressive farmers, twenty scientists and twenty extension workers actively involved in vegetable production programmes of KHDP and IVDP were randomly selected, making the sample size of 60. The ultimate unit of

analysis in the study was individual farmers of SHGs. Fifteen farmers were selected at random from each selected SHGs of KHDP and IVDP making the sample size of 360. Thus 420 respondents formed the total sample for the study.

The dependent variables for the study were the dimensions of social cost and dimensions of social benefit, which accrued out of vegetable production programmes (KHDP and IVDP), which were collected and delineated using Nominal Group Technique and Policy Delphi Technique. The independent variables included in the study were personal variables (Age, Educational status, Occupational status and Experience in commercial Vegetable Production), Socio-psychological variables (Mass media participation, risk orientation, management orientation, market perception, cosmopoliteness, extension orientation, market perception, cosmopoliteness, extension orientation, group cohesion, attitude of farmers), economic variables (Annual income, credit orientation, economic motivation) and situational variables (status need, immediacy of returns, non availability of agricultural labourers, lack of marketing and storage facilities, low profitability in rice cultivation, difficulty in rice cultivation).

Findings

1) Six dimensions of social cost viz. Perishability, conversion of paddy land, exploitation by middlemen, displacement of agricultural labourers, time constraint, involvement at the cost of education and eight dimensions of social benefit viz. family labour utilization, increased living standard, self confidence, dignity of farmers, equity,

satisfaction, sociability and knowledge in vegetable production were delineated.

2) Principal components Analysis revealed that the first three linear combinations of dimensions of social cost yielded 84 per cent of the total variation. Dimensions such as exploitation by middlemen, displacement of agricultural labourers and time constraint contributed higher magnitude of variation.

3) All the six dimensions of social cost had exhibited significant association with SCIV (Social Cost Index Value).

4) Principal Components Analysis of dimensions of social benefit revealed that the first three linear combinations yielded 87 per cent of the total variation. Dimensions such as dignity of farmers, sociability, satisfaction and self-confidence contributed higher magnitude of variations.

5) All the eight dimensions of social benefit had exhibited significant association with SBIV (Social Benefit Index Value)

6) Among the selected three districts, Thrissur district had the maximum Benefit- Cost ratio incase of KHDP (1.96) as well as IVDP (1.82).

7) In KHDP as well as IVDP SHGs, Malappuram district had the maximum number of respondents who had perceived Perishability, exploitation by middlemen, time constraint and involvement at the cost of education as major social costs. Thrissur district had the maximum number of respondents who has perceived the dimension displacement of agricultural labourers a major social cost and maximum number of

respondents who had fully converted their paddy land was observed in Thiruvananthapuram district.

8) Under both KHDP and IVDP SHGs, Thrissur district had the maximum number of respondents who had perceived family labour utilization, self confidence, dignity of farmers and satisfaction as major social benefits and Thiruvananthapuram district had the maximum number of respondents who had perceived knowledge in vegetable production a major social benefit. Equal number of respondents had perceived the dimension equity a major social benefit in all the selected three districts in case of IVDP SHGs and maximum number respondents of KHDP SHGs in Thiruvananthapuram and Thrissur district had perceived increased living standard a major social benefit.

9) The analysis of the personal variables of the respondents in the three selected districts under KHDP and IVDP were middle aged. Among the respondents of both KHDP and IVDP SHGs, Thrissur district had maximum number of respondents with high educational status. For the variable occupational status KHDP SHGs in Thiruvananthapuram district and IVDP SHGs in Malappuram district had maximum number of respondents who had farming as their main occupation and both KHDP SHGs and IVDP SHGs of Thiruvananthapuram district had the maximum number of respondents who had high experience in commercial vegetable production.

10) In case of socio- psychological variables, KHDP SHGs and IVDP SHGs in Thrissur district had the maximum number of respondents with high level of mass media participation and risk orientation.

KHDP SHGs in all the selected three district and IVDP SHGs in Thrissur district had maximum number of respondents with high level of management orientation and for the variable market perception, KHDP SHGs of Thiruvananthapuram district and IVDP SHGs of Thrissur district had more number of respondents with high level of market perception, where as majority of respondents of IVDP SHGs in Malappuram district had low market perception. Maximum number of respondents of both KHDP and IVDP SHGs in Thrissur district had high level of cosmopoliteness, whereas least number of respondents with high level of cosmopoliteness were found among the IVDP SHGs of Malappuram district. KHDP and IVDP SHGs of Thrissur and Malappuram district had maximum number of respondents with high and low level of extension orientation respectively. Majority of respondents in KHDP and IVDP SHGs of all the selected three districts had high level of group cohesion, where as majority of respondents of KHDP SHGs belonged to high group and of IVDP SHGs belonged to low group with respect to the variable attitude of farmers.

11) Among economic variables, with respect to respondents of KHDP and IVDP SHGs, majority had low annual income in Malappuram district and maximum number of respondents with high level of economic motivation was found in Thiruvananthapuram district. In case of variable credit orientation, except in Malappuram district, in the other two districts, majority had high level of credit orientation.

12) Analysis of situational variables revealed that in case of KHDP and IVDP SHGs of all the selected three districts, majority of respondents

belonged to high category with respect to variables status need, immediacy of returns, non- availability of agricultural labourers, low profitability in rice cultivation and difficulty in rice cultivation. In case of the variable lack of marketing and storage facility majority of respondents of KHDP SHGs belonged to high group where as majority of respondents of IVDP SHGs belonged to low group in all the three districts.

13) The result of the simple correlation analysis revealed that among the dimensions of social cost, perishability is positively and significantly correlated with lack of marketing and storage facilities and negatively and significantly correlated with market perception and extension orientation in KHDP SHGs. In IVDP SHGs Perishability exhibited a positive and significant correlation with lack of marketing and storage facilities.

14) The correlation result indicated that positive and significant relationship existed between the variables market perception, low profitability in rice cultivation and difficulty in rice cultivation with conversion of paddy land in KHDP SHGs. In IVDP, risk orientation, status need, immediacy of returns, low profitability in rice cultivation and difficulty in rice cultivation showed a positive and significant relationship with the dimension convertion of paddy land.

15) The dimension displacement of agricultural labourers in KHDP SHGs showed a positive and significant correlation with variables non availability of agricultural labourers and difficulty in rice cultivation. In IVDP SHGs only the variables non availability of agricultural

labourers showed a positive and significant relationship with the dimension displacement of agricultural labourers.

16) In KHDP SHGs, the variables experience in commercial vegetable production, management orientation, market perception, extension orientation and economic motivation exhibited negative and significant correlation with the dimension exploitation by middlemen while in IVDP SHGs, experience in commercial vegetable production, mass media participation, management orientation, cosmopoliteness, extension orientation, attitude of farmers and economic motivation showed a negative and significant correlation with exploitation by middlemen.

17) Only the variables non-availability of agricultural labourers was positively and significantly correlated with time constraint in KHDP SHGs. But in IVDP SHGs, along with the variable non-availability of agricultural labourers, the variable difficulty in rice cultivation also showed positive and significant relationship with time constraint.

18) In KHDP SHGs variables age and non availability of agricultural labourers showed a positive and significant correlation with involvement at the cost of education while educational status, mass media participation, cosmopoliteness, annual income and status need showed a negative and significant relationship with the dimension involvement at the cost of education where as in IVDP SHGs variables age showed a positive and significant correlation and variables educational status, mass media participation, cosmopoliteness, extension orientation and annual income exhibited a negative and

significant correlation with the dimension involvement at the cost of education.

19) The result of the correlation analysis indicate that in KHDP SHGs variable annual income exhibited a negative and significant correlation with family labour utilization while non availability of agricultural labourers had shown positive and significant correlation with it. Similar result was observed in IVDP SHGs except in case of the variable difficulty in rice cultivation which showed a positive and significant correlation with family labour utilization.

20) The dimension namely increased living standard is shown to have a positive and significant correlation with the variables experience in commercial vegetable production, risk orientation, management orientation, annual income and economic motivation in KHDP SHGs. Similar result was obtained in IVDP SHGs.

21) In KHDP SHGs variables occupational status, experience in commercial vegetable production, mass media participation, risk orientation, management orientation, market perception, cosmopoliteness, extension orientation, credit orientation and economic motivation were positively and significantly related to self confidence while in IVDP SHGs occupational status, experience in commercial vegetable production, risk orientation, management orientation, market perception, attitude of farmers and annual income showed a positive and significant relationship with self confidence.

22) The dimension dignity of farmers was shown to have a positive and significant correlation with variables age, educational status,

experience in commercial vegetable production, cosmopoliteness, extension orientation, annual income and attitude of farmers in KHDP SHGs while in IVDP SHGs variables educational status, market perception, cosmopoliteness, extension orientation and annual income shown a positive and significant correlation with the dimension dignity of farmers.

23) In both KHDP and IVDP SHGs only the variable group cohesion exhibited a positive and significant correlation with the dimension equity.

24) The results of the correlation analysis indicated that the dimension satisfaction is positively and significantly correlated with educational status, experience in commercial vegetable production, risk orientation, market perception, cosmopoliteness, extension orientation, annual income, economic motivation, status need and immediacy of returns in KHDP SHGs while in IVDP SHGs, the variable educational status showed a negative and significant correlation with satisfaction and variables experience in commercial vegetable production, mass media participation, risk orientation, management orientation, attitude of farmers, status need, immediacy of returns, low profitability in rice cultivation and difficulty in rice cultivation exhibited a positively significant relationship with the dimension satisfaction.

25) The independent variables age, educational status and status need showed negative and significant correlation with sociability and variables cosmopoliteness, extension orientation, group cohesion and attitude of farmers exhibited positive and significant correlation in

KHDP SHGs while in IVDP SHGs age was shown to have negative and significant correlation and variables educational status, cosmopoliteness, extension orientation, group cohesion and attitude of farmers were shown to have positive and significant correlation with the dimension sociability.

26) In KHDP SHGs, the variables educational status, experience in commercial vegetable production, market perception, cosmopoliteness, extension orientation and attitude of farmers while in IVDP SHGs except the variables cosmopoliteness and extension orientation, the other above listed variables exhibited positive and significant correlation with knowledge in vegetable production.

27) From the results of the t-test it could be inferred that the two group members (KHDP and IVDP) significantly differ with respect to the independent variables experience in commercial vegetable production, risk orientation, Management orientation, Market perception, extension orientation, group cohesion, credit orientation and lack of marketing and storage facilities.

28) 't'-test showed that the two groups (KHDP and IVDP) significantly differ with respect to the dimensions of social cost such as conversion of paddy land and exploitation by middlemen and dimensions of social benefit viz. increased living standard, equity and knowledge in vegetable production.

Implications of the study

The study brings into focus the dimensions of social cost and dimensions of social benefit that accrue out of Agricultural Development Programme (ADP) with special reference to vegetable production programme (KHDP and IVDP) implemented through Self Help Groups, a participatory approach. By analysing these social costs and social benefit, one could easily carry out Social Cost Benefit Analysis (SCBA) of Vegetable Production Programmes. Most of the Cost Benefit analysis done in Agricultural Development Programmes are under estimation of the whole scenario where social costs and social benefits are not taken into consideration, thus intended results are not achieved.

SHGs a participatory approach occupies a key position among various developmental approaches which are being implemented in the state in aiming at sustainable agricultural development through active participation of all the stakeholders associated with this sector. Governmental and Quasi-governmental agencies are very actively functioning in this field now a day.

In this study the developed SCI (Social Cost Index) and Social Benefit Index (SBI) brings out the major dimensions of social cost and social benefit that can accrue out of vegetable production programmes conducted through SHGs. SCBA results of the study indicates that Quasi-governmental sectors are better that Governmental institute in promoting vegetable production programmes through farmer's participatory SHGs.

The strategy developed for effective SCBA of ADP to be implemented in people's plan may be taken us guidelines in the CBA of ADP to promote participatory approach in agriculture and the attitude scale constructed in the

study can be used by future researchers in conducting impact and evaluation studies on the vegetable production programmes.

Suggestions for further research

1) Studies to revalidate the Social Cost Index and Social Benefit Index are to be conducted for its application in another areas of agriculture and allied sectors.
2) Studies regarding SCBA are to be conducted in other development projects.

For the present study only the dimensions of Social Cost and Social Benefit with special reference to KHDP and IVDP is done. To render the generalization made in the study more applicable, comprehensive studies covering other districts and including more SHGs should be taken up. Since this an initial attempt in the study of the SCBA in ADP, many shortcomings have occurred which should be overcomed in the succeeding studies.

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Appendices

KERALA AGRICULTURAL UNIVERSITY

Dr. S. Shilaja,
Associate professor.

Dept. of Agricultural Extension,
College of Agriculture
Vellayani-P.O,
Thiruvananthapuram,
Pin: 695522

Dear Sir/Madam,

Miss. Sindhu Sadanandan, Ph.D scholar of this department has taken up a research study on "Social Cost –benefit analysis in vegetable production programmes in Kerala through participatory approach" under my guidance.

She has identified some of the social costs and social benefit accruing out of vegetable production programmes using Nominal Group Technique among SHG's members of IVDP and KHDP. These are listed in the Annexure.

Considering your vast experience, I request you to offer your valuable rating about the relevancy of each dimensions for inclusions by putting a 'tick' (✓) mark in the appropriate column. Kindly add any other dimensions if considered appropriate, to the list with necessary comments. I would be thankful, if you can send the same to the student through the self addressed stamped envelope enclosed, at the earliest.

With regards,

Yours sincerely,

(Dr. S. SHILAJA)

APPENDIX I

List of Variables

Sl. No.	Variables	Most Relevant	More Relevant	Un Decided	Less Relevant	Least Relevant
A	**Dimensions of Social Cost**					
1.	Time constraint					
2.	Perishability					
3.	Health hazards					
4.	Exploitation of government funds in terms of subsidies					
5.	Pollution					
6.	Conversion of paddy crop					
7	Introduction to new pest and diseases					
8	Deterioration of soil					
9	Exploitation by middlemen					
10	Effort of farmers					
11.	Involvement at the cost of education					
12.	Effort of group conveners.					
13	Displacement of Agricultural labourers					

APPENDIX I Contd...

B.	**Dimensions of social benefit**					
1.	Sociability					
2.	Employment generation					
3.	Increased nutrition level					
4.	Increased living standard					
5.	Dignity of farmers					
6.	Credibility towards implementing authority					
7.	Satisfaction					
8.	Family labour utilization					
9.	Increased interactions					
10.	Mutual trust					
11.	Self confidence					
12	Equity					
13	Attitude towards competition					
14.	Knowledge in vegetable production					

APPENDIX II

List of Variables

(Kindly put a ✓ mark)

Sl. No.	Variables	Most Relevant	More Relevant	Un Decided	Less Relevant	Least Relevant
	Personal Variables					
1	**Age**: refers to the number of completed years of the vegetable cultivators at the time of interview					
2	**Educational status**: refers to the number of years of formal learning possessed by the respondents.					
3	**Occupational status**: refers to the extent to which a respondent is engaged in farming activity alone.					
4.	**Farming Experience**: refers to the total number of years respondents has been engaged in vegetable production.					
5	**Farm size**: refers to the extent of area under vegetables possessed by the respondent.					
6.	**Experience in commercial vegetable production**: refers to the total number of years the respondent has been engaged in commercial vegetable production.					
7.	**Caste**: refers to the hierarchy of a group member whether belongs to upper/ backward/ scheduled caste.					

	Socio-psychological Variables					
1	**Self-reliance**: refers to the extent to which a person relies on self for his future.					
2	**Innovativeness**: refers to the degree to which the respondent was relatively earlier in adopting new ideas.					
3.	**Risk orientation**: refers to the degree to which a farmer is oriented towards risk and uncertainty and has courage to face problems in farming.					
4.	**Achievement motivation**: refers to the striving of farmers to do good work and attain a sense of accomplishment.					
5.	**Mass media participation**: refers to the extent to which a respondent is exposed to different mass media communication.					
6.	**Market perception**: refers to the degree of farmers perception about different trends of marketing for greater returns.					
7	**Cosmopoliteness**: refers to the degree to which the respondent is in contact with outside village with the belief that all the needs of an individual cannot be met within his own village.					
8.	**Scientific orientation**: refers to the degree to which the farmer is oriented to the use of scientific methods in decision making in farming.					
9	**Extension orientation**: refers to the degree to which the respondent has contact with different extension agencies and participation in various extension activities or programmes.					
10	**Management orientation**: refers to the degree to which respondent is scientifically oriented towards planning, production and marketing aspects of an enterprise in agriculture.					

11	**Perception about SHGs**: refers to the recognition of stimuli and interpretation about SHGs involved in vegetable cultivation.					
12	**Training**: refers to the number of trainings, which the group member has undergone for the success of their group work.					
13	**Group interaction**: refers to the tendency of a member to get in touch with other members of his group and freely mix with them without observing any formality and inhibition.					
14	**Group cohesion**: refers to the degree of closeness exhibited by members in the group and are motivated to remain in the group.					
15	**Attitude of farmers**: refers to the degree of positive and negative affect of the respondent towards vegetable production programmes.					
16	**Interdependence of members**: refers to the extent to which members are dependent on each other for the effective functioning of the group.					
	Economic Variables					
1	**Annual Income**: refers to the sum of the earning of all the adult family members of the respondent for one year.					
2	**Indebtedness**: refers to the total debt in terms of money, a group member owes, at the time of survey to various money lending sources.					
3	**Credit orientation**: refers to the degree to which the respondent is oriented to avail credit.					
4.	**Economic motivation**: refers to the degree of respondents orientation towards profit maximization.					

	Situational Variables					
1	**Status need**: refers to the perception of vegetable growers about the degree to which vegetable cultivation can bring status to the farmer in the society in comparison with paddy production.					
2	**Security need**: refers to the perception of vegetable growers about the degree to which vegetable cultivation can provide security to farmers in the society in comparison with paddy cultivation.					
3	**Immediacy of returns**: refers to the degree to which vegetable cultivation can provide immediate returns in comparison with paddy cultivation.					
4.	**Non- availability of agricultural labourers**: refers to the extent of availability of agricultural labourers felt by the respondent.					
5	**Low profitability in paddy production**: refers to the degree to which the respondent perceives paddy production a less profitable enterprise compared to other crops.					
6	**Lack of marketing and storage facilities**: refers to the extent of degree to which marketing and storage facilities is being perceived as sufficient by the respondent.					
7	**Difficulty in paddy cultivation**: refers to the degree to which the respondent perceives different operations in paddy cultivation as difficult.					
8	**Accessibility to Infrasturctural facilities**: refers to the extent to which a respondent have access to infrastructural facilities.					

APPENDIX III

The statements selected for measuring the attitude with their respective 't' values

Sl. No.	Statements	't' value
1	Introduction of awards by vegetable production programmes has motivated more farmers towards vegetable cultivation	5.09
2	Vegetable production programmes has helped in attaining self sufficiency in vegetable production	5.03
3	Benefits of vegetable production programmes goes only to those farmers who regularly visit Krishi Bhavan	4.74
4	Vegetable production programmes improved the interaction between farmers and scientist	4.63
5	Group approach through vegetable production programmes helps in building unity among the farmers	3.39
6	Infrastructure facilities provided by vegetable production programme is not sufficient	3.06
7	Vegetable Production Programmes helped in the introduction of improved varieties	2.46
8	Only resourceful farmers with sound family background can take of vegetable cultivation implemented through vegetable production programmes	2.45
9	Vegetable production programmes help in promoting integrated pest and disease management	2.07
10	Leadership ability improved as a result of vegetable production programmes	2.04
11	Government assistance is comparatively low in vegetable cultivation implemented through vegetable production programmes.	2.03
12	Conversion of paddy field increased with the implementation of vegetable production programmes	2.00
13	Subsidy provided by Vegetable Production Programmes not attractive for farmers	1.95
14	Less risk is involved in vegetable cultivation through vegetable production programmes.	1.78

APPENDIX – IV (a)

DEPARTMENT OF AGRICULTURAL EXTENSION

COLLEGE OF AGRICULTURE, VELLAYANI

THIRUVANANTHAPURAM

" Social Cost-Benefit Analysis in Vegetable Production Programmes in Kerala through Participatory Approach".

INTERVIEW SCHEDULE

Respondent no:

Date :

1. Name and address of the respondent
2. Name of the district
3. Name of the Taluk
4. Name of the Panchayat
5. Name of the Self Help Group (SHG)

Personal Variable

1. Age
2. Educational status

Illiterate/ Primary/ Middle school/High school/ Higher secondary/ Collegiate

3. Occupational status

Farming alone/Farming+ Farm labour/Farming+Business/Farming+Service

4. Experience in vegetable cultivation

    a) Since how may years you are growing vegetables for commercial purpose. --------- years.

Socio –Psychological variable

1. Mass-Media Participation

Sl. No.	Source	Frequency
1	Radio	Daily/ 2-6 days a week/ once in a week /once in a fortnight/ Rarely never
2	Newspaper	Daily/ 2-6 days a week/ once in a week /once in a fortnight/ Rarely never
3	Magazines/leaflets/ Bulletins	Regularly/ Occasionally/ Never
4	Film (seen last year)	> 6 times/ 4-6 times/ 1 to 3 times/ None.

2. Risk Orientation

Please give your response on the following statements.

SA- Strongly Agree, A- Agree, DA-Disagree, SDA- strongly Disagree Response

Sl. No.	Statements	SA	A	DA	SD
1	A farmer should grow large number of crops to avoid greater risks involved in growing one or two crops				
2	A farmer should take more of a chance in making a big profit than to be content with a smaller but less risky profit.				
3	A farmer who is willing to take greater risks than the average farmer usually does better financially.				
4	It is good for a farmer to take risks when he knows his chance of success is fairly high.				
5	It is better for a farmer not a try new farming methods unless most other farmers have used them with success.				
6.	Trying an entirely new method in farming by a farmer involves risk but it is worthy.				

3. Management orientation

Please state the agreement or disagreement to each of the statements below.

A- Agree, DA- Disagree

Sl. No.	Statements	Response A/ DA
	A. Planning orientation	
1.	It is not necessary to think a head of the cost involved in starting an enterprise	
2.	One need not consult any expert/ organization for planning	
3.	It is possible to make profit through production plan	
4.	It is not necessary to make prior decision about starting an enterprise	
	B. Production Orientation	
1.	Timely production ensures more profit	
2.	One should use those raw materials for production, one likes	
3.	Scientific methods in production involves high cost	
4.	For scientific production one should have proper knowledge about the technology	
5.	Training is essential for starting an enterprise.	
	c. Marketing Orientation	
1.	Market news is not useful to an enterprise	
2.	An entrepreneur can get good price by grading his produce.	
3.	One should sell the produce to the nearest market irrespective of the price.	
4.	One should purchase the inputs from shops where one's relatives purchase.	
5.	One should start those enterprises which have more market demand.	

4. Market Perception

Please record your response based on your perception with regard to marketing your produce.

a) Do you think a farmer will be able to sell his produce if he increases the production by adopting the recommended practices? Yes/No

b) What price will the produce of the crop cultivated according to the recommended practices fetch compared to those raised under traditional practices?
Low/ Same/ High

c) How difficult will it be to dispose off the produce of the crop cultivated following their recommended practices?
Very difficult/ Difficult/ Easy/ Very easy

5. Cosmopoliteness

Sl. No.	Item	Frequency
1	Frequency of visit to the nearly by town	Never/Once in a month/ Once in a fortnight / Once in a week / 20 or more times a week
2.	Purpose of visit	Entertainment / Personal/ Professional/ Agriculture/ Other purpose.
3	Membership in organisations outside the village	Non member/ Membership is one organisation/ Membership in more than one organisation

6. Extension Orientation

(i) Extension Contact

Sl. No.	Extension Personnel	Frequency
1	Agricultural Assistant	Never/ Once to thrice a month/ Once a week / Two or more times a week
2.	Agricultural officers	Never/ Once to thrice a month/ Once a week / Two or more times a week
3	Block Development officers	Never/ Once to thrice a month/ Once a week / Two or more times a week
4	Technical Assistants	Never/ Once to thrice a month/ Once a week / Two or more times a week
5	Field officers	Never/ Once to thrice a month/ Once a week / Two or more times a week

(ii) Extension Participation

Sl. No.	Item	Frequency
1	Meeting	Never/ Occasionally/ Whenever conducted
2.	Seminars	Never/ Occasionally/ Whenever conducted
3	Exhibitions	Never/ Occasionally/ Whenever conducted
4	Film shows	Never/ Occasionally/ Whenever conducted
5	Farmer's days	Never/ Occasionally/ Whenever conducted
6	Demonstrations	Never/ Occasionally/ Whenever conducted
7	Field days	Never/ Occasionally/ Whenever conducted

7. Group Cohesion

Indicate your response to the following statements in appropriate columns.

A- Always ST – Sometimes N- Never

Sl. No.	Statements	A	ST	N
1	The SHG to which I belong functions properly			
2	Almost all the members of the group take part actively in planning, production and marketing aspects of vegetables.			
3	Differences in opinion are common during the group decision making			
4	Members of the group exhibit mutual trust among each other.			
5	Since the difference in opinion exceeds its limit, it becomes difficult to arrive at a wise decision.			

8. Attitude of farmers

Please indicate your agreeable or disagreeableness with respect to the following statements.

SA- Strongly Agree, A- Agree, UD- Undecided, DA-Disagree, SDA- Strongly Disagree.

Sl. No.	Statements	SA	A	UD	DA	SDA
1	Introduction of awards by Vegetable Production Programmes has motivated more farmers towards vegetable cultivation.					

2	Vegetable Production Programmes has helped in attaining self sufficiency in Vegetable Production					
3	Benefits of vegetable Production programmes goes only to those farmers who regularly visit Krishi Bhavan					
4	Vegetable Production Programmes improved the interaction between farmers and scientist.					
5	Group approach through Vegetable Production Programmes helps in building unity among the farmers.					
6	Infrastructure facilities provided by vegetable production programmes is not sufficient.					
7	Vegetable Production Programmes helped in the introduction of improved varieties.					
8	Only resourceful farmers with sound family background can take up vegetable cultivation implemented through vegetable production programmes.					
9	Vegetable Production Programmes help in promoting Integrated Pest and Disease Management.					
10	Leadership ability improved as a result of Vegetable Production Programmes.					
11	Government assistance is comparatively low in vegetable cultivation implemented through Vegetable Production Programmes.					

12	Conversion of paddy field increased with the implementation of vegetable production programmes.					
13	Subsidy provided by Vegetable Production Programmes not attractive for farmers.					
14	Less risk is involved in vegetable cultivation through vegetable production programmes.					

Economic Variables

1. **Annual Income**

Upto 2000/ 2001 to 5000/ 5001 to 10,000/ 10,001 to 20,001/ Above 20,001

2. **Credit Orientation**

Please indicate your response in the appropriate columns.

Sl. No	Item	Response
1	Do you think farmers like you should borrow from banks for agricultural purposes?	YES / NO
2	In your opinion how difficult it is to secure credit for agricultural purposes?	VD / D/E / VE
3	How a farmer is treated when he goes to secure credit from banks / cooperative Societies?	VB / B / F / VF
4	There is nothing wrong in taking credit from institutional sources for increasing production	SA / A / DA / SDA
5	Have you taken credit in the last two years for crop production	YES / NO

SA- Strongly Agree, A- Agree, UD- Undecided, DA-Disagree, SDA- Strongly Disagree,
VD – Very Difficult, D – Difficult, E – Easy, VE – Very Easy, VB – Very Badly,
B – Badly, F – Fairly, VF – Very Fairly

3. **Economic Motivation**

Please give your degree of agreement or disagreement with each of the following statement.

SA- Strongly Agree, A- Agree, UD- Undecided, DA- Disagree, SDA- Strongly Disagree.

Sl. No.	Statements	SA	A	UD	DA	SDA
1	A farmer should work towards higher yields and economic profits					
2	The most successful farmer is the one who makes more profit					
3	A farmer should try any new farming idea which may earn him more money.					
4	A farmer should grow more food crop for home consumption than to increase monetary profits.					
5	It is difficult for the farmer's children to make a good start unless he provides them with financial assistance.					
6	A farmer must earn his living but the most important things in life cannot but the most important things in life cannot be defined in economic terms					

Situational Variable

1) Status need

a) How much you feel vegetable cultivation bring status in the society compared to paddy cultivation?

Very high status/ High status/ No change/ Low statue/ Very low status

2. Immediacy of returns

a) How much you feel vegetable cultivation bring immediate returns, compared to other crops?

Immediate/ Speedy/ No change/ Slow/ Very slow

3. Non availability of Agricultural labourers

a) In your case agricultural labourer was---

Easily available/ Available but not sufficient/ Not available.

4. Lack of marketing and storage facilities

a) What do you feel about the marketing and storage facilities in your market?

High sufficient/ Sufficient/ Moderately sufficient/ Least sufficient/ Not sufficient.

5. Low profitability in paddy production

a) How profitable you consider, the paddy production?

Very profitable/ Profitable/ Somewhat profitable/ Least profitable/ Not at all profitable

6. Difficulty in paddy production

a) How difficult you consider the operations in paddy production?

Very difficult/ Difficult/ Neither difficult nor easy/ Easy/ Very easy

APPENDIX IV (b)

Interview Schedule

Dimensions of Social Cost

1) Perishability

a) How often you face the problem of Perishability due to glut while marketing

Very often/ Occasionally/ Rarely/ Never

2) Convertion of paddy crop

a) Total area of paddy land: _____ acres

b) How much land converted for vegetable cultivation: _____ acres

3) Displacement of Agricultural labourers

a) Did you use agricultural labourers before vegetable cultivation? Yes/ No

b) Labour requirement before vegetable cultivation

Very high/ High/ Less/ Very less

c) Do you use agricultural labourers in vegetable cultivation?

d) Of yes, labour used.

Very High/ High/ Less/ Very less

4) Exploitation by middlemen

a) How frequently you market your produce?

Once in a month / 2 to 3 times a month/ More than three times a month

b) How do you market your produce?

Self/ Self or Middlemen/ Middlemen

c) How much percentage of the profit goes to middlemen

Less than five percent/ five to ten per cent/ More than ten per cent.

5) Time constraint

a) Leisure time activity. Farming/ Non farming

b) How many hours you work in the field

Less than eight hours/ Eight to Ten hours/ More than ten hours

c) How much time you get for family gets together, festivals, rituals etc?

Enough time/ Less time/ Very less time/ No time

6) Involvement at the cost of education

a) Do you take the help of your children in farming. Yes/ No

If yes,

(i) How often you involve them?

Before school time/ After school time/ Before and After school time/ Full day.

Dimensions of Social Benefit

1) Family labour utilization

a) To what extent you utilize family members for vegetable cultivation?

To the fullest extent/ As far as possible/ To the least extent/ Never

2) Increased living standard

1) Type of house

a) What house type do you have?

Before vegetable cultivation After vegetable cultivation

a) Hut
b) Thatched
c) Tiled
d) Terraced

b) Is your house plastered Yes/ No

c) Is your house electrified Yes/ No

2) Vehicle possessed

		Before vegetable cultivation	After vegetable cultivation
1)	Nil		
2)	Cycle		
3)	Scooter		
4)	Tractor		
5)	Car		
6)	Jeep		
7)	Bus		
8)	Lorry		

3) Material possessed

		Before vegetable cultivation	After vegetable cultivation
1)	Nil		
2)	Radio		
3)	T.V		
4)	Fridge		
5)	Furniture		
6)	Mixie		
7)	Fan		
8)	Watch		

3) Self – Confidence

Please indicate your response to the following statement

SA- Strongly Agree, A- Agree, UD- Undecided

DA- Disagree, SDA- Strongly Disagree

Sl. No.	Statements	SA	A	UD	DA	SDA
1.	I am confident of my own ability					
2	I have initiative					
3	I feel nothing can stop me from achieving my final goal.					
4	I suffer from interiority complex					
5	I prefer taking somebody's help rather than working out things for myself.					
6	I get discouraged easily					
7	Life is a strain for me in much of the time					
8	I find myself worrying about something or other					

4) Dignity of farmers

Please indicate your response to the following statements

SA- Strongly Agree, A- Agree, DA- Disagree, SDA- Strongly Disagree

Sl. No.	Statements	SA	A	DA	SDA
	After becoming the member of SHG				
1	I have gained recognition in the society				
2	I have become a credible source for the solution of farming problems.				
3	People have started respecting me more				
4	People have started neglecting me.				

5) Equity

Please indicate your response as agreeable or disagreeable to the following statements.

SA- Strongly agree, A- Agree, DA- Disagree, SDA- Strongly Disagree

Sl. No.	Statements	SA	A	DA	SDA
1	Members of the group have equal opportunity in decision making				
2	Decisions made are largely influenced by rich farmers				
3	Profit got is shared equally by all the members of the group				

6) Satisfaction

Please indicate your response to the following statements

VMS- Very much satisfied, MS- Much satisfied, UD Undecided, NMS- Not much satisfied.

Sl. No.	Statements	VMS	MS	UD	NMS	Not at all
	How much satisfied are your with your					
1	Work					
2	Working condition					
3	Financial condition					
4	Status in the society					
5	Group members					

Please indicate your agreement or disagreement with the following statements by putting a tick mark in the appropriate column.

Sl. No.	Statements	A	UD	D
1	You find it easy to make new acquaintance			
2	You like to take part in many social activities			
3	It is difficult for you to chat about things in general with people.			
4	It bother you to have people watch you at work			
5	People think of you as being a very social type of person			
6	You are a listener rather than a talker in social conservation			
7	You can get along easily in company.			

Knowledge in vegetable production

Q. What are the major vegetables you are cultivating?

1. Name one HYV of each of them?
2. The best season for planting them
3. Seed rate of these vegetables
4. The NPK fertilizers to be used
5. Name one Pest/ disease affecting them
6. The chemical/ Mechanical method used for its control.

APPENDIX V (a)

Social Cost Index Value (SCIV) of farmers of KHDP SHGs

0.442	0.493	0.491	0.453	0.429	0.367	0.400	0.427	0.465	0.412	0.339	0.491	0.410	0.430	0.515
0.485	0.469	0.441	0.471	0.290	0.462	0.503	0.475	0.416	0.517	0.483	0.322	0.389	0.359	0.505
0.396	0.311	0.423	0.443	0.276	0.346	0.285	0.449	0.355	0.435	0.528	0.501	0.318	0.414	0.408
0.523	0.367	0.304	0.400	0.433	0.377	0.408	0.356	0.437	0.449	0.304	0.404	0.376	0.571	0.411
0.464	0.393	0.344	0.338	0.386	0.325	0.246	0.400	0.319	0.353	0.297	0.382	0.246	0.276	0.246
0.373	0.415	0.393	0.381	0.440	0.309	0.276	0.566	0.378	0.289	0.255	0.414	0.268	0.352	0.478
0.407	0.408	0.297	0.346	0.385	0.346	0.353	0.476	0.448	0.395	0.248	0.476	0.480	0.393	0.473
0.407	0.248	0.423	0.239	0.366	0.407	0.338	0.442	0.318	0.396	0.434	0.423	0.269	0.365	0.290
0.276	0.374	0.269	0.470	0.476	0.398	0.352	0.452	0.490	0.416	0.428	0.366	0.435	0.428	0.360
0.324	0.395	0.338	0.427	0.519	0.519	0.408	0.512	0.491	0.548	0.553	0.318	0.372	0.358	0.318
0.421	0.498	0.398	0.344	0.429	0.408	0.456	0.436	0.394	0.305	0.434	0.468	0.436	0.450	0.516
0.267	0.338	0.400	0.241	0.407	0.344	0.436	0.387	0.352	0.542	0.568	0.415	0.324	0.560	0.276

APPENDIX V (b)
Social Benefit Index Value (SBIV) of farmers of KHDP SHGs

0.781	0.629	0.670	0.598	0.689	0.661	0.734	0.749	0.687	0.681	0.745	0.745	0.779	0.751	0.670
0.659	0.688	0.545	0.610	0.609	0.643	0.556	0.570	0.614	0.607	0.695	0.631	0.588	0.554	0.695
0.646	0.648	0.603	0.599	0.695	0.544	0.538	0.557	0.523	0.611	0.602	0.638	0.583	0.683	0.571
0.612	0.527	0.552	0.552	0.611	0.612	0.539	0.651	0.595	0.541	0.517	0.508	0.517	0.614	0.598
0.715	0.750	0.807	08671	0.795	0.870	0.866	0.868	0.652	0.707	0.719	0.690	0.862	0.721	0.827
0.713	0.869	0.746	0.653	0.819	0.791	0.845	0.834	0.788	0.608	0.752	0.779	0.779	0.703	0.892
0.782	0.616	0.856	0.696	0.761	0.861	0.666	0.896	0.628	0.830	0.878	0.645	0.585	0.759	0.737
0.736	0.718	0.673	0.788	0.687	0.604	0.596	0.610	0.726	0.893	0.757	0.680	0.684	0.742	0.674
0.651	0.699	0.740	0.686	0.700	0.807	0.614	0.802	0.751	0.649	0.770	0.638	0.753	0.758	0.646
0.694	0.690	0.690	0.750	0.735	0.732	0.578	0.686	0.662	0.529	0.749	0.695	0.779	0.704	0.685
0.814	0.773	0.763	0.846	0.818	0.760	0.826	0.641	0.656	0.694	0.803	0.762	0.592	0.753	0.747
0.799	0.727	0.799	0.719	0.733	0.805	0.653	0.712	0.691	0.724	0.675	0.669	0.627	0.606	0.636

APPENDIX V (c)

Social Cost Index Value (SCIV) of farmers of IVDP SHGs

0.395	0.429	0.422	0.434	0.479	0.454	0.450	0.464	0.485	0.497	0.338	0.494	0.455	0.359	0.375
0.525	0.515	0.574	0.527	0.482	0.426	0.414	0.503	0.498	0.437	0.285	0.434	0.476	0.503	0.410
0.537	0.423	0.464	0.499	0.448	0.449	0.468	0.423	0.411	0.386	0.480	0.419	0.326	0.485	0.373
0.491	0.583	0.545	0.492	0.420	0.506	0.464	0.527	0.476	0.316	0.352	0.382	0.462	0.394	0.434
0.381	0.311	0.276	0.393	0.353	0.353	0.276	0.332	0.424	0.457	0.332	0.423	0.445	0.324	0.314
0.491	0.534	0.421	0.413	0.474	0.411	0.469	0.451	0.484	0.485	0.469	0.304	0.316	0.222	0.405
0.421	0.366	0.303	0.450	0.377	0.353	0.332	0.616	0.380	0.393	0.220	0.414	0.415	0.365	0.367
0.353	0.353	0.367	0.334	0.234	0.304	0.360	0.278	0.264	0.297	0.443	0.506	0.248	0.393	0.367
0.352	0.480	0.366	0.546	0.518	0.456	0.415	0.518	0.601	0.450	0.400	0.436	0.524	0.524	0.352
0.380	0.478	0.373	0.476	0.552	0.560	0.494	0.525	0.518	0.576	0.553	0.352	0.476	0.524	0.331
0.578	0.475	0.559	0.512	0.529	0.456	0.530	0.435	0.461	0.419	0.446	0.456	0.640	0.426	0.475
0.503	0.517	0.477	0.482	0.324	0.476	0.444	0.402	0.506	0.531	0.408	0.484	0.373	0.476	0.352

APPENDIX V (d)

Social Benefit Index Value (SBIV) of farmers of IVDP SHGs

0.539	0.601	0.528	0.567	0.661	0.524	0.642	0.618	0.427	0.609	0.564	0.415	0.706	0.565	0.665
0.653	0.645	0.605	0.663	0.664	0.737	0.664	0.606	0.651	0.637	0.758	0.634	0.644	0.579	0.768
0.675	0.558	0.553	0.642	0.673	0.582	0.692	0.660	0.623	0.516	0.582	0.752	0.593	0.603	0.553
0.625	0.723	0.659	0.581	0.762	0.880	0.570	0.550	0.587	0.696	0.614	0.644	0.656	0.684	0.606
0.601	0.653	0.656	0.629	0.681	0.603	0.648	0.630	0.573	0.673	0.665	0.509	0.721	0.609	0.709
0.627	0.647	0.665	0.526	0.763	0.624	0.537	0.659	0.703	0.726	0.694	0.709	0.618	0.613	0.614
0.707	0.566	0.617	0.674	0.750	0.634	0.638	0.548	0.574	0.696	0.620	0.616	0.511	0.695	0.669
0.705	0.717	0.678	0.676	0.740	0.708	0.732	0.665	0.656	0.724	0.790	0.664	0.708	0.755	0.671
0.546	0.621	0.690	0.577	0.576	0.761	0.497	0.750	0.707	0.563	0.702	0.553	0.687	0.669	0.595
0.578	0.576	0.566	0.699	0.631	0.658	0.485	0.553	0.548	0.493	0.683	0.605	0.724	0.616	0.599
0.686	0.704	0.636	0.628	0.643	0.606	0.597	0.605	0.665	0.678	0.694	0.723	0.728	0.632	0.696
0.447	0.628	0.563	0.655	0.551	0.628	0.515	0.615	0.586	0.502	0.543	0.645	0.597	0.628	0.587

APPENDIX V (e)

Benefit – Cost ratio of farmers of KHDP SHGs

1.767	1.276	1.365	1.320	1.606	1.801	1.835	1.754	1.477	1.653	2.198	1.517	1.900	1.747	1.301
1.359	1.467	1.236	1.295	2.100	1.392	1.105	1.200	1.476	1.174	1.439	1.960	1.512	1.543	1.376
1.631	2.084	1.426	0.352	2.518	1.572	1.888	1.241	1.473	1.405	1.140	1.273	1.833	1.650	1.400
1.170	1.436	1.816	1.380	1.411	1.623	1.321	1.829	1.362	1.205	1.701	1.257	1.375	1.075	1.455
1.541	1.908	2.055	1.985	2.060	2.062	3.520	1.920	1.730	2.003	2.421	1.283	3.504	2.612	3.362
1.912	1.612	1.898	0.714	1.634	2.560	2.699	1.297	2.085	2.104	2.949	1.882	2.907	1.997	1.448
1.921	1.510	2.209	2.012	1.977	1.910	1.887	1.252	1.402	1.848	2.734	1.355	1.300	1.931	1.558
1.808	2.895	1.591	3.297	1.877	1.484	1.763	1.380	1.969	1.750	1.744	1.608	2.543	2.033	2.324
2.359	1.869	2.751	1.460	1.471	2.028	1.744	1.774	1.533	1.560	1.799	1.743	1.731	1.771	1.794
2.142	1.747	2.041	1.756	1.416	1.410	1.417	1.340	1.348	0.965	1.354	2.186	2.094	1.966	2.154
1.933	1.552	1.917	2.459	1.907	1.863	1.811	1.470	1.665	2.275	1.880	1.628	1.358	1.673	1.448
2.993	2.151	1.998	2.983	1.801	2.340	1.498	1.840	1.963	1.336	1.188	1.612	1.935	1.082	2.304

APPENDIX V (f)

Benefit Cost ratio of farmers of IVDP SHGs

1.365	1.401	1.251	1.306	1.380	1.480	2.568	1.332	0.880	1.225	1.669	0.840	1.552	1.574	1.773
1.244	1.252	1.054	1.258	1.378	1.730	1.604	1.205	1.636	1.458	2.660	1.461	1.353	1.151	1.873
1.257	1.319	1.192	1.287	1.502	2.337	1.479	1.560	2.003	1.337	1.532	1.795	1.819	2.116	1.483
1.273	1.240	1.209	1.181	1.814	1.146	1.228	1.044	1.233	2.203	1.744	1.686	1.420	1.736	1.396
1.577	2.100	2.377	1.601	1.929	1.708	2.348	1.898	1.351	1.473	2.003	1.203	1.620	1.880	2.288
1.277	1.212	1.580	1.274	2.785	1.518	1.455	1.461	1.452	2.847	2.580	2.332	1.956	2.761	2.013
1.679	1.546	2.036	2.696	1.989	1.796	1.922	0.890	1.511	1.771	2.818	1.488	1.231	1.904	1.823
1.997	2.031	1.847	2.024	3.162	2.329	2.033	2.392	2.485	2.738	1.783	1.312	2.855	1.921	1.828
1.551	1.380	1.885	1.057	1.112	1.669	1.198	1.448	1.176	1.251	1.755	1.268	1.311	1.277	1.690
1.521	1.205	1.517	1.468	1.143	1.175	0.982	1.053	1.058	0.856	1.235	1.719	1.521	1.176	1.810
1.187	1.482	1.138	1.227	1.216	1.548	1.126	1.391	1.443	1.618	1.556	1.586	1.138	1.484	1.255
1.286	1.215	1.180	1.359	1.701	1.319	1.160	1.530	1.158	1.322	1.331	1.333	1.601	1.319	1.668

SOCIAL COST BENEFIT ANALYSIS IN VEGETABLE PRODUCTION PROGRAMMES IN KERALA THROUGH PARTICIPATORY APPROACH

BY

SINDHU SADANANDAN

ABSTRACT OF THE THESIS
SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR
THE DEGREE
DOCTOR OF PHILOSOPHY
FACULTY OF AGRICULTURE
KERALA AGRICULTURAL UNIVERSITY

DEPARTMENT OF AGRICULTURAL EXTENSION
COLLEGE OF AGRICULTURE
VELLAYANI
THIRUVANANTHAPURAM

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ABSTRACT

The present study 'Social Cost Benefit Analysis in Vegetable Production Programmes in Kerala through participatory approach' was aimed to analyse the Social costs and Social benefits of vegetable production programmes with special reference to KHDP and IVDP implemented through SHGs and to suggest a strategy for effective SCBA in Agricultural Development Programme to be implemented under people's plan. In line with the objectives of the study, three categories of respondents viz. farmers, scientists and extension experts were included in the study. To select farmers, multistage random sampling procedure was used. The study was conducted in three districts viz Thiruvananthapuram district from southern zone, Thrissur district from central zone and Malappuram district from Northern zone. Six taluks from three districts (two taluks from each district), twelve panchayats from six taluks (two panchayat from each taluk), and from each panchayat one SHG under KHDP and one SHG under IVDP were selected, thus constituting a total of 24 SHGs. From each SHG fifteen farmers were selected. Thus the total number of farmers selected was 360. Secondly, ten scientists, ten extension experts and ten progressive farmers each who are actively associated with the vegetable production programmes were randomly selected to delineate the dimensions of social cost and social benefit. Thus, totally 420 respondents were included in the study. The data were collected using a well-structured pre-tested interview schedule. Statistical techniques such as mean, percentage analysis, correlation, Principal Component Analysis and 't' test were used to analyse the data.

Six dimensions of social cost viz. perishability, conversion of paddy land, displacement of agricultural labourers, exploitation by middlemen, time constraint and involvement at the cost of education and eight dimensions of social benefit viz. family labour utilization, increased living standard, self confidence, dignity of farmers, equity, satisfaction, sociability and knowledge in vegetable cultivation were delineated using Nominal Group Technique and Policy Delphi Technique and these dimensions formed the dependent variables of the study. Dimensions, exploitation by middlemen, displacement of agricultural labourers and time constraint among social costs and dignity of farmers, sociability, satisfaction and self confidence among social benefits contributed higher magnitude of variation. Among the selected three districts, Thrissur district had the maximum Benefit Cost ratio in case of KHDP as well as IVDP. Malappuram district had the maximum percentage of respondents who had experienced maximum social costs and least social benefits where as Thrissur district has the maximum percentage of respondents who had experienced maximum social benefits and least social costs. The study also revealed that the two group members (KHDP and IVDP) significantly differ with respect to independent variables namely experience in commercial vegetable production, risk orientation, management orientation, market perception, extension orientation, group cohesion, credit orientation and lack of marketing and storage facilities, dimensions of social cost such as conversion of paddy land, exploitation by middlemen and dimensions of social benefit viz. increased living standard, equity and knowledge in vegetable production. Based on the results of the study, a strategy is suggested for effective SCBA in ADP to be implemented under people's plan.